B. AESTHETICS

The Setting discussion in this section presents and describes photographic views of existing visual conditions of the project site and its surroundings; identifies existing scenic vistas and scenic resources in the areas that could be potentially affected by the proposed project; and describes the existing visual character of the 706 Mission Street project site and its surroundings.

The Impacts discussion in this section identifies the considerations applied when evaluating the significance of impacts on visual quality, and describes and evaluates impacts on visual resources and visual quality with reference to visual simulations of the proposed project. This section also considers whether the proposed project in combination with other reasonably foreseeable development projects in the vicinity of the project site would make a considerable contribution to cumulative environmental impacts related to aesthetics.

SETTING

PHOTOGRAPHIC VIEWS

To illustrate existing visual conditions at the project site and its surroundings and to assess the proposed project's aesthetic impact, photographic views from ten locations are presented. Figure IV.B.1: Viewpoint Locations, shows the ten locations from which long-range, mid-range, and short-range photographic views have been taken. These views are taken from publicly accessible, pedestrian-level, vantage points around the project site. They are representative of a range of views from points around the project site from which the proposed project would be most prominent, or represent important public views of the downtown core and the project site as seen from popular public gathering places (like Dolores Park and the upper terrace at Yerba Buena Gardens).

In Figures IV.B.2 through IV.B.11, each existing view (denoted as "Existing") is presented along with the same view on which is superimposed a visual simulation of the proposed project for comparison (denoted as "Proposed"), to be discussed later in this section under Impacts.

Long-Range Photographic Views

The project site is located at the southwest edge of the San Francisco's downtown high-rise core, and is surrounded by dense downtown development to the west, north, and east. Existing high-rise buildings at this edge are not prominent when viewed from the west, north and east, if visible at all.

SOURCE: Turnstone Consulting

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FIGURE IV.B.1: VIEWPOINT LOCATIONS

See Figure IV.B.2: View A - View of Downtown from Dolores Park, Looking Northeast (Existing). In this view, the downtown core is visible in the distance (the 52-story Bank of America Tower is about 2.6 miles away) beyond the park lawn in the foreground, and the Mission Dolores and South of Market neighborhoods in the middle ground.[1] The East Bay Hills are visible rising in the distant background (about 13 miles away). The 54-story One Rincon Hill tower is a prominent visual presence outside of the downtown core atop Rincon Hill, three blocks south of Mission Street.

See also Figure IV.B.3: View B - View of Downtown from Highway 101 at 17th Street, Looking North (Existing), on p. IV.B.5. In this view, the downtown core is visible in the distance (the Bank of America Tower is about 1.9 miles away). The existing 10-story Aronson Building on the project site, where visible at all in this long-range view, is not prominent, although nearby high-rises (like the 39-story San Francisco Marriott Hotel [the Marriott] to the west of the project site, the 35-story Westin to the north of the project site [the Westin], and the 43-story Paramount residences [the Paramount] to the east of the project site) are recognizable in the distance. The One Rincon Hill tower is a prominent presence outside of the downtown core atop Rincon Hill, three blocks south of Mission Street.

Mid-Range Photographic Views from the South and Southwest

High-rise buildings near the southwestern edge of the downtown core are prominent when viewed from the south and southwest.

See Figure IV.B.4: View C - View to Project Site Along Third Street, Looking North (Existing), on p. IV.B.6. In this view, the Aronson Building is visible rising beyond the vegetation within the Yerba Buena Gardens open space and the two-story Yerba Buena Center for the Arts Building. The low-rise horizontal volume of the three-story Moscone Convention Center defines the west side of this segment of Third Street and directs the eye toward the Aronson Building. The Marriott, the 40-story Four Seasons Hotel and Residences (the Four Seasons), and the Westin rise prominently in the background in this view.

See Figure IV.B.5: View D - View to Project Site from the Intersection of Fourth Street and Folsom Street, Looking Northeast (Existing), on p. IV.B.7. In this street-level view from the

[1] Note: In this section, building heights in stories (or feet as may be appropriate) are given in the text of this section at the first mention of a particular building. Building heights are also provided on each of the existing photographic views in the figures of this section.

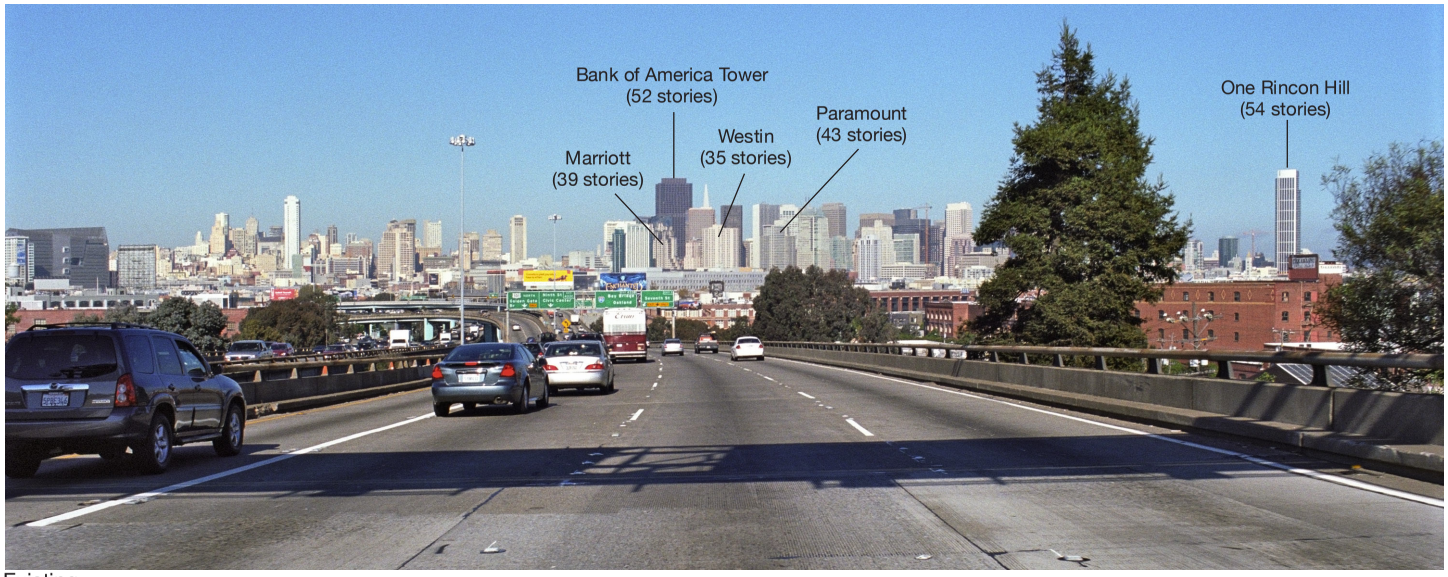
Existing

Proposed

SOURCE: Square One Productions

NOTE: The design shown is conceptual and is subject to revision and further refinement.

FIGURE IV.B.2: VIEW A - VIEW OF DOWNTOWN FROM DOLORES PARK, LOOKING NORTHEAST



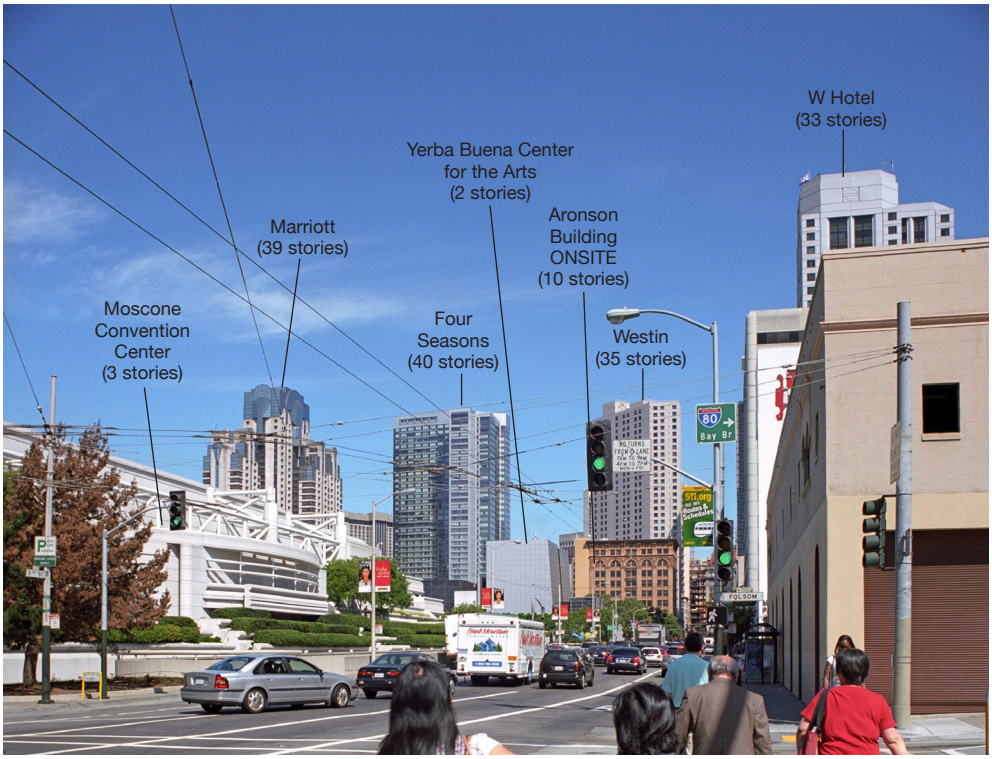
Existing

Proposed

SOURCE: Square One Productions

NOTE: The design shown is conceptual and is subject to revision and further refinement.

FIGURE IV.B.3: VIEW B - VIEW OF DOWNTOWN FROM HIGHWAY 101 AT 17TH STREET, LOOKING NORTH



Existing

Proposed

SOURCE: Square One Productions

NOTE: The design shown is conceptual and is subject to revision and further refinement.

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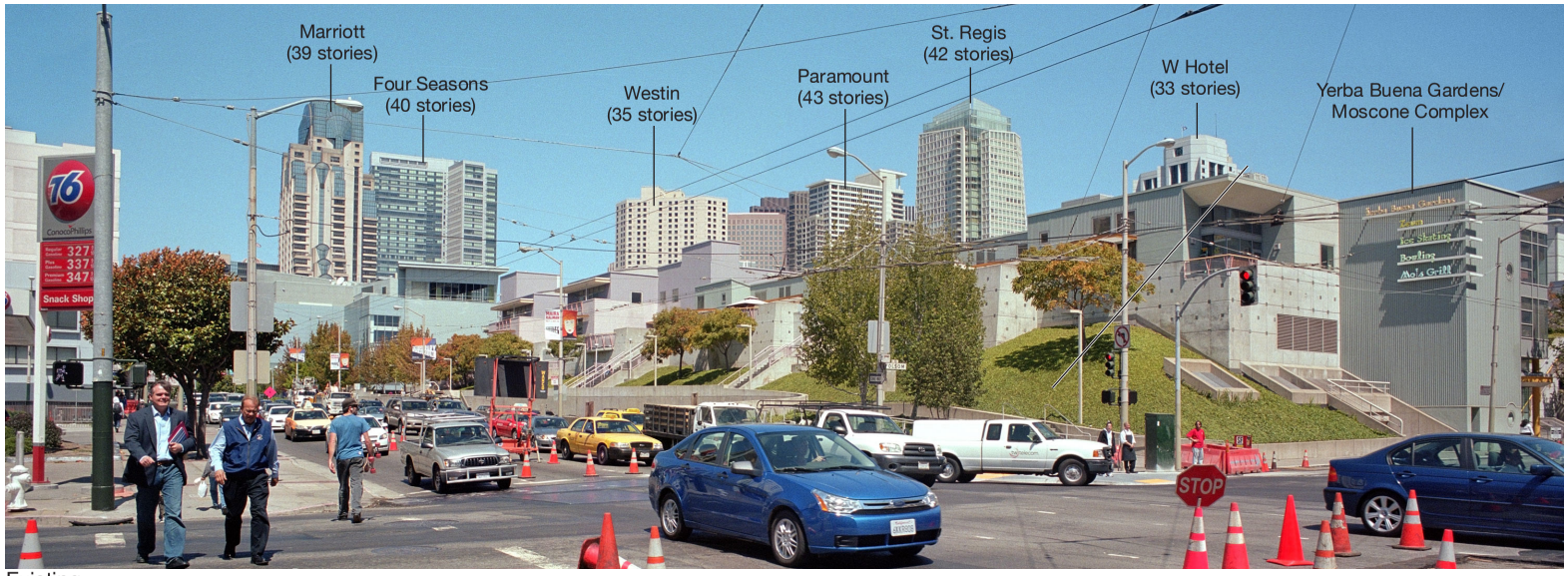
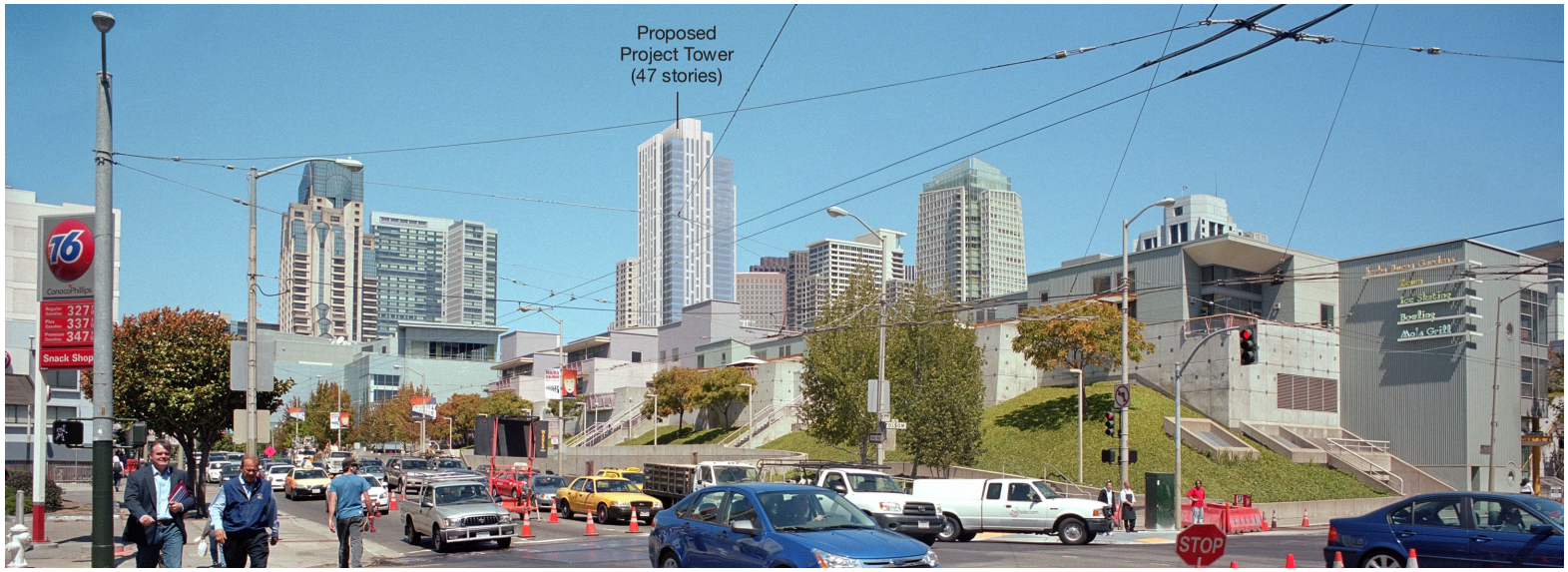
FIGURE IV.B.4: VIEW C - VIEW TO PROJECT SITE ALONG THIRD STREET, LOOKING NORTH



Existing



Proposed

SOURCE: Square One Productions

NOTE: The design shown is conceptual and is subject to revision and further refinement.

FIGURE IV.B.5: VIEW D - VIEW TO PROJECT SITE FROM THE INTERSECTION OF FOURTH STREET AND FOLSOM STREET, LOOKING NORTHEAST

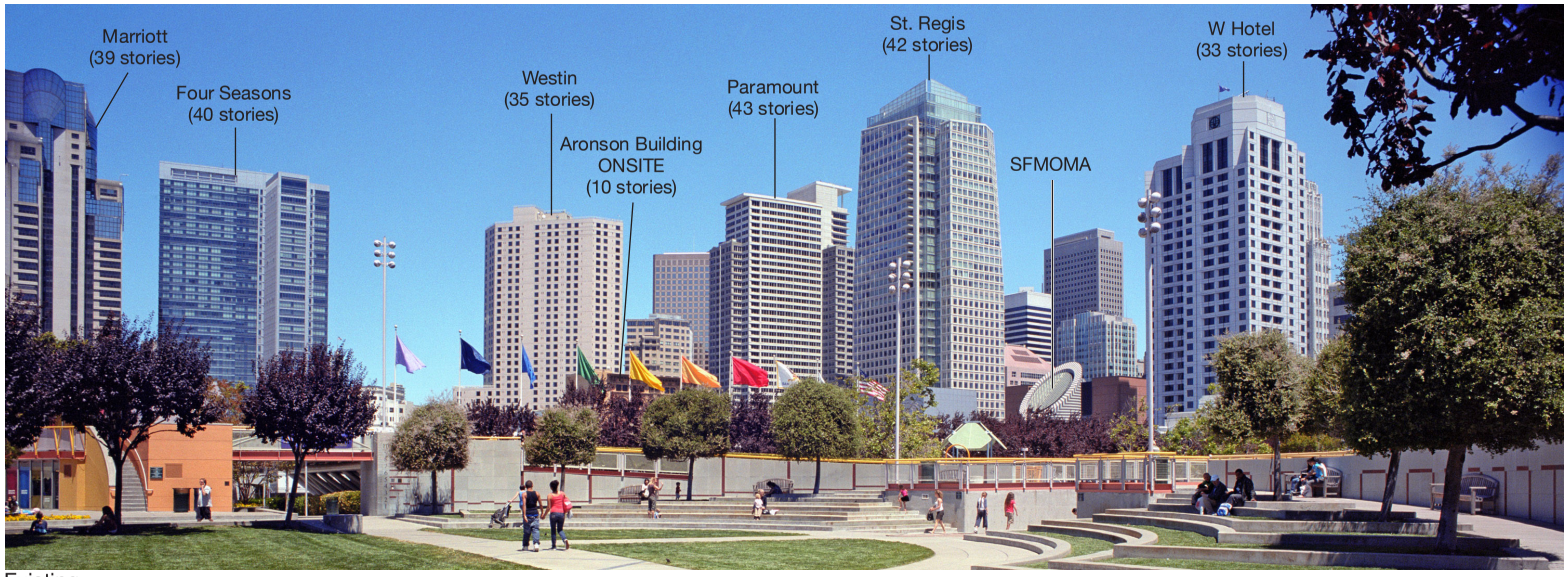
intersection of Fourth and Howard Street, the Aronson Building is obstructed by the buildings of the Yerba Buena Center for the Arts. The Marriott, the Four Seasons, the Westin, the Paramount, the 42-story St. Regis San Francisco (the St. Regis), and the 33-story W San Francisco hotel (the W Hotel) rise in the background.

See Figure IV.B.6: View E - View to Project Site from Rooftop Open Space at Yerba Buena Gardens, Looking Northeast (Existing). In this view from the rooftop open space at Moscone Center South, the Aronson Building is visible but not prominent, obstructed by rooftop structures and screened by rooftop vegetation. The Marriott, the Four Seasons, the Westin, the Paramount, the St. Regis, and the W Hotel rise prominently in the background in this view.

See Figure IV.B.7: View F - View to Project Site from the Upper Terrace at Yerba Buena Gardens, Looking North (Existing), on p. IV.B.10. In this view from the elevated upper terrace of Yerba Buena Gardens (south of the Yerba Buena Gardens lawn), the Aronson Building is visible rising beyond vegetation within the Yerba Buena Gardens open space. The 108-foot-tall St. Patrick's Church and the 49-foot-high façade of the Jessie Street Substation (now the Contemporary Jewish Museum) are visible to the west (left in this view) of the Aronson Building on the project site. Rising prominently beyond these historic buildings on the same block are the Four Seasons, the Westin, and the Paramount.

Mid-Range Photographic Views Along Mission Street

See Figure IV.B.8: View G - View to Project Site Along Mission Street, Looking West (Existing), on p. IV.B.11. In this view the Aronson Building is seen in the distance along the north side of Mission Street. The view along Mission Street looking westward is framed by tall buildings on both sides of Mission Street (e.g., the 33-story 555 Mission Street office building, the 31-story 560 Mission Street office building, and further down Mission Street, the St. Regis and the Paramount). Despite the high degree of visual heterogeneity among buildings in the vicinity of the project site, west-facing views along Mission Street of the project site and its surroundings are characterized by a discernible pattern and sense of visual coherence due to the maintenance of a generally continuous street wall along Mission Street and the oblique angle of such views. The street wall frames, contains, and directs views along the Mission Street view corridor. Continuity between buildings of varying heights, widths, architectural styles, and materials is maintained with recurring horizontal elements that draw the eye across the façades (e.g., band courses, spandrels, cornices, etc.). These often align with horizontal elements on adjacent façades, reinforcing a sense of linear perspective and drawing the eye down the street to where the lines converge at a "vanishing point" in the distance. Ground floors along Mission Street are often transparent and oriented to pedestrians. Under clear weather conditions, long-range, west-facing views of Twin Peaks are available along the Mission Street view corridor, as discussed below under "Potentially Affected Scenic Vistas," on pp. IV.B.16-IV.B.17.



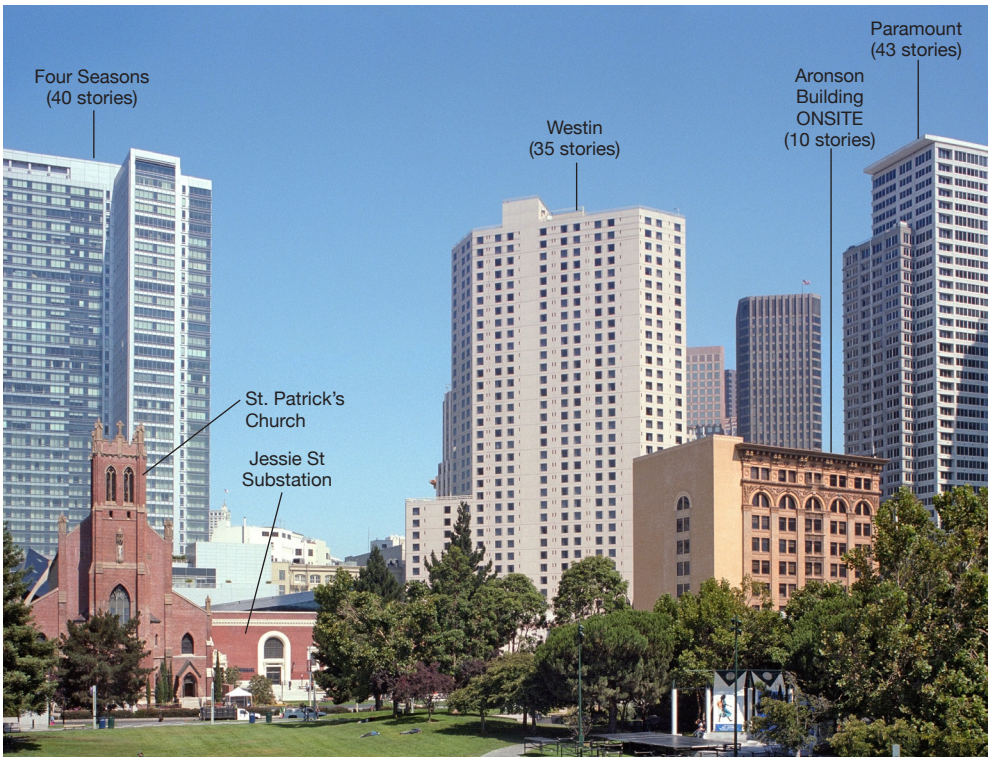
Existing

Proposed

SOURCE: Square One Productions

NOTE: The design shown is conceptual and is subject to revision and further refinement.

FIGURE IV.B.6: VIEW E - VIEW TO PROJECT SITE FROM ROOFTOP OPEN SPACE AT YERBA BUENA GARDENS, LOOKING NORTHEAST



Existing

Proposed

SOURCE: Square One Productions

NOTE: The design shown is conceptual and is subject to revision and further refinement.

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FIGURE IV.B.7: VIEW F - VIEW TO PROJECT SITE FROM THE UPPER TERRACE AT YERBA BUENA GARDENS, LOOKING NORTH

Existing

Proposed

SOURCE: Square One Productions

NOTE: The design shown is conceptual and is subject to revision and further refinement.

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FIGURE IV.B.8: VIEW G - VIEW TO PROJECT SITE ALONG MISSION STREET, LOOKING WEST

See Figure IV.B.9: View H - View to Project Site Along Mission Street, Looking East (Existing). In this view the Aronson Building is seen along the north side of Mission Street. The largely blank west wall of the 10-story 1978 west annex to the Aronson Building is prominent. The tower of the landmark red brick St. Patrick's Church prominently fronts on Mission Street, separated from the Aronson Building by the vacant Mexican Museum parcel on the project site and by the Jessie Square landscaped public plaza. The Contemporary Jewish Museum is not visible in this view, as it is set back from Mission Street and located at the north end of Jessie Square. The Westin, the Paramount, and the St. Regis rise in the background in this view. Although obscured by vegetation from this particular viewpoint, under clear weather conditions, long-range, east-facing views toward the terminus of Mission Street are available along the Mission Street view corridor, as discussed below under "Potentially Affected Scenic Vistas," pp. IV.B.16-IV.B.17.

Short-Range Photographic Views

See Figure IV.B.10: View I - View to Project Site Along Mission Street, Looking Northwest (Existing), on p. IV.B.14. The Aronson Building is a prominent and architecturally distinctive visual presence in the area, as discussed later in this section and more fully described in Section IV.D, Cultural and Paleontological Resources. At its corner location at Mission and Third Streets, the Aronson Building presents a finished and ornamented front facade to those streets. Further west along Mission Street on the project block, St. Patrick's Church is visible. Beyond the church at the western end of the project block is the Marriott, stepping successively back from Mission Street atop a six-story podium base. To the east of the Aronson Building (right in this view), across Third Street, is the three-story podium base of the Paramount. Diagonally across the Mission and Third Streets intersection is the nine-story Williams Building (left in this view). The Yerba Buena Center for the Arts is visible to the south of the Aronson Building across Mission Street. Further west along Mission Street, the four-story Metreon is visible.

See Figure IV.B.11: View J - View to Project Site from Third Street, Looking Southwest (Existing), on p. IV.B.15. In this view from the east side of Third Street, the Aronson Building's east and north facades are visible. As a side-facing wall, rather than a street-facing wall, the north façade was constructed to anticipate a neighboring building immediately to the north. It is common red brick and is flat and unadorned. Fenestration at the upper floors is simple and utilitarian. In this view the two 1978 annexes on the north and west walls of the Aronson Building are visible. To the north of the project site is a publicly accessible open space that provides pedestrian access from Third Street to Jessie Square. Further north (far right in this view) is the podium base of the Westin.

Existing

Proposed

SOURCE: Square One Productions

NOTE: The design shown is conceptual and is subject to revision and further refinement.

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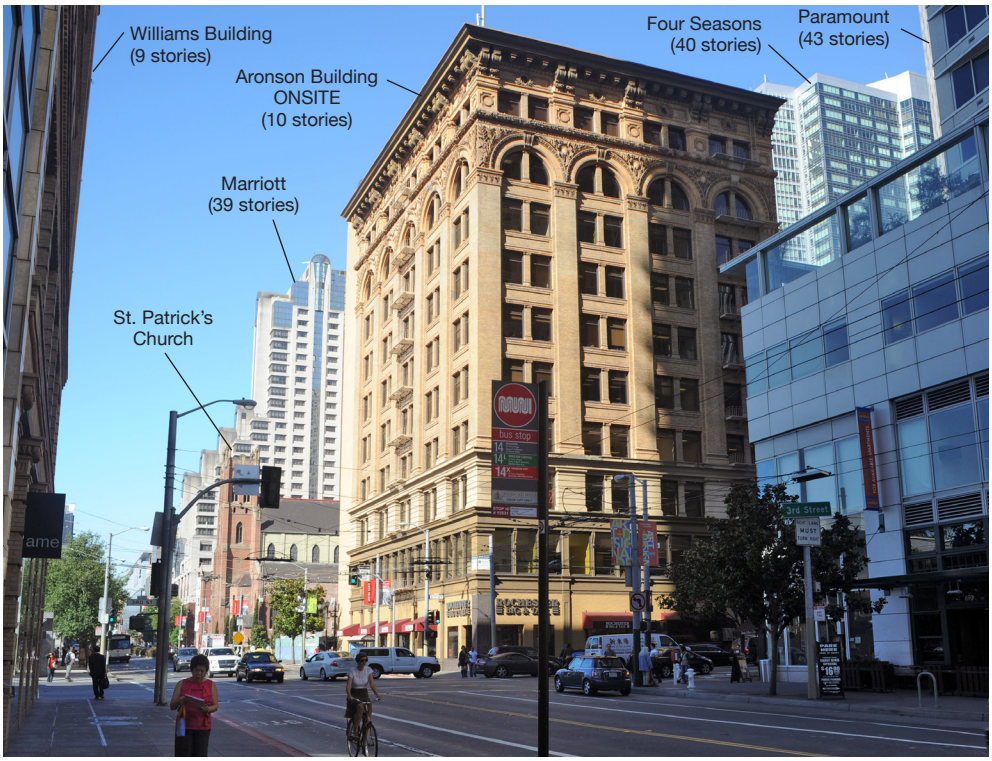
FIGURE IV.B.9: VIEW H - VIEW TO PROJECT SITE ALONG MISSION STREET, LOOKING EAST



Existing

Proposed

SOURCE: Square One Productions

NOTE: The design shown is conceptual and is subject to revision and further refinement.

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FIGURE IV.B.10: VIEW 1 - VIEW TO PROJECT SITE ALONG MISSION STREET, LOOKING NORTHWEST

Existing

Proposed

SOURCE: Square One Productions

NOTE: The design shown is conceptual and is subject to revision and further refinement.

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FIGURE IV.B.11: VIEW J - VIEW TO PROJECT SITE FROM THIRD STREET, LOOKING SOUTHWEST

POTENTIALLY AFFECTED SCENIC VISTAS

Long-Range Scenic Vistas of Downtown

Long-range views of the downtown skyline are considered scenic vistas for the purposes of this analysis. As discussed above, scenic vistas of downtown viewed from the south and southwest have greater potential to be affected by the proposed project than those from other directions.

A general pattern of densely clustered high-rise development in the downtown core, tapering off to mid-rise and low-rise development at its periphery, characterizes San Francisco's skyline within long-range views. See Figure IV.B.2 (Existing) on p. IV.B.4 and Figure IV.B.3 (Existing) on p. IV.B.5. This compact urban form signifies the downtown as the center of commerce and activity. Yet despite its clarity of form, the downtown core is neither smooth nor uniform. A range of building heights in the downtown creates gaps, peaks, dips and variety within this pattern, allowing taller buildings and building tops to stand out in profile against the sky. This tension between conformity and variety in the skyline results in a readable and recognizable visual identity for downtown San Francisco.

The Bay Bridge/Interstate 80 through San Francisco is an Eligible State Scenic Highway (although not officially designated).[2] The west span of the Bay Bridge (particularly the westbound upper deck) offers motorists scenic vistas of San Francisco within the regional context of San Francisco Bay, islands in the Bay, the Golden Gate Bridge, and distant landforms of Marin County. The existing high-rise buildings in the vicinity of the project site at the southwestern edge of the downtown high-rise core are not prominent in sustained views looking west from the Bay Bridge, because they are obscured by intervening development at the south end of the downtown high-rise core. Traveling further westward over land on the elevated Interstate 80 and looking northwest, high-rise buildings in the vicinity of the project site become intermittently visible in the skyline.

The Mission Street View Corridor

Street-level scenic vistas in the densely developed downtown core are generally defined and framed by view corridors created by streets. North-facing views along Third Street are limited by the terminus of Third Street at Market Street, which forms the boundary between the north-of-Market and south-of-Market Street grid systems. South-facing views along Third Street are limited by the elevated Interstate 80 freeway that crosses over Third Street three blocks south of

[2] California Department of Transportation, California Scenic Highway Mapping System. Available online at http://www.dot.ca.gov/hq/LandArch/scenic_highways/index.htm. Accessed May 3, 2012.

the project site. For these reasons, views along Third Street are not considered scenic vistas for the purposes of this analysis.

The Mission Street view corridor is uninterrupted by overcrossings and offers distant east- and west-facing views directed and framed by existing development lining both sides of Mission Street. See Figure IV.B.8 (Existing) on p. IV.B.11 and Figure IV.B.9 (Existing) on p. IV.B.13. Looking east from the project site, Mission Street offers a distant view toward the terminus of Mission Street. Under clear weather conditions, Yerba Buena Island is visible in the distance with the East Bay Hills rising beyond. Looking west, Mission Street offers a distant view of Twin Peaks under clear weather conditions.

Scenic Vistas from Yerba Buena Gardens

The Yerba Buena Gardens is a popular destination and gathering place for City residents, tourists, and downtown office workers. It offers views across landscaped public space against a backdrop of prominent high-rise buildings at the southwest edge of the downtown core. See Figure IV.B.6 (Existing) on p. IV.B.9 and Figure IV.B.7 (Existing) on p. IV.B.10. Views of the Aronson Building on the project site, St. Patrick's Church, and the Jessie Street Substation are also available from Yerba Buena Gardens.

VISUAL CHARACTER OF THE PROJECT SITE AND ITS SURROUNDINGS

Project Site

The flat, roughly rectangular project site is on the northwest corner of Mission and Third Streets, with 227 feet of frontage along Mission Street and 105 feet of frontage along Third Street. The project site contains no geologic features exposed to view.

The Aronson Building

The southeastern portion of the project site is occupied by the 10-story, 154-foot-tall Aronson Building (a 144-foot-tall building with a 10-foot-tall mechanical penthouse). See Figure IV.B.10 (Existing) on p. IV.B.14 and Figure IV.B.11 (Existing) on p. IV.B.15. The building was originally constructed in 1903, and two annexes were added during in 1978. The Historic Resource Evaluation (HRE), undertaken as part of the environmental review of the proposed project, provides a physical description of the Aronson Building's visual qualities as follows:

> In addition to its overall architectural significance as an embodiment of the First Chicago School, the Aronson Building embodies high artistic values. Its carved sandstone and terra cotta ornament exceeds the general level of comparable commercial buildings, not only in the South of Market Area, but also throughout downtown San Francisco. Its architectural terra cotta embodies a sophisticated

> handling of the materials to depict naturalistic motifs, including olive branches, bundled leaves, and classical moldings such as egg-and-dart moldings, cartouches, and other imagery. The terra cotta was manufactured by the Gladding McBean Company of Lincoln, one of America's oldest and most-respected maker of architectural terra cotta. Founded in 1875, Gladding McBean is still in business and retains many of the molds for its projects from a century ago. The process of making the architectural terra cotta molds involved significant artistry and craftsmanship, and with its abundant terra cotta ornament, the Aronson Building's exterior serves as a showcase for the company's wares, as well as the design abilities of its architect.[3]

1978 Annexes

On the west side of the Aronson Building is a 10-story west annex that was added in 1978. An approximately 20-foot-wide-by-85-foot-long pedestrian walkway runs along the west side of the annex. At the northeast corner of the Aronson Building is a three-story north annex that was also added in 1978. These features do not contribute to the distinctive aesthetic and architectural character of the Aronson Building. To the north of the Aronson Building and to the west of the 3-story north annex is an approximately 20-foot-wide-and-100-foot-long driveway.

Trees

As discussed in "Vegetation" in Section IV.M, Biological Resources, on p. IV.M.1, the project site contains one significant tree[4] (avocado) adjacent to the northwest corner of the Aronson Building. Adjacent to the project site, there is one street tree (magnolia) on Mission Street. These trees are not individually prominent or venerable, and together do not comprise a coherent and distinguished landscape setting.

Lot 277

West of the Aronson Building property, and also within the project site, is a portion of Lot 277. This portion of Lot 277 is vacant, paved, and surrounded by a plywood barrier. It contains a two-level subsurface structure. There is no open space or vegetation on the lot.

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[3] Knapp & VerPlanck Preservation Architects, *Historic Resource Evaluation: The Aronson Building*, April 24, 2011, p. 66. A copy of this document is available for review at the Planning Department, 1650 Mission Street, Suite 400, San Francisco, California, as part of Case File No. 2008.1084E.

[4] 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 12 inches in diameter at breast height.

Surrounding Visual Context of the Project Block

The project block is bounded by Fourth Street to the west, Market Street to the north, Third Street to the east and Mission Street to the south. See Figure II.7: Project Location and Nearby Land Uses, on p. II.17. The project block is located at the southwest edge of the San Francisco's downtown high-rise core, and is surrounded by the dense and varied downtown development to the west, north, and east. In contrast, the landscaped open spaces and low-rise (one- to four-story) buildings of the Yerba Buena Gardens/Moscone Center complex to the south and southwest of the project site provide a visual contrast, defining a clear edge to the downtown high-rise core in the vicinity of the project. For this reason, downtown building heights tend to drop off abruptly at this edge, and high-rise buildings along this edge are prominent when viewed from the south and southwest. The surrounding visual setting of the project site is varied in character. Building massing, scale, materials, and architectural character (with respect to age and architectural style) do not conform to any strongly discernible overall pattern at this southwest edge of the downtown high-rise core.

Jessie Square, Jessie Street Substation, and St. Patrick's Church

On the project block immediately to the west of the project site is Jessie Square, a public plaza. The plaza opens to the north side of Mission Street. The plaza is flat and open, mostly paved and includes a water feature and seating. It is sparely planted with trees and areas of grass. The visual character of the plaza is defined primarily by the visually distinctive buildings that bound the plaza to its north and west. To the east, Jessie Square is bounded by the plywood barrier that encloses the portion of Lot 277 on the project site. See Figure IV.B.9 (Existing) on p. IV.B.13.

Bounding the north end of the plaza, the Jessie Street Substation (now the Contemporary Jewish Museum) forms the backdrop to the plaza. The Jessie Street Substation was built in 1907 (City Landmark No. 87). Designed by Willis Polk, the original building façade is red brick embellished with classical revival features of white glazed terra cotta. The façade is strongly rectilinear and horizontal in overall form. The 2005 development of the Contemporary Jewish Museum within the Jessie Street Substation is visible above the roofline of the landmark building and at the western end of the building. The new features appear as intersecting angular forms clad in dark-colored sheet metal. Although these features contrast with the architectural character of the landmark, they do not visually detract from or obscure the basic exterior form or features of the landmark.

Bounding the west end of the plaza is the red brick, St. Patrick's Church, originally built in 1872 and reconstructed in 1906 (City Landmark No. 4). The church is built in the gothic revival style and includes a center steeple (about 108 feet tall) along Mission Street, flanked to the east and west by side aisles each with a roof sloping upward to a clerestory level. The eastern aisle

portion of the church (about 49 feet tall below the clerestory level) provides a horizontal visual counterpart to the Jessie Street Substation façade of similar height, visually enclosing and defining the west end of the plaza. Immediately to the west of the church building is the five-story church rectory.

The Westin

Immediately to the north of the project site is a privately owned publicly accessible open space on the Westin property, offering pedestrian access from Third Street to Jessie Square during limited hours. The open space is gated along Third Street and is planted with trees and areas of grass. Further north is the Westin. The Westin tower sits atop its three-story podium base. The tower's diagonal orientation on its site presents a prominent and broad unarticulated expanse of façade to the southwest. The height and scale of the Westin limits visual continuity and interaction between the project site and buildings further north along Third Street on the project block.

Other Prominent Features on the Project Block

Rising prominently at the north end of the project block, visible beyond Jessie Square, the Jessie Street Substation, and St. Patrick's Church, is the Four Seasons. This building presents a prominent and broad expanse of façade to the south. Fenestration is horizontal in orientation with horizontal bands of windows and alternating with horizontal spandrel bands. A vertical component projects southward from the main south façade plane to provide a vertical counterpoint.

At the opposite end of the project block, at the southwestern corner of the project block is the Marriott. The "postmodern" style of this 1989 building provides a distinctive and recognizable presence in the skyline characterized by a play of lines and forms.

Surrounding Visual Context in Adjacent Blocks

To the West

West of the project block, across Fourth Street, downtown building heights drop off to mid-rise development. This block contains a mix of hotel, retail, educational, and office uses housed in visually diverse mid-rise buildings (up to nine stories). Visual continuity and interaction between the project site and this block is limited by distance and the scale and character of intervening development.

To the North

North of the project block, north of Market Street, is the Union Square retail area. The Union Square area contains a concentration of distinguished historic architectural resources within the Kearny-Market-Mason-Sutter Conservation District. However, visual continuity and interaction between the project site and the Union Square area is limited by distance and the height and density of intervening development, and the termination of Third Street at Market Street (the dividing line between the South of Market and North of Market street grid patterns).

To the East

East of the project block, across Third Street, the Paramount rises above its two-story podium. The building's mass is articulated into vertically oriented subvolumes, reinforcing the overall vertical expression of the building. As a counterpoint, fenestration is horizontal in orientation with horizontal bands of windows and alternating spandrel bands. This block contains a concentration of distinguished historic architectural resources, as identified and described in the Transit Center District Survey.[5] However, the height and scale of the Paramount development limits visual continuity and interaction between the project site and other buildings on this block.

To the Southeast

Southeast of the project block, diagonally across the intersection of Mission and Third Streets, is the Williams Building (about 110 feet away). Built in 1907, this yellow brick commercial building provides an early 20th Century visual counterpart to the Aronson Building (albeit smaller in scale and less ornamented) in terms of height, scale, color, materials, and early 20th Century commercial style. The Williams Building has been incorporated into the St. Regis development. The St. Regis tower rises to the east of the Williams Building. The tower mass is tapered progressively toward the top of the building at its southeast and northwest corners. Translucent glass screens the tower's rooftop mechanical system.

South of the St. Regis, along the east side of Third Street, is the 5-story, 145-foot-tall San Francisco Museum of Modern Art (SFMOMA), built in 1995. The building façade is patterned brick, which steps back in sections. A prominent and distinctive cylindrical oculus tops the SFMOMA building. The W Hotel is at the south end of the block along Third Street. The W Hotel is light-colored concrete. Windows openings are deeply recessed lending depth and texture to the façade.

[5] Kelley & Verplanck Historical Resources Consulting, Transit Center District Survey DPR Form, New Montgomery, Mission & Second Historic District, July 23, 2008.

Further east on this block is a concentration of historic architectural resources, as identified and described in the Transit Center District Survey.[6] However, the height and scale of the intervening development along the east side of Third Street limits visual continuity and interaction between the project site and buildings further east on this block.

To the South

South of the project block, across Mission Street, is the Yerba Buena Gardens/Moscone Convention Center complex, an approximately 11-acre complex of landscaped public open space; cultural, educational, and convention facilities; and entertainment and retail uses. The complex occupies the two blocks bounded by Mission Street to the north, Third Street to the east, Folsom Street to the south, and Fourth Street to the west. Howard Street bisects the complex into two blocks: Moscone North and Moscone South. At grade level, Moscone North contains the Yerba Buena Center for the Arts buildings, which occupy the eastern portion of the block. The Yerba Buena Gardens Esplanade landscaped public open space occupies the central portion of the block. The openness and vegetation of this space offers visual relief from, and a counterpoint to, the dense built environment and hard surfaces of downtown. The Yerba Buena Gardens Esplanade is considered a scenic resource for the purposes of this section. The Metreon entertainment and retail complex occupies the western end of Moscone North. Moscone South contains convention facilities in three stories, with rooftop open space, recreational, and educational facilities. The low-rise buildings of the Yerba Buena Gardens/Moscone Convention Center complex are contemporary in architectural character. These buildings are generally arranged near the perimeter of the blocks, and are oriented inward toward the central public open spaces. Together, the overall expression of the Yerba Buena Gardens/Moscone Convention Center complex is horizontal. It provides a visual contrast and counterpoint to the nearby skyscrapers at the southwestern edge of the downtown high-rise core.

REGULATORY FRAMEWORK

The Urban Design Element of the *San Francisco General Plan*, the San Francisco Planning Code, and Planning Commission Resolution No. 9212, which prohibits the use of mirrored or reflective glass, provide standards regulating the urban design for the proposed project. The Urban Design Element of the *General Plan* focuses on the physical character and environment of the City as modified by preservation and development. It also promotes the preservation of landmarks and structures with notable historic, architectural, or aesthetic value. Urban design policies require proposed projects to take into account the surrounding urban context through building design and

[6] Kelley & Verplanck Historical Resources Consulting, Transit Center District Survey DPR Form, New Montgomery, Mission & Second Historic District, July 23, 2008.

placement. Policies strive for the integration of proposed buildings with existing buildings by requiring building height and bulk designs that respect adjacent buildings, establish and protect visual relationships and transitions, and respect older structures. Policies also emphasize visual amenities, including landscaping and pedestrian areas that are human scale.

IMPACTS

SIGNIFICANCE CRITERIA

The thresholds for determining the significance of impacts in this analysis are consistent with the environmental checklist in Appendix G of the State CEQA Guidelines, which has been adopted and modified by the San Francisco Planning Department. For the purpose of this analysis, the following applicable thresholds were used to determine whether implementing the project would result in a significant impact related to aesthetics. Implementation of the proposed project would have a significant effect related to aesthetics if the project would:

B.1 Have a substantial adverse effect on a scenic vista;

B.2 Substantially damage scenic resources, including but not limited to trees, rock outcroppings, and other features of the built or natural environment, that contribute to a scenic public setting;

B.3 Substantially degrade the existing visual character or quality of the site and its surroundings; or

B.4 Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area or which would substantially impact other people or properties.

PROJECT FEATURES

The project sponsor has submitted an Architectural Design Intent Statement which establishes the parameters for the treatment of the historic Aronson Building as well as the relationship between the proposed tower and the existing Aronson Building. The Architectural Design Intent Statement is presented in Chapter II, Project Description, pp. II.46-II.63. The main design features set forth in the Architectural Design Intent Statement are incorporated into the proposed project and are summarized below.

In addition to the proposed project, vehicular access variants are discussed and analyzed in Chapter VI, Project Variants, Variant 2, which begins on p. VI.10, and Variant 4, which begins on p. VI.25, would call for excavation north of the Aronson Building to construct a vehicular access ramp from Third Street to the Jessie Square Garage. Impacts relating to the ramp's effects on aesthetics are discussed and analyzed in Chapter VI.

Aronson Building Rehabilitation

The proposed project calls for retention and rehabilitation of the 1903 Aronson Building. The existing, 10-story, 1978 west annex along the original west wall of the Aronson Building would be removed, as well as the existing three-story, 1978 north annex along the building's north wall. A proposed new solarium would be constructed at the rooftop (set about 35 feet back from the south façade and about 35 feet back from the east façade). At the ground floor on the south and east façades, the existing, non-original storefronts and doors would be removed and new storefronts and doors, intended to be compatible with the architectural character of the Aronson Building, would be installed. On the north wall, the proposed project calls for the creation of a new ground floor entrance opening and creation of new window openings on the upper floors. The existing south and east facades would be repaired and restored pursuant to the parameters described in the Architectural Design Intent Statement.

Proposed Project Tower

The design of the proposed tower is conceptual. As the environmental review and entitlement processes progress, this conceptual design will be subject to revision and further refinement. While the maximum height, massing, and square footage are not expected to change substantially, the exact setbacks, elevations, floor layouts, materials, and other design features of the project described below are subject to change. However, the modifications made would be consistent with the information in the Architectural Design Intent Statement. Furthermore, The Mexican Museum is only in preliminary design development. While the maximum square footage is not expected to change substantially, the layout, access, and exterior expression of the museum remains subject to future design development and modification. The exterior expression would be consistent with the parameters provided in the Architectural Design Intent Statement.

A proposed project tower would be constructed adjacent, and physically connected, to the Aronson Building. The proposed tower would be 550 feet tall (520 feet to the roof of the highest occupied floor plus a 30-foot-tall elevator/mechanical penthouse) (see Figure II.25: Conceptual South Elevation; Figure II.26: Conceptual West Elevation; Figure II.27: Conceptual North Elevation; and Figure II.28: Conceptual East Elevation, on pp. II.49-II.52). The tower would generally be rectangular, with the short axis of the tower parallel to Mission Street and the long axis of the tower parallel to Third Street. Varying setbacks at the upper floors, running the vertical length of the tower shaft, would provide articulation. The proposed project towers would be modern in architectural vocabulary and would include two contrasting cladding systems: a glazed curtain wall; and masonry-clad piers and spandrels that would accentuate the vertical articulation of the tower.

The ground floor and second floor of the tower would be set back approximately 6 to 32 feet from the southern project site boundary, approximately 13 feet from the western project site boundary, and about 6 to 17 feet from the northern project site boundary (see Figure II.29: Conceptual Ground Floor Setbacks, on p. II.55). The cantilevered third floor would project over the set back ground and second floors to the southern and northern project site boundaries, and would extend over the western project site boundary and overhang Jessie Square by approximately 10 feet, forming a horizontal podium base element at the lower floors of the tower (see Figure II.14: Conceptual Floor 3, on p. II.34).

APPROACH TO ANALYSIS

Design and aesthetics are, by definition, subjective and open to interpretation by decision-makers and members of the public. In determining whether an impact is significant under CEQA, the question is whether a project would affect the environment of persons in general, not whether a project would affect particular persons. A proposed project would therefore be considered to have a significant adverse effect on visual quality under CEQA only if it would cause a substantial and demonstrable negative change in the physical environment that affects the public in one or more ways listed above in this section. Changes to private views resulting from the proposed project would not be considered to substantially degrade the existing visual character of the environment. However, the effect on private views is discussed for informational purposes.

An independent consultant photographed the project site from a range of publicly accessible vantage points around the project site. From these, the Planning Department selected ten representative views, including short-range and long-range views that show the project site and its surrounding visual context. These were presented and described above (denoted on the figures as "Existing"). The existing views represent the baseline visual conditions of the project site and its vicinity. The consultant then produced computer-generated photomontages from project design data supplied by the project architect that were superimposed onto the baseline photograph. The photomontages (denoted as "Proposed Project") are presented as part of the figure on the same page as the view of existing conditions, allowing the reader to compare existing photographic views with photosimulations of the proposed project, placed within the visual context of the project.

IMPACT EVALUATION

Impact AE-1: The proposed project would not have a substantial adverse effect on a scenic vista. *(Less than Significant)* (Criterion B.1)

This discussion describes project-related impacts on scenic vistas that are available from publicly accessible areas.

Long-Range Scenic Vistas of Downtown

The proposed project tower at the southwest edge of the downtown high-rise core would not be prominent, if discernible at all, in long-range views of downtown from the west, north and east. It would be most prominent in long-range scenic vistas of downtown from the southeast and south. As shown in Figure IV.B.2: View A - View of Downtown from Dolores Park, Looking Northeast (Proposed), on p. IV.B.4, and in Figure IV.B.3: View B - View of Downtown from Highway 101 at 17th Street, Looking North (Proposed), on p. IV.B.5, the proposed project tower would be a new visual presence in the skyline amid the dense cluster of existing high-rise buildings of varying heights that comprise the downtown skyline. From Interstate 80/The Bay Bridge, the proposed project would be visible intermittently through gaps between intervening high-rise buildings and rising over the tops of lower intervening buildings. The proposed project tower would not obstruct long-rang scenic views of the downtown core and would conform to the existing pattern of densely clustered high-rise development that characterizes long-range scenic vistas of the downtown core. For these reasons, the proposed project tower would not substantially degrade or obstruct long-range scenic vistas of the downtown core and would have a less-than-significant effect on this scenic vista. No mitigation measures are necessary.

Mission Street View Corridor

As discussed above, distant scenic vistas in the densely developed downtown core setting of the proposed project are defined by the view corridor created by Mission Street. As shown in Figure IV.B.8: View G - View to Project Site Along Mission Street, Looking West (Proposed), on p. IV.B.11, the proposed project's tower would be visible rising beyond the Paramount. The proposed project would be incorporated within the existing street wall on the north side of Mission Street and would not obstruct long-range, west-facing scenic vistas along the Mission Street view corridor. Together with the St. Regis tower on the south side of Mission Street, the proposed new tower would frame west-facing views down Mission Street toward Twin Peaks. Likewise, as shown in Figure IV.B.9: View H - View to Project Site Along Mission Street, Looking East on p. IV.B.13, the proposed project's tower would not obstruct long-range, east-facing scenic vistas along the Mission Street view corridor. Together with the St. Regis tower on the south side of Mission Street, the proposed new tower would frame east-facing views along Mission Street toward the foot of Mission Street and Yerba Buena Island beyond. For these reason, the proposed project would not substantially degrade or obstruct the scenic vista along the Mission Street view corridor and would have a less-than-significant effect on this scenic vista. No mitigation measures are necessary.

Scenic Vistas from Yerba Buena Gardens

The proposed project would place a new 47-story high-rise building to the north of the Yerba Buena Gardens open space. See Figure IV.B.6: View E - View to Project Site from Rooftop Open Space at Yerba Buena Gardens, Looking Northeast (Proposed), on p. IV.B.9, and Figure IV.B.7: View F - View to Project Site from the Upper Terrace at Yerba Buena Gardens, Looking North (Proposed), on p. IV.B.10. The proposed new building would be a prominent new visual presence in scenic views from the open space. Rather than obstruct any scenic view, it would replace existing views of the prominent Westin with views of the proposed project tower. Views of the Aronson Building on the project site, the landmark St. Patrick's Church and the Jessie Street Substation would not be obstructed. For these reasons, the proposed project would not substantially degrade or obstruct a scenic vista from Yerba Buena Gardens and would have a less-than-significant effect on this scenic vista. No mitigation measures are necessary.

Private Views from Nearby Buildings (Informational Discussion)

Private views are not considered scenic vistas under the City's significance criteria, but are discussed here for informational purposes. The proposed project tower would obscure and/or alter some existing private views over the western portion of the project site to the extent that such views are now available from residences and hotel rooms within nearby buildings (most notably, but not limited to, the Paramount, the Four Seasons, and the Westin). The proposed project would replace longer range private views over the site with shorter-range views of the proposed new high-rise building. The proposed change in private views could be experienced as an undesirable consequence for affected persons who have grown accustomed to existing visual conditions. The nature and experience of this change for each affected viewer would vary depending on the nature of the existing view over the project site, the position and proximity of the proposed new building within the private view, and the subjective sensitivity of the viewer. The alteration or interruption of private views is a commonly expected and experienced consequence of new construction within a densely populated urban setting. A project would only be considered to have a significant impact on scenic vistas if it were to substantially degrade or obstruct public scenic vistas observed from public areas. The changes to private views resulting from the proposed project would not be considered a potentially significant aesthetic impact under CEQA. No mitigation measures are necessary.

Impact AE-2: The proposed project tower would not have a substantial adverse effect on a scenic resource. *(Less than Significant)* (Criterion B.2)

The project site contains no scenic resources. The flat, roughly rectangular project site is located in San Francisco's densely developed downtown. The project site is currently developed with the 10-story, 154-foot-tall Aronson Building and its west and north annexes. The remainder of the site is primarily paved.[7] The project site contains no geologic features exposed to view. The project site contains no individually prominent or venerable trees nor comprises a coherent and distinguished landscape setting. No rock outcropping or other natural scenic features exist on the site. All excavation for the proposed project would occur below existing grade level on the site. As a result, there would be no visible topographic change at the site under the proposed project. The proposed project would not obstruct or degrade views of the nearby Yerba Buena Gardens Esplanade offsite scenic resource. Therefore, the proposed project would not result in damage to a scenic resource, and these impacts would be considered less than significant under CEQA. No mitigation measures are necessary.

Impact AE-3: The proposed project would not have a substantial adverse effect on the visual character or quality of the site and its surroundings. *(Less than Significant)* (Criterion B.3)

As discussed under Setting on p. IV.B.19, the visual character of the surrounding area around the project site, in terms of building height, massing, scale, materials, and architectural character, is varied. However, a general pattern is discernible in the area which is characterized by an abrupt transition between the dense high-rise downtown core to the north and east, and low-rise development to the south and southwest west of the project site, creating a prominently exposed southwest edge to the downtown high-rise core.

Temporary Construction Impacts

Construction of the proposed project would result in intermittent aesthetics impacts due to construction activities. Construction activities that could have temporary effects on visual quality, including ground disturbance, the use of heavy machinery, storage of equipment and materials, and the installation of security fencing and barriers. Such changes to the visual environment are a commonly accepted and unavoidable temporary outcome of development projects in a dense urban setting. Such conditions would exist only for a limited duration. The estimated construction period for the proposed project would extend up to 36 months. Because construction-related changes to visual character and quality would be short-lived, they would be considered less than significant.

[7] There is a small, at-grade landscaped area adjacent to the west side of the Aronson Building.

Building Height and Bulk

The project site is within the 400-I Height and Bulk District. In this district, the maximum allowable building height is 400 feet. As discussed in Chapter III, Plans and Policies, on p. III.5, the proposed 550-foot-tall project tower does not conform to the current Planning Code height limit for the project site and therefore would require an amendment to the Planning Code. In mid-range views from the south and southeast, the proposed 47-story, 550-foot-tall project tower would be the tallest building along the prominent southwest edge of the downtown core. It would be viewed in the context of a prominent cluster of existing skyscrapers of comparable height at the prominent southwest edge of the downtown core (the 39-story Marriott, the 40-story Four Seasons, the 35-story Westin, the 43-story Paramount, the 42-story St. Regis, and the 33-story W Hotel).

The proposed project tower would appear slender in proportion compared to the other high-rise buildings in the vicinity of the project site. The maximum allowable plan length within the 400-I Height and Bulk District is 170 feet (above 150 feet in height) and the maximum plan diagonal dimension is 200 feet. The proposed project tower would be within the maximum plan length of the district (measuring about 123 feet north to south) and the maximum diagonal plan dimension (measuring about 168 feet diagonally). The height and bulk of the proposed project tower would contribute to the existing visual variety that characterizes the project vicinity.

See Figure IV.B.4: View C - View to Project Site Along Third Street, Looking North (Proposed), on p. IV.B.6. In this street view, the proposed project tower would rise prominently beyond the northeast corner of the Yerba Buena Gardens/Moscone Center complex, flanked by the Four Seasons to its northwest (left in this view), and the Westin to the north (right in this view). See Figure IV.B.5: View D - View to Project Site from the Intersection of Fourth Street and Folsom Street, Looking Northeast (Proposed), on p. IV.B.7. In this street view, the proposed project tower would be seen rising prominently in the background of the low-rise Yerba Buena Gardens/Moscone Convention Center complex, amid existing high-rise developments to the north and east of the complex.

See Figure IV.B.6: View E - View to Project Site from Rooftop Open Space at Yerba Buena Gardens, Looking Northeast (Proposed), on p. IV.B.9, and Figure IV.B.7: View F - View to Project Site from the Upper Terrace at Yerba Buena Gardens, Looking North (Proposed), on p. IV.B.10. In these views from the Yerba Buena Gardens public open space, the proposed project tower would be a prominent new visual feature within views from the Yerba Buena Gardens public open space, replacing now prominent views of the Westin with views of the proposed project tower. As discussed above, the proposed project would not obstruct scenic north-facing views of from Yerba Buena Gardens. Rather, the proposed project tower would visually reinforce the northern boundary of Yerba Buena Gardens, providing a backdrop to north-facing views

across open space from Yerba Buena Gardens. It would contribute to the visual variety that currently characterizes existing buildings at the southwest edge of the downtown core which are prominent from Yerba Buena Gardens. The proposed project tower's height and verticality would contrast with the open space and low horizontal buildings of Yerba Buena Gardens/Moscone Center to the south, thereby reinforcing the established edge of the downtown high-rise core to the north of the Yerba Buena Gardens/Moscone Center complex.

For these reasons, the height and bulk of the proposed project tower would not have a substantial adverse effect on the visual character or quality of the site and its surroundings. No mitigation measures are necessary.

Design

The proposed conceptual design of the project tower would be contemporary in its architectural vocabulary and would not include overt historic referents. This approach visually distinguishes the proposed project tower from the existing Aronson Building, allowing the proposed tower to appear as a new building adjacent to the historic Aronson Building rather than as an addition to the Aronson Building. See Figure IV.B.4: View C - View to Project Site Along Third Street, Looking North (Proposed), on p. IV.B.6.

The overall vertical mass of the proposed tower is articulated visually into multiple vertically oriented subvolumes. The overall exterior visual effect of this composition is that of a series of long, rectangular volumes of varying widths, lengths, and thicknesses, placed on end and side-by-side. Each vertical subvolume is further articulated with the alternation of two contrasting façade treatments. One facade treatment is a transparent glass curtain wall. The other façade treatment is stone-clad vertical piers with stone spandrel panels. This tower design is intended to emphasize the verticality of the tower, and provide texture and visual interest to the façade. See Figure IV.B.6: View E - View to Project Site from Rooftop Open Space at Yerba Buena Gardens, Looking Northeast (Proposed), on p. IV.B.9, and Figure IV.B.7: View F - View to Project Site from the Upper Terrace at Yerba Buena Gardens, Looking North (Proposed), on p. IV.B.10.

The ground floor of the museum and residential lobbies at the ground floor of the proposed project tower would be set back from the property line and are anticipated to be transparent. See Figure II.12: Conceptual Ground Floor, on p. II.31. This is intended to activate and contribute visual interest to the pedestrian environment along Mission Street and Jessie Square. The second, third, and fourth floor levels of the proposed project tower would project beyond the tower's set back ground floor, creating a cantilevered, horizontal podium base element for the proposed project tower. See Figure IV.B.9: View H - View to Project Site Along Mission Street, Looking East (Proposed), on p. IV.B.13, and Figure IV.B.10: View I - View to Project Site Along Mission Street, Looking Northwest (Proposed), on p. IV.B.14. This horizontal podium base element

would differentiate the ground floor lobby and museum space levels from the residential tower above and would provide visual relief and a counterpoint to the verticality of the tower shaft above. This podium base element is also intended to provide visual continuity with the horizontal features of the Aronson Building that define its three-story base. The podium base element would also enclose and define the east side of Jessie Square and would relate to existing horizontal features of comparable height that now enclose and define the north and west ends of Jessie Square (i.e., the Jessie Street Substation façade, and the east aisle of St. Patrick's Church, respectively). See Figure II.31: Conceptual Building Section, on p. II.58.

For these reasons, although the proposed tower would be a prominent new presence in the skyline and in the visual setting of the area, development of the proposed project would have a less-than-significant impact on the visual character/quality of the site and its surroundings. No mitigation measures are necessary.

Impact AE-4: The proposed project would not create a new source of substantial light or glare which would adversely affect day or nighttime views in the area or which would substantially impact other people or properties. *(Less than Significant)* (Criterion B.4)

Current sources of light on the project site and surrounding area include nighttime residential, hotel and office lighting within existing buildings, and lighting of streets, public open spaces, storefronts, and building entrances in the vicinity of the project site.

The proposed project could increase the amount of light emitted from the site. New lighting would include light emitted from the proposed residential and museum uses within the proposed new project tower, and light from proposed residential or office flex, museum, and commercial uses within the existing Aronson Building. New exterior lighting fixtures would illuminate building entrances and pedestrian walkways at the ground floor of the proposed development.

The light and glare generated by developing the proposed project would be typical of structures nearby and throughout the City. Light levels from the proposed project would not exceed levels commonly accepted by residents in an urban setting. Nighttime light levels within the project site would be consistent with those of an urban mixed-use neighborhood. Given the existing urban character of the site and its surroundings, potential new sources of light and glare on the project site would not constitute a substantial source of new light in the vicinity of the project site.

The proposed project would not use mirrored glass. The project would comply with Planning Commission Resolution No. 9212, which prohibits the use of mirrored or reflective glass. Exterior lighting for the proposed project would be positioned to minimize glare and would not be in excess of that commonly found in urban areas. In addition, the project sponsor anticipates

seeking LEED Credit SSc8: Light Pollution Reduction, which limits light trespass from outdoor lighting and from indoor lighting with a direct line of sight to window openings.

For these reasons, the proposed project would have a less-than-significant impact related to light and glare. No mitigation measures are necessary.

Impact C-AE-1: The proposed project, in combination with past, present and reasonably foreseeable future projects in the project vicinity, would not make a cumulatively considerable contribution to a significant impact related to aesthetics. ***(Less than Significant)***

Anticipated development projects in the project vicinity are identified in Section IV.A, Land Use and Land Use Planning, pp. IV.A.7-IV.A.9. The majority of these projects involve interior changes or minor exterior alterations to existing structures. There are two proposed new construction projects in the vicinity of the project site within the city blocks adjacent to the project block. The proposed project at 2 New Montgomery calls for construction of a 17-story addition to the Palace Hotel. The proposed SFMOMA expansion project at 151 Third Street calls for construction of a 220-foot-tall, about 235,000-gsf new museum space along the north side of Howard Street, adjacent to the W Hotel. In close-range and mid-range views of the proposed project, these anticipated projects would not be prominent features within the visual setting of the proposed project, if visible at all, given the distance between the project site and anticipated projects. The scale of existing intervening development, together with the scale and character of anticipated projects in the vicinity of the project site, limits visual interaction between the proposed project and anticipated projects. As such, the proposed project would not make a cumulatively considerable contribution to a significant cumulative impact on visual character and quality.

Also as described in Section IV.A, Land Use, p. IV.A.9, in addition to the reasonably foreseeable projects in the vicinity of the project site described above, the draft *Transit Center District Plan* (TCDP) is under consideration for adoption. The TCDP is a comprehensive plan and re-zoning of the southern portion of the downtown Financial District, around the site of the re-built Transbay Terminal and includes most of the approved Transbay Redevelopment Project Area. The proposed TCDP would increase height limits in certain subareas near the proposed Transit Center to 700 feet, 850 feet and 1,000 feet, and 85 feet to 550 feet at the south and southwest ends of the Transbay Redevelopment Area. The proposed project and the high-rise buildings of the proposed TCDP would be prominent within long-range views of the downtown core. See Figure IV.B.2 and Figure IV.B.3, pp. on IV.B.4 and IV.B.5, respectively. The proposed TCDP would effectively extend the downtown high-rise core south of Market Street, filling in the existing area of low- and mid-rise development that exists between the Mission Street corridor to the north, and the One Rincon Hill project to the south with new high-rise development. Implementation of the proposed TCDP would substantially alter the existing visual character of the southern edge of the

downtown core and scenic vistas thereof. The proposed project tower, located north of Mission Street and west of Third Street within the existing downtown high-rise core, would not affect the southern edge of the downtown core, but would fill a gap within the existing cluster of high-rise buildings at the southeast edge of the downtown core. As such, the proposed project would not make a cumulatively considerable contribution to a significant cumulative impact as a result of the anticipated Transbay development under the TCDP.

As discussed above under Impact AE-1, the proposed project would not degrade or obstruct any scenic vistas viewed from public areas. As discussed under Impact AE-2, the proposed project would not damage any existing scenic resource. As discussed under Impact AE-4, the proposed project would not cause a significant impact related to light and glare. Likewise, the proposed project would not make a significant cumulatively considerable contribution to significant cumulative impacts related to scenic vistas, scenic resources, or light and glare, that could result from past, present, or reasonably foreseeable projects.

Reasonably foreseeable projects in the vicinity of the proposed project, in combination with the proposed project, would result in intermittent aesthetics impacts due to construction activities. Construction-related changes to visual character and quality resulting from the proposed project in combination with reasonably foreseeable projects in the vicinity of the proposed project, would be short-lived. In addition, as discussed above, visual interaction between the project site and anticipated projects in the vicinity of the project site is limited.

For these reasons, the visual effects of the proposed project would not combine with those of cumulative development to contribute considerably to a degradation of the visual environment of the project site or the greater project area. The proposed project would not make a cumulatively considerable contribution to a significant cumulative impact related to aesthetics. No mitigation measures are necessary.

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C. POPULATION AND HOUSING

This section examines the effects of the proposed project related to population, housing, and employment. The Setting discussion describes existing regional and citywide population, housing, and employment conditions and trends, and existing population and employment characteristics on the project site. The Impacts discussion addresses potential population, housing and employment effects that would result from implementation of the proposed project. This section evaluates the potential for both project-level and cumulative environmental impacts. Project construction is anticipated to commence in 2013, with completion and occupancy beginning by late 2015 or in 2016. Therefore, the time frame used in this analysis is 2010 for existing conditions and 2015 and 2030 for projected future project conditions.

The information in this section is based on the description of the proposed project; 2000 and 2010 U.S. Census data for the City and County of San Francisco and for 2000 U.S. Census Tracts 176.02 and 179.01 and 2010 U.S. Census Tract 615, as appropriate;[1] *American Community Survey 2005–2009* and *2006–2010* data; Association of Bay Area Governments (ABAG) *Projections 2009* data;[2] ABAG's *San Francisco Bay Area Housing Needs Plan 2007–2014*;[3] and the City's *Housing Element Part 1: Data and Needs Analysis* (March 2011).

SETTING

CITY AND REGIONAL POPULATION AND HOUSING TRENDS

Population

Since 2000, San Francisco's total population has grown at a slightly slower rate than the region as a whole, a trend that is expected to continue through 2030. This City's slower rate of population growth is due, in part, to higher housing prices in San Francisco compared to those in the rest of the region, increased and less expensive housing opportunities in the Sacramento and Central Valley areas, and a cyclical decline in the City's role as a regional employment center.

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[1] Except for certain population and housing data for the City, complete and detailed 2010 U.S. Census information is not yet available. Under the 2000 U.S. Census the project site was located within Census Tract 176.02. Under the 2010 U.S. Census, Census Tract 176.02 and Census Tract 179.01 were consolidated into one new census tract, Census Tract 615.

[2] The Association of Bay Area Governments (ABAG) is the regional agency responsible for preparing forecasts of population, housing, and employment growth in the nine Bay Area counties and their cities. ABAG's 2009 edition (*Projections 2009*) of its biennial forecast of population, housing, jobs, and income for the nine-county San Francisco Bay Region was released in August 2009.

[3] ABAG, *San Francisco Bay Area Housing Needs Plan 2007-2014*, June 2008.

The 2010 U.S. Census reported a population of 805,235 in the City and County of San Francisco, a 3.7 percent increase from the 2000 U.S. Census, which recorded a population of 776,733 persons.[4] In the nine-county Bay Area, San Francisco continued to rank as the second most populous city, behind San Jose, and the fourth most populous county, behind Santa Clara, Alameda, and Contra Costa between 2000 and 2010.[5] San Francisco is the most urbanized county, with the highest population densities of the nine-county Bay Area.[6] San Francisco comprised approximately 11 percent of the Bay Area's total population (approximately 7,341,700 persons) in 2010.[7]

The population of the Bay Area grew by approximately 3.4 percent, an increase of approximately 245,200 persons, during the five-year period between 2005 and 2010.[8] During that same period, the population of San Francisco grew by approximately 1.8 percent, an increase of approximately 14,200 people.[9] For the five-year period between 2010 and 2015, the same year as the proposed project's expected buildout, ABAG projects an overall Bay Area population increase of approximately 4.6 percent, or an increase of about 335,800 people by 2015. For the same five-year period (2010-2015), ABAG projects that the population of San Francisco will increase by approximately 3.4 percent, an increase of 27,500 people. For the 20-year period between 2010 and 2030, the Bay Area's population growth is projected to increase by about 18.8 percent, which is equivalent to an increase of 1,377,600 new people. The projected growth for San Francisco during the same period, 2010 to 2030, is approximately 15.5 percent (124,800 people).

Housing

Detailed housing data from the U.S. Census 2010 are not yet available. The 2000 U.S. Census recorded an average household size of 2.69 persons per unit in the Bay Area.[10] Based on ABAG projections, the average household size for the Bay Area is projected to increase marginally from

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4 U.S. Census Bureau, 2010 U.S. Census and 2000 U.S. Census Data. Available online at http://quickfacts.census.gov/qfd/states/06/06075.html and http://www.census.gov/prod/cen2000/dp1/2kh06.pdf. Accessed May 8, 2012.

5 ABAG, Historical Data. Available online at http://www.bayareacensus.ca.gov/historical/largecity.htm and http://www.bayareacensus.ca.gov/historical/copop18602000.htm. Accessed May 8, 2012.

6 ABAG, *Projections 2009*, p. 83.

7 The 2010 U.S. Census reported a total population of 805,235 in the City and County of San Francisco, which is 0.006 percent fewer residents than projected by ABAG in 2010 (810,000). ABAG *Projections 2009*, pp. 26-27.

8 ABAG, *Projections 2009*, p. 26.

9 ABAG, *Projections 2009*, p. 27.

10 ABAG, 2010 U.S. Census Data and 2000 U.S. Census Data. Available online at http://www.bayareacensus.ca.gov/bayarea.htm. Accessed April 27, 2012.

2.69 persons per unit in 2005 to 2.70 persons per units in 2010, and is projected to remain at this level through 2030.[11]

The 2000 U.S. Census recorded an average household size of 2.3 persons per unit in the City.[12] ABAG *Projections 2009* estimated 2.28 persons per household in the City in 2010, which is projected to slightly decrease to 2.27 from 2010-2015, and return to 2.28 in 2030. The smaller household size in the City in comparison to the region can be attributed to fewer families with children who reside in the City, smaller and denser housing units due to the lack of available space for new development, and City policy which emphasizes in-fill housing, at higher densities in suitable locations near transit and services.

ABAG projects that the total number of households in San Francisco (which roughly equates to the number of housing units) will be approximately 346,680 in 2010.[13] Household growth, an approximation of the demand for housing, is expected to grow approximately 15.6 percent, from 346,680 in 2010 to 400,700 by 2030, an increase of 54,020 households.[14] Household growth in the region is estimated to increase from 2,667,340 households in 2010 to 3,171,940 in 2030, an 18.9 percent increase in new households (approximately 504,600 households).

In San Francisco, housing density (measured as average units per acre) ranges from a low of 14 units per acre in single-family-unit neighborhoods such as the Sunset, to a high of 283 units per acre in higher-density neighborhoods in the downtown area. Moderate high-density housing, typically located along major transit corridors such as Van Ness Avenue, in major redevelopment areas such as the Western Addition, Golden Gateway, and the northern edges of Mission Bay, has a residential density of about 91 units per acre. The northeastern area of the City, which encompasses the Downtown Planning District and the Northeast Planning District, has the largest stock of high-density housing.[15] The project site is located along the southern boundary of the Downtown Planning District, and this district has an average housing density of 283 housing units per acre.

[11] ABAG, *Projections 2009*, p. 26.
[12] U.S. Census Bureau, 2000 U.S. Census Data. Available online at http://www.census.gov/prod/cen2000/dp1/2kh06.pdf. Accessed May 8, 2012.
[13] Households are based on the number of units divided by the number of persons per household. This total does not account for units that are vacant and, therefore, may slightly overstate the total number of households.
[14] ABAG, *Projections 2009*, p. 92.
[15] San Francisco Planning Department, *Housing Element, Part 1: Data and Needs Analysis*, March 2011, pp. 66-68.

Employment

According to ABAG *Projections 2009*, there were a total of about 568,730 jobs in the City in 2010. The City is projected to have a total of approximately 748,100 jobs by 2030, a 31.5 percent increase (179,370 jobs).[16] Between 2010 through 2030, the total number of jobs in the nine-county Bay Area is expected to increase by almost 1,262,890 jobs, a 36.3 percent increase. During this period, the City's share of regional employment is expected to decrease slightly, from 16.4 in 2010 to 15.8 percent in 2030.[17]

Based on ABAG projections, the City had approximately 411,900 employed residents in 2010.[18] About 76 percent (313,040) of these employed residents would be employed in the City itself, while about 24 percent (98,860) of the employed residents would commute to jobs outside of the City.[19] The total number of the City's employed residents is projected to increase to approximately 520,700 by 2030. Assuming the same percentages, about 124,970 (24 percent) of the City's employed residents would continue to commute to jobs elsewhere, and about 395,700 (76 percent) of these employed residents would live and work in the City in 2030.

Housing Needs

In order to respond to statewide population and household growth, and to ensure the availability of decent affordable housing for all income groups, in 1981 the State enacted Government Code Section 65584, which requires each Council of Government (COG) to periodically distribute State-identified housing needs to all jurisdictions within its region. ABAG serves as the COG for the Bay Area. Government Code Section 65584 requires periodic update of a new Regional Housing Needs Assessment. In June 2008, ABAG released its *San Francisco Bay Area Housing Needs Plan 2007-2014,* which identifies the San Francisco Bay Area's housing needs determination for the 2007–2014 planning period. The ABAG Policy Board established housing needs for all jurisdictions within its boundaries for the 2007–2014 planning period by using a "fair share" approach, based on projected household and job growth of the region as well as regional income level percentages. Each jurisdiction is required by State law to incorporate its housing need numbers into an updated version of its General Plan Housing Element. The Bay Area's overall projected housing need over the defined planning period is approximately 214,500

[16] ABAG, *Projections 2009*, p. 93.
[17] ABAG, *Projections 2009*, p. 29.
[18] ABAG, *Projections 2009*, p. 29.
[19] According to the U.S. Census Bureau's American Community Survey's 5-year estimates for San Francisco County, *Means of Transportation to Work by Selected Characteristics 2006-2010* about 76.3 percent of the City's employed residents work in the City itself while 23.3 percent worked outside of their county of residence. Available online at http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_10_5YR_S0802&prodType=table. Accessed February 1, 2012.

new residential dwelling units,[20] of which San Francisco's share is a total of about 31,195 units, or an average of approximately 4,455 units per year.

Government Code Section 65584 also requires that a city's share of regional housing needs include housing needs of persons at all income levels. The different income levels to be studied within the parameters of State-mandated local Housing Elements, which must be prepared by every city and county in California, are "Very Low Income," "Low Income," "Moderate Income," and "Above Moderate Income." Table IV.C.1: San Francisco Household Income Distribution and Housing Needs, presents the City's distribution of housing needs across income levels.

Table IV.C.1: San Francisco Household Income Distribution and Housing Needs

Income Group	Income Level	Income Range[a]	Percentage of S.F. Households	S.F. Housing Need[b]
Very Low	≤50% of AMI	$22,650–$42,450	27.1%	6,589 units
Low	50%–80% of AMI	$37,750–$67,900	14.4%	5,535 units
Moderate	80%–120% of AMI	$60,350–$84,850	15.7%	6,754 units
Above Moderate	>120% of AMI	>$90,550	42.8%	12,315 units
Total			100.0%	31,193 units

Notes:
AMI – Area Median Income.

[a] San Francisco Planning Department, *San Francisco General Plan, Housing Element, Part I: Data and Needs Analysis*, March 2011, Table I-40: Household Income Standards by Household Size, 2008, and Table I-41: Income Distribution, San Francisco, 2007, p. 42. The income range shown above is the average income range for two- to three-person households in the City.
[b] ABAG, *San Francisco Bay Area Housing Needs Plan 2007 - 2014*, p. 46.

Sources: U.S. Department of Housing and Urban Development, San Francisco Planning Department, and Turnstone Consulting

Between 1990 and 2000, 10,780 net new housing units[21] were added citywide, with an annual average during this ten-year period of about 1,080 units per year. Between 2001 and 2009, housing production doubled, adding another 21,876 net new housing units. During this nine-year period, the citywide annual average was 2,430 net new units, with the highest annual production occurring between 2007 and 2009. New housing production in 2009 totaled 3,544 units, the highest level since 1964. Approximately 75 percent of the new units constructed in 2009 were located in the Downtown Planning District (33 percent), which includes the project site, and in the South of Market Planning District (42 percent).[22]

To meet current regional housing need projections, the City would need to increase housing unit production to an average of approximately 4,455 units per year. Thus, although the annual rate of

[20] ABAG, *San Francisco Bay Area Housing Needs Plan 2007-2014*, p. 46.
[21] Net new units are equal to new units constructed minus units demolished plus or minus units gained or lost from alterations.
[22] San Francisco Planning Department, *San Francisco Housing Inventory 2008*, April 2009, p. 6.

housing production has steadily increased, particularly in the past few years, the City remains behind in meeting its share of the regional housing needs allocation forecasted for the 2007–2014 planning period.

