

3. Environmental Setting, Impacts & Mitigation Measures

Each environmental section in this chapter presents information in four parts:

- Environmental Setting - The Environmental Setting section provides a general overview of the conditions on and adjacent to the planning area.
- Regulatory Setting - The Regulatory Setting presents local, state and federal regulations which are relevant to the proposed project.
- Relevant Project Characteristics - The Relevant Project Characteristics section provides a more detailed description of the elements of the proposed project that are relevant to the impact analysis for a particular topic. Relevant project information may relate to the size, characteristics and/or location of project elements. Any project elements that may cause impacts, as well as those that may serve to minimize impacts, are identified.
- Impacts and Mitigation Measures - The Impacts and Mitigation Measures section provides a brief description of standards that were used to evaluate whether an impact is considered significant based on standards identified in CEQA, the State CEQA Guidelines, and agency policy or regulations. Impacts are identified and analyzed. Mitigation measures that would reduce potentially significant or significant impacts are identified, as well as the significance of the impact after implementation of mitigation measures. If a potentially significant impact cannot be reduced to a less than significant level through the application of mitigation, it is categorized as a significant unavoidable impact.

Referenced graphics are presented at the end of each section.

3.1. Aesthetics & Visual Resources

This section describes the aesthetic and visual resources of the planning site and its surroundings, and discusses the potential aesthetic impacts that may result with implementation of the proposed project. The primary visual and aesthetic issues are related to the intensification of oceanfront mixed-use development adjacent to existing residential and commercial uses. Visual impacts were evaluated using a combination of a site reconnaissance, review of photo documentation and aerial photographs, and a review of existing policy documents.

Environmental Setting

Visual Image

Visual images dominate an observer's impression of a district, city, or region. To understand how visual images influence an observer's impression, the aesthetic value of an area must first be defined. Aesthetic value is a measure of visual character and scenic quality combined with a viewer's response to the area. Viewer response is a combination of viewer exposure and viewer sensitivity. Viewer exposure to a viewshed varies with the number of viewers, the number of views seen, the distance of the views, and the viewing duration. Viewer sensitivity is related to the extent of the public's concern for particular visual resources.

Both natural landscapes and the built environment contribute to perceived visual images and aesthetics value of a view. Aesthetic value is influenced by geologic, hydrologic, botanical, wildlife, recreational, and urban features. Visual images and their perceived visual quality can vary significantly seasonally and even hourly as weather, light, shadow, and the elements that compose the resource change.

Definition of Terms

Numerous methods have been developed to characterize the scenic quality of a visual resource and the viewer response to that resource. However, no standard approach to visual analysis exists. Instead, several approaches that focus on different visual aspects or issues are used. One commonly used set of criteria includes vividness, intactness, and unity.

- Vividness is the visual power or memorability of landscape components as they combine in striking or distinctive visual patterns.
- Intactness is the visual integrity of the natural and human-built landscape and its freedom from encroaching elements; this factor can be present in well-kept urban and rural landscapes, as well as in natural settings.
- Unity is the visual coherence and compositional harmony of the landscape considered as a whole; it frequently attests to the careful design of individual components in the landscape.

Regional Visual Setting

The City of Pacifica is located along the Pacific Ocean in the Peninsula region of the San Francisco Bay Area. The visual setting of the region is defined by several communities (Daly City, San Bruno, South San Francisco, and Millbrae) that are surrounded by the Pacific Ocean, the San Francisco Bay and are nestled along the hillsides of the coastal range and San Bruno Mountain.

Project Setting

The 3.5-acre project site is part of an oceanfront neighborhood dominated by one- and two-story residential and commercial uses. The project site is largely vacant, but includes four buildings on site. As described in the Project Description, the existing one- and two-story buildings and a wall along the perimeter of the project site are designed with Spanish influences including stucco siding, tile roofs and arches. Existing development on the project site is generally consistent with the scale of the adjacent structures. Refer to Figure 2-4 (Photographs of the Existing Project Site).

Scenic Vistas

A scenic vista is a view that possesses visual and aesthetic qualities of high value to the community. Scenic vistas can provide views of natural features or significant structures and buildings. The term “vista” implies an expansive view, usually from an elevated point or open area.

There are no designated scenic vistas on or within the project site; however, ocean views are present all along the coastline, Pacifica Pier, and the hills to the east of the project site.

Light and Glare

Lighting nuisances can generally be categorized by the following:

- Glare – Intense light that shines directly, or is reflected from a surface into a person’s eyes;
- “Skyglow”/Nighttime Illumination – Artificial lighting from urbanized sources that alters the rural landscape in sufficient quantity to cause lighting of the nighttime sky and reduction of visibility of stars and other astronomical features; and
- “Spillover” Lighting – Artificial lighting that spills over onto adjacent properties, which could interrupt sleeping patterns or cause nuisances to neighboring residents.

The project site is part of a city and region that contributes to nighttime lighting. Buildings within the project site that have reflective surfaces can also cause glare at certain times of the day based on the location and angle of the sun.

Regulatory Setting

State

Streets and Highway Code, Section 260 et seq. - State Scenic Highway Program

The California Scenic Highway Program (CSHP) was created by the Legislature in 1963 with the purpose of preserving and protecting scenic highway corridors from change, which diminish the aesthetic value of lands adjacent to highways. The stated intent (Streets and Highway Code Section 260) of the California Scenic Highway Program is to protect and enhance California's natural beauty and to protect the social and economic values provided by the State's scenic resources. A highway may be designated scenic depending upon how much of the natural landscape can be seen by travelers, the scenic quality of the landscape, and the extent to which development intrudes upon the traveler's enjoyment of the view. The CSHP includes a list of highways that are either eligible for designation as scenic highways or have been so designated. These highways are identified in Section 263 of the Streets and Highways Code.

State highways nominated for scenic designation must first be on the statutory list of highways eligible for scenic designation in the State Scenic Highway System. A process for adding eligible highways to the statutory list is described in Section III: Obtaining Eligibility of the CSHP. County highways nominated for scenic designation that are believed to have outstanding scenic values are considered eligible and do not require any legislative action. Both State and county highway nominations follow the same process and have the same requirements.

Scenic highway nominations are evaluated using the following criteria:

- The State or county highway consists of a scenic corridor that is comprised of a memorable landscape that showcases the natural scenic beauty or agriculture of California (see definition for “vividness”, under Section III: Step I, Visual Assessment).
- Existing visual intrusions do not significantly impact the scenic corridor (see definitions for “intactness” and “unity” below, under Section III. Step I: Visual Assessment).
- Demonstration of strong local support for the proposed scenic highway designation.
- The length of the proposed scenic highway is not less than a mile and is not segmented.

The status of a state scenic highway changes from eligible to officially designated when the local jurisdiction adopts a scenic corridor protection program, applies to the California Department of Transportation (Caltrans) for scenic highway approval, and receives notification from Caltrans that the highway has been designated as a Scenic Highway.

According to the Caltrans website (accessed August 13, 2012), State Route 1 north of Half Moon Bay to the San Mateo-San Francisco County Line is an “Eligible State Scenic Highway – Not Officially Designated”. The *County of San Mateo 1986 General Plan* identifies Sharp Park Road from Skyline Boulevard (State Route 35) to Cabrillo Highway (State Route 1) as having notable views, although it is not designated as a scenic corridor.

California Coastal Act

The California Coastal Act of 1976 (California Public Resources Code §30000 et seq.) establishes policies guiding development and conservation along the California coast.

According to the California Coastal Act Policy 30251, the scenic and visual qualities of coastal areas shall be considered and protected as resources of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and, where, feasible, to restore and enhance visual quality in visually degraded areas. According to the California Coastal Act (Article 6, §30251), new development in highly scenic areas such as those designated in the California Coastline Preservation and Recreation Plan prepared by the Department of Parks and Recreation and by local government shall be subordinate to the character of its setting.

Local

The following policies and regulations are applicable to aesthetics and visual character within the project site.

San Mateo County General Plan (1986)

Visual Quality Policy 4.21 Scenic Corridors. Protect and enhance the visual quality of scenic corridors by managing the location and appearance of structural development.

Visual Quality Policy 4.39 Scenic Roads. Give special recognition and protection to travel routes in rural and unincorporated urban areas which provide outstanding views of scenic vistas, natural landscape features, historical sites and attractive urban development.

City of Pacifica General Plan (1980)

Scenic Highways Element Policy 1. Encourage the designation and protection of scenic corridors which are essential links in the State and County highway systems.

Scenic Highways Element Policy 2. Encourage the designation and protection of scenic corridors which provide access to locations of significant scenic quality, recreation, historic and cultural importance in Pacifica.

Scenic Highways Element Policy 3. Ensure that proposed roads of modification to existing roads which traverse ridgelines and other scenic areas are reviewed for their potential as official scenic highways or local scenic routes.

Open Space Element Policy 4. Promote communitywide links to open space and recreation facilities which do not abuse the open space resource or threaten public safety.

Community Design Element Policy 2. Encourage updating and maintenance of existing neighborhoods.

Community Design Element Policy 3. Protect the City's irreplaceable scenic and visual amenities.

Community Design Element Policy 5. Require underground utilities in all new development.

Community Design Element Policy 6. Establish design review standards to be employed early in the planning process.

Land Use Element Policy 7. Development shall maximize beach and open space access and be oriented as much as possible to the carrying capacity of each particular coastal environment in use, design, and intensity.

Land Use Element Policy 8. Land use and development shall protect and enhance the individual character of each neighborhood.

City of Pacifica Local Coastal Land Use Plan (1980)

Coastal Act Policy 4. Wherever appropriate and feasible, public utilities, including parking areas or facilities, shall be distributed throughout an area so as to mitigate against the impacts, social and otherwise, of overcrowding or overuse by the public of any single area.

Coastal Act Policy 24. The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to, and along, the ocean and scenic coastal areas, to minimize the alteration of natural landforms, to be visually compatible with the character of surrounding areas, and where feasible, to restore and enhance visual quality in visually degraded areas. New development in highly scenic areas, such as those designated in the California Coastline Preservation and Recreation Plan, prepared by the California Department of Parks and Recreation and by local government, shall be subordinate to the character of its setting.

City of Pacifica Municipal Code

Section 9-4.2204(b). - Development standards (P-D): Other Regulations.

Regulations for area, coverage, density, yards, parking, height, and open ground area for P-D District users shall be guided by the regulations of the residential, commercial, or industrial zoning districts most similar in nature and function to the proposed P-D District uses as determined by the Commission and the Council. Regulations for public improvements and subdivisions shall be governed by applicable laws of the City. Exceptions to such regulations by the Commission and the Council shall be permitted when the Commission

and Council find that such exceptions encourage a desirable environment and are warranted in terms of the proposed development, or units thereof, in accordance with the regulations and limitations set forth in this article.

Relevant Project Characteristics

As shown in [Figure 2-7 Conceptual Land Use Map](#), the project would include new streets, a central plaza, and several new buildings that would accommodate a library, hotel, restaurant, and residential units. Building heights would range from one to four stories and would have a maximum building height of 35 feet for the library, hotel, and restaurant, and 45 feet for residential units, plus additional height for accent towers or similar architectural features. Parking would be provided on surface streets and under buildings.

Impacts and Mitigation Measures

Criteria for Determining Significance

In accordance with the CEQA, *State CEQA Guidelines*, and agency and professional standards, a project impact would be considered significant if the project would:

- Have a substantial adverse effect on a scenic vista.
- Substantially damage scenic resource, including, but not limited to, trees, rock outcroppings, and historic buildings, within a state scenic highway.
- Substantially degrade the existing visual character or quality of the site and surroundings, i.e., be incompatible with the scale or visual character of the surrounding area or substantially detract from the integrity, character and/or aesthetic character of the neighborhood; and/or
- Create a new source of substantial light or glare, such that it poses a hazard or nuisance.

Methodology

The analysis of potential aesthetic impacts within this section is based on a site reconnaissance of the project area and surrounding area, the *City of Pacifica General Plan (1980)*, and photographs of the project area and vicinity. The site reconnaissance and photo documentation of the planning area was performed by RBF Consulting in July of 2012. Photos were taken to characterize the visual character of the planning area and surrounding area.

Potential impacts were assessed by forecasting the anticipated appearance of future development in the project site based on preliminary site plans and renderings and applicable zoning regulations. Nighttime lighting and day and nighttime glare are assessed qualitatively through comparative analysis of existing and proposed conditions and evaluation of design guidelines and applicable zoning regulations. Existing sources of light and glare were identified and quantified where possible.

Project Impacts and Mitigation Measures

Substantial Adverse Effect on a Scenic Vista

As previously noted, a scenic vista is a view that possesses visual and aesthetic qualities of high value to the community. Scenic vistas can provide views of natural features or significant structures and buildings. The term “vista” generally implies an expansive view, usually from an elevated point or open area. Because there are no designated scenic vistas in the vicinity of the planning area, **no impacts** would occur.

Damage to Scenic Resources along Scenic Highways

State Route 1 is not officially designated as a State Scenic Highway, although it is eligible. At its closest point, State Route 1 is approximately 850 feet east of the project site. Views to the project site from State Route 1 are blocked by a hill which is generally bisected by Hilton Way. Additionally, the residential development and tree canopy obscure views to the project site. The *County of San Mateo 1986 General Plan* identifies Sharp Park Road from Skyline Boulevard (State Route 35) to State Route 1 as having notable views, although it is not designated as a scenic corridor. At its closest point, Sharp Park Road is approximately 0.5 miles from the project site. Sharp Park Road, especially at higher elevations east of Gypsy Hill Road, offers sweeping panoramic views of the City and ocean. Views of the project site from Sharp Park Road are broad and, therefore, the scale of the project site compared to the entirety of the view is minimal. One of the more prominent features visible is Pacifica Pier. Development on the project site is south of the pier and would not obscure views looking west from Sharp Park Road. Because the project site is not visible from a scenic highway, **no impacts** would occur.

Degradation of the Visual Character of the Project Area and Surrounding Area

Impact 3.1-1: Implementation of the proposed project would alter the existing aesthetic character of the area by intensifying development within the project site. However, the type of development is consistent with the guiding policies of the General Plan. In addition, the proposed project would be subject to applicable zoning regulations. The City of Pacifica has design guidelines to ensure quality and compatible development and the proposed project would be developed as a Planned Development requiring careful site planning and design, which would be reviewed by the Planning Commission. Future development associated with the proposed project would be subject to these guidelines and regulations, as well as the City’s design review process, which would ensure that the proposed project does not degrade the visual character of the project site and surrounding area. This is considered a **less than significant impact**.

Adjacent development consists mostly of one- and two-story residential and commercial development and no predominant architectural style exists in the adjacent neighborhood. Topography of the project site is generally level. East of Palmetto Avenue, the topography

slopes gently upward on both sides of Hilton Way. The existing Hilton Way (or Sharp Park) Library is approximately 25 ft. above the elevation of Palmetto Avenue.

The proposed project would be entitled as Planned Development project. The primary purpose of the P-D District is to allow diversification of the relationships of various buildings, structures and open spaces in planned building groups. In this case, the entire site is being designed to accommodate of unique variety of civic, residential, and commercial land uses, as well as a public plaza extending through the center of the project site. The architectural character of the buildings, streetscape, and open space areas would all be designed as a cohesive set of elements that would be integrated in their form and function and would aesthetically complement each other.

As described in Sec. 9-4.2211 - Modification of Regulations for the Planned Development (P-D) District, regulations for the lot area, coverage, density, yard requirements, parking, building height, fences, and landscaping are generally the same as for the residential, commercial, or other zoning district most similar in nature and function to the proposed P-D District land uses. However, such regulations may be modified in the P-D district when certain conditions have been determined by the Planning Commission to exist. These include the following:

- There is improved site design utilizing progressive concepts of building groupings,
- Provisions have been made for substantial usable open space (maximum slope ten (10 percent) for the use of the occupants of the area or the general public,
- A better community environment or improved public safety has been created by the dedication of public areas or space; and
- Utility and all other service distribution lines will be put underground.

With the exception of the residential buildings, all of the structures would be 35 feet in height and are located on the periphery of the project site. Two of the four residential structures would be located in the interior of the project site and would be a maximum of 45 feet in height. A third 45-foot residential structure would front Palmetto Avenue which is located across the street from existing commercial uses and a surface parking lot. South of this proposed structure is single-family residential, however, a landscaped buffer, which would include trees, would separate the two structures. The fourth residential structure would be two-to-four townhouses along Birch Lane and would be no taller than 35 feet. Current zoning would allow up to 35 feet in height. The proposed project would include an amendment to the LCP to a maximum building height for the project site from 35 feet to 45 feet.

The proposed project would transition a walled-off and mostly vacant parcel with limited public use to a public destination that would accommodate a public library (with internal café), restaurant, hotel, housing, courtyard gardens, and a central public pedestrian plaza. The central plaza and new street connections would increase connectivity through the

project site and between the ocean and the main street. The proposed plaza would open up views currently not visible from Palmetto Avenue to the ocean and from Beach Boulevard to the hillsides east of the project site.

The existing Beach Boulevard parking lot would be replaced with on-street parking and underground parking, reducing the visual impact of parking. This is consistent with the City of Pacifica Local Coastal Land Use Plan Policy #4 which encourages parking areas to be dispersed throughout an area.

The proposed project would be subject to zoning regulations and the City's design review process. The *City of Pacifica Design Guidelines* was prepared to ensure that new development is of high quality and is compatible with existing development in the proximity. The Design Guidelines provides a framework for review and evaluation of project design through the application of both general guidelines and guidelines for "special problems." The general guidelines address issues associated with site planning; building design; landscaping, and water conservation. The site planning guidelines require that (among other items) buildings be sited to consider shadows, changing climatic conditions, the potential for passive or active solar energy, safety, and the privacy of adjacent outdoor spaces. Building placement is also required to take into account potential impacts on adjacent property, including the preservation of existing views, privacy, and solar access. In multi-unit developments, buildings should be located so as to avoid crowding and to allow for a functional use of the space between buildings.

The Design Guidelines also address specific issues associated with building design. They require that the style and design of new buildings be designed to complement, enhance and reinforce the positive characteristics of the surrounding development. This can be accomplished by incorporating the dominate architectural features of an area and many include such design elements as bay windows, chimney, balconies, porches, roof profiles, and other architectural details and materials. Additional building design guidelines that should be considered as part of any proposed project include the use of architectural features and details to help create a sense of human scale such as wall insets, window projections, setbacks, façade articulation, etc., which help to reduce the scale of larger buildings. Building design considerations regarding materials, building color, privacy, screening, architectural consistency of building elevations, and structural supports need also be considered.

One of the "special problems" areas addressed in the Design Guidelines is associated with coastal development. This coastal influence must be recognized in the planning of new development and the rehabilitation of existing structures. New development is required to respect the public right of physical and visual access to the ocean. In particular, new development within the coastal viewshed should not impair views to the sea from public roads, trails and vista points. This can be achieved by limiting the height of structures to below the sight line, clustering structures to protect view corridors, careful placement of landscaping to shield structures while leaving the view unobstructed, using natural-appearing materials and colors, limiting outdoor lighting, and undergrounding utilities.

The proposed project would be carefully designed as an integrated set of buildings that would complement each other and incorporate a set of unified and integrated design elements. Any future development would be carefully designed not to impede views from existing public roadways and indeed would increase coastal views from public roadways by incorporating a new east-west publicly accessible pedestrian plaza.

By incorporating careful site planning and building design considerations, the proposed project has the potential to transform a currently vacant, underutilized, inaccessible, and blighted urban city block into a landmark development that could revitalize the Sharp Park neighborhood. The new development would allow much greater public access to the site, increase the level of visitor-serving accommodation and recreation facilities, and enhance public access to Pacifica's coastline.

Because the proposed project would be required to comply with the City's Design Guidelines and would be developed as a Planned Development requiring careful site planning and design which would be reviewed by the Planning Commission, the proposed project would be designed to preserve coastal views and would be compatible in scale and character with surrounding commercial and residential uses. Therefore, the proposed project would not result in a significant degradation of the visual character of the project site or the surrounding area. Therefore, this would be considered a **less than significant impact**, and no mitigation is required.

Light and Glare

Impact 3.1-2: The project site and its surroundings are currently developed with buildings and site improvements that generate daytime and night-time light and glare. Additional sources of daytime glare and nighttime lighting would be introduced as the project site is intensified with new development. The proposed would be subject to applicable zoning regulations, design guidelines, and design review to reduce these impacts. This is considered a **less than significant impact**.

Implementation of the proposed project would introduce new development within the project site, increasing the potential for daytime and nighttime glare. The main sources of daytime glare would be from sunlight reflecting from structures with reflective surfaces, such as windows. The main sources of nighttime light and glare would be from additional lighting, including, but not limited to, internal and external building lights, parking lot lights, street lighting, site lighting, lights associated with vehicular travel (i.e., car headlights), and any new security lighting associated with future development within the project site.

The *City of Pacifica Design Guidelines* encourages exterior lighting that is subdued and that enhances the building design while providing safety and security. It discourages lighting that creates glare for occupants or neighbors.

Future development within the project site would be required to comply with the zoning requirements and design guidelines by demonstrating the proposed exterior lighting is non-

intrusive while still providing an adequate amount of light. Compliance with the design guidelines would therefore ensure that the proposed project does not introduce substantial light and glare, which would pose a hazard or nuisance. Therefore, the proposed project would have a **less than significant impact**, and no mitigation is required.

3.2. Air Quality

This section analyzes the impacts associated with implementation of the proposed project on air quality, including short-term construction emissions, long-term operational impacts, and potential impacts on sensitive receptors. The analysis within this section is based on air quality modeling conducted by RBF Consulting. The air quality modeling is included as [Appendix B](#).

Environmental Setting

Regional Setting

San Francisco Bay Area Air Basin

The City of Pacifica is located within San Mateo County within the San Francisco Bay Area Air Basin (hereinafter “Basin”). The Basin includes San Mateo, Santa Clara, Alameda, Contra Costa, Napa, and Marin counties, and forms a climatological sub-region. This climatological sub-region stretches from Richmond to San Leandro, bounded to the west by the San Francisco Bay and to the east by the Oakland-Berkeley Hills. The Oakland-Berkeley Hills have a ridgeline height of approximately 1,500 feet, a significant barrier to air flow. The most densely populated area of the sub-region lies in a strip of land between the Bay and the lower hills.

Topography and Meteorology

Ambient air quality is commonly characterized by climatological conditions, the meteorological influences on air quality, and the quantity and type of pollutants released. The Basin is subject to a combination of topographical and climatic factors that reduce the potential for high levels of regional and local air pollutants. The Basin is characterized by a complex terrain consisting of coastal mountain ranges, inland valleys, and the San Francisco Bay. It is generally bounded on the west by the Pacific Ocean, on the north by the Coast Ranges, and on the east and south by the Diablo Range.

Climate in the Basin is dominated by the strength and location of a semi-permanent, subtropical high-pressure cell over the northeastern Pacific Ocean, as well as the moderating effects of the adjacent oceanic heat reservoir. Mild summers and winters, moderate windfall, daytime onshore breezes, and moderate humidity characterize regional climatic conditions. In summer, when the high pressure cell is strongest and farthest north, fog forms in the morning and temperatures are mild. In winter, when the high pressure cell is weakest and farthest south, occasional rain storms occur.

The Basin is also characterized by a complex terrain which distorts wind flow and significantly influences local atmospheric conditions and air quality. The Golden Gate and Carquinez Strait provide major gaps in the Coast Range, allowing air to pass between the Pacific Ocean and the Central Valley. Winds typically bring marine air from the northwest and pick up speed where they are channeled through gaps.

The City of Pacifica lies in the northwestern portion of the peninsula climatological sub-region on the coastal side of the Santa Cruz Mountains. The mountains generally rise to an elevation between 500 and 2,000 feet, with the exception of the San Bruno gap, extending from Fort Funston on the Pacific Ocean to San Francisco International Airport on the San Francisco Bay. Because it is oriented in the same northwest-to-southeast direction as the prevailing winds, and because elevations there are below 200 feet, marine air flows through the gap in the direction of the Bay.

Sunlight

The presence and intensity of sunlight is another important factor that affects air pollution. Typically, ozone is formed at higher temperatures. In the presence of ultraviolet sunlight and warm temperatures, volatile organic compounds (VOC) and nitrogen oxides (NO_x) react to form secondary photochemical pollutants, including ozone.

Temperature Inversions

An inversion is a layer of warmer air over a layer of cooler air. Inversions affect air quality conditions significantly because they influence the mixing depth (i.e., the vertical depth in the atmosphere available for diluting air contaminants near the ground). The highest air pollutant concentrations in the Basin generally occur during inversions.

Under ideal meteorological conditions and irrespective of topography, pollutants emitted into the air would be mixed and dispersed into the upper atmosphere. However, the region experiences temperature inversions in which pollutants are trapped and accumulate close to the ground. The inversion, a layer of warm, dry air overlaying cool, moist marine air, is a normal condition in the Basin. The cool, damp, and hazy sea air capped by coastal clouds is heavier than the warm, clear air that acts as a lid through which the marine layer cannot rise.

Local Ambient Air Quality

Criteria Air Pollutants

Local ambient air quality is monitored by the BAAQMD and the California Air Resources Board (CARB). CARB monitors ambient air quality at approximately 250 air-monitoring stations across the State. Air quality monitoring stations usually measure pollutant concentrations ten feet above-ground level; therefore, air quality is often referred to in terms of ground-level concentrations. The San Francisco Bay Area is considered one of the cleanest metropolitan areas in the country with respect to air quality. BAAQMD monitors air quality conditions at about 30 locations throughout the Bay Area. The nearest station to the City of Pacifica is the Arkansas Street station located in San Francisco.

There have been no violations of the state or national ozone standard in the project vicinity over the past five years. However, because ozone is a regional pollutant and precursors can travel long distances before they react to form ozone, local emissions or reactive organic gases (ROG) and nitrogen oxides (NO_x) may contribute to regional ozone levels

as they are transported inland (wind generally blows from the coast toward inland valleys in summer). The regional monitoring network has recorded one-hour ozone levels exceeding the State standard on an average of approximately 10 days per year over the past five years, with 8-hour levels exceeding the state standard and average of about 15 days per year over the same period.

In the project vicinity the states 24-hour average of PM_{10} was violated during two of the last five years. For $PM_{2.5}$, the National standard was strengthened in 2006 from 65 to 35 micrograms per cubic meter, a level that has been exceeded in two of the three years that it has been in effect. In general, particulate levels are relatively low near the coast, and peak in the dry sheltered valleys. PM_{10} concentrations violated the State's 24-hour average standard at an average rate of about six days per year at the Arkansas Street station over the last five years, compared to 30 days for the San Francisco Bay Air Basin as a whole. For $PM_{2.5}$, the Basin exceeded the Federal standard an average of about ten days per year, compared to about five days per year for the last three years. Pacifica's air is generally less polluted than the region, though local emissions play a role in the region's air quality issues.

Ozone

Ozone occurs in two layers of the atmosphere. The layer surrounding the earth's surface is the troposphere. The troposphere extends approximately ten miles above ground level, where it meets the second layer, the stratosphere. The stratospheric (the "good" ozone) layer extends upward from about 10 to 30 miles and protects life on earth from the sun's harmful ultraviolet rays (UV-B).

"Bad" ozone is a photochemical pollutant, and needs VOCs, NO_x , and sunlight to form; therefore, VOCs and NO_x are ozone precursors. VOCs and NO_x are emitted from various sources throughout the area. To reduce ozone concentrations, it is necessary to control the emissions of these ozone precursors. Significant ozone formation generally requires an adequate amount of precursors in the atmosphere and several hours in a stable atmosphere with strong sunlight. High ozone concentrations can form over large regions when emissions from motor vehicles and stationary sources are carried hundreds of miles from their origins.

While ozone in the stratosphere protects the earth from harmful ultraviolet radiation, high concentrations of ground-level ozone can adversely affect the human respiratory system and other tissues. Many respiratory ailments, as well as cardiovascular disease, are aggravated by exposure to high ozone levels. Ozone also damages natural ecosystems (such as forests and foothill communities) and damages agricultural crops and some man-made materials (such as rubber, paint, and plastics). Societal costs from ozone damage include increased healthcare costs, the loss of human and animal life, accelerated replacement of industrial equipment, and reduced crop yields.

Carbon Monoxide

Carbon monoxide (CO) is an odorless, colorless toxic gas that is emitted by mobile and stationary sources as a result of incomplete combustion of hydrocarbons or other carbon-based fuels. In cities, automobile exhaust can cause as much as 95 percent of all CO emissions. At high concentrations, CO can reduce the oxygen-carrying capacity of the blood and cause headaches, dizziness, unconsciousness, and death.

Nitrogen Dioxide

Nitrogen oxides (NO_x) are a family of highly reactive gases that are a primary precursor to the formation of ground-level ozone, and react in the atmosphere to form acid rain. Nitrogen dioxide (NO₂), often used interchangeably with NO_x, is a reddish-brown gas that can cause breathing difficulties at high levels. Peak readings of NO₂ occur in areas that have a high concentration of combustion sources (e.g. motor vehicle engines, power plants, refineries, and other industrial operations).

NO_x can irritate and damage the lungs, and lower resistance to respiratory infections such as influenza. The health effects of short-term exposure are still unclear. However, continued or frequent exposure to NO_x concentrations that are much higher than those normally found in the ambient air may increase acute respiratory illnesses in children and increase the incidence of chronic bronchitis and lung irritation. Chronic exposure to NO₂ may aggravate eyes and mucus membranes and cause pulmonary dysfunction.

Coarse Particulate Matter (PM₁₀)

PM₁₀ refers to suspended particulate matter (PM) which is smaller than 10 microns. PM₁₀ arises from sources such as road dust, diesel soot, combustion products, construction operations, and dust storms. PM₁₀ scatters light and significantly reduces visibility. In addition, these particulates penetrate the lungs and can potentially damage the respiratory tract.

Fine Particulate Matter (PM_{2.5})

Due to recent increased concerns over health impacts related to fine particulate matter, both Federal and State standards have been created for PM_{2.5}. The impacts of fine particulate matter primarily affect infants, children, the elderly, and those with pre-existing cardiopulmonary disease.

Sulfur Dioxide

Sulfur dioxide is a colorless, pungent gas belonging to the family of sulfur oxide gases (SO_x), formed primarily by combustion of sulfur-containing fossil fuels (primarily coal and oil), and during metal smelting and other industrial processes. Sulfur dioxide (SO₂) is often used interchangeably with sulfur oxides (SO_x). The major health concerns associated with exposure to high concentrations of SO_x are effects on breathing, respiratory illness, diminishment of pulmonary defenses, and aggravation of existing cardiovascular disease. Major subgroups of the population that are most sensitive to SO_x are individuals with cardiovascular disease or chronic lung disease (such as bronchitis or emphysema), as well as

children and the elderly. Emissions of SO_x also can damage the foliage of trees and agricultural crops. Together, SO_x and NO_x are the major precursors to acid rain, which is associated with the acidification of lakes and streams, and the accelerated corrosion of buildings and public monuments. Sulfur oxides can react to form sulfates, which significantly reduce visibility.

Other Pollutants

CARB has identified lead and vinyl chloride as 'toxic air contaminants' (TACs) with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants. Additionally, because ambient concentrations of lead have decreased in the Basin, these pollutants are not measured at the monitoring stations.

Toxic Air Contaminants (TACs)

According to Section 39655 of the California Health and Safety Code, a toxic air contaminant is "an air pollutant which may cause or contribute to an increase in mortality or an increase in serious illness, or which may pose a present or potential hazard to human health". In addition, substances that have been listed as Federal hazardous air pollutants (HAPs) pursuant to Section 7412 of Title 42 of the United States Code are TACs under the State's air toxics program pursuant to Section 39657 (b) of the California Health and Safety Code.

TACs can cause various cancers, depending on the particular chemicals, their type, and duration of exposure. Additionally, some of the TACs may cause other health effects over the short or long term. TACs of particular concern for posing health risks in California are acetaldehyde, benzene, 1-3 butadiene, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, perchlorethylene, and diesel particulate matter.

Reactive Organic Gases and Volatile Organic Compounds

Volatile organic compounds (VOCs) are organic chemical compounds with sufficiently high vapor pressure such that they will tend to vaporize and enter ambient air under standard conditions. A wide range of carbon-based molecules, such as aldehydes, ketones, and hydrocarbons are VOCs. Hydrocarbons are organic gases, liquids, or solids that are formed solely of hydrogen and carbon. A subset of VOCs are reactive in the context of ozone formation at urban (and possibly regional) scales. Reactive Organic Gases (ROGs) are defined to be those VOCs that are regulated because they lead to ozone formation. Both ROGs and VOCs can be emitted from the incomplete combustion of hydrocarbons or other carbon-based fuels. The major sources of VOCs are combustion engine exhaust, oil refineries, and oil-fueled power plants; other common sources are petroleum fuels, solvents, dry cleaning solutions, and paint (via evaporation).

Reactive VOCs may result in the formation of ozone and its related health effects. Carcinogenic forms of VOCs are considered toxic air contaminants ("air toxics"). Some

reactive VOCs are also toxic; an example is benzene, which is both a reactive VOC and a carcinogen.

Sensitive Receptors

Sensitive populations are more susceptible to the effects of air pollution than the general population. Sensitive populations (or sensitive receptors) that are in proximity to localized sources of toxics and CO are of particular concern. Land uses considered sensitive receptors include residences, schools, playgrounds, childcare centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. Sensitive receptors in the project vicinity include residential uses located to the north, east and south of the project site.

Odors

Offensive odors rarely cause physical harm; however, they can be very unpleasant, leading to considerable stress among the public and often generating citizen complaints to local governments and agencies. Facilities commonly known to produce odors include wastewater treatment facilities, chemical manufacturing, painting/coating operations, feed lots/dairies, composting facilities, landfills, and transfer stations. Offensive odors rarely cause physical harm, and no requirements for their control are included in State and Federal air quality regulations. However, the BAAQMD has identified land use and operation types that are typically associated with producing odors. No facilities in the project vicinity have been reported as releasing offensive odors and the proposed project does not propose any uses identified by the BAAQMD as sources of odors.

Regulatory Setting

Regulatory oversight for air quality in the Basin rests with the Environmental Protection Agency (EPA) Region IX office at the Federal level, CARB at the State level, and with the BAAQMD at the regional level.

Federal

Environmental Protection Agency

The principal air quality regulatory mechanism on the Federal level is the Clean Air Act (CAA) and, in particular, the 1990 amendments to the CAA and the National Ambient Air Quality Standards (NAAQS) that it establishes. These standards identify levels of air quality for “criteria” pollutants that are considered the maximum levels of ambient (background) air pollutants considered safe, with an adequate margin of safety, to protect the public health and welfare. The criteria pollutants are O₃, CO, NO₂ (a form of NO_x), SO₂ (a form of SO_x), PM₁₀, PM_{2.5}, and lead (Pb); refer to [Table 3.2-1: National and California Ambient Air Quality Standards](#). The EPA also has regulatory and enforcement jurisdiction over emission sources beyond State waters (outer continental shelf) and those that are under the exclusive authority of the Federal government, such as aircraft, locomotives, and interstate trucking.

Table 3.2-1: National and California Ambient Air Quality Standards

Pollutant	Averaging Time	California ¹	Federal Standards ²	
		Standard ³	Primary ^{3,4}	Secondary ^{3,5}
Ozone (O ₃)	1 Hour	0.09 ppm (180 µg/m ³)	N/A ⁵	N/A ⁵
	8 Hour	0.070 ppm (137 µg/m ³)	0.075 ppm (147 µg/m ³)	0.075 ppm (147 µg/m ³)
Particulate Matter (PM ₁₀)	24 Hour	50 µg/m ³	150 µg/m ³	150 µg/m ³
	Annual Arithmetic Mean	20 µg/m ³	N/A ⁵	N/A ⁵
Fine Particulate Matter (PM _{2.5})	24 Hour	No Separate State Standard	35 µg/m ³	35 µg/m ³
	Annual Arithmetic Mean	12 µg/m ³	15.0 µg/m ³	15.0 µg/m ³
Carbon Monoxide (CO)	8 Hour	9.0 ppm (10 µg/m ³)	9 ppm (10 µg/m ³)	9 ppm (10 µg/m ³)
	1 Hour	20 ppm (23 µg/m ³)	35 ppm (40 µg/m ³)	35 ppm (40 µg/m ³)
Nitrogen Dioxide (NO ₂) ⁷	Annual Arithmetic Mean	0.030 ppm (57 µg/m ³)	0.053 ppm (100 µg/m ³)	0.053 ppm (100 µg/m ³)
	1 Hour	0.18 ppm (339 µg/m ³)	0.100 ppm	0.100 ppm
Lead (Pb)	30 Days Average	1.5 µg/m ³	N/A	N/A
	Calendar Quarter	N/A	1.5 µg/m ³	1.5 µg/m ³
Sulfur Dioxide (SO ₂)	Annual Arithmetic Mean	N/A	0.030 ppm (80 µg/m ³)	N/A
	24 Hour	0.04 ppm (105 µg/m ³)	0.14 ppm (365 µg/m ³)	N/A
	3 Hour	N/A	N/A	0.5 ppm (1300 µg/m ³)
	1 Hour	0.25 ppm (655 µg/m ³)	75 ppb	N/A
Visibility-Reducing Particles	8 Hour (10 am to 6 pm, PST)	Extinction Coefficient = 0.23 km@<70% RH	No Federal Standards	
Sulfates	24 Hour	25 µg/m ³		
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m ³)		

ppm = parts per million; µg/ m³ = micrograms per cubic meter; mg/ m³ = milligrams per cubic meter; km = kilometers; RH = relative humidity; PST = Pacific Standard Time; N/A = not applicable; ppb=parts per billion

Notes:

1. California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1- and 24-hour), nitrogen dioxide, suspended particulate matter (PM10), and visibility-reducing particles are values that are not to be exceeded. All other values are not to be equaled or exceeded. California ambient air quality standards (CAAQS) are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations. In 1990, the CARB identified vinyl chloride as a Toxic Air Contaminant and determined that there was not sufficient available scientific evidence to support the identification of a threshold exposure level. This action allows the implementation of health-protective control measures at levels below the 0.010-ppm ambient concentration specified in the 1978 standard.
2. Federal standards (other than for ozone, for particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. EPA also may designate an area as attainment/unclassifiable if (1) monitored air quality data show that the area has not violated the ozone standard over a three-year period; or (2) there is not enough information to determine the air quality in the area. For PM10, the 24-hour standard is attained when 99 percent of the daily concentrations, averaged over the three years, are equal to or less than the standard. For PM2.5, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard.
3. Concentration is expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25 degrees centigrade (°C) and a reference pressure of 760 millimeters (mm) of mercury. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 mm of mercury (1,013.2 millibar); parts per million (ppm) in this table refers to ppm by volume (micromoles of pollutant per mole of gas).
4. Federal Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.
5. The Federal 1-hour ozone standard was revoked on June 15, 2005 in all areas except the 14 8-hour ozone nonattainment Early Action Compact (EAC) areas.
6. The Environmental Protection Agency revoked the annual PM10 standard in 2006 (effective December 16, 2006).
7. To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 0.100 ppm (effective January 22, 2010).

Source: California Air Resources Board and U.S. Environmental Protection Agency June 7, 2012

State

California Air Resources Board

CARB administers the air quality policy in California. The California Ambient Air Quality Standards (CAAQS) were established in 1969 pursuant to the Mulford-Carrell Act. These standards, included with the NAAQS in [Table 3.2-2: National and California Ambient Air Quality Standards](#), are generally more stringent and apply to more pollutants than the NAAQS. In addition to the criteria pollutants, CAAQS have been established for visibility reducing particulates, hydrogen sulfide, and sulfates.

Local

Bay Area Air Quality Management District

The Bay Area Air Quality Management District (BAAQMD) is the regional agency with jurisdiction over the nine-county region located in the Basin. The Association of Bay Area Governments (ABAG), the Metropolitan Transportation Commission (MTC), county transportation agencies, cities and counties, and various nongovernmental 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.

The BAAQMD is responsible for attaining and/or maintaining air quality in the Basin within Federal and State air quality standards. Specifically, the BAAQMD has the responsibility to monitor ambient air pollutant levels throughout the Basin and to develop and implement strategies to attain the applicable Federal and State standards.

In June 2010, the BAAQMD adopted its updated California Environmental Quality Act (CEQA) Air Quality Guidelines as a guidance document to provide lead government agencies, consultants, and project proponents with uniform procedures for assessing air

quality impacts and preparing the air quality sections of environmental documents for projects subject to CEQA. The CEQA Air Quality Guidelines include methodologies and thresholds for addressing project and program level air quality and GHG emissions.