Project Site Population and Employment

Under the 2000 U.S. Census, the project site was located within Census Tract 176.02, which encompassed the area bounded by The Embarcadero to the east, Market, Mission and Steuart Streets to the north, Fourth Street to the west, and Howard Street to the south. Under the 2010 U.S. Census, Census Tract 176.02 and Census Tract 179.01 were consolidated into one new census tract, Census Tract 615. Census Tract 615 is bounded by The Embarcadero to the east, Market, Steuart, and Mission Streets to the north, Fourth Street and Third Street to the west, and King Street to the south.

According to the 2000 U.S. Census, Census Tract 176.02 had a total population of 534 residents and Census Tract 179.01 had a total population of 5,408 residents for a total of 5,942.[23] Between the 2000 U.S. Census and the commencement of the 2010 U.S. Census, the *2005-2009 American Community Survey* estimates indicated that the population in Census Tract 176.02 increased to 1,054 residents and the population in Census Tract 179.01 increased to 8,416.[24] This represents an approximately 40 percent increase in the recorded population of 5,942 persons for Census Tracts 176.02 and 179.01 in the 2000 U.S. Census.[25] According to the 2010 U.S. Census, Census Tract 615, which now encompasses both Census Tracts 176.02 and 179.01, has a total population of 11,502 residents.[26] This represents about a two-fold increase in population since 2000 and reflects increased and higher-density housing development in the Downtown and South of Market Planning Districts over the past ten years.

Existing on-site employment consists of about 453 full-time workers. This estimated total includes approximately six ground-floor retail, 442 office, and two building service employees in the Aronson Building, and three parking garage employees in the Jessie Square Garage.[27]

[23] ABAG, U.S. Census 2000 Data - Population and Race data by census tract. Available online at http://www.bayareacensus.ca.gov/small/small.htm. Accessed May 9, 2012.
[24] U.S. Census Bureau, *2005-2009 American Community Survey*, accessed January 31, 2012.
[25] ABAG, U.S. Census 2000 Data. Available online at http://www.bayareacensus.ca.gov/counties/SanFranciscoCounty.htm. Accessed April 27, 2012.
[26] U.S. Census Bureau, 2010 Census Summary File – Table: QT-P4, accessed January 31, 2012.
[27] Kristin Gonsar, Millennium Partners, email communication, April 21, 2011. A copy of this communication is available for review at the Planning Department, 1650 Mission Street, Suite 400, San Francisco, California, as part of Case File No. 2008.1084E.

REGULATORY FRAMEWORK

State

Community Redevelopment Law

Prior to the elimination of Redevelopment Agencies in California, the project site was part of the Yerba Buena Center Redevelopment Project Area and was subject to the requirements of the former *Yerba Buena Center Redevelopment Plan*, which expired on January 1, 2011. Although development of the project site is no longer subject to the *Yerba Buena Center Redevelopment Plan*, certain sections of Community Redevelopment Law would still be applicable to the proposed project. Community Redevelopment Law is contained in Sections 33680-33692 of the California Health and Safety Code. The proposed project is subject to the requirements of Section 33333.6(a) of the California Health and Safety Code, which states that after the redevelopment plan expires, the Redevelopment Agency has "no authority to act pursuant to the redevelopment plan except to pay previously incurred indebtedness, to comply with Section 33333.8 (affordable housing obligations), and to enforce existing covenants, contracts, or other obligations." Therefore, although the project site is no longer subject to the land use and development controls of the *Yerba Buena Center Redevelopment Plan*, certain provisions of Community Redevelopment Law concerning affordable housing and other obligations may be applicable to the proposed project.

Regional

San Francisco Bay Area Regional Housing Needs Plan 2007-2014

The California Department of Housing and Community Development is responsible for determining the overall regional housing need for initiating the process by which each COG, in this case ABAG, then distributes its share of regional housing need to all jurisdictions within its region. Government Code Section 65584 requires periodic development of a new Regional Housing Needs Assessment. In June 2008, ABAG released its *San Francisco Bay Area Housing Needs Plan 2007-2014*, which identifies the San Francisco Bay Area's housing needs determination for the 2007-2014 planning period, as described above on pp. IV.C.4-IV.C.6.

Local

San Francisco Housing Element

As required by State law, the Planning Department prepared an update to the Housing Element of the *San Francisco General Plan* and completed the environmental review. The Planning Commission unanimously adopted the updated *Housing Element* on March 24, 2011. The Board

of Supervisors approved it on June 21, 2011, and it was signed into law by Mayor Edwin Lee on June 29, 2011, becoming effective on July 29, 2011.

Residential Inclusionary Affordable Housing Program

In 2006, the City adopted amendments to the Residential Inclusionary Affordable Housing Program contained in Planning Code Section 415 (formerly Section 315). The amended Planning Code Section 415 requires that a project involving five or more new dwelling units must (a) provide on-site Below Market Rate units equal to 15 percent of the total number of units, (b) provide off-site Below Market Rate units equal to 20 percent of the total number of units, or (c) pay a fee equivalent to 20 percent of the total number of units. The Exclusive Negotiation Agreement between the San Francisco Redevelopment Agency and project sponsor requires the project sponsor to meet affordable housing obligations through a payment which exceed the requirements of the Affordable Housing Program.[28]

IMPACTS

SIGNIFICANCE CRITERIA

The thresholds for determining the significance of impacts in this analysis are consistent with the environmental checklist in Appendix G of the State CEQA Guidelines, which has been adopted and modified by the San Francisco Planning Department. For the purpose of this analysis, the following applicable thresholds were used to determine whether implementing the project would result in a significant impact on population and housing. Implementation of the proposed project would have a significant effect on population and housing if the project would:

C.1 Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure);

C.2 Displace substantial numbers of existing housing units or create demand for additional housing, necessitating the construction of replacement housing; or

C.3 Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere.

[28] Exclusive Negotiation Agreement, Exhibit D Term Sheet, May 4, 2010, between the San Francisco Redevelopment Agency and 706 Mission Street Co., LLC. A copy of this document is available for review at the office of the Successor Agency, 1 South Van Ness, 5th Floor, San Francisco, California, as well as at the Planning Department, 1650 Mission Street, Suite 400, San Francisco, California, as part of Case File No. 2008.1084E.

PROJECT FEATURES

The proposed project entails the construction of a new 47-story, 550-foot-tall tower adjacent to and west of the existing 10-story, 154-foot-tall Aronson Building. The fourth through tenth floors of the Aronson Building, which contain approximately 61,320 gsf, have been designated as flex space for which two options are proposed: the residential flex option and the office flex option. Under the residential flex option, the proposed project would introduce a new residential use, a retail/restaurant use, and a new institutional use (The Mexican Museum) to the project site. The proposed project would include up to 215 residential dwelling units within approximately 580,630 gsf, approximately 4,800 gsf of ground-floor retail/restaurant, and approximately 52,285 gsf of space for The Mexican Museum. Under the office flex option, the proposed project would introduce a less intensive new residential use, an office use, a retail/restaurant use, and a new institutional museum use. The proposed project would include up to 191 residential dwelling units within approximately 519,310 gsf and approximately 61,320 gsf of office space, approximately 4,800 gsf of ground-floor retail/restaurant, and approximately 52,285 gsf of space for The Mexican Museum.

As stated on p. IV.C.3, ABAG *Projections 2009* conservatively estimates 2.28 persons per household in San Francisco for 2030. Therefore, the proposed project would have a residential on-site population of approximately 490 residents under the residential flex option, and approximately 435 residents under the office flex option. The proposed new residential uses under either flex option would displace a portion of the existing on-site employment. Under the residential flex option, there would be approximately 100 on-site employees, and under the office flex option there would be approximately 318 on-site employees. The anticipated decrease in the number of on-site employees would be approximately 353 under the residential flex option and approximately 135 under the office flex option. Potential impacts on population, housing, and employment are analyzed for both options.

APPROACH TO ANALYSIS

CEQA Guidelines Section 15064(e) notes that an economic or social change by itself would not be considered a significant effect on the environment. Population growth is considered in the context of local and regional plans and population, housing, and employment projections. Generally, a project that induces population growth is not viewed as having a significant impact on the environment unless this growth is unplanned and results in significant physical impacts on the environment. Thus, the growth and changes in employment and population and potential demand for housing that would occur with implementation of the proposed project would not be adverse physical impacts in themselves. However, the physical changes needed to accommodate project-related growth may have physical impacts on the environment. Project-related growth and the increase in population would primarily result in physical changes in transportation, noise,

air emissions, increased demand for public services, increased demand for utility capacity, and increased demand for recreational facilities. These physical impacts are evaluated under other environmental topics in this chapter such as Section IV.E, Transportation and Circulation; Section IV.F, Noise; Section IV.G, Air Quality; Section IV.H, Greenhouse Gas Emissions; Section IV.J, Recreation; Section IV.K, Utilities and Services Systems; and Section IV.L, Public Services.

The impact analysis considers whether the proposed project would contribute to substantial residential population and employment growth. Direct population growth would result from the residents who would occupy the newly developed housing units and the people who would be employed by the proposed residential, office, retail/restaurant, museum, and parking uses at the project site, as well as from temporary construction employment. Indirect or secondary growth is often defined as development that occurs as infrastructure is expanded to previously unserved or underserved areas. This type of development pattern typically occurs in suburban areas adjacent to or near undeveloped lands and is not applicable to the project site, which is located in a built-up urban environment that is already served by adequate infrastructure. The analysis also considers whether substantial numbers of residents, housing units, or employees would be displaced.

The analysis compares the population, employment, and housing characteristics that would result from development of the proposed project to existing conditions, defined as those for 2010. The 2010 data are used because they are the most recent data consistently available for the project site across all population, employment, and housing indices. When available, similar information at the census tract level is also cited.

IMPACT EVALUATION

Impact PH-1: The proposed project would not induce substantial population growth in an area, either directly or indirectly. (Criterion C.1 *Less than Significant*)

Population

The proposed project would develop up to 215 new dwelling units under the residential flex option, which would result in approximately 490 new residents at the project site.[29] Development of up to 191 units with the office flex option would result in a total of about 435 new residents, about 55 fewer new residents than under the residential flex option (see Table IV.C.2: Proposed Housing Units and Population (2030)).

[29] ABAG *Projections 2009* conservatively estimates 2.28 persons per household in San Francisco for 2030.

Table IV.C.2: Proposed Housing Units and Population (2030)

	Residential Flex Option[a]	Office Flex Option[a]	Difference Between Residential and Office Flex Options
Residential Units	215	191	24
Total Population[b]	490	435	55

Notes:
[a] The residential flex option would include 175 to 215 units, and the office flex option would include 175 to 191 units. For purposes of estimating project-related population, the maximum number of units was used for each option.
[b] Total population in 2030 is based on ABAG *Projections 2009*, which forecasts a factor of 2.28 persons per household in 2030, which is conservatively the equivalent to population per unit since vacancies are not taken into account.

Sources: ABAG *Projections 2009*, Millennium Partners, and Turnstone Consulting

Based on the 2010 U.S. Census, the new residential units proposed to be developed by the project represent an approximately 3.8 to 4.3 percent increase in the total number of residents located in Census Tract 615, where the project site is located. This increase would be not be substantial, as it would represent less than one-half percent (0.004) of the total citywide population growth from 810,000 in 2010 to 934,800 in 2030, and a negligible percentage (0.00035) of population growth in the nine-county San Francisco Bay Area region.[30]

The project site is located within an area of the Downtown Planning District that has an average housing density of 283 units per acre.[31] The proposed project would result in a maximum housing density of about 148 residential units per acre on the 1.45-acre project site, assuming maximum development of 215 new residential dwelling units with the residential flex option of the proposed project; thus, the average housing density of the proposed project would be less than the average housing density in the Downtown Planning District.

The project site is the last remaining vacant infill site identified in the expired *Yerba Buena Center Redevelopment Plan*. The *2009 Housing Element* encourages locating new housing in downtown development districts, given the proximity to jobs and transit.[32] The development of residential uses in this area would conform with ABAG's designation of Downtown Neighborhoods and Transit Infill Corridors Areas as one of ten Priority Development Areas that

[30] ABAG projects that between 2010 and 2030, San Francisco population will increase from 810,000 in 2010 to 934,800 in 2030, a total increase of about 124,800 persons; ABAG *Projections 2009*, p. 92.
[31] San Francisco Planning Department, *Housing Element, Part 1: Data and Needs Analysis*, March 2011, pp. 66-68.
[32] San Francisco Planning Department, *Housing Element*, *Part 1: Data and Needs Analysis*, March 2011, pp. 68-69.

are served by existing utilities, infrastructure and transit, and with the potential to accommodate substantial population growth in the City and Bay Area region.[33]

The proposed project would contribute to the City's supply of affordable housing. The Term Sheet (Exhibit D) of the Exclusive Negotiation Agreement contains an Affordable Housing Requirement that would require the project sponsor to pay fees for the development of the equivalent of 28 percent affordable housing units. This obligation would be satisfied by paying a fee per unit. The fees would be used by the City's Affordable Housing Program and the Successor Agency to support the development of housing units off site by others. The 28 percent affordable housing requirement would exceed the 20 percent fee per unit required by Planning Code Section 415. The City's Affordable Housing Program would receive the percentage of the fee that is required under the Planning Code and the Successor Agency would receive the remainder.

For the reasons discussed above, the proposed project would not induce substantial population growth in the Yerba Buena Center area of the Downtown Planning District or Citywide, either directly, through the development of a large number of new residential units, or indirectly, through the extension or expansion of roads or other public infrastructure that could allow more growth than could be served by existing infrastructure. Therefore, impacts of the proposed project on population growth would be less than significant, and no mitigation measures are necessary.

Employment

Temporary Construction Employment

There would be direct, but temporary, growth in construction jobs in the downtown area as a result of the proposed project. Project construction would be phased over approximately 36 months. Temporary construction employment would vary, depending on the construction phase. Daily average and maximum (peak) employment is estimated for the various phases of construction. An average of about 25 and a maximum of about 50 daily construction workers are anticipated during both Phase 1 (Demolition) and Phase 2 (Excavation/Shoring). During Phase 3 (Foundation and Subsurface), there would be an average of about 50 and a maximum of about 60 construction workers each day. During both Phase 4 (Building Superstructure) and Phase 5 (Exterior Finishing), an average of about 120 and a maximum of about 150 to 160 construction

[33] San Francisco County Priority Development Areas include Bayview/Hunters Point Shipyard/Candlestick Point project; Balboa Park and Market and Octavia Neighborhoods; Downtown Neighborhoods and Transit Infill Corridors; Eastern Neighborhoods; Mission Bay; Port of San Francisco; Transbay Terminal; Treasure Island; San Francisco/San Mateo Bi-County Area; and the 19th Avenue Corridor (County Line to Eucalyptus Drive).

workers would be employed daily. During Phase 6 (Interior Finishing), the last phase of construction, an average of about 85 and a maximum of about 125 construction workers would be employed each day. Overall, a total of approximately 1,000 construction workers would be employed during the approximately 36-month construction period for varying lengths of time, typically ranging from one day to six months depending on the construction trade required and the construction phase.[34]

It is anticipated that construction employees not already living in the City would commute from their permanent residences elsewhere in the Bay Area rather than relocate from more distant cities or towns; this is typical for workers in the various construction trades. Once construction phases are complete, construction workers would typically seek employment at other job sites throughout the region that require their particular construction skill. Thus, construction of the proposed project would not generate a substantial, unplanned population increase. Temporary, project-related impacts associated with construction employment would be less than significant, and no mitigation measures are necessary.

Permanent Employment

Table IV.C.3: Existing and Future Project Employment, shows existing 2010 on-site employment, and future 2030 project employment for both the residential and office flex options. Employment for these two options would be different. As noted in Table IV.C.3, there would be approximately 100 employees under the residential flex option and approximately 318 employees under the office flex option, a reduction in on-site employment from existing conditions.

There are currently about 453 full-time employees on the project site, of which 442 (98 percent) are office workers and the remaining employees are retail and building and parking garage support employees. There would be no office employment with the residential flex option since office space would not be provided with this option. Thus, there would be a net loss of about 442 office workers at the project site und`er this option. The office flex option would provide space for about 222 office employees, which is a net decrease of about 220 office workers at the project site compared to existing conditions. The proposed project would also generate employment associated with the proposed residential units such as doormen, engineers, and security and janitorial workers (approximately 42 employees under the residential flex option and approximately 38 employees under the office flex option). Under both options, The Mexican Museum is anticipated to employ approximately 44 workers and the retail/restaurant use is anticipated to employ 14 workers.

[34] Steven Hood, Millennium Partners, email communication, May 5, 2011. A copy of this communication is available for review at the Planning Department, 1650 Mission Street, Suite 400, San Francisco, California, as part of Case File No. 2008.1084E.

Table IV.C.3: Existing and Future Project Employment

Use	Existing Employment[a]	Proposed Residential Flex Option (215 units)[b]		Proposed Office Flex Option (191 units)[b]	
		Gross Floor Area	Employment	Gross Floor Area	Employment
Residential	-	580,630 gsf	31	519,310 gsf	27
Residential Amenity[c]	-	22,199 gsf	3	22,199 gsf	3
Museum/Institutional[d]	-	52,285 gsf	44[c]	52,285 gsf	44
Retail/Restaurant[e]	6	4,800 gsf	14	4,800 gsf	14
Office[f]	442	-	-	61,320 gsf	222
Other[g]	2	50,611 gsf	2	50,611 gsf	2
Parking	3	470 spaces	6[h]	470 spaces	6[h]
Total Employment[g]	**453**	**710,525 gsf**	100	**710,525 gsf**	318
Total Net Decrease			**(353)**		**(**135**)**

Notes: All numbers provided are approximations.

[a] Existing employment information provided by Kristin Gonsar, Millennium Partners, April 21, 2011.

[b] The residential flex option would include 175 to 215 units, and the office flex option would include 175 to 191 units. For purposes of analyzing project-related employment, the maximum number of units were used for each option.

[c] Kristin Gonsar, Millennium Partners, April 29, 2011.

[d] Assumes 1,200 gsf per employee based on the *706 Mission Street Transportation Study*, Appendix H.

[e] San Francisco's *Transport Impact Analysis Guidelines*, 2002 uses an employment factor of 350 gsf/employee for the proposed retail/restaurant uses.

[f] San Francisco's *Transport Impact Analysis Guidelines*, 2002 uses an employment factor of 276 gsf/employee for the proposed office uses.

[g] Includes service workers associated with loading, mechanical, storage, and utility space such as janitorial and building maintenance workers.

[h] Employment assumes similar proportion of employees per public parking space in the Jessie Square Garage plus residential valet service. Residential valet parking information provided by Kristin Gonsar, Millennium Partners, April 29, 2011.

Sources: City of San Francisco, *Transportation Impact Analysis Guidelines*, 2002, Millennium Partners, and Turnstone Consulting

Employment growth for the proposed project would be considered substantial if it resulted in housing demand that would exceed anticipated regional housing development. As shown in Table IV.C.3, the proposed project would result in about 100 employees under the residential flex option, and about 318 employees under the office flex option. Under both options, there would be a net decrease in total on-site employment due to the change in the mix of uses within the Aronson Building and development of new residential uses on the project site. Overall, there would be a net decrease of approximately 353 employees with the residential flex option and a

net decrease of approximately 135 employees with the office flex option.[35] Refer also to the discussion under Impact PH-3, below, concerning employment displacement at the project site. As a result, permanent employment related to the proposed project would not create demand for new housing that would induce substantial population growth in the City or the San Francisco Bay Area region. Project-related impacts on employment growth would be less than significant, and no mitigation is necessary.

Impact PH-2: The proposed project would not displace substantial numbers of existing housing units or create demand for additional housing, necessitating the construction of replacement housing elsewhere. (*Less than Significant*) (Criterion C.2)

There are no existing residential uses on the project site and, therefore, the proposed project would not displace any housing.

The proposed project would decrease the total number of employees on site, and would not create demand for additional housing in the City or San Francisco Bay Area region. Up to 215 new dwelling units under the residential flex option and up to 191 new dwelling units under the office flex option would be developed, which would add to the City's existing housing stock. Impacts of the proposed project related to housing demand would therefore be less than significant, and no mitigation is necessary.

Impact PH-3: The proposed project would not displace substantial numbers of people, necessitating the construction of replacement housing elsewhere. (*Less than Significant*) (Criterion C.3)

Construction of the proposed project would displace one existing on-site retail tenant, Rochester Big & Tall, a men's clothing store, and three office tenants. All of the existing office tenants, which occupy approximately 95,980 gsf in the Aronson Building, currently have leases that expire in 2013, the year project construction is anticipated to begin. Office tenants would be allowed to remain on site through the terms of their leases; however, leases would not be renewed and tenants would be required to relocate to office space elsewhere in 2013.

Rochester Big & Tall, the current occupant of the approximately 10,660 gsf of ground-floor retail space exercised a lease term extension in 2011 and holds additional lease term extension options through 2016. The project sponsor intends to meet with Rochester Big & Tall to discuss extension of the lease and relocation to a comparable off-site space.

[35] According to the U.S. Census Bureau's American Community Survey's five-year estimates for San Francisco County, *Means of Transportation to Work by Selected Characteristics 2006-2010*, about 76.3 percent of the City's employed residents work in the City itself. Available online at http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_10_5YR_S0802&prodType=table. Accessed February 1, 2012.

As shown in Table IV.C.3, p. IV.C.14, the four existing retail/office tenants employ approximately 448 people; with building support and parking garage employees, the total is 453 people. These workers currently reside mainly within the City or Bay Area region, and would not be expected to create additional housing demand in the region. Existing workers at the site who currently rent may be required to change their existing residence, depending on where the existing tenants locate new office space. However, existing workers who rent or own and live in their homes would likely remain in their current residences and either change their commute or change jobs in response to the proposed changes. The potential changes would not create new housing demand, since units that would be vacated or newly occupied would be part of the existing housing stock in the City and the region. Therefore, the proposed project would not displace substantial numbers of people, necessitating the construction of replacement housing elsewhere. For these reasons, displacement impacts of the proposed project would be less than significant, and no mitigation is necessary.

Impact C-PH-1: The proposed project, in combination with past, present and reasonably foreseeable future projects, would not result in a cumulatively considerable contribution to significant adverse cumulative impacts related to population growth, housing, and employment, either directly or indirectly. (*Less than Significant*)

The City and County of San Francisco actively engages in long-range, citywide planning. These planning efforts consider targeting anticipated population growth to infill sites that are well served by transit, and consider demand on infrastructure and public services and for housing as well. The City's approach to meeting projected future housing demand and employment growth is a policy-based planning approach that targets opportunity areas to meet local and regional jobs and housing projections. The plan-based approach considers a broad set of variables such as access to transit, availability of open space, a mix of retail uses, and improved public rights-of-way. ABAG regional planning efforts include the allocation of housing units to San Francisco and other Bay Area counties and the refinement of population and employment projections on a two-year cycle.

Area-wide Plans and Projects

The proposed project could contribute to cumulative impacts of development as contemplated in the downtown area included in the *Transit Center District Plan* (TCDP) area. At full buildout, implementation of the TCDP would allow the potential for about 5.82 million gsf of office space, approximately 85,000 gsf of retail space, approximately 1,370 hotel rooms, and approximately 1,350 dwelling units; refer to Chapter III, Plans and Policies, p. III.9, for a detailed description of

the proposed TCDP.[36] This would allow development of about 50 percent more office space than would be allowable under existing heights and land use controls. Increases in employment that would result from implementation of the TCDP have been accounted for by ABAG in *Projections 2009*. The Transbay Area is designated by ABAG as a Priority Development Area, which focuses growth on higher-density housing on infill sites near transit in areas that are well served by existing utilities, infrastructure and support services.

Within the City and County of San Francisco, there are several other large-scale development projects that have been approved by the City: the Candlestick Point/Hunters Point Shipyard Phase II Development Plan Project (Candlestick Point/Hunters Point Project); the Parkmerced Project; and the Treasure Island/Yerba Buena Island Redevelopment Project. These projects would create substantial increases in housing supply and population on a regional level. The Candlestick Point/Hunters Point Project includes about 10,500 residential units, Parkmerced about 5,680 new residential units, and Treasure Island/Yerba Buena Island up to 8,000 residential units. Each of these projects is in a Priority Development Area and, as such, this population growth has been accounted for in ABAG's population projections for the City. By 2035, ABAG estimates that approximately 56 percent of the City's projected population growth is expected to occur within the City's ten Priority Development Areas, including the Downtown Neighborhoods and Transit Rich Corridors Priority Development Area, in which the project site is located. This cumulative population and employment growth has been accounted for in ABAG's population projections for the City; this growth would not be considered substantial since it has been forecasted with consideration of planning for infrastructure, services and housing needed to support the residents, employees, and visitors. The proposed project would not make a considerable contribution to cumulative impacts of major planned and proposed developments citywide. As such, the proposed project would not result in a cumulatively considerable contribution to significant cumulative impacts related to population growth, housing, or employment, either directly or indirectly. No mitigation measures are necessary.

Population

The proposed project is estimated to increase total population in San Francisco by up to approximately 490 residents (under the residential flex option). The proposed project would directly increase the on-site residential population in an established urban area with high levels of local and inter-regional transit services and facilities. In addition, the increase in housing growth in the Downtown and South of Market Planning Districts has been accompanied by an increase in neighborhood retail uses, such as grocery stores, to serve the growing residential population. The

[36] San Francisco Planning Department, *Transit Center District Plan, Draft for Public Review*, November 2009, p. 20. A copy of the plan is available for review at the Planning Department, 1650 Mission Street, Suite 400, San Francisco, California, as part of Case File No. 2008.1084E.

population increase associated with the proposed project and other projects in the Downtown Neighborhoods and Transit Infill Area such as the Transit Center District Plan are included in ABAG's overall population projections for the City and nine-county Bay Area region. Thus, population growth attributable to cumulative development would be direct, planned growth that has been accounted for in the City's growth policies and regional projections.

The proposed project would not contribute to indirect (unplanned), cumulative population growth since the project would not build or expand infrastructure or public services that could encourage additional local growth beyond that which is already planned and accounted for in City and regional projections. Therefore, the proposed project would not result in a cumulatively considerable contribution to significant cumulative impacts related to increases in population, either directly or indirectly. No mitigation measures are necessary.

Housing

With the proposed project, existing employment at the site would be reduced by approximately 442 employees under the residential flex option. The project would therefore not create employment-related increases in the demand for housing in the surrounding neighborhoods, citywide, or in the region. Citywide projections indicate that by 2030 San Francisco will have about 748,100 jobs (up from 568,730 in 2010).[37] As discussed above, ABAG has designated the Downtown Neighborhoods and Transit Infill Area, which includes the project site, as a target area for infill housing. The Downtown and South of Market Planning Districts are also an important regional employment center. The proposed project would meet a portion of the anticipated cumulative housing demand with development, under the residential flex option, of up to 215 housing units on the project site. For these reasons, the proposed project would not result in a cumulatively considerable contribution to a significant cumulative impact related to housing demand or growth.

Employment

Regional projections indicate that by 2030 the San Francisco-Bay Area Region will have about 4,738,730 jobs (up from 3,475,840 in 2010). Citywide projections indicate that by 2030, San Francisco will have about 748,100 jobs (up from 568,730 in 2010). Because of San Francisco's central location, its local and regional transit access, and its historic function as an employment generator and job center for the region, the City has traditionally experienced, and will continue to experience, employment growth that is not commensurate with development of a comparable supply of housing within the City, or even the Bay Area to accommodate it. Total jobs attributable to cumulative development in the Downtown and South of Market Planning

[37] ABAG, *Projections 2009*, p. 92.

Districts, including those from TCDP and the proposed project (approximately 2,293), would represent a minute portion (0.0005 percent) of regional employment projections, and less than one-half percent (0.003) of citywide employment growth projections in 2030.

Therefore, the cumulative increase in employment would not exceed planned regional housing development, and would not be substantial. The proposed project would not make a cumulatively considerable contribution to significant cumulative impacts related to employment growth. No mitigation measures are necessary.

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D. CULTURAL AND PALEONTOLOGICAL RESOURCES

The Cultural and Paleontological Resources environmental topic includes archaeological resources, paleontological resources, and historic architectural resources. The archaeological and paleontological resources subtopics are discussed first. The historic architectural resources subtopic is discussed later in this section under a separate heading entitled "Historic Architectural Resources," beginning on p. IV.D.33.

ARCHAEOLOGICAL AND PALEONTOLOGICAL RESOURCES

This subsection assesses the potential for the presence of archaeological and paleontological resources within the project site, provides a context for evaluating the significance of archaeological resources that may be encountered, evaluates the potential impacts on archaeological resources, and provides mitigation measures that would avoid or minimize potential impacts on archaeological and paleontological resources. The Impacts discussion also considers whether the proposed project in combination with other reasonably foreseeable development projects in the vicinity of the project site would contribute to cumulative environmental impacts related to archaeological and paleontological resources.

An independent consultant has prepared an Archaeological Research Design and Treatment Plan (ARDTP) for the project site.[1] The research and recommendations of the ARDTP are the basis for the information and conclusions of this EIR section with respect to archaeological resources.

SETTING

HISTORIC CONTEXT

In order to predict the paleontological and archaeological property types that may exist within the project site, and to provide a context for evaluating the significance of paleontological and archaeological resources that may be encountered, a geologic context and a historic context for prehistoric era and historic era activities and settlement in the vicinity of the project site is provided below.

Geologic and Natural Setting

The modern elevation and topography at the project area is the result of both natural and cultural processes. The project site is underlain by historic fill to variable depths ranging from 10 to 15 feet below the surface. The less-than-225-year-old historic fill is underlain by fine-grained,

[1] Archeo-Tec, *Archaeological Research Design and Treatment Plan for the 706 Mission Street Project*, City and County of San Francisco, California, March 2011.

eolian (dune) sand to approximate depths of 23 to 30 feet below ground surface. The native sand is underlain by 3.5- to 5-foot-thick organically rich marsh deposits comprised of sandy clay, silt, and clayey sand. Peat deposits underlying sand dunes on the block to the south of the project site have been dated to approximately 1,900-2,000 yrs Before Present (B.P.).

The marsh deposits and sand dune deposits in the South of Market area are underlain by sandy clay and dense sand of the Colma Formation to depths of about 100 feet below the surface. The Colma Formation has been dated to 70,000 to 130,000 yrs B.P. The sands of the Colma Formation probably originated in environments ranging from shallow bay to dune and valley slopes. The sedimentary Colma Formation within San Francisco has the potential to contain paleontological resources. Fossilized remains of mammoth and bison were recovered from an excavation in the gravelly, sandy clay of the Colma Formation at the southeast base of Telegraph Hill. This find is the most abundant collection of Pleistocene vertebrates reported in San Francisco.[2]

Early U.S. Coast Survey maps depicting the project site before development took place give an idea of what the conditions were like during Native American inhabitation of the area in the 17th and 18th centuries. A number of factors would generally suggest that the project site and vicinity may have been attractive locations for habitation, including the availability of wood, its proximity to the shoreline, and its proximity to areas abundant in game. In the present day, the closest body of fresh surface water to the project site is Mission Creek (China Basin), located over a mile to the southwest. It is likely that prehistoric residents of the South of Market area used groundwater in natural springs or hand-dug seeps. Groundwater resources in the area, as noted in early Gold Rush accounts, were shallow and potable.

Prehistoric Period

Current archaeological evidence suggests humans have continuously occupied California since 13,500 years B.P, although no sites older than 6,000 years B.P. have been recorded in the San Francisco Peninsula. The human presence in California is described in three periods: the Pleistocene-Holocene Transition (13,500–9,000 years B.P.); the Middle Holocene (9,000–4,000 years B.P.); and the Late Holocene (4,000 years B.P. to present). These periods are characterized by major regional shifts in settlement patterns, technology, economy, and trade that are evident in the archaeological record.

[2] Peter U. Rodda, "Late Pleistocene Vertebrates from Downtown San Francisco," *Journal of Paleontology* (Abstract), Volume 67, No. 6, November 1993.

Pleistocene–Holocene Transition (13,500-9,000 years B.P.)

Sites from the Pleistocene-Holocene transition have been found in Northern California, but no Pleistocene-Holocene transition sites have been found in San Francisco or its immediate surroundings. More than 400 fluted projectile points, exhibiting a high degree of variability, have been found throughout California. The early fluted-point-wielding Californians were probably a sparse population of semi-sedentary bands of hunter-gathers who lived for the most part in open-air sites, although they also lived in rock shelters in some areas. Deep refuse deposits dating to the Early Holocene are absent throughout California, suggesting that people used locations only briefly and then abandoned them, or reoccupied areas for short recurrent periods. They hunted large and small mammals, as well as waterfowl. Shellfish were a staple, though their use was less predominant during the Early Holocene than it was in later times. Seeds were likely collected. Early Holocene sites contained handstones and milling slabs, minimally modified cutting and scraping tools, and other chipped stone tools, as well as marine shellfish and the remains of a variety of mammals.

Middle Holocene (9,000-4,000 years B.P.)

After about 8,000 B.P., a general shift in subsistence occurred with specialized technology and exploitation of new ecological niches. In the absence of big game food sources, people began to exploit more diversified animal species and shifted to an increased reliance on plants and seeds. This resource diversification required seasonal migrations in order to access different environments throughout the year. Consequently, the "tool kit" of prehistoric peoples became more specialized, growing to include varied methods of food processing. The diverse habitats and year-round availability of food in Central California also contributed to the shift to exploitation of resources other than big game. The increasingly prominent role of seed collecting is reflected in the archaeological record by large numbers of food-grinding implements. As the use of acorns became more predominant, heavy, deep-basined mills and handstones came into use.

Late Holocene (4,000 years B.P. to Present)

Beginning around 4,000 B.P., the climate began to shift from warm and dry to cooler and wetter conditions, causing an adjustment to new environmental conditions. This period is characterized by further niche specialization, a refinement of various technologies, and specialized exploitation of plant and animal species. Many sites dating to the Late Holocene in the San Francisco Bay region are shellmounds, midden sites containing large quantities of mollusk shells. Sites dating to the Late Holocene have been found in San Francisco, primarily in the South of Market region. These sites are all multi-activity shellmound and midden sites.

Prior to the arrival of the first Europeans, the project area was situated within the territory occupied by the Ohlone people, who were referred to as the Costanoans by the Spanish explorers and settlers of the region (an Anglicized version of *Costeños*, the Spanish derivative for "coastal people"). The area of the San Francisco Peninsula between the San Francisco Bay and the Pacific Ocean has been attributed to a linguistic subgroup of the native Ohlone people. Ohlone social structure was complicated, organized into at least 50 distinct tribelets, united through language, trade, and intermarriage. The Ohlone lived primarily in fixed villages, on a diet consisting of acorns, nuts, grass, seeds, berries, fish, and mollusks such as mussels and abalone from San Francisco Bay and the Pacific Ocean. Other animals included in the diet were elk, pronghorn, deer, salmon, perch, ducks, geese, quail, and other waterfowl. Ohlone material culture included woven baskets, animal skin aprons or capes, shell beads, abalone pendants, and bone and wood earrings. Houses were dome-shaped and built of willows and tule.

When the Spanish arrived in the San Francisco Bay region in the late 1700s, the Ohlone numbered at most around 10,000, but by approximately 1810, much of the aboriginal population, along with most of their traditional culture, had changed forever in the face of European encroachment and disease, warfare, displacement, and, above all, the California mission system.

Historic Period

This subsection presents a history of San Francisco as relevant to the project site from the time of the first European explorers to the present. A history of development within the project site itself is revealed by archival research, including demographic records, historic maps, and newspaper accounts, and is discussed below.

Spanish, Mexican, and Early American Periods (1775-1848)

In November 1769, the first known party of European explorers, headed by Don Gaspar de Portolà, encountered San Francisco Bay. From 1769 until 1776, several additional exploratory expeditions were mounted with the intention of further surveying the region and, at the same time, laying the groundwork for the foundation of a Spanish settlement at the port of San Francisco. In 1776, the Presidio was officially founded on a site near the Golden Gate, in a strategic position for an artillery battery at the narrowest part of the harbor entrance.

The first mass was celebrated at the first Mission Dolores chapel in June 29, 1776. During the Spanish era in San Francisco, Mission Dolores grew to include numerous structures, most of which clustered around the church and its immediate vicinity. By 1832, it is estimated that the Bay Area Native American population had declined by 80 percent during the half-century since permanent non-native settlements were founded on the San Francisco Peninsula. Native villages had been abandoned and the people had relocated, either voluntarily or by compulsion, to the

various Franciscan missions that had been established throughout the region. Other people escaped to the hinterlands to avoid the settlers and soldiers.

Documentary sources suggest that the Spanish did not fully explore and exploit the economic potential of their newly acquired domains in California. Trade between the Spanish and later Mexican territory of Alta California (a region that later became present-day California, Nevada, and parts of other western states) and nations other than Spain was forbidden, although it occurred on the underground market.

Mexican Period

Upon gaining its independence from Spain in 1822, Mexico began to encourage trade within the Bay region by opening the port to all international ships. As a result, the number of vessels entering the bay increased considerably. Most of the ships came from New England ports and visited the bay chiefly to acquire hides for the growing leather industry on the East Coast of the United States. General practice was for these seafaring vessels to dock at Yerba Buena Cove[3] and then send out smaller launches to various ranchos and missions around the bay for actual trading activities. Often, however, boats from the missions approached the anchored ships and engaged in business there.

The new Mexican government relaxed immigration laws in 1830. As a result, many of the newcomers to California in the 1830s and 1840s were either Europeans or immigrants from the eastern seaboard of the United States. By 1834, in recognition of the growing importance of Yerba Buena Cove in San Francisco Bay as anchorage for foreign ships, Alta California Governor José Figueroa had authorized the creation of a commercial town and trading post on the shore of this popular port.

In 1833, Governor Figueroa ordered that the California missions would be "secularized," or disbanded, and mission lands would be dispersed. After secularization, the missions and former mission lands were supposed to be granted to the Native American neophytes. Instead, Mexican authorities encouraged wealthy families to move to California and develop enormous cattle and horse ranchos by offering generous land grants. Most of the Native Americans disappeared from the missions, while many of the Spanish residents who lived at the mission during this time used the opportunity to apply for grants of land formerly held by the government. Secularization, liberal trade laws, land grants, and immigration laws that were relaxed in 1830 brought many newcomers to California in the 1830s and 1840s, particularly Europeans or emigrants from the eastern seaboard of the United States.

[3] Before the filling of Yerba Buena Cove through the latter half of the 19th century, the original shoreline of Yerba Buena Cove encompassed an area that is now occupied by much of San Francisco's downtown Financial District, east of Montgomery Street, and east of First Street.

Yerba Buena grew steadily, but slowly, in the late 1830s and early 1840s. A road, known throughout the mid-19th century as the Plank Road, which linked Yerba Buena with the settlement near Mission Dolores, was built in 1838.

Early American Period

On July 8, 1846, California officially came under American jurisdiction when a landing party from the sloop-of-war *Portsmouth*, under the command of Captain John B. Montgomery, raised the American flag to the top of the flagpole in the town's plaza, thereby claiming California for the United States. At the time, Yerba Buena's 200 permanent residents occupied some 50 buildings scattered throughout the Yerba Buena Cove area. Following the American seizure of California, the town of Yerba Buena began to grow rapidly. In 1848, on the eve of the California Gold Rush, Yerba Buena's population had grown to slightly more than 800 individuals who occupied approximately 200 structures. The City was to undergo one of the most dramatic and unprecedented explosions of population and building ever recorded.

The Gold Rush Period (1848–1859)

Within months of the initial gold discovery at Sutter's Mill in 1848, the once inconsequential town of Yerba Buena (now formally renamed San Francisco) was quickly transformed into what has been called an "instant city." During the five-year span between 1849 and 1854, San Francisco was the scene of an unprecedented boom in population and construction. During the summer of 1849, there still had been no grading, planking or paving of any of the streets. The wet winter of 1849 caused people to think about the value of civic improvements. Official street grades were established in November 1850 and major improvements to San Francisco's expanding thoroughfares began.

The population boom accompanying the Gold Rush prompted the first major settlement of the South of Market area. With the exception of the cluster of structures near Mission Dolores and several buildings belonging to the Bernal Rancho, located in an area to the south of the mission, there were no structures south of Market Street before 1849. In 1850, "Happy Valley," an early encampment of adventurers who were awaiting the opportunity to journey to the gold fields, was nestled among the sand dunes to the south of Market Street, extending westward from the bay's shoreline near what today is the intersection of First and Mission Streets.

Throughout 1849 and early 1850, the population of Happy Valley was a largely transient, male, and occasionally rowdy group. However, by mid-1850, an essential transformation to the physical and social nature of this South of Market community began to occur, linking it to the rest of the City. Many of the sand dunes which surrounded Happy Valley – particularly those along Market Street – had been excavated and cast into the bay to serve as landfill. Streets were also

being graded to accommodate more permanent homes and businesses. By 1852, the once chaotic Happy Valley had become the City's chief residential district.

San Francisco's first industrial activity, iron foundering, began South of Market during the height of the California Gold Rush era. The pioneering iron foundry was the Union Iron Works, which, as early as 1849, was located at the northeast corner of First and Mission Streets, two blocks from the project site. Once established, this and various other South of Market foundries grew at a rapid pace and were soon supplying the entire west coast of the United States with mining equipment, heavy machinery, and other manufactured goods. The population of the South of Market region steadily increased throughout the Gold Rush era as people sought and found employment in the iron foundries and nearby Rincon Point shipyards. San Francisco's Gold Rush building boom peaked in 1853, followed by a serious economic depression, declining gold production, and bank failures in 1857.

The 1853 U.S. Coast Survey map depicts a row of four small buildings in the project area and several houses are also shown northeast of the project area. The four adjacent structures pictured along the north side of Mission Street, near Third Street, were known as Howard's Row. One of these buildings appears to be located within the project site. Howard's Row consisted of four elaborate, prefabricated cottages which were designed and built by W.D.M. Howard. Due to the cost of lumber and labor, the houses were prefabricated in Boston and sent to San Francisco in sections. In 1851, Howard moved to Mission Street into one of these cottages. The other three were inhabited by other prominent San Francisco pioneers: George Mellus, Talbot H. Green, and Sam Brannan.

The 1859 Coast Survey map depicts the Mission Street Plank Road extending westward along Mission Street from the intersection with Third Street.

A massive program of leveling the City was undertaken in this area during the 1850s and 1860s, discussed below.

The Later 19th Century (1860-1906)

By the end of the 1850s, San Francisco had completed its rapid transformation from a booming frontier town into the principal urban center on the west coast of the United States. During this period, San Francisco's South of Market area was primarily occupied by immigrants from both Europe and the east coast of the United States. Recently arrived easterners dominated the neighborhood's professional classes. In addition, Irish and German immigrants swelled the ranks of the working classes, and Germans opened breweries, corner grocery stores, and saloons.

At the beginning of the 1860s, many of the wealthier merchants, bankers, and capitalists living in the South of Market area built their homes on stately Rincon Hill, which afforded a fine view of

the City and the bay. Mission Street in project area also hosted the residences of the elite (Howard's Row, as discussed below). Members of the middle class, meanwhile, elected to erect their domiciles on the area's principal thoroughfares – Mission, Howard, Folsom, Harrison, Second, and Third Streets – while the region's working-class residents claimed the smaller, less expensive houses, built on smaller lots, on streets such as Jessie, Stevenson, Minna, Natoma, Clementina, and Tehama.

From 1869 onward, the entire South of Market region assumed an increasingly working-class character. Eadweard Muybridge's famous 1876 photographic panorama of the South of Market district, taken from Nob Hill, reveals the magnitude of the changes that had taken place in the area in the area. The elegant wood-frame two- and three-story buildings that had existed along Second Street during the early-to-mid 1860s had mostly disappeared. In their place, there is a cluster of tightly packed multi-storied structures which contained a variety of storefronts at street level with working-class lodgings above. Muybridge's 1876 photographic panorama reveals that similar architectural and demographic patterns had developed throughout the South of Market region.

During the 1880s South of Market was still primarily residential; however, saloons were becoming common on every block. Saloons were not just areas for the consumption of alcohol but were establishments where food was served and where people went to socialize and exchange political views. Many of these establishments served lunch fare to the workers of the surrounding industries.

During the 1890s and after the turn of the century, most of the South of Market area was still predominately inhabited by small business and working-class residents. Many houses built in the 1860s had been torn down and replaced with larger lodging and boarding houses or commercial and light industrial buildings.

Review of Sanborn maps from 1887 and 1899 shows that the project site was occupied by seven separate addresses. Most notable of these is the Grand Opera House at 712-710 Mission Street. The Grand Opera House opened in January of 1876 on Mission Street between Third and Fourth streets. A portion of the building was within the Mexican Museum parcel on the project site. The Grand was the largest opera stage in the United States at that time and could seat more than 2,000 people. It was the leading playhouse of the City until the mid-1880s when South of Market became less fashionable and the theater devoted itself to vaudeville. Around the turn of the century the neighborhood began to revitalize. The Aronson Building on the project site was built in 1903. The Grand was again used by many of the leading theatrical companies until it was completely destroyed in the 1906 Earthquake and Fire.

Other buildings on the project site housed lodging houses. Review of the 1880 and 1900 census reveals that residents of the lodging houses within the project site were primarily working class, white, and Western European or American. A variety of commercial activities coexisted with the lodgings on the site: light industry (furniture manufacturers, upholsterers, and cabinet makers), a photography studio, and a ground-floor retail and restaurant use.

ARCHAEOLOGICAL CONTEXT

Archeo-Tec performed a records search on July 24, 2008, at the Northwest Information Center at Sonoma State University in Rohnert Park, California, to identify archaeological studies of nearby sites. A shell midden deposit, CA-SFR-147, was recorded and completely removed during excavations associated with the Jessie Square Garage project, which included the Mexican Museum parcel. CA-SFR-147 represents one element of an archaeological district, *Prehistoric Native American Shellmiddens on Mission Bay, San Francisco*. The other elements of the district include CA-SFR-2, -113, -114, -154H, -155, and the Fourth Street Midden site. All of these sites were recovered within sand dune deposits along the former margins of Mission Bay and are roughly contemporaneous ranging in age from 2100 to 1100 B.P., although site CA-SFR-154/H may have been occupied as recently as 150 years B.P. The archaeological district represents elements of a multi-site village community network that clustered around the shore of Mission Bay.

The State Historic Preservation Office's concurrence indicates that the district and its elements are eligible for inclusion in the National Register of Historical Places (NRHP) under Criterion D (Information Potential) as well as under Criterion A (Events).[4]

PRIOR GROUND DISTURBANCE WITHIN THE PROJECT AREA

The 1853 U.S. Coast Survey map shows the project site and the surrounding area prior to the massive landscape modifications of the Historic period. The topography of the block bounded by Market, Mission, Third and Fourth Streets was once defined by the interface of three sand dunes and the shallow gullies carved out between them. An 80- to 100-foot sand dune is pictured at

[4] The National Register is a listing of buildings, structures, sites, objects, and districts that possess historic, architectural, engineering, archaeological, or cultural significance at the Federal, state, or local level. The National Register includes four evaluative criteria to determine eligibility of a resource. Resources are significant under the NRHP if they are properties "that are associated with events that have made a significant contribution to the broad patterns of history" [Events]; or "that are associated with the lives of persons significant in our past" [Persons]; or "that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction" [Design/Construction]; or "that have yielded or may likely yield information important in prehistory or history" [Information Potential]. The eligibility criteria for inclusion in the California Register of Historical Resources are closely based on the NRHP eligibility criteria.

Market Street in the center of the block and is shown sloping just west of the project site. A 60-foot dune is shown taking up most of the eastern half of the block (the project site is located on a bench on the southern slope of this dune) and a 60-foot dune depicted on the east side of Mission Street, between Second and Third Streets, stretches westward along Mission Street to the south of the project area.

In order to understand the extent of the modification that occurred within the project area, it is necessary to review the establishment of the city grade. All city grades were computed from an assigned zero base, set at 6.7 feet above the ordinary high tide mark on a pile at the boat stairs at the corner of Pacific and Davis Streets. It is important to note that the U.S. Coast Survey maps are based on mean low tide, which was approximately 4 feet below mean high tide. It is therefore necessary to account for the 10.7-foot difference when comparing the U.S. Coast Survey map elevations to the city grade.

In accordance with Municipal Order No. 458n, an elevation of 16.7 feet above city base level, or 27.4 feet above the mean low tide, was mandated for the intersection of Third and Mission Streets. According to the 1853 U.S. Coast Survey map, it appears the original elevation of the southeastern section of the project area was slightly less than 40 feet above mean low tide. Depending on the precise elevation, the mandated elevation indicates that approximately 10 feet of cutting occurred in the vicinity of the intersection, probably related to leveling the neighborhood's numerous dunes in the second half of the 19th century.

Geotechnical samples taken in September of 2000 within the project site for a previous project show 12 to 17 feet of historic fill atop dune sand and a marsh deposit at approximately 23 to 30 feet below surface.[5] Based on Treadwell & Rollo's subsurface testing at adjacent and nearby sites, fill estimates are about 10 to15 feet and most likely consist of varying amounts of rubble from the 1906 Earthquake and Fire.

The eastern half of the project site contains the 10-story Aronson Building, which was constructed in 1903 and is currently occupied by retail stores along the ground floor and offices on the upper levels, and an unoccupied basement that extends to approximately 16 feet below grade. Two annexes to the buildings were built in the 1978: one on the western side with a Mission Street frontage, and another along the northern side with a Third Street frontage. The annexes do not have basements and their foundations consist of precast concrete piles and concrete slab. The estimated depth of the foundations for the annexes is a three-foot-deep concrete slab with pilings that do not exceed 10 feet.

The Mexican Museum parcel, which is adjacent to the subsurface Jessie Square Garage, is paved and vacant on the surface. As previously described, this parcel contains a below-grade structure

[5] ARDTP, p. 96.

constructed as part of the Jessie Square Garage Project. The foundation for the structure beneath the Mexican Museum parcel extends to approximately 41 feet below street level. The Mexican Museum parcel is part of the project site but is outside the area of proposed excavation.

The about 20-foot-wide-by-85-foot-deep corridor between the Mexican Museum parcel and the Aronson Building has never been excavated; however, existing tiebacks associated with the adjacent garage do extend into the corridor area.

ARCHAEOLOGICAL PROPERTY TYPES THAT MAY BE PRESENT WITHIN THE PROJECT SITE

The ARDTP identifies archaeological property types that may be present within the project site, based on patterns of behavior that have taken place within the project site and its vicinity. Property type predictions for the project site are based on a review of historic and archaeological research materials, including ethnographic research, research into historic land use patterns, and a review of archaeological property types encountered at nearby sites. While it is impossible to predict all cultural materials that may be present within the project site, there is a substantial likelihood that these property types may be encountered during construction of the proposed project.

Prehistoric Property Types

Generally speaking, any intact prehistoric deposit found within the project site is presumed to be of scientific significance and therefore eligible for the California Register of Historical Resources (CRHR) under Criterion 4 (Information Potential).

Multi-Activity, Year-Round Sites

A multi-activity year-round site is defined as containing more than one of these property types: midden, hearth and ash features, house pits, burials, village sites or shellmounds, as well as other types of habitation sites. Such sites are particularly significant for archaeological study as data derived from them may address a variety of research questions, notably those related to cultural patterns and social organization.

Seasonal Sites

Cultural materials typically present in a seasonal site include dense areas of shell midden containing mammal, bird, and fish bones, evidence of stone and bone tool-making, and beads and other decorative objects. The analysis of such sites, if found, would contribute to the understanding of prehistoric land use in the area.

Lithic Scatters

Flaked stone tools and waste flakes from their manufacture are typically found in the form of a diffuse, scattered deposit. These sites are significant in that they can answer a variety of research questions about prehistoric technologies, as well as potentially supply temporal data for any deposits in which they are found. When lithic scatters are found on the ground surface, they are generally assumed to have been subject to a greater degree of disturbance than those associated with buried deposits.

Isolated Artifacts

Isolated artifacts may be any of a wide range of materials not apparently associated with a discrete archaeological feature or site. When such items are found outside the context of a site or feature, the ability of such artifacts to address research themes and yield important scientific and historical information is limited. However, an isolated artifact exhibiting unusual or formerly unknown characteristics may add new and significant data to understanding past lifeways, even in the absence of contextual details.

Prehistoric Cemetery

A site containing numerous formally interred human burials is considered a cemetery site. There are three identified types of cemetery sites in the Bay Area: (1) cemeteries located close to villages and found within soil rich in midden, (2) cemeteries located far from villages in essentially sterile sites, and (3) mounds which appear dedicated to cemetery purposes, contain remnants from mortuary feasting, and whose burials are formal. Any formal cemetery can yield complex and valuable data: skeletal pathology and bioarchaeological[6] analysis of burials can offer data revealing the physical health, diet, and mortality of the population, and mortuary analysis of the entire burial assemblage can offer insight into the behavior, social structure, and belief systems of the population.

Isolated Burials and Features

Prehistoric human burials are presumed to be significant, due both to their importance to their descendants and because a great deal of information about past peoples' health and traditional culture can be gleaned from their analysis.

Historic Period Property Types

The historical urban landscape is an important source of information on past lifeways. Archival research of past activities on the site and vicinity, and a comparison with known historic property

[6] The study of animal bones from archaeological sites.

types encountered on other urban archaeological sites has resulted in the prediction of the historical property types. While it is impossible to predict every property that may be encountered during excavation, the property types listed here (refuse, architecture, infrastructure, and landfill) are the remains most likely to be encountered during the course of proposed project construction.

Refuse

The most common and informative expected historical property types are refuse features which result from the occupation of the area. Hollow features include pits, privies and wells. Such property types were created specifically for functional use. During their use or upon abandonment, they become a receptacle for refuse. Sheet refuse accumulates in broad scatters on living surfaces over a period of time as people discard refuse in their yard, farms and working areas, a common 19th century practice. Refuse features provide evidence of the behaviors of the people who used the project site. Refuse features can often be dated and connected to specific individuals who lived on the site.

Architecture

Architectural properties include structural remains such as foundations, wall footings, platforms, collapsed wood buildings, ovens, and stoves. In many cases, the remains correlate to structures depicted on historical maps and other documents. In these instances, the ability of those remains to contribute to important research domains may be limited unless accompanied by a diverse artifact assemblage. Many research questions are often better suited to other research methods such as analysis of primary documents.

Infrastructure

Infrastructure in urban settings includes those features related to the development and maintenance of settlement, such as sewer lines, drain pipes, power lines, roads, hydrants, etc. Infrastructure features often correlate to municipal utility maps. As with architectural properties, such research domains may be addressed by other research media available in the documentary record, thus limiting their potential archaeological significance.

Landfill and Landscape: Earthquake Rubble

Landfill and landscape property types include soil and debris deposits. Landfill deposits that are composed of sand have limited research value, because the sequence and process of filling to raise low ground is often well documented in variety of City documents. However, landfill that is composed of cultural debris has the potential to shed light on a variety of important research themes related to waste disposal and development practices.

Research Themes Addressed by Archaeological Property Types

An archaeological resource may be eligible for listing in the CRHR as a historical resource. As explained below, Public Resources Code Section 5024.1 contains criteria, any one of which, if present, may indicate a resource is historically significant. Criterion 4 (Information Potential) is the most relevant for archaeological resources and provides that the resource is an historical resource and eligible for listing in the CRHR if the resource shows the potential to yield important scientific or historical information. Integrity of an archaeological resource is the ability of the artifact assemblages, features, or stratigraphic relationships associated with a resource to address significant research questions. The ARDTP identifies research issues that could potentially be addressed by the study of archaeological features that may be present within the project site. Identification of research themes provides a context by which to assess the significance and integrity of archaeological features that may be encountered in the field. Examples of research themes identified in the ARDTP include the following:

Prehistoric Period

Late Pleistocene and Early Holocene Cultural Deposits: Very few details are known about the daily life of Pleistocene-Holocene transition people. The discovery of late Pleistocene/Early Holocene cultural deposits, if present within the project area, would be historical significant per Criterion 4 of the CRHR and could answer questions about the lithic technology, subsistence patterns, migration and settlement patterns, ancestry, nutrition, and health of prehistoric populations within the San Francisco peninsula

Chronology and Cultural History: Unlike historical archaeological sites, for which written records may exist to contextualize archaeological finds, archaeologists must formulate a timeline for prehistoric sites almost exclusively through their cultural assemblages. The study of prehistoric archaeological assemblages, if encountered within the project site, would allow such features to be placed within the particular time periods and cultural contexts within which they were created. Today, absolute dating technologies, such as radiocarbon dating and obsidian hydration, can provide reliable age approximations of archaeological components and help to confirm, refine or rebuke past artifact chronology schemes.

Subsistence and Settlement Patterns: Study of prehistoric artifactual assemblages could provide information about where people lived from season to season, how they structured their communities, what resources were used at various times of the year, what made the site favorable for habitation, and what types of items/materials were important at different times. Several sites that have been discovered in close proximity to the project site raise specific questions of settlement patterns. One site found in the adjacent Jessie Square Garage project site – CA-SFR-155 – appears to show evidence of seasonal settlement. Based upon floral and faunal evidence, this site was likely a temporary spring and summer camp. Evidence of a major year-round village site in the area was found at CA-SFR-114, approximately one block to the southeast of the project site. CA-SFR-113, two blocks to the southwest, consisted of several loci of different encampments. It is possible that several sites in the area are related and have been labeled separate sites due to the fragmented nature in which urban archaeology is carried out.

Succession of Prehistoric Populations: Changes in cultural behaviors are often linked to changes in the environment, technological innovation or evolution, and the growth or intrusion/migration of cultural groups. Study of habitation sites could address research questions regarding whether the project area was continuously occupied by a prehistoric population, or if there are measurable gaps in time of human presence within the region.

Trade, Transport, and Inter-Regional Contact: Evidence of trade can typically be documented by the presence or absence of items whose origin or source is exotic (nonlocal). Objects of value have been exchanged for other significant objects throughout prehistory and historical times, and are often tied to available resources and political issues such as cultural boundaries and control over various resources.

Recent San Francisco Bay Area Shellmound Theory: Prehistoric shellmounds may have been intentionally constructed landscape features associated with pre-exisitng cemetery sites, and even after residential abandonment, associated with funeral and memorial feasting. This hypothesis expands on the more widely held belief that shell middens form as a result of discard associated with shellfish consumption at residential sites.

Historical Period

Gold Rush Economics: Along with the rapid physical growth of San Francisco during the Gold Rush came many of the cultural and social amenities of eastern cities. Products from all over the world were available in San Francisco. The effect of this volatile economy is often apparent in the archaeological record, and both architectural and refuse remains can show evidence of adaptation, innovation, and intercultural exchange. Refuse could address questions related to living conditions and consumption habits of settlements outside the city center during the Gold Rush. Architectural remnants could reveal information about the transition between ramshackle Gold Rush living and the orderly Victorian period living.

Gold Rush Era Settlements: Howard's Row, as discussed in the historical context above, was a row of four identical prefabricated houses built along Mission Street in the 1850s. The residents of these houses were prominent early San Franciscans. These residents would have had privies in their rear yards, and may have also had trash pits in the yards as well. Refuse could reveal information about the prominent persons who lived on Howard's Row, including Sam Brannan, that is not available in the historical record.

Standardization of Land Use and Urban Geography: The desire for orderliness is also reflected in San Francisco's urban geography and land use planning. Urban infrastructure (such as roadways, railways, sewer lines, waste management systems, utility supplies) and industrial processes were all developed in an attempt to standardize urban culture for the benefit of its citizens. There was also a desire for the standardization of property as can be seen in the cutting, filling and leveling of the urban landscape to provide room for straight streets and level lots upon which to build. Rectangular outlines of urban lots, orientations of structures, and land use activities are all expressions of the Victorian desire for a regularly patterned urban geography.

Social Class Relations and Consumer Behaviors: Remnants of consumer goods could provide information about the consumption behaviors of the residents of the site and their

social class. Such finds could be compared against census data about the occupations of the residents of the project site.

Boarding Houses: Archaeological remains traceable to one or more boarding houses that once existed on the project site could reveal information about the culture of and variation among late 19- and early 20th century boarding houses.

Ethnic Identity and Maintenance of Ethnicity: The boarding house located along Mission Street in 1880 had a number of Scandinavian residents, while residents of Third Street were primarily from Western Europe and the eastern United States. A comparison between archaeological deposits from these families could show differences in acculturation as reflected in diet, personal items, and housewares. Other research themes in this section requiring domestic property types can be compared along ethnic lines to reveal similarities or differences between ethnicities.

The Grand Opera House: Cultural remains associated with the Grand Opera House could reveal historical information about the arts in San Francisco in the late 19th and early 20th century.

Saloons: Refuse associated with saloons could reveal historical information about the saloon's patrons, what food was served, about uniformity and variation between saloons, and about the nature of female presence at Victorian era saloons.

REGULATORY FRAMEWORK

Under CEQA, archaeological resources are considered to be part of the physical environment and, thus, CEQA requires that the potential of a project to adversely affect archaeological resources be analyzed (CEQA Section 21083.2). For a project that may have an adverse effect on a significant archeological resource, CEQA requires preparation of an environmental impact report (CEQA Section 21083.2 and CEQA Guidelines Section 15065). CEQA recognizes two different categories of significant archeological resources: "unique" archeological resources (CEQA Section 21083.2) and archeological resources that qualify as "historical resources" under CEQA (CEQA Section 21084.1; CEQA Guidelines Section 15064.5).

Significance of Archeological Resources

An archeological resource can be significant as either a "unique" archeological resource or an "historical resource" or both, but the process by which the resource is identified under CEQA as one or the other is distinct (CEQA Section 21083.2(g); CEQA Guidelines 15064.5(a)).

An archeological resource is an historical resource under CEQA if the resource is:

- Listed on or determined eligible for listing on the CRHR; this includes archeological properties listed or eligible for the NRHP;

- Listed in a "local register of historical resources";[7] or
- Listed in an "historical resource survey."

Generally, an archeological resource is determined to be an historical resource due to its eligibility for listing to the CRHR or the NRHP under Criterion 4 because of the potential scientific value of the resource, that is, it "has yielded, or may be likely to yield, information important in prehistory or history" (CEQA Guidelines Section 15064.5(a)(3)). An archeological resource may also be CRHR-eligible under other evaluation criteria, such as Criterion 1, association with events that have made a significant contribution to the broad patterns of history; Criterion 2, association with the lives of historically important persons; or Criterion 3, association with the distinctive characteristics of a type, period, region, or method of construction. Appropriate treatment for archeological properties that are CRHR-eligible under criteria other than Criterion 4 may be different than treatment for a resource that is significant exclusively for its scientific value. Appropriate treatment for archaeological resources significant under Criterion 1 (Events), Criterion 2 (Persons), and Criterion 3, (Design/Construction) may include an interpretive program to preserve and enhance the ability of an archaeological resource to convey its association with historic events and persons and to convey its distinctive design/construction characteristics.

Failure of an archeological resource to be listed in any of these historical inventories is not sufficient to conclude that the archeological resource is not an historical resource. When the lead agency believes there may be grounds for a determination that an archeological resource is an historical resource, then the lead agency should evaluate the resource for eligibility for listing to the CRHR (CEQA Guidelines Section 15064.5(a)(4)).

"Unique archeological resource" is a category of archeological resources created by the CEQA statutes (CEQA Section 21083.2(g)). An archeological resource is a unique archeological resource if it meets any one of the following three criteria:

- Contains information needed to answer important scientific research questions (and there is a demonstrable public interest in that information);
- Has a special and particular quality, such as being the oldest of its type or the best available example of its type; or
- Is directly associated with a scientifically recognized important prehistoric or historic event or person.

Under CEQA, evaluation of an archeological resource as an historical resource is privileged over the evaluation of the resource as a unique archaeological resource in that CEQA requires that

[7] A local register of historical resources is a list of historical or archeological properties officially adopted by ordinance or resolution by a local government (Public Resources Code 5020.1(k)).

"when a project will impact an archaeological site, a lead agency shall first determine whether the site is an historical resource" (CEQA Guidelines Section 15064.5(c)(l)).

Evaluation of an Archaeological Resource as Scientifically Significant

In requiring that a potentially affected archeological resource be evaluated as an historical resource—that is, as an archeological site of sufficient scientific value to be CRHR-eligible—CEQA presupposes that the published guidance of the California Office of Historic Preservation (OHP) for CEQA providers will serve as the methodological standard by which the scientific, and thus the CRHR eligibility, of an archeological resource is to be evaluated. As guidance for the evaluation of the scientific value of an archeological resource, the OHP has issued two guidelines: *Archaeological Resource Management Reports* (1989) and the *Guidelines for Archaeological Research Designs* (1991).

Integrity of Archeological Resource

Integrity is an essential criterion in determining if a potential resource, including an archeological resource, is an historical resource. In terms of CEQA, "integrity" can, in part, be expressed in the requirement that an historical resource must retain "the physical characteristics that convey its historical significance" (CEQA Guidelines Section 15064.5(b)).

For an archeological resource that is evaluated for CRHR eligibility under Evaluation Criterion 4, "has yielded or may be likely to yield information important to prehistory or history," the word "integrity" has a different meaning from the way in which it usually applies to the built environment. For an historic building, possessing integrity means that the building retains the defining characteristics from the period of significance of the building. In archeology, an archeological deposit or feature may have undergone substantial physical change from the time of its deposition, but it may yet have sufficient integrity to qualify as a historical resource. The integrity test for an archeological resource is whether the resource can yield sufficient data (in type, quantity, quality, diagnosticity) to address significant research questions. Thus, in archeology "integrity" is often closely associated with the development of a research design that identifies the types of physical characteristics ("data needs") that must be present in the archeological resource and its physical context to adequately address research questions appropriate to the archeological resource.

Significant Adverse Effect on an Archeological Resource

The determination of whether an effect on an archeological resource is significant depends on the effect of the project on those characteristics of the archeological resource that make the archeological resource significant. For an archeological resource that is an historical resource

because of its prehistoric or historical information value, that is, its scientific data, a significant effect is impairment of the potential information value of the resource.

The depositional context of an archeological resource, especially soils stratigraphy, can be informationally important to the resource in terms of dating and reconstructing characteristics of the resource at time of deposition and to interpreting the impacts of later deposition events on the resource. Thus, for an archeological resource eligible to the CRHR under Criterion 4, a significant adverse effect to its significance may not be limited to impacts on the artifactual material but may include effects on the soils matrix in which the artifactual matrix is situated.

Mitigation of Adverse Effect to All Archeological Resources

Preservation in place is the preferred treatment of an archeological resource (CEQA Section 21083.2(b); CEQA Guidelines Section 15126.4(b)(3)(a)). When preservation in place of an archeological resource is not feasible, data recovery, in accord with a data recovery plan prepared and adopted by the lead agency prior to any soils disturbance, is the appropriate mitigation (CEQA Guidelines Section 15126.4(b)(3)(C)). In addition to data recovery, under CEQA , the mitigation of effects to an archeological resource that is significant for its scientific value requires curation of the recovered scientifically significant data in an appropriate curation facility (CEQA Guidelines Section 15126.4(b)(3)(C)) that is compliant with the OHP's *Guidelines for the Curation of Archaeological Collections* (1993). Final studies reporting the interpretation, results, and analysis of data recovered from the archeological site are to be deposited in the California Historical Resources Regional Information Center (CEQA Guidelines Section 15126.4(b)(3)(C)).

Effects on Human Remains

Under State law, human remains and associated burial items may be significant resources in two ways. They may be significant to descendent communities for patrimonial, cultural, lineage, and religious reasons. Human remains may also be important to the scientific community, such as prehistorians, epidemiologists, and physical anthropologists. The specific stake of some descendent groups in ancestral burials is a matter of law for some groups, such as Native Americans (CEQA Guidelines Section 15064.5(d); Public Resources Code Section 5097.98). In other cases, the concerns of the associated descendent group regarding appropriate treatment and disposition of discovered human burials may become known only through outreach. Beliefs concerning appropriate treatment study, and disposition of human remains and associated burial items may be inconsistent and even conflictual between descendent and scientific communities. CEQA and other State regulations concerning Native American human remains provide the following procedural requirements to assist in avoiding potential adverse effects to human

remains within the contexts of their value to both descendent communities and the scientific community:

- When an initial study identifies the existence or probable likelihood that a project would impact Native American human remains, the lead agency is to contact and work with the appropriate Native American representatives identified through the Native American Heritage Commission (NAHC) to develop an agreement for the treatment and disposal of the human remains and any associated burial items (CEQA Guidelines Section 15064.5(d); Public Resources Code Section 5097.98).
- If human remains are accidentally discovered, the county coroner must be contacted. If the county coroner determines that the human remains are Native American, the coroner must contact the NAHC within 24 hours. The NAHC must identify the most likely descendant (MLD) to provide for the opportunity to make recommendations for the treatment and disposal of the human remains and associated burial items. If the MLD fails to make recommendations within 24 hours of notification or the project applicant rejects the recommendations of the MLD, the Native American human remains and associated burial items must be reburied in a location not subject to future disturbance within the project site (Public Resources Code Section 5097.98).
- If potentially affected human remains or a burial site may have scientific significance, whether or not it has significance to Native Americans or other descendent communities, then, under CEQA, the appropriate mitigation of effect may require the recovery of the scientific information of the remains/burial through identification, evaluation, data recovery, analysis, and interpretation (CEQA Guidelines Section 15064.5(c)(2)).

Paleontological Resources

Paleontological resources, typically vertebrate or invertebrate fossilized remains, are afforded Federal protection under 40 CFR 150-8.27 as a subset of scientific resources. California Public Resources Code Section 5097.5 provides for protection of paleontological sites and features on public lands. Paleontological resources may exist within the project area in sediments underlying San Francisco Bay. California Public Resources Code Section 5097.5 mandates that:

> A person shall not knowingly and willfully excavate upon, or remove, destroy, injure, or deface, any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, rock art, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over the lands.

IMPACTS

SIGNIFICANCE CRITERIA

The thresholds for determining the significance of impacts in this analysis are consistent with the environmental checklist in Appendix G of the State CEQA Guidelines, which has been adopted and modified by the San Francisco Planning Department. For the purpose of this analysis, the

following applicable thresholds were used to determine whether implementing the project would result in a significant impact related to cultural and paleontological resources. Implementation of the proposed project would have a significant effect related to cultural and paleontological resources if the project would:

D.1 Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5, including those resources listed in Article 10 or Article 11 of the San Francisco Planning Code;

D.2 Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5;

D.3 Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature;

D.4 Disturb any human remains, including those interred outside of formal cemeteries.

Project impacts related to the potential for substantial adverse change in the significance of historic architectural resources are discussed below, under "Historic Architectural Resources," beginning on p. IV.D.33.

PROJECT FEATURES

The proposed project would require disturbance of previously undisturbed soil underneath the site of the 10-story 1978 west annex (proposed for demolition) on the west side of the Aronson Building and underneath the approximately 20-foot-wide-by-85-foot-long pedestrian walkway on the west side of the annex. Excavation to a depth of approximately 41 feet below the surface would occur in these locations following demolition of the annex. Approximately 9,610 cubic yards of soil would be excavated and removed. There would be no excavation underneath the Mexican Museum parcel.

Underneath the Mexican Museum parcel, there is an existing approximately 41-foot-deep subsurface structure that rests on a mat slab foundation. This subsurface structure, which was constructed when the Jessie Square Garage was constructed, would be retained as part of the proposed project. A portion of the proposed tower would be built on the Mexican Museum parcel. The structural load of the proposed tower would be accommodated through the thickening of the existing mat slab foundation, the installation of drilled piles, or a combination of the two. If drilled piles are used, the piles would reach a depth of approximately 80 feet. Additional subsurface impacts would result from the installation of soil mix retaining walls and related tieback support systems, and, if necessary, underpinning of the Aronson Building foundation.

The proposed project would result in minimal soils disturbance on the north side of the Aronson Building resulting from removal of the three-story 1978 annex, installation of a driveway and installation of the proposed car elevators within the basement of the proposed tower. In addition to the proposed project, vehicular access variants are discussed and analyzed in Chapter VI, Project Variants. Variant 2, which begins on p. VI.10, and Variant 4, which begins on p. VI.25, would call for additional excavation north of the Aronson Building to construct a vehicular access ramp from Third Street to the Jessie Square Garage. Impacts relating to the ramp's effects on archaeological and paleontological resources are discussed in Chapter VI.

APPROACH TO ANALYSIS

This Archaeology section is based on the ARDTP prepared by consulting archaeologists Archeo-Tec, Inc. The ARDTP presents the results of archival research. It reviews previous cultural resource studies of the project area and its vicinity to assess the likelihood of encountering archaeological resources within the project site, and anticipates the property types that may be present. The ARDTP also presents relevant archaeological research themes, questions, and data requirements to evaluate the integrity and significance of cultural deposits that may be encountered, and provides recommendations for their recovery, study, treatment, and disposition.

Background research for this project consisted of an archival review of archaeological reports on file at the Northwest Information Center, and a review of historical maps including Sanborn maps, U.S. Coast Survey maps, and early lithographs. Library research was conducted at the San Francisco Public Library, the Bancroft Library at UC Berkeley, and at Archeo-Tec's in-house library. Other consulted sources include newspaper archives, City directories, the San Francisco Environmental Planning Division's GIS database of prehistoric archaeological sites, internet sites, and archaeological journals.

Archeo-Tec has contacted the NAHC to seek information about whether the proposed project could encroach upon sites that may be of religious or cultural importance to Native American organizations. The NAHC conducted a record search of its sacred land files in response to Archeo-Tec's request. The search did not indicate the presence of Native American cultural resources in the immediate project vicinity. The NAHC also provided a list of Native American individuals and organizations that may have interest in or knowledge of cultural resources in the vicinity of the project. Archeo-Tec has sent letters to each of the contacts provided by the NAHC. As of this writing, no responses have been received.

IMPACT EVALUATION

Impact CP-1: Construction activities for the proposed project would cause a substantial adverse change in the significance of archaeological resources, if such resources are present within the project site. ***(Less than Significant with Mitigation)*** **(Criterion D.2)**

There is a substantial probability that significant archaeological features may be present within the project site. Unless mitigated, ground-disturbing construction activity within the project site, particularly within previously undisturbed soils, could adversely affect the significance of archaeological resources under CRHR Criterion 4 (Information Potential) by impairing the ability of such resources to convey important scientific and historical information. This effect would be considered a substantial adverse change in the significance of an historical resource and would therefore be a potentially significant impact under CEQA.

Mitigation Measure M-CP-1a: Archaeological Testing, Monitoring, Data Recovery and Reporting, pp. IV.D.24-IV.D.27, calls for a qualified archaeological consultant to prepare and submit a plan for pre-construction archaeological testing, construction monitoring, and data recovery for approval by the San Francisco Environmental Review Officer (ERO). Implementation of the approved plan for testing, monitoring, and data recovery under Mitigation Measure M-CP-1a would ensure that the significance of any CRHR-eligible archaeological resource would be preserved and/or retained in place.

To the extent that archaeological resources that may be present within the project site may be associated with the archaeological district, *Prehistoric Native American Shellmiddens on Mission Bay, San Francisco* (determined eligible for inclusion in the NRHP), their significance would also be premised on NRHP Criterion A (Events) and the corresponding CRHR Criterion 1. Disturbance of archaeological resources would undermine the association of the site with historic events. Data recovery alone would be inadequate to mitigate such impacts. Additional mitigation measures, such as an interpretive program, would need to be implemented.

Mitigation Measure M-CP-1b: Interpretation, pp. IV.D.27-IV.D.28, calls for a qualified archaeological consultant to prepare and submit a plan for post-recovery interpretation of resources. Implementation of an approved program of interpretation under Mitigation Measure M-CP-1b would preserve and enhance the ability of the resource to convey its association with historic events under CRHR Criterion 1 (Events).

With implementation of Mitigation Measures M-CP-1a and M-CP-1b, the proposed project would not cause a substantial adverse change to the significance of an archaeological resource, if present within the project site. Therefore, this impact would be less than significant with mitigation.

Mitigation Measure M-CP-1a: Archaeological Testing, Monitoring, Data Recovery and Reporting

Based on a reasonable presumption that archeological resources may be present within the project site, the following measures shall be undertaken to avoid any potentially significant adverse effect from the proposed project on buried or submerged historical resources. The project sponsor shall retain the services of an archaeological consultant from the pool of qualified archaeological consultants maintained by the Planning Department archaeologist. The archeological consultant shall undertake an archeological testing program as specified herein. In addition, the consultant shall be available to conduct an archeological monitoring and/or data recovery program if required pursuant to this measure. The archeological consultant's work shall be conducted in accordance with this measure at the direction of the Environmental Review Officer (ERO). All plans and reports prepared by the consultant as specified herein shall be submitted first and directly to the ERO for review and comment, and shall be considered draft reports subject to revision until final approval by the ERO. Archeological monitoring and/or data recovery programs required by this measure could suspend construction of the project for up to a maximum of four weeks. At the direction of the ERO, the suspension of construction can be extended beyond four weeks only if such a suspension is the only feasible means to reduce to a less than significant level potential effects on a significant archeological resource as defined in CEQA Guidelines Sect. 15064.5 (a) and (c).

Consultation with Descendant Communities

On discovery of an archeological site[8] associated with descendant Native Americans or the Overseas Chinese an appropriate representative[9] of the descendant group and the ERO shall be contacted. The representative of the descendant group shall be given the opportunity to monitor archeological field investigations of the site and to consult with ERO regarding appropriate archeological treatment of the site, of recovered data from the site, and, if applicable, any interpretative treatment of the associated archeological site. A copy of the Final Archaeological Resources Report shall be provided to the representative of the descendant group.

Archeological Testing Program

The archeological consultant shall prepare and submit to the ERO for review and approval an archeological testing plan (ATP). The archeological testing program shall be conducted in accordance with the approved ATP. The ATP shall identify the property types of the expected archeological resource(s) that potentially could be adversely affected by the proposed project, the testing method to be used, and the locations recommended for testing. The purpose of the archeological testing program will be to determine to the extent possible the presence or absence of archeological resources and to identify and to evaluate whether any archeological resource encountered on the site constitutes an historical resource under CEQA.

[8] The term "archeological site" is intended here to minimally include any archeological deposit, feature, burial, or evidence of burial.

[9] An "appropriate representative" of the descendant group is here defined to mean, in the case of Native Americans, any individual listed in the current Native American Contact List for the City and County of San Francisco maintained by the California Native American Heritage Commission and in the case of the Overseas Chinese, the Chinese Historical Society of America.

At the completion of the archeological testing program, the archeological consultant shall submit a written report of the findings to the ERO. If based on the archeological testing program the archeological consultant finds that significant archeological resources may be present, the ERO in consultation with the archeological consultant shall determine if additional measures are warranted. Additional measures that may be undertaken include additional archeological testing, archeological monitoring, and/or an archeological data recovery program. If the ERO determines that a significant archeological resource is present and that the resource could be adversely affected by the proposed project, at the discretion of the project sponsor either:

A) The proposed project shall be re-designed so as to avoid any adverse effect on the significant archeological resource; or

B) A data recovery program shall be implemented, unless the ERO determines that the archeological resource is of greater interpretive than research significance and that interpretive use of the resource is feasible.

Archeological Monitoring Program

If the ERO in consultation with the archeological consultant determines that an archeological monitoring program (AMP) shall be implemented the archeological monitoring program shall minimally include the following provisions:

- The archeological consultant, project sponsor, and ERO shall meet and consult on the scope of the AMP reasonably prior to any project-related soils disturbing activities commencing. The ERO in consultation with the archeological consultant shall determine what project activities shall be archeologically monitored. In most cases, any soils- disturbing activities, such as demolition, foundation removal, excavation, grading, utilities installation, foundation work, driving of piles (foundation, shoring, etc.), site remediation, etc., shall require archeological monitoring because of the risk these activities pose to potential archaeological resources and to their depositional context;
- The archeological consultant shall advise all project contractors to be on the alert for evidence of the presence of the expected resource(s), of how to identify the evidence of the expected resource(s), and of the appropriate protocol in the event of apparent discovery of an archeological resource;
- The archeological monitor(s) shall be present on the project site according to a schedule agreed upon by the archeological consultant and the ERO until the ERO has, in consultation with project archeological consultant, determined that project construction activities could have no effects on significant archeological deposits;
- The archeological monitor shall record and be authorized to collect soil samples and artifactual/ecofactual material as warranted for analysis;
- If an intact archeological deposit is encountered, all soils-disturbing activities in the vicinity of the deposit shall cease. The archeological monitor shall be empowered to temporarily redirect demolition/excavation/pile driving/construction activities and equipment until the deposit is evaluated. If in the case of pile driving activity (foundation, shoring, etc.), the archeological monitor has cause to believe that the pile driving activity may affect an archeological resource, the pile driving activity shall be terminated until an appropriate evaluation of the resource has been made in

consultation with the ERO. The archeological consultant shall immediately notify the ERO of the encountered archeological deposit. The archeological consultant shall make a reasonable effort to assess the identity, integrity, and significance of the encountered archeological deposit, and present the findings of this assessment to the ERO.

Whether or not significant archeological resources are encountered, the archeological consultant shall submit a written report of the findings of the monitoring program to the ERO.

Archeological Data Recovery Program

If the ERO, in consultation with the archaeological consultant, determines that archaeological data recovery programs shall be implemented, the archeological data recovery program shall be conducted in accord with an archeological data recovery plan (ADRP). The archeological consultant, project sponsor, and ERO shall meet and consult on the scope of the ADRP prior to preparation of a draft ADRP. The archeological consultant shall submit a draft ADRP to the ERO. The ADRP shall identify how the proposed data recovery program will preserve the significant information the archeological resource is expected to contain. That is, the ADRP will identify what scientific/historical research questions are applicable to the expected resource, what data classes the resource is expected to possess, and how the expected data classes would address the applicable research questions. Data recovery, in general, should be limited to the portions of the historical property that could be adversely affected by the proposed project. Destructive data recovery methods shall not be applied to portions of the archeological resources if nondestructive methods are practical.

The scope of the ADRP shall include the following elements:

- *Field Methods and Procedures*. Descriptions of proposed field strategies, procedures, and operations.
- *Cataloguing and Laboratory Analysis*. Description of selected cataloguing system and artifact analysis procedures.
- *Discard and Deaccession Policy*. Description of and rationale for field and post-field discard and deaccession policies.
- *Interpretive Program*. Consideration of an on-site/off-site public interpretive program during the course of the archeological data recovery program.
- *Security Measures*. Recommended security measures to protect the archeological resource from vandalism, looting, and non-intentionally damaging activities.
- *Final Report*. Description of proposed report format and distribution of results.
- *Curation*. Description of the procedures and recommendations for the curation of any recovered data having potential research value, identification of appropriate curation facilities, and a summary of the accession policies of the curation facilities.

Human Remains and Associated or Unassociated Funerary Objects

The treatment of human remains and of associated or unassociated funerary objects discovered during any soils disturbing activity shall comply with applicable State and Federal laws. This shall include immediate notification of the Coroner of the City and County of San Francisco and in the event of the Coroner's determination that the human remains are Native American remains, notification of the California State Native American Heritage Commission (NAHC)

who shall appoint a Most Likely Descendant (MLD) (Pub. Res. Code Sec. 5097.98). The archeological consultant, project sponsor, and MLD shall make all reasonable efforts to develop an agreement for the treatment of, with appropriate dignity, human remains and associated or unassociated funerary objects (CEQA Guidelines. Sec. 15064.5(d)). The agreement should take into consideration the appropriate excavation, removal, recordation, analysis, custodianship, curation, and final disposition of the human remains and associated or unassociated funerary objects.

Final Archeological Resources Report

The archeological consultant shall submit a Draft Final Archeological Resources Report (FARR) to the ERO that evaluates the historical significance of any discovered archeological resource and describes the archeological and historical research methods employed in the archeological testing/monitoring/data recovery program(s) undertaken. Information that may put at risk any archeological resource shall be provided in a separate removable insert within the final report.

Once approved by the ERO, copies of the FARR shall be distributed as follows: California Archaeological Site Survey Northwest Information Center (NWIC) shall receive one (1) copy and the ERO shall receive a copy of the transmittal of the FARR to the NWIC. The Environmental Planning division of the Planning Department shall receive one bound, one unbound and one unlocked, searchable PDF copy on CD of the FARR along with copies of any formal site recordation forms (CA DPR 523 series) and/or documentation for nomination to the National Register of Historic Places/California Register of Historical Resources. In instances of high public interest in or the high interpretive value of the resource, the ERO may require a different final report content, format, and distribution than that presented above.

Mitigation Measure M-CP-1b: Interpretation

Based on a reasonable presumption that archaeological resources may be present within the project site, and to the extent that that the potential significance of some such resources is premised on CRHR Criteria 1 (Events), 2 (Persons), and/or 3 (Design/Construction), the following measure shall be undertaken to avoid any potentially significant adverse effect from the proposed project on buried or submerged historical resources.

The project sponsor shall implement an approved program for interpretation of resources. The project sponsor shall retain the services of a qualified archaeological consultant having expertise in California urban historical and marine archaeology. The archaeological consultant shall develop a feasible, resource-specific program for post-recovery interpretation of resources. The particular program for interpretation of artifacts that are encountered within the project site will depend upon the results of the data recovery program and will be the subject of continued discussion between the ERO, consulting archaeologist, and the project sponsor. Such a program may include, but is not limited to, any of the following (as outlined in the ARDTP): surface commemoration of the original location of resources; display of resources and associated artifacts (which may offer an underground view to the public); display of interpretive materials such as graphics, photographs, video, models, and public art; and academic and popular publication of the results of the data recovery.

The archaeological consultant's work shall be conducted at the direction of the ERO, and in consultation with the project sponsor. All plans and recommendations for interpretation by

the consultant shall be submitted first and directly to the ERO for review and comment, and shall be considered draft reports subject to revision until final approval by the ERO.

Impact CP-2: Construction activities for the proposed project would cause a substantial adverse change in the significance of human remains, if such resources are present within the project site. ***(Less than Significant with Mitigation)*** **(Criterion D.4)**

Mitigation Measure M-CP-1a: Archaeological Testing, Monitoring, Data Recovery and Reporting, calls for compliance with applicable State and Federal laws regarding the treatment of human remains and of associated or unassociated funerary objects discovered during any soils-disturbing activity. This shall include immediate notification of the Coroner of the City and County of San Francisco and, in the event of the Coroner's determination that the human remains are Native American remains, notification of the NAHC, who shall appoint an MLD (Public Resources Code Section 5097.98). The archaeological consultant, project sponsors, and MLD shall make reasonable efforts to develop an agreement for the treatment of, with appropriate dignity, human remains and associated or unassociated funerary objects (CEQA Guidelines Section 15064.5(d)). The agreement should take into consideration the appropriate excavation, removal, recordation, analysis, custodianship, curation, and final disposition of the human remains and associated or unassociated funerary objects.

With implementation of Mitigation Measure M-CP-1a, implementation of the proposed project would not cause a substantial adverse change to the scientific significance of an archaeological resource resulting from the disturbance of human remains. Therefore, this impact would be less than significant with mitigation.

Impact CP-3: Construction activities for the proposed project would cause a substantial adverse change in the significance of paleontological resources, if such resources are present within the project site. ***(Less than Significant with Mitigation)*** **(Criterion D.3)**

The project site does not contain any unique geological features. Given that the Franciscan Formation and sedimentary Colma Formation have yielded significant vertebrate fossils within the San Francisco Bay Area, paleontological resources could exist in the Franciscan, and possibly the Colma, Formations that underlie the project area. Project construction activities could disturb significant paleontological resources, if such resources are present within the project site. Site disturbance could impair the ability of significant paleontological resources within the project site to yield important scientific information. Unless mitigated, implementation of the proposed project could impair the significance of paleontological resources in the Project Area and would therefore be considered a potentially significant impact under CEQA.

Mitigation Measure M-CP-3: Paleontological Resources Monitoring and Mitigation Program, shown below, calls for a qualified paleontologist to implement an approved Paleontological Resources Monitoring and Mitigation Program (PRMMP). Implementation of the approved plan for monitoring, recovery, identification, and curation under Mitigation Measure M-CP-3 would ensure that the scientific significance of the resource under CRHR Criterion 4 (Information Potential) would be preserved and/or realized. With implementation of Mitigation Measure M-CP-3, implementation of the proposed project would not cause a substantial adverse change to the scientific significance of a paleontological resource. Therefore, this impact would be less than significant with mitigation.

Mitigation Measure M-CP-3: Paleontological Resources Monitoring and Mitigation Program

The project sponsor shall retain the services of a qualified paleontological consultant having expertise in California paleontology to design and implement a Paleontological Resources Monitoring and Mitigation Program. The PRMMP shall include a description of when and where construction monitoring would be required; emergency discovery procedures; sampling and data recovery procedures; procedure for the preparation, identification, analysis, and curation of fossil specimens and data recovered; preconstruction coordination procedures; and procedures for reporting the results of the monitoring program.

The PRMMP shall be consistent with the Society for Vertebrate Paleontology Standard Guidelines for the mitigation of construction-related adverse impacts to paleontological resources and the requirements of the designated repository for any fossils collected. During construction, earth-moving activities shall be monitored by a qualified paleontological consultant having expertise in California paleontology in the areas where these activities have the potential to disturb previously undisturbed native sediment or sedimentary rocks. Monitoring need not be conducted in areas where the ground has been previously disturbed, in areas of artificial fill, in areas underlain by nonsedimentary rocks, or in areas where exposed sediment would be buried, but otherwise undisturbed.

The consultant's work shall be conducted in accordance with this measure and at the direction of the City's ERO. Plans and reports prepared by the consultant shall be submitted first and directly to the ERO for review and comment, and shall be considered draft reports subject to revision until final approval by the ERO. Paleontological monitoring and/or data recovery programs required by this measure could suspend construction of the proposed project for as short a duration as reasonably possible and in no event for more than a maximum of four weeks. At the direction of the ERO, the suspension of construction can be extended beyond four weeks only if such a suspension is the only feasible means to reduce potential effects on a significant paleontological resource as previously defined to a less-than-significant level.

Impact CP-4: Construction activities for the proposed project would disturb unknown resources if any are present within the project site. *(Less than Significant with Mitigation)* (Criterion D.2)

Construction activities may disturb unknown human remains within the project site that may be considered significant under any of the four CRHR criteria: Criterion 1 (Events), Criterion 2 (Persons), Criterion 3 (Design/Construction), and Criterion 4 (Information Potential).

Disturbance or removal of unknown human remains could materially impair the physical characteristics of the unknown resource. These effects would be considered a substantial adverse change in the significance of an historical resource and would therefore be a potentially significant impact under CEQA.

Mitigation Measure M-CP-4: Accidental Discovery, shown below, would avoid a potential adverse effect from the proposed project on accidentally discovered buried or submerged historical resources as defined in CEQA Guidelines Section 15064.5(a)(c). Mitigation Measure M-CP-4 requires that the project sponsor distribute an "Alert Sheet" to inform all field and construction personnel of the potential presence of archaeological resources within the project site and the procedures in the event such resources are encountered during construction activities. If such resources are encountered, this measure calls for immediate suspension of soils-disturbing activity, and notification of the ERO to determine what additional measures should be undertaken. The ERO may require that an archeological consultant be retained to evaluate the resource and make recommendations. The ERO may require specific additional measures to be implemented by the project sponsor. Implementation of Mitigation Measure M-CP-4 would ensure that the significance of archeological resources, if present within the project site, would be preserved in the event such resources are accidentally encountered during demolition and groundwork activities. With implementation of Mitigation Measure M-CP-4, implementation of the proposed project would not cause a substantial adverse effect related to unknown remains. Therefore, this impact would be less than significant with mitigation.

Mitigation Measure M-CP-4: Accidental Discovery

The following mitigation measure is required to avoid any potential adverse effect from the proposed project on accidentally discovered buried or submerged historical resources as defined in CEQA Guidelines Section 15064.5(a)(c). The project sponsor shall distribute the Planning Department archeological resource "ALERT" sheet to the project prime contractor; to any project subcontractor (including demolition, excavation, grading, foundation, pile driving, etc. firms); or utilities firm involved in soils disturbing activities within the project site. Prior to any soils disturbing activities being undertaken each contractor is responsible for ensuring that the "ALERT" sheet is circulated to all field personnel including, machine operators, field crew, pile drivers, supervisory personnel, etc. The project sponsor shall provide the Environmental Review Officer (ERO) with a signed affidavit from the responsible parties (prime contractor,

subcontractor(s), and utilities firm) to the ERO confirming that all field personnel have received copies of the Alert Sheet.

Should any indication of an archeological resource be encountered during any soils disturbing activity of the project, the project Head Foreman and/or project sponsor shall immediately notify the ERO and shall immediately suspend any soils disturbing activities in the vicinity of the discovery until the ERO has determined what additional measures should be undertaken.

If the ERO determines that an archeological resource may be present within the project site, the project sponsor shall retain the services of an archaeological consultant from the pool of qualified archaeological consultants maintained by the Planning Department archaeologist. The archeological consultant shall advise the ERO as to whether the discovery is an archeological resource, retains sufficient integrity, and is of potential scientific/historical/cultural significance. If an archeological resource is present, the archeological consultant shall identify and evaluate the archeological resource. The archeological consultant shall make a recommendation as to what action, if any, is warranted. Based on this information, the ERO may require, if warranted, specific additional measures to be implemented by the project sponsor.

Measures might include: preservation in situ of the archeological resource; an archaeological monitoring program; or an archeological testing program. If an archeological monitoring program or archeological testing program is required, it shall be consistent with the Environmental Planning (EP) division guidelines for such programs. The ERO may also require that the project sponsor immediately implement a site security program if the archeological resource is at risk from vandalism, looting, or other damaging actions.

The project archeological consultant shall submit a Final Archeological Resources Report (FARR) to the ERO that evaluates the historical significance of any discovered archeological resource and describing the archeological and historical research methods employed in the archeological monitoring/data recovery program(s) undertaken. Information that may put at risk any archeological resource shall be provided in a separate removable insert within the final report.

Copies of the Draft FARR shall be sent to the ERO for review and approval. Once approved by the ERO, copies of the FARR shall be distributed as follows: California Archaeological Site Survey Northwest Information Center (NWIC) shall receive one (1) copy and the ERO shall receive a copy of the transmittal of the FARR to the NWIC. The Environmental Planning division of the Planning Department shall receive one bound copy, one unbound copy and one unlocked, searchable PDF copy on CD three copies of the FARR along with copies of any formal site recordation forms (CA DPR 523 series) and/or documentation for nomination to the National Register of Historic Places/California Register of Historical Resources. In instances of high public interest or interpretive value, the ERO may require a different final report content, format, and distribution than that presented above.

Impact C-CP-1: Disturbance of archaeological and paleontological resources, if encountered during construction of the proposed project, in combination with other past, present, and future reasonably foreseeable projects, would make a cumulatively considerable contribution to a significant cumulative impact on archaeological resources. (*Less than Significant with Mitigation)*

When considered with other past and proposed development projects within San Francisco and the Bay Area region, the potential disturbance of archaeological and paleontological resources within the project site could make a cumulatively considerable contribution to a loss of significant historic and scientific information about California, Bay Area, and San Francisco history and prehistory. As discussed above, implementation of the approved plans for testing, monitoring, and data recovery would preserve and realize the information potential of archaeological and paleontological resources. The recovery, documentation, and interpretation of information about archaeological and paleontological resources that may be encountered within the project site would enhance knowledge of prehistory and history. This information would be available to future archaeological and paleontological studies, contributing to the collective body of scientific and historic knowledge. With implementation of Mitigation Measure M-CP-1a: Archaeological Testing, Monitoring, Data Recovery and Reporting, Mitigation Measure M-CP-1b: Interpretation, Mitigation Measure M-CP-3: Paleontological Resources Monitoring and Mitigation Program, and Mitigation Measure M-CP-4: Accidental Discovery, the proposed project's contribution to cumulative impacts would not be cumulatively considerable. Therefore, this impact would be less than significant.

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HISTORIC ARCHITECTURAL RESOURCES

This subsection describes historic architectural resources within the project site and its vicinity, and evaluates potential direct and indirect impacts to those resources that could result from the proposed project. For the purposes of this EIR, the term "historic architectural resource" is used to distinguish such resources from archaeological resources, which may also be considered historical resources under CEQA. The archeological resources subtopic is discussed under a separate heading entitled "Archaeological and Paleontological Resources," beginning on p. IV.D.1.

Project impacts on "historical resources," as defined by CEQA Guidelines Section 15064.5, are analyzed in two steps. The first analysis determines whether a project may impact a resource that falls within the definition of "historical resource(s)" under CEQA. If the project is found to impact historical resources, a second analysis then determines whether the project would cause a substantial adverse change to the resource. A project that may cause a substantial adverse change in the significance of an historical resource is one that may have significant effect on the environment (CEQA Section 21084.1).

Thus, this subsection has two parts. The Setting discussion examines the potential for the presence of historical resources within the project area. The Impacts discussion evaluates the impacts of the proposed project on the historical resources identified in the Setting discussion.

This historic architectural resources EIR subsection is generally based on the *Historic Resource Evaluation: The Aronson Building* (HRE), prepared by an independent historic architectural resource consultant, Knapp & VerPlanck Preservation Architects (included in the EIR as Appendix B);[10] and the Historic Resource Evaluation Response (HRER) (included in the EIR as Appendix C), prepared by the San Francisco Planning Department.[11] The Planning Department has reviewed the HRE and generally concurs with the HRE's conclusions.

[10] Knapp & VerPlanck Preservation Architects, *Historic Resource Evaluation: The Aronson Building*, June 23, 2011, p. 66. This document is included in this EIR as Appendix B and is also available for review at the Planning Department, 1650 Mission Street, Suite 400, San Francisco, California, as part of Case File No. 2008.1084E.

[11] San Francisco Planning Department, *Historic Resource Evaluation Response, 706 Mission Street*, November 3, 2011. This document is included in this EIR as Appendix C and is also available for review at the Planning Department, 1650 Mission Street, Suite 400, San Francisco, California, as part of Case File No. 2008.1084E.

SETTING

IDENTIFYING HISTORICAL RESOURCES UNDER CEQA

"Historical Resource" Defined

CEQA Guidelines Section 15064.5(a) defines a "historical resource" as:

> (1) A resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register of Historical Resources (Pub. Res. Code, Section 5024.1, Title 14 CCR, Section 4850 et seq.).
>
> (2) A resource included in a local register of historical resources, as defined in section 5020.1(k) of the Public Resources Code or identified as significant in an historical resource survey meeting the requirements section 5024.1(g) of the Public Resources Code, shall be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.
>
> (3) Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be an historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource shall be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing on the California Register of Historical Resources (Pub. Res. Code, Section 5024.1, Title 14 CCR, Section 4852) including the following:
>
> > (A) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
> >
> > (B) Is associated with the lives of persons important in our past;
> >
> > (C) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
> >
> > (D) Has yielded, or may be likely to yield, information important in prehistory or history.
>
> (4) The fact that a resource is not listed in, or determined to be eligible for listing in the California Register of Historical Resources, not included in a local register of historical resources (pursuant to section 5020.1(k) of the Public Resources Code), or identified in an historical resources survey (meeting the criteria in section 5024.1(g) of the Public Resources Code) does not preclude a lead agency from determining that the resource may be an historical resource as defined in Public Resources Code sections 5020.1(j) or 5024.1.

In addition to qualifying for listing under at least one of the California Register of Historical Resources (CRHR) criteria, a property must possess sufficient integrity to be considered eligible for the CRHR. National Park Service guidance on determining eligibility under the National Register of Historic Places informs the determination of eligibility for inclusion in the CRHR. According to the *National Register Bulletin: How to Apply the National Register Criteria for Evaluation*, integrity is defined as "the authenticity of an historical resource's physical identity evidenced by the survival of characteristics that existed during the resource's period of significance." The National Register Bulletin defines seven characteristics of integrity as follows:

> Location is the place where the historic property was constructed.
>
> Design is the combination of elements that create the form, plans, space, structure and style of the property.
>
> Setting addresses the physical environment of the historic property inclusive of the landscape and spatial relationships of the buildings.
>
> Materials refer to the physical elements that were combined or deposited during a particular period of time and in a particular pattern of configuration to form the historic property.
>
> Workmanship is the physical evidence of the crafts of a particular culture or people during any given period in history.
>
> Feeling is the property's expression of the aesthetic or historic sense of a particular period of time.
>
> Association is the direct link between an important historic event or person and an historic property.

THE ARONSON BUILDING

Historic Background

The southeastern portion of the project site is occupied by the Aronson Building, a 10-story commercial building. See Figure IV.D.1: The Aronson Building. The Mexican Museum parcel contains a below-grade garage structure and is paved and vacant at grade. Built in 1903, the Aronson Building is one of San Francisco's earliest skyscrapers and remains one of the best examples of the First Chicago School in the City. Although the interior burned during the 1906 Earthquake and Fire, the exterior and the structural system of the Aronson Building survived largely intact. The building was repaired and reoccupied in 1907-08. The Aronson Building remained a cornerstone of San Francisco's Wholesale District for the next seven decades, housing a variety of wholesale companies, light manufacturers, warehousing operations, and public and professional offices. The ground-floor retail spaces housed a series of businesses that catered to the working-class population of the South of Market Area, including Rochester Clothiers (now Rochester Big and Tall), one of the City's oldest purveyors of workingmen's and

SOURCE: Turnstone Consulting

706 MISSION STREET

FIGURE IV.D.1: THE ARONSON BUILDING

"big and tall" clothing. In 1971, the Redevelopment Agency acquired the Aronson Building through eminent domain. Earmarked for demolition as part of the Agency's *Yerba Buena Center Redevelopment Plan*, the building was determined eligible for listing in the National Register of Historic Places and spared demolition. The building was sold in 1978. The new owner reconfigured the interior, constructed two annexes, and replaced all the windows and storefronts. The building was acquired by the present owners in 2006.

Builder

Abraham Aronson, for whom the Aronson Building is named, was a successful San Francisco real estate investor and property developer. He was born in Poland in 1856. Preceded by his father, he and his mother immigrated to the United States in 1869. The family moved to San Francisco in 1870. In 1871, he opened a furniture store in the North Beach district. Around 1886, Aronson built a large structure on Stockton Street to house his expanding furnishings enterprise. He continued with this business until 1894 when he established Aronson Realty Company. In this new business he bought old buildings and replaced them with larger and more expensive structures. Before 1900, most of his holdings and interests were north of Market Street. In May 1901, one year before he bought the Aronson Building property, he built a five-story warehouse at 576-84 Mission Street (like the Aronson Building, designed by Hemenway & Miller), one-and-a-half blocks east of the future site of the Aronson Building. This Renaissance Revival-style masonry warehouse (long since demolished) bears some resemblance to the later Aronson Building.

Aronson became prominent in San Francisco's Jewish community and sat on the boards of several Jewish associations, including serving as chairman of the Building Committee for the original Temple Sherith Israel. In 1911 he made an unsuccessful bid for election to the San Francisco Board of Supervisors. That same year, his son Daniel joined him in the real estate development business. Aronson's office was located at 340 Post Street and he and his family resided at 1720 Sacramento Street. The 1906 Earthquake and Fire devastated many of his holdings and his office, but he relocated his business to 511 Eddy Street and rebuilt his properties. Abraham Aronson died on November 17, 1940 in San Francisco.

Architect

Aronson hired the San Francisco architecture firm of Hemenway & Miller to design the Aronson Building. Before forming the firm, Sylvester Hemenway joined the office of Pissis & Moore, where he likely worked on the Hibernia Bank Building, San Francisco's best-known Beaux Arts-style building of the period. Working in this office he was trained in the Ecole des Beaux Arts style by principal Albert Pissis. Less is known about Hemenway's partner, Washington Miller.

He was trained as a structural engineer. Hemenway & Miller designed a variety of different building types but seem to have specialized in brick masonry industrial and commercial buildings. Some highlights of their career include the Italian Swiss Colony Warehouse at 1265 Battery Street (1903), San Francisco City Landmark No. 102; the nearby Cargo West Building at Battery and Union Streets (1907), a contributor to the Jackson Square Historic District; and the California Wine Association/Schilling Winery at 900 Minnesota Street (1907), a contributor to the Dogpatch Historic District.

Design/Materials

The Aronson Building's construction was announced in the San Francisco Chronicle in 1902. According to the author, the new building was to be the most expensive privately owned building ever erected south of Market Street and west of New Montgomery Street:

> The designs by Hemenway & Miller provide for an exterior in Arizona red sandstone and mottled flash brick, with terra cotta for the two upper stories, where the ornamentation will be rich, the whole intended to work out a harmonious color scheme. There will be entrances on both streets at the ends of the lot, with marble vestibules and stairways of the same material. Convenient to the Third Street entrance will be two high-speed passenger elevators, while two rapid freight elevators will be situated at the rear entrance on Opera alley. Hardwood finish will be used throughout the interior, and a vacuum steam-heating system will be installed for warming the great pile. To support its weight it will be necessary to lay the foundations at the depth of twenty-five feet below the street level. This will require the underpinning of the opera-house, which will be reduced to pigmy(sic) appearance in comparison with the massive proportions of its tall neighbor on the corner of Third and Mission streets. Some of the contracts have been awarded and work will begin early in the new year. It is hoped to complete the structure in eighteen months. The owner has decided to call it the Aronson, as he intends it to be a permanent investment…[12]

Hemenway & Miller designed the Aronson Building according to the design principles of the First Chicago School, which developed a vocabulary for expressing tall commercial buildings. The Aronson Building's façade is organized as a tripartite scheme consisting of base, shaft, and capital in the manner of a classical column. The two primary façades facing Mission and Third Streets consist of a two-story "base" comprising the storefronts and windows on the first and second floor levels, the heavily ornamented transitional third floor, the "shaft" (floors 4 through 8), and the "capital" (floors 9 and 10). The shaft is furthermore divided into vertical bays by giant pilasters capped by ornate Corinthian capitals. Huge arched window openings cap the shaft

[12] As quoted in the HRE on p. 40.

bays at the ninth floor while a massive cornice and attic story terminates the composition at the tenth floor, forming the capital of the column.

The exterior of the building displays the stylistic influence of one of the Chicago School's most famous architects, Louis Henri Sullivan, in its massive arches surrounded by abundant foliate terra cotta ornament and uninterrupted pilasters accentuated by recessed spandrel panels to emphasize verticality. Sullivan's work was widely published in the architectural press during the 1890s and would have been familiar to Hemenway & Miller.

The street façades of the Aronson Building have cast iron columns at the ground level and the second floor. These materials allowed for much of the first and second floor levels to be devoted to glazing to provide light and air to the retail space at these levels. The primary material above the storefronts is yellow "flash" brick with Colusa sandstone trim. The exuberant foliate ornamentation around the arches was of terra cotta. The fired-clay products were made by Gladding McBean & Co. of Lincoln, California.[13] The exposed north façade is made of common red brick, and was originally designed without fenestration.

The Aronson Building performed well in the 1906 Earthquake and Fire, considering that it was located at the epicenter of the hottest firestorm that swept the South of Market area. Repair and reconstruction was supervised by the firm of Hemenway & Miller and exterior repairs closely followed the original design. Sandstone trim was replaced. The original copper sheet metal cornice was replaced with the current galvanized steel cornice. Damaged terra cotta ornament was replaced. Gladding McBean, which had retained the molds for the project, supplied the replacement pieces.

Interior/Construction

Little is known about the original interior layout of the Aronson Building because the interior finishes and interior plans were destroyed in the 1906 Earthquake and Fire. The first floor contained four retail spaces. Two entrances at 86 Third Street and 710 Mission Street had marble vestibules and staircases, with two high-speed elevators at the Third Street entry and two freight elevators on the opposite corner.

The Aronson Building included many innovative and advanced structural and fireproofing features for its time. The steel skeleton structure of the Aronson Building supported cinder concrete floor slabs which were reinforced with metal mesh. Partitions throughout were made of

[13] Gladding McBean & Co. is one of America's oldest and most-respected maker of architectural terra cotta. Founded in 1875, Gladding McBean & Co. is still in business and retains many of the original molds for its projects from a century ago.

4-inch-thick hollow terra cotta tile blocks finished in plaster. Some steel columns were clad with hollow terra cotta tile blocks, while others were encased in concrete (thought to offer equal fire protection at the time).

While the interior finishes of the Aronson Building burned in the 1906 Earthquake and Fire, the building's structure and shell emerged without significant damage. As one of a handful of survivors in downtown San Francisco, the Aronson Building was studied and featured in several published reports by structural engineers after the disaster.[14] The use of both terra cotta and concrete to fireproof the steel columns provided the opportunity to compare their relative performance during the 1906 Earthquake and Fire. Columns protected by concrete remained unharmed, while terra cotta cladding was damaged and one terra-cotta-clad column had buckled severely. These reports also credited the performance of the concrete vaulting and rebar reinforced concrete floor slabs with enhancing the building's structural stability.

Existing Conditions

Integrity

Since its repair and reoccupation in 1907-08, the Aronson Building underwent few exterior alterations until it was remodeled in 1978. The 1978 alterations negatively impact the integrity of the building, although they do not disqualify the building from listing in the CRHR. Most notable and prominent of these alterations is the full height annex to the west elevation. Faced in a buff-colored brick, it extends the façade plane of the Aronson Building westward without any setback or reveal that would have spatially distinguished the west annex from the front façade of the Aronson Building, The west annex alters the overall massing and profile of the Aronson Building.

The 1978 remodeling also removed elevators from the Aronson Building and relocated them in the west annex. The entrance to the Aronson Building was relocated to the west annex within a gated courtyard to the west of the building, altering the entry sequence and circulation of the building. The building's main entrance at 86 Third Street became a dedicated entry for the freight elevator. The historic arched entrance near the west end of the Mission Street façade was likely removed. Should this entrance be discovered during demolition, the project sponsor would rehabilitate and incorporate the entrance into the design, to the extent feasible. A three-story north annex was constructed on the north wall to house a truck loading dock. Most of the interior finishes and features were removed at this time. Ground-floor storefronts were infilled with buff-colored brick. The common brick on the north wall was sandblasted and partially obscured by

[14] See HRE, pp. 44-46.

the north annex. Some windows were also cut into the north wall from the eighth through the tenth floors. The 1908 windows were replaced with anodized aluminum units.

Despite these alterations, what remains continues to convey the original historic and architectural significance of the Aronson Building in terms of location, setting, design, materials, workmanship, feeling, and association. It retains nearly all of its distinguished historic exterior masonry shell. The 1978 annexes are additive and can be removed without harming the building. Other alterations, such as the infilled storefronts, windows, and fire escapes, are also largely reversible.

Character-Defining Features

Character-defining features are the essential physical features of a building, structure, or object that, in combination with other features, enable a property to convey its architectural or historical significance. The character-defining features of the Aronson Building include the following:[15]

Structural System

- Steel framing encased in either concrete or terra cotta
- Concrete floor plates

Exterior

- Overall size, scale, massing, and proportion
- Flat roof with raised flat parapets
- Tripartite façade composition; i.e., First Chicago School
- Wall cladding in buff-colored glazed brick (Mission and Third Street façades)
- Wall cladding in red-colored common brick (north and west façades)
- Terra cotta and sandstone ornament (Mission and Third Street façades), including sandstone entablatures and piers, terra cotta brick pilasters, capitals, friezes, spandrel panels, and window sills
- Grid-like fenestration pattern (Mission and Third Street façades)
- Historic entrance locations on Third and Mission Streets
- Cast iron pilasters between ground-floor storefronts (Mission and Third Street façades)
- Galvanized sheet metal cornice with paired scrolled brackets and block modillions
- Wood flagpole

[15] HRE, p. 67.

Interior

- Wood window trim and sills

STATUS OF ARONSON BUILDING UNDER EXISTING HISTORIC RESOURCE SURVEYS AND REGISTERS

The Aronson Building has been identified and included in a number of historic resource surveys and registers, as discussed below.

Here Today

The Junior League of San Francisco completed the earliest known cultural resource survey in San Francisco in 1968. Known as the "Here Today" survey, the survey findings were published in book form as *Here Today: San Francisco's Architectural Heritage* (1968), adopted by the San Francisco Board of Supervisors under Resolution No. 268-70 in 1970. *Here Today* provides a brief description of the Aronson Building in its Appendix. While *Here Today* made no specific determination as to the significance of the Aronson Building, inclusion in this adopted local register gives rise to a presumption that the resource is an "historical resource" under CEQA.[16]

1976 Citywide Architectural Survey

Between 1974 and 1976, the San Francisco Planning Department conducted a citywide inventory of architecturally significant buildings throughout the City and County of San Francisco. All building and structural types (both contemporary and historic) were surveyed but only buildings considered architecturally significant were assigned a rating. Ratings ranged from '0' (contextually significant) to '5' (individually significant). The Aronson Building was evaluated in the 1976 Survey and given a Summary rating of '4,' meaning that it was believed to be among the most architecturally significant buildings in San Francisco. Inclusion in the 1976 Architectural Survey indicates that the Planning Department has additional information on the building, but it does not alone indicate that the building is an "historical resource" under CEQA.[17] However, the building's existing status under other local, State, and Federal historic resource surveys and registers is determinative of its status as an "historical resource" under CEQA.

[16] City and County of San Francisco Planning Department, Preservation Bulletin No. 16, "CEQA Review Procedures for Historic Resources," Draft March 31, 2008 (hereinafter referred to as "Preservation Bulletin No. 16"), p. 5.
[17] CEQA Review Procedures, p. 6.

San Francisco Architectural Heritage – Downtown Survey

The San Francisco Architectural Heritage (Heritage) Downtown Survey was completed in 1977-78, and published in 1979 as Splendid Survivors. The rating system ranged from 'A' (highest importance) to 'D' (minor or no importance). The Aronson Building was included in the Heritage Downtown Survey and was given an 'A' rating. Inclusion in the Heritage Downtown Survey indicates that the Planning Department has additional information on the building, but it does not alone indicate that the building is an "historical resource" under CEQA.[18] However, the building's existing status under other local, State, and Federal historic resource surveys and registers is determinative of its status as an "historical resource" under CEQA.

National Register of Historic Places

The National Register of Historic Places is the nation's most comprehensive inventory of historic resources. The National Register is administered by the National Park Service and includes buildings, structures, sites, objects, and districts that possess historic, architectural, engineering, archaeological, or cultural significance at the national, state, or local level. In 1978, the Department of Housing and Urban Development, prepared an Environmental Impact Statement for the Yerba Buena Center Redevelopment Area project. The Environmental Impact Statement identified the National Register-eligible Aronson Historic District consisting of three properties on three corners of the Third Street and Mission Street intersection: the Aronson Building on the northwest corner at 706 Mission Street; the Blumenthal Building on the northeast corner at 86 Third Street (demolished to make way for the Paramount in 2000); and the Williams Building on the southeast corner at 693 Mission Street (incorporated into the St. Regis project in 2005). The Aronson Building is assigned a National Register Status Code of 2S1, meaning that the building was determined eligible for individual listing in the National Register of Historic Places as well as being a contributor to the eligible Aronson Historic District by the Keeper of the National Register of Historic Places. As such, the Aronson Building is automatically listed in the California Register and is an historical resource under CEQA.[19]

Article 10 of the San Francisco Planning Code

Article 10 of the San Francisco Planning Code identifies buildings, properties, structures, sites, districts, and objects that are of "special character or special historical, architectural or aesthetic interest or value and are an important part of the City's historical and architectural heritage." It protects listed buildings from inappropriate alteration and demolition through review procedures

[18] CEQA Review Procedures, p. 6.
[19] CEQA Review Procedures, p. 3.

overseen by the San Francisco Historic Preservation Commission. The Aronson Building is not a designated City Landmark, nor is it a contributor to a locally designated Historic District under Article 10.

Article 11 of the San Francisco Planning Code

The Downtown Area Plan is an element of the *San Francisco General Plan*. It contains a set of objectives and policies guiding decisions affecting the City's downtown, in particular providing for the identification and preservation of designated Significant and Contributory buildings and Conservation Districts in the City's C-3 districts. The Aronson Building is not designated under Article 11 of the Planning Code, but such a designation is currently under consideration, as discussed below.

Draft Transit Center District Plan

As part of ongoing long-range planning efforts in the *Transit Center District Plan* (TCDP) area, the City and County of San Francisco contracted with Kelley & VerPlanck Historical Resources Consulting (KVP) to survey the TCDP area and prepare a Historic Context Statement that summarized historical patterns of development, described existing historic resources, and examined the cumulative impact of several major new projects in the Plan Area. The Transit Center District Historic Context Statement and Survey, prepared by KVP, was adopted by the Landmark Preservation Advisory Board in August 2008. Since that time, additional research and information-gathering was conducted in the 2010 Carey & Company Survey Update. This survey update provided a more complete study of properties that meet eligibility standards for Federal and State registers as individual historic resources and/or as historic district contributors, of areas that qualify for consideration as historic districts, and of properties that do not qualify for historic status. The previous phase of the survey included information for some, but not all, properties located within the survey area. The survey update was adopted by the Historic Preservation Commission on February 1, 2012.[20]

The Aronson Building is identified in the draft TCDP[21] as a Category I Significant Building within a proposed expansion of the existing New Montgomery-Second Street Conservation District (called the proposed New Montgomery-Mission-Second Street Conservation District).

[20] San Francisco Planning Department, *Article 11 Initiation Case Report*, Case No. 2007.0558MTZU. Available online at http://commissions.sfplanning.org/hpcpackets/2007.0558MTZU.pdf. Accessed May 3, 2012.

[21] San Francisco Planning Department, Draft *Transit Center District Plan*, November 2009, p. 95. Available online at http://www.sf-planning.org/ftp/CDG/docs/transit_center/Transit_Center_District_Plan_Public_Draft_WEB.pdf. Accessed May 3, 2012.

The western boundary of the existing New Montgomery-Second Street Conservation District under Article 11 is now defined by properties that line the west side of New Montgomery Street. The proposed expanded conservation district would extend the boundary westward along the south side of Mission Street to Third Street, and along the north side of Mission Street to capture the Aronson Building on northwest corner of the Mission Street and Third Street intersection.[22] Despite the exclusion of the Paramount residential building on the northeast corner of the intersection, the Aronson Building maintains contiguity with the rest of the district by the strong visual relationship between the Aronson Building and the Williams Building diagonally across the intersection. If adopted as an amendment to Article 11, the proposed Category I designation of the Aronson Building and the proposed New Montgomery-Mission-Second Street Conservation District would qualify the Aronson Building as an "historical resource" under CEQA. However, the building's existing inclusion in other local, State, and Federal historic resource surveys and registers is determinative of its status as an "historical resource" under CEQA.

NEARBY HISTORIC ARCHITECTURAL RESOURCES

Historic Districts

As discussed above, the Aronson Building is an individually significant resource and a contributor to the Aronson Historic District (determined eligible for listing in the National Register), and the New Montgomery-Mission-Second Street Conservation District (proposed as part of the draft TCDP, as an amendment to the New Montgomery-Second Street Conservation District under Article 11 of the San Francisco Planning Code).

Individually Significant Historic Architectural Resources

The immediate vicinity of the Aronson Building contains three individually designated historic architectural resources:

- St. Patrick's Church and Rectory: at 760 Mission Street; San Francisco City Landmark No. 4, listed on September 3, 1968; Shea & Lofquist, architects, 1909 reconstruction. Also determined eligible for individual listing on the National Register of Historic Places.
- Jessie Street Substation: at 222-226 Jessie Street (now the Contemporary Jewish Museum); San Francisco City Landmark No.87, listed on July 9, 1977; Willis Polk,

[22] On May 24, 2012, the San Francisco Planning Commission, as part of its review of the Transit Center District Plan, adopted a resolution recommending that the Board of Supervisors approve the proposed boundary change and amendment to the New Montgomery-Second Street Conservation District under Article 11 of the Planning Code. The TCDP is anticipated to go before the Board of Supervisors during the summer of 2012.

architect, 1907. Also determined eligible for individual listing on the National Register of Historic Places.

- Williams Building: at 693 Mission Street (now part of the St. Regis Hotel); Clinton Day architect, 1907. Appears eligible for the National Register as an individual property through survey evaluation. Also, as discussed on p. IV.D.43, the Williams Building is a contributing resource to the Aronson Historic District and the proposed New Montgomery-Mission-Second Street Conservation District (an expansion of the existing New Montgomery-Second Street Conservation District).

REGULATORY FRAMEWORK

Federal

National Register of Historic Places

The National Register of Historic Places is the nation's master inventory of cultural resources worthy of preservation. It is administered by the National Park Service, which is represented at the State level by the State Historic Preservation Officer. The National Register includes listings of buildings, structures, sites, objects, and districts that possess historic, architectural, engineering, archaeological, or cultural significance at the Federal, State, or local level. Resources that are listed on or have been found by State Historic Preservation Officer to be eligible to the National Register are called historic properties. The National Register includes four evaluative criteria to determine eligibility of a resource:

> The quality of significance in American history, architecture, archaeology and culture is present in districts, sites, buildings, structures, and objects of state and local importance that possess integrity of location, design, setting, materials, workmanship, feeling and association, and:
>
> a. that are associated with events that have made a significant contribution to the broad patterns of history; or
>
> b. that are associated with the lives of persons significant in our past; or
>
> c. that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
>
> d. that have yielded or may likely yield information important in prehistory or history.

Although there are exceptions, certain kinds of resources are not usually considered for listing in the National Register: religious properties, moved properties, birthplaces and graves, cemeteries, reconstructed properties, commemorative properties, and properties that have achieved significance within the past 50 years.

The eligibility criteria for inclusion in the CRHR are closely based on the National Register of Historic Places eligibility criteria.

The Secretary of the Interior's Standards for Rehabilitation

The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings (the Secretary's Standards) were published in 1995 and codified as 36 CFR 68.[23] Neither technical nor prescriptive, these standards are intended to promote responsible preservation practices that help protect irreplaceable cultural resources. [24] The Secretary's Standards consist of ten basic principles created to help preserve the distinctive character of an historic building and its site while allowing for reasonable changes to meet new needs. The preamble to the Secretary's Standards states that they "are to be applied to specific rehabilitation projects in a reasonable manner, taking into consideration economic and technical feasibility."

State

California Register of Historical Resources

The CRHR is the authoritative guide to historical and archaeological resources that are significant within the context of California's history. Criteria for eligibility for inclusion in the CRHR are based on, and therefore correspond to, National Register of Historic Places criteria for listing. The CRHR eligibility criteria are presented on p. IV.D.34.

Local

Local Registers

Local registers of historical resources are discussed above.

[23] Treatments are defined as follows: "Preservation" acknowledges a resource as a document of its history over time and emphasizes stabilization, maintenance, and repair of existing historic fabric. "Rehabilitation," while also incorporating the retention of features that convey historic character, also accommodates alterations and additions to facilitate continuing or new uses. "Restoration" involves the retention and replacement of features from a specific period of significance. "Reconstruction," the least-used treatment, provides a basis for re-creating a missing resource.

[24] Weeks, Kay D. and Anne E. Grimmer. 1995. The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstruction Historic Buildings. Washington D.C.: U.S. Department of the Interior, National Park Service.

San Francisco Planning Code Section 101.1: Master Plan Priority Policies

Planning Code Section 101.1 is applicable to the Proposed Project. It requires that the City find that the proposed project is consistent, on balance, with eight *Master Plan Priority Policies*. Priority Policy 7 is relevant to historic resources and establishes a priority policy "that landmarks and historic buildings be preserved."

San Francisco General Plan

The *San Francisco General Plan* currently does not contain a preservation element. In 2007, the Planning Department published a Draft Preservation Element, which contains objectives and policies that promote the protection and preservation of historic architectural resources.

Planning Department, CEQA Review Procedures for Historic Resources

The San Francisco Planning Department prepared the *CEQA Review Procedures for Historic Resources* to provide guidance in determining whether a resource is considered an historical resource as defined by CEQA.[25] Three categories of properties are defined:

- *Category A*. Historical Resources, Category A has two subcategories:
  - *Category A.1*. Resources listed in or formally determined to be eligible for the CRHR.
  - *Category A.2*. Resources listed in adopted local registers, or properties that appear eligible, or may become eligible, for the CRHR.
- *Category B*. Properties requiring further consultation and review.
- *Category C*. Properties determined not to be historical resources, or properties for which the City has no information indicating that the property is an historical resource.

IMPACTS

SIGNIFICANCE CRITERIA

The thresholds for determining the significance of impacts in this analysis are consistent with the environmental checklist in Appendix G of the State CEQA Guidelines, which has been adopted and modified by the San Francisco Planning Department. For the purpose of this analysis, the following applicable threshold was used to determine whether implementing the project would

[25] City and County of San Francisco Planning Department, *CEQA Review Procedures for Historic Resources, Preservation Bulletin No. 16*, March 31, 2008. Available online at http://sfplanning.org/Modules/ShowDocument.aspx?documentid=5339.

result in a significant impact on historic architectural resources. Implementation of the proposed project would have a significant effect on an historic architectural resource if the project would:

D.1 Cause a substantial adverse change in the significance of a historical resource as defined in Section15064.5, including those resources listed in Article 10 or Article 11 of the San Francisco *Planning Code*.

CEQA Guidelines (Section 15064.5(b)) establish the criteria for assessing a significant environmental impact on historical resources. They state, "[a] project with an effect that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment." CEQA Guidelines define "substantial adverse change in the significance of an historical resource" as a "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired" (Section 15064.5(b)(1)). The significance of an historic architectural resource is considered to be "materially impaired" when a project demolishes or materially alters the physical characteristics that justify the inclusion of the resource in the CRHR, or that justify the inclusion of the resource in a local register, or that justify its eligibility for inclusion in the CRHR as determined by the lead agency for the purposes of CEQA (Section 15064.5(b)(2)).

CEQA Guidelines include a presumption that a project that conforms to the Secretary's Standards would generally have a less-than-significant impact on an historical resource. Section 15064.5(b)(3) of the CEQA Guidelines states, "Generally, a project that follows the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings or the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings (1995) Weeks and Grimmer, shall be considered as mitigated to a level of less than a significant impact on the historic resource."[26]

PROJECT FEATURES

On February 2, 2011, the project sponsor presented an earlier version of the proposed project to the Architectural Review Committee (ARC) of the Historic Preservation Commission to seek ARC comments and recommendations regarding the compatibility of the proposed project with

[26] Note, however, that Secretary's Standards are not to be construed as CEQA significance criteria. Although compliance with the Secretary's Standards may indicate that a project would have a less-than-significant impact on an historical resource, a project that does not comply with the Secretary's Standards does not, *per se*, result in a significant impact under CEQA. Alterations that are not consistent with the Secretary's Standards may, or may not, result in a significant impact under the "material impairment" significance standard of CEQA Guidelines Section 15064.5(b)(1).

the Secretary's Standards. The ARC made comments and recommendations on that design, primarily concerning its storefronts, new window openings on the north elevation, and its rooftop solarium.[27] The project design was modified by the project sponsor to respond to the ARC's comments.

The project sponsor has submitted an Architectural Design Intent Statement[28] that establishes the design intent and parameters for the treatment of the historic Aronson Building as well as the relationship between the proposed tower and the existing Aronson Building. The Architectural Design Intent Statement incorporates recommendations for the treatment of the Aronson Building that are provided in a Historic Structure Report (HSR) by the project sponsor's preservation consultant, based on an assessment of existing conditions and on accepted preservation practice for the rehabilitation, stabilization and repair of the Aronson Building (included in the EIR as Appendix D).[29] The design features and parameters for the treatment of the Aronson Building set forth in the Architectural Design Intent Statement would be incorporated into the proposed project, and are presented in Chapter II, Project Description, on pp. II.46-II.63. The specific project design is a conceptual design developed by the project sponsor based on the proposed development program, site constraints, and environmental considerations. As the environmental review and entitlement process progresses, this conceptual design will be subject to revision and further refinement, consistent with the parameters described in the Architectural Design Intent Statement. The proposed project consists of two components: the proposed tower and the rehabilitation of the existing Aronson Building.

In addition to the proposed project, vehicular access variants are discussed and analyzed in Chapter VI, Project Variants. Variant 2, which begins on p. VI.10, and Variant 4, which begins on p. VI.25, would call for additional excavation north of the Aronson Building to construct a vehicular access ramp from Third Street to the Jessie Square Garage. The impacts relating to the ramp's effects on historic architectural resources are discussed and analyzed in Chapter VI.

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[27] ARC comments and recommendations are summarized in a memorandum to file. Tim Frye, Acting Preservation Coordinator, *Meeting Notes from the Review and Comment at the February 2, 2011 Hearing for 706 Mission Street – The Aronson Building, Case No. 2008.1048E*, February 10, 2011. A copy of this document is available for review at the Planning Department, 1650 Mission Street, Suite 400, San Francisco, California, as part of Case File No. 2008.1084E.

[28] Handel Architects, 706 Mission Street Architectural Design Intent Statement, January 11, 2012. A copy of this document is available for review at the Planning Department, 1650 Mission Street, Suite 400, San Francisco, California, as part of Case File No. 2008.1084E.

[29] Page & Turnbull, *The Aronson Building, San Francisco, California, Historic Structure Report*, December 2, 2010. This document is included in this EIR as Appendix D and is also available for review at the Planning Department, 1650 Mission Street, Suite 400, San Francisco, California, as part of Case File No. 2008.1084E.

Proposed Tower

The proposed tower would be 47 stories and 550 feet tall (520 feet to the roof of the highest occupied floor plus a 30-foot-tall elevator/mechanical penthouse). The proposed tower design would be contemporary in visual character and would be clad in glass, masonry, and metal. The east façade of tower volume would cantilever approximately seven feet over the western end of the Aronson Building. The ground floor of the museum and residential lobbies at the ground floor of the proposed project tower would be set back from the property line, and are anticipated to be transparent. The second, third, and fourth floor levels of the proposed project tower would project beyond the tower's setback ground floor, creating a cantilevered, horizontal podium base element for the proposed project tower. The proposed four-story tower base would define a horizontal volume that would be set back approximately six feet from the existing south façade of the Aronson Building. See Chapter II, Project Description, pp. II.46-II.56, for a description and plans of the proposed tower as presented in the project sponsor's Architectural Design Intent Statement. See also Section IV.B, Aesthetics, for photosimulations of the proposed project.

The tower would be built adjacent to the Aronson Building's west party wall following demolition of the 1978 west annex and would be connected to the Aronson Building with a structural seismic joint. The tower and the Aronson Building would be structurally separate, with an air space in between as required for structural movement. New connections between the tower and the existing Aronson Building would be established for programmatic and structural requirements, while still maintaining a visual separation between the buildings.

Proposed Restoration and Rehabilitation of the Aronson Building

The envelope of the original 1903 Aronson Building would remain (10 stories and 144 feet to the top of the roof), and the two non-historic annexes that were added to this building along its northern and western walls in 1978 would be removed. As part of the proposed project, the Aronson Building would be restored and rehabilitated as described in the project sponsor's Architectural Design Intent Statement, presented in Chapter II, Project Description, beginning on p. II.56.

IMPACT EVALUATION

Impact CP-5: The proposed rehabilitation, repair and reuse of the Aronson Building under the proposed project would not cause a substantial adverse change in the significance of the Aronson Building as a historical resource under CEQA. *(Less than Significant)* (Criterion D.2)

Repair and Rehabilitation of the Aronson Building

The proposed project calls for rehabilitation, repair, and reuse of the Aronson Building. The HSR prepared by Page & Turnbull follows National Park Service guidance.[30] The purpose of the HSR is to understand, identify and document the historic character-defining features of the Aronson Building, evaluate their existing condition, and provide appropriate guidance for their treatment under the proposed project. The Planning Department has independently reviewed the HSR and concurs with the HSR's conclusions and recommendations.[31] The proposed project would include implementation of the specific recommended treatments of the HSR for particular building features and materials, based on accepted conservation methods and practice (see Chapter II, Project Description, beginning on p. II.56, for a list of repair and rehabilitation work included as part of the proposed project). Implementation of the recommendations of the HSR as part of the proposed project would ensure that the character-defining features of the Aronson Building would be retained, repaired and/or stabilized, enhancing and ensuring their continued contribution to the historic significance of the Aronson Building as an historical resource.

Removal of 1978 Annexes to the Aronson Building

The proposed project calls for removal of the two 1978 annexes on the west and north façades. As discussed above, these features do not contribute to the historic character and significance of the Aronson Building, and the obtrusive west annex negatively impacts the integrity of the Aronson Building. These features may therefore be removed without damage to the historic character and significance of the Aronson Building. The HSR includes measures to protect the historic fabric of the Aronson Building during the demolition of the 1978 annexes.

Alterations to the North Façade

Proposed new windows on the north elevation would be recessed, or punched, and arranged in a largely symmetrical arrangement consisting of a pair of windows within each structural bay,

[30] National Park Service, *Preservation Brief 43: The Preparation and Use of Historic Structure Reports*. A copy of this document is available for review at the Planning Department, 1650 Mission Street, Suite 400, San Francisco, California, as part of Case File No. 2008.1084E.
[31] HRER, p. 10.

except for the easternmost bay, which would remain brick at floors one through three, and contain a single window at floors four through ten. The proposed windows on the north façade would have simple metal frames. As proposed, the new windows would be clearly differentiated from, but compatible with, the character of the building. There would be no new openings in the easternmost bay of the first, second, and third floors, and upper floors would have only one window in this bay, in order to maintain the perception of a solid brick wall from Third Street. These window openings, along with the ground-floor alterations, would result in removal of less than 30 percent of the existing red common brick.

The four proposed storefront openings would be spanned by a cantilevered metal canopy and would align vertically with the regular pattern of paired window openings on the floors above. The storefront openings and canopy would require removal of historic fabric (red common brick). Although the storefronts would introduce a level of transparency to the north façade that is not currently present at this façade, they would maintain the sense of building volume at the ground floor. The storefronts and canopy have been designed in a manner that is appropriate for new features on this elevation. They would be simple in design and would not draw undue attention to themselves and away from the character-defining features of the Mission Street and Third Street primary facades of the Aronson Building.

Rooftop Addition and Open Space

As part of the project, the rooftop of the Aronson Building would become a landscaped shared open space for project residents. The existing 10-foot-tall mechanical penthouse would be removed and an approximately 15-foot-tall rooftop solarium would be constructed. The solarium would be set back from the south, east, and north façades of the Aronson Building to minimize its visibility from nearby streets. If visible at all from public areas (particularly from the upper terrace of Yerba Buena Gardens), it would appear as a low, simple, and transparent rooftop structure. Where visible at all from public areas, the proposed rooftop addition would be differentiated from, yet compatible with, the scale and character of the Aronson Building.

Conclusion

As described above, and as concluded in the HRER,[32] the proposed alterations to the Aronson Building under the proposed project would retain and preserve character-defining features of the Aronson Building. New alterations would be differentiated from, yet compatible with, the old. As such, the proposed project would conform to the Secretary's Standards, and would therefore

[32] HRE, pp. 84-87; HRER, pp. 11-16.

have a less-than-significant impact on the Aronson Building historic resource under CEQA Guidelines 15064.5(b)(3). No mitigation measures are necessary.

Impact CP-6: The proposed project tower would not cause a substantial adverse change in the significance of the Aronson Building historical resource. *(Less than Significant)* (Criterion D.2)

The proposed project calls for construction of a 550-foot-tall tower to the west of the existing Aronson Building. Circulation within the new tower would be linked to the Aronson Building at floor levels of the Aronson Building where floor alignments with floors of the proposed project tower permit. However, as discussed in the HRER, the tower would be fully structurally independent of the Aronson Building and thereby removable, in conformity with the Secretary's Standards, Standard 10.[33] In addition, the proposed tower is designed to read as an entirely separate building, as recommended for additions to historic buildings in dense urban locations in Preservation Brief 14: "New Exterior Additions to Historic Buildings: Preservation Concerns."[34]

The tower would be constructed immediately to the west of the Aronson Building, an elevation that has been previously altered with a 1978 annex, which would be removed.[35] The proposed location, on a non-character-defining, mid-block elevation that has no ornamental detail or historic fenestration, would not obscure, or call for removal of, character-defining features.

The tower façade would be set back from Mission Street, revealing a portion of the red brick western wall of the Aronson Building and allowing the return of the cornice along the west wall. The Aronson Building would continue to "read" as an independent three-dimensional volume.[36] With setback of the tower, views of the Aronson Building's primary façades from Third Street and Mission Street would be maintained, as would the contextual relationship with the former Williams Building to the southeast.

Although the heights of the proposed 47-story tower and the existing 10-story Aronson Building would be vastly different, the proposed location and articulation of the tower as a related, but visually separate, building from the Aronson Building maintains a context that is similar to many buildings of varying heights in the surrounding area.[37] Proposed massing and articulation of the proposed tower would further differentiate the two buildings, allowing each to maintain a related but distinct character and physical presence. The proposed tower is designed as a series of

[33] HRE, p.88; HRER, p. 14.
[34] National Park Service, Anne E. Grimmer and Kay D. Weeks, Preservation Brief 14: "New Exterior Additions to Historic Buildings; Preservation Concerns," p. 7. As referenced in the HRE, p. 88.
[35] HRE, p. 88; HRER, p. 14.
[36] HRE, p. 89; HRER, p. 14.
[37] HRE, p. 88; HRER, p. 15.

narrow, vertical volumes clad in an alternating arrangement of transparent metal window frames and glazing and stone veneer. This device breaks up the building's massing and reduces its apparent size. The first five floors of the tower would align with their counterparts in the Aronson Building, creating a relationship between the two structures that would be expressed on the exterior of the proposed tower.

The proposed tower would be located on a tertiary, previously altered, elevation in a manner that would not result in the loss of any historic materials or features.[38] It features internal connections to the Aronson Building but would be structurally separate. The tower would be clearly differentiated in its modern, contemporary design vocabulary, but would relate to the Aronson Building through setbacks, change of building plane and materials, and related floor plates at lower levels.

For these reasons, the design of the proposed project tower would not result in a substantial adverse change in the significance of the Aronson Building historical resource. No mitigation measures are necessary.

Mitigation Measure M-NO-2c: Vibration Monitoring and Management Plan, in Section IV.F, Noise, p. IV.F.27, addresses the potential for direct physical damage to the Aronson Building resulting from vibration during construction of the proposed project tower.

Impact CP-7: The proposed project tower would not cause a substantial adverse change in the significance of nearby historical resources. ***(Less than Significant)*** **(Criterion D.2)**

Effect on Historic Districts

The Aronson Building is a contributing resource to two historic districts: the Aronson Historic District, which has been determined eligible for listing in the National Register and is also listed in the California Register; and the proposed New Montgomery-Mission-Second Street Conservation District (proposed as part of the draft TCDP, as an amendment to the New Montgomery-Second Street Conservation District under Article 11 of the San Francisco Planning Code). Although the existing visual context surrounding the Aronson Building is now largely dominated by high-rises and the Yerba Buena Gardens / Moscone Convention Center, the Aronson Building maintains a prominent visual presence at the intersection of Third and Mission Streets.

[38] HRE, p. 89; HRER, p. 15.

The proposed project would not block any views of the Aronson Building as seen from within these two historic districts. See Figure IV.B.10: View I – View to Project Site Along Mission Street, Looking Northeast, in Section IV.B, Aesthetics, p. IV.B.14. Under the proposed project, the Aronson Building would continue to relate to the historic architectural character of the early 20th century commercial building diagonally across the intersection (the Williams Building) and those along Mission Street within the proposed New Montgomery-Mission-Second Street Conservation District. The new tower would not alter existing physical relationships between the Aronson Building and the Williams Building (the only extant contributors to the Aronson Historic District).[39] Both buildings would retain their status as district contributors. While the visual setting of the Aronson Building would be altered, it would not materially impair the ability of the building or surrounding Aronson Historic District to convey its historic significance. Likewise, the new tower would not alter existing physical relationships between the Aronson Building and the proposed New Montgomery-Mission-Second Street Conservation District.[40] While the visual setting of the Aronson Building would be altered, the juxtaposition of low-scale historic buildings viewed against a backdrop of contemporary high-rise towers is already a characteristic of this district.

The proposed high-rise tower would contrast with the historic architectural character for which the historic districts were designated. However, the proposed new tower is outside of the boundaries of the historic districts. The surrounding visual settings for these districts have been previously altered by contemporary construction, and the proposed project is not anticipated to worsen this condition. While the visual setting of these districts would be altered, it would not materially impair the ability of the district to convey their historic significance.[41] No impact to either of these districts from the proposed project would occur. The proposed project tower would not obstruct existing visual connections between the Aronson Building and its fellow district contributors to the east. It would join other existing comparably scaled modern high-rise towers outside this district edge that now rise in the background when viewing the districts from within.

Further, as discussed above, the proposed project includes exterior rehabilitation and demolition of non-historic annexes that would enhance the Aronson Building's historic architectural character and thereby strengthen its contribution to the historic districts of which it is part.[42]

[39] HRE, p. 92; HRER, p. 16.
[40] HRE, p. 92; HRER, p. 16.
[41] HRE, p. 92; HRER, p. 16.
[42] HRE, p. 92; HRER, p. 16.

For these reasons, the proposed project would not result in a substantial adverse change in the significance of any of the historic districts to which the Aronson Building contributes. No mitigation measures are necessary.

Effect on Nearby Individual Historical Resources

As discussed on pp. IV.D.45-IV.D.46, to the west of the Aronson Building are St. Patrick's Church and Rectory at 760 Mission Street and the Jessie Street Substation at 222-226 Jessie Street (the Contemporary Jewish Museum). These are individually designated historical resources. (The Williams Building at 693 Mission Street is addressed on p. IV.D.43, under the discussion of the Aronson Historic District.) The proposed project would not obstruct any features of these historical resources. Views of these historical resources are now permanently protected by the existence of Jessie Square.

The proposed project would not damage the historic visual setting of St. Patrick's Church and the Jessie Street Substation because the historic visual setting of these resources no longer exists.[43] Today, these buildings are surrounded by contemporary high-rises and plazas. What survive now are the buildings devoid of their original historic context. Although the new tower would intervene between the Aronson Building and the nearby historical resources on Jessie Square, the proposed project would not undermine any significant visual, historical, functional or design relationships between these landmarks and the Aronson Building. The proposed tower would replace the existing 1978 west annex, which presents a largely blank façade to both buildings and to Jessie Square. As discussed above, the Aronson Building, together with St. Patrick's Church and the Jessie Street Substation, do not collectively form a coherent historic district (i.e., a grouping of resources united by history or design), despite their proximity to one another. The construction of the new tower next to the Aronson Building would not further harm this altered context in a manner that would be significant.

For these reasons, the proposed project would not result in a substantial adverse change in the significance of the existing historic visual setting of St. Patrick's Church and the Jessie Street Substation historical resources. The proposed project would be physically separate from each of these individual historical resources such that no direct, physical impacts are anticipated. No mitigation measures are necessary.

[43] HRE, pp. 93-94; HRER, p. 17.

Impact C-CP-2: The proposed project, in combination with other past, present, and reasonably foreseeable future projects in the project vicinity, would not have a cumulatively considerable contribution to a significant impact on historic architectural resources. ***(Less than Significant)***

As discussed above under Impact CP-5 on pp. IV.D.52-IV.D.54, the proposed project, including the rehabilitation, repair, and reuse of the Aronson Building, would not have any significant adverse impact on the Aronson Building historical resource. The proposed project instead would enhance and ensure the Aronson Building's continued and long-term ability to convey its individual historic and architectural significance, and to contribute to the two historic districts (the Aronson Historic District and the New Montgomery-Mission-Second Street Conservation District) to which it belongs. As such, the proposed project would not have a cumulatively considerable contribution to a significant cumulative impact on historic architectural resources. No mitigation measures are necessary.

As discussed under Impact CP-7 on pp. IV.D.55-IV.D.57, the proposed project tower would not cause any substantial adverse change in the significance of nearby off-site historic architectural resources. By the same reasoning, the proposed project tower would not contribute to cumulative impacts of anticipated development projects on historical resources. Anticipated development projects in the project vicinity are identified in the introduction to Chapter IV, Environmental Setting, Impacts, and Mitigation on pp. IV.A.7-IV.A.9. The majority of these development projects would involve interior changes or minor exterior alterations to existing structures. There are two proposed new construction projects in the vicinity of the project site within the city blocks adjacent to the project block. The proposed 2 New Montgomery Street project would construct a 17-story addition to the Palace Hotel. The proposed San Francisco Museum of Modern Art Expansion Project at 151 Third Street would construct a 220-foot-tall addition to the existing museum with about 235,000-gsf new museum space along the north side of Howard Street, adjacent to the W Hotel. Given the distance between the project site and anticipated construction projects, given the scale of existing intervening development which limits visual interaction between the proposed project and anticipated projects, and given the scale of anticipated projects in the vicinity of the project site, the effects of the proposed project tower on historic architectural resources would not combine with those of cumulative development to contribute to any cumulative impairment of the historic setting of nearby historic architectural resources. The proposed project would not have a cumulatively considerable contribution to a significant cumulative impact on historic architectural resources. No mitigation measures are necessary.

E. TRANSPORTATION AND CIRCULATION

This section summarizes and incorporates the results of the *Transportation Impact Study* (TIS) prepared by the transportation subconsultant for the proposed project (included in this EIR as Appendix E).[1] The TIS describes existing and future 2030 transportation conditions (roadway traffic, transit, pedestrian access, bicycle access, loading, and parking) in the vicinity of the proposed project and evaluates its environmental effects. The following transportation scenarios were examined: existing, existing plus the proposed project, and cumulative conditions in 2030.

SETTING

The transportation study area for the proposed project is the area bounded by Market Street, Second Street, Folsom Street, and Fifth Street. The proposed project would include the conveyance of the existing subsurface Jessie Square Garage from the San Francisco Municipal Transportation Agency (SFMTA) to the project sponsor and the conversion of the garage from a publicly owned garage to a privately owned garage. The basement mezzanine and upper basement levels would remain open to the public. On the mezzanine level of the existing garage, there is an existing space underneath the Contemporary Jewish Museum that is currently blocked off from the rest of the garage. As part of the proposed project, this existing space would be connected to the rest of the garage by removal of a wall and would be striped to accommodate about 38 parking spaces. Ten existing parking spaces on various levels of the garage would need to be removed for vehicular access and circulation. As a result, there would be a net increase of 28 parking spaces, and the total number of parking spaces in the garage would increase from 442 to 470. The proposed project also would use Jessie Square Garage for access to the proposed on-site loading areas.

Currently, there are two curb cuts on the existing project site: one on Third Street, which provides access to the existing loading area in the Aronson Building, and one on Mission Street, which provides an exit for the Jessie Square Garage. The current entrance for the Jessie Square Garage is on Stevenson Street. Egress from the garage is available from either Stevenson Street or Mission Street. See Figure II.32: Vehicular Access – Proposed Project, in Chapter II, Project Description, p. II.65.

[1] LCW Consulting, *706 Mission Street Transportation Study, 2008.1084E, Final Report* (hereinafter referred to as "TIS"), January 24, 2012. This document is included in this EIR as Appendix E and is also available for review at the Planning Department, 1650 Mission Street, Suite 400, San Francisco, California, as part of Case File No. 2008.1084E.

ROADWAY NETWORK

Regional Access

Interstate 80 (I-80) provides the primary regional access to the project area. The San Francisco-Oakland Bay Bridge is part of I-80 and connects San Francisco with the East Bay and points east. I-80 runs to the south of the project site. Access to the proposed project from I-80 westbound is via the Fremont Street off-ramp, about three blocks southeast of the project site, and access to I-80 eastbound is via the on-ramps at Harrison and First Streets. Access from I-80 eastbound is via the Fifth and Harrison off-ramp, and access to I-80 westbound is via the Fourth and Harrison on-ramp.

U.S. Highway 101 (U.S. 101) provides access to both the north and south of the study area. I-80 joins U.S. 101 to the southwest of the proposed project and provides access to the Peninsula and South Bay. Nearby access to U.S. 101 to the south is provided from I-80, including the on- and off-ramps at Fourth Street. In addition, U.S. 101 connects San Francisco and the North Bay via the Golden Gate Bridge. Within the northern part of San Francisco, U.S. 101 operates on surface streets (i.e., Van Ness Avenue and Lombard Street).

Local Access

Market Street is a major east-west street that runs from just east of Clipper Street to Steuart Street. According to the *San Francisco General Plan* (*General Plan*), Market Street is designated as a Transit Conflict Street in the Congestion Management Program (CMP) Network, a Transit Preferential Street (transit-oriented), a Citywide Pedestrian Network Street, and a Neighborhood Commercial Street. No on-street parking is provided on Market Street east of Van Ness Avenue; however, several areas have loading zones that permit temporary parking for service vehicles and taxis. Within downtown San Francisco, Market Street is part of Bicycle Route #50 (a Class III bicycle route[2]). Muni buses (including 2 Clement, 21 Hayes, 6 Parnasus, 9 San Bruno, 9L San Bruno Limited, 31 Balboa, 71/71L Haight/Noriega), and the Muni F Market & Wharves historic streetcar line operate on Market Street, while Muni Metro and BART operate below Market Street.

Mission Street is an east-west street in the study area, extending from The Embarcadero to Van Ness Avenue. At Van Ness Avenue, Mission Street turns to run north-south to the southern city limits and into Daly City. Within the study area, Mission Street generally has one mixed-flow

[2] Bikeways are typically classified as Class I, Class II, or Class III facilities. Class I bikeways are bike paths with exclusive right-of-way for use by bicyclists. Class II bikeways are bike lanes striped within the paved areas of roadways and established for the preferential use of bicycles, while Class III bikeways are signed bike routes that allow bicycles to share travel lanes with vehicles.

travel lane and one peak period transit-only lane in each direction, with on-street parking and sidewalks on both sides of the street. Parking is prohibited during peak periods on both sides of Mission Street, and prohibited at all times between Third and Fourth Streets. The block between Third and Fourth Streets also has a planted raised median. Curb-side lanes are marked as restricted to buses and taxis only from 7 AM to 6 PM. Muni (bus lines 14 Mission, 14L Mission Limited, and 14X Mission Express), SamTrans, and Golden Gate Transit operate bus service on Mission Street. The *General Plan* designates Mission Street as a Transit Conflict Street in the CMP Network, as a Transit Preferential Street (primary transit-oriented) within the downtown core, as a Neighborhood Pedestrian Street (Neighborhood Commercial), and as a Citywide Pedestrian Network Street.

Howard Street runs between The Embarcadero and South Van Ness Avenue. It is a two-way arterial with two travel lanes in each direction between The Embarcadero and Fremont Street, and a one-way arterial west of Fremont Street with three to four travel lanes in the westbound direction. In the vicinity of the project site Howard Street has on-street parking on both sides of the street; however, parking is prohibited along the north curb during the PM peak period (4 to 6 PM). The *General Plan* identifies Howard Street as a Major Arterial in the CMP Network, as an Metropolitan Transportation System (MTS) Street, and a Transit Preferential Street (transit important) between Main and Beale Streets. Howard Street is part of the Bicycle Route 30, and a bicycle lane is provided on the north side of Howard Street between Fremont and 11th Streets.

Folsom Street runs continuously between The Embarcadero and Ripley Street (south of Cesar Chavez Street), with another segment south of Bernal Heights. In the vicinity of the project site, Folsom Street is a four-lane eastbound one-way arterial from 11th Street to Main Street, and is a two-way arterial with three eastbound lanes and one westbound lane between Main Street and The Embarcadero. The *General Plan* identifies Folsom Street as a Major Arterial in the CMP Network and as an MTS Street. Folsom Street is part of Bicycle Route 30, and in the vicinity of the proposed project has a bicycle lane on the south side of the street.

Second Street is two-way between Market Street and King Street, with two lanes in both the northbound and southbound directions. Between Mission Street and Market Street, only one northbound lane is provided and all northbound traffic must turn right at Market Street. On-street parking is generally provided along both sides of the street. Second Street is designated as a Neighborhood Commercial Street in the *General Plan*. In addition, Second Street is part of Bicycle Route 11.

Third Street is a north-south arterial between Bayshore Boulevard and Market Street. North of Townsend Street, Third Street is a one-way northbound roadway. In the vicinity of the project site, Third Street has five to six travel lanes, and the east curb lane is reserved for transit vehicles.

On-street parking is generally provided along both sides of the street, but is prohibited during the morning and afternoon commute periods. In the *General Plan*, Third Street is designated as a Major Arterial in the CMP Network, an MTS Street, a Transit Preferential Street (transit important), a Citywide Pedestrian Network Street, and a Neighborhood Commercial Street.

Fourth Street is a north-south roadway between Market Street and Third Street. North of Market Street, Fourth Street connects with Stockton Street and Ellis Street. Between Market and Townsend Streets, Fourth Street is one-way southbound with four travel lanes. In the vicinity of the project site, Fourth Street has on-street metered parking and sidewalks on both sides of the street, and the west curb lane is for transit only. In the *General Plan*, Fourth Street is designated as a Major Arterial in the CMP Network, an MTS Street, a Transit Preferential Street (transit important), and a Neighborhood Commercial Street.

Fifth Street is a north-south roadway between Market Street and Townsend Street. North of Market Street, Fifth Street becomes Cyril Magnin Street. Fifth Street is two-way, with two travel lanes in each direction. In the vicinity of the project site, Fifth Street has on-street metered parking and sidewalks on both sides of the street. In the *General Plan*, Fifth Street is designated as a Major Arterial in the CMP Network, an MTS Street, and a Transit Preferential Street (transit important). Fifth Street is part of Bicycle Route 19.

Stevenson Street is an east-west roadway that runs discontinuously between First Street and Tenth Street. In the vicinity of the project site, Stevenson Street runs one-way westbound between Annie Street and Third Street, and two-way between Third Street and the passenger loading area for the Four Seasons Hotel and Residences (the Four Seasons) to the west (between Third and Fourth Streets). Stevenson Street provides primary access to the Jessie Square Garage.

Intersection Operations

Existing operational conditions were evaluated for seven intersections, all of which are signalized. The locations of these seven intersections relative to the project site are shown in Figure IV.E.1: Transportation Study Area and Intersections Analyzed.

- Third Street and Market Street
- Third Street and Stevenson Street
- Third Street and Mission Street
- Third Street and Howard Street
- Fourth Street and Market Street
- Fourth Street and Mission Street
- Fourth Street and Howard Street

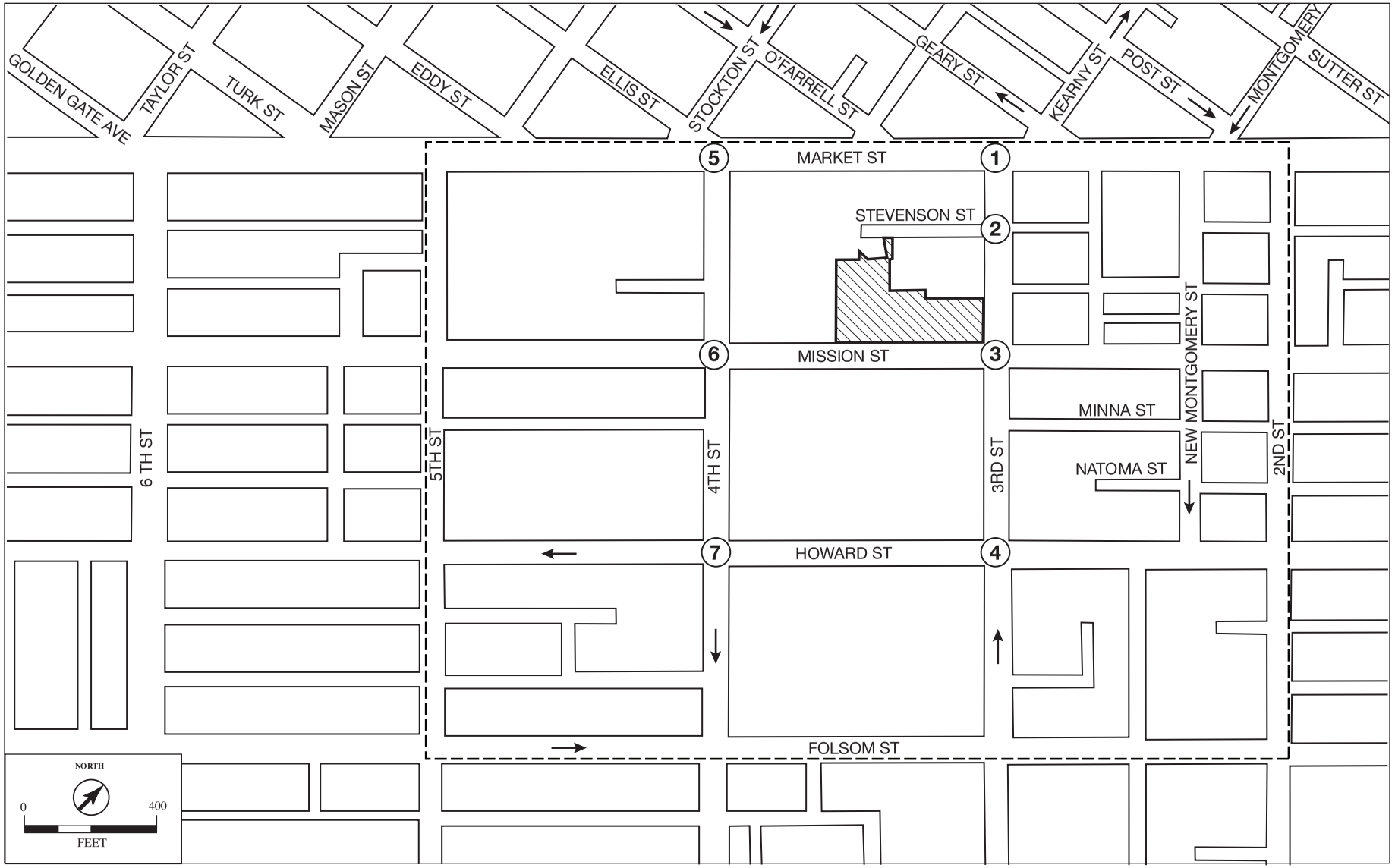


FIGURE IV.E.1: TRANSPORTATION STUDY AREA AND INTERSECTIONS ANALYZED

The operating characteristics of signalized intersections are described by the concept of Level of Service (LOS). LOS is a qualitative description of the performance of an intersection based on the average delay per vehicle. Intersection levels of service range from LOS A, which indicates free flow or excellent conditions with short delays, to LOS F, which indicates congested or overloaded conditions with extremely long delays. LOS A through D are considered excellent to satisfactory service levels. In San Francisco, LOS E is undesirable and LOS F is considered unacceptable operating conditions for signalized intersections.

The study intersections were evaluated using the *2000 Highway Capacity Manual* (*2000 HCM*) operations methodology, which determines the capacity for each lane group approaching the intersection. The LOS is based on average delay per vehicle (in seconds per vehicle) for the various movements within the intersection. A combined weighted average delay and LOS is presented for the intersection.

Intersection Level of Service (LOS) Conditions

Existing intersection operating conditions were evaluated for the weekday PM peak hour (generally between 5 and 6 PM) of the PM peak period (4 to 6 PM). Intersection turning movement counts were conducted at the seven study intersections on Wednesday, July 16, and Thursday, July 17, 2008. After the March 2009 signalization of the intersection of Third Street and Stevenson Street, traffic volumes were re-measured on Tuesday, November 24, 2009, at the intersections of Third Street with Market Street, Stevenson Street, and Mission Street. While the numbers of vehicles were similar, the 2008 volumes were slightly higher, and were therefore used for a conservative analysis.[3]

The results of the intersection LOS analysis for the existing weekday PM peak hour conditions is presented in Table IV.E.1: Intersection Level of Service, Existing. The signalized intersections of Third and Market Streets and Fourth and Market Streets currently experience the greatest average delay per vehicle, and operate at an overall intersection operating condition of LOS E and LOS F, respectively. While the intersection of Third and Stevenson Streets operates at an overall LOS B condition, intersection operations are influenced by conditions at the downstream intersection with Market Street. Due to its midblock location, during congested conditions on Third Street, vehicles often spill back from the northbound approach to Market Street into the intersection of Third and Stevenson Streets, thereby blocking vehicles exiting from eastbound Stevenson Street, including those exiting the Four Seasons and Jessie Square garages, onto or across Third Street, despite the dedicated signal at the intersection. Vehicles exiting from Stevenson Street are also impeded by pedestrians on Third Street who cross during the pedestrian "Don't Walk" phase. The pedestrian signal north of Stevenson Street is located about 30 feet north of the intersection,

[3] TIS, p. 30.