In March 2010, the BAAQMD, in cooperation with the MTC and ABAG, published the 2010 Bay Area Clean Air Plan, which supersedes the Bay Area 2005 Ozone Strategy. The 2010 Bay Area Clean Air Plan updates the 2005 Ozone Strategy in accordance with the requirements of the CCAA to achieve the following:

- Implement all feasible measures to reduce ozone; provide a control strategy to reduce ozone, particulate matter, toxic air contaminants, and GHGs 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 to 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 Bay Area 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.

State Air Toxics Program

Toxic air contaminants are another group of pollutants of concern in California. There are hundreds of different types of toxic air contaminants, with varying degrees of toxicity. Sources of toxic air contaminants include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle engine exhaust. Public exposure to toxic air contaminants can result from emissions from normal operations, as well as accidental releases of hazardous materials during upset spill conditions. Health effects of toxic air contaminants include cancer, birth defects, neurological damage, and death.

California regulates toxic air contaminants through its air toxics program, mandated in Chapter 3.5 (Toxic Air Contaminants) of the *Health and Safety Code* (*Health and Safety Code* Section 39660 et seq.) and Part 6 (Air Toxics "Hot Spots" Information and Assessment) (*Health and Safety Code* Section 44300 et seq.). CARB, working in conjunction with the State Office of Environmental Health Hazard Assessment, identifies toxic air contaminants. Air toxic control measures may then be adopted to reduce ambient concentrations of the identified toxic air contaminant to below a specific threshold, based on its effects on health, or to the lowest concentration achievable through use of best available control technology (BACT) for toxics. The program is administered by CARB. Air quality control agencies, including the BAAQMD, must incorporate air toxic

control measures into their regulatory programs or adopt equally stringent control measures as rules within six months of adoption by CARB.

Attainment Status

As shown in Table 3.2-2: San Francisco Bay Air Basin Attainment Status, the basin is considered in attainment or unclassified for most of the criteria pollutants for State and Federal considerations, except for O₃, PM₁₀, and PM_{2.5}.

Table 3.2-2: San Francisco Bay Air Basin Attainment Status¹

Pollutant	State	Federal
Carbon Monoxide (CO)	Attainment	Attainment
Ozone (O ₃) – 8 hour	N/A	Non-Attainment
Ozone (O ₃) – 1 hour ²	Non-attainment	--
Nitrogen Dioxide (NO ₂) – 1 hour	Attainment	--
Nitrogen Dioxide – Annual Arithmetic Mean	--	Attainment
Sulfur Dioxide (SO ₂) – 24 hour	Attainment	Attainment
Sulfur Dioxide (SO ₂) – 1 hour	Attainment	--
Particulate Matter (PM ₁₀) – Annual Arithmetic Mean	Non-Attainment	--
Particulate Matter (PM ₁₀) – 24 hour	Non-Attainment	Unclassified
Particulate Matter (PM _{2.5}) – Annual Arithmetic Mean	Non-attainment	Non-Attainment
Particulate Matter (PM _{2.5}) – 24 hour	--	Non-attainment
Sulfates – 24 hour	Attainment	--
Lead – Calendar Quarter	--	Attainment
Lead – 30 Day Average	Attainment	--
Hydrogen Sulfide – 1 hour	Unclassified	--
Vinyl Chloride (chloroethene) – 24 hour	--	--
Visibility Reducing Particulates ³	Unclassified	--
Notes: N/A – Not Applicable 1. In order for an area to meet a particular standard, all time tests of the applicable standard must be met. Separate designations are not made for each time component of the standard. For instance, an area might meet the annual criteria of the State PM ₁₀ standard but not the 24-hour requirement. In that case, the area fails to meet the standard and would be designated nonattainment for the State PM ₁₀ standard. Thus, a single designation is made for each State and Federal standard based on whether or not the area meets all the aspects of the standard. Designations for State standards are made by ARB while designations for Federal standards are made by EPA. 2. The national 1-hour ozone standard was revoked by the U.S. EPA on June 15, 2005. 3. The U.S. EPA lowered the 24-hour PM _{2.5} standard from 65 ug/m ³ to 35 ug/m ³ in 2006. EPA issued attainment status designations for the 35 ug/m ³ PM _{2.5} standard. The EPA designation will be effective 90-days after publication of the regulation in the Federal Register. President Obama has ordered a freeze on all pending Federal rules; therefore, the effective date of the designation is unknown at this time.		

Source: BAAQMD, Air Quality Standards and Attainment Status, 2012
(http://hank.baaqmd.gov/pln/air_quality/ambient_air_quality.htm)

Relevant Project Characteristics

The City of Pacifica adopted a green building ordinance in 2010 for both residential and non-residential sectors and government buildings. The ordinance will help the City reduce its area source air quality emissions through energy efficiency and resource efficiency, as required by the LEED (for larger non-residential and residential projects) and Build it Green (primary for small residential projects) green building rating systems.

Impacts and Mitigation Measures

Criteria for Determining Significance

CEQA

In accordance with CEQA, *State CEQA Guidelines*, and agency and professional standards, a project impact would be considered significant if the project would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable Federal or State ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors);
- Expose sensitive receptors to substantial pollutant concentrations; and/or
- Create objectionable odors affecting a substantial number of people.

BAAQMD

As described above, the BAAQMD adopted their CEQA Air Quality Guidelines to assist lead agencies in evaluating air quality impacts of projects and plans proposed in the Basin. The CEQA Air Quality Guidelines provide BAAQMD-recommended procedures for evaluating potential air quality and GHG impacts during the environmental review process consistent with CEQA requirements. In addition to providing new thresholds for GHG emissions, the *2010 CEQA Air Quality Guidelines* provide updated significance thresholds for criteria pollutants and supersede the BAAQMD's previous CEQA guidance titled *BAAQMD CEQA Guidelines: Assessing the Air Quality Impacts of Projects and Plans* (1999).

It should be noted that on March 5, 2012 the Alameda County Superior Court issued a judgment finding that the BAAQMD had failed to comply with CEQA when it adopted the thresholds. The court did not determine whether the thresholds were valid on the merits, but found that the adoption of the thresholds was a project under CEQA. The court issued a writ of mandate ordering the BAAQMD to set aside the thresholds and cease dissemination of them until the BAAQMD had complied with CEQA. Per CEQA

Guidelines Section 15064.7 (Thresholds of Significance) the proposed project would rely on the thresholds within the Options and Justification Report (dated October 2009) prepared by the BAAQMD. The BAAQMD Options and Justification Report established thresholds based on substantial evidence and are consistent with the thresholds outlined within the 2010 CEQA Air Quality Guidelines.

If the project proposes development in excess of the established thresholds, as illustrated in [Table 3.2-3, BAAQMD Emission Thresholds](#), a significant air quality impact may occur and additional analysis is warranted to fully assess the significance of impacts.

Table 3.2-3: BAAQMD Emissions Thresholds

Pollutant/Precursor	Maximum Annual Emissions (tpy)	Average Daily Emissions (lbs./day) (Construction and Operational)
ROG	10	54
NO _x	10	54
PM ₁₀	15	82
PM _{2.5}	10	54
tpy = tons per year; PM _{2.5} = fine particulate matter with a diameter of 2.5 micrometers or less; lbs./day = pounds per day; PM ₁₀ = respirable particulate matter with a diameter of 10 micrometers or less; NO _x = oxides of nitrogen; ROG = reactive organic gases.		
Source: Bay Area Air Quality Management District, <i>Options and Justification Report</i> , October 2009 and Bay Area Air Quality Management District, <i>CEQA Air Quality Guidelines</i> , June 2010.		

Localized CO Thresholds

The BAAQMD screening criteria provides that the proposed project would result in a less-than-significant impact to localized CO concentrations if the following are met:

- Project is 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 would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour; and
- The project traffic would not 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).

If none of the above criteria are met, then the project would require a quantitative analysis that would compare emissions to the CAAQS.

Health Risk Screening Thresholds

The BAAQMD has developed methods whereby local community risk and hazard impacts from projects for both new sources and new receptors can be determined based on comparison with applicable thresholds of significance and screening criteria and (2) to recommend mitigation measures for these impacts. The screening methods are provided in the BAAQMD guidance document entitled Recommended Methods for Screening and Modeling Local Risks and Hazards (May 2010). The BAAQMD guidance provides screening tables to determine whether emissions would create a significant health hazard impact based on project size and receptor distance. Additionally, the BAAQMD recommends that all toxic sources are identified within a 1,000 foot radius of the project site to determine any risk and health hazards. It is noted that the BAAQMD has revised the effective date for the risk and hazards thresholds for new receptors from January 1, 2011 to May 1, 2011 to allow lead agencies to become fully prepared to implement the risk and hazards thresholds.

Impacts and Mitigation Measures

Short-Term Construction Emissions

Impact 3.2-1: The proposed project would result in short-term air quality impacts associated with construction activities, including grading, operation of equipment, and demolition of existing facilities within the project site. Short-term construction emissions would therefore be considered a **potentially significant impact**.

Construction activities are generally short-term in duration, but may still cause air quality impacts. Emissions result from a variety of construction activities, including excavation, grading, demolition, paving, building construction, coating, vehicle travel on unpaved surfaces, and vehicle and equipment exhaust. These emissions can lead to adverse health effects and cause nuisance concerns, such as reduced visibility and the generation of dust.

Construction activities for the proposed project would include demolition, grading, trenching, construction of buildings, paving, and architectural coatings. The proposed project includes the demolition of four existing buildings within the project site including the administration building and the chlorine/pump station and the thickening building associated with the former wastewater treatment plant; the administration building; and a small garage located in the southeast corner of the project site. Upon demolition of the existing buildings, with the exception of the existing pump station, the entire project site would be graded. Project construction is anticipated to occur in phases depending on the timing requirements of the San Mateo Library, market conditions, and interest by the development community.

Fine Particulate Matter

Construction activities are a source of fugitive dust (also known as PM₁₀ and PM_{2.5}) emissions that may have a substantial, temporary impact on local air quality. Fugitive dust is

often a nuisance to those living and working within the vicinity of the project site. Fugitive dust emissions are associated with demolition, land clearing, ground evacuation, and cut and fill operations. Fugitive dust emissions also vary substantially from day to day, depending on the level of activity, the specific operations, and weather conditions.

PM₁₀ and PM_{2.5} are both emitted during construction activities and as a result of wind erosion over exposed soil surfaces. Clearing and grading activities comprise the major sources of construction dust emissions, but traffic and general disturbance of the soil also generates significant dust emissions. PM₁₀ and PM_{2.5} emissions can vary greatly depending on the level of activity, the specific operations taking place, the equipment being operated, local soils, weather conditions, and other factors making quantification difficult. The highest potential for construction dust impacts would occur during the dry late spring, summer, and early fall months when soils are dry. Despite this variability in emissions, experience has shown that there are a number of feasible control measures that can be reasonably implemented to significantly reduce PM₁₀ and PM_{2.5} emissions from construction activities. The BAAQMD recommends the implementation of all basic construction mitigation measures to reduce construction-related emissions. Therefore the following mitigation measure would be required for development of the proposed project to ensure that the proposed project would have a less than significant impact on short-term air quality.

Mitigation Measure

MM 3.2-1a **Implementation of Short-Term Construction Best Management Practices.** The following BAAQMD Best Management Practices (BMPs) shall be included in the construction-contract specifications for the proposed project. The control measures shall be implemented during the duration of all proposed construction activities:

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
- All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
- All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- All vehicle speeds on unpaved roads shall be limited to 15 mph.
- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.

- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- Post a publicly visible sign with the telephone number and person to contact at the City regarding dust complaints. This person shall respond and take corrective action within 48 hours. The BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.

Construction Equipment and Worker Vehicle Exhaust

Exhaust emissions would be generated by the operation of vehicles and equipment on future construction sites, such as tractors, dozers, scrapers, backhoes, cranes, and trucks. The majority of construction equipment and vehicles would be diesel powered, which tends to be more efficient than gasoline-powered equipment. Diesel-powered equipment produces lower CO and hydrocarbon emissions than gasoline equipment, but produces greater amounts of NO_x, SO_x, and particulates per hour of activity. The transportation of equipment and materials to and from future construction sites, as well as construction workers traveling to and from the sites would also generate vehicle emissions during construction, which could affect surrounding sensitive receptors (e.g. residential uses and pre-school). The BAAQMD has standard regulations, such as maintaining all construction equipment in proper tune and shutting down equipment when not in use for extended periods of time to help reduce construction exhaust, which is included in Mitigation Measure MM 3.2-1a.

Reactive Organic Gas (ROG) and Volatile Organic Compound (VOC) Emissions

Development at the project site would require exterior improvements including surface coating. The application of asphalt and surface coatings creates reactive organic gas (ROG) emissions, which are ozone precursors (it also creates gaseous and particulate emissions). The BAAQMD has a standard regulation that places certain requirements on painting and coating activities to help reduce ROG emissions to the maximum extent feasible. Therefore, development at the project site would be required to adhere to BAAQMD Regulation 8 (Organic Compounds), Rule 3 (Architectural Coatings), which would minimize construction related ROG emissions to the maximum extent feasible.

Structural Asbestos

Asbestos is a strong, incombustible, and corrosion resistant material, which was used in many commercial products since prior to the 1940s and up until the early 1970s. If inhaled, asbestos fibers can result in serious health problems. Asbestos Containing Materials (ACMs) are building materials containing more than one percent asbestos (some state and regional regulators impose a one-tenth of one percent threshold). There are several structures at the project site that are proposed for demolition that could contain structural asbestos and lead bases paints (LBPs). The BAAQMD regulates the demolition of buildings

and structures containing asbestos through Regulation 11, Rule 2. The following mitigation measure would ensure that potential impacts due to ACM and LBP are reduced to a less than significant level.

Mitigation Measure

MM 3.2-1b **Compliance with ACM and LBP Regulations During Renovation Activities.** Pursuant to Cal OSHA regulations BAAQMD Regulation 11, Rule 2, each structure proposed for renovation within the project site shall be inspected by a qualified environmental specialist for the presence of ACM and Lead Based Paint LBP prior to renovation. If ACMs and LBPs are found during the investigation, a remediation plan shall be developed to ensure that these materials are removed and disposed of by a licensed contractor at an approved landfill facility in accordance with all federal, state, and local laws and regulations prior to demolition.

Total Construction Emissions

All of the BAAQMD Basic Construction Mitigation Measures, Mitigation Measure MM 3.2-1a are included for short-term grading and excavation activities and future renovation and demolition activities would be subject to Mitigation Measure MM 3.2-1b to control the emissions of ACM and LBPs. Therefore, construction short-term air quality impacts would be considered **less than significant**.

Long-Term Operational Emissions – Mobile and Area Source Emissions

Impact 3.2-2: The proposed project would result in long-term operational emissions associated with mobile and area source emissions. This is considered a **less than significant impact**.

Implementation of the proposed project would result in new emissions generated by development within the project site, which would introduce new stationary and mobile source air emissions.

Area Source Emissions

Area source emissions would be generated due to an increased demand for electrical energy and natural gas associated with the development of the proposed improvement. This is based on the assumption that those power plants supplying electricity to the project area are utilizing fossil fuels. Electric power generating plants are distributed throughout the Basin and western United States, and their emissions contribute to the total regional pollutant burden. The primary use of natural gas by the proposed project would be for combustion to produce space heating, water heating, other miscellaneous heating, or air conditioning, consumer products, and landscaping. As shown on [Table 3.2-4: Operational Emissions](#), area source emissions from the proposed project would not exceed BAAQMD thresholds for ROG, NO_x, and PM₁₀.

Table 3.2-4: Operational Emissions

Source ²	Estimated Annual Average Emissions (pounds/day) ¹			
	ROG	NO _x	PM ₁₀	PM _{2.5}
Mobile Source	16.84	25.02	46.88	8.79
Area Source	17.14	2.65	6.88	6.62
Total	33.98	27.67	53.76	15.41
BAAQMD Threshold	54	54	82	54
Threshold Exceeded?	No	No	No	No
Notes: 1. Emissions estimates calculated using URBEMIS 2007 (version 9.2.4) during the Winter, which is considered a conservative scenario of emissions. 2. Emissions estimates calculated using the land use categories/intensities depicted in Section 2, Project Description. Refer to Appendix B, Air Quality Data, for detailed model input/output data.				

Mobile Source Emissions

Mobile sources are emissions from motor vehicles, including tailpipe and evaporative emissions. Project-generated vehicle emissions have been estimated using the URBEMIS 2007 model (Version 9.2.4). This model was utilized to predict ROG, NO_x, and PM₁₀ emissions from motor vehicle traffic associated with the proposed project.

As shown in [Table 3.2-4: Operational Emissions](#), the sum of mobile source and area source emissions would not exceed BAAQMD thresholds for ROG, NO_x, PM₁₀ and PM_{2.5}. Therefore, the proposed project would have a **less than significant impact** to long-term operational air quality.

Long-Term Operational Emissions – Consistency with the Clean Air Plan

Impact 3.2-3: The proposed project is consistent with population growth assumptions in the Clean Air Plan. This is considered a **less than significant impact**.

Development at the project site would introduce new stationary and mobile source air emissions with development of the project site with redevelopment of the project site with a mixed use development that would include an 36,500 square foot library, up to 84 attached residential units, a boutique hotel of up to 75 rooms, and a waterfront restaurant of up to 4,500 square feet.

The primary goals of the *2010 Clean Air Plan* are to attain air quality standards, reduce population exposure and protect public health, and reduce GHG emissions. According to the BAAQMD's *CEQA Air Quality Guidelines*, any project that would support these goals would be considered to be consistent with the *2010 Clean Air Plan*. The *CEQA Air Quality Guidelines* also states that if a project would not result in significant and unavoidable air quality impacts, the project would be considered consistent with the *2010 Clean Air Plan*.

Construction impacts associated with the proposed project would be temporary and less than significant with the incorporation of mitigation measures herein. The proposed project would not exceed the BAAQMD thresholds for criteria pollutants for long-term

operational impacts. Additionally, the proposed project would facilitate construction of a mixed use project in an area of the City surrounded by urban uses and would not locate people near any significant pollutant sources or disrupt or hinder implementation of *2010 Clean Air Plan* control measures. Thus, the proposed project would not conflict with or obstruct implementation of the 2010 Clean Air Plan, which would be considered a **less than significant impact**.

Long-Term Operational Emissions – Toxic Air Contaminants

Impact 3.2-4: No major existing stationary or area sources of toxic air contaminants (TACs) were identified within 1,000 feet of the project site. The proposed project would not result in increased exposure of sensitive land uses in excess of applicable standards. This is considered a **less than significant impact**.

To address community risk from air toxics, the BAAQMD initiated the Community Air Risk Evaluation (CARE) program in 2004 to identify locations with high levels of risk from TACs co-located with sensitive populations and use the information to help focus mitigation measures. Through the CARE program, the Air District developed an inventory of TAC emissions for 2005 and compiled demographic and health indicator data. According to the findings of the CARE Program, diesel particulate matter, mostly from on and off-road mobile sources, accounts for over 80 percent of the inhalation cancer risk from TACs in the Bay Area. As of November 2009, the impacted communities include the urban core areas of Concord, eastern San Francisco, western Alameda County, Redwood City/East Palo Alto, Richmond/San Pablo, and San Jose.

The CARB *Air Quality and Land Use Handbook* (April 2005) offers advisory recommendations for locating sensitive receptors near uses associated with TACs, such as freeways and high-traffic roads, commercial distribution centers, rail yards, ports, refineries, chrome platters, dry cleaners, gasoline stations, and other industrial facilities, to reduce exposure of sensitive populations. No major existing stationary or area sources of TACs were identified in the project vicinity.

Living close to high traffic and associated emissions may lead to adverse health effects. A number of studies conducted have identified an association between health effects and living or attending school near heavily traveled roadways. One study conducted in the San Francisco Bay Area found that most related health effects associated with traffic were experienced within 300 feet of the traveled roadway.² Development of sensitive receptors within the project site would be greater than 300 feet from Highway One and therefore

² California Air Resources Board, *Air Quality and Land Use Handbook: A Community Health Perspective*, April 2005.

exposure of sensitive receptors to TACs would be considered **less than significant impact**.

Long-Term Operational Emissions - Localized Carbon Monoxide (CO)

Impact 3.2-5: Carbon monoxide concentrations are low in the project vicinity and the proposed project would result in carbon monoxide concentrations that would be well below the State and Federal standards. Therefore, the proposed project would have a **less than significant impact** on localized carbon monoxide concentrations.