Table IV.E.1: Intersection Levels of Service, Existing (Weekday PM Peak Hour)

Intersection[a,b]	Delay[c]	Level of Service	Volume / Capacity[d]
1. Third / Market	56.2	**E**	0.79
2. Third / Stevenson	12.1	B	
3. Third / Mission	20.1	C	
4. Third / Howard	36.1	D	
5. Fourth / Market	>80	**F**	1.08
6. Fourth / Mission	41.8	D	
7. Fourth /Howard	42.5	D	

Notes:
> means greater than
[a] Intersections are numbered to key with Figure IV.E.1 on p. IV.E.5.
[b] Intersections operating at LOS E and F are shown in **bold.**
[c] Delay is presented in seconds per vehicle.
[d] Volume to Capacity ratio presented for signalized intersections operating at LOS F.
Source: LCW Consulting, January 2012

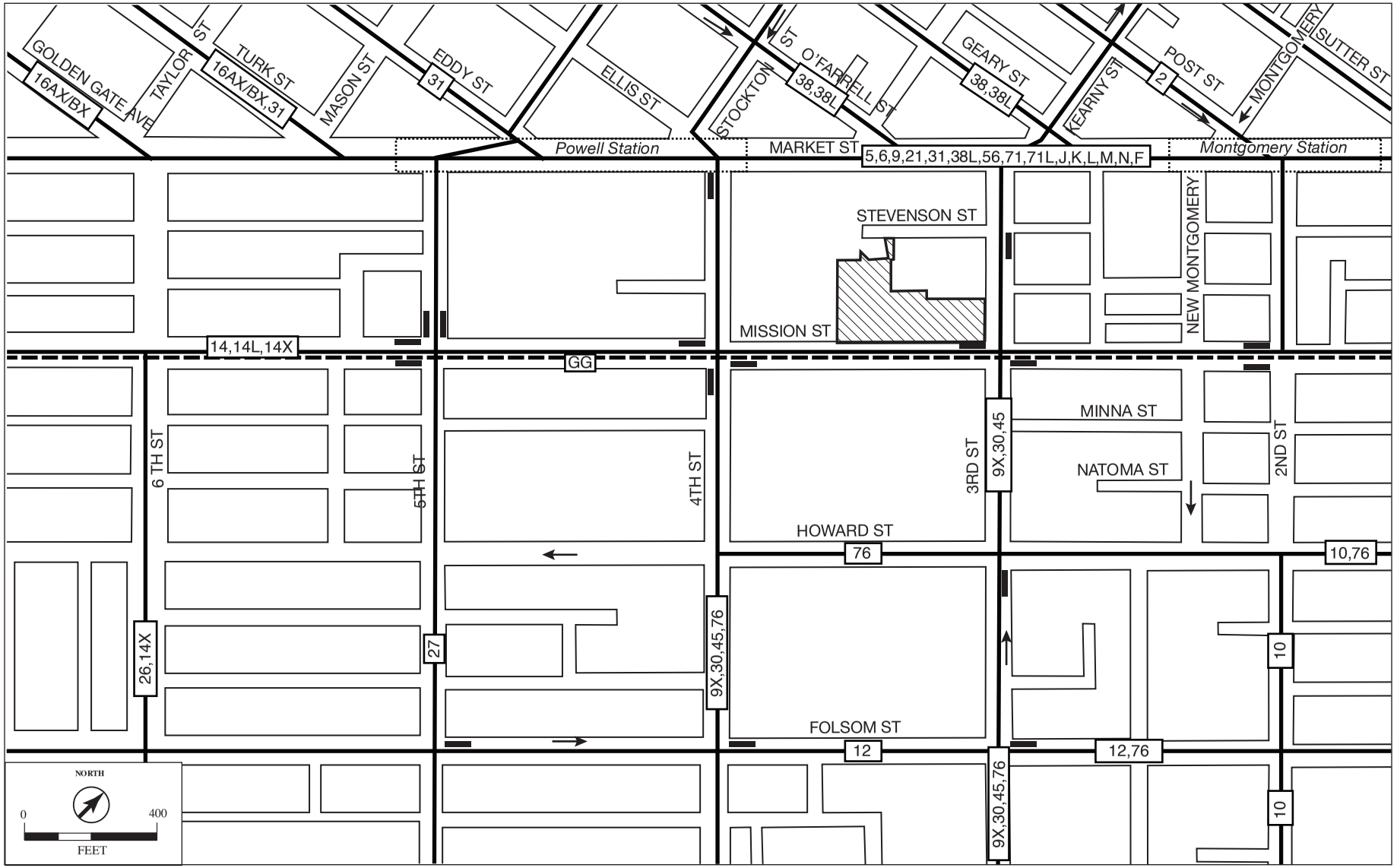
which is further away than typical placement, and this placement may contribute to pedestrians not noticing the "Don't Walk" signal.

Transit

The project site is well-served by public transit, with both local and regional service provided nearby. Local service is provided by the Muni bus lines, which can be used to access regional transit. Service to and from the East Bay is provided by BART, AC Transit, and ferries; service to and from the North Bay is provided by Golden Gate Transit buses and ferries; service to and from the Peninsula and South Bay is provided by Caltrain, SamTrans, and BART. Figure IV.E.2: Existing Transit Network Near Proposed Project, presents the transit routes and local bus stop locations in the vicinity of the proposed project.

Muni

Muni provides transit service within the City and County of San Francisco, including bus (both diesel and electric trolley), light rail (Muni Metro), cable car, and electric streetcar lines. Muni operates a number of bus lines in the vicinity of the proposed project. Immediately adjacent to the project site, on Mission and Third Streets, Muni operates frequent bus service, including electric and diesel, standard and articulated vehicles. On Third Street, a transit-only lane is provided on the east curb lane, across from the project site. Muni uses the west-side travel lanes for non-revenue turnbacks of Market Street buses (i.e., buses do not pick up passengers), including the 5 Fulton, 6 Parnassus, 9 San Bruno, 21 Hayes, and 31 Balboa. Two sets of electric trolley wires, in the east and west curb lanes, are provided for electric buses. On Mission Street, Muni operates the various 14 Mission lines.



SOURCE: LCW Consulting

PROJECT SITE | MUNI ROUTES | GOLDEN GATE TRANSIT ROUTES | BUS STOPS

FIGURE IV.E.2: EXISTING TRANSIT NETWORK NEAR PROPOSED PROJECT

The service frequencies and nearest stop location for the lines that operate in the vicinity of the proposed project are shown in Table IV.E.2: Muni Service Frequency in the Proposed Project Vicinity.

Table IV.E.2: Muni Service Frequency in the Proposed Project Vicinity

Route	Service Frequency (minutes)			Nearest Stop Location (inbound, outbound)
	AM	Midday	PM	
2 Clement	10	20	10	Market/N Montgomery, Market/N Montgomery
5 Fulton	5	7	5	Market/Third, Market/N Montgomery
6 Parnassus	9	12	9	Market/Third, Market/Second
9 San Bruno	10	10	10	Market/N Montgomery, Market/Second
8X Bayshore Express[2,3]	10	10	10	Third/Howard, Fourth/Howard
8AX Bayshore Express[2,4]	7	--	7	Third/Howard, Fourth/Howard
8BX Bayshore Express	7	--	8	Third/Howard, Fourth/Howard
10 Townsend	20	20	20	Second/Folsom, Second/Folsom
12 Folsom-Pacific	20	20	20	Folsom/Second, Howard/Second
14 Mission	11	6	6	Mission/Third, Mission/Third
14X Mission Express	7	--	7	Mission/Third, Mission/Third
21 Hayes	8	12	8	Market/N Montgomery, Market/N Montgomery
27 Bryant	12	12	12	Fifth/Mission, Fifth/Mission
30 Stockton	9	4	4	Fourth/Mission, Third/Mission
31 Balboa	12	15	12	Market/N Montgomery, Market/N Montgomery
38 Geary	6	7	6	Market/Third, Market/N Montgomery
38 Geary Limited	6	6	6	Market/Third, Market/N Montgomery
45 Union-Stockton	9	9	9	Fourth/Mission, Third/Mission
71/71L Haight-Noriega	8	12	8	Market/N Montgomery, Market/Second
76 Marin Headlands	Sundays, some holidays only			Howard/Third, Folsom/Third
F Market	7	8	7	Market/Third, Market/Third
J Church	8	10	8	Montgomery Station
K Ingleside/T Third	9	9	9	Montgomery Station
L Taraval	8	9	8	Montgomery Station
M Ocean View	9	10	9	Montgomery Station
N Judah	7	9	7	Montgomery Station

Notes:

[a] This table and the transportation analysis reflect 2009 service changes, but not changes proposed in Muni's Transit Effectiveness Project.

[b] In December 2009, the 9 AX/BX San Bruno Expresses were renamed the 8AX/BX Bayshore Expresses.

[c] 8AX Bayshore "A" Express operates inbound toward Chinatown via Downtown between 6:30 and 9:30 AM, and outbound from Chinatown between 3:30 and 7:00 PM.

[d] 8BX Bayshore "B" Express operates inbound toward Chinatown via Downtown between 6:30 and 8:30 AM, and outbound from Chinatown between 4 and 6 PM.

Source: San Francisco Municipal Transportation Agency, December 2009; LCW Consulting, January 2012

Bus Stop Conditions

The bus stop adjacent to the project site on Mission Street for westbound 14 Mission, 14L Mission Limited, and Golden Gate Transit buses was observed during the weekday PM peak hour. At this stop between 5 and 16 people were observed waiting for the bus. There is a bus shelter at this stop. There were no observed conflicts between waiting passengers and pedestrians.

Muni's Transit Effectiveness Project

The Transit Effectiveness Project (TEP) presents a thorough review of San Francisco's public transit system, initiated by SFMTA in collaboration with the City Controller's Office. The TEP data collection and analysis resulted in a number of recommendations aimed at improving reliability, reducing travel times, providing more frequent service, and updating Muni bus routes and rail lines to better match current travel patterns. The TEP recommendations were endorsed by the SFMTA Board of Directors in October 2008, for the purpose of conducting requisite environmental impact assessments. Many of the recommendation are currently under environmental review and include new routes and route extensions, more service on busy routes, and elimination or consolidation of routes with low ridership. The following changes are proposed by the TEP for lines in the proposed project vicinity:

- The 2 Clement service west of 14th Avenue would be discontinued. Sutter Street lines would be consolidated into the 2 Clement; the 3 Jackson would be discontinued.
- A new 5L Fulton Limited would be created.
- The 8AX/BX Bayshore Expresses' frequencies would increase during the peak periods. Route segment north of Broadway would be eliminated, and segments south of 16th Street would be rerouted.
- The 10 Townsend route would be rerouted, with a new alignment through Mission Bay and Potrero Hill.
- A new 27 Folsom line would circulate around downtown, replacing the 12 Folsom in SOMA, and also connecting North Beach with the Montgomery station. Service on Bryant Street would be discontinued.
- The 14X Mission Express would have increased service during the peak periods.
- The 21 Hayes would have more capacity during peak periods.
- The 30 Stockton would provide service with articulated buses to reduce crowding and improve reliability. The 30X Stockton Express would have greater frequencies during the PM peak period.
- The 38 Geary would coordinate with the Geary Bus Rapid Transit Study currently underway.

- The 71/71L Haight-Noriega would be expanded to run all day in both directions, and would have more frequent service.
- The 76 Marin Headlands route segment south of Market Street would be discontinued, and service would be provided on Saturdays (currently Sundays only).
- The F Market service would be shifted from the AM peak to midday and PM peak to reduce crowding during the busiest times of day.
- More frequent service would be provided during the peak periods on the J Church, L Taraval, and N Judah light rail lines.

Regional Transit

The temporary Transbay Terminal, on the block bounded by Howard, Main, Folsom, and Beale Streets, is used by regional transit agencies, including AC Transit, SamTrans, Golden Gate Transit, and Muni. This temporary terminal replaced the Transbay Terminal at First Street and Mission Street, which was demolished in 2011, and will operate until a new intermodal Transbay Transit Center opens in 2017. The *Transportation Operations Report, Transbay Temporary Terminal Project*[4] documented the potential impacts of the temporary terminal operations at 25 study intersections most likely to be affected by the required reconfiguration of the travel lanes. None of the proposed project study intersections were included as part of the 25 intersections. Review of the traffic volumes at intersections closest to the project site indicated that traffic flows would not be affected by temporary terminal operations, which are expected to continue into 2017,[5] and that no modifications to the intersections analysis would be required for the analysis of the proposed project.

BART operates regional rail transit service in the metropolitan Bay Area. BART currently operates six lines: Pittsburg/Bay Point to Millbrae, Fremont to Daly City, Richmond to Daly City, Fremont to Richmond, Dublin/Pleasanton to San Francisco International Airport, and Millbrae to the airport. BART operates underground below Market Street within downtown San Francisco. During the weekday PM peak period, headways are generally 5 to 15 minutes for each line. The project site is located between the Powell and Montgomery BART stations on Market Street.

[4] Fehr & Peers, *Transportation Operations Report, Transbay Terminal Temporary Terminal Project*, March 2008. A copy of this document is available for review at the Planning Department, 1650 Mission Street, Suite 400, San Francisco, California, as part of Case File No. 2008.1084E.

[5] Transbay Transit Center, Project Schedule. Available online at http://transbaycenter.org/construction-updates/project-schedule. Accessed on February 7, 2012.

Caltrain provides rail passenger service on the Peninsula between Gilroy and San Francisco. The San Francisco terminal is located at Fourth and Townsend Streets (about 1 mile south of the project site). Caltrain currently operates 66 trains each weekday, with a combination of express and local service. Headways during the evening peak period are approximately 5 to 30 minutes.

SamTrans, operated by the San Mateo County Transit District, provides bus service between San Mateo County and San Francisco. SamTrans operates three bus routes that serve the downtown San Francisco area. In general, SamTrans service to downtown San Francisco operates along Mission Street to the temporary Transbay Terminal, located on the block bounded by Howard, Main, Folsom, and Beale Streets.

Golden Gate Transit, operated by the Golden Gate Bridge, Highway, and Transportation District, provides bus service between the North Bay (Marin and Sonoma Counties) and San Francisco. Golden Gate Transit operates 22 commuter bus routes, 9 basic bus routes, and 16 ferry feeder bus routes into San Francisco, several of which are at or near the temporary Transbay Terminal. Basic bus routes operate at regular intervals of 15 to 90 minutes depending on the time and day of week. Commuter and ferry feeder bus routes operate at more frequent intervals in the mornings and evenings. Golden Gate Transit also operates ferry service between Marin County and San Francisco. During the morning and evening commute periods, ferries operate between Larkspur and San Francisco, and between Sausalito and San Francisco. The San Francisco terminal is located at the Ferry Building, at The Embarcadero near Market Street (about 0.75 mile from the project site).

AC Transit is the primary bus operator for the East Bay, including Alameda and western Contra Costa Counties. AC Transit operates 37 routes between the East Bay and San Francisco, all of which terminate at the temporary Transbay Terminal. Most transbay service is peak-hour and peak-direction (to San Francisco during the AM peak period and from San Francisco during the PM peak period), with headways of 15 to 30 minutes per route.

Muni Screenline Analysis

Muni service capacity and availability were analyzed in terms of a series of screenlines. The concept of screenlines is used to describe the magnitude of travel to or from the greater downtown area, and to compare estimated transit volumes to available capacities. Screenlines are hypothetical lines that would be crossed by persons traveling between downtown and its vicinity and other parts of San Francisco and the region. Four screenlines have been established in San Francisco to analyze potential impacts of projects on Muni service: Northeast, Northwest, Southwest, and Southeast, with sub-corridors within each screenline. The bus and light rail lines

used in this screenline analysis are considered the major commute routes from the downtown area.

The screenline for each route reflects the maximum load point (MLP) for each Muni line that crosses one of the screenlines. For the purpose of this analysis, Muni ridership measured at the four San Francisco screenlines and sub-corridors represents the peak direction of travel and patronage loads for the Muni system, which corresponds with the evening commute in the outbound direction from the downtown area to other parts of San Francisco. Capacity utilization is used to determine the amount of available space within each screenline; thus, the number of passengers per transit vehicle is compared to the design capacity of the vehicle.[6]

Muni's established capacity utilization standard for peak period operations is 85 percent, which means all seats are taken and there are many standees. Because each screenline and most sub-corridors include multiple lines with multiple vehicles, some individual vehicles may operate at or above 85 percent of capacity and are extremely crowded, while others operate under less crowded conditions.

The existing outbound transit passenger load, capacity, and capacity utilization at each screenline during the weekday PM peak period are presented in Table IV.E.3: Muni Screenline Analysis, Existing Conditions (Weekday PM Peak Hour). A total of 20,609 passengers cross the four Muni screenlines during the weekday PM peak hour. The majority of the trips (68 percent) cross the northwest (32 percent) and southwest (36 percent) screenlines. The remaining trips cross the northeast (9 percent) and southeast (23 percent) screeenlines. Capacity utilization of the screenlines is between 52 and 77 percent. Overall, with the exception of the subway lines within the Southwest screenline, all sub-corridors are currently operating below 85 percent capacity utilization, and could accommodate additional passengers. The subway lines within the southwest screenline operate at capacity utilization of 87 percent.[7]

Table IV.E.4: Regional Screenline Analysis, Existing Conditions (Weekday PM Peak Hour), presents the existing weekday PM peak hour ridership and capacity information for each regional screenline. All regional transit providers operate at less than their load factor standards, which indicates that seats are generally available. In addition, BART operates at less than its standard of 1.35 passengers per seat, which indicates that the trains, on average, are not overcrowded.

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[6] The capacity per vehicle includes both seated and standing capacity, where standing capacity is somewhere between 30 to 80 percent of seated capacity (depending upon the specific transit vehicle configuration). For example the capacity of a light rail vehicle is 119 passengers, the capacity of a historic streetcar is 70 passengers, and the capacity of a standard bus is 63 passengers.

[7] TIS, p. 40.

Table IV.E.3: Muni Screenline Analysis, Existing Conditions (Weekday PM Peak Hour)

Screenline	Hourly Ridership	Hourly Capacity	Capacity Utilization
Northeast			
Kearny/Stockton Corridor	1,129	2,010	56%
All Other Lines	757	1,589	48%
Subtotal	1,886	3,599	52%
Northwest			
Geary Corridor	1,684	2,230	76%
All Other Lines	4,937	7,893	63%
Subtotal	6,621	10,123	65%
Southeast			
Third Street Corridor	554	714	78%
Mission Street Corridor	1,254	2,350	53%
All Other Lines	2,860	3,964	72%
Subtotal	*4,668*	7,028	66%
Southwest			
Subway Lines	5,883	6,783	**87%**
All Other Lines	1,551	2,840	55%
Subtotal	7,434	9,623	77%
Total All Screenlines	**20,609**	**30,373**	**68%**

Note:
Subcorridors operating above capacity are highlighted in **bold**.

Source: Transit Center District Plan EIR, Table 21, p. 299, AECOM, 2011; LCW Consulting, January 2012

Table IV.E.4: Regional Screenline Analysis, Existing Conditions (Weekday PM Peak Hour)

Screenline	Hourly Ridership	Hourly Capacity	Capacity Utilization
East Bay			
BART	20,067	24,150	83**%**
AC Transit	2,517	4,193	60%
Ferry	702	1,519	46%
Subtotal	23,286	29,862	78%
North Bay			
GGT Buses	1,397	2,205	63%
Ferry	906	1,700	53%
Subtotal	2,303	3,905	59%
South Bay			
BART	10,202	16,800	61%
Caltrain	1,986	3,250	61%
SamTrans	575	940	61%
Subtotal	12,763	20,990	61%
Total All Screenlines	**38,352**	**54,757**	**70%**

Source: Transit Center District Plan EIR, Table 22, p. 301, by AECOM, 2011; LCW Consulting, January 2012

Bicycle Conditions

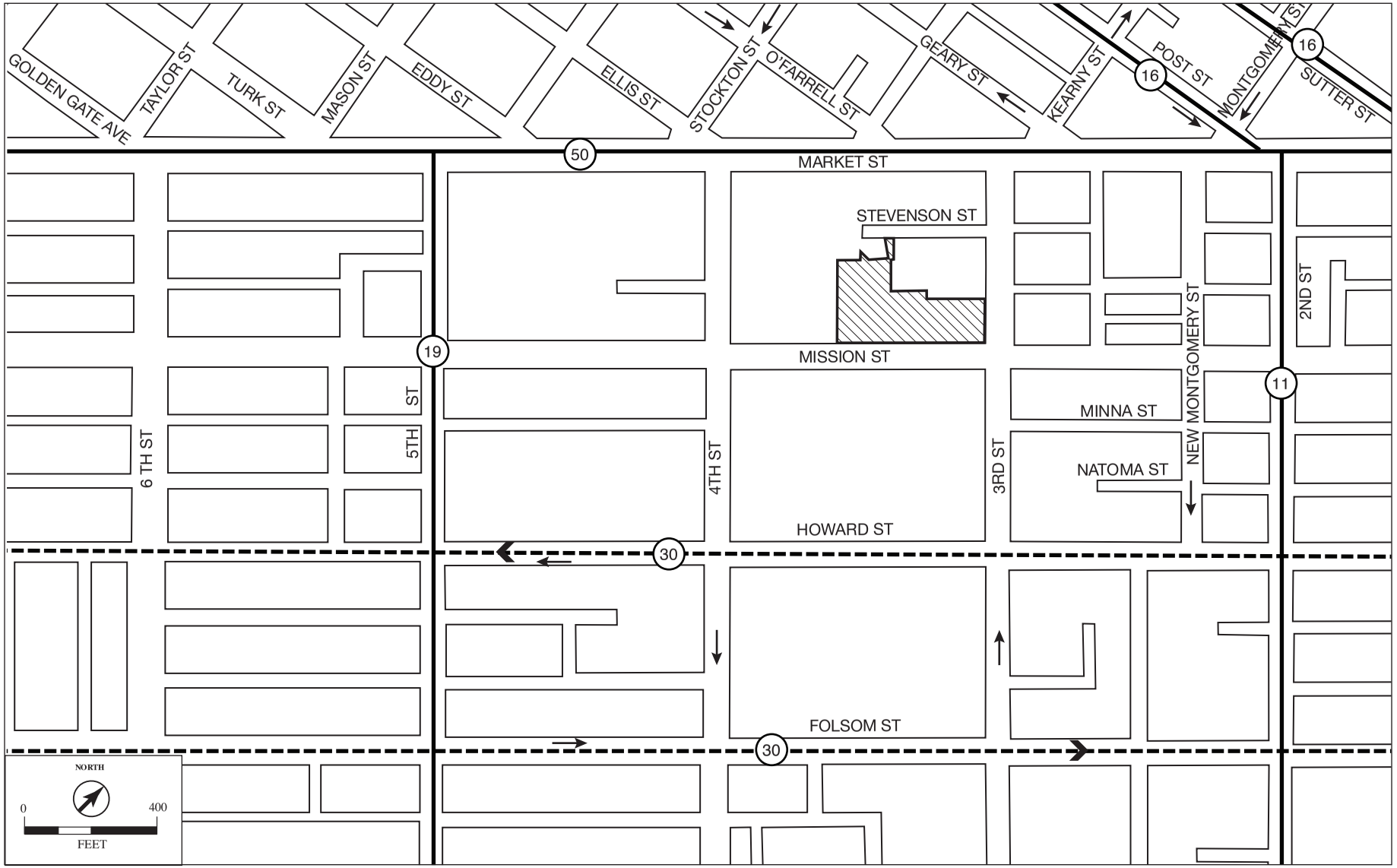
Bikeways are typically classified as Class I, Class II, or Class III facilities using the California Department of Transportation criteria. Class I bikeways are bike paths with exclusive right-of-way for use by bicyclists. Class II bikeways are bike lanes striped within the paved areas of roadways and established for the preferential use of bicycles, while Class III bikeways are signed bike routes that allow bicycles to share travel lanes with vehicles. As shown in Figure IV.E.3: Bicycle Route Network in Proposed Project Study Area, there are four bicycle routes in the vicinity of the project site:

- Bicycle Route 11 runs in both directions on Second Street between Market Street and King Street as a signed route only (Class III facility).
- Bicycle Route 19 runs in both directions on Fifth Street between Market Street and Townsend Street as a signed route only (Class III facility).
- Bicycle Route 30 runs westbound on Howard Street between The Embarcadero and 11th Street. On Howard Street, a wider curb parking lane (Class III facility) is provided between Main and Fremont Streets, and a bicycle lane (Class II facility) is provided on the north side of Howard Street between Fremont and 11th Streets. Bicycle Route 30 runs eastbound on Folsom Street between 14th Street and The Embarcadero as a Class II facility, a signed route with a bicycle lane on the south side of the street.
- Bicycle Route 50 runs eastbound and westbound on Market Street between The Embarcadero and Castro Street. Bicycle Route 50 is primarily a Class III facility, with a Class II bicycle facility on the section between Eighth Street and Castro Street.

There is one sidewalk bicycle rack on the Mission Street sidewalk at the southwest corner of the project site, east of the exit driveway from the Jessie Square Garage. There are no bicycle racks on the Third Street sidewalk near the project site.

A substantial number of bicyclists were observed to be riding in the vicinity of the project site, primarily along Market Street and Howard Street. The majority of the bicyclists were messengers and commuters. No substantial safety conflicts between bicyclist and pedestrians or vehicles, or right-of-way issues were observed during field surveys.[8]

[8] TIS, p. 42.



SOURCE: LCW Consulting

PROJECT SITE | ## BICYCLE LANE | ## BICYCLE ROUTE (BICYCLES AND CARS SHARE THE SAME TRAVEL LANE) | DIRECTION OF TRAVEL

FIGURE IV.E.3: BICYCLE ROUTE NETWORK IN PROPOSED PROJECT STUDY AREA

Pedestrians

Sidewalks adjacent to the project site are 14 to 16 feet wide. The sidewalk on Third Street is 14 feet wide, and is obstructed by three traffic signal and Muni electric overhead wire poles, newspaper racks, and a mailbox. These obstructions reduce the effective width of the sidewalk to about 5 feet, 6 inches.[9] The sidewalk on Mission Street is 16 feet wide, and has an effective width of about 7 feet, 6 inches due to four traffic signal and Muni electric overhead wire poles, trees, and a Muni bus shelter.

Intersections in the vicinity of the project site all have pedestrian crosswalks and signals. The adjacent sidewalks have many pedestrians on both Third Street and Mission Street. Pedestrian destinations near the project site include Union Square, the Market Street transit lines, Jessie Square, and the cultural uses and open space to the south of the project site in Yerba Buena Gardens.

The TIS assessed pedestrian conditions for both midday and PM peak hours[10] on the sidewalks adjacent to the project site on Mission Street west of Third Street, and on Third Street north of Mission Street, at the four crosswalks at the intersection of Third Street and Mission Street, and at the four corners of the intersection of Third Street and Mission Street. The Levels of Service calculated from the survey results are shown in Table IV.E.5: Pedestrian Level of Service.[11]

During the midday peak hour, there were about 670 pedestrians who walked by the project site on the Third Street sidewalk, and about 950 pedestrians on the Mission Street sidewalk. During the PM peak hour there were about 660 pedestrians walked by the project site on the Third Street sidewalk, and about 910 pedestrians on the Mission Street side. The number of pedestrians within the crosswalks range from about 700 to about 1,300 pedestrians per hour during the midday peak hour, and about 490 to about 930 pedestrians per hour during the PM peak hour.

Using the *2000 HCM* methodology, pedestrian conditions are measured by the amount of space per pedestrian, which differs in the crosswalk compared to the corners. For walking pedestrians, the unit of measurement is pedestrians per minute per foot, which measures how crowded the sidewalk is in a flow rate. For the project site, the pedestrian conditions are currently all at LOS D or better, which is considered acceptable.

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[9] Effective width is the full width of the sidewalk less obstructions, such as trees, newspaper boxes, utility boxes, utility poles, Muni poles, parking meters, bikes and bike racks, shoeshine services, street performers, and street vendors. These obstructions narrow the effective width of the sidewalk and crowd pedestrians into a smaller area.

[10] At the two sidewalk locations, pedestrian counts were conducted on Tuesday, July 22, 2008 during the weekday midday (12 to 2 PM) and PM (4 to 6 PM) peak periods.

[11] TIS, pp. 48-49.

Table IV.E.5: Pedestrian Level of Service

Analysis Locations	Midday Peak Hour			PM Peak Hour		
		Level of Service			Level of Service	
	Pedestrians Per Hour	Measure of Effectiveness	Level of Service	Pedestrians Per Hour	Measure of Effectiveness	Level of Service
Sidewalks		ped/min/ft			ped/min/ft	
Third Street[a]	664	2.5	B	660	2.5	B
Mission Street[b]	947	2.6	B	908	2.5	B
Crosswalks		sq ft/ped			sq ft/ped	
North	1,280	25.8	C	932	29.4	C
South	707	52.7	B	491	62.4	A
East	1,106	24.8	C	896	39.5	C
West	1,200	20.8	D	866	37.6	C
Corners		sq ft/ped			sq ft/ped	
Northwest	2,680	29.0	C	1,798	45.1	B
Northeast	2,386	32.6	C	1,828	44.9	B
Southwest	2,107	24.7	C	1,357	39.8	C
Southeast	1,813	29.1	C	1,387	38.5	C

Notes: ped/min/ft – pedestrians per minute per foot; sq ft/ped – square feet per pedestrian

[a] Third Street sidewalk is 14 feet wide, and the effective width (after accounting for obstructions, such as poles and newsracks) is 5 feet, 6 inches.

[b] Mission Street sidewalk is 16 feet wide, and the effective width is 7 feet, 6 inches.

Source: LCW Consulting, January 2012

Emergency Access

Both the San Francisco Police Department and Fire Department are located nearby. The Fire Department operates Fire Station No. 1 at 676 Howard Street at Third Street. If the proposed San Francisco Museum of Modern Art (SFMOMA) Expansion Project is approved, this station will be demolished and a new Fire Station will be constructed at 935 Folsom Street to replace it. The Southern Police Station, which serves this area, is at 850 Bryant Street between Sixth and Seventh Streets.

When the streets in this part of San Francisco are congested, emergency vehicles maneuver around vehicles and into other open travel lanes. The California Vehicle Code requires drivers to make way for emergency vehicles. In an emergency situation under congested conditions, emergency vehicles maneuver around traffic and use any available space, regardless of whether or not that space is in a striped travel lane.

Loading

The northeast corner of the Aronson Building at the project site contains a three-story annex that was added in 1978. The annex is approximately 20 feet wide and 45 feet long. Its ground floor serves as a loading and trash pick-up area, and there is a curb cut for Third Street access.

On Third Street there are four one-hour metered commercial vehicle spaces (between 9 AM and 3 PM) adjacent to the project site (yellow curb). Two of the four spaces are for trucks with at least six wheels, and two are general commercial vehicle spaces. During field observations on weekdays, one to two of the four spaces were generally available. A curb utilization survey of the four spaces was conducted on Tuesday, July 22, 2008, between 9 AM and 12 PM.[12] During the three-hour period, a total of 12 vehicles occupied the four spaces, with an average duration of 11 minutes. The four spaces were occupied 18 percent of the three-hour period. Destinations of vehicles parked during the survey period included the project site and nearby businesses; no delivery vehicles were double parked.

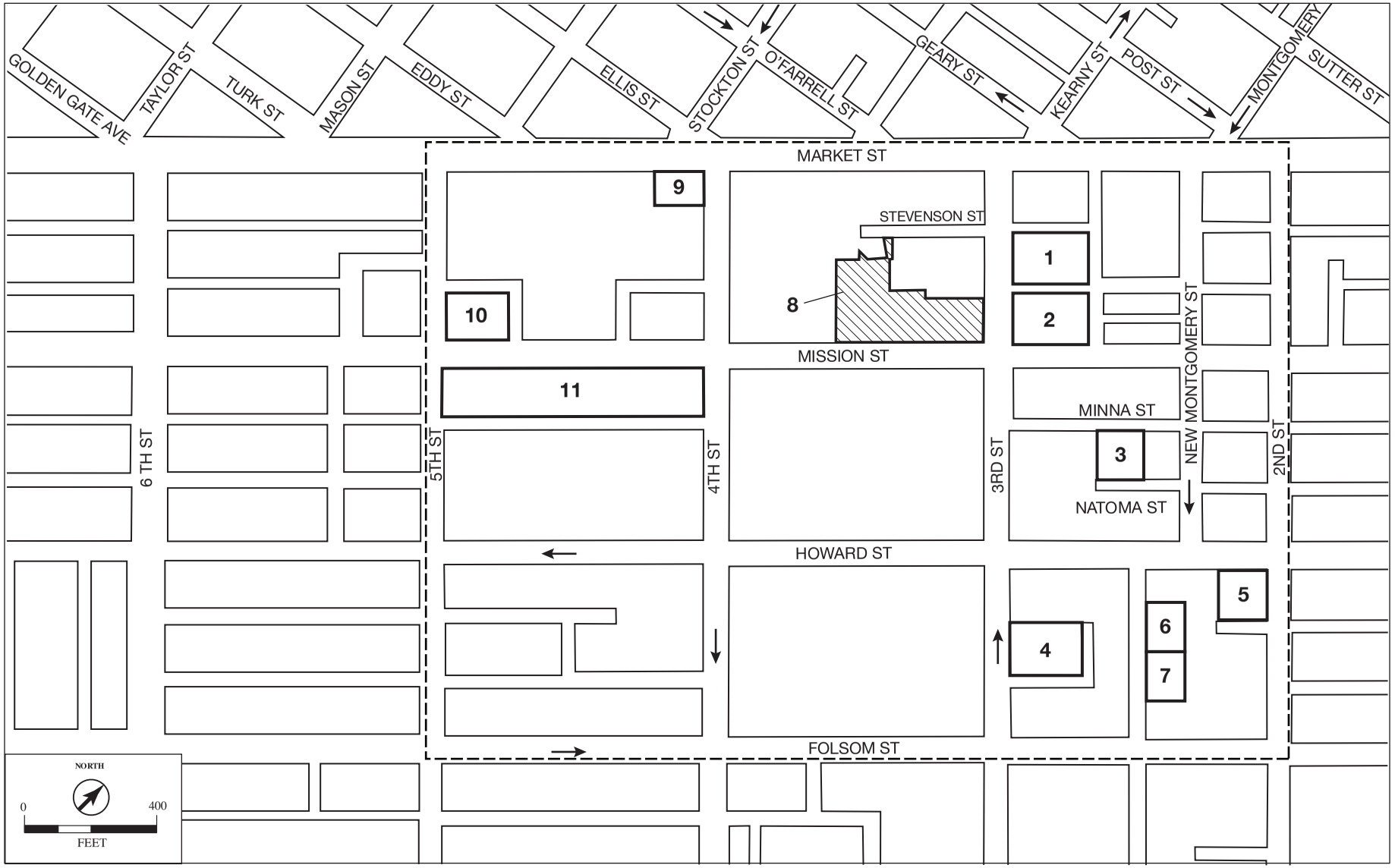
Parking

Information regarding existing off-street parking conditions was collected within a parking study area bounded by Market Street, Second Street, Folsom Street, and Fifth Street. Parking conditions were assessed for the weekday midday period (1 to 3 PM).

The location of the public parking facilities in the study area is shown in Figure IV.E.4: Off-Street Parking Facilities, and weekday midday and evening parking supply and occupancy data is presented in Table IV.E.6: Off-Street Parking Supply and Utilization. There are 11 off-street public parking facilities in the study area, providing about 6,200 spaces. Overall, the off-street parking facilities are at about 74 percent of capacity during the weekday midday.

The proposed project includes the use of the existing Jessie Square Garage, located to the west of the project site. The existing Jessie Square Garage contains a total of 442 parking spaces, of which 372 are public parking spaces (2 public spaces are reserved for St. Patrick's Church and 15 public spaces are reserved for the Contemporary Jewish Museum) and 70 non-public spaces are reserved for the nearby Sports Club/LA. The primary entrance and exit for the garage is from Stevenson Street. Vehicles can also exit from the garage onto Mission Street. The Jessie Square Garage is open between 5 AM and 11 PM on weekdays, and between 6 AM and 11 PM on weekends. Overnight parking is allowed, but there is no access to vehicles during the overnight hours when the garage is closed.

[12] TIS, p. 49.



SOURCE: LCW Consulting

PROJECT SITE | DIRECTION OF TRAVEL | PARKIING STUDY AREA | # OFF-STREET PARKING FACILITY KEYED TO TABLE IV.E.6

FIGURE IV.E.4: OFF-STREET PARKING FACILITIES

Table IV.E.6: Off-Street Parking Supply and Utilization (Weekday Midday)

Facility[a]	Spaces	Occupied Spaces	Percent Occupied
1. Hearst Garage	796	750	94%
2. Paramount Garage	350	196	56%
3. SFMOMA Garage	410	310	76%
4. Moscone Garage	752	734	98%
5. Priority Parking Lot	130	130	100%
6. 55 Hawthorne Garage	289	206	71%
7. Hawthorne Plaza Garage	424	263	62%
8. Jessie Square Garage	372[b]	273	75%
9. Pacific Place Garage	100	55	55%
10. Pickwick Hotel Garage	37	37	100%
11. Fifth and Mission Garage	2,585	1,629	63%
Total	**6,245**	**4,583**	**73%**

Notes:

[a] Facilities are numbered to key to Figure IV.E.4, p. IV.E.20.

[b] The existing Jessie Square Garage contains a total of 442 parking spaces, of which 372 are public parking spaces and 70 are non-public spaces reserved for the nearby Sports Club/LA.

Source: *Transit Center District EIR*, by AECOM, 2011; LCW Consulting, January 2012

Parking utilization data for the Jessie Square Garage was obtained from the parking operator for the public parking spaces for July and September for calendar years 2008 (based on 363 public parking spaces) and 2009 (based on 350 public parking spaces).[13] The maximum utilization for weekday and weekend conditions is shown in Table IV.E.7: Jessie Square Garage Average Maximum Utilization.

Table IV.E.7: Jessie Square Garage Average Maximum Utilization

Analysis Year / Occupancy	Sunday	Weekday	Saturday
2008 Conditions			
Occupied Spaces	136	273	160
Percent Occupied	37%	75%	44%
Period Most Occupied	7 and 8 AM	11 AM and 2 PM	2 and 4 PM
2009 Conditions			
Occupied Spaces	131	244	148
Percent Occupied	37%	70%	42%
Period Most Occupied	7 and 8 AM	11 AM and 2 PM	2 and 4 PM

Note: Jessie Square Garage had 363 public spaces in 2008 and 350 public spaces in 2009; see footnote 13 below.

Source: CityPark; LCW Consulting, January 2012

[13] Jessie Square Garage has been altered over the years due to operational improvements, relocating bicycle parking areas, changing valet parking practices, and changing the loading area and mezzanine parking. These changes resulted in different numbers of parking spaces in different years.

In 2008, the garage was most full on weekdays between 11 AM and 2 PM, ranging between 69 and 79 percent, with average maximum utilization of about 75 percent. On weekends, garage use was substantially lower, and averaged about 37 percent on Sundays, and 44 percent on Saturdays.

In 2009, the garage was less utilized than in 2008. On weekdays, maximum use ranged between 56 and 76 percent, with average maximum utilization of about 70 percent. Saturday and Sunday utilization of the garage was also lower than 2008; the garage was 37 percent full on Sundays and 42 percent full on Saturdays.

On-street parking conditions in the area are limited. On Mission Street there are no parking spaces adjacent to the project site, and on-street parking is not permitted on either side of the street between Third and Fourth Streets. On Third Street there are four one-hour metered commercial vehicle spaces (between 9 AM and 3 PM) adjacent to the project site. To the north of the project site on Third Street there is a red zone and a passenger loading zone for the Westin San Francisco Market Street Hotel (Westin Hotel). On weekdays between 7 and 9 AM, and between 3 and 7 PM, the west curb of Third Street becomes a No-Stopping Tow-Away zone so that the parking lane can be used as an extra travel lane.[14]

The existing on-street parking conditions were qualitatively assessed during the same time period as the off-street parking facilities. In general, on-street parking within the vicinity of the project site is comprised of one-hour standard metered spaces and 30-minute commercial vehicle metered spaces. On most streets, the commercial vehicle meters are in effect from 9 AM to 3 PM. In general, the on-street parking spaces are well-utilized throughout the day; however, due to the 30-minute and commercial vehicle parking restrictions, commercial vehicle spaces are generally available.

REGULATORY FRAMEWORK

Transit First Policy

In 1998, the San Francisco voters amended the City Charter (Charter Article 8A, Section 8A.115) to include a Transit-First Policy, which was first articulated as a City priority policy by the Board of Supervisors in 1973. The Transit-First Policy is a set of principles which underscore the City's commitment that travel by transit, bicycle, and foot be given priority over the private automobile. These principles are embodied in the policies and objectives of the Transportation Element of the *General Plan*. All City boards, commissions, and departments are required, by law, to implement transit-first principles in conducting City affairs.

[14] TIS, p. 53.

San Francisco General Plan

The Transportation Element of the *General Plan* is composed of objectives and policies that relate to the eight aspects of the citywide transportation system: General Regional Transportation, Congestion Management, Vehicle Circulation, Transit, Pedestrian, Bicycles, Citywide Parking, and Goods Management. The Transportation Element references San Francisco's "Transit First" Policy in its introduction, and contains objectives and policies that are directly pertinent to consideration of the proposed project, including objectives related to locating development near transit investments, encouraging transit use, and traffic signal timing to emphasize transit, pedestrian, and bicycle traffic as part of a balanced multimodal transportation system. The *General Plan* also emphasizes alternative transportation through the positioning of building entrances, making improvements to the pedestrian environment, and providing safe bicycle parking facilities.

San Francisco Bicycle Plan

The *San Francisco Bicycle Plan* describes a City program to provide the safe and attractive environment needed to promote bicycling as a transportation mode. The *San Francisco Bicycle Plan* identifies the citywide bicycle route network, and establishes the level of treatment (i.e., Class I, Class II or Class III facility) on each route. The Plan also identifies near-term improvements that could be implemented within the next five years, as well as policy goals, objectives and actions to support these improvements. It also includes long-term improvements, and minor improvements that would be implemented to facilitate bicycling in San Francisco.

IMPACTS

SIGNIFICANCE CRITERIA

The significance criteria listed below are organized by mode to facilitate the transportation impact analysis; however, the transportation significance thresholds are essentially the same as the ones in the environmental checklist (Appendix G of the State CEQA Guidelines). For the purpose of this analysis, the following applicable thresholds were used to determine whether implementing the proposed project would result in a significant impact on transportation and circulation:

E.1 **Traffic** - In San Francisco, the threshold for a significant adverse impact on traffic has been established as deterioration in the LOS at a signalized intersection from LOS D or better to LOS E or LOS F, or from LOS E to LOS F.[15] For an intersection that operates at LOS E or LOS F under existing conditions, there may be a significant adverse impact depending on the magnitude of the project's contribution to the worsening of delay. In addition, a project would have a significant adverse impact if

[15] Level of service (LOS) is defined on p. IV.E.6.

it would cause major traffic hazards, or would contribute considerably to the cumulative traffic increases that would cause the deterioration in LOS to unacceptable levels (i.e., to LOS E or LOS F).

E.2 **Transit** - The project would have a significant effect on the environment if it would cause a substantial increase in transit demand that could not be accommodated by adjacent transit capacity, resulting in unacceptable levels of transit service; or cause a substantial increase in delays or operating costs such that significant adverse impacts on transit service levels could result.

E.3 **Pedestrians** - The project would have a significant effect on the environment if it would result in substantial overcrowding on public sidewalks, create potentially hazardous conditions for pedestrians, or otherwise interfere with pedestrian accessibility to the site and adjoining areas.

E.4 **Bicycles** - The project would have a significant effect on the environment if it would create potentially hazardous conditions for bicyclists or otherwise substantially interfere with bicycle accessibility to the site and adjoining areas.

E.5 **Loading** - The project would have a significant effect on the environment if it would result in a loading demand during the peak hour of loading activities that could not be accommodated within the proposed on-site loading facilities or within convenient on-street loading zones, and if it would create potentially hazardous traffic conditions or significant delays affecting traffic, transit, bicycles or pedestrians.

E.6 **Emergency Vehicle Access** - A project would have a significant effect on the environment if it would result in inadequate emergency access.

E.7 **Construction** - Construction-related impacts generally would not be considered significant due to their temporary and limited duration.

PROJECT FEATURES

As discussed in Chapter II, Project Description, pp. II.19-II.23, the proposed project would include a new 47-story residential tower connected to the existing Aronson Building, space for The Mexican Museum, a restaurant space (or continuing retail)[16] replacing the retail space on the ground floor, and flex space above the retail/restaurant and museum, which would be either office or residential use. Parking in the Jessie Square Garage would be reconfigured, adding 28 parking spaces for a total of 470 spaces, and reserving 260 of the parking spaces for project or other private use.

Seven vehicular access variants are addressed in this EIR. Two were added to address comments on the Notice of Preparation. The vehicular access variants differ from the proposed project in

[16] This space is designated as restaurant or retail in the proposed project plans, but it has been analyzed as restaurant in the transportation analysis because a restaurant generates more visits than an average retail space. Thus, analyzing a restaurant in this space results in a more conservative analysis.

how vehicles would enter and exit the project site and the Jessie Square Garage. These variants are described in Chapter VI, Project Variants.

Site Access

Site access in the proposed project would be from three vehicle access points. Trucks, deliveries, and passenger vehicles could enter through the existing entry point into the Jessie Square Garage on Stevenson Street. Delivery vans and vehicles (but not trucks) would also be able to exit onto Mission Street. Vehicles would load and unload passengers at the loading zones on Third Street and Mission Street, both of which are proposed to be extended as part of the project. Residents would also be able to drive their vehicles into a Third Street entrance and use valet parking to access the two car elevators that would bring them to the Jessie Square Garage. The Jessie Square Garage would be reconfigured to add 28 new parking spaces. With these changes, the character of the garage would shift from mostly public to a mix of public and private.

Pedestrians would enter The Mexican Museum from Jessie Square, and the retail/restaurant near the corner of Third and Mission Streets. Residents would enter the residential lobby entrance as pedestrians on Mission Street or from the residential entrance accessed from the Third Street driveway (see Figure II.2: Existing Site Plan, p. II.8).

Flex Space Options

Floors four through ten of the Aronson Building contain existing office space and have been designated flex space with two options proposed. Under the residential flex option, the flex space would be converted to residential. Under the office flex option, the flex space would remain office use. These two project options would have the same amount of total square footage, the same number of vehicle parking spaces, and the same number of loading spaces, and space for The Mexican Museum. The residential flex option would have up to 215 residential units and no office space. The office flex option would have office space, 24 fewer residential units (up to 191 in total), and fewer bicycle parking spaces (up to 85 bicycle parking spaces instead of 91 under the residential flex option)[17]. Each discussion in the "Approach to Analysis," below, for traffic, transit, pedestrians, bicycles, loading, and emergency access indicates which option has greater effects and analyzes the more-intensive flex space option.

The project sponsor would request that the existing recessed passenger loading bay on Mission Street in front of Jessie Square be extended by narrowing the sidewalk by 8 feet for a distance of approximately 100 feet to the east. The project sponsor would also request that the existing

[17] Of the 91 bicycle parking spaces, 67 would be Class I and 24 would be Class II.

metered loading spaces (yellow curb spaces) adjacent to the project site on Third Street be converted to a passenger loading zone (white curb).[18]

IMPROVEMENTS ASSUMED IN THE ANALYSIS

Traffic Improvements

The new traffic light at Stevenson and Third Streets, installed in 2009, is assumed in the analysis. However, because the traffic volumes from the 2008 count were higher, the 2008 counts were used in the analysis.

Transit Improvements

No transit improvements were assumed for the Existing plus Project analysis. For the 2030 cumulative analysis, cumulative Muni and regional transit screenlines were obtained from the *Transit Center District Plan Transportation Impact Study,* which incorporated the TEP recommendations that were proposed at the time the study was prepared in 2011.

Bike or Pedestrian Improvements

The *San Francisco Bicycle Plan* includes planned near-term improvements to Bicycle Route 11 on Second Street in the form of Class II and Class III bicycle facilities in both directions between King Street and Market Street. In addition, improvements are proposed to Bicycle Route 19 on Fifth Street to provide Class II and Class III facilities in both directions between Market Street and Townsend Street.[19]

APPROACH TO ANALYSIS

The impacts of the proposed project on the surrounding roadways were analyzed using the guidelines set forth in the San Francisco Planning Department's *2002 Transportation Impact Analysis Guidelines for Environmental Review (SF Guidelines)*, plus information obtained from the 1990 and 2000 U.S. Census journey-to-work data. The *SF Guidelines* provide direction for analyzing transportation conditions and in identifying the transportation impacts of a proposed project in the City of San Francisco.[20]

The analysis of the proposed project was conducted for existing and future year 2030 conditions. "Existing plus Project" conditions assess the near-term impacts of the proposed project, while "2030 Cumulative plus Project" conditions assess the long-term impacts of the proposed project

[18] TIS, p. 12.
[19] TIS, p. 44.
[20] TIS, p. 55.

in combination with other reasonably foreseeable development. Future year 2030 Cumulative traffic conditions were based on the traffic analysis conducted for the *Transit Center District Plan EIR*.[21] The San Francisco County Transportation Authority (SFCTA) countywide travel demand forecasting model was used to develop future year 2030 Cumulative traffic volumes at the study intersections and transit ridership projections. The SFCTA model output, based on projections developed for the draft *Transit Center District Plan*, takes into account both the future development expected in the Transbay/South of Market area, as well as the expected growth in housing and employment for the remainder of San Francisco and the nine-county Bay Area. Thus, the expected nearby growth in traffic, transit, bicycles, and pedestrians by the year 2030 is accounted for in a model-based method, and not by a summation of nearby approved projects. For analysis of cumulative construction impacts on transportation, consideration was given to other construction activity of proposed projects in the area, including the Central Subway Project on Fourth Street.

Impacts Analysis Methodology

Intersection Analysis

As with the existing conditions, the analysis of the effect of the proposed project on the seven studied intersections used the *2000 HCM* operations methodology, which determines the capacity for each lane group approaching an intersection. The operating characteristics of signalized intersections are described by the concept of Level of Service (LOS). LOS is a qualitative description of the performance of an intersection based on the average delay per vehicle. LOS is based on "control delay." Control delay is defined as the delay directly associated with the traffic control device, such as a traffic signal, and includes the initial time slowing to a stop, queue move-up time, time stopped, and time spent accelerating. Table IV.E.8: Signalized Intersection Level of Service Criteria, presents the relationship between LOS and control delay for signalized intersections.

The proposed project would have a significant traffic impact at an intersection if project-generated trips would cause an intersection operating at LOS D or better under existing conditions to operate at LOS E or LOS F, or intersections operating at LOS E under existing conditions to deteriorate to LOS F conditions. At intersections that operate at LOS E or LOS F under existing conditions, and would continue to operate at LOS E or LOS F under conditions with the proposed project, the increase in proposed project vehicle trips was reviewed at the critical movements to determine whether the increase would contribute considerably to unacceptable levels of service. For 2030 Cumulative plus Project conditions, the proposed

[21] TIS, p. 117.

Table IV.E.8: Signalized Intersection Level of Service Criteria

Control/ LOS	Description of Operations	Average Control Delay (seconds per vehicle)
A	Insignificant Delays: No approach phase is fully used and no vehicle waits longer than one red indication.	≤ 10
B	Minimal Delays: An occasional approach phase is fully used. Drivers begin to feel restricted.	> 10.0 and ≤ 20.0
C	Acceptable Delays: Major approach phase may become fully used. Most drivers feel somewhat restricted.	> 20.0 and ≤ 35.0
D	Tolerable Delays: Drivers may wait through no more than one red indication. Queues may develop but dissipate rapidly without excessive delays.	> 35.0 and ≤ 55.0
E	Significant Delays: Volumes approaching capacity. Vehicles may wait through several signal cycles and long queues form upstream.	> 55 and ≤ 80
F	Excessive Delays: Represents conditions at capacity, with extremely long delays. Queues may block upstream intersections.	> 80.0

Note:
≤ means less than or equal to; > means greater than.
Source: *2000 HCM*, Transportation Research Board, 2000

project would have a significant adverse impact if it contributed considerably to cumulative traffic increases that would cause deterioration in levels of service to unacceptable levels.

Transit Analysis

The impact of additional transit ridership generated by the proposed project was assessed by comparing the projected ridership to the available transit capacity, using the screenline analysis method used to describe existing conditions. The service capacity of each screenline was estimated by multiplying the passenger capacity of each transit vehicle by the number of trips that occurred when the ridership data was collected. For service provided by Muni, the capacity includes seated passengers and an appreciable number of standing passengers per vehicle (the number of standing passengers is between 30 and 80 percent of the seated passengers depending upon the specific transit vehicle configuration). The maximum loads, including both seated and standing passengers, vary by vehicle type. The percent utilization of capacity was then calculated by comparing the ridership demand to the capacity provided. Muni has established a capacity utilization standard of 85 percent.[22] For service provided by regional transit providers, the analysis assumes a capacity utilization standard of 100 percent.

[22] TIS, p. 39.

The number of existing AM and PM peak hour riders was obtained from Muni monitoring data. Transit ridership for future year 2030 Cumulative No Project conditions was forecasted using the SFCTA San Francisco Chained Activity Model Process (SF-CHAMP) travel demand model, as prepared for the draft *Transit Center District Plan*.

The proposed project would have a significant transit impact if project-generated transit trips would cause a screenline operating at less than its capacity utilization standard under existing conditions, to operate over capacity (i.e., at more than 85 percent capacity utilization for Muni, and at more than 100 percent capacity utilization for regional transit providers). The proposed project would have a significant impact if it would cause a substantial increase in delays to transit vehicles. The proposed project would have a significant cumulative transit impact if the proposed project's contribution to an overcapacity transit line would be cumulatively considerable.

Bicycle and Pedestrian Analysis

The level of service for the study crosswalks was calculated using the methodology presented in the *2000 HCM*. Crosswalk LOS levels are measures of the amount of space (square feet) each pedestrian has in the crosswalk (i.e., density). These measures depend on pedestrian volumes, signal timing, crosswalk dimensions, and roadway widths. LOS A represents free-flowing pedestrian conditions, while LOS F indicates that there are substantial restrictions to pedestrian movement and speed. The LOS criteria for pedestrians, based on the *2000 HCM* methodology, is shown in Table IV.E.9: Pedestrian Level of Service Criteria at Signalized Crossings.

Table IV.E.9: Pedestrian Level of Service Criteria at Signalized Crossings

LOS	Pedestrian Delay (seconds/pedestrian)	Likelihood of Non-Compliance due to Delay	Density (sq. ft./pedestrian)
A	≤ 10	Low	> 13
B	10.1 – 20	Low to Moderate	> 10 – 13
C	20.1 – 30	Moderate	> 6 – 9.9
D	30.1 – 40	Moderate to High	> 3 – 5.9
E	40.1 – 60	High	> 2 – 2.9
F	> 80	Very High	< 2

Note:
sq. ft./pedestrian – square feet per pedestrian; ≤ means less than or equal to; < means less than; > means greater than.

Source: *2000 HCM*, Transportation Research Board, 2000

Bicycle conditions are assessed as they relate to the project site, including bicycle routes, safety and right-of-way issues, and conflicts with traffic.

Loading Analysis

Loading was analyzed by comparing the on-site loading spaces supplied by the proposed project to both the required loading by the Planning Code and projected loading demand.

Construction Analysis

The construction impact evaluation addresses the staging and duration of construction activity, estimated daily truck and worker volumes, and street lane and/or sidewalk closures.

Parking Analysis

Parking analysis for the proposed project was conducted by comparing the proposed parking supply to both the amount allowed under the Planning Code and to the projected demand that would be generated by the proposed project.

Proposed Project Travel Demand

This section presents the travel demand methodology, including total person trip generation by mode, vehicle trip generation, parking demand and loading demand.

Since the project site currently has office and retail uses, the trips generated by the existing uses were counted on site (on Tuesday, July 22, 2008) and subtracted from the trips the proposed project would be expected to generate. The difference between existing trips and the trips generated by the proposed project represents the net new trips for the proposed project.[23]

The residential, office, retail/restaurant, and museum uses in the proposed project would generate trips made by residents, employees, and visitors to the project site. These trips are based on the number of residential units, and the square feet of office use or retail/restaurant space. Museum trip generation for the proposed project was based on projected daily attendance and number of employees. The number of parking spaces in the Jessie Square Garage would not affect the number of project-generated trips to and from the proposed project, as the trip generation is based on square footage of the land uses proposed, not on the availability of on-site parking; the *SF Guidelines* use land use as the basis of trip generation.

The weekday daily and PM peak hour person trips generated by the proposed uses for both the residential flex option and the office flex option were calculated based on the *SF Guidelines*, plus information from the journey-to-work data in the 1990 and 2000 U.S. Censuses. The residential flex option would generate about 4,085 person trips on a daily basis on weekdays, and 551 person

[23] TIS, p. 58.

trips during the weekday PM peak hour, while the office flex option would generate about 4,796 person trips on a daily basis on weekdays and 603 person trips during the weekday PM peak hour. PM peak trip generation data for both options is presented in Table IV.E.10: Proposed Project PM Peak Hour Person-Trip Generation.

Table IV.E.10: Proposed Project PM Peak Hour Person-Trip Generation

Land Use	Size	Daily Trip Rate	PM Peak Hour as % of Daily	PM Peak Hour Person-Trips
Residential Flex Option				
Residential: 2+ bedrooms	215 units	10 per unit	17.3%	372
Retail/Restaurant	4,800 gsf	200 per 1,000 gsf	13.5%	130
Museum	52,285 gsf	N/A[a]	4.9%	49
Total				**551**
Office Flex Option				
Residential: 2+ bedrooms	191 units	10 per unit	17.3%	330
Office	61,320 gsf	18.1 per 1,000 gsf	8.5%	94
Retail/Restaurant	4,800 gsf	200 per 1,000 gsf	13.5%	130
Museum	52,285 gsf	N/A[a]	4.9%	49
Total				**603**

Note:
[a] Museum trip generation was determined by estimated project daily attendance and the number of employees, basing attendance on the Contemporary Jewish Museum, a nearby museum of similar size.

Source: *SF Guidelines;* LCW Consulting, January 2012

The people who would travel to or from the proposed project (person-trips) would travel on various modes of transportation, including autos, transit, walking, bicycle, motorcycle, taxi, and additional modes. The proportion of trips using a particular mode is called the mode-split. The travel modes for the proposed residential units were based on the 2000 U.S. Census journey-to-work data for census tract 105.[24] Mode split information for the office, retail/restaurant, and museum uses was based on information contained in the *SF Guidelines* for employee and visitor trips to San Francisco's downtown (C-3) district. An average vehicle occupancy rate, as obtained from the U.S. Census data (for residential uses) and *SF Guidelines* (for the office, retail/restaurant and museum uses), was applied to the number of auto person trips to determine the number of vehicle trips generated by the proposed project.

For the residential flex option, during the weekday PM peak hour about 32 percent of all person trips would be by auto, 18 percent by transit, and 50 percent by other modes (including walking and bicycling). The residential flex option would generate about 142 vehicle trips during the

[24] Due to the low number of residents in census tract 176.02, where the proposed project is located, a proxy census tract with similar characteristics to those of tract 176.02, but a larger sample of residents, was used for this calculation.

weekday PM peak hour, of which 85 vehicle trips (60 percent) would be inbound to the project site, and 57 vehicle trips (40 percent) would be outbound from the project site.

In the office flex option, a portion of the project would continue to be used as office space. Office workers use transit more frequently than residents do; thus the transit mode split for the office flex option would be substantially greater than for the residential flex option. During the weekday PM peak hour, about 33 percent of all people travelling to or from the site would travel by auto, 24 percent by transit, and 43 percent by other modes (including walking and bicycling). The office flex option would generate about 154 vehicle trips during the weekday PM peak hour, of which 78 vehicle trips (52 percent) would be inbound to the project site, and 73 vehicle trips (48 percent) would be outbound from the project site.

The net-new trips for the proposed project were determined by subtracting the existing trips from the trips generated by the proposed project. The mode-split for the PM peak hour and net-new trips for the residential flex option and the office flex option are shown in Table IV.E.11: PM Peak Hour Person-Trip Generation by Mode and Net-New Trip Generation.

Table IV.E.11: PM Peak Hour Person-Trip Generation by Mode and Net-New Trip Generation

Land Use	Person Trips				Vehicle Trips
	Auto	Transit	Walk/Other	Total	
Residential Flex Option					
Residential	115	45	212	372	106
Retail/Restaurant	46	38	46	130	26
Museum	18	16	15	49	10
Total	**179**	**99**	**273**	**551**	**142**
Credit for Existing Uses	-9	-5	-19	-33	-5
Net New Trips	**170**	**94**	**254**	**518**	**137**
Office Flex Option					
Residential	102	40	188	330	95
Office	31	55	8	94	23
Retail/Restaurant	46	38	46	130	26
Museum	18	16	15	49	10
Total	**197**	**149**	**257**	**603**	**154**
Credit for Existing Uses	-9	-5	-19	-33	-5
Net New Trips	**188**	**144**	**238**	**570**	**149**

Note:
Other includes bicycles, motorcycles, and taxis.

Source: *SF Guidelines; 2000 U.S. Census;* LCW Consulting, January 2012

During the weekday PM peak hour, the residential flex option would result in a total of 137 net-new vehicle trips, including 82 inbound and 55 outbound net-new vehicle trips. The office flex

option would result in a total of 149 net-new vehicle trips during the PM peak hour, including 76 inbound and 73 outbound net-new vehicle trips.

These vehicle trips by residents, office workers, visitors, customers, and guests were assigned destinations to determine which intersections would be affected. To assign destinations for vehicles, the TIS used 1990 Census data for residential trips, and the *SF Guidelines* for the office, retail, restaurant, and museum trips.[25] The 1990 Census data was used because directional distribution information is not available from the 2000 Census. Distributions were based on the origin and destination of the trip, and were separated into the four quadrants of San Francisco (Superdistricts 1 through 4), East Bay, North Bay, South Bay and outside the Bay Area region. The trip distribution patterns for residents, workers, visitors, customers, and guests would be the same for either the residential flex option or the office flex option. As shown in Table IV.E.12: Trip Distribution Patterns, the majority of the project-generated residential trips during the weekday PM peak hour would come to and from San Francisco's Superdistrict 1.

Table IV.E.12: Trip Distribution Patterns (Percent)

	Retail/Restaurant and Museum		Office		Residential
Origin / Destination	**Visitor / Non-work**	**Work**	**Visitor / Non-work**	**Work**	**Work and Non-work**
San Francisco					
Superdistrict 1	8.0	14.1	17.0	7.9	57.7
Superdistrict 2	8.0	15.7	14.0	15.3	8.3
Superdistrict 3	12.0	19.9	14.0	22.1	8.3
Superdistrict 4	4.0	12.0	7.0	11.3	8.3
East Bay	15.0	22.7	23.0	24.1	9.0
North Bay	10.0	2.9	8.0	4.3	1.1
South Bay	5.0	11.1	13.0	13.7	5.8
Outside of Region	38.0	1.6	4.0	1.3	1.5
Total	100.0%	100.0%	100.0%	100.0%	100.0%

Sources: SF Guidelines; 1990 U.S. Census; LCW Consulting, January 2012

These above-noted trip distribution patterns were used to assign project-generated vehicle trips to the local streets in the study area. The proposed project office, retail/restaurant, and museum vehicle trips were assigned to the Jessie Square Garage, with access via Stevenson Street, and exiting by both Stevenson Street and Mission Street. Although project residents would be able to access the Jessie Square Garage via the existing ramp on Stevenson Street, residential traffic was assigned assuming that all inbound residential vehicle trips would enter via Third Street under

[25] TIS, p. 59.

both the residential flex option and the office flex option.[26] Residents leaving the project site would pick up their vehicle within the Jessie Square Garage and exit via either Stevenson Street or Mission Street.

Loading Demand

The proposed project would have two truck and four service vehicle loading spaces and a trash room in the southeast corner of Basement Level B1, adjacent to the ramp to Mission Street. Trucks would enter and exit the site via Stevenson Street; vans and small trucks would enter the site via Stevenson Street, but would be able to exit to either Stevenson Street or Mission Street.

The number of delivery and service vehicles for the proposed project was estimated using the *SF Guidelines,* and was based on the types and amount of land uses. The new uses associated with the proposed project would generate between 40 and 50 delivery/service vehicle trips per day, depending on whether the residential flex option or office flex option is constructed. The delivery trips generated by the proposed project are shown in Table IV.E.13: Delivery and Service Vehicle Trips and Loading Space Demand for Proposed Project.

Table IV.E.13: Delivery and Service Vehicle Trips and Loading Space Demand for Proposed Project

Land Use	Daily Truck Trip Generation	Peak Hour Loading Spaces	Average Hour Loading Spaces
Residential Flex Option			
Residential	17.5	1.0	0.8
Retail/Restaurant	17.3	1.0	0.8
Museum	4.7	0.3	0.3
Total	**39.5**	**2.3**	**1.9**
Office Flex Option			
Residential	15.9	0.9	0.7
Office	11.0	0.6	0.5
Retail/Restaurant	17.3	1.0	0.8
Museum	4.7	0.3	0.2
Total	**48.9**	**2.8**	**2.2**

Source: SF Guidelines; LCW Consulting, January 2012

The residential flex option would need about two loading spaces during the peak and average hours of loading activity to satisfy project-related loading demand, while the office flex option would need about three loading spaces during the peak hour of loading activity and two loading spaces for the average hour of loading activity to satisfy project-related loading demand.

[26] TIS, p. 69, footnote 11. Although all residential vehicle trips accessing the building were assumed to access the project parking from Third Street, residents choosing to enter via the Stephenson Street driveway would not change the LOS conditions at the study intersections.

Parking Demand

The proposed project would create additional demand for vehicular parking, from both long-term demand (typically residents and employees) and short-term demand (typically visitors and museum and retail/restaurant patrons). The number of project-related vehicles seeking parking was determined based on the methodology presented in the *SF Guidelines*. For the proposed residential units, the long-term parking demand was based on the number and size of the units at a rate of 1.1 spaces per unit for studios and one-bedroom units, and a rate of 1.5 spaces per unit for two-plus bedroom units. For the proposed office, retail/restaurant, and museum uses, the long-term parking demand was derived by estimating the number of project-related employees, and applying the same trip mode split and average vehicle occupancy as used in the trip generation calculations. The short-term parking demand for the proposed office, retail/restaurant, and museum uses was estimated from the total daily visitor trips by private automobile and an average daily turnover rate of 5.5 vehicles per space. The estimated parking demand for the proposed project is shown in Table IV.E.14: Parking Demand for Proposed Project. The proposed project would generate a parking demand of between 367 and 400 parking spaces, depending on whether the residential flex option or the office flex option is constructed.

Table IV.E.14: Parking Demand for Proposed Project

Land Use	Long-Term Parking Spaces	Short-Term Parking Spaces	Total
Residential Flex Option			
Residential	323	0	323
Retail/Restaurant	3	16	19
Museum	11	14	25
Total	**337**	**30**	**367**
Office Flex Option			
Residential	287	0	287
Office	59	10	69
Retail/Restaurant	3	16	19
Museum	11	14	25
Total	**360**	**40**	**400**

Source: SF Guidelines; LCW Consulting, January 2012

IMPACTS

TRAFFIC IMPACTS

Impact TR-1: The proposed project would not cause a substantial increase in traffic that would cause the level of service to decline from LOS D or better to LOS E or F, or from LOS E to F at seven intersections studied in the project vicinity. (*Less than Significant*) (Criterion E.1)

Since the number of net-new PM peak hour vehicle trips generated with the office flex option (149 vehicle trips) would be greater than the number generated by the residential flex option (137 vehicle trips), the TIS used the office flex option vehicle trip numbers to analyze the traffic impacts of the proposed project to provide a more conservative analysis.[27]

During the weekday PM peak hour, the proposed project would generate 76 inbound and 73 outbound net-new vehicle trips, for a total of 149 net-new vehicle trips. Project-generated vehicle trips were assigned to and from the project's residential driveway on Third Street or to the Jessie Square Garage driveways on Stevenson Street and Mission Street, based on whether the trip would be a residential, office, retail/restaurant, or museum trip, an inbound or outbound trip, and the projected directional distribution.

The proposed project's retail/restaurant and museum vehicle trips were assigned to the Jessie Square Garage, with access via Stevenson Street, and exiting via either Stevenson Street or Mission Street. All residential vehicle-trips accessing the project site were assumed to access the Jessie Square Garage via the Third Street driveway.[28] Residents leaving the project site would pick up their vehicle within the Jessie Square Garage and depart via the Stevenson Street or Mission Street exits.

Of the 76 inbound vehicle trips, 63 vehicles were assigned to the Third Street driveway and 13 vehicles were assigned to the Stevenson Street driveway. Of the 73 outbound vehicle trips, 39 vehicles were assigned to the Mission Street exit and 34 vehicles to the Stevenson Street driveway. The resulting Existing plus Project traffic volumes for the study intersections are presented in Table IV.E.15: Intersection Levels of Service, Existing and Existing Plus Project.

[27] TIS, p. 68. The residential flex option would have more inbound trips (82 versus 76) and fewer outbound trips (55 versus 73) than the office flex option, but these differences did not change the LOS analysis results.

[28] Although all residential vehicle trips accessing the building were assumed to access the Jessie Square parking garage from Third Street, residents entering via the Stephenson Street driveway would not change LOS conditions at the study intersections.

Table IV.E.15: Intersection Levels of Service, Existing and Existing Plus Project

	Existing		Existing Plus Project	
Intersection	**Delay[a] (v/c)**	**LOS**	**Delay[a] (v/c)**	**LOS**
Third / Market	**56.2**	**E**	**63.2**	**E**
Third / Stevenson	12.1	B	12.7	B
Third / Mission	20.1	C	20.9	C
Third / Howard	36.1	D	40.4	D
Fourth / Market	**>80 (1.1)**	**F**	**>80 (1.1)**	**F**
Fourth / Mission	41.8	D	45.6	D
Fourth / Howard	42.5	D	44.5	D

Notes: > means greater than

[a] Delay presented in seconds per vehicle. Intersections operating at LOS E or LOS F are in **bold**. The volume to capacity ratio is presented for those intersections operating at LOS F.

Source: LCW Consulting, January 2012

The addition of 149 project-generated vehicle trips would result in small increases in the average delay per vehicle at the study intersections and all study intersections would continue to operate at the same LOS as under existing conditions. The intersection of Third and Market Streets would continue to operate at LOS E, and the intersection of Fourth/Market Streets would continue to operate at LOS F. The contribution of the proposed project to the critical movements that operate poorly was reviewed to determine if the contribution would be significant.

At the Third and Market Streets intersection, the proposed project would add 34 vehicle trips during the PM peak hour to the northbound movement, which represents 1.8 percent of the total PM peak hour northbound approach volume of 1,939 vehicles. Thus, the project contribution to this approach would not be considerable, and therefore the contribution to the overall intersection LOS E conditions would not be considered significant.

At the Fourth and Market Streets intersection, the proposed project would add 31 vehicle trips during the PM peak hour. At this intersection, the southbound movement currently operates at LOS F conditions. The project would add 12 vehicle trips to the southbound movement, which represent less than 1 percent of the PM peak hour southbound volume of 1,302 vehicles. The project contribution to this approach would not be considerable, and therefore the contribution to the overall intersection LOS F conditions would not be considered significant.

Project-generated vehicle traffic would not cause any intersection LOS to deteriorate from LOS D or better to LOS E or F or from LOS E to F, and would not represent a considerable contribution to the Existing plus Project intersection conditions for intersections already operating at LOS E or F, and therefore the proposed project would result in less-than-significant traffic impacts at these intersections, and impacts on traffic overall would be less than significant. No mitigation is necessary**.**

The TIS also considered whether sufficient room was allocated for vehicles queuing to enter the car elevators off Third Street. In addition to the Stevenson Street driveway, project residents would access the Jessie Square Garage via two vehicle elevators, which would be staffed by valets 24 hours a day. Vehicles entering the proposed project from the Third Street driveway would enter a drop-off area for residents, and then proceed to the vehicle elevators. Depending on the demand (e.g., peak hours versus overnight), the garage would be staffed with one or two attendants. The vehicle elevator would be located about 120 feet from the vehicle entrance off Third Street, which would allow enough on-site queuing space for approximately five inbound vehicles, and sufficient room for a bypass lane for drivers to reach the valet-operated car elevators. [29] Thus there would be no significant impact caused by cars queuing to enter the Third Street driveway entrance to the Jessie Square Garage.

While the proposed project would not have a significant impact on the studied intersections, three improvement measures, presented below, were identified to lessen the proposed project's less-than-significant effect on traffic. City decision-makers may choose to include these improvement measures as conditions of approval for the proposed project. Improvement Measure I-TR-A: Traffic Signal Timing Modifications would alter the traffic and pedestrian signals to prevent vehicle spill-back into the midblock intersection; Improvement Measure I-TR-B: "Garage Full" Sign on Third Street would provide a sign indicating when the garage is full; and Improvement Measure I-TR-C: Monitoring and Abatement of Queues would help prevent queuing by vehicles accessing the project site.[30]

Improvement Measure I-TR-A: Traffic Signal Timing Modifications

As an improvement measure to enhance ability of drivers exiting Stevenson Street at Third Street to merge into and across Third Street traffic flow, the project sponsor shall request that the SFMTA consider revising the signal timing and off-sets to ensure that sufficient clearance time is provided so that vehicles do not spill back into the midblock intersection (the intersection is currently striped "KEEP CLEAR"). In addition, the project sponsor shall request that SFMTA consider relocating the pedestrian signal north of Stevenson Street closer to the intersection to reduce the propensity of pedestrians crossing Stevenson Street during a "don't walk" phase.

Improvement Measure I-TR-B: "Garage Full" Sign on Third Street

As an improvement measure to minimize the number of vehicles accessing Stevenson Street when the Jessie Square Garage is full, the project sponsor shall strive to install, or cause to be installed, an LED (or similar) "Garage Full" sign at the intersection of Third Street at Stevenson Street.

[29] TIS, p. 72.
[30] TIS, pp. 125-128.

Improvement Measure I-TR-C: Monitoring and Abatement of Queues

As an improvement measure to reduce the potential for queuing by vehicles accessing the project site, the owner/operator of the proposed project shall strive to ensure that recurring vehicle queues do not occur on Third Street or Mission Street adjacent to the proposed project site. A vehicle queue is defined as one or more vehicles (destined to the parking facility) blocking any portion of the Third Street or Mission Street sidewalk or roadway for a consecutive period of three minutes or longer on a daily or weekly basis. If the Planning Director, or his or her designee, suspects that a recurring queue is present, the Planning Department shall notify the project sponsor in writing. Upon request, the owner/operator shall hire a qualified transportation consultant to evaluate the conditions at the site for no less than 7 days. The consultant shall prepare a monitoring report to be submitted to the Department for review. If the Planning Department determines that a recurring queue does exist, the facility owner/operator shall have 90 days from the date of the written determination to abate the queue.

TRANSIT IMPACTS

Impact TR-2: The proposed project would not cause a substantial increase in transit demand that could not be accommodated by adjacent transit capacity; nor would it cause a substantial increase in delays or costs such that significant adverse impacts in transit service levels could occur. (*Less than Significant*) (Criterion E.2)

Since the office flex option for the proposed project would generate more PM peak hour transit trips (144 transit trips) than the residential flex option (94 transit trips), the transit screenline analysis was conducted based on the office flex option.

The proposed project would generate 144 net-new transit trips (46 inbound and 98 outbound) during the weekday PM peak hour. Based on the location of the project site and the anticipated origin and destination of the residents, employees, and visitors to the retail/restaurant and museum uses, the transit trips were assigned to Muni and the various regional transit operators. Based on the trip distribution patterns, it was estimated that of the 98 outbound transit trips, about 58 would cross the Muni screenlines, 31 would cross the regional screenlines, and the remaining 9 would not cross any screenlines.

The analysis of Muni screenlines assesses the effect of project-generated transit-trips on transit conditions in the outbound direction during the weekday PM peak hour. Based on the origins and destinations of the transit trips generated by the proposed project, the outbound transit trips within San Francisco were assigned to the four screenlines and the sub-corridors within each screenline. Note that some transit trips would travel within San Francisco's Superdistrict 1 and would remain in the downtown area (e.g., trips to Union Square) and therefore would not cross any of the screenlines. Thus, not all outbound Muni trips generated by the proposed project would appear in the screenline analysis. For analysis purposes, half of the Superdistrict 1 trips were estimated to

remain in the downtown area and the out-of-region trips were added to the Superdistrict 1 trips, assuming that a portion of those trips would be made on Muni.

The Muni screenline analysis results for the Existing plus Project conditions are shown in Table IV.E.16: Muni Screenline Analysis of Existing Plus Project Conditions. Overall, the addition of the project-generated riders to the four screenlines would not substantially increase the peak hour capacity utilization. With travel from the proposed project, capacity utilization for all screenlines would remain similar to capacity utilization under existing conditions, and no significant impact would occur. No mitigation is necessary.

Table IV.E.16: Muni Screenline Analysis of Existing Plus Project Conditions (Weekday PM Peak Hour)

Screenline	Existing Ridership	Project Trips	Existing Plus Project Ridership	Hourly Capacity	Capacity Utilization
Northeast					
Kearny/Stockton Corridor	1,129	8	1,137	2,010	57%
All Other Lines	757	6	763	1,589	48%
Subtotal	1,886	14	1,900	3,599	53%
Northwest					
Geary Corridor	1,684	4	1,688	2,230	76%
All Other Lines	4,937	11	4,948	7,893	63%
Subtotal	6,621	15	6,636	10,123	66%
Southeast					
Third Street Corridor	554	2	556	714	78%
Mission Street Corridor	1,254	5	1,259	2,350	54%
All Other Lines	2,860	12	2,872	3,964	72%
Subtotal	*4,668*	19	4,687	7,028	67%
Southwest					
Subway Lines	5,883	8	5,891	6,783	**87%**
All Other Lines	1,551	2	1,553	2,840	55%
Subtotal	7,434	10	7,444	9,623	77%
Total All Screenlines	**20,609**	**58**	**20,667**	**30,373**	**68%**

Note:
Subcorridors operating above capacity are highlighted in **bold**. Some rows and columns do not total due to rounding.

Source: Transit Center District Plan Draft EIR Transportation Impact Study, AECOM, 2011; LCW Consulting, January 2012

Similar to Muni, the analysis of regional transit screenlines assesses the effect of project-generated transit-trips on transit conditions in the outbound direction during the weekday PM peak hour. Based on the origins and destinations of the transit trips generated by the proposed project, the outbound regional transit trips were assigned to the three regional transit screenlines. It was estimated that during the weekday PM peak hour there would be six transit trips destined to the East Bay, one transit trip to the North Bay, and three transit trips to the South Bay.

The screenline analysis results for the regional transit carriers are presented in Table IV.E.17: Regional Transit Screenline Analysis of Existing Plus Project Conditions. In general, the addition of project-related passengers would not have a substantial effect on the regional transit providers during the weekday PM peak hour, as the capacity utilization for all screenlines would remain similar to those under existing conditions. Capacity utilization for all regional transit providers would be below their capacity utilization standards; thus there would be a less-than-significant effect on regional transit carriers. No mitigation is necessary.