Local air quality is a major concern along roadways. Carbon monoxide (CO) is a primary pollutant, and unlike ozone, is directly emitted from a variety of sources. For this reason, CO concentrations are usually indicative of the local air quality generated by a roadway network and are used as an indicator of its impacts upon the local air quality. Areas of vehicle congestion have the potential to create “pockets” of CO called “hot spots.” These pockets have the potential to exceed the State 1-hour standard of 20 parts per million (ppm) and/or the 8-hour standard of 9 ppm. Because traffic congestion is highest at intersections where vehicles queue and are subject to reduced speeds, these hot spots are typically produced at intersections.

The BAAQMD screening criteria provides that the proposed project would result in a less-than-significant impact to localized CO concentrations if the following are met:

- Project is 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 would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour.
- The project traffic would not 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).

If the above criteria are met, then the proposed project would require a quantitative analysis that would compare emissions to the CAAQS. Based on the traffic analysis prepared for the proposed project, all of the signalized intersections would continue to operate at acceptable levels of service (LOS C or better) during both the AM and PM peak hours of traffic under existing plus conditions. Therefore, effects related to CO concentrations would be **less than significant**.

Exposure to Odorous Emissions

Impact 3.2-6: Future construction activities could generate airborne odors associated with the operation of construction vehicles. In addition, the proposed

project would include a café in the library and a restaurant, which could generate some limited odors during operation of the proposed project. However limited exposure and compliance with applicable regulatory requirements will ensure that any impact is **less than significant**.

Construction Odors

Future construction activities within the project site could generate airborne odors associated with the operation of construction vehicles (i.e. diesel exhaust) and the application of architectural coatings. However, these odors are temporary in nature and are not generally considered offensive. Emissions would occur during daytime hours only and would be isolated to the immediate vicinity of the construction site and activity. As such, these odors would not affect a substantial number of people, and these short-term impacts would be limited to people living and working near the source.

Due to the types of odors that would occur at the project site limited exposure, implementation of the proposed project would not create construction-related objectionable odors affecting a substantial number of people, and impacts would be **less than significant**.

Operational Odors

Objectionable odors may be associated with a variety of pollutants. According to the BAAQMD *CEQA Guidelines*, common sources of odors include wastewater treatment plants, landfills, composting facilities, refineries, and chemical plants. The proposed project does not contain any of these facilities. However, the proposed project would likely result in limited airborne odors associated with cooking activities associated with the proposed restaurant. These odors would likely be confined to the vicinity of the restaurant and would not affect surrounding uses. Additionally, the restaurant would typically be required to provide ventilation systems that reduce substantial adverse odor impacts. Therefore, with incorporation of ventilation systems, the proposed project would not create operational-related objectionable odors affecting a substantial number of people within the City and would result in a **less than significant impact**.

3.3. Geology & Soils

This section of the EIR describes the existing geologic, seismic, and soil conditions present at the project site, and evaluates potential project impacts under these conditions associated with faults, strong seismic ground shaking, seismic-related ground failure such as liquefaction, landslides, and unstable geologic units and/or soils. This section is based on a preliminary geotechnical investigation prepared on behalf of the City of Pacifica by Cornerstone Earth Group in March 2012.

Environmental Setting

Regional Geologic Setting

The San Francisco Peninsula is a relatively narrow geographic land feature at the north end of the Santa Cruz Mountains. The peninsula has developed on a basement of tectonically mixed Cretaceous- and Jurassic- age (70 to 200 million years old) rocks of the Franciscan Complex. Uplift, erosion and subsequent re-deposition of sedimentary rocks within this province have been driven by the strike-slip movement of the tectonic plates and the associated northeast oriented compressional stress. The surficial deposits in the South San Francisco-Pacifica area are Unconsolidated late Pleistocene and Holocene deposits are broken out as marine terrace deposits (Qt), Slope Debris and ravine fill (Qsr), Colma Formation (Qc) and undifferentiated sedimentary deposits. The Plio-Pleistocene Merced Formation underlies these surficial deposits. These units were deposited on the old topographic surface of Franciscan Complex rocks or Pleistocene deposits. Artificial fill is also widespread in the general area. Locally these basement rocks are capped by younger sedimentary units assigned to the "Woodside Assemblage."

The tectonic regime in the San Francisco Bay region is primarily translational, expressed by mostly right-lateral strike-slip movement along the faults of the San Andreas Fault system, including the nearby Calaveras and Hayward faults. A small component of compression is active in the region, resulting in continued folding and faulting of the geologic units.

Project Setting

The project site is located adjacent to but inland from the Pacific Ocean, just southeast of the Pacifica Municipal Fishing Pier. Beach Boulevard borders the west edge of the site, Montecito borders the north, Birch Lane borders the south, and Palmetto Avenue borders the east. The project site contains four existing buildings that are located near the northwest corner and at the southeast corner and on the south property line. The project site and surrounding areas have a thick ground cover of coastal scrub vegetation. The coastal bluff to the west appears unarmored and a dirt road runs along its crest. The cut slopes are generally moderately inclined, face toward the site interior and no evidence of instability was observed within the excavations.

The majority of the project site has been excavated down to approximately six to nine feet below the adjacent (street level) grade. The existing buildings are at the original grade. The dune and beach sand unit (Qs) appears to underlie the building at the northwest

property corner but this unit has been largely removed from the remainder of the western portion of the project site due to previous excavations. The cut slopes are generally moderately inclined, face toward the interior of the site and show no evidence of instability.

Soils

The project site contains highly disturbed soils by the previous land use as a wastewater treatment plant. According to the Natural Resource Conservation Service, soils at the project site are described as Orthents, cut and fill-urban land complex, 0 to five percent slopes.

The field investigation for the preliminary geotechnical analysis included two cone penetration tests (CPTs) that were hydraulically pushed with truck-mounted equipment in January 2012, as well as two borings that were drilled to a depth of 8.5 to 21 feet with truck-mounted stem drilling equipment in February 2012.

As shown in [Figure 3.3-1: Soils](#), soils at the project site consist of stiff to hard fine-grained soils consisting of clays, silty clays, clayey silts, and silts below a depth of two feet in CPT-1 and below about eight feet of mostly dense sands in CPT-2, extending to the maximum depths explored of 38 to 44 feet. Un-drained shear strength interpreted from the CPT data indicated very stiff to very hard soils. Standard Penetration Test N values, or blow counts, typically range from about 10 blows per foot to over 50 blows per foot.

Borings EB-1 and EB-1A in the southern portion of the project site encountered undocumented fill consisting of sands, clays, gravel, pieces of concrete, plastics, roots and other materials to depths of about 8.5 to 21 feet. Because the project site was placed as part of the development and demolition of the previous facilities, undocumented fill could also be present in other parts of the project site. Standard Penetration Test Blow Counts in the fill mostly ranged from 50 to more than 100 blows per foot. These relatively high blow counts probably reflect the presence of larger sized gravel and pieces of concrete rather than a highly compacted and dense granular fill.

Expansive Soils

Expansive soils shrink or swell significantly with changes in moisture content. Clay content and porosity of the soil also influence the change in volume. The most common cause of changing soil moisture content is seasonal fluctuation due to rainfall; however, improper surface drainage or underground water pipe leaks may cause shrinking or swelling of the soil. The shrinking and swelling caused by expansive clay rich soil often results in damage to overlying structures, including foundations, floor slabs, pavements, sidewalk, and other improvements that are sensitive to soil movements. Usually damage from expansive soils can be minimized or eliminated by using site-specific engineering techniques. Laboratory tests were not performed by Cornerstone Earth Group as part of the preliminary geotechnical investigation as the near-surface soils appeared sandy and non-expansive.

Erosion Potential

Soil erosion is the process by which soil particles are removed from a land surface by wind, water, or gravity. Topsoil is the uppermost layer of soil, usually the top six to eight inches, and has the highest concentration of organic matter and microorganisms. Topsoil erosion is of concern when the topsoil layer is blown or washed away. Most natural erosion occurs at relatively slow rates; however, the rate of erosion increases where the ground surface is steep and when land is cleared and/or left in a disturbed condition, such as may occur during the preparation and excavation phase of site development. The proposed project has slopes of less than ten percent and the bulk of the project site been previously disturbed. Therefore, the erosion potential of the soils on the project site is considered low.

Liquefaction, Landslide Risk, and Other Soil Hazards

According to the geotechnical analysis, several layers of soil at the project site could potentially experience liquefaction triggering that could result in soil softening and post-liquefaction total settlement ranging from $\frac{1}{2}$ to $\frac{3}{4}$ inches. Differential movement for sites with level topography over deep soil would be up to about two-thirds of the total settlement. Therefore, differential settlements are anticipated to be less than $\frac{1}{2}$ inch between independent foundation elements.

The state of California has yet to complete seismically induced landslide hazard mapping for the San Francisco South Quadrangle. The published regional scale geologic maps covering the region do not show any landslides in the immediate area of the project site and this concurs with the results of a review of stereo aerial photos covering the project site. With the exception of relatively short cut slopes within the interior, the project site is in an area with little topographic relief and there are no slopes located near the project site that could result in landslides.

Faults/Seismic Hazards

As shown in [Figure 3.3-2: Regional Fault Map](#), the San Francisco Bay area is recognized by geologists and seismologists as one of the most seismically active regions in the United States. Significant earthquakes occurring in the Bay area are generally associated with crustal movement along well-defined, active fault zones of the San Andreas Fault system. The faults considered capable of generating significant earthquakes are generally associated with the well-defined areas of crustal movement, which trend northwesterly. The San Andreas Fault generated the great San Francisco earthquake of 1906 and the Loma Prieta earthquake of 1989, and passes 1.7 miles northeast of the site. Two other major active faults in the Bay area are the Monte Vista-Shannon Fault and the Hayward Fault (total length), located about 20.5 miles southeast and 21 miles east of the site, respectively.

The Working Group on California Earthquake Probabilities (2003) developed estimates of earthquake probabilities in the San Francisco Bay area for the period from 2002 to 2031. In 2007 the Working Group revised earlier forecasts for the San Francisco Bay Area

incorporating new data on active faults extending the forecast across the entire state using a uniform methodology, allowing for the first time meaningful comparisons of earthquake probabilities in urbanized areas such as Los Angeles and San Francisco Bay Area, as well as comparisons among the large faults in different parts of the state. Their findings suggest the probability of a magnitude 6.7 or greater earthquake occurring during this time period in the San Francisco Bay region remained consistent with their conclusion in 2003 (62 percent). Their estimates of the probability of a magnitude 6.7 or greater earthquake on the San Francisco Peninsula segment of the San Andreas Fault, which is the closest segment of the San Andreas to the subject site has been revised from 11 percent to 21 percent in that time period. During such an earthquake the danger of fault ground rupture at the sites is slight, but strong ground shaking would occur.

Faults/Surface Ruptures

Surface rupture occurs when movement on a fault deep within the earth breaks through to the surface. Fault ruptures almost always follow pre-existing faults that are zones of weakness. Rupture may occur suddenly during an earthquake or slowly in the form of fault creep. Sudden displacements are more damaging to structures because they are accompanied by shaking. Fault creep is the slow rupture of the Earth's crust.

The project site is not located within a currently designated Alquist-Priolo Earthquake Fault Zone, known formerly as a Special Studies Zone and aerial photography reveals no evidence of surface expression of active faulting. Geologic mapping shows the San Andreas Fault zone is located 1.7 miles northeast of the project site. Several unnamed faults are located two miles south and southeast of the project site. These faults do not cut through any geologic units younger than Jurassic and or cretaceous. The Pilarcitos Fault, a right-lateral strike-slip fault that is possibly seismically active is mapped approximately 2.6 miles south of the project site.

Very strong to severe seismic shaking is anticipated during an earthquake generated by the San Andreas Fault and/or the other active faults in the region. According to the geotechnical analysis, since no fault surface traces are known to cross the site, there is a low potential for the occurrence of primary or co-seismic fault surface rupture at the site.

Ground Shaking

Moderate to severe (design-level) earthquakes can cause strong ground shaking, which is the case for most sites within the Bay Area. A peak ground acceleration (PGA) was estimated for the geotechnical analysis using a value equal to $SDS/2.5$ as allowed in the California Building Code.

Other Geologic Hazards

Lateral Spreading

Lateral spreading is horizontal/lateral ground movement of relatively flat-lying soil deposits towards a free face such as an excavation, channel, or open body of water; typically lateral

spreading is associated with liquefaction of one or more subsurface layers near the bottom of the exposed slope. As failure tends to propagate as block failures, it is difficult to analyze and estimate where the first tension crack will form. The geotechnical analysis determined that the project site has a relatively low potential for lateral displacement at the project site with Lateral Displacement Index (LDI) values calculated for CPT-1 and CPT-2 of 0.03 and 0.09 and potential lateral displacements ranging from 0.0 to 0.2 feet.

Storm Wave Run-up

Skelly Engineering/Geosoils, Inc. conducted a Coastal Hazard Study of a condominium complex site located a few blocks north of the project site at 1567 Beach Boulevard in 2004. The maximum wave run-up for the 50-year and 100-year recurrence intervals oceanographic (storm) conditions would be, respectively, about Elevation 23.0 feet Mean Sea Level (MSL) and Elevation 24.5 feet MSL. The study concluded that the Beach Boulevard revetment and wall system is severely overtopped at elevations of about 23 feet MSL. The overtopping occurs on average a few times per year. The wave driven water coming over the top of the wall has been observed to be between one to two feet in height.

Coastal Bluff Retreat

The bluff adjacent to the west side of Beach Boulevard has been described in regional studies as having an average annual rate of bluff retreat equal to four to five inches. A report prepared by Lajoie and Mathieson in 1985 and 1998 concluded that a site located on Shoreview Drive north of the project site has experienced up to 30 feet of retreat in the 1982-83 El Nino storm event. Earth Investigations Consultants (EIC) reported that the bluff segment located just north of the project site and south of Rocky Point has experienced up to 70 feet of retreat between 1953 and 2002. Retreat was mitigated to some degree just north of the Pacifica Pier by placement of rip-rap along the toe of the bluff in the early 1970's, which was supplemented occasionally until the 1982-83 El Nino event further impacted the beachfront.

EIC found that, in spite of seasonal overtopping during storms, the bluff line fronting Beach Boulevard has remained relatively static since the construction of the seawall. Subsequent to that construction, the beach fronting the project site has developed a steep westward slope, and is submerged nearly year round. At the time of the site reconnaissance on January 30, 2012, the beach had a moderately inclined westward slope and there was about four to seven feet of vertical separation between the top of the wall and the beach surface.

Regulatory Setting

State

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act was passed in 1972 (originally enacted as the Alquist-Priolo Special Studies Zones Act and renamed in 1994) and is intended to

reduce the risk to life and property from surface fault rupture during earthquakes. The main purpose of the law is to prevent the construction of buildings used for human occupancy on the surface trace of active faults. The law only addresses the hazard of surface fault rupture and is not directed toward other earthquake hazards. The Alquist-Priolo Act requires the State Geologist to establish regulatory zones known as “Earthquake Fault Zones” around the surface traces of active faults and to issue appropriate maps. The maps are distributed to all affected cities, counties, and state agencies for their use in planning efforts. Local agencies must regulate most development projects within the zones. Projects include all land divisions and most structures for human occupancy.

California Building Standards Code (CBC)

The State of California provides minimum standards for building design through the CBC. The CBC is based on the Uniform Building Code (UBC), which is used widely throughout the United States (generally adopted on a state-by-state or district-by-district basis), and has been modified for conditions within California. The CBC requires extensive geotechnical analysis and engineering for grading, foundations, retaining walls, and other structures, including criteria for seismic design. The proposed project is located within Seismic Zone 4, which is expected to experience the greatest effects from earthquakes, and requires the most stringent requirements for seismic design.

Seismic Hazards Mapping Act

The CGS provides guidance with regard to seismic hazards under the *Seismic Hazards Mapping Act*. Seismic hazard zones are identified and mapped by the CGS to assist local governments in land use planning. The intent of the Act is to protect the public from the effects of strong ground shaking, liquefaction, landslides, ground failure, or other hazards caused by earthquakes. In addition, CGS Special Publication 117, *Guidelines for Evaluating and Mitigating Seismic Hazards in California*, provides guidance for the evaluation and mitigation of earthquake-related hazards for projects within designated zones of required investigations. The proposed project is located within a CGS Seismic Hazard Zone where liquefaction may occur during a strong earthquake; however, the proposed project is not located within a CGS Seismic Hazard Zone where landslides may occur during a strong earthquake.

Local

Local Hazard Mitigation Plan

In 2005, a task force representing the City of Pacifica studied the City’s response to natural hazards and identified mitigation strategies. Their work is incorporated into the regional Local Hazard Mitigation Plan directed by the Association of Bay Area Governments (ABAG).

The task force noted Pacifica’s vulnerability to ground shaking, liquefaction, and subsidence caused by potential seismic activity along the San Andreas fault. It also described Pacifica’s susceptibility to landslides and slope failure, which can be caused by earthquakes, hillside erosion, or coastal erosion.

Major landslides have been triggered by heavy rainfall. Coastal erosion was identified as another serious hazard, as bluffs are progressively undercut by wave action and eroded from above by rainfall, with severe effects during winter storms.

The task force concluded that earthquakes with the potential to cause ground shaking, liquefaction, and landslides; and winter storms, which may cause landslides, coastal erosion, and flooding, are Pacifica's two highest priorities for mitigation.

All mitigation strategies identified in the Plan that concern geologic hazards are already existing programs in Pacifica (ABAG 2005).

City of Pacifica General Plan

The City of Pacifica updated the Seismic Safety and Safety Element of the General Plan in 1983, following serious storms resulting in property damage and loss of life during the previous two winters. The Element details known and potential hazards from hillside erosion and landslides; coastal erosion; seismic events; and other issues. The following policies in the *City of Pacifica General Plan* are applicable to geology, soils and seismicity.

Seismic Safety and Safety Element Policy 1. Prohibit development to hazardous areas unless detailed site investigations ensure that risks can be reduced to acceptable levels and the structure will be protected for its design life. Development shall be designed to withstand a minimum of 100-year hazard event, regardless of the specific nature of the hazard. This concept applies to both on-site and off-site hazards.

Seismic Safety and Safety Element Policy 2. Prohibit mitigation measures for potential geotechnical hazards if the mitigation measures could adversely affect surrounding public or private property. For example, use of the public right-of-way as a landslide repository could adversely affect public health, safety, and welfare.

Seismic Safety and Safety Element Policy 4. Prohibit seawalls which are necessary as a mitigation measure for new development. Projects should not be approved which eventually will need seawalls for the safety of the structures and residents.

Seismic Safety and Safety Element Policy 7. Maintain an emergency plan, which provides adequate response to disasters, including emergency ingress and egress communitywide and for individual neighborhoods.

City of Pacifica Municipal Code

Title 8, Building Regulations

Chapter I, Building Code of Title 8, Building Regulations establishes the local building code for the City. The building code adopts the 2007 California Building Code and includes amendments contained in Chapter I that are specific to the City of Pacifica.

Relevant Project Characteristics

The proposed project will need to be designed to meet all state and local building code requirements to ensure the buildings are safe for use and can withstand seismic activity.

Impacts and Mitigation Measures

Criteria for Determining Significance

The following thresholds of significance are based on Appendix G of the *CEQA Guidelines*, as amended. For purposes of this EIR, implementation of the proposed project may have a significant adverse geology, soils and seismicity impact if it would result in any of the following:

- Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
 - Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault;
 - Strong seismic ground shaking;
 - Seismic-related ground failure, including liquefaction; or
 - Landslides.
- Result in substantial soil erosion or the loss of topsoil;
- Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslides, lateral spreading, subsidence, liquefaction or collapse;
- Be located on expansive soil, as defined in Table 18-I-B of the Uniform Building Code (1994), creating substantial risks to life or property; and/or
- Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water.

Methodology

Impacts evaluated in this section were assessed based on previously published reports including the project specific geotechnical report prepared by Cornerstone Earth Group in March 2012; U.S. Department of Agriculture, Natural Resources Conservation Service; the *City of Pacifica General Plan*; and the Existing Conditions Report for the City of Pacifica General Plan prepared in July 2010.

The field investigation for the preliminary geotechnical analysis included two cone penetration tests (CPTs) that were hydraulically pushed with truck-mounted equipment in January 2012, as well as two borings that were drilled to a depth of 8.5 to 21 feet with truck-mounted stem drilling equipment in February 2012.