Table IV.E.17: Regional Screenline Analysis of Existing Plus Project Conditions (Weekday PM Peak Hour)

Screenline	Existing Ridership	Project Trips	Existing Plus Project Ridership	Hourly Capacity	Capacity Utilization
East Bay					
BART	20,067	19	20,086	24,150	83%
AC Transit	2,517	2	2,519	4,193	60%
Ferry	702	1	703	1,519	46%
Subtotal	23,286	22	23,308	29,862	78%
North Bay					
GGT Buses	1,397	1	1,398	2,205	63%
Ferry	906	1	907	1,700	53%
Subtotal	2,303	2	2,305	3,905	59%
South Bay					
BART	10,202	6	10,208	16,800	61%
Caltrain	1,986	1	1,987	3,250	61%
SamTrans	575	0	575	940	61%
Subtotal	12,763	7	12,770	20,990	61%
Total All Screenlines	**38,352**	**31**	**38,383**	**54,757**	**70%**

Source: *Transit Center District Draft EIR Transportation Impact Study*, AECOM, 2011; LCW Consulting, January 2012

Proposed Project Effect on Inbound Transit Capacity

Under the proposed residential flex option, the majority of the person-trips generated by the proposed project during the PM peak hour would be inbound to the site, which is the opposite direction from the majority of commuters in the downtown area. More of the transit trips generated by the proposed project during the weekday PM peak hour would be inbound trips (48 of the 94 transit trips). Since Muni and regional transit screenline analyses are performed for transit trips outbound from downtown San Francisco, a qualitative analysis was performed for transit trips inbound to the downtown area.

Since the predominant flow of travel in the weekday PM peak hour is away from downtown San Francisco, the Muni and regional transit lines that travel inbound into downtown San Francisco have relatively low ridership. For example, the Muni bus and rail lines that operate along Market Street, the bus lines that serve the temporary Transbay Terminal, and the T-Third to

the Caltrain Terminal all have available capacity during the weekday PM peak hour. Since existing capacity is currently available in the inbound direction, it is anticipated that the addition of the project-related transit trips in the inbound direction would not substantially affect transit conditions. Thus, there would be a less-than-significant effect on regional transit carriers. No mitigation is necessary.

Project Driveway Impacts on Transit Operations

With the proposed project, use of the existing driveway on the west side of Third Street by the project would not interfere with Muni buses and the bus stop on the east side of Third Street between Market Street and Mission Street. However, Muni uses the west-side lanes for non-revenue turnbacks of Market Street buses (i.e., buses do not pick up passengers). If drivers waiting to access the proposed project driveway block adjacent travel lanes, the Muni buses could be affected, depending on the time of day and conditions along Third Street. Since the number of buses traveling within the west lanes of Third Street is minimal, and since these are non-revenue buses that are not picking up passengers, these transit impacts would be less than significant. No mitigation measures are necessary.

Currently Muni operates electric trolley coaches on Third Street and on Mission Street. Support poles for the overhead wires are located on both streets, adjacent to the project site. No wires are attached via eyebolts to the existing Aronson Building. The SFMTA would like the option available to install eyebolts in the renovated building to support its overhead wire system, as this can reduce "pole clutter" on Third and Mission Streets. While this issue would be a less-than-significant impact, Improvement Measure I-TR-D: Installation of Eyebolts, presented below, has been identified in the TIS for the project sponsor to meet and review with Planning Department and SFMTA staff whether it would be appropriate to install eyebolts in the historic building to support overhead wires.

The museum use of the proposed project may be subject to the Transit Impact Development Fee (TIDF) under Section 411 of the San Francisco Planning Code. The retail/restaurant and office uses would not be subject to the TIDF, if required, because they are continuations of existing on-site office and retail uses. The TIDF attempts to recover the cost of carrying additional riders generated by new development by obtaining fees on a square footage basis.

Based on the above analysis and conclusions, the proposed project would not substantially affect the inbound or outbound capacity utilization of the local and regional transit lines, nor would it affect the operations of the adjacent and nearby Muni bus stops. Thus, the proposed project would have a less-than-significant impact, and no mitigation measures are necessary.

Improvement Measure I-TR-D: Installation of Eyebolts

As an improvement measure to reduce pole clutter on Third Street and on Mission Street, the project sponsor could review with Planning Department and SFMTA staff whether it would be appropriate to install eyebolts in the renovated building to support Muni's overhead wire system.

PEDESTRIAN IMPACTS

Impact TR-3: The proposed project would not result in substantial overcrowding on public sidewalks, nor create potentially hazardous conditions for pedestrians, or otherwise interfere with pedestrian accessibility to the site and adjoining areas. (*Less than Significant*) (Criterion E.3)

Since the office flex option would generate more PM peak hour pedestrian trips than the residential flex option (382 vs. 348 pedestrian trips), the pedestrian analysis was conducted based on the office flex option for a more conservative analysis.

Pedestrian trips generated by the proposed project would include walk trips to and from the proposed project, to and from transit, and to and from nearby parking facilities (excluding the Jessie Square Garage). The proposed project would add about 382 net-new pedestrian trips (189 inbound and 193 outbound) to the surrounding streets during the weekday PM peak hour. During the midday peak hour, the proposed project would generate lower pedestrian volumes (about 268 net-new pedestrian trips: 133 inbound and 135 outbound). Pedestrians would enter and exit the proposed project via the residential lobby with entrances on Mission Street and the Third Street driveway, the ground-floor retail/restaurant access on Mission or Third Street, office access on Mission Street, and the museum lobby on Jessie Square plaza. These pedestrian trips would be dispersed throughout the study area, depending upon the origin and destination of each trip. It is anticipated that a majority of the new pedestrian trips would be to and from Market Street and to Union Square via Third Street and Mission Street. The results of the pedestrian analyses for Existing plus Project conditions are shown in Table IV.E.18: Pedestrian Level of Service, Existing Plus Proposed Project at Midday Peak Hour, and Table IV.E.19: Pedestrian Level of Service, Existing Plus Proposed Project at PM Peak Hour.

During the midday and PM peak hours, the addition of the new pedestrian trips on the adjacent sidewalks would not substantially affect the sidewalks, crosswalks, or corner conditions, and all pedestrian areas studied would operate at LOS D or better. Therefore, the proposed project's impacts on pedestrian level of service on sidewalks, crosswalks, and corners would be less than significant. The number of existing items on the Third Street sidewalk at the project site, known as "pole clutter," is lowering the pedestrian quality, but not to the extent that the pole clutter or the additional project-related pedestrian trips would create a significant impact on pedestrian travel or access. Improvement Measure I-TR-E: Consolidation of Traffic Signal and Overhead

Table IV.E.18: Pedestrian Level of Service, Existing Plus Proposed Project at Midday Peak Hour

Analysis Locations	Existing		Existing Plus Project	
	Measure of Effectiveness	Level of Service	Measure of Effectiveness	Level of Service
Sidewalks	ped/min/ft		ped/min/ft	
Third Street[a]	2.5	B	3.0	C
Mission Street[b]	2.6	B	2.8	B
Crosswalks	sq ft/ped		sq ft/ped	
North	25.8	C	24.1	C
South	52.7	B	50.7	B
East	24.8	C	24.2	C
West	20.8	D	19.6	D
Corners	sq ft/ped		sq ft/ped	
Northwest	29.0	C	37.1	C
Northeast	32.6	C	30.9	C
Southwest	24.7	C	23.5	D
Southeast	29.1	C	28.2	C

Notes: ped/min/ft – pedestrians per minute per foot; sq ft/ped – square feet per pedestrian

[a] Third Street sidewalk is 14 feet wide, and the effective width (width less obstructions such as electric poles and newspaper boxes) is 5 feet, 6 inches.

[b] Mission Street sidewalk is 16 feet wide, and the effective width is 7 feet, 6 inches.

Source: LCW Consulting, January 2012; TIS, p. 81

Table IV.E.19: Pedestrian Level of Service, Existing Plus Proposed Project at PM Peak Hour

Analysis Locations	Existing		Existing Plus Project	
	Measure of Effectiveness	Level of Service	Measure of Effectiveness	Level of Service
Sidewalks	ped/min/ft		ped/min/ft	
Third Street[a]	2.5	B	3.0	C
Mission Street[b]	2.5	B	2.7	B
Crosswalks	sq ft/ped		sq ft/ped	
North	29.4	C	25.7	C
South	62.4	A	59.8	B
East	39.5	C	39.0	C
West	37.6	C	35.2	C
Corners	sq ft/ped		sq ft/ped	
Northwest	45.1	B	40.6	B
Northeast	44.9	B	41.6	B
Southwest	39.8	C	37.4	C
Southeast	38.5	C	37.5	C

Notes: ped/min/ft – pedestrians per minute per foot; sq ft/ped – square feet per pedestrian

[a] Third Street sidewalk is 14 feet wide, and the effective width (width less obstructions such as electric poles and newspaper boxes) is 5 feet, 6 inches.

[b] Mission Street sidewalk is 16 feet wide, and the effective width is 7 feet, 6 inches.

Source: LCW Consulting, January 2012; TIS, p. 81

Wire Poles, on p. IV.E.47, would reduce existing pole clutter and pedestrian obstructions on the Third Street sidewalk adjacent to the project site by relocating or consolidating them.[31]

The proposed project would use an existing curb cut on Third Street at the project site to access the existing Jessie Square Garage from a new driveway. The existing loading area currently accessed by the curb cut is minimally used and would be removed. The proposed access driveway and valet service would be only for residents to access the ground-floor valet drop-off area. To minimize the number of conflicts between project-generated vehicles and pedestrians on the Third Street sidewalk, this access would be designated for inbound vehicles only, and only for access to the residential valet service. Self-park access for residents would be via the existing Stevenson Street driveway to the Jessie Square Garage.

Under the residential flex option, the proposed project would generate 82 net-new inbound vehicle trips during the PM peak hour, with 71 of the 82 vehicle trips related to the residential use, while under the office flex option, the proposed project would generate 76 net-new inbound vehicle trips, with 63 of the 76 vehicle trips during the PM peak hour related to the residential use. The majority of inbound residential vehicle trips would be expected to use the Third Street driveway, as opposed to the existing Stevenson Street entrance. Therefore, the number of vehicle trips crossing the Third Street sidewalk to access the project site via the Third Street driveway would be greater than the amount of existing freight loading dock access, with up to 71 inbound vehicles during the PM peak hour and up to 300 inbound vehicles over the course of the day.

Third Street has high pedestrian volumes; the west sidewalk currently has approximately 660 pedestrians per hour during both the midday and PM peak hour. In the future, additional growth in pedestrian volumes is anticipated in this part of downtown. Additionally, Third Street is designated in the *General Plan* as a Citywide Pedestrian Network Street and a Neighborhood Commercial Street. San Francisco Planning Code section 155(r)(4) specifies that curb cuts for off-street parking or loading shall not be created or utilized on these types of streets when alternative frontage is available. The Jessie Square Garage has alternative frontage available on Stevenson Street where driveway access to the garage currently exists and would continue with the proposed project, although the project site does not abut Stevenson Street. In order to utilize the existing curb cut on Third Street for parking access, the project applicant would need to seek an exception from the Planning Commission (Planning Code Section 309).

Immediately north of the project site on Third Street is the Westin Hotel, which has an off-street drive-through passenger loading area accessed from Third Street. This passenger loading area creates numerous pedestrian-vehicle conflicts that negatively affect the west sidewalk of Third Street. The ingress driveway is at a 45-degree angle to the street, which enables vehicles to cross

[31] TIS, p. 79.

the sidewalk at higher speeds, increases the size of the pedestrian-vehicle conflict area, and limits the ability of drivers and pedestrians to see each other. Also, vehicles within the passenger loading area typically spill out onto the adjacent sidewalk and impede pedestrian progress.

The Third Street driveway proposed for access to the residential valet drop-off area would be approximately 100 feet south of the existing Westin Hotel passenger loading area vehicle entrance. The proximity of the proposed Third Street driveway to the Westin's passenger loading area would compound the existing degraded pedestrian environment along the Third Street sidewalk by adding a new pedestrian-vehicle conflict area near an existing pedestrian-vehicle conflict area. While the proposed project would increase the opportunities for pedestrian-vehicle conflicts, it would not create a hazardous condition for pedestrian access to the project site or existing nearby uses, because both driveways are for ingress only, and because there would be sufficient space for a pedestrian refuge between the driveways. Therefore, this impact would be considered less than significant, and no mitigation is necessary.

Two improvement measures, shown below, are identified in the TIS to reduce less-than-significant pedestrian-vehicle conflicts on Third Street adjacent to the proposed project. Improvement Measure I-TR-F: Pedestrian Measures on Third Street, would do so by positioning a traffic control attendant at the Third Street driveway and by ensuring adequate on-site queuing space; Improvement Measure I-TR-G: Reduce Pedestrian-Vehicle Conflict Areas, would reduce pedestrian conflict along Third Street between Mission and Market Streets by having the Project Sponsor work with the Planning Department, SFMTA, DPW, and nearby property owners to assess the feasibility of measures or treatments to reduce pedestrian-vehicle conflicts along Third Street between Mission and Market Streets. City decision-makers may choose to include these improvement measures as conditions of approval for the proposed project.

Improvement Measure I-TR-E: Consolidation of Traffic Signal and Overhead Wire Poles

To eliminate pole clutter and reduce pedestrian obstructions on the Third Street sidewalk adjacent to the project site, and to improve pedestrian flow, it may be possible to consolidate the three traffic signal and overhead wire poles, and relocate the existing mailbox which extends further from the curb than the adjacent newspaper rack. (The newspaper rack and mailbox are proposed to be removed from the sidewalk during project construction.) The project sponsor could make these requests to the San Francisco Department of Public Works (DPW) (newspaper rack), the U.S. Postal Service (mail box), and SFMTA (overhead wire poles and traffic signals).

Improvement Measure I-TR-F: Pedestrian Measures on Third Street

This improvement measure includes the following measures to reduce conflicts between pedestrians and vehicles on Third Street adjacent to the project site:

- During peak periods of pedestrian activity on Third Street (7 AM to 7 PM), the project sponsor shall staff the driveway entry on Third Street with a traffic control attendant to facilitate vehicular ingress into the project driveway from Third Street.
- The project sponsor shall provide adequate valet service to ensure that queuing space for a minimum of two vehicles within the internal drop-off area is available at all times (the internal driveway can accommodate up to six vehicles).
- The project sponsor shall use alternate pavement treatment for the sidewalk at the driveway on Third Street, as determined appropriate by DPW, SFMTA, and the Planning Department.
- The project sponsor shall explore the potential for providing audio and/or visual treatments to alert pedestrians that a vehicle is about to cross the sidewalk from the adjacent travel lanes (typically such treatments are for vehicles exiting, not entering, a driveway).

Improvement Measure I-TR-G: Reduce Pedestrian-Vehicle Conflict Areas

Pedestrian conditions on Third Street between Mission and Market Streets include an existing pedestrian-vehicle conflict zone associated with the Westin Hotel passenger loading operations located on the west side of Third Street. To improve the pedestrian experience on Third Street between Mission and Market Streets, the project sponsor shall work with DPW, SFMTA, and the Planning Department to assess the feasibility of other measures or treatments to reduce pedestrian-vehicle conflicts in this area. Measures to be assessed for feasibility could include the construction of bulb outs at the intersection of Third and Mission Streets, additional signage, alternate pavement treatment for sidewalks at driveways, automated warning devices, and/or the potential reconfiguration of parking and loading strategies in the area. The project sponsor shall cooperate with the City in seeking the consent to or participation in such measures by other property owners on Third Street between Mission and Market Streets, provided that such measures shall not be required for the project where such consent or participation cannot be secured in a reasonable, timely, and economic manner.

BICYCLE IMPACTS

Impact TR-4: The proposed project would not create potentially hazardous conditions for bicyclists, or otherwise substantially interfere with bicycle accessibility to the site and adjoining areas. (*Less than Significant*) (Criterion E.4)

The residential flex option would have up to 215 residential dwelling units and would provide up to 67 Class I bicycle parking spaces (such as lockers or restricted access parking) and 24 Class II spaces (such as a bicycle rack) within the Jessie Square Garage.

The office flex option would have up to 191 residential units and would provide up to 61 Class I bicycle parking spaces and 24 Class II bicycle parking spaces within the Jessie Square Garage.

The San Francisco Planning Code requires bicycle parking for the proposed land uses and for the parking area. The amounts of proposed office space and residential units vary between the residential flex option and the office flex option. However, since both options would provide the same amounts of parking, in both cases the Planning Code would require 24 Class II bicycle parking spaces. The amount of bicycle parking required and proposed is shown in Table IV.E.20: Bicycle Parking Required and Proposed in Proposed Project. Thus, the proposed project would meet the Planning Code requirements for bicycle parking.

Table IV.E.20: Bicycle Parking Required and Proposed in Proposed Project

	Proposed Use-Related Class I Bike Spaces	Parking Garage Class II Bike Spaces	Total
Residential Flex Option			
Provided by Proposed Project	67	24	91
Planning Code Requirement	66	24	90
Surplus / (Deficit)	1	0	1
Office Flex Option			
Provided by Proposed Project	61	24	85
Planning Code Requirement	60	24	84
Surplus / (Deficit)	1	0	1

Source: Turnstone Consulting; LCW Consulting, January 2012.

The project site is within a five-minute bicycling distance of office and retail buildings in downtown San Francisco and the Financial District and major transit hubs (Ferry Building, temporary Transbay Terminal, and Caltrain). Due to this proximity, it is anticipated that a portion of the 254 walk/other trips generated by the residential flex option and 237 walk/other trips generated by the office flex option would be bicycle trips.

As discussed in the Setting on p. IV.E.15, there are several bicycle routes near the project site, with the closest routes on along Howard Street (Bicycle Route 30), on Second Street (Bicycle Route 11), and on Market Street (Bicycle Route 50). Although the proposed project would result in an increase in the number of vehicles in the vicinity of the project site, this increase would not be substantial enough to affect bicycle travel in the area, and therefore impacts on bicyclists would be less than significant, and no mitigation measures are necessary.

LOADING IMPACTS

Impact TR-5: The loading demand of the proposed project during the peak hour of loading activities would be accommodated within the proposed on-site loading facilities or within convenient on-street loading zones, and would not create potentially hazardous traffic conditions or significant delays involving traffic, transit, bicycles, or pedestrians. (*Less than Significant*) (Criterion E.5)

Under both the residential flex option and the office flex option, the proposed project would provide two truck loading spaces that would be 12 feet wide and 35 feet long, and four service vehicle loading spaces that would be 8 feet wide and 20 feet long within the first below-grade level of the Jessie Square Garage (Level B1), with access from Stevenson Street. There would be a vertical clearance of about 13 feet, 6 inches between the access ramp and loading area; clearance at the Stevenson Street ramp is 13 feet, 5 inches, while clearance at the Mission Street ramp is 9 feet, 6 inches. The loading area itself would have a vertical clearance of 14 feet. The designated loading area would be adjacent to the existing truck turntable that can accommodate trucks up to 45 feet in length.[32]

To accommodate on-street passenger loading for the proposed retail/restaurant use, the project sponsor would request that the four existing metered commercial loading spaces (yellow curb) on Third Street adjacent to the project site be converted to a passenger loading zone (white curb), approximately 80 feet in length. The proposed passenger loading zone would need to be approved at a public hearing by the SFMTA.

For both the residential flex option and the office flex option, the San Francisco Planning Code would require three truck loading spaces for the residential units and museum uses. Since the proposed office use would replace existing on-site office uses, no off-street loading spaces would be required for this use. Off-street loading would also not be required for the retail/restaurant use because this is a continuation of an existing use. The first space is required to be 25 feet long, 10 feet wide, and with a vertical clearance of 12 feet, and the second space is required to be 35 feet long, 12 feet wide, and with a vertical clearance of 14 feet. The requirement for a third loading space can be met by providing two service vehicle spaces (under Planning Code Section 153(a)(6), two service vehicle spaces could be substituted for one truck space).

Since both the residential flex option and the office flex option would include two truck spaces (12 feet wide and 35 feet in length) and four service vehicle spaces, the proposed project would meet the Planning Code requirements for the supply and size of loading spaces.

[32] TIS, p. 84.

The TIS also reviewed loading demand under the proposed project. The residential flex option would have a demand for two loading spaces during both the peak (10 AM to 1 PM) and average hours of loading activity, while the office flex option would have a demand for three loading spaces during the peak hour of loading activity and two loading spaces during an average hour. There would be sufficient loading spaces to meet this demand, and according to the TIS, it is anticipated that the demand would primarily be accommodated on site in the underground loading area.[33]

The project sponsor would request that the four existing metered loading spaces on Third Street adjacent to the project site (yellow curb, in effect between 9 AM and 3 PM) be converted to a passenger loading zone (white curb). During field observations in July 2008, the four loading spaces were occupied about 18 percent of the time during the three-hour survey period. Any loading demand displaced from the requested conversion would need to be accommodated at other on-street loading spaces in the vicinity, namely on Third Street north of Stevenson Street where there are five existing metered commercial loading spaces.

Several trucks were observed parked and loading on Stevenson Street despite the prohibition of parking on both sides of Stevenson Street.[34] When trucks park on Stevenson Street, traffic capacity is reduced down to one lane for both directions, which can cause traffic queues.[35] This condition, while not caused by the proposed project, would likely continue with implementation of the proposed project, but due to the existing low occupancy of the on-street loading spaces, this situation is unlikely to be exacerbated with the proposed project.[36]

Trash pick-up for the proposed project would occur underground and would be unlikely to affect neighbors. Garbage trucks would access the trash area at Level B1via the Stevenson Street driveway.

Since the proposed project would provide sufficient loading spaces to meet the Planning Code requirement and the demand for loading on the project site, loading impacts would be less than significant. No mitigation measures are necessary.

Improvement Measure I-TR-H: Coordination of Moving Activities, presented below, would coordinate move-in and move-out activities through the building management, thereby reducing

[33] TIS, p. 85. Some proposed project-related loading would also likely occur within the proposed extension of the recessed passenger zone on Mission Street, and within the proposed on-street passenger zone on Third Street.
[34] Observations of traffic and loading/unloading conditions on Stevenson Street west of Third Street were conducted on July 22, 2008, November 24, 2009, and November 9, 2011.
[35] TIS, pp. 85-86.
[36] TIS, p. 86.

the less-than-significant impact of loading and unloading for residential units on the adjacent streets. City decision-makers may choose to include this improvement measure as conditions of approval for the proposed project.

Improvement Measure I-TR-H: Coordination of Moving Activities

To ensure that residential move-in and move-out activities do not impede traffic flow on Mission Street or Third Street, the project sponsor shall encourage that move-in and move-out operations, as well as larger deliveries, should be scheduled and coordinated through building management.

EMERGENCY ACCESS IMPACTS

Impact TR-6: Construction and operation of the proposed project would not result in inadequate emergency access. (*Less than Significant*) (Criterion E.6)

Emergency vehicle access to the project site would remain unchanged from existing conditions. Since the proposed project entails the rehabilitation of the existing Aronson Building and new construction at the west side of the project site (a 550-foot-tall tower), all construction would be within the project site, and adjacent travel lanes would not be changed. Emergency vehicles would continue to be able to pull up to the project site from Third Street, Mission Street, or Stevenson Street (for access to the garage). The proposed new building and the rehabilitated Aronson Building would be designed to meet the applicable building code and life safety requirements. The plans would be reviewed and approved by the San Francisco Department of Building Inspection, as well as the San Francisco Fire Department plan check staff. The proposed project's impacts on emergency access would, therefore, be less than significant. No mitigation measures are necessary.

CONSTRUCTION IMPACTS

Impact TR-7: Construction-related impacts of the proposed project would not be considered significant due to their temporary and limited duration. (*Less than Significant*) (Criterion E.7)

The construction impact assessment is based on currently available information from the project sponsor. Prior to project construction, as part of the construction application phase, the project sponsor and construction contractors would meet with DPW and SFMTA staff to develop and review truck routing plans for the proposed demolition, disposal of excavated materials, materials delivery and storage, as well as staging for construction vehicles (e.g., during the concrete pour). The construction contractor would be required to meet the *City of San Francisco's Regulations for Working in San Francisco Streets*, including those regarding sidewalk and lane closures, and would meet with SFMTA staff to determine if any special traffic permits would be required. In

addition to the regulations in *Regulations for Working in San Francisco Streets*, the contractor would be responsible for complying with all City, State, and Federal codes, rules, and regulations.

All construction activities affecting City streets would be coordinated, reviewed and approved by DPW and SFMTA's Special Projects and Street Use section. Prior to construction, the project contractor would coordinate with Muni's Street Operations and Special Events Office to coordinate construction activities and reduce any impacts to transit operations.

Construction of the proposed project would take approximately 36 months. There would be six partially overlapping construction phases:[37]

- Phase 1 – Demolition (6 months)
- Phase 2 – Excavation and shoring (5 months)
- Phase 3 – Foundation and below-grade construction (5 months)
- Phase 4 – Building superstructure (14 months)
- Phase 5 – Exterior finishing (12 months)
- Phase 6 – Interior finishing (18 months)

Project-related construction activities would likely occur Monday through Saturday, between 7 AM and 8 PM. Construction is not anticipated to occur on Sundays or major legal holidays, but may occur on such days on an as-needed basis with prior authorization from DBI. The hours of construction would be stipulated by the Department of Building Inspection, and the contractor would need to comply with the San Francisco Noise Ordinance and *Regulations for Working in San Francisco Streets*.

Project-related construction staging would occur primarily within the project site and the adjacent sidewalks on Mission Street and Third Street. To accommodate construction staging on the sidewalk and to provide temporary pedestrian walkways, the parking lane on Third Street and the bus stop lane on Mission Street would be closed during the entire construction duration. The Muni and Golden Gate Transit bus stop (about 120 feet in length) adjacent to the project site on Mission Street would be requested to be temporarily relocated to the west of the existing Jessie Square Garage driveway through coordination between transit authorities and the project sponsor. The existing bus shelter would be temporarily relocated with the bus stop.

A truck staging zone would be implemented for project construction on the Mission Street side of the project site. Closure of the pedestrian sidewalk on Mission Street, without providing a covered temporary walkway in the curb travel lane, would impact pedestrian access to the relocated bus stop from Third Street, and impede east-west pedestrian movement on Mission

[37] TIS, p. 87.

Street adjacent to the project site. As part of the construction application phase, the construction contractor would work with DPW and SFMTA to ensure adequate alternate pedestrian access, either through a temporary walkway within the sidewalk and curb lane, or by signage to detour pedestrians.

The Third Street sidewalk is anticipated to remain open for the duration of project construction, and a covered pedestrian walkway would be installed within the existing sidewalk area. The newspaper rack and mailbox located adjacent to the project site are proposed to be temporarily removed from the sidewalk to provide additional pedestrian circulation space. Truck staging would also occur on Third Street, requiring the removal of four metered commercial vehicle loading spaces. During the weekday AM (7 to 9 AM) and PM (3 to 7 PM) peak periods, there is a tow-away restriction on Third Street that provides for an additional northbound travel lane. The use of the curb parking lane/tow-away lane by construction trucks during the peak periods would impact traffic on Third Street because this lane serves northbound vehicles turning left from Third Street onto Market Street and Geary Street westbound. As part of the construction application phase, DPW and SFMTA would determine whether the truck staging zone would be permitted during the AM and/or PM peak period when tow-away restrictions are in place.

Vehicular access onto Mission Street from the Jessie Square Garage would be closed from the start of demolition until the new replacement ramp structure is completed. Jessie Square Garage is anticipated to remain open during project construction.

Temporary traffic lane closures and sidewalk closures on Third Street or Mission Street would be reviewed and must be approved by the City's Transportation Advisory Staff Committee (TASC). The TASC consists of representatives of City departments including SFMTA, DPW, Fire, Planning, Police, Public Health, Port, and the Taxi Commission.

During construction, the poles supporting the overhead wire system on Third Street and Mission Street would need to be maintained. On Mission Street, the Muni pole adjacent to the project site would be temporarily relocated to the Mission Street median for the duration of the project construction. This effort would be coordinated with SFMTA's Overhead Lines Department.

Also during project construction, construction-related trucks would be arriving and leaving the site. Construction truck traffic would temporarily lessen the capacity of any street used due to the slower movement and larger turning radii of trucks, which may affect both traffic and Muni operations. A majority of the project's construction-related truck traffic would use I-80/U.S. 101, Third Street, and Fourth Street to travel to and from the project site. In order to avoid impacts of construction truck traffic on Market Street, preliminary project construction plans indicate that the Mission Street center median would be temporarily cut in the vicinity of the exit ramp from

the Jessie Square Garage to permit access to Mission Street eastbound. The Mission Street center median would be restored following construction.

The average and peak number of construction trucks and construction workers arriving at the project site on a daily basis is presented in Table IV.E.21: Summary of Proposed Project Construction Trucks and Workers by Phase. There would be an average of between 6 and 16 construction truck trips (one-way trips) traveling to the site on a daily basis, with the greatest number during the project construction excavation and shoring phase. The peak number of 25 trucks per day is anticipated to occur during three of the six phases: excavation and shoring, foundation and below-grade construction, and building superstructure.

Table IV.E.21: Summary of Proposed Project Construction Trucks and Workers by Phase

	Number of Daily Construction Trucks		Number of Daily Construction Workers	
Phase	**Peak**	**Average**	**Peak**	**Average**
Demolition	15	9	50	25
Excavation and Shoring	15	9	50	25
Foundation and Below Grade	25	12	60	50
Building Superstructure	25	16	150	120
Exterior Finishing	16	12	160	120
Interior Finishing	8	6	125	85

Source: Millennium Partners, 2009; TIS, p. 90

Overall, the construction-related transportation impacts of the proposed project would be less than significant due to their temporary and limited duration. No mitigation measures are necessary.

Improvement Measure I-TR-I: Construction - Traffic Control Plan, Improvement Measure I-TR-J: Construction – Carpools, Improvement Measure I-TR-K: Construction - Truck Traffic Management, and Improvement Measure I-TR-L: Construction – Update Adjacent Businesses and Residents, presented below, have been identified to reduce the proposed project's less-than-significant transportation-related construction effects.[38] City decision-makers may choose to include these improvement measures as conditions of approval for the proposed project.

Improvement Measure I-TR-I: Construction - Traffic Control Plan

As an improvement measure to reduce potential conflicts between construction activities and pedestrians, transit and autos, SFMTA could require that the contractor prepare a traffic control plan for project construction. The project sponsor and construction contractor(s) shall meet with DPW, SFMTA, the Fire Department, Muni, the Planning Department and other City agencies to coordinate feasible measures to reduce traffic congestion, including

[38] TIS, p. 129.

temporary transit stop relocations (if determined necessary) and other measures to reduce potential traffic and transit disruption and pedestrian circulation effects during construction of the proposed project.

The contractor could be required to comply with the City of San Francisco's *Regulations for Working in San Francisco Streets*, which establish rules and permit requirements so that construction activities can be done safely and with the least possible interference with pedestrians, bicyclists, transit and vehicular traffic.

Improvement Measure I-TR-J: Construction - Carpools

As an improvement measure to minimize parking demand associated with construction workers, the project sponsor could request the construction contractor to encourage carpooling and transit access to the site by construction workers.

Improvement Measure I-TR-K: Construction - Truck Traffic Management

As an improvement measure to minimize construction traffic impacts on Third Street and Mission Street, and on pedestrian, transit and traffic operations, the construction contractor could be required to retain San Francisco Police Department traffic control officers during peak construction periods.

Improvement Measure I-TR-L: Construction - Update Adjacent Businesses and Residents

As an improvement measure to minimize construction impacts on access for nearby institutions and businesses, DPW could require the project sponsor to provide nearby residences and adjacent businesses with regularly-updated information regarding project construction, including construction activities, peak construction vehicle activities (e.g., concrete pours), travel lane closures, and lane closures. The information should include contact information, including that the public can contact the SFMTA General Enforcement Division for blocked driveways and access, DPW's Street Use and Mapping for complaints regarding construction activities interfering with travel lanes, or the San Francisco Police Department for violations related to construction street space permits issued by DPW or Special Traffic Permits issues by SFMTA. A web site could be created by project sponsor that would provide current construction information of interest to neighbors.

PARKING DISCUSSION

San Francisco does not consider parking supply as part of the permanent physical environment and therefore does not consider changes in parking conditions to be environmental impacts as defined by CEQA. The San Francisco Planning Department acknowledges, however, that parking conditions may be of interest to the public and the decision-makers; therefore, parking is analyzed here for informational purposes.

Parking conditions are constantly changing, and the availability of parking spaces (or lack thereof) is not a permanent physical condition, but changes over time as people change their modes and patterns of travel.

Parking deficits are considered to be social effects, rather than impacts on the physical environment as defined by CEQA. Under CEQA, a project's social impacts need not be treated as significant impacts on the environment. Environmental documents should, however, address the secondary physical impacts that could be triggered by a social impact (CEQA Guidelines §15131(a)). The social inconvenience of parking deficits, such as having to hunt for scarce parking spaces, is not an environmental impact, but there may be secondary physical environmental impacts, such as increased traffic congestion at intersections, air quality impacts, safety impacts, or noise impacts caused by congestion. In the experience of San Francisco transportation planners, however, the absence of a ready supply of parking spaces, combined with available alternatives to auto travel (such as transit service, taxis, bicycles, or travelling by foot) and a relatively dense pattern of urban development, induces many drivers to seek and find alternative parking facilities, shift to other modes of travel, or change their overall travel habits.

Any resulting shifts to transit service, bicycling, or walking would be in keeping with the City's "Transit First" policy. The City's Transit First Policy, established in the City's Charter Article 8A, Section 8A.115, provides that "parking policies for areas well served by public transit shall be designed to encourage travel by public transportation and alternative transportation." The transportation analysis accounts for potential secondary effects, such as drivers circling and looking for a parking space in areas of limited parking supply, by assuming that all drivers would attempt to find parking at or near the project site and then seek parking farther away if convenient parking is unavailable. Moreover, the secondary effects of drivers searching for parking is typically offset by a reduction in vehicle trips due to others who are aware of constrained parking conditions in a given area. Hence, any secondary environmental impacts which may result from a shortfall in parking in the vicinity of the proposed project would be minor, and the traffic assignments used in the transportation analysis, as well as in the associated air quality, noise, and pedestrian safety analyses, reasonably address potential secondary effects.

The proposed project would reconfigure the existing garage from 372 public parking spaces and 70 spaces reserved for the nearby Sports Club/LA (a total of 442 parking spaces), to 210 public parking spaces and 260 private reserved parking spaces (for a total of 470 parking spaces). The 210 public parking spaces would include 11 handicapped accessible spaces (10 standard plus one van space on Level B1), and five car-share spaces. The 260 private reserved spaces would vary by flex option. The residential flex option would include up to 215 spaces for the residential dwelling units, 43 spaces reserved for leased parking, and 2 car-share spaces. The office flex option would include up to 191 spaces for the residential dwelling units, 68 spaces reserved for leased parking, and 1 carshare parking space.

The primary access to the Jessie Square Garage for non-residents, including employees, museum visitors, retail/restaurant customers, and the public, would be via Stevenson Street, and a secondary exit would continue to be via Mission Street.

Parking Requirements Under the Planning Code

The Planning Code, as part of Section 309 permit review, would allow the proposed project to provide up to 215 parking spaces for the residential use in the residential flex option and up to 191 parking spaces for the residential use in the office flex option. Both options would provide the maximum permitted, and would therefore not exceed the Planning Code limits.

The Planning Code would also require two car-share parking spaces for the residential component of the residential flex option and one car-share parking space for the office flex option. The proposed project would meet this requirement.

The 260 private reserved parking spaces would be required under the Planning Code to provide 10 handicapped-accessible parking spaces. The proposed project would meet this requirement.

The public parking component of the Jessie Square Garage would be required to provide eight handicapped-accessible spaces and four car-share parking spaces. Since the reconfigured public parking garage would contain 11 handicapped accessible spaces and 5 car-share spaces, it would meet and exceed the Planning Code requirements. A vertical clearance of 8 feet, 2 inches (minimum required for van accessibility) would be provided on the first below-grade level (B1) that would include the two van handicapped-accessible parking spaces.

The Planning Code requires that the sale of parking spaces be unbundled from the sale of the residential units. The proposed project would meet this requirement.

Parking Supply vs. Demand

The new uses associated with the proposed project would generate a long-term parking demand of between 323 and 287 spaces for the residential uses, and a short-term and long-term demand for the office, retail/restaurant, and museum uses of between 44 and 113 spaces. See the discussion of parking in Setting and in "Methodology," above, and in Table IV.E.14, p. IV.E.35.

Overnight Demand

The long-term residential parking demand occurs during the overnight hours. The residential demand of 323 spaces under the residential flex option would not be accommodated within the residential parking supply of 215 parking spaces, which would result in a shortfall of 108 spaces. Under the office flex option, the residential demand of 287 spaces would not be accommodated

within the residential parking supply of 191 spaces, which would result in a shortfall of 96 spaces. The overnight shortfall could be accommodated within the public parking component of the Jessie Square Garage. The Jessie Square Garage is open between 5 AM and 11 PM on weekdays, and between 6 AM and 11 PM on weekends. Overnight parking is permitted; however, vehicles cannot be parked or accessed during the overnight hours when the garage is closed.

Midday Demand

During the weekday midday, the residential parking demand is estimated to be about 80 percent of the overnight parking demand, or about 258 spaces for the residential flex option and 230 spaces for the office flex option. Depending on whether vehicles were parked overnight in the public or private section, there would be a midday shortfall of between 43 and 108 parking spaces for the residential flex option, and between 39 and 96 spaces for the office flex option.

During the weekday midday period, the proposed project office, the retail/restaurant, and museum uses would also generate short-term and long-term parking demand. This demand would be accommodated within the public parking component of the Jessie Square Garage. The parking supply and demand comparisons for the public parking component of the reconfigured Jessie Square Garage is shown in Table IV.E.22: Jessie Square Garage Public Parking Supply and Demand.

Table IV.E.22: Jessie Square Garage Public Parking Supply and Demand

Supply and Demand	Residential Flex Option	Office Flex Option
Public Parking Supply[a]	210	210
Public Parking Demand		
Existing Occupied Public Parking[b]	259	259
Existing Reserved Spaces to be Eliminated[c]	70	70
Office, Museum, and Retail/Restaurant Patrons from the Proposed Project[d]	44	113
Total Demand	373	442
Surplus / (Shortfall)	(163)	(232)

Notes:
[a] With proposed project, of 470 total parking spaces in Jessie Square Garage, 210 would be public parking spaces, and 260 would be private reserved spaces.
[b] Average 2008 and 2009 utilization of existing public parking spaces during weekday midday peak period. See Table IV.E.6, p. IV.E.21.
[c] Existing spaces reserved for Sports Club/LA use. As a conservative assessment, demand assumed same as number of reserved spaces.
[d] Short-term and long-term demand associated with proposed office, retail/restaurant and museum uses. See Table IV.E.14, p. IV.E.35.

Source: LCW Consulting, January 2012

The total parking shortfall during the midday would include both the shortfall from the residential private parking plus the Jessie Square Garage public parking shortfall, for a total shortfall of up to 271 spaces for the residential flex option, and 328 spaces for the office flex option. The shortfall would be accommodated within other off-street facilities that have available capacity. There is some availability in nearby public parking garages within one block of the project site, such as the Paramount Garage (56 percent midday occupancy) and the SFMOMA Garage (76 percent midday occupancy), while the Fifth and Mission Garage, located one block to the west of the project site, has the most availability during the weekday midday period (63 percent midday occupancy).

In summary, parking supply is not considered a permanent physical condition in San Francisco, and changes in the parking supply would not be a significant environmental impact under CEQA, but rather a social effect. The loss of parking may cause potential social effects, which would include cars circling and looking for a parking space in neighboring streets. The secondary effects of drivers searching for parking is typically offset by a reduction in vehicle trips due to some drivers, who are aware of constrained parking conditions in a given area, shifting to transit, bicycling, and walking. Hence, any secondary environmental impacts that may result from a shortfall in parking have been addressed in the transportation analysis conducted for the proposed project and would not be a considerable environmental effect.

Improvement Measure I-TR-M: Transportation Demand Management, presented below, has been identified to encourage transit use and reduce parking demand.[39] City decision-makers may choose to include these improvement measures as conditions of approval for the proposed project.

Improvement Measure I-TR-M: Transportation Demand Management

As an improvement measure to encourage use of alternative modes and reduce the proposed project's parking demand and parking shortfall, the project sponsor could provide a transportation insert for the move-in packet. This packet could provide information on transit service (Muni and BART lines, schedules and fares), information on where transit passes could be purchased, and information on the 511 Regional Rideshare Program.

CUMULATIVE IMPACTS

Impact C-TR-1: The proposed project would not contribute considerably to future cumulative traffic increases that would cause levels of service to deteriorate to unacceptable levels at seven intersections. (*Less than Significant*) (Criterion E.1)

Under 2030 cumulative conditions, with development of the proposed project, vehicle delays would increase at all study intersections compared to existing conditions. All seven intersections

[39] TIS, p. 130.

would operate at LOS F in 2030 with the proposed project, as shown in Table IV.E.23: Intersection Levels of Service, Existing and Proposed Project Plus 2030 Cumulative Conditions.

Table IV.E.23: Intersection Levels of Service, Existing, Existing Plus Proposed Project, and Proposed Project Plus 2030 Cumulative Conditions (Weekday PM Peak Hour)

	Existing		Existing Plus Project with 2030 Cumulative Conditions	
Intersection	**Delay (v/c)**	**LOS**	**Delay (v/c)**	**LOS**
Third / Market	**56.2**	**E**	**>80 (1.02)**	**F**
Third / Stevenson	12.1	B	**>80 (1.08)**	**F**
Third / Mission	20.1	C	**>80 (1.2)**	**F**
Third / Howard	36.1	D	**>80 (1.4)**	**F**
Fourth / Market	**>80 (1.1)**	**F**	**>80 (1.35)**	**F**
Fourth / Mission	41.8	D	**>80 (1.25)**	**F**
Fourth / Howard	42.5	D	**>80 (1.16)**	**F**

Notes:
> means greater than
Delay presented in seconds per vehicle. Intersections operating at LOS E or LOS F are in **bold**. The volume to capacity ratio (v/c) is presented for those intersections operating at LOS F.

Source: LCW Consulting, January 2012

At each study intersection, the number of additional vehicle trips resulting from the proposed project would represent less than a cumulatively considerable contribution to LOS F operating conditions, as discussed below for each intersection. Therefore, the project's contribution to significant cumulative impacts at the study intersections would be less than significant, and no mitigation is necessary.

At the intersection of Third and Market Streets, the proposed project would add 34 vehicle trips during the PM peak hour. The northbound approach would operate at LOS F conditions in 2030. The project would add 34 vehicle trips to the northbound movement, which would represent approximately 1.2 percent of the total PM peak hour northbound approach volume of 2,910 vehicles. The project's contribution to this approach would not be cumulatively considerable, and therefore the contribution to the overall intersection LOS F conditions at the intersection of Third and Market Streets would not be considered significant.

At the intersection of Third and Stevenson Streets**,** the proposed project would add 47 vehicle trips during the PM peak hour. The northbound approach would operate at LOS F conditions in 2030. The project would add 12 vehicle trips to the northbound movement, which would represent approximately 0.5 percent of the total PM. peak hour northbound approach volume of 2,818 vehicles. The project's contribution to this approach would not be cumulatively

considerable, and therefore the contribution to the overall intersection LOS F conditions at the intersection of Third and Stevenson Streets would not be considered significant.

At the intersection of Third and Mission Streets**,** the proposed project would add 75 vehicle trips during the PM peak hour. The northbound approach would operate at LOS F conditions in 2030. The project would add 63 vehicle trips to the northbound movement, which would represent approximately 2.0 percent of the total PM peak hour northbound approach volume of 3,198 vehicles. The project's contribution to this approach would not be cumulatively considerable, and therefore the contribution to the overall intersection LOS F conditions at the intersection of Third and Mission Streets would not be considered significant.

At the intersection of Third and Howard Streets**,** the proposed project would add 63 vehicle trips during the PM peak hour. Both the northbound and westbound approaches would operate at LOS F conditions in 2030. The project would add 45 vehicle trips to the northbound movement, which would represent approximately 1.3 percent of the total PM peak hour northbound approach volume of 3,440 vehicles, and 18 vehicle trips to the westbound movement, which would represent about 0.7 percent of the total PM peak hour approach volume of 2,606 vehicles. The project's contribution to these approaches would not be cumulatively considerable, and therefore the contribution to the overall intersection LOS F conditions at the intersection of Third and Howard Streets would not be considered significant.

At the intersection of Fourth and Market Streets, the proposed project would add 31 vehicle trips during the PM peak hour. The southbound movement and eastbound approach would operate at LOS F conditions in 2030. The project would add 12 vehicle trips to the southbound movement, which represent less than 1 percent of the PM peak hour southbound volume of 1,502 vehicles. The project would add 19 vehicles to the eastbound approach, which represents about 2.6 percent of the eastbound approach volume of 722 vehicles. The project's contribution to these approaches would not be cumulatively considerable, and therefore the contribution to the overall intersection LOS F conditions at the intersection of Fourth and Market Streets would not be considered significant.

At the intersection of Fourth and Mission Streets, the proposed project would add 69 vehicle trips during the PM peak hour. The southbound movement and westbound approach would operate at LOS F conditions in 2030. The project would add 31 vehicle trips to the southbound movement, which represents approximately 1.9 percent of the PM peak hour southbound volume of 1,665 vehicles. The project would add 38 vehicles to the westbound approach, which represents about 3.6 percent of the westbound approach volume of 1,056 vehicles. The project's contribution to these approaches would not be cumulatively considerable, and therefore the contribution to the

overall intersection LOS F conditions at the intersection of Fourth and Mission Streets would not be considered significant.

At the intersection of Fourth and Howard Streets, the proposed project would add 31 vehicle trips during the PM peak hour. The southbound movement would operate at LOS F conditions in 2030. The project would add 31 vehicle trips to this approach, which represents about 1.6 percent of the PM peak hour southbound approach volume of 1,972 vehicles. The project's contribution to this approach would not be considerable, and therefore the contribution to the overall intersection LOS F conditions at the intersection of Fourth and Howard Streets would not be considered significant.

The unacceptable level of service conditions (LOS F) at the seven study intersections, discussed above, would be due to traffic volume increases associated with other developments in the vicinity of the proposed project. Since the proposed project would not result in cumulatively considerable contribution to the poor operating conditions at any of the seven intersections, the proposed project impacts at these seven intersections would be less than significant. No mitigation measures are necessary.

Impact C-TR-2: The proposed project would not contribute considerably to cumulative increases in transit ridership that would cause the levels of service to deteriorate to unacceptable levels. (*Less than Significant*) (Criterion E.2)

Cumulative Muni and regional transit ridership projections for year 2030 were obtained from the transit analysis conducted for the *Transit Center District Plan EIR*. The Muni ridership analysis for 2030 cumulative conditions for the weekday PM peak hour is shown in Table IV.E.24: Existing and 2030 Cumulative Plus Project Muni Screenline Analysis. Under 2030 cumulative conditions, several corridors and screenlines would exceed Muni's capacity utilization standard of 85 percent.

The Third Street and Other corridors in the Southeast screenline would exceed the Muni capacity utilization standard in the future 2030 conditions. Several corridors in the Northwest screenline would also exceed the capacity utilization: Geary, California, Sutter/Clement, and Chestnut/Union corridors. The Southwest Subway screenline would continue to operate above the capacity utilization standard. During the PM peak hour, the proposed project's contribution to cumulative ridership on Muni screenlines and corridors would be a contribution of between 1 to 8 riders on each line, which would be less than 1 percent of total ridership.[40] This contribution would not be a cumulatively considerable contribution. Therefore, the proposed project's impacts on cumulative Muni conditions in 2030 would be less than significant.

[40] TIS, p. 124.

Table IV.E.24: Existing and 2030 Cumulative Plus Project Muni Screenline Analysis (Weekday PM Peak Hour)

	Existing			2030 Cumulative Plus Project		
Screenline / Corridor	**Hourly Ridership**	**Hourly Capacity**	**Capacity Utilization**	**Hourly Ridership**	**Hourly Capacity**	**Capacity Utilization**
Northeast						
Kearny/Stockton Corridor	1,129	2,010	56%	1,328	1,694	78%
All Other Lines	757	1,589	48%	1,522	2,065	74%
Subtotal	1,886	3,599	52%	2,850	3,759	76%
Northwest						
Geary Corridor	1,684	2,230	76%	**2,485**	**2,700**	**92%**
California	1,413	2,050	69%	**2,275**	**2,050**	**111%**
Sutter/Clement	565	1,008	56%	**849**	**945**	**90%**
Fulton/Hayes	861	1,260	68%	1,144	1,638	70%
Balboa	615	1,247	49%	647	1,326	49%
Chestnut/Union	1,483	2,328	64%	**1,732**	**2,013**	**86%**
Subtotal	6,621	10,123	65%	**9,132**	**10,672**	**86%**
Southeast						
Third Street Corridor	554	714	78%	**2,827**	**2,856**	**99%**
Mission Street	1,254	2,350	53%	1,546	2,256	69%
San Bruno/Bayshore	1,671	2,256	74%	2,492	3,008	83%
All Other Lines	1,189	1,708	70%	**1,661**	**1,820**	**91%**
Subtotal	*4,668*	7,028	66%	**8,526**	**9,940**	**86%**
Southwest						
Subway Lines	**5,883**	**6,783**	**87%**	**7,364**	**7,973**	**92%**
Haight/Noriega	1,247	2,140	58%	1,530	1,890	81%
All Other Lines	304	700	43%	345	840	41%
Subtotal	7,434	9,623	77%	**9,239**	**10,703**	**86%**
Total All Screenlines	20,609	30,373	68%	29,747	35,074	85%

Note: Subcorridors operating above capacity are highlighted in **bold**.

Source: Transit Center District EIR Transportation Impact Study, AECOM, 2011; LCW Consulting, January 2012

Regional transit lines would also see increased ridership under 2030 cumulative conditions. The regional transit ridership analysis results for 2030 cumulative conditions for the weekday PM peak hour are shown in Table IV.E.25: Existing and 2030 Cumulative Plus Project Regional Transit Screenline Analysis.

Under 2030 Cumulative conditions, transit ridership on regional transit lines is projected to exceed the available capacity at several corridors. Capacity utilization standards would not be met for BART (to the East Bay), AC Transit, and Golden Gate Transit bus lines. In addition, ferry service to the North Bay would approach 100 percent of capacity.

Table IV.E.25: Existing and 2030 Cumulative Plus Project Regional Transit Screenline Analysis (Weekday PM Peak Hour)

	Existing			2030 Cumulative Plus Project		
Screenline	**Hourly Ridership**	**Hourly Capacity**	**Capacity Utilization**	**Hourly Ridership**	**Hourly Capacity**	**Capacity Utilization**
East Bay						
BART	20,067	24,150	83%	**33,140**	**24,400**	**113%**
AC Transit	2,517	4,193	60%	**7,689**	**6,600**	**117%**
Ferry	702	1,519	46%	2,178	2,719	80%
Subtotal	23,286	29,862	78%	43,007	38,719	111%
North Bay						
GGT Buses	1,397	2,205	63%	**2,564**	**2,205**	**118%**
Ferry	906	1,700	53%	1,663	1,700	99%
Subtotal	2,303	3,905	59%	4,227	3,905	109%
South Bay						
BART	10,202	16,800	61%	12,019	21,000	57%
Caltrain	1,986	3,250	61%	4,084	6,400	64%
SamTrans	575	940	61%	412	940	44%
Ferries	0	0	0%	76	300	25%
Subtotal	12,763	20,990	61%	16,591	28,640	58%
Total All Screenlines	**38,352**	**54,757**	**70%**	**63,870**	**71,264**	**90%**

Note: Subcorridors operating above capacity are highlighted in **bold**.

Source: Transit Center District Plan EIR Transportation Impact Study, AECOM, 2011; LCW Consulting, January 2012

During the PM peak hour, the proposed project's contribution to cumulative ridership on these regional transit operators would not represent a cumulatively considerable contribution (a total of 31 transit trips compared with a 2030 Cumulative regional transit ridership of 63,870). Overall, the proposed project's impacts on cumulative regional transit conditions would be less than significant.

Impact C-TR-3: The construction impacts of the proposed project would not result in a considerable contribution to a significant cumulative impact when combined with other nearby proposed projects due to the temporary and limited duration of the construction of the proposed project and nearby projects. (*Less than Significant*) (Criteria E.7)

The construction of the proposed project may overlap with the construction of other projects proposed nearby, including the proposed expansion of the SFMOMA on Third Street between Howard and Mission Streets, the conversion of the Metreon to include a Target store, the Central Subway Project along Fourth Street, 72 Ellis Street, 49 Kearny Street, 2 New Montgomery Street, 134-140 New Montgomery Street, 222 Second Street, and 151 Third Street. Construction associated with these projects would affect access, traffic, and pedestrians. The construction

manager for each project would work with the various departments of the City to develop a detailed and coordinated plan that would address construction vehicle routing, traffic control, and pedestrian movement adjacent to the construction area for the duration of any overlap in construction activity.

The cumulative impacts of multiple nearby construction projects would not be cumulatively considerable, as the construction would be of temporary duration, and the proposed project would coordinate with various City departments such as SFMTA and DPW through the TASC to develop coordinated plans that would address construction-related vehicle routing and pedestrian movements adjacent to the construction area for the duration of construction overlap. Therefore, the impact would not be significant, and no mitigation measures are necessary.

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F. NOISE

This section describes existing acoustic and vibration conditions on and near the project site, explains how sound is characterized, provides information about how vibration is characterized, and summarizes relevant regulations and standards as part of the Setting discussion. The Impacts discussion evaluates project-related noise and vibration impacts and assesses the project's potential to expose sensitive receptors to noise or to generate noise levels exceeding applicable standards. Also assessed are the compatibility of existing and proposed land uses with ambient noise levels and the exposure of persons to groundborne vibration. Mitigation measures that would reduce significant noise and vibration impacts are identified.

SETTING

FUNDAMENTALS OF ENVIRONMENTAL NOISE

Sound is characterized by various parameters that describe the rate of oscillation (frequency) of sound waves, the distance between successive troughs or crests in the wave, the speed that it travels, and the pressure level or energy content of a given sound. The sound pressure level has become the most common descriptor used to characterize the loudness of an ambient sound, and the decibel (dB) scale is used to quantify sound intensity. Because sound can vary in intensity by over one million times within the range of human hearing, a logarithmic loudness scale is used to keep sound intensity numbers at a convenient and manageable level. Since the human ear is not equally sensitive to all sound frequencies within the entire spectrum, human response is factored into sound descriptions in a process called "A-weighting," expressed as "dBA." The dBA, or A-weighted decibel, refers to a scale of noise measurement that approximates the range of sensitivity of the human ear to sounds of different frequencies. On this scale, the normal range of human hearing extends from about 0 dBA to about 140 dBA. A 10-dBA increase in the level of a continuous noise represents a perceived doubling of loudness. The noise levels presented herein are expressed in terms of dBA, unless otherwise indicated. Table IV.F.1: Typical Sound Levels Measured in the Environment, shows some representative noise sources and their corresponding noise levels in dBA.[1]

[1] U.S. Department of Housing and Urban Development, *The Noise Guidebook*, 1985, p.1. Available online at http://portal.hud.gov/hudportal/HUD?src=/program_offices/comm_planning/environment/training/guidebooks/noise. Accessed April 30, 2012.

Table IV.F.1: Typical Sound Levels Measured in the Environment

Examples of Common, Easily Recognized Sounds	Decibels (dBA) at 50 feet	Subjective Evaluations
Near Jet Engine	140	Deafening
Threshold of Pain (Discomfort)	130	
Threshold of Feeling – Hard Rock Band	120	
Accelerating Motorcycle (at a few feet away)	110	
Loud Horn (at 10 feet away)	100	Very Loud
Noisy Urban Street	90	
Noisy Factory	85	
School Cafeteria with Untreated Surfaces	80	Loud
Near Freeway Auto Traffic	60	Moderate
Average Office	50	
Soft Radio Music in Apartment	40	Faint
Average Residence Without Stereo Playing	30	
Average Whisper	20	Very Faint
Rustle of Leaves in Wind	10	
Human Breathing	5	
Threshold of Audibility	0	

Note:
Continuous exposure above 85 dBA is likely to degrade the hearing of most people. Range of speech is 50 to 70 dBA.
Source: U.S. Department of Housing and Urban Development, *The Noise Guidebook*, 1985

Planning for acceptable noise exposure must take into account the types of activities and corresponding noise sensitivity in a specified location for a generalized land use type. Some general guidelines are as follows: sleep disturbance can occur at levels above 35 dBA; interference with human speech begins at about 60 dBA; and hearing damage can result from prolonged exposure to noise levels in excess of 85 to 90 dBA.[2]

Attenuation of Noise

Distance from a source affects how noise levels attenuate (decrease). Transportation noise sources that tend to be arranged linearly, such as roadway traffic, attenuate at a rate of 3.0 dBA to 4.5 dBA per doubling of distance from the source, based on the inverse square law and the equation for cylindrical spreading of noise waves over hard and soft surfaces.[3] Point sources of noise, including stationary, fixed, and idle mobile sources like idling vehicles or construction

[2] U.S. Environmental Protection Agency (USEPA), Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety, March 1974, Appendices C and D. A copy of this document is available for review at the Planning Department, 1650 Mission Street, Suite 400, San Francisco, California, as part of Case File No. 2008.1084E.

[3] The additional 1.5 dBA of attenuation is from ground-effect attenuation that occurs above soft absorptive ground (such as normal earth and most ground with vegetation). Over hard ground (such as concrete, stone, and very hard-packed earth) these effects do not occur. (U.S. Housing and Urban Development, *The Noise Guidebook*, 1985, p. 24.)

equipment, attenuate at a rate of 6.0 dBA to 7.5 dBA per doubling of distance from the source, based on the inverse square law and the equations for spherical spreading of noise waves over hard and soft surfaces.

Significant attenuation of noise levels can also be accomplished by "shielding" or providing a barrier, which may be in the form of an intervening structure or terrain. The amount of noise level reduction provided by a barrier close to a source is dependent on the potential for reflection of noise around the barrier and the frequency spectra of the noise. Atmospheric conditions such as wind speeds, wind direction, humidity, and temperature gradients also affect noise propagation at greater distances.

Noise Descriptors

Time variations in noise exposure are typically expressed in terms of a steady-state energy level (the equivalent noise level or "L_{eq}") that represents the acoustical energy of a given measurement. L_{eq} is used to describe noise over a specified period of time, in terms of a single numerical value. The L_{eq} is the constant sound level that would contain the same acoustic energy as the varying sound level, during the same time period (i.e., the average noise exposure level for the given time period). Because community receptors are more sensitive to unwanted noise intrusion during the evening and at night, for planning purposes, an increment of 10 dBA is added to nighttime (10:00 PM to 7:00 AM) noise levels to form a 24-hour noise descriptor called the day-night noise level (L_{dn}). The maximum noise level (L_{max}) is the maximum instantaneous noise level measured during the measurement period of interest. The L_{eq}, L_{max}, L_{dn}, and the other statistical descriptors for noise that are used here are defined in terms of dBA using the A-weighted sound pressure level (also called sound level or noise level) scale.

Health Effects of Environmental Noise

The World Health Organization (WHO) is perhaps the best source of current knowledge regarding health impacts because European nations have continued to study noise and its health effects, while the U.S. Environmental Protection Agency (USEPA) all but eliminated its noise investigation and control program in the 1970s.[4] According to WHO, sleep disturbance can occur when continuous indoor noise levels exceed 30 dBA or when intermittent interior noise levels reach 45 dBA, particularly if background noise is low. With a bedroom window slightly open (a reduction from outside to inside of 15 dB), the WHO criteria suggest that exterior continuous (ambient) nighttime noise levels should be 45 dBA or below, and short-term events should not generate noise in excess of 60 dBA. WHO also notes that maintaining noise levels within the

[4] The *San Francisco General Plan* Land Use Compatibility Guidelines for Community Noise are from this era.

recommended levels during the first part of the night is believed to be effective for the ability to fall asleep.[5]

Other potential health effects of noise identified by WHO include decreased performance for complex cognitive tasks, such as reading, attention span, problem solving, and memorization; physiological effects such as hypertension and heart disease (after many years of constant exposure, often by workers, to high noise levels); and hearing impairment (again, generally after long-term occupational exposure, although possible due to shorter-term exposure to very high noise levels, for example, exposure several times a year to concert noise at 100 dBA). Finally, noise can cause annoyance and can trigger emotional reactions like anger, depression, and anxiety. WHO reports that during daytime hours, few people are seriously annoyed by activities with noise levels below 55 dBA, or moderately annoyed by activities with noise levels below 50 dBA. The importance of noise to receptors depends on both time and context. For example, long-term high noise levels from heavy traffic volumes can make conversation at a normal voice level difficult or impossible, while short-term peak noise levels occurring at night can disturb sleep.

EXISTING NOISE ENVIRONMENT

Environmental noise in the dense urban setting of the proposed project is primarily dependent on proximity to vehicle traffic and the mix of vehicle types. As is the case in most urban areas, ambient noise in the project area is predominantly a result of surface traffic (autos, trucks, and buses), including San Francisco Municipal Railway (Muni) multiple streetcar and bus lines along Market Street and multiple bus lines along Third, Fourth, Market, and Mission Streets, as well as sirens from emergency vehicles. In proximity to the project site, neighboring buildings require truck deliveries and refuse collection, services using heavy-duty vehicles that generate noise at or near the boundaries of the site. The existing ambient noise environment within the project site is thus dominated by vehicular noise on the adjacent major thoroughfares, namely Mission Street, Third Street, and Market Street.

The *San Francisco General Plan* includes a map of background noise levels throughout the City, based on noise modeling done by the San Francisco Department of Public Health of baseline traffic from the San Francisco County Transportation Authority travel demand model. The map of background noise levels shows the range of L_{dn} values that occurs along every street in San Francisco. The maps show that the adjacent roadway segments of Third Street and Mission Street have noise levels in excess of 70 dBA (L_{dn}) at the project site. Segments of Market Street

[5] World Health Organization, Guidelines for Community Noise, 1999. Available online at http://www.who.int/docstore/peh/noise/guidelines2.html. Accessed May 10, 2012.

and Fourth Street near the project site have noise levels in excess of 75 dBA (L_{dn}) and 70 dBA (L_{dn}), respectively.[6]

Land uses surrounding the project site include cultural, hotel, open space, convention, office, recreation, residential, and retail use. Adjacent dense commercial and retail development attracts considerable vehicular traffic that generates high levels of noise. Buildings near the project site include stationary sources of mechanical noise (such as ventilation equipment). These surrounding uses and the density of the area result in elevated noise levels at all times. In addition to traffic and mechanical noise, distinctive types of noise with shorter-term peaks are associated with truck back-up beepers, trucks unloading and loading material, car doors slamming, and engines revving during deliveries and pick-ups. Limited numbers of these short-term noise events generally contribute very little to 24-hour noise levels due to their brief nature.

The existing Aronson Building on the project site has retail space on the ground floor and office space on the upper floors, and the building is mechanically ventilated with a cooling tower and other smaller equipment currently in use on the roof. These existing uses in the Aronson Building rarely generate high levels of noise. However, at the northeast corner of the building, there is a three-story annex that currently serves as a loading and trash pick-up area. Garbage trucks produce nighttime or early morning noise during operation of the garbage truck lift and the compactor, both of which are powered by hydraulic systems. Each garbage pick-up also produces some noise due to movement and dropping of refuse containers. The truck's engine speed increases to run these hydraulic systems. Noise levels produced by the garbage truck engines can reach over 80 dBA at a distance of 50 feet. In the existing conditions, garbage container collection also occurs at neighboring properties, causing similar noise.

Ambient Noise Measurements

An ambient noise survey was conducted by Brown-Buntin Associates for the proposed project in April 2011.[7] Ambient 24-hour and short-term noise measurement data were collected to establish the existing noise conditions in the project vicinity. Measurements for day-night noise levels (L_{dn} over 24-hour periods) were taken at 4 locations on the project site beginning on April 14, 2011, and daytime short-term noise levels (L_{eq} and L_{max}) were measured over 15-minute intervals at 13 locations in the project vicinity. Figure IV.F.1: Noise Measurement Locations, illustrates the 24-hour and short-term noise measurement locations.

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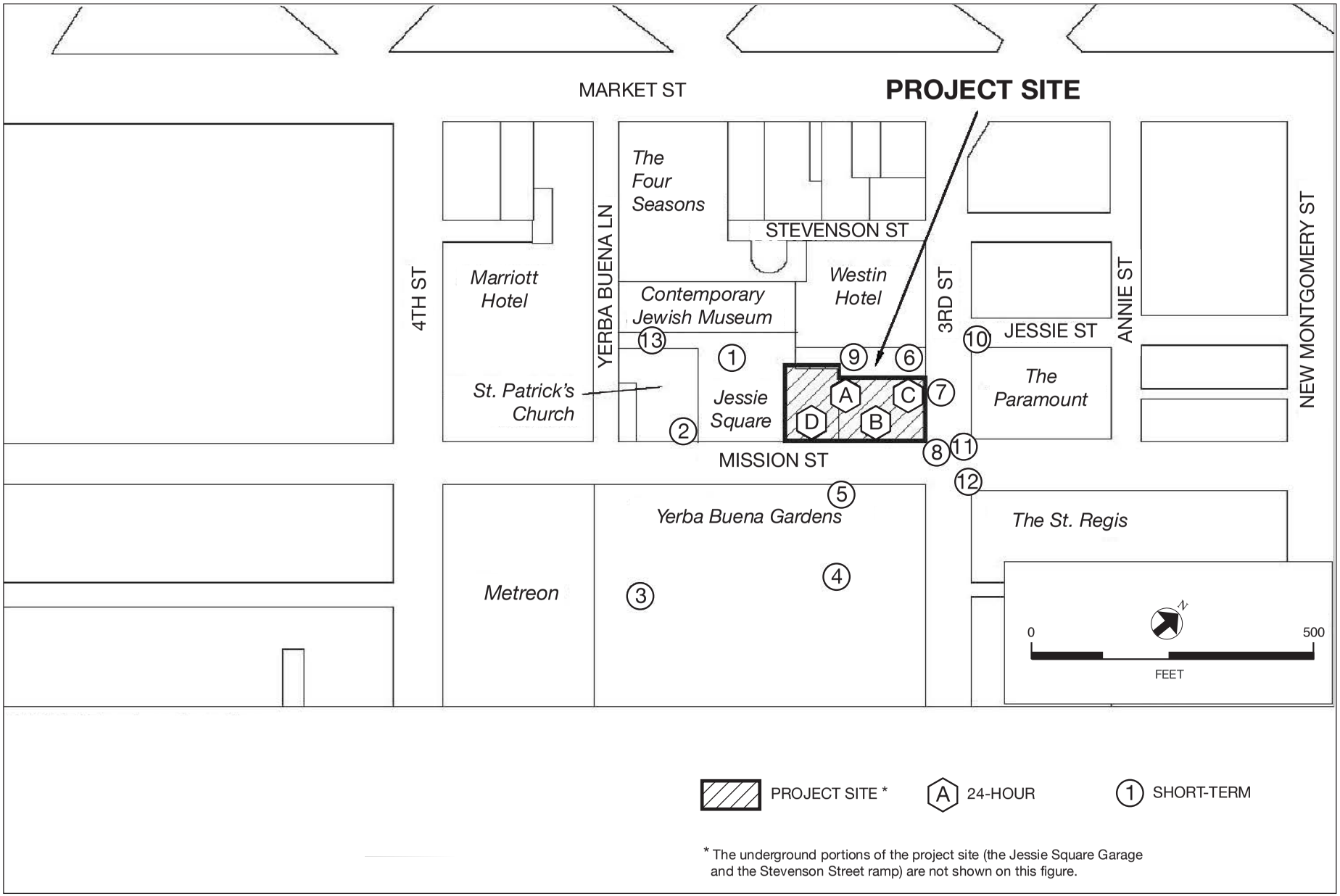
6 *San Francisco General Plan*, Background Noise Levels, 2009. Available online at http://www.sf-planning.org/ftp/General_Plan/images/I6.environmental/ENV_Map1_Background_Noise%20Levels.pdf. Accessed May 10, 2012.

7 Brown-Buntin Associates, Ambient Noise Assessment, 706 Mission Street Project (BBA Report No. 11-012), May 3, 2011. This document is available for review at the Planning Department, 1650 Mission Street, Suite 400, San Francisco, California, as part of Case File No. 2008.1084E.



SOURCE: Brown-Buntin Associates

FIGURE IV.F.1: NOISE MEASUREMENT LOCATIONS

Table IV.F.2: 24-Hour Ambient Noise Levels in the Study Area, presents the measured ambient noise levels, in terms of the hourly L_{eq} range and the L_{max}, as well as the calculated L_{dn} value for each measurement location. This table also identifies the noise level that is exceeded 90 percent of the time of each hour (L_{90} level). The L_{90} is generally considered to represent the residual (or background) noise level in the absence of identifiable or distinctive shorter-term high level noise events from vehicles, aircraft, or other sources.

Table IV.F.2: 24-Hour Ambient Noise Levels in the Study Area

Noise Measurement Location [a]	24-Hour Noise Levels L_{dn}, dBA	Range of Hourly Noise Levels L_{eq}, dBA	L_{max}, dBA	L_{90}, dBA
A: Annex Courtyard – Ground Level	67.0	55-67	70-94	52-59
B: Aronson Building – Roof South	72.6	59-75	68-101	56-65
C: Aronson Building – Roof East	69.1	59-70	68-90	57-63
D: The Mexican Museum Parcel – Ground Level	71.0	58-78	75-109	52-60

Notes:
dBA = A-weighted decibels; L_{dn} = day-night noise level; L_{eq} = equivalent noise level; L_{max} = maximum noise level; L_{90} = noise level that is exceeded 90 percent of the time during of each hour.
[a] See Figure IV.F.1, p. IV.F.6, for noise measurement locations.
Source: Brown-Buntin Associates, Inc., 2011

The 24-hour noise levels collected in April 2011 indicate that ambient noise levels were slightly higher atop the Aronson Building (Location B) than at the ground level (Location D). Noise levels at rooftop elevations are likely influenced by noise from the heating-ventilation-air conditioning (HVAC) equipment located atop the Aronson Building, as well as on the rooftops of the adjacent Westin San Francisco Market Street Hotel (the Westin Hotel) and other nearby buildings.

The background noise levels measured during the daytime hours were typically 5 to 7 dBA higher than noise levels in the nighttime hours. The 24-hour noise measurement data indicate that hourly (L_{eq}) levels during typical business hours can be 10 to 20 dBA over nighttime levels, in part because commuter traffic is generally higher. The highest maximum noise level (109 dBA L_{max}) was measured at the ground level along Mission Street (Location D), which is a location affected by intermittently very loud vehicles passing by (e.g., sirens from emergency vehicles).

Short-term (15-minute) noise measurements were performed in April 2011 at 13 locations (all at ground level; see Figure IV.F.1, p. IV.F.6) to further characterize the existing daytime noise environment. These noise measurements included simultaneous observations of the dominant noise sources affecting the measurements (such as traffic and the voices of passers-by). Table IV.F.3: Short-Term Noise Levels in the Study Area, lists the short-term noise measurement results.

Table IV.F.3: Short-Term Noise Levels in the Study Area

Location Number	Noise Measurement Location [a]	Date And Time Of Measurement		Noise Level			Noise Sources
		Date	Time	L_{eq}, dBA	L_{max}, dBA	L_{90}, dBA	
1	Jessie Square	4/13/11	12:59	60.4	68.7	58.2	Traffic, Voices, HVAC Units
2	St. Patrick's Church	4/13/11	13:17	70.1	85.4	59.4	Traffic, Voices
3	Yerba Buena Gardens Esplanade – West	4/13/11	13:37	60.4	70.7	57.2	Traffic, Aircraft, Voices, Water Feature
4	Yerba Buena Gardens Esplanade – East	4/13/11	13:57	59.3	74.7	56.9	Traffic, Voices, Water Feature
5	Mission Street – South	4/13/11	14:17	68.1	81.0	62.5	Traffic, Voices
6	Westin Courtyard – East	4/13/11	11:09	64.5	77.1	60.7	Traffic, Voices
7	Aronson Building – East	4/14/11	11:27	74.1	90.8	66.4	Traffic, Voices
8	Third & Mission – NW	4/14/11	11:44	71.9	86.5	65.8	Traffic, Voices
9	Westin Courtyard – West	4/14/11	13:15	60.2	65.6	64.4	Traffic, Voices, Aircraft
10	Third & Jessie – SE	4/14/11	13:38	69.5	79.1	64.4	Traffic, Voices, Construction
11	Third & Mission – NE	4/14/11	13:56	72.0	83.9	67.4	Traffic, Voices
12	Third & Mission – SE	4/14/11	14:14	72.7	85.4	67.3	Traffic, Voices
13	Yerba Buena Lane	4/14/11	14:51	59.9	73.1	58.0	Traffic, Voices, HVAC Units

Notes:
L_{eq} = equivalent noise level; L_{max} = maximum noise level; L_{90} = noise level that is exceeded 90 percent of the time during each hour.
[a] See Figure IV.F.1, p. IV.F.6, for noise measurement locations.

Source: Brown-Buntin Associates, Inc. 2011

The short-term noise measurements show that noise in the project vicinity is dominated by traffic-related noise. The short-term locations that were closer to either Third or Mission Streets (Locations 2, 5, 7, 8, 10, 11, and 12; see Figure IV.F.1) showed substantially higher noise levels than locations set farther back from these roadways (Locations 1, 3, 4, 6, 9, and 13). Noise measurement locations in the Yerba Buena Gardens Esplanade (Locations 3 and 4 in Figure IV.F.1) were affected not only by vehicular traffic noise, but also by noise from the large waterfall feature located along the southern part of the park. The Jessie Square open space adjacent to the project site was busy with pedestrians when noise measurements were being collected, and human voices were normally audible in the daytime setting.

VIBRATION AND GROUNDBORNE NOISE

Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. Several different methods are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe physical vibration impacts to buildings. Typically, groundborne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration. Sensitive receptors to vibration include structures (especially older masonry structures), people (especially residents, the elderly, and sick), and vibration-sensitive equipment.

Perceptible vibration at the project site is primarily generated by heavy-duty trucks or transit vehicles passing on the streets adjacent to the site (on Third and Mission Streets) and vehicles in the underground Jessie Square Garage. Equipment used for minor construction or maintenance nearby (unrelated to the proposed project) may also occasionally and temporarily lead to perceptible vibration.

EXISTING SENSITIVE RECEPTORS

Noise-sensitive land uses or receptors are those where noise exposure would result in adverse effects (i.e., injury or annoyance) to individuals and uses where quiet is an essential element of their intended purpose. Residences are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise. Other noise-sensitive land uses are schools, preschools, hospitals, places of worship, hotels and motels, libraries, senior care centers, nursing homes, retirement residences, and other places where low interior noise levels are essential to the use.

Similar to noise-sensitive receptors, vibration-sensitive land uses or receptors include residential, hospital, educational uses, and places of worship, because people in these uses can experience annoyance from groundborne vibration. Vibration-sensitive uses also include fragile buildings, in particular those that are considered historical, because groundborne vibration can result in

structural damage. Certain workplaces may also contain vibration-sensitive equipment (e.g., electron microscopes or micro-electronics production equipment), although none of these vibration-sensitive facilities are near the project site. Within the project site, the Aronson Building, as a historic structure, could be potentially sensitive to vibration-related damage, although restoration of this building would be included as part of the proposed project. Other structures close to the project site, including the Westin Hotel, the Paramount residences, the Contemporary Jewish Museum (formerly known as the Jessie Street Substation), and the Yerba Buena Center for the Arts, are all modern or rehabilitated structures, with reinforced concrete and steel building materials that are not especially susceptible to vibration damage.

Land uses within and near the project site are described in detail in Section IV.A, Land Use and Land Use Planning. There are no hospitals, convalescent homes, or schools in the project vicinity. The nearest schools to the site include the OISE Language School at Market and Second Streets, 0.2 mile northeast of the project site; the Bessie Carmichael Pre-kindergarten at 45 Cleveland Street, 0.9 mile southwest of the project site; the Gordon J. Lau Pre-kindergarten at 950 Clay Street, 0.9 mile away to the northwest; the Commodore Stockton Early Education School at 1 Trenton Street, 0.9 mile to the north; and the Tenderloin Early Education School at 627 Turk Street, 1.1 miles to the west.

Noise-sensitive uses or receptors located near and adjacent to the project site include the following:

Places of Worship

- St. Patrick's Church (748 Mission Street)

Residential or Hotel Uses

- Westin Hotel (50 Third Street)
- Paramount Residences (680 Mission Street)
- Four Seasons Hotel and Residences (757 Market Street)
- San Francisco Marriott Marquis Hotel (55 Fourth Street)
- St. Regis San Francisco Hotel and Residences (125 Third Street)
- W Hotel (181 Third Street)

Cultural Uses

- Contemporary Jewish Museum (736 Mission Street)
- Museum of Craft and Folk Art (51 Yerba Buena Lane)
- Yerba Buena Center for the Arts (701 Mission Street)
- San Francisco Museum of Modern Art (151 Third Street)
- California Historical Society (678 Mission Street)

- Cartoon Art Museum (655 Mission Street)
- Museum of the African Diaspora (685 Mission Street)

REGULATORY FRAMEWORK

Federal

U.S. Environmental Protection Agency

The USEPA Office of Noise Abatement and Control was originally established to coordinate federal noise control activities, and the Office of Noise Abatement and Control issued the Federal Noise Control Act of 1972, which set programs and guidelines to identify and address the effects of noise on public health and welfare, and the environment. Although the primary responsibility of regulating noise was later transferred to state and local governments in 1982, the USEPA provided guidelines for noise levels that would be considered safe for community exposure without the risk of adverse health or welfare effects. The USEPA found that to prevent hearing loss over the lifetime of a receptor, the yearly average L_{eq} should not exceed 70 dBA, and the L_{dn} should not exceed 55 dBA in outdoor activity areas or 45 dBA indoors to prevent interference and annoyance.[8]

Federal Transit Administration - Vibration

To address the human response to groundborne vibration, the Federal Transit Administration (FTA) has guidelines for maximum-acceptable vibration criteria for different types of land uses.[9] These guidelines recommend vibration levels (Lv) from 72 VdB[10] to 80 VdB for residential uses and buildings where people normally sleep; and 75 VdB to 83 VdB for institutional land uses with primarily daytime operations (e.g., schools, churches, clinics, offices). The higher vibration levels in these ranges apply to infrequent events (less than 30 per day) and the lower levels apply to frequent vibration events (more than 70 per day). According to FTA guidelines, a vibration level of 65 VdB is the threshold of perceptibility for humans and 80 VdB is the level for a significant impact to occur.

[8] USEPA, Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety, March 1974, p. 4. A copy of this document is available for review at the Planning Department, 1650 Mission Street, Suite 400, San Francisco, California, as part of Case File No. 2008.1084E.

[9] Federal Transit Administration (FTA), Transit Noise and Vibration Impact Assessment, May 2006, p. 8-3. Available online at www.fta.dot.gov/documents/FTA_Noise_and_Vibration_Manual.pdf. Accessed April 30, 2012.

[10] Vibration velocity level is reported in decibels relative to a level of $1x10^{-6}$ inches per second and is denoted as VdB.