Project Impacts and Mitigation Measures

Seismic Ground Shaking

Impact 3.3-1: Seismic ground shaking is likely to occur at the project site and in the project vicinity in the event of a major earthquake on one of the nearby faults resulting in the exposure of people and/or structures to potentially significant adverse effects, including the risk of loss, injury or death. This is considered a **potentially significant impact**.

The proposed project is located in a seismically active region. The San Andreas Fault zone is located 1.7 miles northeast of the project site; several unnamed faults are located two miles south and southeast of the project site; and the Pilarcitos Fault, a right-lateral strike-slip fault that is possibly seismically active is mapped approximately 2.6 miles south of the project site. Although there are no known faults located within the project site, earthquakes on any of the potentially active faults including the San Andreas Fault and/or of the other active faults within the surrounding region could produce moderate ground shaking at the project site depending on the magnitude, characteristics, and location of the seismic event.

Specific engineering design and construction measures are required by the California Building Code and the City's Building Code to minimize damage resulting from seismic ground shaking for the construction of new or renovated buildings. In addition, to mitigate the potentially significant impact from seismic ground shaking at the project site, the following mitigation measure would ensure that the proposed project would not expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking which would reduce this potentially significant impact to a **less than significant** level.

Mitigation Measure

MM 3.3-1 **Preparation of Design-Level Geotechnical Report.** The City shall consult with a registered geotechnical engineer to prepare a design level geotechnical report once detailed site development plans are available that incorporates the recommendations in the preliminary geotechnical investigation by Cornerstone Earth Group (March 2012), including: earthwork measures, and foundation recommendations. This report shall be prepared in conjunction with final building plans. Prior to final inspection, the project applicant shall provide certification from a qualified professional that the proposed project was constructed in accordance with the design-level geotechnical investigation.

Fault Rupture

Impact 3.3-2: Active or potentially active faults are located within the project vicinity, including the San Andreas Fault zone, several unnamed faults, and the Pilarcitos Fault. According to the geotechnical investigation, the project site

is not located on a fault trace and future development associated with the proposed project would be required to comply with the California Building Code and the City's Building Code, as well as preparation of a design level geotechnical report. Therefore, this is considered a **less than significant impact**.

The proposed project is located in a seismically active area. The nearest potentially active fault is the San Andreas Fault, which is located 1.7 miles northeast of the project site; several unnamed faults located two miles south and southeast of the project site; and the Pilarcitos Fault located approximately 2.6 miles south of the project site. Design of the proposed project would be performed in accordance with the latest edition of the California Building Code and the City's Building Code, as well as Mitigation Measure 3.3-1, which would require preparation of a design-level geotechnical analysis. Compliance with the statutory and technical reports and design requirements would ensure that no significant impacts related to fault zone rupture would occur. Therefore, this would be considered a **less than significant impact**, and no mitigation is required.

Liquefaction and Liquefaction Induced Settlement

Impact 3.3-3: The proposed project could expose people or structures to potential substantial adverse effects of liquefaction. This is considered a **potentially significant impact**.

Generally, when liquefaction occurs because of earthquakes, the conditions of cohesionless surface material accompanied with relatively shallow water tables underlying the area were the factor. In such cases, ground vibration increases the pore pressure resulting in water moving upward whereby turning the sand or silt into a quicksand like condition. The surface characteristics include the development of sand boils, surface cracks, ground settlement and differential compaction. Without proper soil engineering, foundation design, and construction, the project site could expose people and/or structures to hazards associated with seismic-related ground failure. According to the geotechnical analysis, there is a potential for liquefaction of localized sand layers during a significant seismic event. Although, the potential for liquefied sands to vent to the ground surface through cracks in the surficial soils is low, the geotechnical analysis indicates that liquefaction-induced settlement in the order of $\frac{1}{2}$ to $\frac{3}{4}$ inches could occur resulting in differential settlement of about less than $\frac{1}{2}$ inch between independent foundation elements.

Specific engineering design and construction measures are required by the California Building Code. In addition, to provide the adequate level of information to properly design and engineer future development consistent with statutory requirements and the City's Building code, Mitigation Measure 3.3-1 would require that an engineering geologist perform a design-level geotechnical study. With implementation of these standards and the mitigation measure, the effects of liquefaction would be reduced to a **less than significant level**.

Landslides

The state of California has yet to complete seismically induced landslide hazard mapping for covering the San Francisco South Quadrangle. The published regional scale geologic maps covering the region do not show any landslides in the immediate area of the project site and this concurs with the results of a review of stereo aerial photos covering the project site. With the exception of relatively short cut slopes within the site interior, the project site is in an area with little topographic relief and there are no slopes located near the project site that could result in landslides. Therefore, landslides are not considered to be a potential significant geologic hazard. Therefore **no impacts** would occur.

Soil Erosion

Impact 3.3-4: Implementation of the proposed project may result in soil erosion or the loss of topsoil during short-term construction activities within the project site. This is considered a **potentially significant impact**.

Earth-disturbing activities such as grading and excavation during construction activities have the potential to increase erosion during rainstorms if proper sedimentation and erosion control methods are not in place at the project site. The proposed project would include grading and demolition of existing improvements at the project site. As grading would occur over approximately 3.5 acres at the project site, the City would be required to obtain a General Construction Activity Stormwater Permit and carry out measures required to manage and control erosion from the site during construction pursuant to the Clean Water Act and the State Water Resources Control Board. Best Management Practices (BMPs) typically include, but are not limited to, minimizing the migration of sediments off-site, covering sediment/soil stockpiles, sweeping soil from streets or other paved areas, avoiding site preparation during rainy weather, and the planting of vegetation or landscaping in a timely manner. These measures should be consistent with the *Association of Bay Area Governments Manual of Standards for Erosion and Sedimentation Measures*. Implementation of mitigation measures MM 3.6-1a and MM 3.6-1b in Section 3.6, Hydrology and Water Quality would require that future development limit grading activities between October 15th and April 15th and require that the project applicants file a Notice of Intent and prepare a Storm Water Pollution Prevention Plan (SWPPP), which would reduce this impact to a less than significant level.

Expansive Soils

Impact 3.5-5: Implementation of the proposed project would not lead to development on expansive soil. With adherence to the City's Building Code and California Building Code requirements, this is considered a **less than significant impact**.

According to the geotechnical investigation, laboratory tests were not performed on near-surface soils as they appeared sandy and non-plastic. Therefore, the proposed project would result in a **less than significant impact** from expansive soils.

Sea Level Rise

California's Second District Court of Appeal has addressed provisions of the California Environmental Quality Act (CEQA) checklist questionnaire that appear to require analysis of the effects of environmental hazards on the proposed project. The court held that such impacts are not encompassed by CEQA. It rejected a claim that an Environmental Impact Report (EIR) was required to evaluate the impacts of potential sea level rise on a project.

In *Ballona Wetlands Land Trust v. City of Los Angeles*, the court determined that neither questions on the Appendix G checklist nor provisions of the CEQA Guidelines can properly be construed to require assessment of the impacts of existing environmental hazards on the project. The opinion draws an explicit distinction between the “project’s exacerbation of environmental hazards [and] the effects on users of the project and structures in the project of preexisting environmental hazards.” It holds that “to the extent that such questions may encompass the latter effects, the questions do not relate to environmental impacts under CEQA and cannot support an argument that the effects of the environment on the project must be analyzed in an EIR.”

As a matter of *informational purposes only*, it should be noted that surface elevations at the project site range from approximately 13 to 20 feet above mean sea level (msl). As described above per the findings of Skelly Engineering/Geosoils, Inc., the maximum wave run-up for the 50-year and 100-year recurrence intervals oceanographic (storm) conditions would be, respectively, about elevation 23.0 feet msl and elevation 24.5 feet msl. The study concluded that the Beach Boulevard revetment and wall system is severely overtopped at elevations of about 23 feet MSL. The overtopping occurs on average a few times per year. The wave driven water coming over the top of the wall has been observed to be between one to two feet in height.

Septic Tanks or Alternative Wastewater Disposal Systems

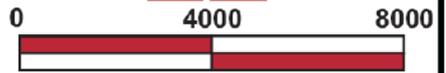
Wastewater disposal in the project vicinity would be provided by City of Pacifica and would not include the use of septic tanks or alternative wastewater disposal systems. Future development within the project site would be required to connect to the City’s existing wastewater system. Consequently, the threshold of significance for septic tanks or alternative wastewater disposal systems would not apply to the proposed project and the proposed project would have **no impact**.



Pacifica
SITE →

Geologic Units

Qyfo	Younger (outer) alluvial fan deposits (Holocene)
Qcl	Colluvium (Holocene)
Qs	Sand dune and beach deposits (Holocene)
fs	Sandstone, Franciscan Complex (Cretaceous and Jurassic)
fg	Greenstone, Franciscan Complex (Cretaceous and Jurassic)



APPROXIMATE SCALE (FEET)

Base by E.E. Brabb, R.W. Graymer and D.L. Jones,
"Geology of the Onshore Part of San Mateo County, California"

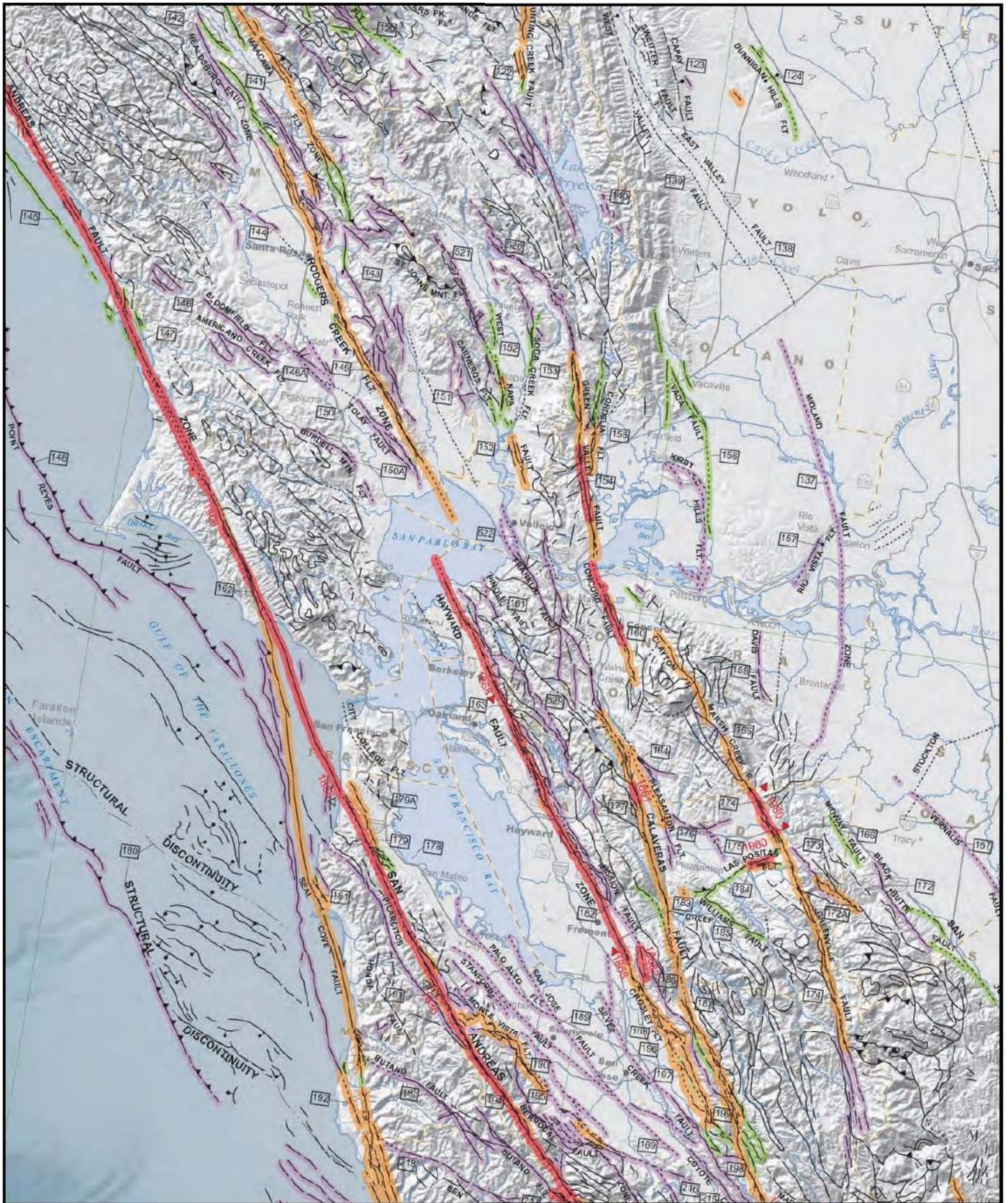
Source: Comerstone Earth Group (2012)



JN 70-100421

Soils
Redevelopment of the Beach Boulevard Property EIR

Figure 3.3-1



Source: California Geological Survey (2010)



JN 70-100421

Regional Fault Map

Redevelopment of the Beach Boulevard Property EIR

Figure 3.3-2

3.4. Greenhouse Gas and Climate Change

This section evaluates greenhouse gas (GHG) emissions and climate change associated with the proposed project and analyzes project compliance with applicable regulations. Consideration of the project's consistency with applicable plans, policies, and regulations, as well as the introduction of new sources of GHGs, is included in this section. GHG emissions modeling data is shown in [Appendix C](#).

Environmental Setting

The natural process through which heat is retained in the troposphere is called the "greenhouse effect."³ The greenhouse effect traps heat in the troposphere through a three-fold process, summarized as follows: short wave radiation emitted by the Sun is absorbed by the Earth; the Earth emits a portion of this energy in the form of long wave radiation; and greenhouse gases (GHGs) in the upper atmosphere absorb this long wave radiation and emit this long wave radiation into space and toward the Earth. This "trapping" of the long wave (thermal) radiation emitted back toward the Earth is the underlying process of the greenhouse effect.

The most abundant GHGs are water vapor and carbon dioxide. Many other trace gases have greater ability to absorb and re-radiate long wave radiation; however, these gases are not as plentiful. For this reason, and to gauge the potency of GHGs, scientists have established a Global Warming Potential for each GHG based on its ability to absorb and re-radiate long wave radiation. The Global Warming Potential of a gas is determined using carbon dioxide as the reference gas with a Global Warming Potential of one (1).

GHGs include, but are not limited to, the following:⁴

Water Vapor (H₂O). Although water vapor has not received the scrutiny of other GHGs, it is the primary contributor to the greenhouse effect. Natural processes, such as evaporation from oceans and rivers, and transpiration from plants, contribute 90 percent and 10 percent of the water vapor in our atmosphere, respectively.

The primary human-related source of water vapor comes from fuel combustion in motor vehicles; however, this is not believed to contribute a significant amount (less than one percent) to atmospheric concentrations of water vapor. The Intergovernmental Panel on Climate Change has not determined a Global Warming Potential for water vapor.

³ The troposphere is the bottom layer of the atmosphere, which varies in height from the Earth's surface to 10 to 12 kilometers.

⁴ All Global Warming Potentials are given as 100-year Global Warming Potential. Unless noted otherwise, all Global Warming Potentials were obtained from the Intergovernmental Panel on Climate Change. (Intergovernmental Panel on Climate Change, *Climate Change, The Science of Climate Change – Contribution of Working Group I to the Second Assessment Report of the IPCC*, 1996).

Carbon Dioxide (CO₂). Carbon dioxide is primarily generated by fossil fuel combustion in stationary and mobile sources. Due to the emergence of industrial facilities and mobile sources in the past 250 years, the concentration of carbon dioxide in the atmosphere has increased 35 percent.⁵ Carbon dioxide is the most widely emitted GHG and is the reference gas (Global Warming Potential of 1) for determining Global Warming Potentials for other GHGs.

Methane (CH₄). Methane is emitted from biogenic sources, incomplete combustion in forest fires, landfills, manure management, and leaks in natural gas pipelines. In the United States, the top three sources of methane are landfills, natural gas systems, and enteric fermentation. Methane is the primary component of natural gas, which is used for space and water heating, steam production, and power generation. The Global Warming Potential of methane is 21.

Nitrous Oxide (N₂O). Nitrous oxide is produced by both natural and human-related sources. Primary human-related sources include agricultural soil management, animal manure management, sewage treatment, mobile and stationary combustion of fossil fuel, adipic acid production, and nitric acid production. The Global Warming Potential of nitrous oxide is 310.

Hydrofluorocarbons (HFCs). HFCs are typically used as refrigerants for both stationary refrigeration and mobile air conditioning. The use of HFCs for cooling and foam blowing is growing, as the continued phase out of chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs) gains momentum. The Global Warming Potential of HFCs range from 140 for HFC-152a to 6,300 for HFC-236fa.

Perfluorocarbons (PFCs). Perfluorocarbons are compounds consisting of carbon and fluorine. They are primarily created as a by-product of aluminum production and semi-conductor manufacturing. Perfluorocarbons are potent GHGs with a Global Warming Potential several thousand times that of carbon dioxide, depending on the specific PFC. Another area of concern regarding PFCs is their long atmospheric lifetime (up to 50,000 years).⁶ The Global Warming Potential of PFCs range from 5,700 to 11,900.

Sulfur hexafluoride (SF₆). Sulfur hexafluoride is a colorless, odorless, nontoxic, nonflammable gas. It is most commonly used as an electrical insulator in high voltage equipment that transmits and distributes electricity. Sulfur hexafluoride is the most potent GHG that has been evaluated by the Intergovernmental Panel on Climate Change with a Global Warming Potential of 23,900. However, its global warming contribution is not as high as the Global

⁵ United States Environmental Protection Agency, *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990 to 2004*, April 2006, <http://www.epa.gov/climatechange/emissions/usinventoryreport.html>.

⁶ Energy Information Administration, *Other Gases: Hydrofluorocarbons, Perfluorocarbons, and Sulfur Hexafluoride*, October 29, 2001, http://www.eia.doe.gov/oiaf/1605/gg00rpt/other_gases.html.

Warming Potential would indicate due to its low mixing ratio compared to carbon dioxide (4 parts per trillion [ppt] in 1990 versus 365 parts per million [ppm]).⁷

In addition to the six major GHGs discussed above (excluding water vapor), many other compounds have the potential to contribute to the greenhouse effect. Some of these substances were previously identified as stratospheric ozone (O₃) depleters; therefore, their gradual phase out is currently in effect. The following is a listing of these compounds:

Hydrochlorofluorocarbons (HCFCs). HCFCs are solvents, similar in use and chemical composition to CFCs. The main uses of HCFCs are for refrigerant products and air conditioning systems. As part of the Montreal Protocol, all developed countries that adhere to the Montreal Protocol are subject to a consumption cap and gradual phase out of HCFCs. The United States is scheduled to achieve a 100 percent reduction to the cap by 2030. The Global Warming Potentials of HCFCs range from 93 for HCFC-123 to 2,000 for HCFC-142b.⁸

1,1,1 trichloroethane. 1,1,1 trichloroethane, or methyl chloroform, is a solvent and degreasing agent commonly used by manufacturers. The Global Warming Potential of methyl chloroform is 110 times that of carbon dioxide.⁹

Chlorofluorocarbons (CFCs). CFCs are used as refrigerants, cleaning solvents, and aerosol spray propellants. CFCs were also part of the EPA's Final Rule (57 FR 3374) for the phase out of O₃ depleting substances. Currently, CFCs have been replaced by HFCs in cooling systems and a variety of alternatives for cleaning solvents. Nevertheless, CFCs remain suspended in the atmosphere, contributing to the greenhouse effect. CFCs are potent GHGs with Global Warming Potentials ranging from 4,600 for CFC 11 to 14,000 for CFC 13.¹⁰

Regulatory Framework

Federal

The EPA is responsible for implementing the Federal Clean Air Act (FCAA), which was first enacted in 1955 and amended numerous times after. The FCAA established Federal air quality standards known as the National Ambient Air Quality Standards (NAAQS). These

⁷ United States Environmental Protection Agency, *High GWP Gases and Climate Change*, October 19, 2006, <http://www.epa.gov/highgwp/scientific.html#sf6>.

⁸ United States Environmental Protection Agency, *Protection of Stratospheric Ozone: Listing of Global Warming Potential for Ozone Depleting Substances*, November 7, 2006, http://www.epa.gov/fedrgstr/EPA_AIR/1996/January/Day_19/pr_372.html.

⁹ United States Environmental Protection Agency, *Protection of Stratospheric Ozone: Listing of Global Warming Potential for Ozone Depleting Substances*, November 7, 2006, http://www.epa.gov/fedrgstr/EPA_AIR/1996/January/Day_19/pr_372.html.

¹⁰ United States Environmental Protection Agency, *Class I Ozone Depleting Substances*, March 7, 2006, <http://www.epa.gov/ozone/ods.html>.

standards identify levels of air quality for “criteria” pollutants that are considered the maximum levels of ambient (background) air pollutants considered safe, with an adequate margin of safety, to protect the public health and welfare. The criteria pollutants are ozone (O₃), carbon monoxide (CO), nitrogen dioxide (NO₂, which is a form of nitrogen oxides [NO_x]), sulfur dioxide (SO₂, which is a form of sulfur oxides [SO_x]), particulate matter less than 10 and 2.5 microns in diameter (PM₁₀ and PM_{2.5}, respectively), and lead (Pb).

The FCAA requires the EPA to define national ambient air quality standards (national standards) to protect public health and welfare in the United States. The FCAA does not specifically regulate GHG emissions; however, on April 2, 2007 the U.S. Supreme Court in *Massachusetts v. U.S. Environmental Protection Agency*, determined that GHGs are pollutants that can be regulated under the FCAA. The EPA adopted an endangerment finding and cause or contribute finding for GHGs on December 7, 2009. Under the endangerment finding, the Administrator found that the current and projected atmospheric concentrations of the six, key, well-mixed GHGs (CO₂, CH₄, N₂O, HFCs, PFCs, and SF₆) threaten the public health and welfare of current and future generations. Under the cause of contribute finding, the Administrator found that the combined emissions of these well-mixed GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution which threatens public health and welfare.

Based on these findings, on April 1, 2010, the EPA finalized the light-duty vehicle rule controlling GHG emissions. This rule confirmed that January 2, 2011, is the earliest date that a 2012 model year vehicle meeting these rule requirements may be sold in the United States. On May 13, 2010, the EPA issued the final GHG Tailoring Rule. This rule set thresholds for GHG emissions that define when permits under the Prevention of Significant Deterioration and Title V Operating Permit programs are required for new and existing industrial facilities. Implementation of the Federal rules is expected to reduce the level of emissions from new motor vehicles and large stationary sources.

State

Various statewide and local initiatives to reduce California’s contribution to GHG emissions have raised awareness that, even though the various contributors to and consequences of global climate change are not yet fully understood, global climate change is occurring, and that there is a real potential for severe adverse environmental, social, and economic effects in the long term. Every nation emits GHGs and as a result makes an incremental cumulative contribution to global climate change; therefore, global cooperation will be required to reduce the rate of GHG emissions enough to slow or stop the human-caused increase in average global temperatures and associated changes in climatic conditions.

Executive Order S-1-07

Executive Order S-1-07 proclaims that the transportation sector is the main source of GHG emissions in California, generating more than 40 percent of statewide emissions. It establishes a goal to reduce the carbon intensity of transportation fuels sold in California by at least ten percent by 2020. This order also directs CARB to determine whether this Low

Carbon Fuel Standard (LCFS) could be adopted as a discrete early-action measure as part of the effort to meet the mandates in AB 32.

Executive Order S-3-05

Executive Order S-3-05 set forth a series of target dates by which statewide emissions of GHGs would be progressively reduced, as follows:

- By 2010, reduce GHG emissions to 2000 levels;
- By 2020, reduce GHG emissions to 1990 levels; and
- By 2050, reduce GHG emissions to 80 percent below 1990 levels.

The Executive Order directed the secretary of the California Environmental Protection Agency (Cal/EPA) to coordinate a multi-agency effort to reduce GHG emissions to the target levels. The secretary will also submit biannual reports to the governor and California Legislature describing the progress made toward the emissions targets, the impacts of global climate change on California's resources, and mitigation and adaptation plans to combat these impacts. To comply with the executive order, the secretary of Cal/EPA created the California Climate Action Team (CAT), made up of members from various State agencies and commissions. The team released its first report in March 2006. The report proposed to achieve the targets by building on the voluntary actions of California businesses, local governments, and communities and through State incentive and regulatory programs.

Executive Order S-13-08

Executive Order S-13-08 seeks to enhance the State's management of climate impacts including sea level rise, increased temperatures, shifting precipitation, and extreme weather events by facilitating the development of State's first climate adaptation strategy. This will result in consistent guidance from experts on how to address climate change impacts in the State of California.

Executive Order S-14-08

Executive Order S-14-08 expands the State's Renewable Energy Standard to 33 percent renewable power by 2020. Additionally, Executive Order S-21-09 (signed on September 15, 2009) directs CARB to adopt regulations requiring 33 percent of electricity sold in the State come from renewable energy by 2020. CARB adopted the "Renewable Electricity Standard" on September 23, 2010, which requires 33 percent renewable energy by 2020 for most publicly owned electricity retailers.

Executive Order S-20-04

Executive Order S-20-04, the California Green Building Initiative, (signed into law on December 14, 2004), establishes a goal of reducing energy use in State-owned buildings by 20 percent from a 2003 baseline by 2015. It also encourages the private commercial sector to set the same goal. The initiative places the California Energy Commission (CEC) in charge of developing a building efficiency benchmarking system, commissioning and

retro-commissioning (commissioning for existing commercial buildings) guidelines, and developing and refining building energy efficiency standards under Title 24 to meet this goal.

Executive Order S-21-09

Executive Order S-21-09, 33 percent Renewable Energy for California, directs CARB to adopt regulations to increase California's Renewable Portfolio Standard (RPS) to 33 percent by 2020. This builds upon SB 1078 (2002) which established the California RPS program, requiring 20 percent renewable energy by 2017, and SB 107 (2006) which advanced the 20 percent deadline to 2010, a goal which was expanded to 33 percent by 2020 in the 2005 Energy Action Plan II.

Assembly Bill 32 (California Global Warming Solutions Act of 2006)

California passed the California Global Warming Solutions Act of 2006 (AB 32; California Health and Safety Code Division 25.5, Sections 38500 - 38599). AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and establishes a cap on statewide GHG emissions. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. AB 32 specifies that regulations adopted in response to AB 1493 should be used to address GHG emissions from vehicles. However, AB 32 also includes language stating that if the AB 1493 regulations cannot be implemented, then CARB should develop new regulations to control vehicle GHG emissions under the authorization of AB 32.

Assembly Bill 1493

AB 1493 (also known as the Pavley Bill) requires that CARB develop and adopt, by January 1, 2005, regulations that achieve "the maximum feasible reduction of GHG 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, CARB approved amendments to the California Code of Regulations (CCR) in 2004 by adding GHG emissions standards to California's existing standards for motor vehicle emissions. Amendments to CCR Title 13, Sections 1900 and 1961 and adoption of 13 CCR Section 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 weight classes for passenger vehicles (i.e., any medium-duty vehicle with a gross vehicle weight rating less than 10,000 pounds that is designed primarily to transport people), beginning with the 2009 model year. Emissions limits are reduced further in each model year through 2016. When fully phased in, the near-term standards will result in a reduction of about 22 percent in GHG emissions compared to the emissions from the 2002 fleet, while the mid-term standards will result in a reduction of about 30 percent.

Assembly Bill 3018

AB 3018 established the Green Collar Jobs Council (GCJC) under the California Workforce Investment Board (CWIB). The GCJC will develop a comprehensive approach to address California's emerging workforce needs associated with the emerging green

economy. This bill will ignite the development of job training programs in the clean and green technology sectors.

Senate Bill 97

SB 97, signed in August 2007 (Chapter 185, Statutes of 2007; PRC Sections 21083.05 and 21097), acknowledges that climate change is a prominent environmental issue that requires analysis under CEQA. This bill directs the Governor's Office of Planning and Research (OPR), which is part of the State Natural Resources Agency, to prepare, develop, and transmit to CARB guidelines for the feasible mitigation of GHG emissions (or the effects of GHG emissions), as required by CEQA.

OPR published a technical advisory recommending that CEQA lead agencies make a good-faith effort to estimate the quantity of GHG emissions that would be generated by a proposed project. Specifically, based on available information, CEQA lead agencies should estimate the emissions associated with project-related vehicular traffic, energy consumption, water usage, and construction activities to determine whether project-level or cumulative impacts could occur, and should mitigate the impacts where feasible. OPR requested CARB technical staff to recommend a method for setting CEQA thresholds of significance as described in CEQA Guidelines Section 15064.7 that will encourage consistency and uniformity in the CEQA analysis of GHG emissions throughout the State.

The Natural Resources Agency adopted the CEQA Guidelines Amendments prepared by OPR, as directed by SB 97. On February 16, 2010, the Office of Administration Law approved the CEQA Guidelines Amendments, and filed them with the Secretary of State for inclusion in the California Code of Regulations. The CEQA Guidelines Amendments became effective on March 18, 2010.

Senate Bill 375

SB 375, signed in September 2008 (Chapter 728, Statutes of 2008), aligns regional transportation planning efforts, regional GHG reduction targets, and land use and housing allocation. SB 375 requires Metropolitan Planning Organizations (MPOs) to adopt a sustainable communities strategy (SCS) or alternative planning strategy (APS) that will prescribe land use allocation in that MPOs regional transportation plan. 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 SCS or APS for consistency with its assigned targets. If MPOs do not meet the GHG reduction targets, transportation projects may not be eligible for funding programmed after January 1, 2012.

Senate Bills 1078 and 107

SB 1078 (Chapter 516, Statutes of 2002) requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017. SB 107 (Chapter 464, Statutes of 2006) changed the target date to 2010.

Senate Bill 1368

SB 1368 (Chapter 598, Statutes of 2006) is the companion bill of AB 32 and was signed into law in September 2006. SB 1368 required the California Public Utilities Commission (CPUC) to establish a performance standard for baseload generation of GHG emissions by investor-owned utilities by February 1, 2007. SB 1368 also required the CEC to establish a similar standard for local publicly owned utilities by June 30, 2007. These standards could not exceed the GHG emissions rate from a baseload combined-cycle, natural gas-fired plant. Furthermore, the legislation states that all electricity provided to California, including imported electricity, must be generated by plants that meet the standards set by CPUC and CEC.

CARB Scoping Plan

On December 11, 2008, CARB adopted its Scoping Plan, which functions as a roadmap to achieve GHG reductions in California required by AB 32 through subsequently enacted regulations. CARB's Scoping Plan contains the main strategies California will implement to reduce CO₂eq emissions by 174 million metric tons (MT), or approximately 30 percent, from the State's projected 2020 emissions level of 596 million MT CO₂eq under a business as usual (BAU) scenario. This is a reduction of 42 million MT CO₂eq, or almost ten percent, from 2002 to 2004 average emissions, but requires the reductions in the face of population and economic growth through 2020.

CARB's Scoping Plan calculates 2020 BAU emissions as the emissions that would be expected to occur in the absence of any GHG reduction measures. The 2020 BAU emissions estimate was derived by projecting emissions from a past baseline year using growth factors specific to each of the different economic sectors (e.g., transportation, electrical power, commercial and residential, industrial, etc.). CARB used three-year average emissions, by sector, for 2002 to 2004 to forecast emissions to 2020. At the time CARB's Scoping Plan process was initiated, 2004 was the most recent year for which actual data was available. The measures described in CARB's Scoping Plan are intended to reduce the projected 2020 BAU to 1990 levels, as required by AB 32. However, the San Francisco Superior Court has recently issued a tentative ruling that if issued as proposed, would suspend the implementation of the Scoping Plan pending additional CEQA review.

In *Association of Irrigated Residents, et al. v. California Air Resources Board, et al.*, the Superior Court of California for the County of San Francisco (Superior Court) issued a "tentative statement of decision" (Tentative Decision) that prevents CARB from implementing a state-wide GHG regulatory program under AB 32 until the agency complies with the requirements of CEQA. The Tentative Decision partially grants a petition for a writ of mandate brought by a coalition of environmental justice organizations (Petitioners) that alleged that CARB's Scoping Plan violated both AB 32 and CEQA. Although the Superior Court denied all claims related to AB 32, the court found that CARB: 1) failed to adequately discuss and analyze the impacts of alternatives in its proposed Scoping Plan as required by its CEQA implementing regulations; and 2) improperly approved the Scoping Plan prior to completing the environmental review required by CEQA. In upholding the Petitioners' challenge on these two CEQA issues, the

Superior Court issued a Peremptory Writ of Mandate and enjoined CARB from further implementation of the Scoping Plan until it complies with all CEQA requirements. Parties to the case had 15 days from the issuance of the Tentative Decision to file objections before the Superior Court issued a final decision in the case.

On March 18, 2011, the Superior Court issued its Final Statement of Decision, which is substantially similar to the Tentative Decision. The Superior Court ruled in favor of CARB concerning AB 32 mandates and how to best reach the GHG reduction goals set by AB 32. However, the Superior Court determined that CARB failed to conduct adequate CEQA review for the Scoping Plan. Specifically, the Superior Court concluded that CARB failed to consider adequate alternatives to the mix of measures adopted in the Scoping Plan, including especially alternatives to cap-and-trade measures, and that CARB improperly began implementing the Scoping Plan measures before its CEQA review process was complete. Therefore, the Superior Court has suspended any further implementation of the measures contained in the Scoping Plan until the State has complied with CEQA.

State Green Building Standards Code (CALGreen)

Adopted by the State Building Standards Commission in January 2010, CALGreen supplements the California Building Standards Code (Title 24) and went into effect on January 1, 2011. It requires all new buildings in the state to incorporate energy and water saving features. New standards include the following:

- Water efficiency: New buildings must demonstrate at least a 20 percent reduction in water use over typical baseline conditions.
- Construction waste: At least 50 percent of construction waste must be recycled, reused, or otherwise diverted from landfilling.
- Interior finishes: Interior finishes such as paints, carpet, vinyl flooring, particle board, and other similar materials must be low-pollutant emitting.
- Landscape irrigation: In nonresidential buildings, separate water meters must be provided for a building's indoor and outdoor water use. Large landscape projects must use moisture-sensing irrigation systems to limit unnecessary watering.

Local

Bay Area Air Quality Management District

The BAAQMD adopted their *CEQA Air Quality Guidelines* to assist lead agencies in evaluating air quality impacts of projects and plans proposed in the Basin. The CEQA Air Quality Guidelines provide BAAQMD-recommended procedures for evaluating potential GHG impacts during the environmental review process consistent with CEQA requirements. In addition to providing new thresholds for GHG emissions, the *2010 CEQA Air Quality Guidelines* provide updated significance thresholds for criteria pollutants and supersede the BAAQMD's previous CEQA guidance titled *BAAQMD CEQA Guidelines: Assessing the Air Quality Impacts of Projects and Plans* (1999).

It should be noted that on March 5, 2012 the Alameda County Superior Court issued a judgment finding that the BAAQMD had failed to comply with CEQA when it adopted the Thresholds. The court did not determine whether the Thresholds were valid on the merits, but found that the adoption of the Thresholds was a project under CEQA. The court issued a writ of mandate ordering the BAAQMD to set aside the Thresholds and cease dissemination of them until the BAAQMD had complied with CEQA. Per CEQA Guidelines Section 15064.7 (Thresholds of Significance), the analysis in the EIR will rely on the thresholds within the *Options and Justification Report* (dated October 2009) prepared by the BAAQMD. The BAAQMD *Options and Justification Report* establishes thresholds based on substantial evidence and are consistent with the thresholds outlined within the *2010 CEQA Air Quality Guidelines*.

Under CEQA, the BAAQMD is a commenting responsible agency on air quality and GHG emissions within its jurisdiction or impacting its jurisdiction. The BAAQMD's approach to developing a threshold of significance for GHG emissions is to identify the emissions level for which a project would not be expected to substantially conflict with existing California legislation adopted to reduce statewide GHG emissions needed to move us towards climate stabilization. If a project would generate GHG emissions above the threshold level, it would be considered to contribute substantially to a cumulative impact, and would be considered significant.

Stationary-source projects include land uses that would accommodate processes and equipment that emit GHG emissions and would require an Air District permit to operate. If annual emissions of operational-related GHGs exceed these levels, the proposed project would result in a cumulatively considerable contribution of GHG emissions and a cumulatively significant impact to global climate change. [Table 3.4-1: BAAQMD GHG Thresholds](#) presents the June 2010 adopted project-level thresholds for GHG emissions.

The BAAQMD does not have an adopted threshold of significance for construction-related GHG emissions. However, the BAAQMD recommend quantification and disclosure of construction GHG emissions. The BAAQMD also recommends that the Lead Agency should make a determination on the significance of these construction generated GHG emission impacts in relation to meeting AB 32 GHG reduction goals, as required by the Public Resources Code, Section 21082.2. The Lead Agency is encouraged to incorporate best management practices to reduce GHG emissions during construction, as feasible and applicable.

Table 3.4-1: BAAQMD GHG Thresholds

Project Type	Construction-Related	Operational-Related
Projects other than Stationary Sources ¹	None	Compliance with Qualified Climate Action Plan OR 1,100 MTCO ₂ eq/yr. OR 4.6 MTCO ₂ eq/SP ² /yr.
Stationary Sources ¹	None	10,000 MTCO ₂ eq/yr.
MTCO ₂ eq/yr. = metric tons of carbon dioxide equivalent per year		
Notes: 1: According to the BAAQMD CEQA Guidelines, a stationary source project is one that includes land uses that would accommodate processes and equipment that emit GHG emissions and would require a BAAQMD permit to operate. Projects other than stationary sources are land use development projects including residential, commercial, industrial, and public uses that do not require a BAAQMD permit to operate. 2: SP = service population (residents + employees)		
Source: Bay Area Air Quality Management District, <i>Options and Justification Report</i> , October 2009 and Bay Area Air Quality Management District, <i>CEQA Air Quality Guidelines</i> , June 2010.		

City of Pacifica Climate Action Plan

The City of Pacifica released a Climate Action Plan (CAP) for public review in July 2012. As part of the CAP, an inventory of community-wide greenhouse gas emissions was calculated at 183,090 metric tons CO₂e (MTCO₂e) from transportation emissions, off-road equipment, solid waste, electricity, natural gas, City government operations, and County and Special District gas and electric emissions. The CAP also includes an emissions forecast for the years 2020 and 2050 along with emission reduction targets in order to reduce community-wide GHG emissions by 40 percent below 2005 levels by 2020. For 2050, the goal of the CAP was to match the state of California’s goal of reducing emissions to 80 percent below 1990 levels.

Goals in the CAP for which action measures were developed include the following:

Energy

- Require green building practices in both the new construction and remodel market.
- Expand energy efficiency and renewable energy in the residential, commercial, and public sectors.
- Promote energy efficiency and renewable energy in government operations.

Transportation and Land Use

- Encourage development that supports pedestrians, bicyclists, and transit users and reduces driving.
- Improve services and support for public transit users, bicyclists, pedestrians, and alternative transportation users.
- Expand policies to promote the use of fuel efficient vehicles and low-carbon fuels

- Establish a policy that requires transportation demand management strategies for new subdivisions.
- Promote the use of fuel efficient electric and biodiesel vehicles in the community.

Solid Waste

- Set policies for increasing diversion rates.
- Require recycling and composting in the community.

Water

- Promote water conservation and efficiency.

Education, Outreach, and Empowerment

- Mobilize the Community to build a Climate Action Movement.

City of Pacifica Municipal Code

Chapter 21, Green Building

The City of Pacifica's green building ordinance establishes minimum compliance levels and minimum requirements for new construction projects and alterations and additions to existing buildings, with more intensive projects requiring a higher degree of green building measure implementation and with more intensive green building measure implementation required over time. In addition to the following requirements, all buildings within the jurisdiction of the City of Pacifica must demonstrate compliance with the 2008 California Building Energy Efficiency Standard (Title 24, Part 6) of the California Building Code.

Relevant Project Characteristics

The City of Pacifica adopted a green building ordinance in 2010 for both residential and non-residential sectors and government buildings. The ordinance will help the City reduce its GHGs through the energy efficiency and resource efficiency, as required by the LEED (for larger non-residential and residential projects) and Build it Green (primary for small residential projects) green building rating systems. Additionally, the City has identified a number of implementation measures as described in the CAP (summarized above). Any future development associated with the proposed project will be required to adhere to the provisions identified in both the green building ordinance and the CAP.

Impacts and Mitigation Measures

Criteria for Determining Significance

In accordance with CEQA, *State CEQA Guidelines*, and agency and professional standards, a project impact would be considered significant if the project would:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; and/or
- Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

Project Impacts and Mitigation Measures

Greenhouse Gas Emissions

Impact 3.4-1: Greenhouse gas emissions associated with the proposed project would not conflict with or obstruct the implementation of greenhouse gas reduction measures under AB 32. This is considered a **less than significant impact**.