State

Title 24 of the California Code of Regulations, Noise Insulation Standards

State regulations include standards that are intended to limit the extent of noise transmitted into habitable spaces of new multifamily residential units (including hotels, motels, apartment houses, and dwellings other than detached single-family dwellings). These requirements are collectively known as the California Noise Insulation Standards and are found in Title 24 of the California Code of Regulations. For limiting noise transmitted between adjacent dwelling units, the noise insulation standards specify the extent to which walls, doors, and floor-ceiling assemblies must block or absorb sound. For limiting noise from exterior sources, the noise insulation standards set forth an interior standard of 45 dBA (L_{dn}) in any habitable room and, where such units are proposed in areas subject to noise levels greater than 60 dBA (L_{dn}), a demonstration of how dwelling units have been designed to meet this interior standard is required. If the interior noise level depends upon windows being closed, the design for the structure must also include an HVAC system that will provide for adequate fresh air ventilation as specified by the building code. The City and County of San Francisco has adopted Title 24 of the California Code of Regulations and the code is enforceable by the Department of Building Inspection (DBI).

California Department of Transportation - Vibration

For the protection of buildings from groundborne vibration, the California Department of Transportation (Caltrans) recommends a limit of 0.5 inch per second peak particle velocity (in/sec PPV) for new residential buildings and 0.25 in/sec PPV for older or historically significant buildings.[11] To avoid human annoyance, Caltrans recommends that vibration levels at sensitive land uses be limited to 0.04 in/sec PPV for transient vibration and 0.01 in/sec PPV for continuous vibration.

Regional/City/Local

San Francisco General Plan

The *San Francisco General Plan* (*General Plan*) Environmental Protection Element focuses on the effect that noise from ground-transportation noise sources has on the community and includes a land use compatibility chart for community noise. This chart, presented as Table IV.F.4: San Francisco General Plan Land Use Compatibility Chart for Community Noise, identifies a range of noise levels considered generally compatible or incompatible with various land uses and indicates when special noise reduction requirements should be considered or analyzed, such as providing sound insulation for affected properties. Residential and hotel uses are considered compatible in areas where the noise level is 60 dBA L_{dn} or less; schools, classrooms, libraries,

[11] Caltrans, *Transportation and Construction-Induced Vibration Guidance Manual*, 2004, p. 27.

churches, and hospitals are compatible in areas where the noise level is 65 dBA L_{dn} or less; and playgrounds, parks, offices, retail commercial uses, and noise-sensitive manufacturing and communication uses are considered compatible in areas where the noise level is 70 dBA L_{dn} or less.

The *General Plan* Housing Element (Part 1, pp. C.4-C.5) provides recommendations for identification of adequate sites to meet the City's housing needs. One of the implementing programs specifies that

> "The Planning Department shall require the preparation of an analysis that includes a site survey to identify potential noise-generating uses within two blocks of the project site prior to completion of the environmental review for all residential projects located in areas exceeding 75 L_{dn}. The analysis shall include at least one 24-hour noise measurement (with maximum noise level readings taken at least every 15 minutes). The analysis shall demonstrate with reasonable certainty that Title 24 standards, where applicable, can be met. If there are particular circumstances about the proposed project site that appear to warrant heightened concern about noise levels in the vicinity, the Department may require the completion of a detailed noise assessment prior to the first project approval action, in order to demonstrate that acceptable interior noise levels consistent with those in the Title 24 standards can be attained."

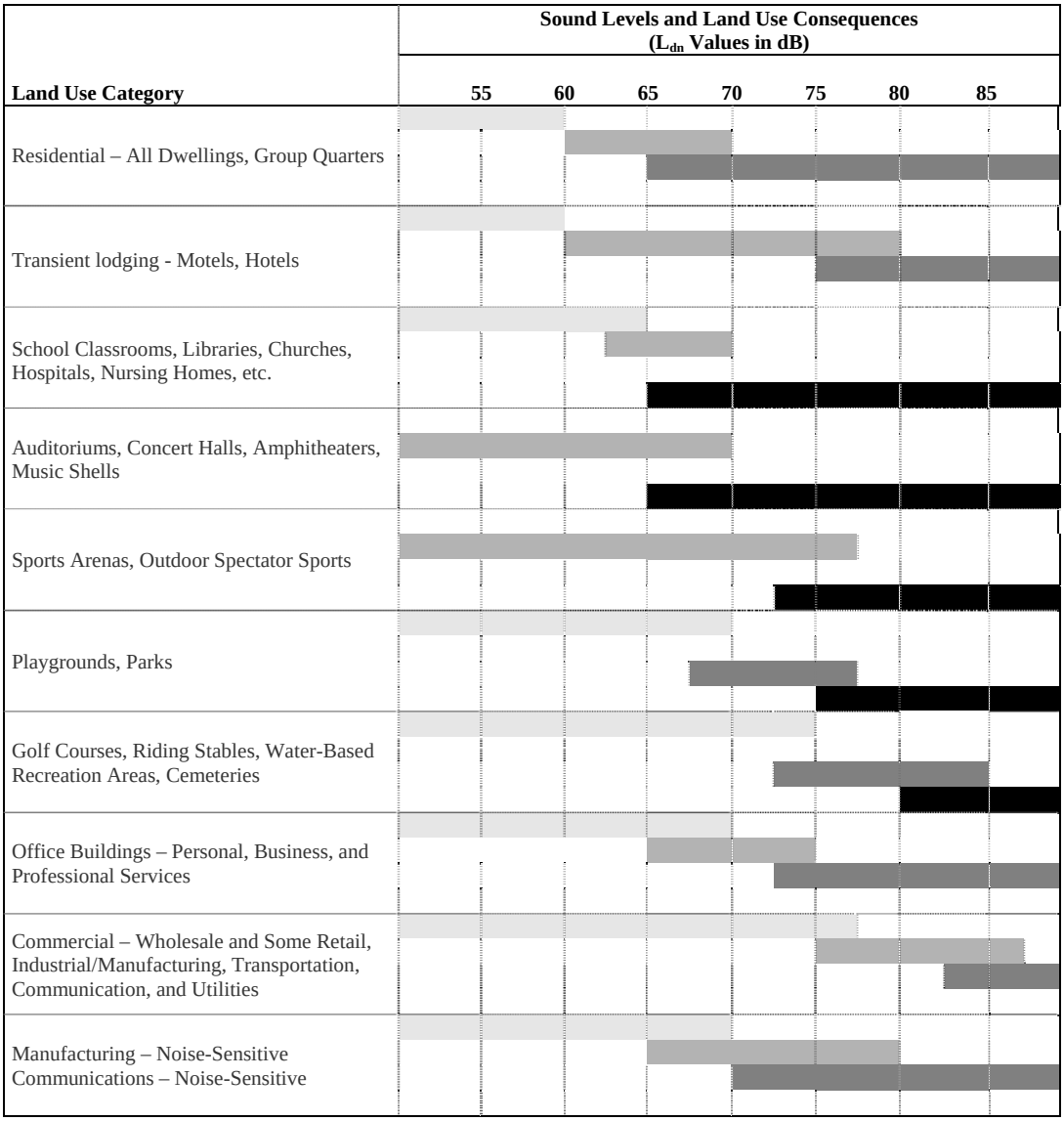
The results of the survey prepared for Planning Department review of this project, shown in Table IV.F.2, p. IV.F.7, indicate that the proposed project would not be exposed to levels exceeding 75 L_{dn}.

San Francisco Noise Ordinance

The San Francisco Noise Ordinance (Noise Ordinance) regulates both construction noise and stationary-source noise within the City, including noise from transportation, construction, mechanical equipment, entertainment, and human or animal behavior. Found in Article 29, "Regulation of Noise," of the San Francisco Police Code, the Noise Ordinance addresses noise from construction equipment, nighttime construction work, and noise from stationary mechanical equipment and waste processing activities.[12] The purpose of the Noise Ordinance is stated in Section 2900, as most recently amended in 2008:

[12] City and County of San Francisco, 2008, Article 29 of the San Francisco Police Code, Regulation of Noise, November 2008. Available online at http://www.sfdph.org/dph/EH/Noise/default.asp. Accessed February 1, 2012.

Table IV.F.4: San Francisco General Plan Land Use Compatibility Chart for Community Noise



Satisfactory, with no special noise insulation requirements.

New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design.

New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

New construction or development should generally not be undertaken.

Source: San Francisco General Plan, adopted on June 27, 1996. Environmental Protection Element, available online at http://www.sf-planning.org/ftp/General_Plan/I6_Environmental_Protection.htm

Sec. 2900, Declaration of Policy

(a) Building on decades of scientific research, the World Health Organization and the U.S. Environmental Protection Agency have determined that persistent exposure to elevated levels of community noise is responsible for public health problems including, but not limited to: compromised speech, persistent annoyance, sleep disturbance, physiological and psychological stress, heart disease, high blood pressure, colitis, ulcers, depression, and feelings of helplessness.

(b) The General Plan for San Francisco identifies noise as a serious environmental pollutant that must be managed and mitigated through the planning and development process. But given our dense urban environment, San Francisco has a significant challenge in protecting public health from the adverse effects of community noise arising from diverse sources such as transportation, construction, mechanical equipment, entertainment, and human and animal behavior.

(c) In order to protect public health, it is hereby declared to be the policy of San Francisco to prohibit unwanted, excessive, and avoidable noise. It shall be the policy of San Francisco to maintain noise levels in areas with existing healthful and acceptable levels of noise and to reduce noise levels, through all practicable means, in those areas of San Francisco where noise levels are above acceptable levels as defined by the World Health Organization's Guidelines on Community Noise.

(d) It shall be the goal of the noise task force described in this Article to determine if there are additional adverse and avoidable noise sources not covered in this statute that warrant regulation and to report to the Board of Supervisors and recommend amendments to this Article over the next three years. In addition, the noise task force shall develop interdepartmental mechanisms for the efficient disposition and any enforcement required in response to noise complaints.

Sections 2904, 2907, 2908, 2909, and 2910 of the Noise Ordinance are all applicable to the proposed project and are described below.

Section 2904, Waste Disposal Services

This section of the Noise Ordinance limits the noise level produced by waste disposal activities on garbage trucks to 75 dBA when measured at a distance of 50 feet from the equipment. The maximum noise level does not apply to the noise associated with crushing, compacting, dropping, or moving garbage on the truck, but only to the truck's mechanical processing system.

Section 2907, Construction Equipment, and Section 2908, Construction Work at Night

These sections of the Noise Ordinance establish noise levels for construction equipment. Section 2907(a) limits noise levels from construction equipment as specified under the ordinance to 80 dBA L_{eq} at 100 feet (or other equivalent distances) from construction equipment between

7 AM and 8 PM. According to Section 2908, construction work at night (from 8 PM to 7 AM) may not exceed the ambient level by 5 dBA at the nearest property plane unless a special permit is granted before such work by the Director of Public Works or the Director of Building Inspection. The provisions of Section 2907(a) do not apply to impact tools and equipment if the impact tools and equipment have intake and exhaust mufflers as recommended by the manufacturers and are approved by the Director of Public Works or the Director of Building Inspection as accomplishing maximum noise attenuation. The noise exemption also does not apply to pavement breakers and jackhammers, which also must be equipped with acoustically attenuating shields or shrouds as recommended by the manufacturers and approved by the Director of Public Works or the Director of Building Inspection as accomplishing maximum noise attenuation.

Section 2909, Noise Limits

This section of the Noise Ordinance regulates noise from mechanical equipment and other similar sources. (As stated in the ordinance, "No person shall produce or allow to be produced by any machine, or device, music or entertainment, or any combination of same . . .") This would include all equipment–e.g., electrical equipment (transformers, emergency generators) as well as mechanical equipment–that is installed on commercial/industrial and residential properties. Mechanical equipment operating on commercial or industrial property must not produce a noise level more than 8 dBA above the ambient noise level at the property plane. Equipment operating on residential property must not produce a noise level more than 5 dBA above the ambient noise level at the property boundary.

Section 2909 also states in subsection (d) that no fixed (permanent) noise source (as defined by the Noise Ordinance) may cause the noise level inside any sleeping or living room in a dwelling unit on residential property to exceed 45 dBA between 10 PM and 7 AM or 55 dBA between 7 AM and 10 PM when windows are open, except where building ventilation is achieved through mechanical systems that allow windows to remain closed.

Section 2910, Variances

This section of the Noise Ordinance empowers the Directors of Public Health, Public Works, and Building Inspection and the Entertainment Commission, and the Chief of Police to grant variances to noise regulations, over which they have jurisdiction pursuant to Section 2916. All administrative decisions granting or denying variances may be appealed to the San Francisco Board of Appeals.

IMPACTS

SIGNIFICANCE CRITERIA

The thresholds for determining the significance of impacts in this analysis are consistent with the environmental checklist in Appendix G of the State CEQA Guidelines, which has been adopted and modified by the San Francisco Planning Department. For the purpose of this analysis, the following applicable thresholds were used to determine whether implementing the project would result in a significant impact on noise. Implementation of the proposed project would have a significant noise impact if the project were to:

F.1 Expose people to or generate noise levels in excess of standards established in the San Francisco General Plan or noise ordinance (Article 29 of the Police Code);

F.2 Expose people to or generate excessive groundborne vibration or groundborne noise levels;

F.3 Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;

F.4 Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project;

F.5 For a project located within an area covered by 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), expose people residing or working in the project area to excessive noise levels;

F.6 For a project within the vicinity of a private airstrip, expose people residing or working in the project area to excessive noise levels; or

F.7 Be substantially affected by existing noise levels.

The project site is not located within an area covered by an airport land use plan or within 2 miles of a public airport or public use airport; nor is it within the vicinity of a private airstrip. Therefore, the proposed project would not expose people residing or working in the area to excessive airport or airstrip noise. These issues (Criteria F.5 and F.6) are not addressed further in this EIR.

PROJECT FEATURES

The proposed project consists of the construction of a new 47-story, 550-foot-tall tower with up to 215 residential units and space for The Mexican Museum. The new tower would be adjacent to and physically connected to the existing 10-story, 154-foot-tall Aronson Building. As part of the proposed project, the Aronson Building would be restored and rehabilitated, and the 1978 annexes to the Aronson Building would be removed. In addition, the existing 10-foot-tall mechanical penthouse on the roof of the Aronson Building would be removed and a new 15-foot-tall solarium would be constructed, resulting in an overall building height of 159 feet for the

Aronson Building. Construction of the new tower would require thickening of the existing mat slab and/or installation of drilled piles for the foundation.

The proposed project would be a high-density mixed-use infill development that would introduce new vehicular egress/ingress points into the subterranean Jessie Square Garage with additional parking spaces in currently unused garage space, and new drop-off and pick-up locations in the garage and at the ground floor.[13] Traffic noise would be generated by vehicles using these features interior to the site. The proposed project would also include an emergency standby power generator and engine, located in the basement, and other mechanical equipment that would be stationary sources of noise. The project sponsor would provide an Exterior Noise Report during the Design Development phase of the proposed project to identify design and construction measures to meet applicable standards for noise exposure to residents within the proposed project.[14]

APPROACH TO ANALYSIS

Temporary, construction-related noise impacts associated with the proposed project are analyzed in this EIR in a manner consistent with analyses of other development projects within San Francisco. Generally, compliance with the Noise Ordinance, which is required by law, and implementation of project-specific mitigation measures would reduce construction noise effects from any development phase of a project to less-than-significant levels.

This analysis identifies potential noise impacts associated with future development that could result from the proposed project. Operational noise issues evaluated in this section include: (1) noise generated by the proposed project created by mobile sources (e.g., motor vehicles) and new fixed, stationary sources (e.g., building mechanical systems, standby power generator, trash removal, ventilation equipment, etc.); and (2) compatibility of proposed project uses with noise insulation standards in Title 24 of the California Code of Regulations, mechanical equipment and other noise limitation requirements in the Noise Ordinance, including Section 2909(d), and performance standards for noise compatibility in the *General Plan* Land Use Compatibility Guidelines.

Groundborne vibration impacts associated with the proposed project are described using a general assessment methodology established in the FTA Transit Noise and Vibration Guidelines. A general assessment uses a reference level for vibration from typical construction equipment and

[13] Seven variants to vehicular access are also being considered. They are described and analyzed in Chapter VI, Project Variants.

[14] Memorandum to Millennium Partners from Shen Milsom Wilke, Regarding Updated Information Regarding Noise Impacts to Building, revised February 9, 2011. A copy of this document is available for review at the Planning Department, 1650 Mission Street, Suite 400, San Francisco, California, as part of Case File No. 2008.1084E.

standardized propagation curves to predict vibration levels at a given distance. If the general assessment reveals project-related groundborne vibration levels greater than 72 VdB at residential uses, it would indicate that additional study is needed or that site-specific measures are necessary to reduce or avoid the impact. Human annoyance due to any infrequent event would be expected to occur with vibration levels over 80 VdB.

IMPACT EVALUATION

Impact NO-1: Construction of the proposed project would generate noise levels in excess of standards established in the *San Francisco General Plan* or noise ordinance and would result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project. *(Less than Significant with Mitigation)* (Criteria F.1 and F.4)

Proposed project demolition, excavation, and building construction activities (which encompass new construction as well as Aronson Building restoration activities) would temporarily and intermittently, over approximately 36 months, increase noise in the project vicinity to levels that could be considered an annoyance by occupants of nearby properties. Construction activities would require the use of heavy trucks, excavating and grading equipment, material loaders, cranes, concrete breakers, and other mobile and stationary construction equipment. Construction activities associated with the proposed project are anticipated to begin in 2013 and be completed in late 2015 or early 2016. Construction noise levels would fluctuate depending on construction phase, equipment type and duration of use, distance between noise source and listener, and presence or absence of barriers. The greatest construction noise impacts would generally be limited to the initial two years when new foundations and exterior structural and façade elements would be constructed. Interior improvements and finishing during the third year would involve fewer large pieces of heavy-duty construction equipment. Once the façade is in place, noise from interior finishing would generally be contained within the building envelope and would not be expected to generate excessive noise.

Parking improvements associated with the proposed project would involve converting a portion of the existing Jessie Square Garage to serve the project. At the mezzanine level of the underground garage, there is an existing space underneath a portion of the Contemporary Jewish Museum, which is north of Jessie Square. This space is currently blocked off from the rest of the garage. Making this existing space available to the rest of the garage and striping it to create approximately 28 additional parking spaces within the garage would involve minor construction noise within the garage that could be transmitted to the museum, although this would not result in a substantial noise increase because heavy construction equipment would not be used for this work. Therefore, this construction activity would not result in a significant noise impact on museum visitors or staff.

Table IV.F.5: Typical Noise Levels from Construction Equipment, provides typical noise levels produced by various types of construction equipment that would be used for construction.

Average noise levels at the nearest noise-sensitive residential and cultural uses (discussed on pp. IV.F.9-IV.F.11) would vary by construction phase, and would depend on the type of equipment used, the duration of the construction phase, and the proximity of construction activity

Table IV.F.5: Typical Noise Levels from Construction Equipment

Construction Equipment	Noise Level (dBA, L_{eq} at 50 feet)
Truck	88
Air Compressor	81
Concrete Mixer	85
Scraper	89
Jack Hammer	88
Dozer	85
Paver	89
Generator	81
Pile Driver	101
Backhoe	80

Note:
L_{eq} = equivalent noise level

Source: Federal Transit Administration, 2006. Transit Noise and Vibration Impact Assessment, available online at www.fta.dot.gov/documents/FTA_Noise_and_Vibration_Manual.pdf

to these noise-sensitive receptors. Noise from construction activities generally attenuates at a rate of 6 to 7.5 dBA per doubling of distance from the noise source.

Installation of drilled piles may occur as part of construction of the proposed project, but this EIR analysis also analyzes the use of impact pile driving, in case it becomes necessary due to on-site conditions. Should construction require "impact activities" such as pile driving, noise levels could be as high as 95 dBA at 100 feet. Non-impact tools used during construction, including drill rigs that would be preferentially used instead of pile driving if piles are used in the tower foundation, would be capable of generating average noise levels of approximately 80 dBA at 100 feet.

Based on the noise levels shown in Table IV.F.5 and the distance to adjacent sensitive receptors (as identified earlier on pp. IV.F.9-IV.F.11), noise during demolition, excavation, and building superstructure construction would be substantially greater than existing ambient noise levels presented in Table IV.F.2 and Table IV.F.3, p. IV.F.7 and p. IV.F.8, respectively, and would have the potential to result in significant impacts. It should be noted that the loudest construction activities, such as installing piles, grading, and excavation, would occur over the first two year of the construction period, and once the activity is completed, the associated high noise levels would no longer be experienced by the affected sensitive receptors.

Proposed construction would be required to comply with the Noise Ordinance, which prohibits construction activities between 8:00 PM and 7:00 AM, and limits noise from any individual piece of construction equipment, except impact tools, to 80 dBA at 100 feet unless the construction activity would occur during allowable hours. To ensure construction noise is reduced to the maximum amount feasible and complies with the Noise Ordinance, Mitigation Measure M-NO-1a: Reduce Noise Levels During Construction, and Mitigation Measure M-NO-1b: Noise-Reducing Techniques and Muffling Devices for Pile Installation, presented below, would be necessary. Mitigation Measure M-NO-1a would require the project contractor to use equipment with lower noise emissions and sound controls or barriers where feasible, locate stationary equipment as far as possible from sensitive receptors, designate a noise coordinator, and obtain noise variances when required consistent with Police Code Section 2910. Mitigation Measure M-NO-1b would require the use of feasible noise-reducing techniques for installing piles such as pre-drilling pile holes where feasible. The combination of these measures would decrease construction noise levels and minimize the significant effects.

Construction of the proposed project would temporarily increase ambient noise levels intermittently during the construction period. However, as long as construction activities that would occur as part of the proposed project comply with the Noise Ordinance and feasible mitigation measures to reduce noise levels at sensitive receptor locations are implemented, construction noise impacts would be reduced to less-than-significant levels and be consistent with all applicable construction noise standards established in the Noise Ordinance (Article 29 of the Police Code).

Mitigation Measure M-NO-1a: Reduce Noise Levels During Construction

The following practices shall be incorporated into the construction contract agreement documents to be implemented by the construction contractor:

- Provide best available noise control techniques for equipment and trucks, such as providing acoustic enclosures and mufflers for stationary equipment, shroud or shield impact tools, and installing barriers around particularly noisy activities at the construction sites so that the line of sight between the construction activities and nearby sensitive receptor locations is blocked to the maximum feasible extent. The placement of barriers or acoustic blankets shall be reviewed and approved by the Director of Public Works prior to issuance of permits for construction activities.
- Use construction equipment with lower noise emission ratings whenever possible, particularly for air compressors.
- Provide sound-control devices on equipment no less effective than those provided by the manufacturer.
- Locate stationary equipment, material stockpiles, and vehicle staging areas as far as practicable from sensitive receptor locations.
- Prohibit unnecessary idling of internal combustion engines.

- Require applicable construction-related vehicles and equipment to use designated truck routes to access the project sites.
- Prior to the issuance of the building permit, along with the submission of construction documents, the project sponsor shall designate a Noise Disturbance Coordinator (on-site construction complaint and enforcement manager) and submit to the Planning Department and Department of Building Inspection (DBI) a protocol to respond to and track complaints pertaining to construction noise. This shall include (1) a procedure and phone numbers for notifying DBI, the Department of Public Health, and the Police Department (during regular construction hours and off-hours); (2) a sign conspicuously posted on-site describing noise complaint procedures and a complaint hotline number that shall be answered at all times during construction; (3) identification of the Noise Disturbance Coordinator for the project (name, phone number, email address); and (4) notification of property owners and occupants within 300 feet of the project construction area at least 14 days in advance of extreme noise generating activities (activities expected to generate levels of 90 dBA or greater) about the estimated duration of the activity.
- Obtain a work permit from the Director of Public Works or the Director of Building Inspection for any nighttime work, pursuant to San Francisco Noise Ordinance Section 2908.
- Obtain noise variances (as necessary) consistent with San Francisco Police Code Section 2910.

Mitigation Measure M-NO-1b: Noise-Reducing Techniques and Muffling Devices for Pile Installation

If piles are determined to be necessary, the project sponsor shall require its construction contractor to use noise-reducing pile installation techniques including: avoiding impact pile driving where possible, pre-drilling pile holes (if feasible, based on soils; see Mitigation Measure M-NO-2b, pp. IV.F.26-IV.F.27) to the maximum feasible depth, installing intake and exhaust mufflers on pile installation equipment, vibrating piles into place when feasible, and installing shrouds around the pile driving hammer where feasible. Should impact pile-driving be necessary for the proposed project, the project sponsor would require that the construction contractor limit pile driving activity to result in the least disturbance to neighboring uses, and establish pile-driving hours, in consultation with the Director of Public Works, to disturb the fewest people. At least 48 hours prior to pile driving activities, the project sponsor shall notify building owners and occupants within 500 feet of the project site of the dates, hours, and expected duration of pile driving.

Impact NO-2: Construction of the proposed project would result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels. *(Less than Significant with Mitigation)* (Criterion F.2)

As discussed under Impact GE-1 in Section IV.N, Geology and Soils, pp. IV.N.17-IV.N.19, the anticipated building foundation for the proposed project would require thickening of the existing mat slab and/or pile foundations anchored in more-competent or structurally solid materials. The structural load of the proposed tower would likely be accommodated through the thickening of the existing mat slab foundation, the installation of drilled piles, or a combination of the two.

Though not currently anticipated, there may be a potential need for impact pile driving during building construction activities. In the event that pile driving may be required, the following analysis in the EIR conservatively analyzes associated potential groundborne vibration and noise impacts.

Proposed project demolition, excavation, and building construction activities would temporarily generate groundborne vibration in the project vicinity that could be considered an annoyance by occupants of adjacent properties, especially residential and cultural uses adjacent to the site. Of the sensitive receptors listed on pp. IV.F.10-IV.F.11, the Westin Hotel, the Paramount residences, the Contemporary Jewish Museum, and the Yerba Buena Center for the Arts are each within 100 feet of the project site boundary. St. Patrick's Church is greater than 100 feet from the site.

Project-related construction truck trips would increase incidents of perceptible vibration from mobile sources along the routes to access the site, primarily Third and Mission Streets. Vibration from on-road mobile sources over rough surfaces tends to occur for only brief periods, is intermittent in nature, and would not lead to excessive groundborne vibration.

On-site demolition and excavation activities would result in varying degrees of temporary groundborne vibration with the highest levels expected during demolition and the installation of piles for structural support and the foundation in the first year of construction. Groundborne vibration from construction activities that involve "impact activities" (such as demolition and impact pile driving, if needed) within the project site could produce detectable vibration within nearby buildings, which could cause human annoyance and result in significant impacts unless proper mitigation is implemented.

Heavy construction equipment (e.g., large bulldozers and loaded trucks) frequently generates between 85 and 87 VdB at 25 feet, while pile driving may generate between 104 and 112 VdB at 25 feet from the source.[15] Vibration energy decreases rapidly as the distance between the activity and vibration-sensitive receptor increases. This means that pile driving would not normally cause an adverse effect to any structure, except for those uses most susceptible to vibration damage, at distances of 100 feet or more. There are no adopted state or local policies or standards for groundborne vibration. As identified in the "Regulatory Framework" discussion above, the FTA and Caltrans have published guidance relative to vibration impacts. Construction-related vibration over 0.25 in/sec PPV would trigger a potential structural impact for older or historically significant buildings, and over 80 VdB would be a level where a significant vibration impact could be considered to occur due to human annoyance.

Table IV.F.6: Modeled Vibration Levels due to Impact Pile Driving or Pile Insertion, shows the predicted maximum ground vibration levels anticipated to occur if impact pile driving becomes

[15] FTA, Transit Noise and Vibration Impact Assessment, May 2006, Table 12-2.

necessary as part of the proposed project. Vibration levels associated with pile insertion methods that avoid impact pile driving, as the project proposes to do, are also shown. Depending on the proximity to adjacent residential and cultural uses, impact pile driving, if needed, could cause over 80 VdB, which would be over the threshold for potential annoyance, potentially exposing occupants of buildings within 300 feet of the activity to excessive vibration levels. Pile insertion using a sonic pile driver would cause lower vibration levels of about 73 VdB at 300 feet, but these levels would still be over the threshold for potential annoyance (80 VdB) for residential and cultural uses within 175 feet of pile driving, including the Westin Hotel and the Contemporary Jewish Museum. Because pile driving is not proposed under the existing Aronson Building, the

Table IV.F.6: Modeled Vibration Levels due to Impact Pile Driving or Pile Insertion without Mitigation

Modeled Location Source: Pile Driver (Impact)	Distance to Project Site (feet)	PPV (in/sec)	Approximate Vibration Level (Lv, VdB)	Exceeds Threshold?	
				Potential Building Damage	Potential Human Annoyance
Westin Hotel	40	0.750	105.9	Yes	Yes
Contemporary Jewish Museum	70	0.324	98.6	Yes	Yes
Paramount Residences	90	0.222	95.3	No	Yes
Yerba Buena Center for the Arts	90	0.222	95.3	No	Yes
Other Off-site Buildings	300	0.037	79.6	No	No
Modeled Location Source: Pile Driver (Sonic)					
Westin Hotel	40	0.363	98.9	Yes	Yes
Contemporary Jewish Museum	70	0.157	91.6	No	Yes
Paramount Residences	90	0.107	88.3	No	Yes
Yerba Buena Center for the Arts	90	0.107	88.3	No	Yes
Other Off-site Buildings	175	0.040	79.6	No	No

Notes:
in/sec = inches per second; Lv = vibration levels; VdB = vibration velocity level is reported in decibels relative to a level of $1x10^{-6}$ inches per second.
Vibration levels over 0.25 in/sec PPV would trigger a potential structural impact for older or historically significant buildings, and over 80 VdB would be a level where a significant vibration impact could be considered to occur due to human annoyance.
Source level of 112 VdB for pile driver (impact) or 105 VdB for pile driver (sonic): Federal Transit Administration, Transit Noise and Vibration Impact Assessment, May 2006. Available online at www.fta.dot.gov/documents/FTA_Noise_and_Vibration_Manual.pdf

Source: Aspen Environmental Group, Turnstone Consulting, 2011

Paramount Residences, the St. Regis, and the Four Seasons Hotel and Residences would be sufficiently distant (over 175 feet) to avoid a significant impact, if impact pile driving can be avoided. Mitigation Measure M-NO-2a: Minimize Vibration Levels During Construction, presented on p. IV.F.26, would mitigate human annoyance caused by vibration by providing a community liaison to respond to and address complaints, by requiring protective techniques (pre-drilling for piles), by limiting and avoiding impact pile driving, and by phasing activities where feasible.

Human annoyance occurs at vibration levels much lower than those that could cause structural damage. This means that structural damage would not be expected to occur if vibration levels are low enough to avoid human response. The Paramount Residences and the Yerba Buena Center for the Arts are modern or rehabilitated structures, with reinforced concrete and steel building materials that are not especially susceptible to vibration damage. Project-related construction vibration would occur at a sufficient distance from St. Patrick's Church, approximately 150 feet, to make structural impacts unlikely. Impact pile driving, if needed, could cause over 0.25 in/sec PPV for locations within 80 feet, which would be over the threshold for potential structural damage for older or historically significant buildings. Although the structures closest to the site, including the Westin Hotel and the Contemporary Jewish Museum (formerly known as the Jessie Street Substation) are modern and/or rehabilitated buildings, they would be exposed to vibration levels that could exceed the threshold for potential structural damage from vibration, as shown in Table IV.F.6, above. These existing structures are not especially susceptible to potential vibration damage, but to conservatively protect the neighboring buildings from potential vibration impacts, Mitigation Measure M-NO-2b: Pre-Construction Assessment to Protect Structures from Ground Vibration Associated with Pile Installation, pp. IV.F.26-IV.F.27, would be necessary and would implement a pre-construction assessment and, if needed, monitoring during vibration-causing activities to detect ground settlement or lateral movement of structures.

With implementation of Mitigation Measures M-NO-2a and M-NO-2b, potential vibration impacts in the project vicinity would be reduced to levels that would be considered less than significant.

The Aronson Building could be potentially sensitive to vibration-related damage as a historic structure. To address the impact of potential structural damage from vibration, Mitigation Measure M-NO-2c: Vibration Monitoring and Management Plan, p. IV.F.27, would implement a Vibration Monitoring and Management Plan to avoid any adverse vibration-related impact to this historic structure. The Vibration Monitoring and Management Plan would include a pre-construction assessment and continuous vibration monitoring through the duration of the major structural project activities. If excessive vibration is monitored, the activity would need to be suspended until corrective measures, protective shoring, or alternative construction methods could be implemented (with Mitigation Measure M-NO-2b). With implementation of Mitigation Measure M-NO-2c, there would be no significant vibration-related impacts to the Aronson Building.

Parking improvements associated with the proposed project would include minor demolition and construction for restriping and converting space within the Jessie Square Garage and for connection to and incorporation of the existing Mexican Museum parcel below-grade area into the garage functions. These construction activities in the underground garage would not involve

use of heavy equipment likely to generate substantial or notable vibration. Therefore, vibration during modification of the garage would be limited to within the interior space of the structure.

Vibration sources from project-related operations after completion of construction would be limited to motor vehicles occasionally in use around the site, for example heavy-duty trucks for refuse collection. However, routine operation of motor vehicles or trucks within or near the project site would not involve heavy construction equipment. Any potential vibration impacts associated with these operational activities related to the project would be considered less than significant, and no mitigation is required.

Mitigation Measure M-NO-2a: Minimize Vibration Levels During Construction

The following practices shall be incorporated into the construction contract agreement documents to be implemented by the construction contractor:

- Make the Noise Disturbance Coordinator (see Mitigation Measure M-NO-1a) available to respond to vibration complaints from nearby vibration-sensitive uses, and submit to the Planning Department and Department of Building Inspection (DBI) a protocol to respond to and track complaints pertaining to vibration. Recurring disturbances shall be evaluated by a qualified acoustical consultant to ensure compliance with applicable standards;
- Avoid impact pile driving where possible. Utilize drilled piles or the use of a sonic pile driver where the geological conditions permit their use (see Mitigation Measure M-NO-2b);
- Select demolition methods not involving impact tools, where possible;
- Avoid vibratory rollers and packers, where possible;
- Operate earth-moving equipment as far away from vibration-sensitive receptors as possible; and
- Phase demolition and ground-impacting activity (excavation and shoring) to reduce occurrences in the same time period, when and where feasible.

Mitigation Measure M-NO-2b: Pre-Construction Assessment to Protect Structures from Ground Vibration Associated with Pile Installation

If impact pile driving is necessary, the project sponsor shall retain a qualified geotechnical engineer to conduct a pre-construction assessment of existing subsurface conditions and the structural integrity of nearby buildings subject to ground vibration prior to receiving a building permit. If recommended by the geotechnical engineer, for structures or facilities within 80 feet of pile installation activities (Westin Hotel and Contemporary Jewish Museum, [formerly known as the Jessie Street Substation]), the project sponsor shall require groundborne vibration monitoring of nearby structures. The assessment shall be based on the specific conditions at the construction site such as, but not limited to, the following:

- Pre-construction surveying of potentially affected structures;
- Underpinning of foundations of potentially affected structures, as necessary;

- The need for a monitoring program during vibration-causing construction activities to detect ground settlement or lateral movement of structures in the vicinity of excavation, shoring, or impact activities, should pile driving be required. If pile driving is found to be needed, results of ground vibration monitoring shall be submitted to the Department of Building Inspection (DBI). In the event of unacceptable ground movement, as determined by the DBI, pile installation shall cease and corrective measures, protective shoring, and alternative construction methods shall be implemented. Corrective measures to reduce ground movement from pile driving include: jetting or using a high-pressure stream of air and water to erode the soil adjacent to the pile; predrilling; using cast-in-place or auger cast piles; using pile cushioning; or using nonimpact drivers. The pile installation program and ground stabilization measures shall be reevaluated and approved by the Department of Building Inspection.

Mitigation Measure M-NO-2c: Vibration Monitoring and Management Plan

A Pre-Construction Assessment of the Aronson Building shall be conducted by a qualified structural engineer and preservation architect who meet the Secretary of the Interior's Historic Preservation Professional Qualification Standards. The Pre-Construction Assessment prepared shall establish a baseline, and shall contain written descriptions of the existing condition, along with photographs, measured drawings, sketches, and/or CAD drawings of all cracks, spalling, or similar. Particular attention shall be paid to loose terra cotta, cracks, bulges and planes in and out of plumb, floors in and out of level, openings and roof planes, as needed.

A vibration management and continuous monitoring plan shall be developed and adopted to protect the Aronson Building against damage caused by vibration or differential settlement caused by vibration during project construction. The vibration management and monitoring plan related to the Aronson Building shall be submitted to the Planning Department Preservation Staff prior to issuance of any building permits. The vibration management and monitoring plan shall include pre-construction surveys, continuous vibration monitoring throughout the duration of the major structural project activities, and for one year following project completion if determined necessary by the preservation architect. The vibration management and monitoring plan shall be at the direction of the qualified structural engineer and shall constitute a blended approach, using both optical survey targets and crack monitors. The use of optical survey targets and crack monitors during construction shall measure whether ground displacement during construction is approaching levels at which damage to the historic resource may be possible. Construction methods shall be reevaluated if measurements and levels of vibration are found to exceed the levels established in the vibration management and monitoring plan and/or if damage to the historical resource may be possible.

Impact NO-3: Operation of the proposed project would generate noise levels in excess of standards established in the *San Francisco General Plan* or noise ordinance and would result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project. *(Less than Significant with Mitigation)* (Criteria F.1 and F.3)

Operation of the proposed project would introduce additional noise sources to the area, including additional motor vehicle traffic and new mechanical systems, such as ventilation equipment. The proposed project would result in an increase of approximately 150 net-new vehicle trips in the vehicular peak hour (PM), but this would only be a small increase compared to the existing total peak hour traffic of between 1,000 and 2,000 vehicles on Third Street or Mission Street surrounding the project site. Generally, traffic must double in volume to produce a noticeable increase in noise levels. Based on baseline noise conditions (Table IV.F.2 and Table IV.F.3, p. IV.F.7 and IV.F.8, respectively) and existing traffic volumes on adjacent roadways, the addition of project-related vehicle trips to the circulation system and additional associated traffic noise would not result in a noticeable increase in the project surroundings compared to the existing noise levels generated by current traffic volumes on adjacent roadways.

The proposed project would create new egress/ingress points into the below-grade parking garage and new drop-off and pick-up locations in the garage and at the ground floor (see "Project Features" on p. IV.F.17-IV.F.18). Traffic noise generated from the interior of the site by vehicles using these features would be at a much lower level than the current traffic noise levels in the project surroundings. Traffic noise generated along the egress/ingress points would tend to be masked by the ambient noise from the surrounding streets, and such project-related noise would be brief and would not contribute to a substantial increase in 24-hour ambient noise levels for neighboring noise-sensitive residential and cultural uses. Therefore, increased vehicle trips associated with the proposed project would represent a less-than-significant increase in ambient noise levels.

The proposed project would include new mechanical equipment for utility services and infrastructure, including a standby power generator in the basement and other building mechanical systems (HVAC equipment), trash removal areas, and ventilation equipment that may involve noise sources at grade or on upper floors. The details of these facilities are still in development, and final design would ultimately be presented in plans to be prepared in the future specifying the specific locations and performance requirements. Where possible, fixed sources of noise would generally be enclosed within boiler rooms, buildings, and structures providing noise insulation, but since cooling or dehumidification equipment and heat pumps would need to be exposed to the outside, these noise sources may be difficult to shield. To be conservative, this EIR considers the potential for equipment to be located on upper floors that could cause increased noise levels for neighboring noise-sensitive uses, especially residential uses on the upper floors of surrounding buildings.

Although specific information regarding the proposed stationary noise sources is currently not available, building mechanical systems would be capable of generating noise levels in excess of applicable *General Plan* noise-land use compatibility thresholds on adjacent sensitive receptors. Operation of these noise sources would cause potentially significant impacts on the adjacent

noise-sensitive residential and cultural land uses and the proposed on-site residential and cultural uses. Mitigation Measure M-NO-3: Stationary Operational Noise Sources, to screen, shield, or set back stationary noise sources from noise-sensitive receptors, presented below, would reduce this potential impact. Incorporating this measure into the proposed project would ensure stationary noise sources would either be designed with adequate noise attenuating features or sited in locations to achieve compliance with the noise level limits of the Noise Ordinance and to achieve acceptable noise levels at the property lines of nearby residences or other noise-sensitive uses. To ensure that adequate performance of the attenuating features would be achieved, operational noise levels of the stationary noise sources would be measured within three months after installation, and if stationary noise sources were found to exceed the applicable noise standards, additional noise attenuation measures (e.g., acoustical enclosures, replacement of equipment, or relocation of equipment) would be applied in order to meet the applicable noise standards.

Noise from truck deliveries or garbage collection at designated locations (loading docks) for the proposed project would occur underground within the Jessie Square Garage. Regularly scheduled garbage collection service or other deliveries or pick-ups could occur in the nighttime or early morning hours, and on-site residences nearest to and overlooking the Jessie Square Garage entryways would experience this noise the most. It is not generally practical to limit the hours of garbage collection, as this task must be completed on an area-wide basis in the morning before traffic and parked vehicles become hindrances. The loading docks for this development would be below grade, isolated from the noise-sensitive residential and cultural uses, and subject to additional review during the Design Development phase. The location of the loading areas would enclose the activity and shield receptors from the noise of deliveries and pick-ups to avoid substantial noise from truck deliveries or garbage collection.

With the incorporation of Mitigation Measure M-NO-3 regarding stationary operational noise sources, operational noise would not significantly increase the ambient noise levels of the area and would be consistent with the noise level limits of the Noise Ordinance. Project-related sources of mechanical noise that are designed to meet the noise limits in the ordinance would also achieve acceptable levels for on-site residential and museum uses and at the property lines of nearby noise-sensitive uses, as identified by the General Plan Land Use Compatibility Guidelines for Community Noise Standards. With Mitigation Measure M-NO-3, operational noise impacts would be mitigated to less-than-significant levels.

Mitigation Measure M-NO-3: Stationary Operational Noise Sources

All fixed, stationary sources of noise (e.g., building mechanical systems (HVAC equipment), standby power generator, ventilation equipment, etc.) shall be located away from noise-sensitive receptors, be enclosed within structures with adequate setback and screening, be installed adjacent to noise reducing shields, or constructed with some other adequate noise attenuating features, to achieve compliance with the noise level limits of the San Francisco

Noise Ordinance. Noise from fixed, stationary sources must not exceed the performance standard of Section 2909(d) of the San Francisco Police Code for any sleeping or living room in any dwelling unit located on residential property: an interior noise level of 45 dBA between the hours of 10:00 PM to 7:00 AM or 55 dBA between the hours of 7:00 AM to 10:00 PM. Once the stationary noise sources have been installed, the project sponsor shall retain a qualified acoustical consultant to measure the noise levels of operating exterior equipment within three months after the installation. If project stationary noise sources exceed the applicable noise standards, a qualified acoustical consultant shall be retained by the project sponsor to evaluate whether additional noise attenuation measures or acoustic insulation should be installed in order to meet the applicable noise standards. Examples of such measures include acoustical enclosures, replacement of equipment, or relocation of equipment. Results of the measurements shall be provided to the City to show compliance with the standards.

Impact NO-4: The proposed project's new residences and cultural uses would not be substantially affected by existing noise levels. ***(Less than Significant)*** **(Criterion F.7)**

The proposed project would introduce new residential and cultural uses to a densely developed urban neighborhood with elevated ambient noise levels. The Setting section, pp. IV.F.1-IV.F.16, explains that sleep disturbance can occur when continuous interior noise levels exceed 30 dBA or when intermittent interior noise levels exceed 45 dBA. The General Plan Land Use Compatibility Guidelines for Community Noise (see Table IV.F.4 on p. IV.F.14) indicate that any new residential construction or development in areas with noise levels above 60 dBA (L_{dn}) should be undertaken only after a detailed analysis of noise reduction requirements is made and needed noise insulation features are included in the design. In areas where exterior noise levels exceed 65 dBA (L_{dn}), new residential construction or development is generally discouraged, but if it does proceed, a detailed analysis of noise reduction requirements must be undertaken and needed noise insulation features included in the design of such development.

The proposed project's cultural component (The Mexican Museum) would be a noise-sensitive use similar to an educational use, as delineated in the General Plan Land Use Compatibility Guidelines for Community Noise. As shown in Table IV.F.4, development of an educational land use in areas with noise levels above 62.5 dBA (L_{dn}) should be undertaken only after a detailed analysis of noise reduction requirements is made. Since ambient noise measurements indicate that all exterior noise levels on the boundaries of the project site are at least 67 dBA (L_{dn}), the proposed new residential and cultural uses could experience potentially significant impacts due to land use-noise incompatibility.

Because the proposed project's new residential development would be attached units (i.e., multi-family residential), the new residential development would be subject to noise insulation standards in Title 24 of the California Code of Regulations. This state standard requires meeting an interior noise level of 45 dBA (L_{dn}) in any habitable room. Where such units are proposed in

areas subject to outdoor noise levels greater than 60 dBA (L_{dn}), the standard requires designing the dwelling units to meet this 45 dBA L_{dn} interior noise level. Achieving compliance with the Title 24 standards would ensure sufficient noise insulation for the proposed project's new residential uses and would result in an interior noise level consistent with the General Plan Land Use Compatibility Guidelines for Community Noise (see Table IV.F.4) for noise-sensitive development within the project site. The DBI enforces the Title 24 requirements as part of the building permit and inspection process.

Existing noise levels within the project site have been measured, and they range from approximately 67 dBA to 73 dBA (L_{dn}) (refer to Table IV.F.2, p. IV.F.7). Applicable *General Plan* guidelines indicate that a detailed analysis of noise reduction requirements should be completed for the proposed project future residential and cultural uses. Due to the elevated levels of existing ambient noise, and anticipated noise increases with cumulative conditions (Impact C-NO-4, p. IV.F.36), the proposed project's residential and cultural uses would need to achieve about 30 dBA in exterior-to-interior noise reduction through building and window insulation to comply with applicable performance standards and achieve interior noise levels below 45 dBA. New residential and cultural uses would experience a potentially significant impact due to existing outdoor noise levels; however, compliance with Title 24 standards for interior noise would ensure sufficient exterior-to-interior noise reduction.

To ensure interior noise levels of the new residential and cultural uses do not occur in excess of Title 24 of the California Code of Regulations, San Francisco Noise Ordinance (per Police Code Section 2909(d)), and General Plan Land Use Compatibility Guidelines threshold recommendations (see Table IV.F.4), the project sponsor would implement Improvement Measure I-NO-A: Residential Use/Cultural Component Plan Review by Qualified Acoustical Consultant. This improvement measure is identified to lessen the proposed project's less-than-significant effect on noise sensitive uses at the site. The project sponsor would implement Improvement Measure I-NO-A to ensure plan review of the residential use/cultural component by a qualified acoustical consultant. Achieving sufficient exterior-to-interior noise reduction is feasible with currently available and commonly used building technology, for example with a façade of laminated or layered glass, and extruded metal window/door frames that are acoustically insulated and/or sealed. With proper insulation, the *General Plan* Housing Element program would be satisfied because the Title 24 standards can be met with the specified insulation features.

Under this improvement measure, the project sponsor plan review would ensure that the proposed residential and cultural uses on-site would undergo appropriate noise analysis prior to approval and construction. City decision-makers may choose to include this improvement measure as a condition of approval for the proposed project. Implementation of Improvement Measure I-NO-A would reduce the proposed project's less than significant noise impacts to new noise-

sensitive development within the project site by ensuring appropriate noise analyses are carried out prior to final designs and appropriate noise reduction techniques are used to comply with applicable performance standards. By ensuring that interior noise levels would be consistent with the Land Use Compatibility Guidelines for Community Noise, the proposed project's less-than-significant noise impacts would be further reduced.

Improvement Measure I-NO-A: Residential Use/Cultural Component Plan Review by Qualified Acoustical Consultant

To ensure that interior noise levels at proposed noise-sensitive uses on the project site do not result in excessive awakenings or disturbances, or exceed an interior noise level standards of Title 24 of the California Code of Regulations and the San Francisco Noise Ordinance including Section 2909(d), a qualified acoustical consultant shall review plans for all new residential uses, cultural component areas (The Mexican Museum), and any other sensitive use area and provide recommendations to provide acoustical insulation or other equivalent measures to reduce interior noise levels. The project sponsor would include noise insulating features to ensure that interior noise would not exceed 45 dBA (L_{dn}) in any habitable room. These studies shall be presented to DBI at the time that the Architectural Addendum Permit is submitted for review. Noise-insulating features for the exterior façade and envelope of the 706 Mission Street tower and rehabilitated Aronson Building may include acoustically designed systems for appropriate Outside-Inside Transmission Class ratings for curtain-wall assemblies; acoustically designed systems for appropriate Outside-Inside Transmission Class ratings for exterior punched windows and window wall assemblies; acoustically-rated exterior wall construction and assemblies; and acoustically designed exterior wall openings, such as trickle vents or Z-ducts, as required.

CUMULATIVE IMPACT EVALUATION

Some past, present, and potential future projects in the immediate vicinity of the project site involve renovation of existing structures and expansion of existing uses at the same time that the proposed project construction activities are planned. Due to proximity, the analysis considers cumulative construction-related noise from the Central Subway Project, the SFMOMA Expansion Project at 151 Third Street, and the proposed Palace Hotel Project at 2 New Montgomery Street in combination with the proposed project's construction noise. Future year 2030 cumulative traffic noise conditions are also considered here. Based on projections developed for the Transit Center District Plan, the future traffic conditions take into account both the future development expected in the Transbay/South of Market area, as well as the expected growth in housing and employment for the remainder of San Francisco and the nine-county Bay Area.

Impact C-NO-1: Construction of the proposed project, in combination with other past, present, and reasonably foreseeable future projects in the project vicinity, would not result in a cumulatively considerable contribution to significant temporary or periodic increases in ambient noise levels in the project vicinity above levels existing without the proposed project. ***(Less than Significant)***

Project construction would require approximately three years. The highest noise levels generated by construction of the proposed project are anticipated to occur during the initial two years when new foundations and exterior structural and façade elements would be constructed.

Construction noise is a localized impact that reduces as distance from the source increases and rapidly attenuates when line-of-sight is blocked by buildings or other intervening features. The Central Subway, 151 Third Street, and 2 New Montgomery Street projects are each near enough to the proposed project site to cumulatively affect noise levels at the same noise-sensitive residential and cultural uses that would be affected by construction noise from the proposed project should such activities occur within the same time period. The project at 134-140 New Montgomery Street would be limited to interior conversion activities that would confine all construction expected within the building envelope. Limited or no notable construction noise would occur outside this development site, and it would not contribute to cumulative construction noise in the project vicinity. Therefore, the cumulative noise analysis does not include the project at 134-140 New Montgomery Street. The projects at 151 Third Street and 2 New Montgomery Street would each include heavy construction activity approximately 500 feet away, north and east of the project site, respectively. The Central Subway would include subsurface construction with use of a tunnel boring machine approximately 600 feet from the project site.[16]

Noise from project-related construction truck trips could combine with noise from trucks associated with the other nearby development projects listed above. However, due to the urban nature and existing ambient daytime noise levels from traffic on roadways that are adjacent to and near the development sites, such as Third Street, New Montgomery Street, and Fourth Street, any cumulative increase in ambient noise levels from mobile construction-related traffic would be brief and intermittent in nature and not expected to contribute to temporary increases in ambient noise levels during construction.

All construction activities at the project site and the other nearby sites at the Central Subway, 151 Third Street, and 2 New Montgomery Street would generally be required to comply with the Noise Ordinance. As explained above, the Noise Ordinance prohibits construction activities between 8:00 PM and 7:00 AM, and limits noise from any individual piece of construction

[16] San Francisco Planning Department and FTA, Central Subway Final Supplemental Environmental Impact Statement/Supplemental Environmental Impact Report. Available online at http://www.sfmta.com/cms/mcsp/cspfseiseir.htm. Accessed May 10, 2012.

equipment, except impact tools, to 80 dBA (Ldn) at 100 feet unless the construction activity would occur during allowable hours. Therefore, while cumulative construction activities would temporarily increase ambient noise levels intermittently during overlapping of their respective construction periods, the incremental contribution of the proposed project to cumulative construction noise levels would not be considered cumulatively considerable. Project-generated construction activities also would be required to meet all applicable construction noise standards established in the Noise Ordinance (Article 29 of the Police Code) and would be subject to enforcement of the Noise Ordinance by DBI and the Police Department. As a result, the incremental contribution of the project to short-term exposure of sensitive receptors to increased construction noise would not result in a cumulatively considerable contribution to significant cumulative construction noise impacts. No mitigation measures are necessary.

Impact C-NO-2: Construction of the proposed project, in combination with other past, present, and reasonably foreseeable future projects in the project vicinity, would result in a cumulatively considerable contribution to significant exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels. ***(Less than Significant with Mitigation)***

Project-related ground vibration generated by heavy duty construction equipment (e.g., large bulldozers) or "impact activities" would attenuate to levels below structural damage thresholds at 100 feet (see the discussion in Impact NO-2, pp. IV.F.22-IV.F.27). Construction-related vibration over 80 VdB would be considered vibration levels where a significant vibration impact could occur due to human annoyance. Vibration at this level would be limited to within 300 feet or less, depending on the source. As vibration is a localized impact that attenuates rapidly as distance from the source increases, construction of any development projects at least 500 feet away and the Central Subway project (approximately 600 feet from the project site) would have limited potential to subject shared adjacent receptors to cumulative construction-related vibration (should such activities occur within the same time period).

Cumulative project vibration impacts are not likely to occur. That is, groundborne vibration from nearby construction projects at SFMOMA (151 Third Street), the proposal for the Palace Hotel (2 New Montgomery Street), or the Central Subway under Fourth Street, generally would not combine with vibration from construction of the proposed project, and would tend to occur outside the area of potential project-related vibration. Demolition and construction activities associated with the SFMOMA project at 151 Third Street or the proposal for the Palace Hotel at 2 New Montgomery Street would be similar in nature to those of the proposed project, with very localized effects that would reduce the potential for cumulative vibration impacts to overlap or expose vibration-sensitive receptors to combined vibration levels from multiple projects.

For construction of the Central Subway project, the mandatory Noise and Vibration Control Plan would reduce any potentially significant vibration impacts to within about 200 feet of

construction in the subway alignment under Fourth Street.[17] This would substantially reduce the potential for overlapping cumulative impacts due to project-related and Central Subway construction because the Central Subway is about 600 feet from the project site.

The potential for cumulative vibration levels would be highest during initial phases of proposed project construction. Project-related vibration would be limited to daytime hours when many nearby residents would be away from home; during the day, the residential uses would be less sensitive. The periods when construction vibration impacts would overlap would be brief and limited, and the overall cumulative construction vibration impacts would not be cumulatively significant. With implementation of Mitigation Measure M-NO-2a, M-NO-2b, and M-NO-2c, the proposed project would not result in a cumulatively considerable contribution to significant cumulative impacts associated with groundborne vibration. This impact would be less than significant, and no mitigation is required.

Impact C-NO-3: Operation of the proposed project, in combination with other past, present, and reasonably foreseeable future projects in the project vicinity, would not result in a cumulatively considerable contribution to significant permanent increase in ambient noise levels in the project vicinity above levels existing without the project. ***(Less than Significant)***

Each development project in the vicinity of the project site would generate operational noise and could contribute to an overall increase in ambient noise conditions of the area. The noise environment of the area would be influenced by the stationary or fixed sources of noise included in cumulative development, such as heating and ventilation equipment, emergency power generators, and other mechanical equipment.

While noise from mechanical equipment associated with cumulative development projects could cause a substantial increase in the noise environment for noise sensitive receptors near each project, only the Palace Hotel, SFMOMA Expansion, and Central Subway projects would be located near enough to the project site to potentially affect the noise-sensitive receptors that could also be potentially affected by the proposed project. Operations of transit vehicles in the Central Subway would occur underneath Fourth Street. Because the alignment would be underground in the vicinity of the proposed project, operation of the Central Subway project would not contribute substantially to a cumulative increase in ambient noise levels for receptors potentially affected by the proposed project. Noise from stationary sources in the Palace Hotel, SFMOMA Expansion, and Central Subway projects would be subject to Noise Ordinance. As such, these projects would not have the potential to result in a cumulatively considerable contribution to significant cumulative long-term noise impacts.

[17] San Francisco Planning Department and FTA, Central Subway Final Supplemental Environmental Impact Statement/Supplemental Environmental Impact Report. Available online at http://www.sfmta.com/cms/mcsp/cspfseiseir.htm. Accessed May 10, 2012.

Project-related fixed noise sources could result in a potential noise impact that could be mitigated to a less-than-significant level with implementation of Mitigation Measure M-NO-3, on pp. IV.F.29-IV.F.30. This measure requires that fixed noise sources either be designed with adequate noise attenuating features or sited in locations to achieve compliance with the noise level limits of the Noise Ordinance.

Project-related operational noise would be less than significant with implementation of Mitigation Measure M-NO-3 and in compliance with applicable performance standards. As a result, the project would not result in a cumulatively considerable contribution to significant cumulative long-term exposure of receptors to increased noise levels. Noise from project-related stationary or fixed sources would not combine with the fixed sources of noise associated with the cumulative projects to cause long-term exposure of receptors exceeding applicable noise standards and/or a substantial increase in the noise environment at any noise-sensitive receptor.

Impact C-NO-4: Noise from traffic increases generated by the proposed project, when combined with noise from reasonably foreseeable traffic growth forecast to the year 2030, would not contribute considerably to significant cumulative traffic noise impacts. ***(Less than Significant)***

Implementation of the proposed project would increase traffic noise levels in an environment that already experiences elevated ambient noise levels. Traffic noise in the project vicinity could be higher than existing traffic noise levels, with future 2030 cumulative traffic increases from forecast citywide and regional economic growth and development, although this growth in traffic (presented in Section IV.E, Transportation and Circulation, in Impact C-TR-1 on pp. IV.E.59-IV.E.62) would not be expected to produce a noticeable increase in noise levels.[18] Therefore, the cumulative impact on traffic-generated noise levels in the project vicinity would not cause sensitive receptors to be substantially affected by noise levels, and this impact would not be significant. The contribution of noise from project-generated roadway traffic to cumulative traffic noise levels in the project vicinity would not be cumulatively considerable in this context, and cumulative noise increases would be less than significant. Therefore, the proposed project would not result in a cumulatively considerable contribution to significant cumulative impacts related to ambient noise levels. This impact would be less than significant, and no mitigation is required.

[18] Overall growth in p.m. peak hour traffic would result in an increase in traffic volumes to about 150 percent of existing, which is less than double the existing traffic volumes. A doubling of daily traffic volumes (200 percent) generally causes an increase in ambient noise levels of about 3 dBA, and would be noticeable to most people in an urban environment. Although the traffic data are for the peak hour only, it is reasonable to assume that daily traffic volumes would not increase by 200 percent and future cumulative traffic-generated noise would not be noticeable to most people in the vicinity.

G. AIR QUALITY

This section summarizes and incorporates the results of the *706 Mission Street Air Quality Technical Report* for the proposed project (included in this EIR as Appendix F).[1] This section evaluates the potential air quality impacts related to construction and operational criteria pollutants as well as construction and operation health risk that would result from implementation of the proposed project. It identifies both project-level and cumulative environmental impacts, as well as feasible mitigation measures that could reduce or avoid the identified impacts.

SETTING

REGIONAL AIR QUALITY

The project site and vicinity is within the jurisdiction of the Bay Area Air Quality Management District (BAAQMD), which oversees the region's efforts to achieve and maintain the ambient air quality standards. BAAQMD maintains the regional emission inventory of air pollution sources, including stationary, mobile, and areawide sources. BAAQMD is also responsible for issuing permits to construct and operate stationary sources of pollutants, and for implementing the programs to review the air quality impacts of new stationary sources. The regional prevailing winds, topography, and weather, including sunlight and high temperatures, also play a role in regional air quality problems. Warmer temperatures create the conditions that can increase ozone formation. In addition, higher temperatures would likely result in increased electricity use to power air conditioners and refrigerators, which can cause increased operation of the region's fossil-fuel-fired power plants to meet the demand.

Climate, Topography, and Meteorology

The San Francisco Bay Area has a Mediterranean climate characterized by mild, dry summers and mild, moderately wet winters (about 90 percent of the annual total rainfall occurs during the November to April period), moderate daytime onshore breezes, and moderate humidity. The climate is dominated by a strong, semi-permanent, subtropical high-pressure cell over the northeastern Pacific Ocean. Weather is moderated by the adjacent oceanic heat reservoir that leads to fog. In summer, the northwest winds to the west of the coastline are drawn into the interior valleys through the Golden Gate and over the lower topography of the San Francisco Peninsula. This channels wind so that it sweeps eastward and widens downstream across the

[1] Aspen Environmental Group, *706 Mission Street Air Quality Technical Report*, February 2012 (hereinafter referred to as "*Air Quality Technical Report*"). This document is included in this EIR as Appendix F and is also available for review at the Planning Department, 1650 Mission Street, Suite 400, San Francisco, California, as part of Case File No. 2008.1084E.

region. In winter, periods of storminess tend to alternate with periods of stagnation and light winds. Onshore winds from the west dominate at the project site such that emissions from the area tend to be carried eastward over the San Francisco Bay.

CRITERIA AIR POLLUTANTS

As required by the 1970 federal Clean Air Act, the United States Environmental Protection Agency (USEPA) initially identified six criteria air pollutants that are pervasive in urban environments and for which state and federal health-based ambient air quality standards have been established. USEPA calls these pollutants "criteria air pollutants" because the agency has regulated them by developing specific public-health-based and welfare-based criteria as the basis for setting permissible levels. Ozone, carbon monoxide (CO), particulate matter (PM), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and lead are the six criteria air pollutants originally identified by USEPA. Since that time, subsets of particulate matter have been identified for which permissible levels have been established. These include particulate matter of 10 microns in diameter or less (PM_{10}) and particulate matter of 2.5 microns in diameter or less ($PM_{2.5}$).

The BAAQMD is the regional agency with jurisdiction for regulating air quality within the nine-county San Francisco Bay Area Air Basin (SFBAAB). The region's air quality monitoring network provides information on ambient concentrations of criteria air pollutants at various locations in the San Francisco Bay Area. Table IV.G.1: Summary of San Francisco Air Quality Monitoring Data (2006–2010), is a five-year summary of the highest annual criteria air pollutant concentrations, collected at the air quality monitoring station operated and maintained by the BAAQMD at 16th and Arkansas Streets, in San Francisco's lower Potrero Hill area, which is the closest monitoring station.[2] Table IV.G.1 compares measured pollutant concentrations with the most stringent applicable ambient air quality standards (state or federal). Concentrations shown in **bold** indicate an exceedance of the standard.

Ozone

Ozone is a secondary air pollutant produced in the atmosphere through a complex series of photochemical reactions involving reactive organic gases (ROG) and nitrogen oxides (NOx). The main sources of ROG and NOx, often referred to as ozone precursors, are combustion processes (including motor vehicle engines) and the evaporation of solvents, paints, and fuels. In the Bay Area, automobiles are the single largest source of ozone precursors. Ozone is referred to as a regional air pollutant because its precursors are transported and diffused by wind concurrently

[2] Data from this single location does not describe pollutant levels throughout San Francisco, as these levels may vary depending on distance from key emissions sources and local meteorology. However, the BAAQMD monitoring network does provide a reliable picture of pollutant levels over time.

Table IV.G.1: Summary of San Francisco Air Quality Monitoring Data (2006–2010)

Pollutant	Most Stringent Applicable Standard	Number of Days Standards Were Exceeded and Maximum Concentrations Measured				
		2006	2007	2008	2009	2010
Ozone						
- Days 1-hour Std. Exceeded	>9 pphm [a]	0	0	0	0	0
- Max. 1-hour Conc. (pphm)		5.3	6.0	8.2	7.2	7.9
- Days 8-hour Std. Exceeded	>7 pphm [a]	0	0	0	0	0
- Max. 8-hour Conc. (pphm)		4.6	5.3	6.6	5.6	5.1
Carbon Monoxide (CO)						
- Days 1-hour Std. Exceeded	>20 ppm [a]	0	0	0	0	0
- Max. 1-hour Conc. (ppm)		2.7	2.7	5.7	4.3	1.8
- Days 8-hour Std. Exceeded	>9 ppm [a]	0	0	0	0	0
- Max. 8-hour Conc. (ppm)		2.1	1.6	2.3	2.9	1.4
Suspended Particulates (PM_{10})						
- Days 24-hour Std. Exceeded[c]	>50 $\mu g/m^3$ [a]	3	2	0	0	0
- Max. 24-hour Conc. ($\mu g/m^3$)		**61**	**70**	41	36	40
- Annual Average ($\mu g/m^3$)	>20 $\mu g/m^3$ [a]	**22.9**	**21.9**	**22.0**	18.7	19.9
Suspended Particulates ($PM_{2.5}$)						
- Days 24-hour Std. Exceeded[d]	>35 $\mu g/m^3$	3	5	0	1	3
- Max. 24-hour Conc. ($\mu g/m^3$)		**54.3**	**45.2**	29.4	35.5	**45.3**
- Annual Average ($\mu g/m^3$)	>12 $\mu g/m^3$ [a]	9.7	8.9	11.7	9.7	10.5
Nitrogen Dioxide (NO_2)						
- Days 1-hour Std. Exceeded	>100 ppb [b, e]	0	0	0	0	0
- Max. 1-hour Conc. (ppb)		107	69	62	59	93
- Annual Average ($\mu g/m^3$)	>30 ppb [a]	16	16	16	15	13
Sulfur Dioxide (SO_2)						
- Days 24-hour Std. Exceeded	>40 ppb [a]	0	0	0	N/A	N/A
- Max. 24-hour Conc. (ppb)		6	6	4	N/A	N/A

Notes:
Bold values are in excess of applicable standard. "N/A" indicates that data is not available. An exceedance is not necessarily a violation of the standard and only persistent exceedances lead to designation of an area as nonattainment.
conc. = concentration; ppm = parts per million; pphm = parts per hundred million; ppb=parts per billion; $\mu g/m^3$ = micrograms per cubic meter; > means greater than

[a] State standard, not to be exceeded.
[b] Federal standard, not to be exceeded.
[c] Based on a sampling schedule of one out of every six days, for a total of approximately 60 samples per year.
[d] Federal standard was reduced from 65 $\mu g/m^3$ to 35 $\mu g/m^3$ in 2006.
[e] Federal standard introduced in 2010, based on a 3-year average of the 98th percentile of daily highest samples.

Source: BAAQMD, Bay Area Air Pollution Summary, 2006-2010. Website accessed on April 30, 2012 at http://www.baaqmd.gov/Divisions/Communications-and-Outreach/Air-Quality-in-the-Bay-Area/Air-Quality-Summaries.aspx.

with ozone production through the photochemical reaction process. Ozone causes eye irritation, airway constriction, and shortness of breath and can aggravate existing respiratory diseases such as asthma, bronchitis, and emphysema.[3] Table IV.G.1 shows that, according to published data, the most stringent applicable standards (the state 1-hour standard of 9 parts per hundred million [pphm] and the state 8-hour standard of 7.0 pphm) were not exceeded in San Francisco between 2006 and 2010.

Carbon Monoxide

CO is an odorless, colorless gas usually formed as the result of the incomplete combustion of fuels. The single largest source of CO is motor vehicles; the highest emissions occur during low travel speeds, stop-and-go driving, cold starts, and hard acceleration. Exposure to high concentrations of CO reduces the oxygen-carrying capacity of the blood and can cause headaches, nausea, dizziness, and fatigue; impair central nervous system function; and induce angina (chest pain) in persons with serious heart disease. Very high levels of CO can be fatal. As shown in Table IV.G.1, the more stringent state CO standards were not exceeded between 2006 and 2010. Measurements of CO indicate hourly maximums ranging between 15 to 25 percent of the state standard, and maximum 8-hour CO levels that are approximately 30 percent of the allowable 8-hour standard.

Particulate Matter (PM_{10} and $PM_{2.5}$)

Particulate matter is a class of air pollutants that consists of heterogeneous solid and liquid airborne particles from manmade and natural sources. Particulate matter is measured in two size ranges: PM_{10} for particles less than 10 microns in diameter, and $PM_{2.5}$ for particles less than 2.5 microns in diameter. In the Bay Area, motor vehicles generate about one-half of the air basin's particulates, through tailpipe emissions as well as brake pad and tire wear. Wood burning in fireplaces and stoves, industrial facilities, and ground-disturbing activities such as construction are other sources of such fine particulates. These fine particulates are small enough to be inhaled into the deepest parts of the human lung and can cause adverse health effects. According to the California Air Resources Board (ARB), studies in the United States and elsewhere "have demonstrated a strong link between elevated particulate levels and premature deaths, hospital admissions, emergency room visits, and asthma attacks," and studies of children's health in California have demonstrated that particle pollution "may significantly reduce lung function growth in children." The ARB also reports that statewide attainment of particulate matter standards could prevent thousands of premature deaths, lower hospital admissions for

[3] BAAQMD, *CEQA Air Quality Guidelines*, adopted June 2010, updated May 2011 (hereinafter referred to as "BAAQMD *Guidelines*"), p. C-15. Available online at http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES.aspx. Accessed May 18, 2011.

cardiovascular and respiratory disease and asthma-related emergency room visits, and avoid hundreds of thousands of episodes of respiratory illness in California.[4] Among the criteria pollutants that are regulated, particulates are a serious ongoing health hazard, contributing to the death of approximately 200 to 500 people per year in the Bay Area. High levels of particulate matter can exacerbate chronic respiratory ailments, such as bronchitis and asthma, and have been associated with increased emergency room visits and hospital admissions.[5, 6]

Table IV.G.1 shows that exceedances of the state PM_{10} standard have routinely occurred in San Francisco. It is estimated that the state 24-hour PM_{10} standard has not been exceeded except for 12 days in 2007.[7] The BAAQMD began monitoring $PM_{2.5}$ concentrations in San Francisco in 2002. The federal 24-hour $PM_{2.5}$ standard was not exceeded until 2006, when the standard was lowered from 65 micrograms per cubic meter ($\mu g/m^3$) to 35 $\mu g/m^3$. The state annual average standard (12 $\mu g/m^3$) was not exceeded according to available data between 2006 and 2010.

$PM_{2.5}$ is of particular concern because epidemiologic studies have demonstrated that people who live near freeways and high-traffic roadways have poorer health outcomes, including increased asthma symptoms and respiratory infections and decreased pulmonary function and lung development in children.[8]

Nitrogen Dioxide

NO_2 is a reddish brown gas that is a byproduct of combustion processes. Mobile sources (motor vehicles and other transportation sources) and industrial operations are the main sources of nitrogen oxides, which include NO_2. Aside from contributing to ozone formation, NO_2 can increase the risk of acute and chronic respiratory disease and reduce visibility. NO_2 may be visible as a coloring component on high pollution days, especially in conjunction with high ozone levels. Table IV.G.1 shows that the current standard for NO_2 is being met in the Bay Area. In 2010, the USEPA implemented a new 1-hour NO_2 standard, presented in Table IV.G.3, on p. IV.G.14. Currently, the ARB is recommending that the SFBAAB be designated as an attainment area for the new standard.

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4 California Air Resources Board, "Review of the Ambient Air Quality Standards for Particulate Matter and Sulfates" Staff Report, May 2002, pp. 9-18 to 9-24. Available online at http://www.arb.ca.gov/research/aaqs/std-rs/pm-final/pm-final.htm. Accessed May 18, 2011.

5 California Air Resources Board, *Air Quality and Land Use Handbook: A Community Health Perspective,* April 2005 (hereinafter referred to as "*Air Quality and Land Use Handbook")* p.12. Available online at http://www.arb.ca.gov/ch/landuse.htm. Accessed April 18, 2012.

6 BAAQMD *Guidelines*, pp. 5-2, D-38.

7 PM_{10} is sampled every sixth day; therefore, for each day sampled at a level over the standard, up to six actual days are estimated to be over the standard.

8 San Francisco Department of Public Health, *Assessment and Mitigation of Air Pollutant Health Effect from Intra-urban Roadways: Guidance for Land Use Planning and Environmental Review*, May 2008, p. 7. Available online at http://www.sfdph.org/dph/EH/Air/default.asp. Accessed April 18, 2012.

The USEPA has also established requirements for a new monitoring network to measure NO_2 concentrations near major roadways in urban areas with a population of 500,000 or more. Sixteen new near-roadway monitoring sites will be required in California, three of which will be in the Bay Area. These monitors are required to be deployed by January 2013. The new monitoring data may result in a need to change area designations in the future. The ARB will revise the area designation recommendations, as appropriate, once the new monitoring data become available.

Sulfur Dioxide

SO_2 is a colorless acidic gas with a strong odor. It is produced by the combustion of sulfur-containing fuels such as oil, coal, and diesel. SO_2 has the potential to damage materials and can cause health effects at high concentrations. It can irritate lung tissue and increase the risk of acute and chronic respiratory disease. Table IV.G.1 shows that the standard for SO_2 is being met in the Bay Area, and pollutant trends suggest that the air basin will continue to meet these standards for the foreseeable future.

In 2010, the USEPA implemented a new 1-hour SO_2 standard, presented in Table IV.G.3, p. IV.G.14. The USEPA anticipates initially designating areas based on 2008-2010 monitoring data, or refined dispersion modeling results if provided by the state by June 2012. Similar to the new federal standard for NO_2, the USEPA has established requirements for a new monitoring network to measure SO_2 concentrations to be operational by January 2013. The new monitoring data may result in a need to change area designations in the future.

Lead

Leaded gasoline (phased out in the United States beginning in 1973), paint (on older houses and cars), smelters (metal refineries), and the manufacture of lead storage batteries have been the primary sources of lead released into the atmosphere. Lead has a range of adverse neurotoxic health effects, and children are at special risk. Some lead-containing chemicals cause cancer in animals. Lead levels in the air have decreased substantially since leaded gasoline was eliminated. Ambient lead concentrations are only monitored on an as-warranted, site-specific basis in California. On October 15, 2008, the USEPA strengthened the national ambient air quality standard for lead by lowering it from 1.5 $\mu g/m^3$ to 0.15 $\mu g/m^3$. The USEPA revised the monitoring requirements for lead in December 2010. These requirements focus on airports and large urban areas, resulting in an increase of 76 monitors nationally.

TOXIC AIR CONTAMINANTS

Introduction

Toxic air contaminants (TACs) are air pollutants that may lead to serious illness or increased mortality, even when present in relatively low concentrations. Potential human health effects of TACs include birth defects, neurological damage, cancer, and death. There are hundreds of different types of TACs with varying degrees of toxicity. Individual TACs vary greatly in the health risk they present; at a given level of exposure, one TAC may pose a hazard that is many times greater than that of another.

TACs do not have ambient air quality standards, but are regulated by the BAAQMD using a risk-based approach. This approach uses a health risk assessment to determine what sources and pollutants to control as well as the degree of control. A health risk assessment is an analysis in which human health exposure to toxic substances is estimated, and considered together with information regarding the toxic potency of the substances, to provide quantitative estimates of health risks.[9]

In addition to monitoring criteria air pollutants, both the BAAQMD and the ARB operate TAC monitoring networks in the San Francisco Bay Area. These stations measure 10 to 15 TACs, depending on the specific station. The TACs selected for monitoring are those that have traditionally been found in the highest concentrations in ambient air, and therefore tend to be substantial contributors to community health risk. The BAAQMD operates an ambient TAC monitoring station at its 16th and Arkansas Streets facility in San Francisco, which is the only monitoring site for air toxics in San Francisco. Table IV.G.2: Carcinogenic Toxic Air Contaminants - Annual Average Ambient Concentrations, shows ambient concentrations of carcinogenic TACs measured at the Arkansas Street station and the estimated cancer risks from lifetime (70 years) exposure to these substances. When TAC measurements at this station are compared to ambient concentrations of various TACs for the Bay Area as a whole, the cancer risks associated with mean TAC concentrations in San Francisco are similar to those for the Bay Area as a whole. Therefore, the estimated average lifetime cancer risk resulting from exposure to TAC concentrations monitored at the San Francisco station does not appear to be any greater than for the Bay Area as a region.

[9] In general, a health risk assessment is required if the BAAQMD concludes that projected emissions of a specific air toxic compound from a proposed new or modified stationary source suggest a potential public health risk. Such an assessment evaluates the chronic, long-term health effects, calculating the increased risk of cancer as a result of exposure to one or more TACs for the source in question.

Table IV.G.2: Carcinogenic Toxic Air Contaminants – Annual Average Ambient Concentrations

Substance	Concentration	Cancer Risk Per Million [a]
Gaseous TACs	(ppb)	
Acetaldehyde	0.69	3
Benzene	0.23	21
1,3-Butadiene	0.048	18
Para-Dichlorobenzene	0.15	10
Carbon Tetrachloride	0.086	23
Ethylene Dibromide	0.006	3
Formaldehyde	1.31	10
Perchloroethylene	0.022	0.9
Methlylene Chloride	0.14	0.5
Methyl tertiary-Butyl Ether (MTBE)	0.26	0.3
Chlorform	0.026	0.7
Trichloroethlene	0.01	0.1
Particulate TACs	(ng/m^3)	
Chromium (Hexavalent)	0.07	11

Notes:
All values are from BAAQMD 2010 monitoring data from the Arkansas Street station, except for Para-Dichlorobenzene (2006), Ethylene Dibromide (1992), MTBE (2003).

ppb=parts per billion; ng/m^3 = nanograms per cubic meter

[a] Cancer risks were estimated by applying published unit risk values to the measured concentrations.

Source: California Air Resources Board, Ambient Air Toxics Summary, 2010. Available online at http://www.arb.ca.gov/adam/toxics/sitesubstance.html. Accessed April 17, 2012.

Roadway-Related Pollutants

Motor vehicles are responsible for a large share of air pollution especially in California. Vehicle tailpipe emissions contain diverse forms of particles and gases, and also contribute to particulates by generating road dust and through tire wear. Epidemiologic studies have demonstrated that people living in proximity to freeways or busy roadways have poorer health outcomes, including increased asthma symptoms and respiratory infections and decreased pulmonary function and lung development in children. Air pollution monitoring done in conjunction with epidemiological studies has confirmed that roadway-related health effects vary with modeled exposure to particulate matter and NO_2. In traffic-related studies, the additional non-cancer health risk attributable to roadway proximity was seen within 1,000 feet of the roadway and was strongest within 300 feet. As a result, the ARB recommends that new sensitive land uses not be

located within 500 feet of a freeway or urban roads carrying 100,000 vehicles per day.[10, 11] In 2008, the City of San Francisco adopted amendments to the Health Code (discussed under "Regulatory Framework," on p. IV.G.18), requiring new residential projects near high-volume roadways to be screened for exposure hazards and, where indicated, to conduct an analysis of exposure and to mitigate hazards through design and ventilation.

Diesel Particulate Matter

The ARB identified diesel particulate matter (DPM) as a TAC in 1998, primarily based on evidence demonstrating cancer effects in humans.[12] The exhaust from diesel engines includes hundreds of different gaseous and particulate components, many of which are toxic. Mobile sources such as trucks and buses are among the primary sources of diesel emissions, and concentrations of DPM are higher near heavily traveled highways. The estimated cancer risk from exposure to diesel exhaust is much higher than the risk associated with any other toxic air pollutant routinely measured in the region. ARB estimated the average Bay Area cancer risk from diesel particulate, based on a population-weighted average ambient diesel particulate concentration, at about 480 in one million, as of 2000. The risk from diesel particulate matter declined from 750 in one million in 1990 to 570 in one million in 1995; by 2000, ARB estimated the average statewide cancer risk from DPM at 540 in one million.[13, 14]

Recent air pollution studies have shown an association between respiratory and other non-cancer health effects and proximity to high traffic roadways. The ARB community health risk assessments and regulatory programs have produced air quality information about certain types of facilities for consideration by local authorities when siting new residences, schools and educational facilities, day care centers, parks and playgrounds, and medical facilities (i.e., sensitive land uses). Sensitive land uses deserve special attention because children, pregnant women, the elderly, and those with existing health problems are especially vulnerable to the non-

[10] *Air Quality and Land Use Handbook,* p. 4, Table 1-1.

[11] This recommendation is put forth to minimize potential non-cancer health effects of exposure to pollutants known to increase incidence of asthma and other respiratory ailments, particularly fine particulates, as well as cancer risk from exposure to DPM and chemicals from automobile exhaust.

[12] California Air Resources Board, Fact Sheet, "The Toxic Air Contaminant Identification Process: Toxic Air Contaminant Emissions from Diesel-fueled Engines." October 1998. Available online at http://www.arb.ca.gov/toxics/dieseltac/factsht1.pdf. Accessed April 16, 2012.

[13] California Air Resources Board, California Almanac of Emissions and Air Quality - 2009 Edition, Table 5-44 and p. 5-44. Available online at http://www.arb.ca.gov/aqd/almanac/almanac09/pdf/chap509.pdf. Accessed May 26, 2011.

[14] This calculated cancer risk values from ambient air exposure in the Bay Area can be compared against the lifetime probability of being diagnosed with cancer in the United States, from all causes, which is more than 40 percent (based on a sampling of 17 regions nationwide), or greater than 400,000 in one million, according to the National Cancer Institute.

cancer effects of air pollution. There is also substantial evidence that children are more sensitive to cancer-causing chemicals.[15]

In 2000, the ARB approved a comprehensive Diesel Risk Reduction Plan to reduce diesel emissions from both new and existing diesel-fueled vehicles and engines. Subsequent ARB regulations apply to new trucks and to diesel fuel. With new controls and fuel requirements, 60 trucks built in 2007 would have the same soot exhaust emissions as one truck built in 1988.[16] Despite notable emission reductions, the ARB recommends that proximity to sources of DPM emissions be considered in the siting of new sensitive land uses. The ARB notes that these recommendations are advisory and should not be interpreted as defined "buffer zones." ARB acknowledges that land use agencies must balance other considerations, including housing and transportation needs, the benefits of urban infill, community economic development priorities, and other quality-of-life issues. With careful evaluation of exposure, health risks, and affirmative steps to reduce risk where necessary, ARB's position is that infill development, mixed-use, higher density, transit-oriented development, and other concepts that benefit regional air quality can be compatible with protecting the health of individuals at the neighborhood level.[17]

SENSITIVE RECEPTORS

Air quality does not affect every individual in the population in the same way, and some groups are more sensitive to adverse health effects than others. As noted above, population subgroups sensitive to the health effects of air pollutants include the elderly and the young, population subgroups with higher rates of respiratory disease such as asthma and chronic obstructive pulmonary disease, and populations with other environmental or occupational health exposures (e.g., indoor air quality) that affect cardiovascular or respiratory diseases. Sensitive receptors are defined by BAAQMD as: "Facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples include schools, hospitals and residential areas." Compared to commercial and industrial areas, people generally spend longer periods of time at their residences, with associated greater exposure to ambient air quality conditions.[18] The proximity of sensitive receptors to motor vehicles is an air pollution concern, especially in San Francisco. Epidemiologic studies have consistently demonstrated that children and adults living in proximity to freeways or busy roadways have poorer health outcomes, including increased asthma

[15] *Air Quality and Land Use Handbook,* p. ES-1.
[16] Pollution Engineering, New Diesel Fuel Rules Start. Available online at http://www.pollutioneng.com/CDA/. Accessed April 18, 2012.
[17] *Air Quality and Land Use Handbook,* p. ES-2.
[18] The factors responsible for variation in exposure are also often similar to factors associated with greater susceptibility to air quality health effects.

symptoms and respiratory infections, and decreased pulmonary function and lung development in children. Vehicles also contribute to particulates by generating road dust and through tire wear.

The nearest existing sensitive receptors for the proposed project are residences located approximately 100 feet northeast and approximately 150 feet east of the project site. The nearest day care is 920 feet to the south. Additionally, the proposed project would introduce new sensitive receptors (residences) to the vicinity of existing nearby sources of emissions.

In determining whether sources of emissions may affect nearby sensitive receptors, a summary of research findings in CARB's *Land Use Compatibility Handbook* suggests that air pollutants from high-volume roadways are substantially reduced or can even be indistinguishable from upwind background concentrations at a distance of 1,000 feet downwind from sources such as freeways and large distribution centers. Given the scientific data on dispersion of TACs from a source, the BAAQMD recommends assessing impacts of sources of TACs on nearby receptors within a 1,000-foot radius. This radius is also consistent with CARB's *Land Use Compatibility Handbook* and California Health and Safety Code Section 42301.6 (Notice for Possible Source Near School).[19]

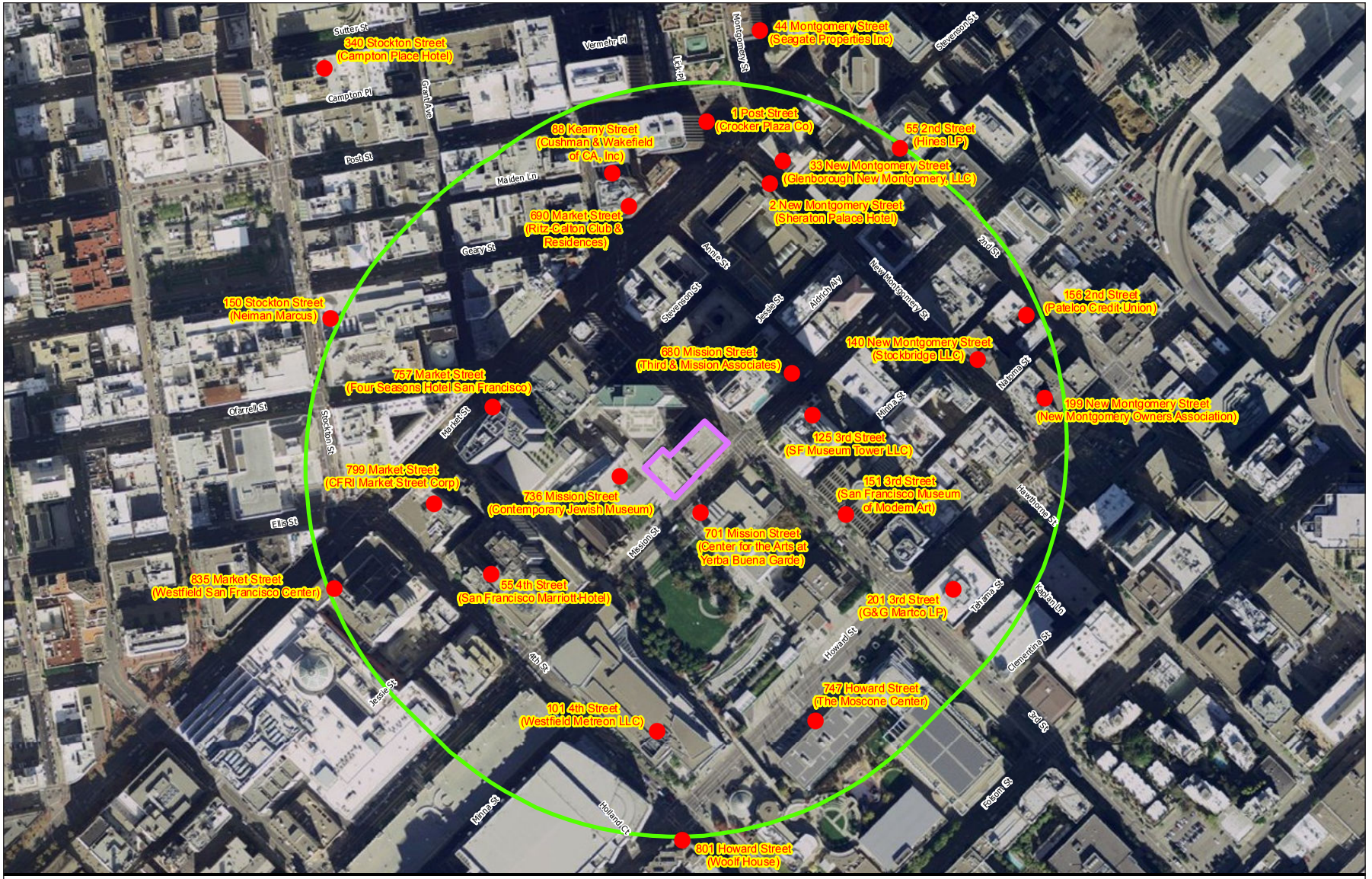
Existing Stationary Sources of Air Pollution

Records provided as part of the BAAQMD's inventory of permitted stationary sources of emissions show 24 permitted stationary emission sources present within or near the 1,000-foot zone of influence of the project site, as presented in Figure IV.G.1: Project Site and Existing Stationary Sources. These permitted facilities are made up of stationary diesel engines for back-up power generators or fire water pump engines, which are for emergency use only, with some additional permitted natural gas-fired (non-diesel) heating systems.

Major Roadways Contributing to Air Pollution

Each of the arterial streets in the existing local roadway system within the 1,000-foot zone of influence has at least 10,000 vehicles in annual average daily traffic. The traffic contributes to elevated concentrations of $PM_{2.5}$, DPM, and other contaminants emitted from motor vehicles near the street level. Aside from the surrounding major roadways, no other areas of mobile-source activity or otherwise "non-permitted" sources (e.g., railyards, trucking distribution facilities, and high-volume fueling stations) are located within 1,000 feet of the project site.

[19] BAAQMD *Guidelines*, pp. D-38 and D-40.



SOURCE: Aspen Environmental, Turnstone Consulting

FIGURE IV.G.1: PROJECT SITE AND EXISTING STATIONARY SOURCES

ODOR EMISSIONS

There are no significant odor sources in the vicinity of the project site. The BAAQMD investigated complaints of odors in the vicinity of the project site.[20] Fifty-five unconfirmed and confirmed odor complaints occurred in the vicinity of the project site over the last three years, but none were confirmed for any location within about 1,000 feet of the project site. None of the odor complaints filed for these facilities indicated a violation of BAAQMD rules or regulations.

REGULATORY FRAMEWORK

Federal/State

Federal Ambient Air Quality Standards

The 1970 Clean Air Act (as amended in 1990) required that regional planning and air pollution control agencies prepare a regional air quality plan to outline the measures by which both stationary and mobile sources of pollutants will be controlled in order to achieve all standards by the deadlines specified in the Clean Air Act. These ambient air quality standards are intended to protect the public health and welfare, and they specify the concentration of pollutants (with an adequate margin of safety) to which the public can be exposed without adverse health effects. They are designed to protect those segments of the public most susceptible to respiratory distress, including asthmatics, the very young, the elderly, people weak from other illness or disease, or persons engaged in strenuous work or exercise. Healthy adults can tolerate occasional exposure to air pollution levels that are somewhat above ambient air quality standards before adverse health effects are observed.

The current attainment status for the SFBAAB, with respect to federal standards, is summarized in Table IV.G.3: State and Federal Ambient Air Quality Standards. In general, the SFBAAB experiences concentrations that attain the standards for most pollutants except for ozone and particulate matter. In June 2004, the Bay Area was designated as a marginal nonattainment area of the national 8-hour ozone standard. USEPA lowered the national 8-hour ozone standard from 0.80 to 0.75 parts per million (ppm) effective May 27, 2008. On February 7, 2012 the USEPA proposed a rule that takes necessary steps to implement the 2008 national 8-hour ozone standard, establishing an approach for classification of nonattainment areas – areas not meeting the

[20] BAAQMD, Response to Public Records Request received via e-mail June 2, 2011. This document is available for review at the Planning Department, 1650 Mission Street, Suite 400, San Francisco, California, as part of Case File No. 2008.1084E.

Table IV.G.3: State and Federal Ambient Air Quality Standards

		(State) CAAQS[a]		(Federal) NAAQS[b]	
Pollutant	**Averaging Time**	**Standard**	**Attainment Status**	**Standard**	**Attainment Status**
Ozone	1 hour	0.09 ppm	**N**	---	See Note c
	8 hour	0.07 ppm	**N**[d]	0.075 ppm	**N**/Marginal
Carbon Monoxide (CO)	1 hour	20 ppm	A	35 ppm	A
	8 hour	9 ppm	A	9 ppm	A
Nitrogen Dioxide (NO_2)	1 hour	0.18 ppm	A	0.100 ppm	U
	Annual	0.03 ppm	---	0.053 ppm	A
Sulfur Dioxide (SO_2)	1 hour	0.25 ppm	A	0.075 ppm	---
	3 hour	---	---	0.5 ppm	A
	24 hour	0.04 ppm	A	---	---
Particulate Matter (PM_{10})	24 hour	50 $\mu g/m^3$	**N**	150 $\mu g/m^3$	U
	Annual[e]	20 $\mu g/m^3$	**N**	---	---
Fine Particulate Matter ($PM_{2.5}$)	24 hour	---	---	35 $\mu g/m^3$	**N**
	Annual	12 $\mu g/m^3$	**N**	15 $\mu g/m^3$	A
Sulfates	24 hour	25 $\mu g/m^3$	A	---	---
Lead	30 day	1.5 $\mu g/m^3$	A	---	---
	Quarterly	---	---	1.5 $\mu g/m^3$	A
Hydrogen Sulfide	1 hour	0.03 ppm	U	---	---
Visibility-Reducing Particles	8 hour	See Note f	U	---	---

Notes:

A = Attainment; N = Nonattainment; U = Unclassified; --- = Not Applicable, no applicable standard; ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter.

[a] CAAQS = California ambient air quality standards. CAAQS for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1-hour and 24-hour), nitrogen dioxide, particulate matter, and visibility-reducing particles are values that are not to be exceeded. All other State standards shown are values not to be equaled or exceeded.

[b] NAAQS = national ambient air quality standards. NAAQS, other than ozone and particulates, and those based on annual averages or annual arithmetic means, are not to be exceeded more than once a year. The 8-hour ozone standard is attained when the three-year average of the fourth highest daily concentration is 0.075 ppm or less. The 24-hour PM_{10} standard is attained when the three-year average of the 99th percentile of monitored concentrations is less than the standard. The 24-hour $PM_{2.5}$ standard is attained when the three-year average of the 98th percentile is less than the standard.

[c] The USEPA revoked the national 1-hour ozone standard on June 15, 2005.

[d] This state 8-hour ozone standard was approved in April 2005 and became effective in May 2006.

[e] State standard = annual geometric mean; national standard = annual arithmetic mean.

[f] Statewide visibility-reducing particle standard (except Lake Tahoe Air Basin): Particles in sufficient amount to produce an extinction coefficient of 0.23 per kilometer when the relative humidity is less than 70 percent. This standard is intended to limit the frequency and severity of visibility impairment due to regional haze and is equivalent to a 10-mile nominal visual range.

Source: Bay Area Air Quality Management District, *Standards and Attainment Status*, April 2011. Available online at http://hank.baaqmd.gov/pln/air_quality/ambient_air_quality.htm. Accessed April 17, 2012.

2008 ozone standard.[21] The SFBAAB is in attainment for criteria air pollutants with the exception of ozone and $PM_{2.5}$. The SFBAAB is unclassified for the national PM_{10} standard, but in 2009, the USEPA designated the Bay Area as a nonattainment area for $PM_{2.5}$.

State Ambient Air Quality Standards

Although the federal Clean Air Act established national ambient air quality standards, individual states retained the option to adopt more stringent standards and to include other pollution sources. California had already established its own air quality standards when federal standards were established, and because of the differing implementing authorities in California, there is considerable diversity between the state and national ambient air quality standards, as shown in Table IV.G.3, p. IV.G.14. California ambient standards tend to be at least as protective as national ambient air quality standards and are generally more stringent.

In 1988, California passed the California Clean Air Act (California Health and Safety Code Sections 39000 et seq.), which, like its federal counterpart, called for the designation of areas as attainment or nonattainment, but based on state ambient air quality standards rather than the federal standards. As indicated in Table IV.G.3, the SFBAAB is designated as "nonattainment" for state ozone, PM_{10}, and $PM_{2.5}$ standards, and attains the state standards for other pollutants.

Bay Area Air Quality Planning Relative to State and Federal Standards

Air quality plans developed to meet federal requirements are referred to as State Implementation Plans. The federal and state Clean Air Acts require plans to be developed for areas designated as nonattainment (with the exception of areas designated as nonattainment for the state PM_{10} standard). The *2010 Bay Area Clean Air Plan* was adopted on September 15, 2010, by the BAAQMD, in cooperation with the Bay Area Metropolitan Transportation Commission (MTC), the Bay Conservation and Development Commission (BCDC), and the Association of Bay Area Governments (ABAG). The *2010 Clean Air Plan* outlines a multi-pollutant approach for addressing ozone, particulate matter, air toxics, and greenhouse gas emission reductions in a single, integrated strategy. The primary objectives of the plan are to improve local and regional air quality, protect public health, and minimize climate change impacts. The *2010 Clean Air Plan* replaces the Bay Area *2005 Ozone Strategy*, adopted in 2006.

The *2010 Clean Air Plan* updates the *2005 Ozone Strategy* in accordance with the requirements of the California Clean Air Act to implement "all feasible measures" to reduce ozone; provide a

[21] USEPA, *Fact Sheet, Proposed Rule - Implementation of the 2008 National Ambient Air Quality Standards for Ozone: Nonattainment Area Classifications Approach and Attainment Deadlines*. Available online at http://www.epa.gov/air/ozonepollution/pdfs/20120203factsheet.pdf. Accessed February 16, 2012.

control strategy to reduce ozone, particulate matter, toxic air contaminants, and greenhouse gases in a single, integrated plan; review progress in improving air quality in recent years; and establish emission control measures to be adopted or implemented in the 2010 – 2012 time frame. The control strategy includes stationary-source control measures to be implemented through BAAQMD regulations; mobile-source control measures to be implemented through incentive programs and other activities; and transportation control measures to be implemented through transportation programs in cooperation with the MTC, local governments, transit agencies, and others. The *2010 Clean Air Plan* also represents the Bay Area's most recent triennial assessment of the region's strategy to attain the state one-hour ozone standard.[22]

Toxic Air Contaminants

In 2005, the ARB approved a regulatory measure to reduce emissions of toxic and criteria pollutants by limiting the idling of new heavy-duty diesel vehicles. The regulations generally limit idling of commercial motor vehicles (including buses and trucks) within 100 feet of a school or residential area for more than five consecutive minutes or periods aggregating more than five minutes in any one hour.[23] Buses or vehicles also must turn off their engines upon stopping at a school and must not turn their engines on more than 30 seconds before beginning to depart from a school. Also, state law Senate Bill 352 (SB 352) was adopted in 2003 and limits locating public schools within 500 feet of a freeway or busy traffic corridor (Section 17213 of the Education Code; Section 21151.8 of the Public Resources Code).

Bay Area Air Quality Management District

The BAAQMD is the regional agency with jurisdiction over the nine-county region located in the San Francisco Bay Area Air Basin. ABAG, MTC, county transportation agencies, cities and counties, and various non-governmental organizations also join in the efforts to improve air quality through a variety of programs. These programs include the adoption of regulations and policies, as well as implementation of extensive education and public outreach programs.

BAAQMD is responsible for attaining and/or maintaining air quality in the region within federal and state air quality standards. Specifically, BAAQMD has the responsibility to monitor ambient

[22] BAAQMD, *2010 Clean Air Plan*. Available online at http://www.baaqmd.gov/Divisions/Planning-and-Research/Plans/Clean-Air-Plans.aspx. Accessed April 28, 2011.

[23] There are 12 exceptions to this requirement (e.g., emergency situations, military, adverse weather conditions, etc.), including when a vehicle's power takeoff is being used to run pumps, blowers, or other equipment; when a vehicle is stuck in traffic, stopped at a light, or under direction of a police officer; when a vehicle is queuing beyond 100 feet from any restricted area; or when an engine is being tested, serviced, or repaired.

air pollutant levels throughout the region and to develop and implement strategies to attain the applicable federal and state standards.

Local

San Francisco General Plan Air Quality Element

The *San Francisco General Plan* (*General Plan*) includes the Air Quality Element.[24] The objectives specified by the City include the following:

Objective 1: Adhere to state and federal air quality standards and regional programs.

Objective 2: Reduce mobile sources of air pollution through implementation of the Transportation Element of the *General Plan.*

Objective 3: Decrease the air quality impacts of development by coordination of land use and transportation decisions.

Objective 4: Improve air quality by increasing public awareness regarding the negative health effects of pollutants generated by stationary and mobile sources.

Objective 5: Minimize particulate matter emissions from road and construction sites.

Objective 6: Link the positive effects of energy conservation and waste management to emission reductions.

San Francisco Construction Dust Control Ordinance

The San Francisco *Health Code* Article 22B and San Francisco Building Code Section 106A.3.2.6 collectively constitute the Construction Dust Control Ordinance (adopted in July 2008). The Ordinance requires that all site preparation work, demolition, or other construction activities within San Francisco that have the potential to create dust or to expose or disturb more than 10 cubic yards or 500 square feet of soil comply with specific dust control measures whether or not the activity requires a permit from the Department of Building Inspection (DBI). For projects over one-half acre, the Dust Control Ordinance requires that the project sponsor submit a Dust Control Plan for approval by the San Francisco Department of Public Health (DPH) prior to issuance of a building permit by the DBI.

Building permits will not be issued without written notification from the Director of Public Health that the applicant has a site-specific Dust Control Plan, unless the Director waives the requirement. The Construction Dust Control Ordinance requires project sponsors and contractors responsible for construction activities to control construction dust on the site or implement other practices that result in equivalent dust control that are acceptable to the Director of Public Health.

[24] City and County of San Francisco, Planning Department, Air Quality, An Element of the *General Plan* of the City and County of San Francisco, July 1997, updated in 2000.

Dust suppression activities may include watering all active construction areas sufficiently to prevent dust from becoming airborne; increased watering frequency may be necessary whenever wind speeds exceed 15 miles per hour. Reclaimed water must be used if required by Article 21, Section 1100 et seq. of the San Francisco Public Works Code. The project site is 1.45 acres in size. Therefore, the project sponsor would be required to prepare a Dust Control Plan.

San Francisco *Health Code* Provisions Regarding Roadway-generated Pollutants (Article 38)

San Francisco adopted Article 38 of the *San Francisco Health Code* in 2008, requiring an Air Quality Assessment for new residential projects of 10 or more units located in proximity to high-traffic roadways, as mapped by the DPH, to determine whether residents would be exposed to unhealthful levels of $PM_{2.5}$. The air quality assessment evaluates the concentration of $PM_{2.5}$ from local roadway traffic that may impact a proposed residential development site. If the DPH air quality assessment indicates that the annual average concentration of $PM_{2.5}$ at the site would be greater than 0.2 $\mu g/m^3$, Health Code Section 3807 requires development on the site to be designed or relocated to avoid exposure greater than 0.2 $\mu g/m^3$, or a ventilation system to be installed that would be capable of removing 80 percent of ambient $PM_{2.5}$ from habitable areas of the residential units.

The project site is identified by DPH as being within proximity to high-traffic roadways and subject to the provisions of Article 38 if residential use is proposed. DPH accordingly conducted an analysis of annual exposure to roadway-related $PM_{2.5}$ using the USEPA approved dispersion model CAL3QHCR.[25] DPH used one year of meteorological data provided by BAAQMD from a meteorological tower in the Mission Bay area, and the vehicle counts for Third Street, Mission Street, Jessie Street, and Stevenson Street taken from the SF CHAMP traffic model maintained by the San Francisco County Transportation Authority. The maximum average annual exposure at receptors 45 feet above ground level and within the boundaries of the project site is estimated to be 0.03 $\mu g/m^3$, which is below the action threshold for mitigation required by Article 38.

IMPACTS

Air quality impacts from land development projects result from project construction and operation. Construction emissions, primarily dust generated by earth-moving activities and pollutants emitted by construction vehicles, would have a short-term effect on air quality. Operational emissions generated by project-related traffic, combustion of natural gas for building

[25] City and County of San Francisco Department of Public Health (DPH), Program on Health Equity and Sustainability, *RE: 706 Mission Street – Planning Dept. #2008.1084E*. February 10, 2010. This document is available for review at the Planning Department,1650 Mission Street, Suite 400, San Francisco, California, as part of Case File Number 2008.1084E.

space and water heating, and diesel fuel use for back-up power would affect air quality throughout the lifetime of the project.

SIGNIFICANCE CRITERIA

The thresholds for determining the significance of impacts in this analysis are consistent with the environmental checklist in Appendix G of the State CEQA Guidelines, which has been adopted and modified by the San Francisco Planning Department. For the purpose of this analysis, the following applicable thresholds were used to determine whether implementing the project would result in a significant impact on air quality. Implementation of the proposed project would have a significant effect on air quality if the project would:

G.1 Conflict with or obstruct implementation of the applicable air quality plan;

G.2 Violate any air quality standard or contribute substantially to an existing or projected air quality violation;

G.3 Result in a cumulatively considerable net increase of any criteria air pollutant for which the project region is in nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors);

G.4 Expose sensitive receptors to substantial pollutant concentrations; or

G.5 Create objectionable odors affecting a substantial number of people.

PROJECT FEATURES

The project site is approximately 1.45 acres. The proposed project consists of the construction of a new, approximately 550-foot-tall tower (520 feet in height with a 30-foot mechanical penthouse) that would be adjacent to and physically connected to the existing Aronson Building at 706 Mission Street. The Aronson Building would be restored and rehabilitated. In addition, the existing Jessie Square Garage would be conveyed to the project sponsor and would be converted from a public parking garage to a public and private parking garage. The overall project would contain up to 215 residential units, seven floors of flex space in the Aronson Building, which is analyzed in this EIR as residential use or office use, space for The Mexican Museum, a ground-floor retail/restaurant use, and associated building services. The proposed project would be a high-density mixed-use infill development in a transit-oriented area. The project sponsor would comply with requirements to provide Class I and Class II bicycle parking spaces and car-share parking spaces. In addition, the proposed project would include energy-efficiency features that would exceed Title 24 requirements.

The proposed project would include the siting of new sensitive receptors as well as the introduction of new stationary sources of emissions subject to permitting requirements: a diesel-fueled back-up emergency generator engine; and natural gas–fired mechanical systems or boilers.

The engine would likely be located in the basement with vents for exhaust and intake being oriented toward the north property line at or above the first floor. Development of the proposed project would introduce additional vehicular traffic in the project vicinity.

APPROACH TO ANALYSIS

This section discusses the thresholds for determining whether a project would result in a significant air quality impact. Table IV.G.4: Air Quality Significance Thresholds, below, summarizes the air quality thresholds of significance. The table is followed by a discussion of each threshold.

Table IV.G.4: Air Quality Significance Thresholds

	Construction Thresholds	Operational Thresholds	
Pollutant	**Average Daily Emissions (lb/day)**	**Average Daily Emissions (lb/day)**	**Annual Average Emissions (tons/year)**
Criteria Air Pollutants			
ROG	54	54	10
NOx	54	54	10
PM_{10}	82	82	15
$PM_{2.5}$	54	54	10
CO	Not Applicable	9.0 ppm (8-hour average) or 20.0 ppm (1-hour average)	
Fugitive Dust	Construction Dust Ordinance or other Best Management Practices	Not Applicable	
Health Risks and Hazards for New Sources			
Excess Cancer Risk	10 per one million		
Chronic or Acute Hazard Index	1.0		
Incremental annual average $PM_{2.5}$	0.3 $\mu g/m^3$		
Health Risks and Hazards for Sensitive Receptors (Cumulative from Sources within 1,000-foot zone of influence) and Cumulative Thresholds for New Sources			
Excess Cancer Risk	100 per one million		
Chronic Hazard Index	10.0		
Annual Average $PM_{2.5}$	0.8 $\mu g/m^3$		

Although BAAQMD's adoption of significance thresholds in 2010 and 2011 are the subject of recent judicial actions, the Planning Department has determined that Appendix D of the BAAQMD *CEQA Air Quality Guidelines*,[26] in combination with BAAQMD's *Revised Draft*

[26] BAAQMD *Guidelines*, Appendix D.

Options and Justification Report,[27] provide substantial evidence to support the BAAQMD recommended thresholds. Therefore, the Planning Department has determined these thresholds are appropriate for use in this analysis.

Ozone Precursors

As discussed previously, the SFBAAB is currently designated as non-attainment for ozone and particulate matter (PM_{10} and $PM_{2.5}$). Ozone is a secondary air pollutant produced in the atmosphere through a complex series of photochemical reactions involving ROG and NOx. The BAAQMD is the primary air quality regulatory agency in the SFBAAB charged with ensuring that the region attains applicable federal and state ambient air quality standards. The potential for a project to result in a cumulatively considerable net increase in criteria air pollutants, which may contribute to an existing or projected air quality violation, is based on emissions limits for stationary sources set in the state and federal Clean Air Acts. The federal New Source Review (NSR) program was created by the federal Clean Air Act to ensure that stationary sources of air pollution are constructed in a manner that is consistent with attainment of federal health-based ambient air quality standards. Similarly, to ensure that new stationary sources do not cause or contribute to a violation of an air quality standard, BAAQMD Regulation 2, Rule 2 requires that any new source that emits criteria air pollutants above a specified emissions limit must offset those emissions. For ozone precursors, ROG and NOx, the offset emissions level is an annual average of 10 tons per year (or 54 pounds per day).[28] These levels represent emissions by which new sources are not anticipated to contribute to an air quality violation or result in a considerable net increase in criteria air pollutants.

Although this regulation applies to new or modified stationary sources, land use development projects result in ROG and NOx emissions as a result of increases in vehicle trips, architectural coating and construction activities. Therefore, the above thresholds can be applied to the construction and operational phases of land use projects, and projects that result in emissions below these thresholds would not be considered to contribute to an existing or projected air quality violation or result in a considerable net increase in ROG and NOx emissions. Because construction activities are temporary in nature, only the average daily thresholds are applicable to construction phase emissions.

[27] BAAQMD, *Revised Draft Options and Justification Report, California Environmental Quality Act Thresholds of Significance*, October 2009.
[28] Ibid, p. 17.

Particulate Matter (PM_{10} and $PM_{2.5}$)

The BAAQMD has not established an offset limit for $PM_{2.5}$ and the current federal Prevention of Significant Deterioration (PSD) offset limit of 100 tons per year for PM_{10} is too high and would not be an appropriate significance threshold for the SFBAAB considering the nonattainment status of PM_{10}. However, the emissions limits provided for in the federal NSR that applies to stationary sources that emit criteria air pollutants in areas that are currently designated as nonattainment are an appropriate significance threshold. For PM_{10} and $PM_{2.5}$, the emissions limits under NSR are 15 tons per year (82 pounds per day) and 10 tons per year (54 pounds per day), respectively. These emissions limits represent levels at which a source is not expected to have an impact on air quality.[29] Similar to ozone precursor thresholds identified above, land use development projects typically result in particulate matter emissions as a result of increases in vehicle trips, space heating and natural gas combustion, landscape maintenance, and construction activities. Therefore, the above thresholds can be applied to the construction and operational phases of a land use project. Those projects that result in emissions below the NSR emissions limits would not be considered to contribute to an existing or projected air quality violation or result in a considerable net increase in PM_{10} and $PM_{2.5}$ emissions. Because construction activities are temporary in nature, only the average daily thresholds are applicable to construction-phase emissions.

Other Criteria Pollutants

Regional concentrations of CO have not exceeded the California ambient air quality standards in the past 11 years**,** and SO_2 concentrations have never exceeded the standards. The primary source of CO impacts from land use projects are vehicle traffic. Construction-related SO_2 emissions represent a negligible portion of the total basin-wide emissions and construction-related CO emissions represent less than 5 percent of the total basin-wide CO emissions.[30] As discussed under "Regulatory Framework" (pp. IV.G.13-IV.G.15), the SFBAAB is designated as attainment for both CO and SO_2. Furthermore, the BAAQMD has demonstrated that in order to exceed the California ambient air quality standard of 9.0 ppm (8-hour average) or 20.0 ppm (1-hour average) for CO, project traffic in addition to existing traffic would need to exceed 44,000 vehicles per hour at affected intersections (or 24,000 vehicles per hour where vertical and/or horizontal mixing is limited). Therefore, given the region's attainment status and the limited CO and SO_2 emissions that could result from a land use project, land use projects would not result in a cumulatively considerable net increase in CO or SO_2, and quantitative analysis would not be required.

[29] Ibid, p. 16.
[30] Ibid, p. 27.

Fugitive Dust

Fugitive dust emissions are typically generated during construction phases. Studies have shown that the application of best management practices (BMPs) at construction sites significantly control fugitive dust.[31] Individual measures have been shown to reduce fugitive dust by anywhere from 30 percent to 90 percent.[32] The BAAQMD has identified a number of BMPs to control fugitive dust emissions from construction activities.[33] As discussed under "Regulatory Framework" (pp. IV.G.17-IV.G.18), the City's Construction Dust Control Ordinance requires a number of measures to control fugitive dust. The construction dust control ordinance has a mandate for "no visible dust." The BMPs employed in compliance with the City's Construction Dust Control Ordinance provide an effective strategy for controlling fugitive dust.

Health Risks and Hazards from New or Modified Sources

Construction activities typically require the use of heavy-duty diesel vehicles and equipment, which emit DPM. ARB identified DPM as a TAC in 1998, based on evidence demonstrating cancer effects in humans.[34] The exhaust from diesel engines includes hundreds of different gaseous and particulate components, many of which are toxic. Mobile sources such as trucks and buses are among the primary sources of diesel emissions, and concentrations of DPM are higher near heavily traveled highways. Other sources of health risks and hazards include gas stations, stationary diesel engines (i.e., backup generators), dry cleaners, crematories, spray booths, diesel-fueled railroads, major ports, railyards, airports, oil refineries, power plants, and cement plants.[35] Land use projects that require a substantial amount of heavy-duty diesel vehicles and equipment, as well as projects that require stationary sources, such as a diesel back-up generator, would result in emissions of DPM and possibly other TACs that may affect nearby sensitive receptors. Construction-phase TACs, however, would be temporary, and current health risk modeling methodologies are associated with longer-term exposure periods of 9, 40 and 70 years, which do not correlate well with the temporary and highly variable nature of construction

[31] Western Regional Air Partnership, *WRAP Fugitive Dust Handbook*, September 7, 2006. Available online at http://www.wrapair.org/forums/dejf/fdh/content/FDHandbook_Rev_06.pdf. Accessed February 16, 2012.
[32] BAAQMD, *Revised Draft Options and Justification Report, California Environmental Quality Act Thresholds of Significance*, October 2009, p. 27.
[33] BAAQMD *Guidelines*.
[34] California Air Resources Board, Fact Sheet, "The Toxic Air Contaminant Identification Process: Toxic Air Contaminant Emissions from Diesel-fueled Engines," October 1998. Available online at http://www.arb.ca.gov/toxics/dieseltac/factsht1.pdf. Accessed April 16, 2012.
[35] BAAQMD, *Recommended Methods for Screening and Modeling Local Risks and Hazards,* May 2011, p. 11.

activities, resulting in difficulties with producing accurate modeling results.[36] Nevertheless, DPM is a known TAC, and therefore appropriate thresholds are identified to ensure that a project does not expose sensitive receptors to substantial pollutant concentrations.

Similar to criteria pollutant thresholds identified above, the BAAQMD Regulation 2, Rule 5 sets cancer risk limits for new and modified sources of TACs at the maximally exposed individual (MEI). In addition to cancer risk, some TACs pose non-carcinogenic chronic or acute health hazards. Acute and chronic non-cancer health hazards are expressed in terms of a hazard index, or HI, which is a ratio of the TAC concentration to a reference exposure level (REL), a level below which no adverse health effects are expected, even for sensitive individuals.[37] In accordance with Regulation 2, Rule 5, the BAAQMD Air Pollution Control Officer shall deny any permit to operate a source that results in an increased cancer risk of 10 per million or an increase chronic or acute HI of 1.0 at the MEI. This threshold is designed to ensure that the source does not contribute to a cumulatively significant health risk impact.[38]

In addition, particulate matter, primarily associated with mobile sources (vehicular emissions) is strongly associated with mortality, respiratory diseases, and impairment of lung development in children, and other endpoints such as hospitalization for cardiopulmonary disease. Based on toxicological and epidemiological research, smaller particles and those associated with traffic appear more closely related to health effects.[39] Therefore, estimates of $PM_{2.5}$ impacts from a new source can be used to approximate broader potential adverse health effects. In 2010, USEPA established a Significant Impact Level (SIL) for $PM_{2.5}$ of 0.3 $\mu g/m^3$ (annual average concentration). The SIL represents the level of incremental $PM_{2.5}$ impact that represents a significant contribution to regional non-attainment.[40] The BAAQMD has determined that on balance the annual average $PM_{2.5}$ threshold of 0.3 $\mu g/m^3$ will afford the same health protections as required by San Francisco's Health Code Article 38.[41] Therefore**,** the USEPA $PM_{2.5}$ SIL of 0.3 $\mu g/m^3$ is an appropriate threshold for determining the significance of a source's $PM_{2.5}$ impact.

In determining the potential distance that emissions from a new source (construction sources or operational sources) may affect nearby sensitive receptors, a summary of research findings in ARB's *Land Use Compatibility Handbook* suggest that air pollutants from high-volume roadways

[36] BAAQMD, *Revised Draft Options and Justification Report, California Environmental Quality Act Thresholds of Significance,* October 2009, p. 29.
[37] Ibid, p. D-35.
[38] BAAQMD *Guidelines*, May 2011, p. D-40.
[39] San Francisco Department of Public Health, *Assessment and Mitigation of Air Pollutant Health Effects for Intra Urban Roadways*: *Guidance for Land Use Planning and Environmental Review*, May 2008, p. 5. Available online at http://www.sfdph.org/dph/EH/Air/MitRoadway111907.pdf. Accessed April 18, 2012.
[40] BAAQMD *Guidelines*, p. D-36.
[41] Ibid, p. 41.

are substantially reduced or can even be indistinguishable from upwind background concentrations at a distance of 1,000 feet downwind from sources such as freeways and large distribution centers.[42] Given the scientific data on dispersion of TACs from a source, the BAAQMD recommends assessing impacts of sources of TACs on nearby receptors within a 1,000-foot radius.[43] This radius is also consistent with ARB's *Land Use Compatibility Handbook* and Health and Safety Code Section 42301.6 (Notice for Possible Source Near School).[44]

In summary, potential health risks and hazards from new sources on existing or proposed sensitive receptors are assessed within a 1,000-foot zone of influence and risks and hazards from new sources that exceed any of the following thresholds at the MEI are determined to be significant: excess cancer risk of 10 per one million, chronic or acute HI of 1.0, and annual average $PM_{2.5}$ increase of 0.3 $\mu g/m^3$.

Health Risks and Hazards for New Receptors

As discussed above, sources of TACs have the greatest impact on receptors that are located in close proximity to pollutant sources. The farther away from a significant source of TACs, the less a receptor is exposed to hazardous air pollutants. As described above, BAAQMD recommends assessing the impacts of sources of TACs within 1,000 feet of a sensitive receptor. Therefore, an analysis of the potential impacts to new receptors should consider all cumulative sources of TACs within the 1,000-foot zone of influence. For projects siting new sensitive receptors, existing and proposed sources of TACs should not expose new sensitive receptors to an excess cancer risk greater than 100 per one million. This absolute limit is based on USEPA guidance for conducting air toxic analyses and making risk management decisions at the facility and community-scale level.[45] As described by the BAAQMD, USEPA considers a cancer risk of 100 per million to be within the "acceptable" range of cancer risk. Furthermore, in the 1989 preamble to the benzene National Emissions Standards for Hazardous Air Pollutants (NESHAP) rulemaking,[46] USEPA states that it "…strives to provide maximum feasible protection against risks to health from hazardous air pollutants by (1) protecting the greatest number of persons possible to an individual lifetime risk level no higher than approximately one in one million and (2) limiting to no higher than approximately one in ten thousand [100 in one million] the estimated risk that a person living near a plant would have if he or she were exposed to the maximum pollutant concentrations for 70 years." The 100 per one million excess cancer cases is also consistent with the ambient cancer risk in the most pristine portions of the Bay Area

[42] BAAQMD *Guidelines*, p. D-38.
[43] Ibid, p. D-40.
[44] Ibid, p. 40.
[45] BAAQMD, *Revised Draft Options and Justification Report, California Environmental Quality Act Thresholds of Significance,* October 2009, p. 67.
[46] 54 Federal Register 38044, September 14, 1989.

based on BAAQMD regional modeling.[47] Therefore, when siting new sensitive receptors near sources of TACs and other hazardous air pollutants, the threshold for an incremental increase in cancer risk is 100 per million.

The BAAQMD's Air Toxics Hot Spots (ATHS) program provides guidance for implementing the Air Toxics Hot Spots Information and Assessment Act.[48] Accordingly, the BAAQMD has established a chronic non-cancer HI of 10.0. Any sources exceeding this level are required to implement mandatory risk reduction levels. As such, a chronic non-cancer HI of 10.0 from cumulative sources of TACs is an appropriate threshold when siting sensitive land uses.[49]

In 2007, USEPA proposed a range for the SIL for $PM_{2.5}$ from 0.3 $\mu g/m^3$ to 0.8 $\mu g/m^3$ (annual average). The SIL is intended to ensure that a source does not result in a cumulatively significant contribution to ambient $PM_{2.5}$ levels. Therefore, the upper-bound SIL of 0.8 $\mu g/m^3$ from all sources within 1,000 feet of a sensitive receptor is an appropriate level for determining a significant impact to new sensitive receptors.[50]

When siting new sensitive receptors, the thresholds identified above represent the cumulative limits from all sources within a 1,000-foot zone of influence from the new receptor; therefore, single-source thresholds are unnecessary.

Cumulative Air Quality Impacts

Regional air quality impacts are by their very nature cumulative impacts. Emissions from past, present and future projects contribute to adverse regional air quality impacts on a cumulative basis. No single project by itself would be sufficient in size to result in nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulative adverse air quality impacts.[51] As described above, the project-level thresholds for criteria air pollutants are based on levels by which new sources are not anticipated to contribute to an air quality violation or result in a considerable net increase in criteria air pollutants. Therefore, if a project's emissions are below the project-level thresholds, the project would not be considered to result in a considerable contribution to cumulative regional air quality impacts.

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[47] BAAQMD, *Revised Draft Options and Justification Report, California Environmental Quality Act Thresholds of Significance,* October 2009, p. 67.

[48] Assembly Bill 2588, Connelly, 1987; Chaptered in the California Health and Safety Code Section 44300 et al.

[49] BAAQMD *Guidelines*, p. D-43.

[50] Ibid, p. D-43.

[51] BAAQMD, *California Environmental Quality Act (CEQA) Air Quality Guidelines*, June 2010; and adopted Thresholds of Significance, June 2010, p. 2-1. Available online at http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Updated-CEQA-Guidelines.aspx. Accessed April 18, 2012.

With respect to localized health risks and hazards, as described above, the significance thresholds for new receptors represent a cumulative impact analysis as this analysis considers all potential sources that may result in adverse health impacts within a receptor's zone of influence. Similarly, new sources that contribute to health risks and hazards at nearby sensitive receptors that exceed these cumulative thresholds would result in a significant health risk and hazards impact to existing sensitive receptors.

Consistency with Applicable Air Quality Plan

As discussed under "Regulatory Framework" (pp. IV.G.15-IV.G.16), the BAAQMD has published the *2010 Clean Air Plan*, representing the most current applicable air quality plan for the region SFBAAB. Consistency with this plan is the basis for determining whether the proposed project would conflict with or obstruct implementation of an applicable air quality plan. To determine consistency with the *2010 Clean Air Plan* (CAP), this analysis considers whether the project would (1) support the primary goals of the CAP, (2) include applicable control measures from the CAP, and (3) avoid disrupting or hindering implementation of control measures identified in the CAP.

IMPACT EVALUATION

All construction- and operation-related emissions of criteria air pollutants have been quantified using URBEMIS v.9.2 (2007), and TAC emissions have been quantified using standard USEPA speciation factors. A detailed forecast of the potential construction equipment fleet, construction-related vehicle trips, worker vehicle trips, and ground-disturbing activities were provided by the project sponsor. Construction phasing of overlapping activities was included in the emissions estimates. Additional separate calculations of operational emissions were prepared for new stationary sources associated with the proposed project. Where project-specific detail was not available, default settings were used. For all emission calculations, estimates were developed for both the residential flex option and office flex option, and the results are provided for the flex option that results in the highest emissions, as shown in the *Air Quality Technical Report*. The quantified mass emissions rates of the criteria air pollutants were then compared to the significance thresholds identified in Table IV.G.4. Details on the methodology and assumptions used for assessing construction and operational emissions are provided in the *Air Quality Technical Report* prepared for the proposed project.[52]

A refined air quality impact analysis was prepared using air dispersion modeling to determine whether existing sensitive receptors near the project site could be exposed to significant project-related risk or hazards during construction. The dispersion modeling also determined whether

[52] *Air Quality Technical Report*, pp. 10-11.

emissions from project-related stationary and mobile sources could affect existing nearby sensitive receptors during operation. The project-specific air dispersion modeling analysis was performed in conjunction with a risk assessment to quantify cancer risk levels and non-cancer hazards, and to determine $PM_{2.5}$ concentrations. Because this project involves complex nearby building configurations and numerous neighboring stationary sources and major roadways, a multi-source modeling system was necessary. Because all permitted stationary sources in the vicinity of this project site would be affected by the turbulent zones of surrounding structures, building downwash information was included, and the ISC3-Prime (Industrial Source Complex, version 04269) was used to determine concentrations from sources inside building cavity regions, the downwind zone where recirculation can occur. Standard, pre-processed meteorological data for years 2004 and 2005 from a weather tower in Mission Bay was readily available from BAAQMD for use with this model. The annual average and maximum 1-hour concentrations obtained through dispersion modeling were subsequently used in the risk assessment to quantify cancer and non-cancer health risk impacts and to evaluate $PM_{2.5}$ concentrations for comparison to the significance thresholds. Air dispersion models require a variety of inputs such as source parameters, meteorological parameters, and receptor parameters; each of these inputs is discussed in the *Air Quality Technical Report*.[53]

Construction Air Quality Impacts

Impact AQ-1: Construction of the proposed project would not violate an air quality standard or contribute substantially to an existing or projected air quality violation; nor would it result in a cumulatively considerable net increase of criteria air pollutants, for which the project region is in nonattainment under an applicable ambient air quality standard. ***(Less than Significant)*** **(Criteria G.2 and G.3)**

Demolition, excavation, foundation installation and construction of the new tower involve construction activities that would temporarily affect local air quality during the anticipated three-year construction schedule. This would cause temporary increases in particulate matter (fugitive dust) and other pollutant emissions. Construction dust includes PM_{10} and $PM_{2.5}$, primarily from "fugitive" sources; use of construction equipment and worker vehicles results in combustion-related emissions of criteria air pollutants (ROG, NOx, PM_{10}, and $PM_{2.5}$); and evaporative emissions (ROG) occur during application of architectural coatings for interior and exterior finishes.

Construction emissions were quantified for each construction phase and for the potential construction equipment fleet, construction-related vehicle trips, worker vehicle trips, and ground-disturbing activities using URBEMIS and combined to determine average daily emission

[53] *Air Quality Technical Report*, pp. 19-24.

rates. On-road vehicle trips include emissions from haul trucks for delivering construction material and removing debris and excavation spoils, and on-road emissions also include worker commutes. The inventory of off-road equipment was developed based upon project sponsor plans with project-specific equipment capacity information that is detailed in the *Air Quality Technical Report*.[54]

Criteria pollutant emissions from use of construction equipment and other construction-related sources are shown in Table IV.G.5: Construction-Phase Daily Emissions of Criteria Air Pollutants, which shows the unmitigated results.

Table IV.G.5: Construction-Phase Daily Emissions of Criteria Air Pollutants (lb/day)

Phases	ROG	NOx	Exhaust PM_{10}	Exhaust $PM_{2.5}$
Off Road, Construction Equipment	5.52	47.97	2.03	1.87
On Road, Construction Vehicles	0.11	1.28	0.05	0.04
Worker Trips	0.29	0.51	0.03	0.03
Architectural Coating	22.74	0.00	0.00	0.00
Total Average Daily Emissions	**28.66**	**49.76**	**2.11**	**1.94**
Significance Thresholds	**54**	**54**	**82**	**54**
Significant?	**No**	**No**	**No**	**No**

Note: lb/day = pounds per day.

Source: Aspen Environmental Group, *706 Mission Street Air Quality Technical Report*, February 2012. URBEMIS results and supporting calculations.

Unmitigated emissions of criteria air pollutants during construction of the proposed project would be below the applicable criteria air pollutant significance thresholds. Project construction-phase criteria air pollutant emissions that are at levels below the applicable thresholds would not violate an existing ambient air quality standard, contribute substantially to an existing or projected air quality violation, or result in a cumulatively considerable net increase in emissions of any criteria air pollutant. Therefore, the impact of the proposed project with respect to construction criteria air pollutant emissions would be less than significant. No mitigation measures would be necessary.

Impact AQ-2: Construction of the proposed project would not expose sensitive receptors to substantial pollutant concentrations of fugitive dust. ***(Less than Significant)*** **(Criteria G.2 and G.4)**

Dust can be an irritant that causes watering eyes or irritation to the lungs, nose, and throat. Demolition, excavation, and other construction activities can cause wind-blown dust and a local

[54] *Air Quality Technical Report*, pp. 4-5.

increase in the concentration of particulate matter. Depending on exposure, adverse health effects can occur due to particulate matter in general and also due to specific contaminants such as lead or asbestos that may be constituents of soil.

As discussed under "Regulatory Framework," p. IV.G.17, the Construction Dust Control Ordinance requires that all site preparation work, demolition, or other construction activities within San Francisco that have the potential to create dust or to expose or disturb more than 10 cubic yards or 500 square feet of soil comply with specified dust control measures whether or not the activity requires a permit from DBI. Additionally, all departments, boards, commissions, and agencies of the City and County of San Francisco that authorize construction or improvements on land under their jurisdiction shall adopt rules and regulations to insure that the same dust control requirements are followed.

As stated previously, the project site is over one-half acre in size and within 1,000 feet of sensitive receptors; therefore the project sponsor would be required by the Health Code Article 22B (Section 1242) to prepare and submit a site-specific Dust Control Plan to the Director of Public Health. The Dust Control Plan would require the project sponsor to submit a map to the Director of Public Health showing all sensitive receptors within 1,000 feet of the site, and the Dust Control Plan would need to contain all provisions of Building Code Section 106A.3.2.6.2, including enhanced site-specific dust monitoring and control measures that apply to the project. The site-specific measures in the Dust Control Plan may include the following or equivalent measures to accomplish the goal of minimizing visible dust: wet down areas of soil at least three times per day; provide an analysis of wind direction and install upwind and downwind particulate dust monitors; record particulate monitoring results; hire an independent, third party to conduct inspections and keep a record of those inspections; establish shut-down conditions if airborne dust is crossing the property boundary; establish a hotline for surrounding community members who may be potentially affected by project-related dust; limit the area subject to construction activities at any one time; install dust curtains and windbreaks on the property lines, as necessary; limit the amount of soil in hauling trucks to the size of the truck bed and secure soils with a tarpaulin; enforce a 15-mile-per-hour speed limit for vehicles entering and exiting construction areas; sweep affected streets with water sweepers at the end of the day; install and utilize wheel washers to clean truck tires; terminate construction activities when winds exceed 25 miles per hour; apply soil stabilizers to inactive areas; and sweep adjacent streets to reduce particulate emissions. The project sponsor would be required to designate an individual to monitor compliance with dust control requirements.

The regulations and procedures set forth by the San Francisco Health Code and Building Code, including preparation and implementation of a Dust Control Plan, would ensure that project-generated fugitive dust air quality impacts would be less than significant. No mitigation measures would be necessary.

Impact AQ-3: Construction of the proposed project would generate emissions of $PM_{2.5}$ and toxic air contaminants, including diesel particulate matter, at levels that would expose sensitive receptors to substantial pollutant concentrations. (*Less than Significant with Mitigation*) (Criterion G.4)

As discussed above, a proposed project would result in a significant health risk and hazards impact if construction activities would result in the following at the maximally exposed individual sensitive receptor (MEI): excess cancer risk of 10 per million, chronic or acute HI of 1.0, or annual average $PM_{2.5}$ concentrations in excess of 0.3 micrograms per cubic meter. Diesel-powered construction equipment generates emissions of $PM_{2.5}$ that is by definition diesel particulate matter (DPM), which is identified as a TAC and carcinogen by ARB. Of the pollutants emitted by construction activities, DPM is a primary concern because many toxic compounds adhere to diesel exhaust particles. Diesel fuel use also results in non-cancer hazards due to other TACs that occur in the organic compounds of diesel exhaust. The proposed residential uses would only become occupied after construction is complete. However, existing off-site residential uses would be exposed to construction pollutant emissions. The sensitive receptor locations for the proposed project are presented in Table IV.G.6: Existing and Proposed Sensitive Receptors.

Table IV.G.6: Existing and Proposed Sensitive Receptors on or near the Project Site

Name of Land Use	Street Address	Elevation	Distance to Site (ft.)
Proposed Residential Units	706 Mission St	On Site, High-rise	On site
Four Seasons Hotel and Residences	757 Market St	High-rise	300
St. Regis Residences	125 Third St	High-rise	150
Paramount Residences	680 Mission St	High-rise	100
Ritz-Carlton Club & Residences	690 Market St	High-rise	650
Woolf House Apartments	801 Howard St	Mid-rise	1,000
Child Care (Day Care) Location			
Yerba Buena Gardens Child Development Center	790 Folsom Street	Second Floor	920

Source: Aspen Environmental Group, *706 Mission Street Air Quality Technical Report,* February 2012

The *Air Quality Technical Report* prepared for the proposed project analyzed whether or not construction emissions during the three-year construction period could result in adverse health effects at nearby sensitive receptors. The analysis considered sensitive receptors within the 1,000-foot zone of influence and conservatively assumed the exposed population would be a resident child (see Table IV.G.6). To accomplish this, the cancer risks are weighted by age-sensitivity factors from the state Office of Environmental Health Hazard Assessment (OEHHA) to account for the possible differences in risk associated with a population that is early-in-life during the construction emissions. This analysis weighted the construction cancer risk by a factor of 10, consistent with OEHHA recommendations for exposures that occur from

the third trimester of pregnancy to 2 years of age. Mass emissions of construction-related $PM_{2.5}$ in the diesel exhaust from on-site diesel-powered construction equipment were entered into the project-specific ISC dispersion model to estimate ambient concentrations of $PM_{2.5}$ for all off-site sensitive receptors (residences and day care). Concentrations of TACs that occur in the diesel exhaust were also estimated, because of their potential to result in non-cancer health hazards. Construction emissions were modeled using average emission rates with adjustment factors to account for higher short-term rates because emissions would vary during the construction period. Emissions would diminish substantially during the final phase of interior and finishing activities. In the refined dispersion model, construction emissions were modeled as volume sources with a release height of 12 feet to correspond with typical equipment tailpipe locations. The offsite receptors were placed at 10-meter intervals with the receptor heights corresponding with the actual lowest upper-floor elevations occupied by residences. Receptors were not placed within areas covered by roadways or other nearby properties unless those properties were occupied by sensitive land uses (as in Table IV.G.6). Other details on source parameters, meteorological parameters, and receptor parameters for the refined modeling and risk calculations are discussed in the *Air Quality Technical Report*.

Table IV.G.7: Summary of Risk and Hazards, Unmitigated Construction Impacts to Sensitive Receptors, shows the results of refined modeling for the proposed construction-phase emissions.

Table IV.G.7: Summary of Risk and Hazards, Unmitigated Construction Impacts to Sensitive Receptors

Location	Excess Cancer Risk (per million)	Chronic Non-Cancer Hazard Index	Acute Non-Cancer Hazard Index	Incremental Annual Average $PM_{2.5}$ ($\mu g/m^3$)
Existing Resident Child (MEI) - Off-Site Residences	27.3	0.121	0.019	0.1998
Existing Day Care - Off-Site	1.6	0.013	0.002	0.0214
Significance Thresholds	**10**	**1.0**	**1.0**	**0.3**
Significant?	**Yes**	**No**	**No**	**No**

Source: Aspen Environmental Group, *706 Mission Street Air Quality Technical Report*, February 2012. ISC modeling results.

Unmitigated emissions would result in an excess cancer risk of 27.3 at the project MEI. The compact project site and lack of buffer space between the site boundary and sensitive receptors limit the ability for construction-phase emissions to disperse. The MEI location and the highest pollutant concentrations would occur at the existing residential receptors across Third Street about 100 feet to the northeast. The pollutant concentrations experienced at the nearest day care location, approximately 920 feet to the south, would be substantially lower and would not exceed the thresholds for risk or hazards.

Construction-phase risk and hazards would be dominated by the emissions of DPM and $PM_{2.5}$. Incremental concentrations of $PM_{2.5}$ in the ambient air from construction-phase activity would not exceed the project-level threshold for community risk from $PM_{2.5}$ (0.3 $\mu g/m^3$). However, maximum excess lifetime cancer risk would be 27.3 per one million at the nearest sensitive receptors, which exceeds the project-level threshold (10 per million). The non-cancer hazards would be below the hazard thresholds and minor in comparison to the potential cancer risk. Mitigation would be required to address the increased cancer risk from DPM.

Construction-phase cancer risk and $PM_{2.5}$ concentrations could be substantially reduced with implementation of feasible mitigation measures to reduce construction-related emissions. Unmitigated construction-phase impacts (Table IV.G.7) could be reduced with aggressive control of diesel construction equipment emissions. Because unmitigated construction-phase cancer risk would exceed the thresholds of significance for the nearest off-site sensitive receptor and because construction-phase cancer risk would be dominated by risk due to exposure to DPM, feasible mitigation would be needed to reduce DPM emissions from the construction equipment used on site (including excavators, cranes, and generators). Construction impacts would need to be reduced by approximately 65 percent from the level shown in Table IV.G.7 to result in an impact that is below the cancer risk threshold. An analysis of possible methods to reduce construction emissions was undertaken, as reported in the *Air Quality Technical Report*. This analysis includes a project-specific review of controlling the proposed construction fleet. For example, certain equipment can be powered primarily by electricity distributed from the grid or by propane fuel, which eliminates DPM emissions from that equipment. Similarly if equipment were to meet Interim Tier 4 diesel engine standards, or were to be retrofitted with a Level 3 Verified Diesel Emissions Control Strategy (VDECS), DPM emissions from that equipment could potentially be reduced by as much as 85 percent, depending on the engine. As part of the *Air Quality Technical Report*,[55] the sponsor coordinated with likely construction equipment fleet owners and operators to determine project-specific levels of feasible emission controls for each type of equipment in the proposed construction fleet. Emission factors reflecting the feasible controls were applied to the inventory of equipment provided by the sponsor to analyze the effectiveness of emissions minimization approaches, and the results of that review are identified as mitigation. Accordingly, Mitigation Measure M-AQ-3: Construction Emissions Minimization, shown below, specifies the necessary and feasible controls required to reduce construction emissions by 65 percent in order to result in less-than-significant impacts to off-site receptors. Table IV.G.8: Summary of Risk and Hazards, Mitigated Construction Impacts to Sensitive Receptors, shows the mitigated construction air quality impact results for risk and hazards with implementation of the Construction Emissions Minimization Plan, delineated below.

[55] *Air Quality Technical Report*, pp. 25-26.

Table IV.G.8: Summary of Risk and Hazards, Mitigated Construction Impacts to Sensitive Receptors

Location	Excess Cancer Risk (per million)	Incremental Annual Average $PM_{2.5}$ ($\mu g/m^3$)
Existing Resident Child (MEI) - Off-Site Residences	9.7	0.071
Existing Day Care - Off-Site	0.6	0.008
Significance Thresholds	**10**	**0.3**
Significant?	**No**	**No**

Source: Aspen Environmental Group, *706 Mission Street Air Quality Technical Report*, February 2012. ISC modeling results, with a 65 percent reduction of DPM emissions.

Implementation of Mitigation Measure M-AQ-3 would reduce the estimated cancer risk impacts experienced by off-site receptors to below the project-level threshold of significance.

Mitigation Measure M-AQ-3: Construction Emissions Minimization

To reduce the potential health risk resulting from project construction activities, the project sponsor shall prepare a Construction Emissions Minimization Plan (included as Appendix G) designed to reduce construction-related diesel particulate matter emissions from off-road construction equipment used at the site by at least 65 percent as compared to the construction equipment list, schedule, and inventory provided by the sponsor on May 27, 2011.[56]

The project sponsor shall include all requirements identified in the Construction Emissions Minimization Plan in contract specifications for the entire duration of construction activities.

The Construction Emissions Minimization Plan shall include the following requirements, which would achieve the required 65 percent reduction in construction period diesel particulate matter emissions:

- Limit idling times by either shutting equipment off when not in use or reducing the maximum idling time to two minutes.
- Prohibit use of diesel generators for electric power because on-site distribution of electricity is available.
- Require construction contractors to use electric or propane powered devices for the following types of equipment:
  - Tower Crane
  - Fork Lifts and Manlifts
  - Portable Welders
  - Concrete Placing Booms
- Require construction contractors to use portable compressors that are either electric powered or powered by gasoline engines or engines compliant with Tier 4 standards.

[56] *Air Quality Technical Report*, Attachment A08.

- Require use of Interim Tier 4 or Tier 4 equipment where such equipment is available and feasible for use. Use of Interim Tier 4 or Tier 4 equipment would be feasible for the following types of equipment:
  - Backhoes
  - Rubber-Tired Dozers
- Require use of Tier 2/Tier 3 equipment retrofitted with ARB Level 3 Verified Diesel Emissions Control System (VDECS, which includes diesel particulate filters). The following types of equipment are identified as candidates for retrofitting with ARB-certified Level 3 VDECS (which are capable of reducing DPM emissions by 85 percent or more), due to their expected operating modes (i.e., fairly constant use at high revolutions per minute):
  - Excavators
  - Concrete Boom Pumps
  - Concrete Trailer Pumps
- Use of Tier 3 equipment for the following types of equipment:
  - Portable Cranes
  - Soil Mix Drill Rigs
  - Soldier Pile Drill Rigs
  - Shoring Drill Rigs

If the foregoing requirements are implemented, no further quantification of emissions shall be required. Alternatively, the project sponsor may elect to substitute alternative measures in the Construction Emissions Minimization Plan for review and approval by the Environmental Review Officer (ERO). Such alternative measures would be subject to demonstrating that the alternative measures would achieve the required 65 percent reduction in construction period diesel particulate matter emissions, including without limitation the following:

- Use of other late-model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, and add-on devices such as particulate filters; and
- Other options as such become available.

The project sponsor shall submit the Construction Emissions Minimization Plan to the ERO for review and approval by an Environmental Planning Air Quality Specialist prior to the commencement of construction activities.

Level of Significance with Mitigation

Feasible control strategies to reduce DPM emissions were identified in the *Air Quality Technical Report*.[57] Mitigation Measure M-AQ-3: Construction Emissions Minimization would require on-site construction equipment to be powered primarily by electricity distributed from the grid,

[57] *Air Quality Technical Report*, pp. 25-26.

propane fuel, or the lowest-emitting engines found feasible, including engines retrofitted with diesel particulate filters. Use of an alternative fuel like propane, which is a consumer-quality gaseous fuel, would result in some TAC emissions; however, because emissions and health effects from alternative fuel use would be minor compared to the adverse effects of DPM, substantially reducing or eliminating DPM emissions would be the primary risk management strategy. By requiring that the equipment specified in the measure like cranes, excavators, forklifts, backhoes, and pumps avoid diesel fuel use or use the lowest-emitting diesel powered engines available, this construction mitigation measure would avoid 65 percent of the DPM and $PM_{2.5}$ emissions that would otherwise occur with a comparable baseline fleet of Tier 2/Tier 3 equipment. The proposed construction fleet, emissions factors for equipment with and without controls, and the effectiveness of these controls for the project-specific construction fleet appear in the *Air Quality Technical Report*.[58]

Implementation of Mitigation Measure M-AQ-3 would result in the maximum feasible emissions reductions, thereby reducing the cancer risk and $PM_{2.5}$ concentrations to which sensitive receptors would be exposed. With the mix of diesel-powered construction equipment specified by this measure, the construction air quality impact related to health risks and hazards would be reduced to a less-than-significant level.

Operational Air Quality Impacts

Impact AQ-4: Operation of the proposed project would not violate an air quality standard or contribute substantially to an existing or projected air quality violation; nor would it result in a cumulatively considerable net increase of any criteria air pollutant for which the project region is in nonattainment under an applicable ambient air quality standard. (*Less than Significant*) (Criteria G.2 and G.3)

The potential for project-related operational emissions to violate any air quality standard or contribute substantially to an existing or projected violation is described below.

The emissions increases attributable to operation of the proposed project would be from the total of project-related stationary sources (a diesel-fueled back-up emergency generator engine and natural-gas-fired mechanical systems or boilers), operational vehicle trips generated by onsite project uses, and area sources such as use of natural gas for heating and cooking. Emissions were quantified for operation of the proposed land uses using URBEMIS, which provides average daily and annual emission rates based on the expected vehicle trip generation rates and overall land use characteristics. Project-specific details are shown in the *Air Quality Technical Report*.

[58] *Air Quality Technical Report*, Attachment A08.

Project-related stationary source emissions are based upon the following regulatory requirements:

- Back-up emergency generator engine compliant with USEPA Tier 2 emission standards, or higher, and compliant with Airborne Toxic Control Measure (ATCM) and Best Available Control Technology (BACT) in compliance with current regulations.
- Natural gas–fired mechanical systems compliant with BAAQMD Regulation 9, Rule 7 and BACT.

Total criteria pollutant emissions from the anticipated operation-related sources are quantified in Table IV.G.9: Operation-Related Daily Emissions of Criteria Air Pollutants, and Table IV.G.10: Operation-Related Annual Emissions of Criteria Air Pollutants. These tables show that the criteria air pollutant emissions would be below the applicable significance thresholds.

Table IV.G.9: Operation-Related Daily Emissions of Criteria Air Pollutants (lb/day)

Sources	ROG	NOx	Exhaust PM_{10}	Exhaust $PM_{2.5}$
Proposed Back-up Generator	0.58	1.57	0.07	0.07
Proposed Mechanical Systems	1.68	4.80	1.680	1.680
Area Sources (e.g., natural gas, domestic)	14.47	4.88	< 0.005	< 0.005
Mobile Sources (vehicle trips)	8.33	7.62	< 16.82	< 3.18
Total Average Daily Emissions	**25.1**	**18.9**	**18.6**	**4.9**
Significance Thresholds (lb/day)	**54**	**54**	**82**	**54**
Significant?	**No**	**No**	**No**	**No**

Note: lb/day = pounds per day, average.

Source: Aspen Environmental Group, *706 Mission Street Air Quality Technical Report*, February 2012. URBEMIS results and supporting calculations.

Table IV.G.10: Operation-Related Annual Emissions of Criteria Air Pollutants (tons per year)

Sources	ROG	NOx	Exhaust PM_{10}	Exhaust $PM_{2.5}$
Proposed Back-up Generator	0.11	0.29	0.01	0.01
Proposed Mechanical Systems	0.31	0.88	0.31	0.31
Area Sources (e.g., natural gas, domestic)	2.64	0.89	< 0.005	< 0.005
Mobile Sources (vehicle trips)	1.52	1.39	< 3.07	< 0.58
Total Annual Emissions	**4.6**	**3.5**	**3.4**	**0.9**
Significance Thresholds (tons per year)	**10**	**10**	**15**	**10**
Significant?	**No**	**No**	**No**	**No**

Source: Aspen Environmental Group, *706 Mission Street Air Quality Technical Report*, February 2012. URBEMIS results and supporting calculations.

Emissions from traffic at congested intersections can, under certain circumstances, cause a localized build-up of CO concentrations. However, the proposed project would be consistent with an applicable congestion management program established by the county congestion management agency for designated roads or highways, regional transportation plan, and local congestion management agency plans. The project traffic from the proposed project would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour. Nor would project traffic from the proposed project increase traffic volumes at affected intersections to more than 24,000 vehicles per hour where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, below-grade roadway). Because these criteria would be met for the proposed project, there would be no violation of ambient air quality standards with respect to localized CO. Therefore, no further analysis would be required, and there would be no significant impact related to CO concentrations.

The unmitigated criteria air pollutant emissions during the operational phase would be below the thresholds of significance. Project operational criteria air pollutant emissions that are at levels below the applicable thresholds would not violate an existing ambient air quality standard, contribute substantially to an existing or projected air quality violation, or result in a cumulatively considerable net increase in emissions of any criteria air pollutant. Therefore, effects related to operational criteria air pollutant emissions would be less than significant, and no mitigation measures are necessary.

Impact AQ-5: Operation of the proposed project would not generate emissions of $PM_{2.5}$ and toxic air contaminants, including diesel particulate matter, at levels that would expose sensitive receptors to substantial pollutant concentrations. (*Less than Significant*) (Criterion G.4)

The proposed project would introduce new stationary sources to the project vicinity, including a diesel-fueled compression-ignition internal combustion engine for use as a back-up generator. Table IV.G.11: Summary of Risk and Hazards, Proposed Project New Sources, shows the results of refined modeling for the proposed new back-up generator engine. Impacts from the back-up generator were analyzed with the project-specific air dispersion modeling and risk assessment using the ISC3-Prime dispersion model. Both proposed on-site and existing off-site receptors (residences and day care) were included in the modeling and risk calculations. For on-site and off-site receptors, the analysis conservatively assumed that the exposed population would begin as a resident child and experience continuous lifetime (70-year) exposure to operational emissions. To accomplish this, the cancer risks were weighted by age-sensitivity factors from the state OEHHA for infants, children through 15 years of age, and adults aged to 70 years. The refined dispersion modeling considered the worst-case emissions release parameters with a horizontal engine exhaust outlet near ground level to correspond with typical equipment tailpipe locations for the backup generator. Other details on source parameters, meteorological

Table IV.G.11: Summary of Risk and Hazards, Proposed Project New Sources

Project Source, Impact to Maximally Exposed Individual	Excess Cancer Risk (per million)	Chronic Non-Cancer Hazard Index	Acute Non-Cancer Hazard Index	Incremental Annual Average $PM_{2.5}$ ($\mu g/m^3$)
On-site Diesel Back-up Generator (1,490 hp) - On-Site Residences (MEI)	5.6	0.0063	0.0010	0.0104
Significance Thresholds	**10**	**1.0**	**1.0**	**0.3**
Significant?	**No**	**No**	**No**	**No**

Source: Aspen Environmental Group, *706 Mission Street Air Quality Technical Report*, February 2012. ISC modeling results.

parameters, and receptor parameters for the refined modeling and risk calculations are discussed in the *Air Quality Technical Report*.

The proposed project would also add natural gas-fired systems for heating, ventilation, and hot water, but the natural gas-fired systems would be "minor, low-impact sources" and unlikely to pose a significant community risk or hazard or adverse health impact.[59] In addition, there would be some incremental risk associated with emissions from project-related traffic. However, project trip generation rates would be less than 1,200 vehicle trips per day, and because this level of traffic would be well below 10,000 vehicles per day (the level for a "minor, low-impact" road, according to BAAQMD),[60] project traffic would not substantially contribute to incremental risk.

The location of the MEI for the proposed back-up generator engine would be a new project resident on the fourth floor of the north side of the project site, the lowest elevation where outdoor air could be drawn into residences. The maximum excess lifetime cancer risk due to this individual source would be 5.6 per one million. Other existing offsite residential receptors in the project area would be further from the proposed source so that risk and hazards would be lower than those shown in Table IV.G.11. Compared with the proposed new back-up generator engine, negligible contributions to incremental risk would occur with the proposed "minor, low-impact" natural-gas-fired systems and project traffic on surrounding roadways. No existing or proposed receptors would experience increased cancer risk or hazards exceeding the significance threshold for new sources, and the threshold for incremental $PM_{2.5}$ concentrations would not be exceeded at any receptor. Because the proposed new back-up generator engine, proposed "minor, low-impact sources," and project traffic would not cause potentially significant levels of increased cancer

[59] BAAQMD, *Recommended Methods for Screening and Modeling Local Risks and Hazards*, May 2011, (hereinafter referred to as "BAAQMD, *Recommended Methods*"). Available online at: http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Tools-and-Methodology.aspx. Accessed February 8, 2012.

[60] BAAQMD, *Recommended Methods,* p. 12, p. 84.

risk, hazards, or $PM_{2.5}$ concentrations, this impact would be less than significant, and no mitigation measures are necessary.

Impact AQ-6: Operation of the proposed project would not expose new on-site sensitive receptors to substantial pollutant concentrations. (Less than Significant) (Criterion G.4)

The proposed project would introduce new residential receptors to an area affected by emissions from various existing permitted stationary sources, major roadways, and the new proposed back-up generator. In addition to the proposed generator engine, on-site sensitive receptors (residences) would be exposed to TACs emitted by the existing stationary sources and traffic on the roadways. As discussed in the "Approach to Analysis" on p. IV.G.25, the analysis for new receptors exposed to health risks and hazards considers all potential sources of TACs within a 1,000-foot zone of influence that may pose a significant health risk, and therefore represents a cumulative impact to new sensitive receptors.[61]

BAAQMD records indicate that there are 24 existing BAAQMD-permitted stationary sources of air pollutants within or near the recommended 1,000-foot radius; these are shown in Table IV.G.12: Stationary Emission Sources Within or Near a 1,000-Foot Radius of the Project Site, and in Figure IV.G.1, p. IV.G.12.

The permitted facilities in the vicinity are made up of stationary diesel engines for back-up power generators or fire water pump engines, that are for emergency use only, with some additional permitted natural gas-fired (non-diesel) heating systems. Each facility with a stationary diesel engine was included in the refined modeling as a point source of $PM_{2.5}$, DPM, and other contaminants. Because the BAAQMD considers non-diesel-fueled sources to be "minor, low-impact" and unlikely to pose a significant health impact,[62] only facilities with diesel-fueled sources were modeled as stationary sources. Field observations and aerial photos were used to determine the height of the emitting sources for modeling with exhaust points on roof tiers or mezzanine levels, and emission rates were provided by the BAAQMD inventory. Each of the existing facilities with diesel sources was analyzed for the potential to cause health risks and hazards for new receptors.

[61] As used in this discussion, "cumulative" means the accumulation of multiple sources of emissions on new sensitive receptors at the project site, rather than the cumulative impact of past, present, and reasonably forseeable future projects as the term "cumulative impacts" is explained in CEQA Guidelines Sections 15065(a)(3) and 15130.

[62] BAAQMD, *Recommended Methods,* p. 12.

Table IV.G.12: Stationary Emission Sources Within or Near a 1,000-Foot Radius of the Project Site

BAAQMD Site #	Facility Name	Street Address	Approx. Distance to Site (ft.)
9310	San Francisco Marriott Hotel	55 4th Street	400
9341	Sheraton Palace Hotel	2 New Montgomery Street	560
10110	Center for the Arts at Yerba Buena	701 Mission Street	110
13346	Third & Mission Associates	680 Mission Street	240
13843	Seagate Properties Inc.	44 Montgomery Street	1,190
13989	CFRI Market Street Corp.	799 Market Street	860
14119	Westfield Metreon LLC	101 4th Street	730
14222	Crocker Plaza Co.	1 Post Street	1,080
14223	G&G Martco LP	201 3rd Street	780
14427	Cushman & Wakefield of California, Inc.	88 Kearny Street	1,000
15560	Four Seasons Hotel and Residences	757 Market Street	200
15624	199 New Montgomery Owners Assoc.	199 New Montgomery Street	1,050
16526	Hines 55 Second Street LP	55 2nd Street	1,110
16708	San Francisco Museum of Modern Art	151 3rd Street	470
16743	Neiman Marcus	150 Stockton Street	1,150
16795	Westfield San Francisco Center	835 Market Street	960
16798	SF Museum Tower LLC	125 3rd Street	310
16974	Patelco Credit Union	156 2nd Street	1,040
18609	Stockbridge 140 New Montgomery LLC	140 New Montgomery Street	750
18763	Glenborough New Montgomery, LLC	33 New Montgomery Street	890
18804	Contemporary Jewish Museum	736 Mission Street	130
19153	Ritz-Carlton Club & Residences, San Francisco	690 Market Street	630
19929	The Moscone Center	747 Howard Street	900 to 1,300
19990	Woolf House	801 Howard Street	1,000

Source: BAAQMD, CEQA Tools & Methodology, Stationary Source Screening Analysis Tool, for San Francisco County. Available at: http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Tools-and-Methodology.aspx. Accessed March 2011.

Motor vehicle traffic flows on arterial streets in the existing local roadway system are modeled as sources of $PM_{2.5}$, DPM, and other TACs. The major roadways that may contribute to elevated concentrations of pollutants in the vicinity are the 10 nearby streets that have at least 10,000 vehicles in annual average daily traffic, as identified in Table IV.G.13: Major Roadways Within a 1,000-Foot Radius of the Project Site. In the refined modeling, all mobile sources on each roadway were grouped into adjacent volume sources within the public right-of-way for each street in the vicinity, and emission rates were based on San Francisco County fleet-wide average emissions per vehicle-mile-traveled within each segment. The emission rates for each stationary source and traffic on each major roadway, along with details of the source release parameters, meteorological parameters, and receptor parameters are discussed in the *Air Quality Technical*

Table IV.G.13: Major Roadways Within a 1,000-Foot Radius of the Project Site

Street Name	Annual Average Daily Traffic
Third Street	32,100
Mission Street	13,200
Fourth Street	22,810
Market Street	41,000
Kearny Street	21,100
Grant Avenue	20,900
Howard Street	23,940
New Montgomery Street	23,100
O'Farrell Street	19,700
Second Street	22,400

Source: Roadway Segment Volumes, San Francisco County Transportation Authority CHAMP Model data provided by Planning Department as of 3/2/2011

Report. All segments of the 10 major roadways within 1,000 feet of the project site were analyzed for the potential to cause health risks and hazards for new receptors.

The project would result in negligible contributions to incremental risk with the proposed "minor, low-impact" natural-gas-fired systems, and from the addition of project traffic on surrounding roadways. Therefore, these sources are not considered further in this analysis, as explained in Impact AQ-5 on pp. IV.G.38-IV.G.40.

The proposed project would include emissions from a new stationary source, the proposed back-up generator. As discussed under Impact AQ-5, the maximum excess lifetime cancer risk for new residents due to this individual source would be 5.6 in one million. The health risks and hazards found for the proposed back-up generator (Impact AQ-5) were included in this evaluation of risks and hazards for new receptors.

The individual contributions of each of the existing sources and roadways, along with the proposed back-up generator, were added together to arrive at the total health risks and hazards for the proposed new receptors, and these results were compared with the cumulative thresholds for new receptors in Table IV.G.4, p. IV.G.20. To determine whether proposed on-site residences would be exposed to substantial pollutant concentrations the analysis considers exposure from all of the existing and proposed sources that may pose a significant risk or hazard within the 1,000-foot zone of influence for the project site.