Direct project-related GHG emissions include emissions from construction activities, area sources, and mobile sources. URBEMIS 2007 (version 9.2.4) model outputs were used in conjunction with the BAAQMD Greenhouse Gas Model (BGM) (Version 1.1.9) to calculate both direct and indirect GHG emissions for area sources and natural gas. GHGs emissions associated with direct sources including area sources, natural gas, and mobile sources for a total of 5,182.44 MT CO₂eq/yr. Indirect project-related GHG emissions include emissions from consumption of electricity, natural gas, and water, as well as wastewater and solid waste generation would generate 1,189.62 MT CO₂eq/yr. and direct project-related GHG emissions would be 3,992.82 MT CO₂eq/yr.

The City's greenhouse gas emission inventory estimate in the Climate Action Plan was 183,090 metric tons CO₂e (MTCO₂e). Because of the broad context and setting of the potential impacts of contributing to global climate change, the assessment of project-level emissions could significantly affect the ability of the State to reach its AB 32 goals. However, the City's CAP considers the projected increase in emissions from new growth through the year 2020 and 2050. Therefore, as a development proposal consistent with the *City of Pacifica General Plan* land use projections, the proposed project would not cause a cumulatively considerable projected increase in emissions and would not hinder or delay the ability of the State to reach the goal-levels set forth in the Scoping Plan. Future development within the City would be required to comply with the CAP following its adoption. As such, the proposed project would result in a **less than significant impact** on GHGs and global climate change.

Conflict with an Applicable Plan, Policy or Regulation for Greenhouse Gases

Impact 3.4-2: The proposed project would not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases. This is considered a **less than significant impact**.

The City of Pacifica has prepared a CAP that is out for public review. When adopted, future development within the project site would be required to comply with the CAP. Overall the proposed project promotes consistency with both state and regional-level initiatives related to greenhouse gas emission reductions. Therefore, the proposed project

would not hinder the State's GHG reduction goals established by AB 32. Thus, a **less than significant impact** would occur in this regard.

3.5. Hazards & Hazardous Materials

This section of the EIR discusses the potential presence of hazards and hazardous materials at or near the project vicinity and analyzes the potential risk of these conditions in the context of existing and proposed development and future human activities within the project site. This section is based on a review of *City of Pacifica General Plan*; existing environmental records to identify agency listings of sources of hazardous materials which might affect the project site from the Phase I Environmental Site Assessment and the Soil and Groundwater Management Plan; a review of potential airport hazards; and a review of emergency evacuation routes in the project vicinity. The Phase I ESA and Soil and Groundwater Management Plan are included in [Appendix D](#).

Environmental Setting

The project site is located within a urban area consisting of primarily commercial and residential uses. A former wastewater treatment plant was operated at the project site by the City of Pacifica until approximately 2000. Several buildings, including a City Administrative building and pump station, as well as abandoned buildings related to the former wastewater treatment plant are located within the project site. These buildings include the former sludge thickening building and a former maintenance garage that was used of hazardous waste material storage. Currently no known environmental concerns are associated with these structures.

As part of the wastewater treatment plant facility demolition activities, most features associated with the former treatment plant were removed, including a significant volume of soil from the center of the property (up to ten feet from the original surface grade in some places). As a result, site topography has changed significantly at various locations. Surface elevations at the project site range from approximately 13 to 20 feet above mean sea level (msl). Depth to groundwater at the project site varies from seven to 14 feet below surface grade (feet bsg).

Chemicals of Potential Concern

As part of the Sharp Park Waste Water Treatment Plant (SPWWTP) facility demolition in 2000, most features associated with the former treatment plant were removed, including a significant volume of soil from the center of the project site (up to ten feet from the original surface grade in some places). As a result, site topography has been modified significantly at various locations. Groundwater at the project site was measured at a depth of 13 feet (elevation ten feet) below street grade in the borings conducted for the geotechnical investigation.

Following the demolition of the SPWWTP, the City engaged several environmental science and geotechnical firms to analyze potential soil contamination, impacts on human health, and other related issues. These investigations found that chemicals of potential concern (COPCs) at the project site are related to an unauthorized release of petroleum hydrocarbons from a former underground storage tank (UST) and house-keeping issues at

a former hazardous waste storage area (HWSA). COPCs include total petroleum hydrocarbons quantified as diesel (TPHd) and as motor oil (TPHmo). In addition, concentrations of various metals above assumed background levels have been identified, including chromium and cobalt. The location of these contaminants is shown in [Figure 2-11: Areas of Potential Impacted Soil and/or Groundwater](#).

In 2010, following studies completed between 2001 and 2009, the San Mateo County Groundwater Protection Program (GPP) issued two site closure letters. These letters indicate that the GPP will not oppose new residential or commercial development on the project site, assuming no new soil contaminants are found, and that contaminated soils are disposed of properly.

Hazardous Materials

Regulatory Setting

A material is considered hazardous if it has been designated as such by a federal, state, or local agency, or if it has characteristics defined as hazardous by such an agency. The California Code of Regulations defines a hazardous material as a substance that, because of physical or chemical properties, its quantity, concentration, or other characteristics, may either (1) cause an increase in mortality or an increase in serious, irreversible, or incapacitating illness; or (2) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported or disposed of, or otherwise managed (22 CCR §66260.10 and California Health and Safety Code [HSC] §25501). Based on this definition, “hazardous materials” include, but are not limited to, hazardous substances, hazardous waste, and any material that a handler or the administering agency has a reasonable basis for believing would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment (22 CCR §66260.10).

Chemical residuals in soil that are the result of the normal application of fertilizer, plant pesticides for agricultural purposes do not constitute a release of hazardous substances under the California Hazardous Substances Account Act (HSC §25321 (d)). Similarly, the Federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) exempts parties from liability for the application of federally-registered pesticides (42 USC §9607(i)).

Regulation of hazardous materials and hazardous wastes occurs at the federal, state, and local levels of government. On the federal level, many hazardous materials-related regulations are promulgated by the EPA. Additional regulations pertaining to work place standards and for transportation of hazardous materials are enforced by the United States Department of Labor Occupational Health and Safety Administration (OSHA) and the United States Department of Transportation (DOT).

In 1993, Senate Bill 1082 gave the California Environmental Protection Agency (CalEPA) the authority and responsibility to establish a unified hazardous waste and hazardous

materials management and regulatory program (Unified Program). The purpose of the Unified Program is to consolidate and coordinate six different hazardous materials and hazardous waste programs, and to insure that they are consistently implemented throughout the state. The unified program is overseen by CalEPA with support from the Department of Toxic Substances Control (DTSC), the State Water Resources Control Board (SWRCB), the Office of Emergency Services, and the State Fire Marshal.

State law requires county and local agencies to implement the Unified Program. The county and local agencies in charge of implementing the program are called “Certified Unified Program Agency” (CUPA). The San Mateo County Department of Environmental Health is the designated CUPA within the geographic boundaries of the County and has jurisdiction in the City of Pacifica.

The San Mateo County Department of Environmental Health is therefore the administrative agency that coordinates and enforces numerous local, state, and federal hazardous materials management and environmental protection programs in the County. The CUPA administers the following programs:

- *Hazardous Materials Business Plan Program* – Chapter 6.95 of the Health and Safety Code establishes minimum statewide standards for Hazardous Materials Business Plans (HMBP's). HMBP's contain basic information on the location, type, quantity, and health risks of hazardous materials and/or waste. Each business shall prepare a HMBP if that business uses, handles, or stores a hazardous material and/or waste or an extremely hazardous material in quantities greater than or equal to the following:
 - 55 gallons for a liquid
 - 500 pounds of a solid
 - 200 cubic feet for any compressed gas
 - Threshold planning quantities of an extremely hazardous substance
- *Hazardous Waste Generator Program* - The Hazardous Waste Generator Program regulates businesses that generate any amount of a hazardous waste. Proper handling, recycling, treating, storing and disposing of hazardous waste are key elements to this program.
- *Underground Storage Tank Program* - The UST program regulates the construction, operation, repair and removals of UST systems used to store hazardous materials and/or waste.
- *California Accidental Release Program* - The California Accidental Release Program (Cal ARP) requires any business that handles more than threshold quantities of an extremely hazardous substance to develop a Risk Management Plan (RMP). The RMP is implemented by the business to prevent or mitigate releases of regulated substances that could have off-site consequences through hazard identification, planning, source reduction, maintenance, training, and engineering controls.

- *Tiered Permitting Program* - The Tiered Permitting Program regulates the onsite treatment of hazardous waste.
- *Aboveground Storage Tank Program* - Facilities with a single tank or cumulative aboveground storage capacities of 1,320 gallons or greater of petroleum-based liquid product (gasoline, diesel, lubricants, etc.) must develop a Spill Prevention Control and Countermeasure plan (SPCC).
- An SPCC plan must be prepared in accordance with the oil pollution prevention guidelines in the Federal Code of Regulations (40 CFR, 112). This plan must include procedures, methods, and equipment at the facility to prevent discharges of petroleum from reaching navigable waters. A Registered Professional Engineer must certify an SPCC plan and a complete copy of the plan must be maintained on site.

California Building Code

In 2005, the California Building Code was amended to require that all new buildings located in any Fire Hazard Severity Zone in SRAs, or any Very High Fire Hazard Severity Zone in LRAs, must use building materials approved for use in wildland fire/urban interface areas. The code now specifies certain roof coverings, fire resistant wall and ceiling-floor assemblies, wall finish materials, hardware, insulation, and other building materials for use in high fire hazard areas.

Local

City of Pacifica General Plan

The Seismic and Safety Element of the *City of Pacifica General Plan* details the known and potential hazards from wildland fires, as well as hazardous materials within the City. The following policies in the Seismic and Safety Element are applicable to hazards and hazardous materials:

Seismic and Safety Element Policy 2. Support continuing public awareness of hazards by providing citizens with hazard information, results of studies, emergency procedures, and alternatives. When appropriate, buyers shall be notified of geotechnical uncertainties or potential risks and costs.

Seismic and Safety Element Policy 7. Maintain an emergency response plan, which provides adequate response to disasters, including emergency ingress and egress communitywide and for individual neighborhoods.

Relevant Project Characteristics

Following the demolition of the SPWWTP, the City engaged several environmental science and geotechnical firms to analyze potential soil contamination, impacts on human health, and other related issues. These investigations found (as summarized in the Soil and Groundwater Management Plan 9SGMP) (TEC Environmental, 2012) that chemicals of potential concern (COPCs) at the site are related to an unauthorized release of petroleum

hydrocarbons from a former underground storage tank (UST) and house-keeping issues at a former hazardous waste storage area (HWSA). COPCs include total petroleum hydrocarbons quantified as diesel (TPHd) and as motor oil (TPHmo). In addition, concentrations of various metals above assumed background levels have been identified, including chromium and cobalt.

However, based on environmental site investigations at the site, the levels of detected chemicals of potential concern and the depth of these chemicals do not appear to represent a risk to the proposed future use of the site, including residents. Detected concentrations were below or only slightly above the most stringent residential ESLs. Furthermore, the physical properties of the COPCs are such that vapor intrusion risks are not of concern for future mixed use (commercial and residential) redevelopment of the site.

Impacts and Mitigation Measures

Methodology

This section is based on a review of potential hazardous materials sources within the City from the State Water Resources Control Board Geotracker database, as well as review of the San Francisco International Airport Land Use Master Plan to address any potential airport-related hazards.

Criteria for Determining Significance

In accordance with CEQA, State CEQA Guidelines, agency and professional standards, a project impact would be considered significant if the project would:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school;
- Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment;
- For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, result in a safety hazard for people residing or working in the project area;
- For a project within the vicinity of a private airstrip, result in a safety hazard for people residing or working in the project area; and/or

- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

Transport, Use, Disposal, and Release of Hazardous Materials During Operation

Impact 3.5-1: Future development within the project site may involve the use of hazardous materials including cleaning solvents, fertilizers, pesticides, and other hazardous materials typical of a mixed-use project. However, this would be considered a **less than significant impact**.

The proposed project is not anticipated to result in significant hazards to the public or the environment due to the range of uses proposed within the project site. If future users within the project site proposed to use, handle, or store hazardous materials or waste (e.g. the restaurant or hotel) in quantities that are regulated by the San Mateo County Department of Environmental Health, businesses would be required to submit a Hazardous Materials Business Plan documenting basic information on the location, type, quality and health risks of hazardous materials and/or waste.

With proper use and disposal in accordance with the San Mateo County Department of Environmental Health, chemicals associated with future uses within the project site are not expected to result in hazardous or unhealthful conditions for employees and patrons of the proposed project. Therefore, operational impacts from the transport, use, disposal, and release of hazardous materials associated with operations within the project area would be considered **less than significant**.

Transport, Use, Disposal, and Release of Hazardous Materials During Construction

Impact 3.5-2: During construction of the proposed project, there is the potential for the transport, use, or disposal of hazardous materials, which could create a hazard to the public or the environment. This is considered a **potentially significant impact**.

Construction activities associated with the proposed project may result in the routine transport of hazardous materials during construction. Handling procedures as prescribed by the San Mateo County Department of Environmental Health and the City of Pacifica Fire Department would be required during construction of the proposed project. These procedures include standards and regulations regarding the storage, handling, and use of these materials during construction.

In addition, as part of new development on the project site, the project applicant would be required to obtain a General Construction Activity Stormwater Permit and carry out measures to manage and control erosion from the site during construction pursuant to the requirements of the Regional Water Quality Control Board as required by [Mitigation Measure 3.3-4b](#). [Best Management Practices](#) would include, but not be limited to, minimizing the migration of sediments off-site, covering soil stockpiles, etc. Compliance

with the appropriate hazardous materials handling measures and acquisition of the General Construction Activity Stormwater permit for construction activities would ensure that potential hazardous materials impacts during short-term construction activities associated with redevelopment of the project site would be **less than significant**.

Result in the Release of Hazardous Materials from the Demolition of Structures

Impact 3.5-3: The proposed project would result in the demolition of four structures, which may contain asbestos and/or lead based paint (LBPs). This would be considered a **potentially significant impact**.

Future development within the project site would result in the demolition of four buildings that could have been constructed prior to approximately 1980 and may contain asbestos and/or lead, a hazardous contaminant. Any demolition of structures within the project area would be subject to the U.S. EPA regulations for lead based paint including 40 CFR Part 745 Lead; Clearance and Clearance Testing Requirements for the Renovation, Repair, and Painting Program and the Bay Area Air Quality Management District (BAAQMD) Regulation 11, Rule 2, which regulates the demolition and renovation of buildings and structures which may contain asbestos.

Specifically, District Regulation 11-2-401.3 requires that for every renovation involving the removal of 100 square feet or greater of Regulated Asbestos Containing Material (ACM), and for every demolition (even when no asbestos is present), a notification must be made to the BAAQMD at least ten working days prior to commencement of demolition/renovation. The potential release of ACM and LBPs during demolition activities is considered a potentially significant impact.

Implementation of [Mitigation Measure 3.2-1b](#) would require that each structure proposed for renovation within the project site shall be inspected by a qualified environmental specialist for the presence of ACM and LBPs prior to renovation and if they are found during the investigation a remediation plan shall be developed to ensure that these materials are removed and disposed of by a licensed contractor at an approved landfill facility in accordance with all federal, state, and local laws and regulations prior to demolition. With implementation of this mitigation measure and applicable rules and regulations by the U.S. EPA and the BAAQMD, impacts from any demolition of existing structures within the project area would be considered a **less than significant impact**.

Result in the Disturbance of Contaminated Soil or Groundwater

Impact 3.5-4: The project site is not located on a hazardous material site pursuant to Government Code Section 65962.5. However, operation of the former Sharp Park Waste Water Treatment Plant facility resulted in contamination at the project site. Based a review of historical site investigations at the project site, the levels of detected chemicals of potential concern and the depth of these chemicals do not appear to represent a risk to redevelopment of the project site. Furthermore, the proposed project

would include implementation of site development measures as specified in the *Soil and Groundwater Management Plan*. Therefore, this would be considered a **less than significant impact**.

Based on environmental site investigations at the project site, the levels of detected COPCs and the depth of these chemicals does not appear to represent a risk to the proposed future use of the project site, including residential uses, as detected concentrations were below or only slightly above the most stringent residential ESLs. Furthermore, the physical properties of the COPCs are such that vapor intrusion risks are not of concern for future mixed use (commercial and residential) redevelopment of the project site. Finally, the soil and/or groundwater containing residual COPCs are at levels that exceed ESLs will be either removed from the project site during construction activities or will be isolated from potential physical contact (dermal, ingestion) using engineering controls including concrete sub-grade parking garages or concrete slab on-grade foundations.

As shown in [Figure 2-1 I: Areas of Potential Impacts Soil and/or Groundwater](#), the location of contaminants are located within the zones designated for the boutique hotel, restaurant, and housing development, and no soil contaminants have been identified within the area designated for library development. As noted above, in 2010, following studies completed between 2001 and 2009, the San Mateo County Groundwater Protection Program (GPP) issued two site closure letters. These letters indicate that the GPP will not oppose new residential or commercial development on the site, assuming no new soil contaminants are found, and that contaminated soils are disposed of properly.

Despite the fact that contamination risks are very low, the SGMP recommends a number of actions that must be taken during project construction to safeguard against potentially hazardous soil, groundwater, and/or airborne conditions. Those conducting site development should consult the *Soil and Groundwater Management Plan* for a complete set of recommendations, which include the following:

Soils

- All on-site workers will be trained by an environmental professional (EP) prior to construction to be made aware of the potential contaminants, areas previously identified as containing impacts materials and procedures for handling any impacts materials should they be discovered.
- No contaminated soil will be removed from the site for offsite re-use. All disturbed soils generated during construction activities will be re-used on site if not contaminated, or disposed at an appropriate landfill.
- All disturbed soils will be monitored on an ongoing basis by observing visual and olfactory indicators of contamination. If contaminated soil is encountered, they will be tested and, if necessary, transported under hazardous waste manifest protocols to an appropriate landfill.

- During construction, all appropriate storm water and sediment control best management practices (BMPs) will be used to prevent discharge of contaminated materials to the Pacific Ocean.
- Disturbed soils will be further isolated from potential physical contact (dermal, ingestion) using engineered controls including concrete subgrade parking garages or concrete slab on-grade foundations.

Groundwater

- Groundwater will require analysis prior to discharge or off-site disposal to confirm compliance with any discharge permits and approvals or to determine suitable treatment and disposal options.
- If groundwater discharge to the City of Pacifica sanitary sewer is necessary, it will be conveyed through a treatment system (appropriately sized storage tank[s] and carbon canisters) prior to discharge under permit. The number of carbon canisters used will be sufficient to meet discharge permit requirements. Discharge sampling and analyses will also be completed in accordance with discharge permit requirements.
- Should concentrations of COPCs in any collected groundwater prevent discharge to the sanitary sewer, the extracted groundwater will be containerized in appropriately sized storage tanks profiled for off-site disposal in accordance with the accepting facility permit requirements and transferred by truck off the site accordingly. Contaminated groundwater determined to be nonhazardous will also be disposed at an appropriate facility, but does not require hazardous waste handling procedures for transportation.

Airborne Contaminants

- Although no known airborne risks have been identified at the site, efforts will be made to minimize the generation of potential airborne contamination while working in areas known to contain COPCs. The Environmental Professional will be responsible for evaluating the potential for air quality issues related to suspect contamination encountered.
- The project's environmental manager will be responsible for conducting perimeter air monitoring (upwind and downwind) during periods of objectionable odors or to investigate odor related complaints. If perimeter monitoring indicates the presence of an odor issue, vapor mitigation will be implemented (e.g. cover stockpiles with plastic sheeting, use clean soil to cover excavation, etc.).

With implementation of the site development measures in the *Soil and Groundwater Management Plan*, the proposed project would have a **less than significant impact** to redevelopment activities at the project site.

Emit Hazardous Materials in the Vicinity of a School or Sensitive Receptors

Sandcastle Academy (1922 Palmetto Avenue, Pacifica) is located approximately 0.75 miles from the project site and the residential uses border the project site to the north and south. As noted in the project description, future development at the project site would include residential uses, a library, a boutique hotel and a restaurant. Hazardous materials typical for these uses could include fertilizers, insecticides, household cleaners, and chemicals typical for operation of a restaurant and hotel. These hazardous materials would not result in a significant hazard to Sandcastle Academy or any other schools in the project vicinity and the proposed sensitive receptors (e.g. residential uses and hotel) located within the project site. Therefore, the proposed project would have a less than significant impact to schools and sensitive receptors at the project site and in the project vicinity.