Table IV.G.14: Summary of Risk and Hazards, Proposed Project New Receptors, shows the results of refined modeling for sources potentially affecting the proposed new receptors. Table IV.G.14 shows that the existing and proposed sources would not expose the proposed new receptors to substantial pollutant concentrations of $PM_{2.5}$ or TACs because new receptors would

Table IV.G.14: Summary of Risk and Hazards, Proposed Project New Receptors

Individual Source, Impact to New On-Site Residences	Excess Cancer Risk (per million)	Chronic Non-Cancer Hazard Index	Incremental Annual Average $PM_{2.5}$ ($\mu g/m^3$)
On-site Diesel Back-up Generator (1,490 hp) - On-Site Residences (MEI)	5.6	0.0063	0.0104
San Francisco Marriott Hotel	2.7	0.0030	0.0050
Sheraton Palace Hotel	0.4	0.0005	0.0008
Third & Mission Associates	0.3	0.0004	0.0006
Seagate Properties Inc	0.2	0.0002	0.0004
CFRI Market Street Corp	0.3	0.0003	0.0006
Westfield Metreon LLC	0.1	0.0001	0.0002
Crocker Plaza Co	0.0	0.0000	0.0000
G&G Martco LP	0.0	0.0000	0.0001
Cushman & Wakefield of California, Inc	0.1	0.0001	0.0002
Hines 55 Second Street LP	0.1	0.0001	0.0001
San Francisco Museum of Modern Art	0.9	0.0010	0.0016
Neiman Marcus	0.0	0.0000	0.0001
Westfield San Francisco Center	3.2	0.0035	0.0058
SF Museum Tower LLC	2.7	0.0030	0.0049
Glenborough New Montgomery, LLC	0.2	0.0002	0.0003
Ritz-Carlton Club & Residences San Francisco	0.1	0.0001	0.0001
The Moscone Center	0.5	0.0006	0.0010
Woolf House	0.1	0.0001	0.0001
Third Street	3.0	0.0035	0.0373
Mission Street	2.2	0.0026	0.0276
Fourth Street	2.2	0.0025	0.0267
Market Street	6.1	0.0070	0.0743
Kearny Street	0.2	0.0002	0.0021
Grant Avenue	0.5	0.0005	0.0057
Howard Street	1.5	0.0018	0.0189
New Montgomery Street	0.8	0.0009	0.0099
O'Farrell Street	1.1	0.0013	0.0135
Second Street	0.6	0.0007	0.0080
Total	**35.7**	**0.041**	**0.256**
New Receptors Significance Thresholds	**100**	**10**	**0.8**
Significant?	**No**	**No**	**No**

Note: $\mu g/m^3$ = micrograms per cubic meter

Source: Aspen Environmental Group, *706 Mission Street Air Quality Technical Report*, February 2012. ISC modeling results.

experience excess cancer risk less than 100 per one million; a chronic non-cancer HI of less than 10.0; and an incremental $PM_{2.5}$ concentrations less than 0.8 $\mu g/m^3$. Therefore, the impact would be less than significant, and no mitigation measures are necessary.

Impact AQ-7: Construction and operation of the proposed project would not conflict with or obstruct implementation of the Bay Area 2010 *Clean Air Plan* (CAP), the applicable air quality plan. (*Less than Significant*) (Criterion G.1)

The most recently adopted air quality plan for the San Francisco Bay Area Air Basin is the *2010 Clean Air Plan*. The *2010 Clean Air Plan* is a road map showing how the San Francisco Bay Area will achieve compliance with the state ozone standards as expeditiously as practicable and how the region will reduce transport of ozone and ozone precursors to neighboring air basins. In determining consistency with the *2010 Clean Air Plan*, this analysis considers whether the project would (1) support the primary goals of the CAP, (2) include applicable control measures from the CAP, and (3) avoid disrupting or hindering implementation of control measures identified in the CAP.

The primary goals of the *2010 Clean Air Plan* are to attain air quality standards, reduce pollutant exposure and protect public health, and reduce greenhouse gas (GHG) emissions. The discussion of project GHG emissions appears in Section IV.H, which demonstrates that the proposed project would comply with the applicable provisions of the City's Greenhouse Gas Reduction Strategy.

The proposed project would be a high-density mixed-use infill development in a transit-oriented area that would intensify the density of land uses on the site. Development of the proposed project would generate emissions during construction (see Table IV.G.5, p. IV.G.29) and would cause an increase in emissions from mobile sources due to motor vehicle trips and from other sources (area sources and the proposed stationary sources) during the operation of the project (see Table IV.G.9 and Table IV.G.10, p. IV.G.37); as shown above, the emission increases would not exceed the applicable significance thresholds.

The analysis above illustrates that neither project construction nor operation would contribute substantial levels of emissions, and that project-related emissions would not be likely to impede attainment of the air quality standards. As the proposed project would not result in substantial, long-term increases in criteria air pollutants, the proposed project would support the primary goal of the *2010 Clean Air Plan* to attain the air quality standards.

Project sources could increase exposure of sensitive receptors to pollutants that increase public health risks. Diesel-powered construction equipment emissions would increase exposure of sensitive receptors to TACs temporarily during construction, but mitigation identified above would reduce these emissions to the maximum extent feasible and would reduce the impact to be less than significant with mitigation. The incremental exposure of receptors to TACs during

operation would be due to the presence of existing sources, one new stationary source (the proposed back-up generator), area sources, and mobile sources, but these sources would not expose receptors to substantial pollutant concentrations. As the proposed project would not expose receptors to substantial pollutant concentrations, the proposed project would support the primary goal of the *2010 Clean Air Plan* to reduce pollutant exposure and protect public health.

In summary, as the proposed project would not result in substantial, long-term increases in criteria air pollutants, TAC, or GHG emissions, the proposed project would be considered to support the primary goals of the *2010 Clean Air Plan*.

To meet the primary goals, the CAP recommends specific control measures and actions. These control measures are grouped into various categories and include stationary and area source measures, mobile source measures, transportation control measures, land use measures, and energy and climate measures. The CAP recognizes that to a great extent, community design dictates individual travel mode and that a key long-term control strategy to reduce emissions of criteria pollutants, air toxics, and GHGs from motor vehicles is to channel future Bay Area growth into vibrant urban communities where goods and services are close at hand, and people have a range of viable transportation options. To this end, the *2010 Clean Air Plan* includes 55 control measures aimed at reducing air pollution in the SFBAAB.

The measures most applicable to the proposed project are transportation control measures and energy and climate control measures. The proposed project would be consistent with energy and climate control measures as discussed in Section IV.H, Greenhouse Gas Emissions, which demonstrates that the proposed project would comply with the applicable provisions of the City's Greenhouse Gas Reduction Strategy.

The compact development of the proposed project and high availability of viable transportation options ensure that visitors could bicycle, walk, and ride transit to and from the project site instead of taking trips via private automobile. These features ensure that the project would avoid substantial growth in transportation demand of automobile trips and vehicle miles traveled. The proposed project would require an amendment to the Planning Code Zoning Map to increase the height limit at the project site, and the project would be generally consistent with the *San Francisco General Plan* as discussed in Chapter III, Plans and Policies. Transportation control measures that are identified in the *2010 Clean Air Plan* are implemented by the *San Francisco General Plan* and the Planning Code, for example, through the City's Transit First Policy, bicycle parking requirements, and transit impact development fees applicable to the proposed project. By complying with these applicable requirements, the project would include relevant transportation control measures specified by the *2010 Clean Air Plan*.

Examples of a project that could cause the disruption or delay of CAP control measures are projects that would preclude the extension of a transit line or bike path, or projects that propose excessive parking beyond parking requirements. The proposed project would add residential and other uses to a dense, walkable urban area near a concentration of regional and local transit service, services and other attractions. It would not preclude the extension of a transit line or a bike path or any other transit improvement, and as such, the proposed project would avoid disrupting or hindering implementation of control measures identified in the CAP.

For the reasons described above, the proposed project would not interfere with implementation of the *2010 Clean Air Plan*, and because the proposed project would be consistent with the air quality plan that shows how the region will improve ambient air quality and achieve the state and federal ambient air quality standards, this impact would be less than significant. No mitigation measures are necessary.

Impact AQ-8: Construction and operation of the proposed project would not expose a substantial number of people to objectionable odors. (*Less than Significant*) (Criterion G.5)

No notable odor sources would occur as part of the proposed project. There may be some potential for small-scale, localized odor issues to emerge as a result of construction activities or sources common to the proposed residential and commercial uses, such as solid waste collection or food preparation, etc. However, substantial odor sources and consequent effects to on-site and off-site sensitive receptors would be unlikely. Exposure to odors would be significant if sensitive receptors would be introduced to a location with more than five confirmed complaints per year averaged over three years. Because no confirmed odor complaints have occurred near the project site in the previous three years reported by BAAQMD, this impact would be less than significant, and no mitigation measures are necessary.

CUMULATIVE IMPACT EVALUATION

As discussed above, regional air pollution is by its very nature largely a cumulative impact. Emissions from past, present and future projects contribute to the region's adverse air quality on a cumulative basis. No single project by itself would be sufficient in size to result in regional nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulative adverse air quality impacts.[63] The project-level thresholds for criteria air pollutants are based on levels by which new sources are not anticipated to contribute to

[63] BAAQMD, *California Environmental Quality Act (CEQA) Air Quality Guidelines*, June 2010; and adopted Thresholds of Significance, June 2010, p. 2-1. Available online at http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Updated-CEQA-Guidelines.aspx. Accessed April 18, 2012.

an air quality violation or result in a considerable net increase in criteria air pollutants. Therefore, because the proposed project's construction (Impact AQ-1) and operational (Impact AQ-4) emissions would not exceed the project-level thresholds for criteria air pollutants, the proposed project would not be considered to result in a cumulatively considerable contribution to regional air quality impacts.

Impact C-AQ-1: Construction and operation of the proposed project, in combination with other past, present, and reasonably foreseeable future projects, would not result in a cumulatively considerable contribution to exposure of sensitive receptors to significant cumulative substantial pollutant concentrations. (*Less than Significant*) (Criterion G.4)

The cumulative air quality impact analysis for health risks and hazards considers all potential sources of TACs within a 1,000-foot zone of influence that may pose a significant health risk to sensitive receptors. The methodology and assumptions used for assessing construction and operational health risks and hazards are described above (under Impact AQ-3, Impact AQ-5, and Impact AQ-6), with additional details provided in the *Air Quality Technical Report* prepared for the proposed project.[64]

The proposed project's construction activities would contribute to cumulative health risks and hazards at the construction MEI. To determine the maximum potential cumulative risks and hazards during construction, the effects at the MEI for construction were added to the effects at the on-site project MEI for existing permitted sources and major roadways. This conservatively over-estimates the cumulative risk because the increased risk and hazards experience by the on-site MEI would be greater than those at the construction MEI. Cumulative sources, in addition to project construction activities, include the contribution from roadways with greater than 10,000 vehicles per day, construction of other projects, and permitted stationary sources, as well as project-generated emissions. Combining unmitigated emissions from construction, permitted sources, and roadways results in an estimated cumulative cancer risk of 77.8 in one million, less than the cumulative significance threshold of 100 in one million. The cumulative chronic Hazard Index would be less than 0.3, below the significance threshold of 10. The cumulative incremental annual average $PM_{2.5}$ concentration would be 0.55 micrograms per cubic meter, less than the significance threshold of 0.8 micrograms per cubic meter.

Furthermore, the proposed project would be required to implement Mitigation Measure M-AQ-3, which would reduce construction emissions by approximately 65 percent. This mitigation measure is based on strategies developed by the project sponsor to control diesel construction equipment emissions and was determined to be feasible based on information obtained by the project sponsor from likely construction equipment fleet owners and operators. Therefore,

[64] *Air Quality Technical Report*, pp. 16-24.

cumulative health risks and hazards would be further reduced, and incorporation of Mitigation Measure M-AQ-3 would result in an estimated cumulative cancer risk of 60.2 in one million, less than the cumulative significance threshold of 100 in one million. The cumulative chronic Hazard Index would be less than 0.3, well below the significance threshold of 10. The annual average $PM_{2.5}$ concentration would be 0.42 micrograms per cubic meter, less than the cumulative significance threshold of 0.8 micrograms per cubic meter.

To determine cumulative construction-phase impacts, the effects of project construction were combined with the impacts of the construction of reasonably foreseeable nearby development projects, where information about construction emissions from these projects exists or can be estimated. Reasonably foreseeable projects for purposes of the cumulative construction-phase air quality analysis are those that have filed formal applications or have construction schedules that may overlap with construction of the proposed project. The construction MEI at existing residential receptors about 100 feet to the northeast of the project site would be far enough away from most other nearby construction activities such that they would not be exposed cumulative impacts from the other construction; however, the two construction projects nearest the MEI, the Palace Hotel Project (2 New Montgomery Street) and SFMOMA Expansion (151 Third Street), could contribute to cumulative risks and hazards. These nearby construction activities are further discussed below.[65]

The pollutants generated during construction of the Palace Hotel Project and SFMOMA Expansion projects would contribute to temporarily increased concentrations of air pollutants and adverse impacts on ambient air quality, concurrent with those of the proposed project if construction occurs at the same time. The results assume concurrent construction of the proposed project and these other two projects. This is a conservative assumption because the projects have different development schedules and concurrent construction may not occur.

Table IV.G.15: Summary of Cumulative Health Risk and Hazards, below, shows the result of modeling for cumulative sources, for a child resident at the construction MEI (see also Table IV.G.7, p. IV.G.32, and Table IV.G.8, p. IV.G.34). In conjunction with the impacts of construction of reasonably foreseeable nearby development projects and other stationary and mobile sources in the area (from Table IV.G.11, p. IV.G.39), project construction would contribute to temporarily increased concentrations of air pollutants and adverse impacts on ambient air

[65] Two other construction projects that would be within the BAAQMD "minimum offset distance" are the interior renovation of an existing building at 134-140 New Montgomery Street and the underground construction of the Central Subway Project along Fourth Street. As explained in the *Air Quality Technical Report* (pp. 30-31), these projects would not be likely to contribute substantially to cumulative construction-related air quality impacts.

Table IV.G.15: Summary of Cumulative Health Risk and Hazards

Sources	Excess Cancer Risk (per million)	Chronic Non-Cancer Hazard Index	Incremental Annual Average $PM_{2.5}$ ($\mu g/m^3$)
Project Construction (Offsite MEI), Unmitigated	27.3	0.121	0.1998
Palace Hotel Project, Cumulative Construction Project	Up to 20	Up to 0.1	Up to 0.1
SFMOMA Expansion Project, Cumulative Construction Project	0.4	0.001	0.0003
Existing Permitted Sources - On-Site Residences (MEI)	11.8	0.013	0.0218
Existing Major Roadway Sources - On-Site Residences (MEI)	18.3	0.021	0.2239
On-site Diesel Back-up Generator (1,490 hp) - On-Site Residences (MEI)	5.6	0.0063	0.0104
Total Sum, Project Unmitigated	**77.8**	**0.256**	**0.55**
Project Construction (Offsite MEI), Mitigated	9.7	0.121	0.071
Total Sum, Project Mitigated	**60.2**	**0.256**	**0.42**
Cumulative Significance Thresholds	**100**	**10.0**	**0.8**
Significant?	**No**	**No**	**No**

Source: Aspen Environmental Group, *706 Mission Street Air Quality Technical Report*, February 2012. ISC modeling results.

quality but would not exceed the cumulative thresholds for risk and hazards for the construction MEI.

Cumulative construction-phase risk and hazards would not exceed the cumulative thresholds, and therefore would not be cumulatively considerable. Although no mitigation measures are necessary for reducing cumulative construction-phase risk and hazards, the cumulative construction-phase impact would be further reduced with implementation of Mitigation Measure M-AQ-3 identified above for project construction emissions (Impact AQ-3).

Sensitive receptors would be exposed to air pollutant concentrations from the new sources related to operation of the proposed project, including the proposed back-up diesel engine and project-related traffic, plus sources that are reasonably foreseeable, along with existing sources including major roadways. To determine the maximum potential cumulative risks and hazards during operation, the effects of these new and existing sources at the project on-site MEI were added together. The currently proposed Palace Hotel Project could include additional emergency generators, but without a specific proposal, it would be speculative to assume the presence of any new or modified stationary sources. As such, existing sources were modeled (with results in Table IV.G.14, p. IV.G.43). Any new or modified stationary source associated with the Palace Hotel Project (or any other project) would be subject to BAAQMD permitting requirements, which would require a pre-construction review of toxic air contaminant impacts and would

require the source to minimize and avoid substantial health risks. Table IV.G.15 shows the result of refined modeling for foreseeable cumulative sources as they would affect the MEI receptors. Impacts from the project sources, including the on-site back-up generator, combined with other permitted sources and roadways results in an estimated cumulative cancer risk of 35.7 in one million, less than the cumulative significance threshold of 100 in one million. The cumulative chronic Hazard Index would be 0.04, below the significance threshold of 10. The cumulative incremental annual average $PM_{2.5}$ concentration would be 0.256 $\mu g/m^3$, less than the significance threshold of 0.8 $\mu g/m^3$.

The combined effects of the sources would not expose sensitive receptors to an increased cancer risk above the significance threshold for cumulative risk, and receptors would not be exposed to incremental $PM_{2.5}$ concentrations in excess of the cumulative-level $PM_{2.5}$ threshold. The chronic non-cancer hazard would be minor in comparison to the potential cancer risk. Because sensitive receptors would not be exposed to increased cancer risk, hazards, or $PM_{2.5}$ concentrations from nearby major roadways and stationary sources at levels exceeding the significance thresholds for cumulative impacts, the proposed project's contribution to significant impacts would not be cumulatively considerable, and no mitigation measures are necessary.

H. GREENHOUSE GAS EMISSIONS

This section provides a description of global climate change, greenhouse gas (GHG) emissions, the existing regulatory framework governing GHG emissions, and an analysis of the impacts related to GHGs associated with development of the proposed project. The proposed project's GHG emissions are evaluated based on compliance with plans and policies adopted for the purpose of reducing GHG emissions, namely the City's aggressive local GHG reduction plan, *Strategies to Address Greenhouse Gas Emissions*.

SETTING

GREENHOUSE GAS EMISSIONS AND GLOBAL CLIMATE CHANGE

Gases that trap heat in the atmosphere are referred to as GHGs because they capture heat radiated from the earth, similar to a greenhouse. The accumulation of GHGs has been implicated as a driving force for global climate change. Definitions of climate change vary between and across regulatory authorities and the scientific community, but in general can be described as the changing of the earth's climate caused by natural fluctuations and anthropogenic activities (i.e., activities relating to, or resulting from, the influence of human beings) that alter the composition of the global atmosphere. The primary GHGs are carbon dioxide (CO_2), black carbon, methane (CH_4), and nitrous oxide (N_2O), ozone, and water vapor.

Individual projects contribute to the cumulative effects of climate change by emitting GHGs during demolition, construction, and operational phases. Although the presence of the primary GHGs in the atmosphere is naturally occurring, CO_2, CH_4, and N_2O are largely emitted from human activities, accelerating the rate at which these compounds accumulate in the earth's atmosphere. Emissions of CO_2 are largely byproducts of fossil fuel combustion, whereas methane is a component of natural gas and also a byproduct of off-gassing associated with agricultural practices and landfills. Black carbon has recently emerged as a major contributor to global climate change, possibly second only to CO_2. Black carbon is produced naturally and by human activities as a result of the incomplete combustion of fossil fuels, biofuels, and biomass.[1] N_2O is a byproduct of various industrial processes and has a number of uses, including use as an anesthetic and as an aerosol propellant. Other GHGs, with much greater heat-absorption potential than CO_2, include hydrofluorocarbons (HFCs), perfluorocarbons, and sulfur hexafluoride, and are generated in certain industrial processes. CO_2 is the "reference gas" for GHG emissions, meaning

[1] Center for Climate and Energy Solutions, What is Black Carbon?, April 2010. Available online at http://www.c2es.org/global-warming-basics/blackcarbon-factsheet. Accessed February 14, 2012.

that emissions of total GHGs are typically reported in "carbon dioxide equivalent" (CO_2E) measures.[2]

There is international scientific consensus that human-caused increases in GHGs have contributed, and will continue to contribute, to global warming, although there is uncertainty concerning the magnitude and rate of the warming. Potential global warming impacts in California may include a decrease in snowpack, sea level rise, more extreme heat days per year, more high ozone days, increased frequency and intensity of wildfires, and more drought years.[3] Secondary effects are likely to include a global rise in sea level, impacts on agriculture, water resources, changes in disease vectors, and changes in habitat and biodiversity.

The California Air Resources Board (CARB) estimated that in 2009 California produced about 453 million metric tonnes of CO_2E ($MMTCO_2E$) of GHG emissions.[4,5] The CARB inventory for California shows that transportation is the source of approximately 38 percent of the state's GHG emissions, followed by electricity generation (both in-state and out-of-state) at approximately 23 percent and industrial sources at approximately 18 percent. Commercial and residential fuel use (primarily for heating) accounted for approximately 10 percent of CO_2E emissions.[6] In the Bay Area, fossil fuel consumption in the transportation sector (on-road motor vehicles, off-highway mobile sources, and aircraft) is the largest source of GHG emissions, each accounting for approximately 39 percent of the Bay Area's 95.8 $MMTCO_2E$ of GHG emissions in 2007. Industrial and commercial sources (including office and retail uses) were the second largest contributors of GHG emissions, contributing about 36 percent of total emissions. Electricity generation accounts for approximately 16 percent of the Bay Area's GHG emissions, followed by residential fuel usage (e.g., home water heaters, furnaces, etc.) at 7 percent, and agriculture at

[2] Because of the differential heat absorption potential of various GHGs, GHG emissions are frequently measured in terms of "carbon dioxide-equivalent" (CO_2E) to account for each gas's heat absorption or global warming potential.

[3] National Association of Clean Air Agencies, Primer on Climate Change Science, July 2011. Available on the California Air Resources Board website at http://www.4cleanair.org/Documents/NACAAClimateSciencePrimerpost.pdf. Accessed May 10, 2012.

[4] One metric tonne (MT) is 1,000 kilograms or 2,204.6 pounds or 1.1 short tons. One short ton or U.S. ton is 2,000 pounds. The abbreviation for "million metric tonnes" is MMT; thus, million metric tons of CO_2-equivalent ($MMTCO_2E$).

[5] California Air Resources Board (CARB), "California Greenhouse Gas Inventory for 2000-2009–by Category as Defined in the Scoping Plan." Available online at http://www.arb.ca.gov/cc/inventory/data/tables/ghg_inventory_scopingplan_00-09_2011-10-26.pdf. Accessed May 10, 2012.

[6] CARB, "California Greenhouse Gas Inventory for 2000-2009—by Category as Defined in the Scoping Plan." Available online at http://www.arb.ca.gov/cc/inventory/data/tables/ghg_inventory_scopingplan_00-09_2011-10-26.pdf. Accessed May 10, 2012.

1.0 percent. Oil refining currently accounts for more than 40 percent of the industrial-sector GHG emissions, or approximately 15 percent of the total Bay Area GHG emissions.[7]

REGULATORY FRAMEWORK

Federal

U.S. Supreme Court Ruling on California Clean Air Act Waiver

The U.S. Environmental Protection Agency (USEPA) is the federal agency responsible for implementing the Clean Air Act (CAA). The U.S. Supreme Court ruled on April 2, 2007 that CO_2 is an air pollutant as defined under the CAA, and that the USEPA has the authority to regulate emissions of GHGs.[8] At this time, there are no federal regulations or policies regarding GHG emissions directly applicable to the proposed project. (See discussion of Assembly Bill [AB] 1493, below, for further information on the USEPA granting a waiver of Federal CAA preemption to California.)

Energy and Independence Security Act of 2007 and Corporate Average Fuel Economy Standards

The Energy and Independence Security Act of 2007 (EISA) amended the Energy Policy and Conservation Act (EPCA) to further reduce fuel consumption and expand production of renewable fuels. The EISA's most significant amendment includes a statutory mandate for the National Highway Traffic Safety Administration to set passenger car corporate average fuel economy (CAFE) standards for each model year (MY) at the maximum feasible level. This statutory mandate also eliminates the old default CAFE standard of 27.5 miles per gallon. The EISA requires that CAFE standards for MY 2011–2020 be set sufficiently high to achieve the goal of an industry-wide passenger car and light-duty truck average CAFE standard of 35 miles per gallon. The rule-making for this goal, per President Barack Obama's request, has been divided into two separate parts. The first part, which was published in the *Federal Register* in March 2009, includes CAFE standards for MY 2011 so as to meet the statutory deadline (i.e., March 30, 2009). The second part of the rule-making applies to MY 2012 and subsequent years. These would be the maximum CAFE standards feasible under the limits of the EISA and the Energy Policy and Conservation Act. The National Highway Traffic Safety Administration and

[7] BAAQMD, *Source Inventory of Bay Area Greenhouse Gas Emissions: Base Year 2007*, updated: February 2010. Available online at http://www.mtc.ca.gov/planning/climate/Bay_Area_Greenhouse_Gas_Emissions_2-10.pdf. Accessed May 10, 2012.

[8] USEPA, *Endangerment and Cause or Contribute Findings for Greenhouse Gases under Section 202(a) of the Clean Air Act*. Available online at http://www.epa.gov/climatechange/endangerment.html. Accessed May 1, 2012.

USEPA are working in coordination to develop a national program targeting MY 2012–2016 passenger cars and light trucks.

U.S. Environmental Protection Agency Actions

In response to the issue of climate change, USEPA has taken actions to regulate, monitor, and potentially reduce GHG emissions.

Proposed Endangerment and Cause or Contribute Findings for Greenhouse Gases under the Clean Air Act

On April 23, 2009, USEPA published its proposed Endangerment and Cause or Contribute Findings for Greenhouse Gases under the CAA (Endangerment Finding) in the *Federal Register*. The Endangerment Finding is based on Section 202(a) of the CAA, which states that the USEPA Administrator should regulate and develop standards for "emission[s] of air pollution from any class or classes of new motor vehicles or new motor vehicle engines, which in [its] judgment cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare." The proposed rule addresses Section 202(a) in two distinct findings. The first addresses whether or not the concentrations of the six key GHGs (i.e., CO_2, CH_4, N_2O, HFCs, perfluorocarbons, and sulfur hexafluoride) in the atmosphere threaten the public health and welfare of current and future generations. The second addresses whether or not the combined emissions of GHGs from new motor vehicles and motor vehicle engines contribute to atmospheric concentrations of GHGs and thus increase the threat of climate change.

The USEPA Administrator proposed the finding that atmospheric concentrations of GHGs endanger the public health and welfare within the meaning of Section 202(a) of the CAA. The evidence supporting this finding consists of human activity resulting in "high atmospheric levels" of GHG emissions, which are very likely responsible for increases in average temperatures and other climatic changes. Furthermore, the observed and projected results of climate change (e.g., higher likelihood of heat waves, wildfires, droughts, sea level rise, and higher intensity storms) are a threat to public health and welfare. Accordingly, GHGs were found to endanger the public health and welfare of current and future generations.

The Administrator also proposed the finding that GHG emissions from new motor vehicles and motor vehicle engines are contributing to air pollution, which is endangering public health and welfare. The proposed finding states that in 2006, motor vehicles were the second largest contributor to domestic GHG emissions (24 percent of the total), behind electricity generation.

Furthermore, in 2005, the U.S. was responsible for 18 percent of global GHG emissions.[9] Thus, GHG emissions from motor vehicles and motor vehicle engines were found to contribute to air pollution that endangers public health and welfare.

On December 7, 2009, USEPA finalized its decision that GHG emissions from motor vehicles constitute an "endangerment" under the CAA. This USEPA finding allows for the establishment of GHG emissions standards for new motor vehicles.

Notice of Intent for Development of New GHG and Fuel Economy Standards

In September 2010, the National Highway Traffic Safety Administration with USEPA published a Notice of Intent for the development of new GHG and fuel economy standards for MY 2017-2025 vehicles. The agencies published a Supplemental Notice of Intent in December 2010. Draft regulations were published in December 2011, with a final rule due to be adopted in late 2012.[10]

In a related action, in June 2009, USEPA granted California a waiver under the federal Clean Air Act, allowing the state to impose its own, stricter GHG regulations for vehicles beginning in 2009 (see below).

State

The California Air Resource Board (CARB) is the state agency responsible for coordination and oversight of state and local air pollution control programs in California and for implementing the California Clean Air Act (CCAA), adopted in 1988. The passage of the Global Warming Solutions Act of 2006, or Assembly Bill 32 (AB 32), gave the CARB broad responsibility for promulgating regulations designed to achieve the general goals of reducing GHG from sources and activities under its jurisdiction. (For a discussion of AB 32, see "Assembly Bill 32 and the California Climate Change Scoping Plan," p. IV.H.7.)

Various statewide and local initiatives have been introduced to reduce the state's contribution to GHG emissions. However, because every nation emits GHGs and thus makes an incremental cumulative contribution to global climate change, cooperation on a global scale will be required

[9] U.S. Federal Register, Part V, Environmental Protection Agency, 40 CFR Chapter 1, Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the California Clean Air Act; Final Rule. Tuesday, December 15, 2009. A copy of this document is available for review at the Planning Department, 1650 Mission Street, Suite 400, San Francisco, California, as part of Case File No. 2008.1084E.

[10] USEPA, Transportation and Climate, Regulations and Standards. Available online at http://www.epa.gov/otaq/climate/regulations.htm. Accessed February 14, 2012.

to reduce the rate of GHG emissions to a level that can effectively slow or stop the human-caused increase in average global temperatures and associated changes in climatic conditions.

Assembly Bill 1493

In 2002, then-Governor Gray Davis signed AB 1493, which required that the CARB develop and adopt, by January 1, 2005, regulations that achieve "the maximum feasible reduction of GHGs emitted by passenger vehicles and light-duty trucks and other vehicles determined by CARB to be vehicles whose primary use is noncommercial personal transportation in the state."

To meet the requirements of AB 1493, the CARB approved amendments to the California Code of Regulations (CCR) in 2004, adding GHG emissions standards to California's existing standards for motor vehicle emissions. Amendments to CCR Title 13, Sections 1900 and 1961 (13 CCR 1900, 1961), and adoption of Section 1961.1 (13 CCR 1961.1), require automobile manufacturers to meet fleet-average GHG emissions limits for all passenger cars, light-duty trucks within various weight criteria, and medium-duty passenger vehicle weight classes (i.e., any medium-duty vehicle with a gross vehicle weight rating of less than 10,000 pounds and which is designed primarily for the transportation of persons), beginning with MY 2009. For passenger cars and light-duty trucks with a loaded vehicle weight of 3,750 pounds or less, the GHG emission limits for MY 2016 are approximately 37 percent lower than the limits for the first year of the regulations, MY 2009. For light-duty trucks with a loaded vehicle weight of 3,751 pounds to a gross vehicle weight of 8,500 pounds, as well as for medium-duty passenger vehicles, GHG emissions will be reduced approximately 24 percent between 2009 and 2016.

Because the Pavley standards (named for the bill's author, State Senator Fran Pavley) would impose stricter mobile source standards than those under the federal CAA, California applied to the USEPA for a waiver under the CAA; this waiver was granted in 2009.[11] California has now agreed to cooperate with the federal GHG and Corporate Average Fuel Economy standards under development so that there will be a single national standard.[12]

Executive Order S-3-05

In 2005, in recognition of California's vulnerability to the effects of climate change, then-Governor Schwarzenegger established Executive Order S-3-05, which sets forth a series of target dates by which statewide emissions of GHGs would be progressively reduced, as follows:

[11] USEPA, *California Greenhouse Gas Waiver Request*. Available online at http://www.epa.gov/otaq/climate/ca-waiver.htm. Accessed May 1, 2012.

[12] CARB, *Clean Car Standards - Pavley, Assembly Bill 1493*. Available online at http://www.arb.ca.gov/cc/ccms/ccms.htm. Accessed May 1, 2012.

by 2010, reduce GHG emissions to 2000 levels (approximately 458 MMTCO2E); by 2020, reduce GHG emissions to 1990 levels (an estimated 427 MMTCO2E); and by 2050, reduce GHG emissions to 80 percent below 1990 levels (approximately 85 MMTCO2E).

Assembly Bill 32 and the California Climate Change Scoping Plan

In 2006, the California legislature passed AB 32 (California Health and Safety Code Division 25.5, Sections 38500, et seq.), also known as the Global Warming Solutions Act. AB 32 requires CARB to design and implement emission limits, regulations, and other measures, such that feasible and cost-effective statewide GHG emissions are reduced to 1990 levels by 2020.

Pursuant to AB 32, CARB adopted a Scoping Plan in December 2008, outlining measures to meet the 2020 GHG reduction limits. In order to meet these goals, California must reduce its GHG emissions by 30 percent below projected 2020 business-as-usual emissions levels, or about 15 percent from today's levels.[13] The Scoping Plan estimates a reduction of 174 $MMTCO_2E$ from the transportation, energy, agriculture, forestry, and high global warming potential sectors (see Table IV.H.1: GHG Reductions from the AB 32 Scoping Plan Sectors).

CARB has identified an implementation timeline for the GHG reduction strategies in the Scoping Plan.[14] Some measures may require new legislation to implement, some will require subsidies, some have already been developed, and some will require additional effort to evaluate and quantify. Additionally, some emissions reductions strategies may require their own environmental review under CEQA or the National Environmental Policy Act.

The AB 32 Scoping Plan also anticipates that local government actions will result in reduced GHG emissions. CARB has identified a GHG reduction target of 15 percent from current levels for local governments themselves and notes that successful implementation of the plan relies on local governments' land use planning and urban growth decisions. This is because local governments have primary authority to plan, zone, approve, and permit land development to accommodate population growth and the changing needs of their jurisdictions. The Scoping Plan also relies on the requirements of Senate Bill (SB) 375 of 2008 (discussed below) to align local land use and transportation planning for achieving GHG reductions.

[13] CARB, *California's Climate Plan: Fact Sheet*. Available online at http://www.arb.ca.gov/cc/facts/scoping_plan_fs.pdf. Accessed May 1, 2012.
[14] CARB, *AB 32 Scoping Plan*. Available online at http://www.arb.ca.gov/cc/scopingplan/sp_measures_implementation_timeline.pdf. Accessed May 1, 2012.

Table IV.H.1: GHG Reductions from the AB 32 Scoping Plan Sectors

GHG Reduction Measures by Sector	GHG Reductions ($MMTCO_2E$)
Transportation Sector	62.3
Electricity and Natural Gas	49.7
Industry	1.4
Landfill Methane Control Measure (Discrete Early Action)	1
Forestry	5
High Global Warming Potential GHGs	20.2
Additional Reductions Needed to Achieve the GHG Cap	34.4
Total Reductions Counted Towards 2020 Target	174
Other Recommended Measures	
Government Operations	1-2
Agriculture - Methane Capture at Large Dairies	1
Additional GHG Reduction Measures:	
Water	4.8
Green Buildings	26
High Recycling/ Zero Waste - Commercial Recycling - Composting - Anaerobic Digestion - Extended Producer Responsibility - Environmentally Preferable Purchasing	9
Total Reductions from Other Measures	**42.8-43.8**

Note:
$MMTCO_2E$ = million metric tonnes of CO_2E (carbon dioxide equivalent)

Source: CARB, California's Climate Plan: Fact Sheet. Available online at http://www.arb.ca.gov/cc/facts/scoping_plan_fs.pdf. Accessed May 10, 2012.

Executive Order S-1-07

Executive Order S-1-07, signed by then-Governor Schwarzenegger in 2007, proclaimed that the transportation sector is the main source of GHG emissions in California, at over 40 percent of statewide emissions. The order established a goal of reducing the carbon intensity of transportation fuels sold in California by a minimum of 10 percent by 2020. It also directed CARB to determine whether this Low Carbon Fuel Standard could be adopted as a discrete, early-action measure after meeting the mandates in AB 32. CARB adopted the Low Carbon Fuel Standard on April 23, 2009.

Senate Bill 1078 and 107 and Executive Order S-14-08 and S-21-09

California established aggressive renewable energy standards under SB 1078 (Chapter 516, Statutes of 2002) and SB 107 (Chapter 464, Statutes of 2006), which requires retail sellers of

electricity, including investor-owned utilities and community choice aggregators,[15] to provide at least 20 percent of their supply from renewable sources by 2010. Executive Order S-14-08 of November 2008 expanded the State's Renewable Portfolio Standard to 33 percent of electricity from renewable sources by 2020. In September 2009, then-Governor Schwarzenegger continued California's commitment to the Renewable Portfolio Standard by signing Executive Order S-21-09, which directed CARB under its AB 32 authority to enact regulations to help the state meet its Renewable Portfolio Standard goal of 33 percent renewable energy by 2020.

Senate Bill 1368

SB 1368 (September 2006) is a companion bill of AB 32 that required the California Public Utilities Commission to establish a greenhouse gas emission performance standard for baseload generation from investor-owned utilities. The California Energy Commission was required to establish a similar standard for local publicly owned utilities. These regulations (20 CCR 2900) established in 2007 prohibit utilities from entering into long-term contracts with any baseload power plant that would emit more than the equivalent GHG performance of a typical combined-cycle natural-gas-fired plant. The legislation ensures that all new contracts for electricity provided to California, including imported electricity, must be generated from plants that meet the standards set by the Public Utilities Commission and the California Energy Commission.

Senate Bill 97

SB 97, signed in August 2007, acknowledged that climate change is a prominent environmental issue requiring analysis under CEQA. SB 97 required the Office of Planning and Research (OPR) to amend the state CEQA Guidelines to address the feasible mitigation of GHG emissions or the effects of GHGs. In response, OPR amended the CEQA Guidelines to provide guidance for analyzing GHG emissions. Among other changes to the CEQA Guidelines, the amendments add a new section to the CEQA Checklist (CEQA Guidelines Appendix G) to address questions regarding the a project's potential to emit GHGs. The amendments were reviewed by the Office of Administrative Law, and became effective March 18, 2010. Accordingly, OPR's State CEQA Guidelines amendments have been incorporated into this analysis.

Senate Bill 375

In addition to policy directly guided by AB 32, the California legislature passed SB 375 in 2008 to require regional coordination in land use and transportation planning and funding to help meet the AB 32 GHG reduction goals. SB 375 aligns regional transportation planning efforts, regional

[15] The City and County of San Francisco community choice aggregation program, "CleanPowerSF," was registered in May 2010 and is administered by the San Francisco Public Utilities Commission.

GHG emissions reduction targets, and land use and housing allocations. SB 375 requires regional transportation plans developed by each of the state's 18 Metropolitan Planning Organizations (MPOs) to incorporate a "sustainable communities strategy" in each regional transportation plan that will achieve GHG emission reduction targets set by CARB. In the Bay Area, the Metropolitan Transportation Commission is the MPO. SB 375 also includes provisions for streamlined CEQA review for some infill projects such as transit-oriented development. The commission will adopt a regional transportation plan in 2013 that will be the region's first plan subject to SB 375.

CARB, in consultation with MPOs, will provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. These reduction targets will be updated every eight years, but can be updated every four years if advancements in emissions technologies affect the reduction strategies to achieve the targets. CARB is also charged with reviewing each MPO's sustainable communities strategy or "alternative planning strategy" for consistency with its assigned targets. If MPOs do not meet the GHG emissions reduction targets, transportation projects would not be eligible for funding programmed after January 1, 2012.

This bill also extends the minimum time period for the Regional Housing Needs Allocation cycle from five years to eight years for local governments located within an MPO that meets certain requirements. City and county land use policies (including general plans) are not required to be consistent with the regional transportation plan (and associated sustainable communities strategy or alternative planning strategy). However, new provisions of CEQA would incentivize qualified projects that are consistent with the approved strategy, categorized as "transit priority projects."

Regional/City/Local

Bay Area Air Quality Management District Climate Protection Program

The Bay Area Air Quality Management District (BAAQMD) is the primary agency responsible for air quality regulation in the nine-county San Francisco Bay Area Air Basin (SFBAAB). BAAQMD established a climate protection program to reduce pollutants that contribute to global climate change and affect air quality in the SFBAAB. The climate protection program includes measures that promote energy efficiency, reduce vehicle miles traveled, and develop alternative sources of energy, all of which assist in reducing emissions of GHGs and in reducing air pollutants that affect the health of residents. BAAQMD also seeks to support current climate protection programs in the region and to stimulate additional efforts through public education and outreach, technical assistance to local governments and other interested parties, and promotion of collaborative efforts among stakeholders.

City and County of San Francisco Greenhouse Gas Reduction Strategy

The City and County of San Francisco has a history of environmental protection policies and programs aimed at improving the quality of life for residents and reducing impacts on the environment. A comprehensive assessment of these policies, programs, and ordinances as they relate to reducing GHG emissions has been compiled into the City's *Strategies to Address Greenhouse Gas Emissions*, collectively referred to as San Francisco's GHG Reduction Strategy.[16]

The GHG Reduction Strategy includes measures applicable to this project that would decrease the amount of GHGs emitted into the atmosphere and thus decrease San Francisco's overall contribution to climate change. The following plans, policies, and legislation demonstrate San Francisco's continued commitment to environmental protection.

City and County of San Francisco Plans, Policies, and Programs

Transit First Policy

In 1973, the City instituted the Transit First Policy, which added Article 8A, Section 8A.115 to the City Charter with the goal of reducing San Francisco's reliance on freeways and meeting transportation needs by emphasizing mass transportation. The Transit First Policy gives priority to public transit investments; adopts street capacity and parking policies to discourage increased automobile traffic; and encourages the use of transit, bicycling, and walking instead of single-occupant vehicles.

San Francisco Sustainability Plan

In July 1997, the Board of Supervisors endorsed the *Sustainability Plan for the City and County of San Francisco*, which establishes sustainable development as a fundamental goal of municipal public policy.

Electricity Resource Plan (Revised December 2002)

The City adopted the *Electricity Resource Plan* to help address growing environmental health concerns in San Francisco's southeast community, the site of two power plants. The plan presents a framework for ensuring a reliable, affordable, and renewable source of energy for the future of San Francisco.

[16] San Francisco Planning Department, *Strategies to Address Greenhouse Gas Emissions in San Francisco*, 2010. Available online at http://www.sfplanning.org/index.aspx?page=1570. Accessed May 1, 2012.

Climate Action Plan for San Francisco

In February 2002, the San Francisco Board of Supervisors passed the Greenhouse Gas Emissions Reduction Resolution (Number 158-02) that set a goal for the City to reduce GHG emissions to 20 percent below 1990 levels by the year 2012. In September 2004, the San Francisco Department of the Environment and San Francisco Public Utilities Commission published the *Climate Action Plan for San Francisco: Local Actions to Reduce Greenhouse Gas Emissions*.[17] This *Climate Action Plan* provides the context of climate change in San Francisco and examines strategies to meet the 20 percent GHG emissions reduction target. Although the Board of Supervisors has not formally committed the City to perform the actions addressed in the plan, and many of the actions require further development and commitment of resources, the plan serves as a blueprint for GHG emissions reductions, and several actions have been implemented or are now in progress.

San Francisco Municipal Transportation Agency's Zero Emissions 2020 Plan

The *Zero Emissions 2020 Plan* focuses on the purchase of cleaner emission transit buses, including hybrid diesel-electric buses. Under this plan, hybrid buses will replace the oldest diesel buses, some dating back to 1988. The hybrid buses emit 95 percent less particulate matter (soot) than the diesel buses, produce 40 percent less nitrogen oxides, and reduce GHGs by 30 percent.

Zero Waste

In 2004, the City committed to a goal of diverting 75 percent of its waste from landfills by 2010, with the ultimate goal of zero waste by 2020. In 2010 San Francisco successfully diverted 75 percent of discarded material.[18]

GoSolarSF

On July 1, 2008, the San Francisco Public Utilities Commission launched its "GoSolarSF" program to San Francisco's businesses and residents, offering incentives in the form of a rebate program that could pay for approximately half the cost of installation of a solar power system and more to those qualifying as low-income residents.

[17] San Francisco Department of the Environment and San Francisco Public Utilities Commission, *Climate Action Plan for San Francisco: Local Actions to Reduce Greenhouse Emissions*, 2004. A copy of this document is available for review at the Planning Department, 1650 Mission Street, Suite 400, San Francisco, California, as part of Case File No. 2008.1084E.

[18] San Francisco Department of the Environment, *Zero Waste*, 2011. Available online at http://sfenvironment.org/zero-waste. Accessed May 11, 2012.

The San Francisco Planning Department and the San Francisco Department of Building Inspection have also developed a streamlining process for solar photovoltaic permits and priority permitting mechanisms for projects pursuing Gold certification under the Leadership in Energy and Environmental Design (LEED) Green Building Rating System.

The San Francisco Planning Code reflects the latest smart growth policies and includes electric vehicle refueling stations in City parking garages, bicycle storage facilities for commercial and office buildings, and zoning that is supportive of high-density mixed-use infill development. The City's more recent area plans, such as the *Rincon Hill Area Plan* and the *Market and Octavia Area Plan*, provide transit-oriented development policies that allow for neighborhood-oriented retail services and limit off-street parking to accessory parking spaces.[19] At the same time, there is a communitywide focus on ensuring that San Francisco's neighborhoods are "livable," reflected in the *San Francisco Better Streets Plan*, which would improve streetscape policies throughout the City; the Transit Effectiveness Project, which aims to improve transit service; and the *San Francisco Bicycle Plan*. All of these plans and projects are intended to promote alternative transportation options for residents and visitors.

Local Ordinances

San Francisco Planning Code

The San Francisco Planning Code reflects the latest smart growth policies and includes electric vehicle refueling stations in City parking garages, bicycle storage facilities for commercial and office buildings, and zoning that is supportive of high-density mixed-use infill development. The City's more recent area plans, such as the *Rincon Hill Area Plan* and the *Market and Octavia Area Plan*, provide transit-oriented development policies that allow for neighborhood-oriented retail services and limit offstreet parking to accessory parking spaces. At the same time, there is a communitywide focus on ensuring that San Francisco's neighborhoods are "livable," reflected in the *San Francisco Better Streets Plan*, which provides streetscape policies throughout the City; the Transit Effectiveness Project, which aims to improve transit service; and the *San Francisco Bicycle Plan*. All of these plans and projects are intended to promote alternative transportation options for residents and visitors.

Construction and Demolition Debris Recovery Ordinance

In 2006, the City adopted Ordinance No. 27-06, requiring all construction and demolition debris to be transported to a registered facility that can divert a minimum of 65 percent of the material

[19] San Francisco Planning Code Sections 206.4 and 155.

from landfills. This ordinance applies to all construction, demolition, and remodeling projects within the City.

Greenhouse Gas Reduction Ordinance

In May 2008, the City adopted Ordinance No. 81-08 amending the San Francisco Environment Code to establish GHG emissions targets and departmental action plans, to authorize the San Francisco Department of the Environment to coordinate efforts to meet these targets, and to make environmental findings. The ordinance establishes the following GHG emissions reduction limits for San Francisco and the target dates by which to achieve them:

- Determine 1990 City GHG emissions by 2008, the baseline level with reference to which target reductions are set.
- Reduce GHG emissions by 25 percent below 1990 levels by 2017.
- Reduce GHG emissions by 40 percent below 1990 levels by 2025.
- Reduce GHG emissions by 80 percent below 1990 levels by 2050.

The ordinance also specifies requirements for City departments to prepare climate action plans that assess GHG emissions associated with their activities and with the activities they regulate, report the results of those assessments to the San Francisco Department of the Environment, and prepare recommendations to reduce emissions. In particular, the San Francisco Planning Department is required to (1) update and amend the City's applicable *General Plan* elements to include the emissions reduction limits set forth in this ordinance and policies to achieve those targets; (2) consider a project's impact on the City's GHG emissions reduction limits specified in this ordinance as part of its review under CEQA; and (3) work with other City departments to enhance the Transit First Policy to encourage a shift to sustainable modes of transportation, thereby reducing emissions and helping to achieve the targets set forth by the ordinance.

City and County of San Francisco's Green Building Ordinance

On August 4, 2008, San Francisco's Green Building Ordinance (Ordinance No. 180-08) became law for newly constructed residential and commercial buildings and renovations to existing buildings. The ordinance specifically requires newly constructed commercial buildings over 5,000 square feet, residential buildings over 75 feet in height, and renovations on buildings over 25,000 square feet to be subject to an unprecedented level of required LEED Green Building Rating System™ certifications, the most stringent green building requirements in the nation at the time. In addition, green building standards are required for all newly constructed buildings, regardless of size or occupancy, as well as renovations to areas greater than 25,000 square feet undergoing major structural, mechanical, or electrical upgrades. Cumulative benefits of this ordinance include reducing CO_2 emissions by 60,000 tons, saving 220,000 megawatt-hours of

power, saving 100 million gallons of drinking water, reducing waste and stormwater by 90 million gallons, reducing construction and demolition waste by 700 million pounds, increasing the valuations of recycled materials by $200 million, reducing 540,000 automobile trips, and increasing generation of green power by 37,000 megawatt-hours.[20]

The Green Building Ordinance also continues San Francisco's efforts to reduce local GHG emissions to 20 percent below 1990 levels by the year 2012, a goal outlined in the City's 2004 *Climate Action Plan*. In addition, by reducing San Francisco's emissions, this ordinance furthers efforts to reduce GHG emissions statewide, as mandated by the California Global Warming Solutions Act of 2006.

City and County of San Francisco Commuter Benefits Ordinance

The City adopted Ordinance No. 199-08, effective January 19, 2009, that allows commuters to deduct a specified amount per month, pretax, for transit and vanpool expenses. These commuter benefits must be offered by any employer with 20 employees or more that operates within the City. To qualify for these benefits, employees must work at least 10 hours per week averaged over a calendar month. Although not required by the ordinance, employers can offer the commuter benefits to employees who work fewer than 10 hours per week averaged over a month.

City and County of San Francisco Mandatory Recycling and Composting Ordinance

The City adopted Ordinance No. 100-09, effective October 21, 2009, that requires all businesses and residences to compost food scraps and biodegradable products. Businesses and residents are provided with green, blue, and black bins to sort their food and other biodegradable waste, recycling, and trash, respectively. Businesses and residences that do not comply with the ordinance are subject to fines, depending on the level and duration of noncompliance.

Independent Review of the San Francisco Community GHG Inventory

San Francisco has been actively pursuing cleaner energy, alternative transportation, and solid waste policies, many of which have been codified into regulations, as discussed above. An independent review of San Francisco's communitywide emissions shows that San Francisco has achieved a 5 percent reduction in communitywide GHG emissions below the Kyoto Protocol 1990 baseline levels. The 1997 Kyoto Protocol[21] sets a greenhouse gas reduction target of 7 percent below 1990 levels by 2012. The "communitywide inventory" includes GHG emissions

[20] These findings are contained within the final Green Building Ordinance, signed by the Mayor on August 4, 2008.

[21] The 1997 Kyoto Protocol is an international agreement for stabilizing GHG concentrations in the atmosphere. United Nations Framework Convention on Climate Change, December 1997.

generated by San Francisco, from residents, businesses, and commuters as well as from municipal operations. The inventory also includes emissions from both transportation and building energy sources.[22]

The BAAQMD has reviewed San Francisco's GHG Reduction Strategy and concluded that "aggressive GHG reduction targets and comprehensive strategies like San Francisco's help the Bay Area move toward reaching the State's AB 32 goals, and also serve as a model from which other communities can learn."

IMPACTS

SIGNIFICANCE CRITERIA

The thresholds for determining the significance of impacts in this analysis are consistent with the environmental checklist in Appendix G of the State CEQA Guidelines, which has been adopted and modified by the San Francisco Planning Department. For the purpose of this analysis, the following applicable thresholds were used to determine whether implementing the project would result in a significant impact on greenhouse gas emissions. Implementation of the proposed project would have a significant effect on greenhouse gas emissions if the project would:

H.1. Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; or

H.2. Conflict with an applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs.

APPROACH TO ANALYSIS

As discussed above, SB 97 required OPR to amend the state CEQA Guidelines to address the feasible mitigation of GHG emissions or the effects of GHGs. In response, OPR amended the CEQA Guidelines to provide guidance for analyzing GHG emissions. Among other changes to the CEQA Guidelines, the amendments add a new section to the CEQA Checklist (CEQA Guidelines Appendix G) to address questions regarding the project's potential to emit GHGs. The significance thresholds identified above are based on the CEQA Guidelines and CEQA Checklist, as amended by SB 97. The proposed project's impacts with respect to GHG emissions are based on compliance with local and state plans, policies and regulations adopted for the purpose of reducing the cumulative impacts of climate change. GHG emissions are analyzed in the context of their contribution to the cumulative effects of climate change because no single land use project

[22] ICF International, *City and County of San Francisco: Community GHG Inventory Review*, August 1, 2008. Prepared for City and County of San Francisco Department of the Environment. Available online at http://www.sf-planning.org/ftp/files/MEA/GHG-Reduction_ApxC.pdf. Accessed May 11, 2012.

could generate enough GHG emissions to noticeably change the global average temperature. As discussed above, the AB 32 Scoping Plan is the state's overarching plan for addressing climate change. The AB 32 Scoping Plan recommendations are intended to curb projected business-as-usual growth in GHG emissions and reduce those emissions to 1990 levels. Therefore, meeting AB 32 GHG reduction goals would result in an overall annual net decrease in GHGs as compared to current levels and accounts for projected increases in emissions resulting from anticipated growth. The BAAQMD has conducted an analysis of the effectiveness of meeting AB 32 goals from the actions outlined in the scoping plan and determined that in order for the Bay Area to meet AB 32 GHG reduction goals, the Bay Area would need to achieve an additional 2.3 percent reduction in GHG emissions from the land use driven sector.

At a local level, the City has developed a number of plans and programs to reduce the City's contribution to global climate change. As identified in San Francisco's *Strategies to Address Greenhouse Gas Emissions*,[23] the City has implemented a number of mandatory requirements and incentives that have measurably reduced GHG emissions including, but not limited to, measures to increase the energy efficiency of new and existing buildings, installation of solar panels on building roofs, implementation of a green building strategy, adoption of a zero waste strategy, a construction and demolition debris recovery ordinance, a solar energy generation subsidy, incorporation of alternative fuel vehicles in the City's transportation fleet (including buses), and a mandatory recycling and composting ordinance. The strategy also identifies 42 specific regulations for new development that would reduce a project's GHG emissions.

San Francisco's *Strategies to Address Greenhouse Gas Emissions* identifies the City's actions to pursue cleaner energy, energy conservation, alternative transportation, and solid waste policies, and concludes that San Francisco's policies have resulted in a reduction in GHG emissions below 1990 levels, exceeding statewide AB 32 GHG reduction goals. As reported, San Francisco's GHG emissions were approximately 8.26 $MMTCO_2E$ in 1990, and for 2005, GHG emissions were estimated at 7.82 $MMTCO_2E$, representing an approximately 5 percent reduction in GHG emissions below 1990 levels.

As stated above, BAAQMD, the primary agency with regulatory authority over air quality regulation in the nine-county SFBAAB, reviewed the City's *Strategies to Address Greenhouse Gas Emissions* and concluded that San Francisco's "aggressive GHG reduction targets and

[23] San Francisco Planning Department, *Strategies to Address Greenhouse Gas Emissions in San Francisco.* 2010. Available online at http://www.sfplanning.org/index.aspx?page=1570. Accessed May 10, 2012.

comprehensive strategies help the Bay Area move toward reaching the State's AB 32 goals, and also serve as a model from which other communities can learn."[24]

In summary, the two applicable GHG reduction plans, the AB 32 Scoping Plan and the City's *Strategies to Address Greenhouse Gas Emissions*, are intended to reduce GHG emissions below current levels. Given that the City's local greenhouse gas reduction targets are more aggressive than the state's 2020 GHG reduction targets, and consistent with the long term 2050 reduction targets, the City's GHG Reduction Strategy is consistent with the goals of AB 32. Therefore, projects that are consistent with San Francisco's *Strategies to Address Greenhouse Gas Emissions* would be consistent with AB 32 goals and would not conflict with either plan or generate GHG emissions that would make a considerable contribution to global climate change. As such, a project's impact with respect to GHG emissions is based upon compliance with the City's *Strategies to Address Greenhouse Gas Emissions.* The following analysis of the proposed project's climate change impact focuses on the project's contribution to a cumulatively significant global impact through its emission of GHGs. Given the analysis is in a cumulative context, this section does not include an individual, project-specific impact statement.

PROJECT FEATURES

The proposed project consists of the construction of a new 47-story, 550-foot-tall tower that would be adjacent to and physically connected to the existing 10-story, 154-foot-tall Aronson Building. As part of the proposed project, the Aronson Building would be restored and rehabilitated. In addition, the existing 10-foot-tall mechanical penthouse on top of the roof of the Aronson Building would be removed and a new 15-foot-tall solarium would be constructed, resulting in an overall building height of 159 feet. The overall project would contain up to 215 residential units, seven floors of flex space in the Aronson Building, which is analyzed in this EIR as residential use or office use, space for The Mexican Museum, a ground-floor retail/restaurant use, and associated building services.

The proposed project would be a high-density mixed-use infill development in a transit-oriented district with Class I and Class II bicycle parking spaces, car share parking spaces, energy-efficiency features to meet or exceed Title 24 requirements, low-impact stormwater management design, water-efficient landscaping, water-conserving interior features, convenient recycling and composting, street trees, and other features consistent with San Francisco's requirements.

[24] Letter from Jean Roggenkamp, BAAQMD, to Bill Wycko, San Francisco Planning Department. October 28, 2010. Available online at http://www.sf-planning.org/ftp/files/MEA/GHG-Reduction_Letter.pdf. Accessed May 11, 2012.

IMPACT EVALUATION

Impact C-GG-1: The proposed project would be consistent with the City's GHG Reduction Plan and the AB 32 Scoping Plan, and would, therefore, not result in a cumulatively considerable contribution to significant cumulative GHG emissions or conflict with any policy, plan, or regulation adopted for the purpose of reducing GHG emissions. (*Less than Significant*)

The most common GHGs resulting from human activity are CO_2 CH_4, and N_2O.[25] State law defines GHGs to also include hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. These latter GHG compounds are usually emitted in industrial processes, and therefore are not applicable to the proposed project. Individual projects contribute to the cumulative effects of climate change by directly or indirectly emitting GHGs during construction and operational phases. Direct operational emissions include GHG emissions from new vehicle trips and area sources (natural gas combustion). Indirect emissions include emissions from electricity providers; energy required to pump, treat, and convey water; and emissions associated with waste removal, disposal, and landfill operations.

General Impacts

The proposed project would increase the activity on site by placing new residential, cultural, and retail/restaurant uses on the site. Therefore, the proposed project would contribute to annual long-term increases in GHGs as a result of increased vehicle trips (mobile sources) and the energy use, water use, wastewater treatment, and solid waste disposal associated with residential, cultural, and commercial operations. Construction activities would also result in a temporary increase in GHG emissions. As discussed above, whether a project makes a cumulatively considerable contribution to significant cumulative GHG emissions is based on compliance with the City's GHG Reduction Strategy. This strategy is consistent with AB 32 GHG reduction goals and would continue to reduce the City's GHG emissions below current levels.

The proposed project would be a high-density mixed-use infill development in a transit-oriented district with bicycle parking, car share parking, energy-efficiency features, low-impact stormwater design, water-efficient landscaping, and water-conserving features. With these elements, the project (under either the residential or office flex options) would implement the transportation, energy efficiency, renewable energy, waste reduction, and conservation features required by the City's *Strategies to Address Greenhouse Gas Emissions* as detailed in

[25] Governor's Office of Planning and Research, *Technical Advisory- CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA) Review*, June 19, 2008. Available online at http://opr.ca.gov/docs/june08-ceqa.pdf. Accessed May 11, 2012.

Table IV.H.2: Regulations Applicable to the Proposed Project for GHG Reduction. A comprehensive analysis of the project's consistency with the City's GHG Reduction Strategy is detailed in the project's GHG compliance checklist.[26]

Table IV.H.2: Regulations Applicable to Private Development Projects

Regulation	Requirements	Project Compliance	Discussion
Transportation Sector			
Commuter Benefits Ordinance (San Francisco Environment Code, Section 421)	All employers of 20 or more employees must provide at least one of the following benefit programs: 1. A Pre-Tax Election consistent with 26 U.S.C. § 132(f), allowing employees to elect to exclude from taxable wages and compensation, employee commuting costs incurred for transit passes or vanpool charges, or (2) Employer Paid Benefit whereby the employer supplies a transit pass for the public transit system requested by each Covered Employee or reimbursement for equivalent vanpool charges at least equal in value to the purchase price of the appropriate benefit, or (3) Employer Provided Transit furnished by the employer at no cost to the employee in a vanpool or bus, or similar multi-passenger vehicle operated by or for the employer.	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	End user employers occupying the building (e.g. commercial, restaurant, retail, museum, HOA) would comply to the extent applicable and required.
Emergency Ride Home Program	All persons employed in San Francisco are eligible for the emergency ride home program.	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	End user employers occupying the building (e.g. commercial, restaurant, retail, museum, HOA) would comply to the extent applicable and required.

[26] San Francisco Planning Department, *GHG Analysis Compliance Checklist*, for 706 Mission Street Project, May 2012. A copy of this document is available for review at the Planning Department, 1650 Mission Street, Suite 400, San Francisco, California, as part of Case File No. 2008.1084E.

Regulation	Requirements	Project Compliance	Discussion
Transit Impact Development Fee (Administrative Code, Chapter 38)	Establishes the following fees for all commercial developments. Fees are paid to the SFMTA to improve local transit services.	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	The project sponsor would comply with this requirement by paying transit impact development fees as required.
San Francisco Green Building Requirements (San Francisco Building Code, Chapter 13C. 106.5 and 13C.5.106.5.2)	Requires New Large Commercial projects, New High-rise Residential projects and Commercial Interior projects to provide designated parking for low-emitting, fuel efficient, and carpool/van pool vehicles. Mark 8% of parking stalls for such vehicles.	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	The proposed project would comply with San Francisco Green Building Requirements for designated parking as applicable and required.
Bicycle parking in parking garages (San Francisco Planning Code, Section 155.2)	(A) Every garage will supply a minimum of six bicycle parking spaces. (B) Garages with between 120 and 500 automobile spaces shall provide one bicycle space for every 20 automobile spaces. (C) Garages with more than 500 automobile spaces shall provide 25 spaces plus one additional space for every 40 automobile spaces over 500 spaces, up to a maximum of 50 bicycle parking spaces.	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	The Jessie Square Garage contains 442 existing public parking spaces. The Redevelopment Agency would convey the Jessie Square Garage to the project sponsor, and the project sponsor would increase the number of parking spaces from 442 to 470. Of the 470 parking spaces, 210 would remain available to the general public. The proposed project would provide 24 bicycle parking spaces as required by San Francisco Planning Code section 155.2 and so would comply.
Bicycle parking in Residential Buildings (San Francisco Planning Code, Section 155.5)	(A) For projects up to 50 dwelling units, one Class 1 space for every 2 dwelling units. (B) For projects over 50 dwelling units, 25 Class 1 spaces plus one Class 1 space for every 4 dwelling units over 50.	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	The proposed project includes between up to 175 and 215 dwelling units. Depending on the final unit count, the proposed project would provide up to 61 to 67 Class I and Class II bicycle parking spaces as required by San Francisco Planning Code

Regulation	Requirements	Project Compliance	Discussion
			section 155.5 and so would comply.
Car Sharing Requirements (San Francisco Planning Code, Section 166)	New residential projects or renovation of buildings being converted to residential uses within most of the City's mixed-use and transit-oriented residential districts are required to provide car share parking spaces.	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	The proposed project includes between up to 175 and 215 dwelling units. Depending on the final unit count, the proposed project would provide 1 to 2 residential car share spaces and so would comply.
Parking requirements for San Francisco's Mixed-Use zoning districts (San Francisco Planning Code Section 151.1)	The San Francisco Planning Code has established parking maximums for many of San Francisco's Mixed-Use districts.	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	Pursuant to Section 151.1 of the San Francisco Planning Code, in a C-3 District, one parking space is permitted for each dwelling unit that contains at least two bedrooms and at least 1,000 square feet of occupied floor area. The proposed project includes between up to 175 and 215 dwelling units with at least two bedrooms and at least 1,000 square feet of occupied floor area, and it would provide one parking space for each dwelling unit and so would comply.
Energy Efficiency Sector			
San Francisco Green Building Requirements for Energy Efficiency (San Francisco Building Code, Chapter 13C)	Commercial buildings greater than 5,000 sf will be required to be at a minimum 14% more energy efficient than Title 24 energy efficiency requirements. By 2008 large commercial buildings will be required to have their energy systems commissioned, and by 2010, these large buildings will be required to provide enhanced commissioning in compliance with LEED® Energy and Atmosphere	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	The proposed project would comply with San Francisco Green Building Requirements for Energy Efficiency as applicable and required.

Regulation	Requirements	Project Compliance	Discussion
	Credit 3. Mid-sized commercial buildings will be required to have their systems commissioned by 2009, with enhanced commissioning by 2011.		
San Francisco Green Building Requirements for Energy Efficiency (LEED EA3, San Francisco Building Code, Chapter 13C.5.410.2)	For New Large Commercial Buildings - Requires Enhanced Commissioning of Building Energy Systems. For new large buildings greater than 10,000 square feet, commissioning shall be included in the design and construction to verify that the components meet the owner's or owner representative's project requirements.	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	The proposed project would comply with San Francisco Green Building Requirements for energy efficiency as applicable and required.
Commissioning of Building Energy Systems (LEED prerequisite, EAp1)	Requires Fundamental Commissioning for New High-rise Residential, Commercial Interior, Commercial and Residential Alteration projects.	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	The proposed project would comply with the LEED prerequisite for the fundamental commissioning of building energy systems.
San Francisco Green Building Requirements for Energy Efficiency (San Francisco Building Code, Chapter 13C)	Under the Green Point Rated system and in compliance with the Green Building Ordinance, all new residential buildings will be required to be at a minimum 15% more energy efficient than Title 24 energy efficiency requirements.	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	The proposed project would comply with the San Francisco Green Building Requirements, and at a minimum would be 15% more energy efficient than Title 24 energy efficiency requirements.
San Francisco Green Building Requirements for Stormwater Management (San Francisco Building Code, Chapter 13C) Or San Francisco Stormwater Management Ordinance (Public Works Code Article 4.2)	Requires all new development or redevelopment disturbing more than 5,000 square feet of ground surface to manage stormwater on-site using low impact design. Projects subject to the Green Building Ordinance Requirements must comply with either LEED® Sustainable Sites Credits 6.1 and 6.2, or with the City's Stormwater ordinance and stormwater design guidelines.	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	The proposed project is subject to the San Francisco Green Building Requirements. Therefore, the proposed project would comply with requirements for stormwater management as applicable and required.

Regulation	Requirements	Project Compliance	Discussion
San Francisco Green Building Requirements for water efficient landscaping (San Francisco Building Code, Chapter 13C)	All new commercial buildings greater than 5,000 square feet are required to reduce the amount of potable water used for landscaping by 50%.	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	The proposed project would comply with San Francisco Green Building Requirements for water efficient landscaping.
Indoor Water Efficiency (San Francisco Building Code, Chapter 13C sections 13C.5.103.1.2, 13C.4.103.2.2,13C.5.303.2)	**If meeting a LEED Standard;** Reduce overall use of potable water within the building by a specified percentage – for showerheads, lavatories, kitchen faucets, wash fountains, water closets and urinals. New large commercial and New high rise residential buildings must achieve a 30% reduction. Commercial interior, commercial alternation and residential alteration should achive a 20% reduction below UPC/IPC 2006, et al. **If meeting a GreenPoint Rated Standard:** Reduce overall use of potable water within the building by 20% for showerheads, lavatories, kitchen faucets, wash fountains, water closets and urinals.	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	The proposed project would comply with San Francisco Green Building Requirements for indoor water efficiency as applicable and required.
San Francisco Green Building Requirements for water use reduction (San Francisco Building Code, Chapter 13C)	All new commercial buildings greater than 5,000 sf are required to reduce the amount of potable water used by 20%.	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	The proposed project would comply with San Francisco Green Building Requirements for water use reduction.
Commercial Water Conservation Ordinance (San Francisco Building Code, Chapter 13A)	Requires all existing commercial properties undergoing tenant improvements to achieve the following minimum standards: 1. All showerheads have a maximum flow of 2.5 gallons	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	The proposed project would comply with the Commercial Water Conservation Ordinance by achieving the minimum standards in the ordinance as applicable and/or

Regulation	Requirements	Project Compliance	Discussion
	per minute (gpm). 2. All showers have no more than one showerhead per valve. 3. All faucets and faucet aerators have a maximum flow rate of 2.2 gpm. 4. All Water Closets (toilets) have a maximum rated water consumption of 1.6 gallons per flush (gpf). 5. All urinals have a maximum flow rate of 1.0 gpf. 6. All water leaks have been repaired.		required.
San Francisco Water Efficient Irrigation Ordinance	Projects that include 1,000 square feet (sf) or more of new or modified landscape are subject to this ordinance, which requires that landscape projects be installed, constructed, operated, and maintained in accordance with rules adopted by the SFPUC that establish a water budget for outdoor water consumption. Tier 1: 1,000 sf <= project landscape < 2,500 sf Tier 2: Project landscape area is greater than or equal to 2,500 sf. Note; Tier 2 compliance requires the services of landscape professionals. See the SFPUC website for information regarding exemptions to this requirement. www.sfwater.org/landscape	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	The proposed project would comply with San Francisco Water Efficient Irrigation Ordinance requirements.
Residential Water Conservation Ordinance (San Francisco Building Code, Housing Code, Chapter 12A)	Requires all residential properties (existing and new), prior to sale, to upgrade to the following minimum standards: 1. All showerheads have a maximum flow of 2.5 gallons per minute (gpm). 2. All showers have no more	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	The proposed project would comply with the Residential Water Conservation Ordinance by meeting at least the minimum standards specified in the ordinance as applicable and/or required.

Regulation	Requirements	Project Compliance	Discussion
	than one showerhead per valve. 3. All faucets and faucet aerators have a maximum flow rate of 2.2 gpm. 4. All Water Closets (toilets) have a maximum rated water consumption of 1.6 gallons per flush (gpf). 5. All urinals have a maximum flow rate of 1.0 gpf. 6. All water leaks have been repaired. Although these requirements apply to existing buildings, compliance must be completed through the Department of Building Inspection, for which a discretionary permit (subject to CEQA) would be issued.		
Renewable Energy Sector			
San Francisco Green Building Requirements for renewable energy (San Francisco Building Code, Chapter 13C)	As of 2012, all new large commercial buildings are required to either generate 1% of energy on-site with renewables or purchase renewable energy credits pursuant to LEED® Energy and Atmosphere Credits 2 or 6, or achieve an additional 10% beyond Title 24 2008. Credit 2 requires providing at least 2.5% of the buildings energy use from on-site renewable sources. Credit 6 requires providing at least 35% of the building's electricity from renewable energy contracts.	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	The proposed project would comply with San Francisco Green Building Requirements for renewable energy in commercial buildings as applicable and/or required.
Waste Reduction Sector			
San Francisco Green Building Requirements for solid waste (San Francisco Building Code, Chapter 13C)	Pursuant to Section 1304C.0.4 of the Green Building Ordinance, all new construction, renovation and alterations subject to the ordinance are required to provide recycling, composting and trash storage, collection,	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	The proposed project would comply with San Francisco Green Building Requirements for solid waste by providing space for recycling, composting and trash storage,

Regulation	Requirements	Project Compliance	Discussion
	and loading that is convenient for all users of the building.		collection, and loading that is convenient for all users of the building. Such space is provided on Basement Level B1 of the proposed tower. Each residential floor of the tower would have one tri-sorter chute (composting, recycling, and trash) that lead down to the respective bins on Basement Level B1. For the Aronson Building, under the Residential Flex Space Option, solid waste would also be collected by a single tri-sorter chute. Under the Proposed Office Flex Space Option, solid waste would be collected by a janitorial service and brought to the loading dock for sorting (composting, recycling, and trash). Solid waste collection for the proposed Mexican Museum would also be collected by a janitorial service and brought to the loading dock for sorting.
Mandatory Recycling and Composting Ordinance (San Francisco Environment Code, Chapter 19)	The mandatory recycling and composting ordinance requires all persons in San Francisco to separate their refuse into recyclables, compostables and trash, and place each type of refuse in a separate container designated for disposal of that type of refuse.	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	The proposed project would comply with the City's Mandatory Recycling and Composting Ordinance by providing residents and commercial tenants with facilities to comply with these requirements to separate their refuse for recycling, composting and trash collection.
San Francisco Green Building Requirements for construction and demolition	These projects proposing demolition are required to divert at least 75% of the	☒ Project Complies ☐ Not	The project sponsor would comply with San Francisco Green

Regulation	Requirements	Project Compliance	Discussion
debris recycling (San Francisco Building Code, Chapter 13C)	project's construction and demolition debris to recycling.	Applicable ☐ Project Does Not Comply	Building Requirements for construction and demolition debris recycling during the proposed demolition and construction of this project.
Environment/Conservation Sector			
Street Tree Planting Requirements for New Construction (San Francisco Planning Code Section 138.1)	San Francisco Planning Code Section 138.1 requires new construction, significant alterations or relocation of buildings within many of San Francisco's zoning districts to plant one 24-inch box tree for every 20 feet along the property street frontage.	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	The project sponsor would make every effort to install all street trees required by San Francisco Planning Code Section 138.1 and would provide the required number of street trees along Third Street. However, because of existing and future underground utilities that may be required by the City or for the project, the project sponsor may seek a modification or waiver of the street tree requirement along Mission Street and pay the in-lieu fee or install sidewalk landscaping pursuant to San Francisco Planning Code Section 138.1.
San Francisco Green Building Requirements for Light Pollution Reduction (San Francisco Building Code, Chapter 13C5.106.8)	For nonresidential projects, comply with lighting power requirements in CA Energy Code, CCR Part 6. Requires that lighting be contained within each source. No more than .01 horizontal lumen footcandles 15 feet beyond site, or meet LEED® credit SSc8.	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	The proposed project would comply with San Francisco Green Building Requirements for light pollution reduction as applicable and required.
San Francisco Green Building Requirements for Construction Site Runoff Pollution Prevention for New Construction (San Francisco Building Code, Chapter 13C)	Construction Site Runoff Pollution Prevention requirements depend upon project size, occupancy, and the location in areas served by combined or separate sewer systems.	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	The proposed project would comply with San Francisco Green Building Requirements for construction site runoff pollution prevention as applicable and required.

Regulation	Requirements	Project Compliance	Discussion
	Projects meeting a LEED® standard must prepare an erosion and sediment control plan (LEED® prerequisite SSP1). Other local requirements may apply regardless of whether or not LEED® is applied such as a stormwater soil loss prevention plan or a Stormwater Pollution Prevention Plan (SWPPP). See the SFPUC Web site for more information: www.sfwater.org/CleanWater		
Regulation of Diesel Backup Generators (San Francisco Health Code, Article 30)	Requires (among other things): • All diesel generators to be registered with the Department of Public Health • All new diesel generators must be equipped with the best available air emissions control technology.	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	The proposed project would include an emergency diesel generator in the basement level of the Aronson Building. The diesel generator would be registered with the Department of Public Health, would be equipped with the best available air emissions control technology, and would meet the BAAQMD standards for weekly/annual testing and operation during an emergency.
San Francisco Green Building Requirements for Enhanced Refrigerant Management (San Francisco Building Code, Chapter 13C.5.508.1.2)	All new large commercial buildings must not install equipment that contains chlorofluorocarbons (CFCs) or halons.	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	The proposed project would comply with San Francisco Green Building Requirements for enhanced refrigerant management as applicable and required.
San Francisco Green Building Requirements for Low-emitting materials (San Francisco Building Code, Chapter 13C.4. 103.2.2 and 13C4.504.2.1, 13C4.504.2.2)	For Small and Medium-sized Residential Buildings - Effective January 1, 2011 meet GreenPoint Rated designation with a minimum of 75 points. For New High-Rise Residential Buildings - Effective January 1, 2011	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	The proposed project would comply with San Francisco Green Building Requirements for low-emitting materials (adhesives and sealants, paints and coatings, and carpet systems) as applicable

Regulation	Requirements	Project Compliance	Discussion
	meet LEED Silver Rating or GreenPoint Rated designation with a minimum of 75 points. For Alterations to residential buildings submit documentation regarding the use of low-emitting materials. **If meeting a LEED Standard:** For adhesives and sealants (LEED credit EQ4.1), paints and coatings (LEED credit EQ4.2), and carpet systems (LEED credit EQ4.3), where applicable. **If meeting a GreenPoint Rated Standard:** Meet the GreenPoint Rated Multifamily New Home Measures for low-emitting adhesives and sealants, paints and coatings, and carpet systems,		and required.
San Francisco Green Building Requirements for Low-emitting Adhesives, Sealants, and Caulks (San Francisco Building Code, Chapters 13C.5.103.1.9, 13C.5.103.4.2, 13C.5.103.3.2, 13C.5.103.2.2, 13C.504.2.1)	**If meeting a LEED Standard:** Adhesives and sealants (VOCs) must meet SCAQMD Rule 1168 and aerosol adhesives must meet Green Seal standard GS-36. (Not applicable for New High Rise residential) **If meeting a GreenPoint Rated Standard:** Adhesives and sealants (VOCs) must meet SCAQMD Rule 1168.	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	The proposed project would comply with San Francisco Green Building Requirements for low-emitting adhesives, sealants, and caulks as applicable and required.
San Francisco Green Building Requirements for Low-emitting Flooring, including carpet (San Francisco Building Code, Chapters 13C.5.103.1.9, 13C.5.103.4.2, 13C.5.103.3.2, 13C.5.103.2.2, 13C.4.504.3 and 13C.4.504.4)	**If meeting a LEED Standard:** Hard surface flooring (vinyl, linoleum, laminate, wood, ceramic, and/or rubber) must be Resilient Floor Covering Institute FloorScore certified; carpet must meet the Carpet and Rug Institute (CRI) Green Label Plus; Carpet cushion must meet CRI Green Label;	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	The proposed project would comply with San Francisco Green Building Requirements for low-emitting flooring as applicable and required.

Regulation	Requirements	Project Compliance	Discussion
	carpet adhesive must meet LEED EQc4.1. (Not applicable for New High Rise residential) **If meeting a GreenPoint Rated Standard:** All carpet systems, carpet cushions, carpet adhesives, and at least 50% of resilient flooring must be low-emitting.		
San Francisco Green Building Requirements for Low-emitting Paints and Coatings (San Francisco Building Code, Chapters 13C.5.103.1.9, 13C.5.103.4.2, 13C.5.103.3.2, 13C.5.103.2.2 13C.504.2.2 through 2.4)	**If meeting a LEED Standard:** Architectural paints and coatings must meet Green Seal standard GS-11, anti-corrosive paints meet GC-03, and other coatings meet SCAQMD Rule 1113. (Not applicable for New High Rise residential) **If meeting a GreenPoint Rated Standard:** Interior wall and ceiling paints must meet <50 grams per liter VOCs regardless of sheen. VOC Coatings must meet SCAQMD Rule 1113.	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	The proposed project would comply with San Francisco Green Building Requirements for low-emitting paints and coatings as applicable and required.
San Francisco Green Building Requirements for Low-emitting Composite Wood (San Francisco Building Code, Chapters 13C.5.103.1.9, 13C.5.103.4.2, 13C.5.103.3.2, 13C.5.103.2.2 and 13C.4.504.5)	**If meeting a LEED Standard:** Composite wood and agrifiber must not contain added urea-formaldehyde resins and must meet applicable CARB Air Toxics Control Measure. **If meeting a GreenPoint Rated Standard:** Must meet applicable CARB Air Toxics Control Measure formaldehyde limits for composite wood.	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	The proposed project would comply with San Francisco Green Building Requirements for low-emitting composite wood as applicable and required.

Source: San Francisco Planning Department, GHG Analysis Compliance Checklist for 706 Mission Street Project, May 2012

Summary

Depending on a proposed project's use, size, and location, a variety of controls are in place to ensure that a proposed project would not impair the state's ability to meet statewide GHG reduction targets outlined in AB 32, nor impact the City's ability to meet San Francisco's local GHG reduction targets. As shown above, the proposed project would be required to comply with a number of local requirements including the provision of bicycle parking spaces, fuel-efficient vehicle parking, energy efficiency requirements, water conservation measures, waste reduction and recycling, low VOC building materials, and requirements for planting street trees. Therefore, as detailed in the proposed project's GHG Compliance Checklist, the proposed project was determined to be consistent with San Francisco's GHG Reduction Strategy.

Given that (1) San Francisco has implemented regulations to reduce GHG emissions specific to new construction and renovations of private developments and municipal projects; (2) San Francisco's sustainable policies have resulted in the measured success of reduced GHG emissions levels; (3) San Francisco has met and exceeded AB 32 GHG reduction goals for the year 2020; (4) current and probable future state and local GHG reduction measures will continue to reduce a project's contribution to climate change; and (5) the proposed project was determined to be consistent with San Francisco's *Strategies to Address Greenhouse Gas Emissions*, the proposed project would not result in GHG emissions that would have a significant impact on the environment and would not conflict with applicable plans, policies, and regulations adopted for the purposes of reducing GHG emissions. Therefore, the proposed project would not make a cumulatively considerable contribution to significant cumulative global climate change impacts. No mitigation is necessary.