Interfere with an Emergency Response Plan/Emergency Evacuation Plan

The proposed project would not impair implementation of or physically interfere with an emergency response plan or emergency evacuation plan and **no impact** is anticipated.

Potential for Wildfire Hazards

Impact 3.5-5: The project site is located in an urbanized area of the City. However, the project site and the majority of the City are located within a moderate fire hazard zone. The North County Fire Authority (NCFA) would be responsible for providing plan review for future redevelopment of the project site during the design of new buildings. Therefore, this would be considered a **less than significant impact**.

Wildfire impacts may be considered significant if the proposed project would expose people or structures to a significant risk, loss, injury or death involving wildfires, including where wildlands are located adjacent to urban areas or where residences are intermixed with wildlands. The project site is located within an urban area. However, the project site and the majority of the City are located within a moderate fire hazard zone. The North County Fire Authority (NCFA) is responsible for fire response and fire prevention in the cities of Brisbane, Daly City and Pacifica. NCFA's primary fire prevention activity is the annual inspection of every business and multi-family property in its inspection area. The agency also conducts a Vegetation Management Program targeting urban/wildland interface fire hazards. NCFA Fire Prevention Services Bureau also participates in plan review, providing a fire prevention perspective during the design of new buildings in potentially fire prone areas. As the project site is located within an urban area and is not intermixed with wildland and would be subject to the NCFA requirements during plan review of future development, potential wildlife hazards would be considered **less than significant**.

Potential for Airport Hazards

Impact 3.5-6 The closest airport to the project site is the San Francisco International Airport which is located approximately six miles east of the project site, but at its closest point to the City is approximately 2.5 miles to the east. The

project site is not located within an airport approach zone and/or within the footprint of the 65 CNEL boundary. Future development of the proposed project would include construction of residential uses, including approximately 84 townhomes. Residential development would be required to comply with disclosure requirements in the City of Pacifica Municipal Code. This is considered a **less than significant impact**.

The closest airport to the project site is the San Francisco International Airport which is located approximately five miles east of the project site, but at its closest point to the City is approximately 2.5 miles to the east. However, the project site is not located within an airport approach zone and/or within the footprint of the 65 CNEL boundary as shown in the FAA 1983 CNEL Noise Exposure Map in the *City of Pacifica Municipal Code*. However, in accordance with Section 5.29-02 (Mandatory Real Estate Transfer Disclosure Regarding Airport Noise) of the *City of Pacifica Municipal Code*, all future residential development in the City is required to disclose the following information on the real estate disclosure statements in the connection with the sale of residential uses: a) at its closest point, the City is located five miles from San Francisco International Airport, b) San Francisco International Airport is the fifth largest airport by volume in the United States; and c) the property is subject to noise from aircraft overflight. With disclosure in accordance with the *City of Pacifica Municipal Code*, potential airport hazards to residents, patrons, and workers at the project site would be considered **less than significant**.

3.6. Hydrology & Water Quality

This section of the EIR discusses the hydrologic and water quality setting of the proposed project and surrounding area. This section also evaluates the potential impacts that the proposed project will have on water resources. The discussion of hydrology and water quality issues within the project site was developed through review of existing literature pertinent to hydrology in the local area, as well as a review of the *City of Pacifica General Plan*, *City of Pacifica Local Coastal Land Use Plan*, and *City of Pacifica New City Hall EIR*.

Environmental Setting

Climate

The climate for the City of Pacifica is characterized as Mediterranean, with cool summers typical of coastal areas of California. The average annual temperature for the area ranges from 46 to 57 degrees (Fahrenheit) in January to 54 to 72 degrees in September. The average annual precipitation is approximately 30 inches (the majority of which falls between October and May). Summer fog can produce condensation and light drizzle in the night and morning hours.

Flooding

The project site is located in the coastal zone, adjacent to the Pacific Ocean. A seawall is provided approximately 60 to 140 feet from the project site. The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) (updated 1987) shows most of the project site in Zone C (area of minimal flooding: less frequent than the 500-year flood) and a small portion of the western edge in Zone B (area between the limits of the 100-year flood and 500-year flood). [Figure 3.6-1: Flood Insurance Rate Map](#) identifies the flood zones for the project site.

Tsunami Inundation and Hazards

According to the Beach Boulevard Property Development Preliminary Geotechnical Investigation (Cornerstone Earth Group, 2012), subduction zones along the Eastern Aleutian Islands and Alaska are the most effective tsunami-generating source regions for the San Francisco Bay Area and that the hazard posed to the region is significant. A large magnitude earthquake in these source regions, along with favorable orientation, could potentially have a greater impact on the Bay Area than the tsunami generated after the 1964 Alaska earthquake. [Figure 3.6-2: Tsunami Inundation Area](#) identifies the location of the tsunami inundation area in the vicinity of the project site.

The County of San Francisco has published a Coastal Tsunami Inundation Map as part of the hazard mitigation plan that indicates estimated wave run-up heights based on a worst-case scenario (the Alaskan earthquake of 1964). The map shows that the project site is located in an area with a potential wave run-up of 42 feet. The California Emergency Management Agency has published a map in 2009 suggesting that beach surface (not bluff top) would be the only area affected by a tsunami. Skelly Engineer's Coastal Hazards Study

(2004) of the immediate area concluded that a 3-meter tsunami, during a very high tide, will impact the area behind the bluff in a very similar way as the 100-year recurrence interval wave height overtopping. Specifically, the tsunami, much like the design extreme wave, will break on or before the beachfront wall, losing much of its energy and, therefore, the project site is reasonably safe from tsunami hazards.

Stormwater and Water Quality

The project site is relatively flat and gently slopes down to west toward the Pacific Ocean. Much of the central portion of the project site is vacant with disturbed soils. Impervious surfaces – including a parking lot along Beach Boulevard, on-site buildings, and paved surfaces near the buildings – covers roughly one-third of the project site. Stormwater drainage from the project site ponds on-site or sheet flows onto the parking lot and ultimately into storm drainage facilities along Beach Boulevard.

Regulatory Setting

Federal

Clean Water Act

The principal law governing pollution of the nation's surface waters is the Federal Water Pollution Control Act (Clean Water Act [CWA]). Originally enacted in 1948, it was amended in 1972 and has remained substantially the same since. The CWA consists of two major parts: provisions that authorize federal financial assistance for municipal sewage treatment plant construction and regulatory requirements that apply to industrial and municipal dischargers. The CWA authorizes the establishment of effluent standards on an industry basis. The CWA also requires states to adopt water quality standards that “consist of the designated uses of the navigable waters involved and the water quality criteria for such waters based upon such uses”.

National Pollutant Discharge Elimination System

To achieve its objectives, the CWA is based on the concept that all discharges into the nation's waters are unlawful, unless specifically authorized by a permit. The NPDES is the permitting program for discharge of pollutants into surface waters of the United States under Section 402 of the CWA. Thus, industrial and municipal dischargers (point source discharges) must obtain NPDES permits from the appropriate RWQCB (i.e., the San Francisco Bay region). The existing NPDES (Phase I) stormwater program requires municipalities serving more than 1,000,000 persons to obtain a NPDES stormwater permit for any construction project larger than five acres. Proposed NPDES stormwater regulations (Phase II) expand this existing national program to smaller municipalities with populations of 10,000 persons or more and construction sites that disturb more than one acre. For other dischargers, such as those affecting groundwater or from non-point sources, a Report of Waste Discharge must be filed with the RWQCB. For specified situations, some permits may be waived and some discharge activities may be handled through being included in an existing General Permit.

Construction activity subject to a General Permit includes any clearing, grading, stockpiling, or excavation that results in soil disturbances of one acre of total land area or more. Construction activities disturbing less than one acre are still subject to this permit if the activity is part of a large common plan of development or if significant water quality impairment will result from the activity. The General Permit requires all dischargers whose construction activity disturbs one acre or more to:

- Develop and implement a Storm Water Pollution Prevention Plan (SWPPP) that specifies Best Management Practices (BMPs) to prevent all construction pollutants from contacting stormwater and with the intent of keeping all products of erosion from moving off-site into receiving waters;
- Eliminate or reduce non-stormwater discharge to storm sewer systems and other waters of the United States; and
- Inspect all BMPs.

Impaired Waterbodies

CWA Section 303(d) and California's Porter-Cologne Water Quality Control Act (described below) require the State to establish the beneficial uses of its State waters and to adopt water quality standards to protect those beneficial uses. Section 303(d) establishes a Total Maximum Daily Load (TMDL), which is the maximum quantity of a particular contaminant that a water body can maintain without experiencing adverse effects, to guide the application of State water quality standards. Section 303(d) also requires the State to identify "impaired" streams (water bodies affected by the presence of pollutants or contaminants) and to establish the TMDL for each stream.

Federal Flood Insurance Program

Congress passed the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. The intent of these acts is to reduce the need for large publicly funded flood control structures and disaster relief by restricting development on floodplains. FEMA administers the NFIP to provide subsidized flood insurance to communities that comply with FEMA regulations limiting development on floodplains. FEMA issues FIRMs for communities participating in the NFIP. FIRMs delineate flood hazard zones in the community.

State

California Coastal Act

The California Coastal Act of 1976 (California Public Resources Code §30000 et seq.) establishes policies guiding development and conservation along the California coast. The following policies are applicable to hydrology and water quality:

Section 30235, Construction altering natural shoreline. Revetments, breakwaters, groins, harbor channels, seawalls, cliff retaining walls, and other such construction that alters natural shoreline processes shall be permitted when required to serve coastal dependent uses or to protect existing structures or public beaches in danger from erosion, and when designed to eliminate or mitigate adverse impacts on local shoreline sand supply. Existing marine structures causing water stagnation contributing to pollution problems and fish kills should be phased out or upgraded where feasible.

Section 30253, Minimization of adverse impacts. New development shall:

- (1) Minimize risks to life and property in areas of high geologic, flood, and fire hazard.
- (2) Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs.
- (3) Be consistent with requirements imposed by an air pollution control district or the State Air Resources Control Board as to each particular development.
- (4) Minimize energy consumption and vehicle miles traveled.
- (5) Where appropriate, protect special communities and neighborhoods which, because of their unique characteristics, are popular visitor destination points for recreational uses.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act acts in cooperation with the CWA to establish the SWRCB. The SWRCB is divided into nine regions, each overseen by a RWQCB. The SWRCB, and thus each RWQCB, is responsible for protecting California's surface waters and groundwater supplies. The Porter-Cologne Water Quality Control Act develops Basin Plans that designate the beneficial uses of California's rivers and groundwater basins. The Basin Plans also establish narrative and numerical water quality objectives for those waters. Basin Plans are updated every three years and provide the basis of determining waste discharge requirements, taking enforcement actions, and evaluating clean water grant proposals. The Porter-Cologne Water Quality Control Act is also responsible for implementing CWA Sections 401-402 and 303(d) to SWRCB and RWQCBs.

Regional Water Quality Control Board, San Francisco Bay Region

The San Francisco Bay Regional Water Quality Control Board (RWQCB) regulates surface water and groundwater quality in San Francisco Bay, including the City of Pacifica. The area under the RWQCB's jurisdiction comprises all of the San Francisco Bay segments extending to the mouth of the Sacramento-San Joaquin Delta (Winter Island near Pittsburg). In its

efforts to protect surface waters and groundwaters of the San Francisco region, the RWQCB addresses region wide water quality concerns through the creation and triennial update of a Water Quality Control Plan (Basin Plan) and adopts, monitors compliance with, and enforces waste discharge requirements and NPDES permits.

San Francisco Bay Regional Water Quality Control Plan (Basin Plan)

In addition to the NPDES permitting program, the RWQCB regulates water quality in the Bay Area in accordance with the 1995 Water Quality Control Plan (Basin Plan). The Basin Plan presents the beneficial uses that the RWQCB has designated for significant surface waters, aquifers, and wetlands, as well as the water quality objectives and criteria that must be met to protect these uses. The Basin Plan designates specific existing beneficial uses for the Central San Francisco Bay, including: (a) ocean, commercial, and sport fishing, (b) estuarine habitat, (c) industrial service supply, (d) fish migration, (e) navigation, (f) preservation of rare and endangered species, (g) non-contact water recreation, (h) shellfish harvesting, (i) fish spawning, and (j) wildlife habitat. Project storm runoff will be discharged to the existing stormwater drainage system and subsequently the San Francisco Bay. Wildlife habitat, particularly fish and waterfowl habitat, is the beneficial use most sensitive to water quality impacts from the proposed project. Pollution from pesticides, fertilizers, metals, and hydrocarbons in urban runoff can directly and indirectly affect sensitive fish and bird species and their offspring.

Stormwater Pollution Prevention Plan (SWPPP)

The SWPPP has two major objectives: 1) to help identify the sources of sediment and other pollutants that affect the quality of storm water discharges, and 2) to describe and ensure the implementation of BMPs to reduce or eliminate sediment and other pollutants in both stormwater and in non-stormwater discharges.

BMPs include activities, practices, maintenance procedures, and other management practices that reduce or eliminate pollutants in stormwater discharges and authorized non-stormwater discharges. BMPs include treatment requirements, operation procedures, and practices to control site runoff, spillage, leaks, waste disposal, and drainage from raw materials storage. BMP implementation must take into account changing weather conditions and construction activities, and various combinations of BMPs may be used over the life of the project to maintain compliance with the CWA. The General NPDES Permit gives the owner the discretion to determine the most economical, effective, and innovative BMPs to achieve the performance-based goals of the General NPDES Permit.

There are two categories of BMPs: structural and non-structural. Structural BMPs are the specific construction, modification, operation, maintenance, or monitoring of facilities that would minimize the introduction of pollutants into the drainage system, or would remove pollutants from the drainage system. Non-structural BMPs are activities, programs, and other nonphysical measures that help reduce pollutants from non-point sources to the drainage system. In general, nonstructural BMPs are source control measures.

The issue of pollution in stormwater and urban runoff has been recognized by both federal and state agencies, and there has been a growing concern regarding activities that discharge water affecting California's surface water, coastal waters, and groundwater. Discharges of water are classified as either point source or non-point source discharges. A point source discharge usually refers to waste emanating from a single, identifiable point. Regulated point sources include municipal wastewater, oil field wastewater, winery discharges, solid waste sites, and other industrial discharges. Point source discharge must be actively managed to protect the state's waters. A non-point source discharge usually is a waste emanating from diffused locations. As a result, specific sources of non-point source pollution may be difficult to identify, treat, or regulate. The goal is to reduce the adverse impact of non-point source discharges on water resources through better management of these activities. Non-point sources include drainage and percolation from a variety of activities such as agriculture, forestry, recreation, and storm runoff with the latter being the most common in the Pacifica area.

Local

The following policies are applicable to hydrology and water quality.

City of Pacifica General Plan

Conservation Element Policy 7. Promote the conservation of all water, soil, wildlife, vegetation, energy, minerals and other natural resources.

City of Pacifica Local Coastal Land Use Plan

Policy 12. The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of wastewater discharge and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging wastewater reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.

Policy 26(a). New development shall: (a) Minimize the risks to life and property in areas of high geologic, flood and fire hazard.

City of Pacifica Design Guidelines

General Guidelines: Water Conservation Policy and Landscape Design Guidelines for New Development. The City of Pacifica has adopted policies and guidelines within the City of Pacifica Design Guidelines to address water conservation for new development. Topics covered include planning design, irrigation, soils, decorative use of water, and maintenance.

Relevant Project Characteristics

The proposed project would involve the demolition of existing buildings, minor grading, and construction of new buildings, streets, and landscaped areas. The City of Pacifica General Plan, Municipal Code, and Design Guidelines provide relevant policies to guide development on the project site to minimize impacts to hydrology and water quality. The existing seawall would minimize potential for tsunami damage to the project site.

Impacts and Mitigation Measures

Criteria for Determining Significance

In accordance with the CEQA, *State CEQA Guidelines*, and agency and professional standards, a project impact would be considered significant if the project would:

- Violate any water quality standards or waste discharge requirements;
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted);
- Substantially alter the existing drainage pattern of the site or area, including the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site;
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;
- Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;
- Otherwise substantially degrade water quality;
- Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map;
- Place within a 100-year flood-hazards area structures which would impede or redirect flood flows;
- Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam; and/or
- Inundation by seiche, tsunami, or mudflow.

Methodology

Impacts evaluated in this section were assessed based on previously published reports by the Regional Water Quality Control Board, the California Department of Water Resources,

and information from the *City of Pacifica General Plan*. Impacts to surface and groundwater quality were analyzed by reviewing existing groundwater and surface water quality literature that pertain to the project area; identifying existing on-site ground and surface waters, and evaluating existing and potential sources of water quality pollutants based on the types of land uses and operational activities that occur or could occur within the project site or vicinity. Additionally, the applicability of federal and state regulations, ordinances, and/or standards to surface and groundwater quality of the project area and subsequent receiving waters was assessed. The impacts of the proposed project on water resources and water quality are evaluated qualitatively.

Project Impacts and Mitigation Measures

Violate any Water Quality Standards or Waste Discharge Requirements

Impact 3.6-1 Future construction associated with the proposed project may violate water quality standards or waste discharge requirements. This is considered a **potentially significant impact**.

The project site is a primarily urbanized, developed area, which likely already contributes non-point source pollution such as motor oil, fertilizers and pesticides, human littering, animal waste and other pollutants typical of developed areas. These pollutants are typically washed from streets, parking lots, and garages during rainfall events that create sufficient runoff to carry the waste materials. These pollutants have the potential to degrade water quality and may result in potentially significant impacts to the extent that they are generated by new development. Construction of the proposed development would include grading of approximately 3.5 acres and other earth moving activities which would expose on-site soils to erosion processes. Additionally, construction activities could lead to exposure of contaminated materials/soils which if present within the project site that could impact surface water quality during storm events. Future development within the project site would be required to mitigate short-term construction impacts pursuant to the NPDES criteria and standards on a project-by-project basis. The purpose of the NPDES permit is to ensure that the proposed project would eliminate or reduce construction-related sediments and pollutants during stormwater runoff.

Construction sediment erosion can be adequately controlled through the application of standard construction BMPs. The goal of BMPs is to capture and treat “first flush” stormwater run-off generated by surrounding and on-site watersheds. Water quality management BMPs for grading and construction scenarios may include the use of sand bags and straw bales for run-off diversion and velocity reduction, mulch topping, hydro-seeding and siltation fencing to prevent soil loss and measures to minimize vehicular leaking and spilling. The City of Pacifica Design Guidelines encourages water conservation measures including the use of porous paving materials and minimizing water-intensive landscaping. Implementation of these guidelines would result in decreased water runoff. Future proposed uses would be served by the City’s sanitary sewer service; therefore, the proposed project would not involve any permitted discharges of waste material directly into ground or surface waters.

Implementation of the following mitigation measures would ensure construction and post-construction water quality impacts are reduced to less than significant levels.

Mitigation Measures

MM 3.3-4a: **Stabilization of Grading Activities During the Rainy Season.** All grading activities shall be stabilized as soon as possible after completion of grading. No grading shall occur between October 15th and April 15th unless authorization in writing by the City of Pacifica and an approved erosion control measures are in place.

MM 3.3-4b: **Implementation of Storm Water Pollution Prevention Plan (SWPPP).** Prior to issuance of grading permit, the project applicant shall file a Notice of Intent (NOI) as required by Regional Water Quality Control Board regarding stormwater discharges associated with construction activities. Upon completion of construction activities, a Notice of Termination shall be filed.

Prior to issuance of any building or grading permits, a Storm Water Pollution Prevention Plan (SWPPP) shall be prepared by the project contractors and submitted to the Regional Water Quality Control Board for review and comment and to the City of Pacifica in conjunction with the Building/Grading/Site work permit and shall be found to be acceptable by the City prior to ground disturbance activities. The SWPPP shall be prepared to Regional Water Quality Control Board standards, *Association of Bay Area Government's Manual of Erosion and Sedimentation Control Measures* (2005) or the *California Stormwater Quality Association's (CASQA) Best Management Practice (BMP) Handbooks for Construction and for New Development and Redevelopment* (2009) requirements, and shall identify erosion minimization and control provisions, pollution detection provisions, and pollution elimination/ minimization provisions appropriate to the proposed project for construction and post-construction activities. The SWPPP shall include best available technology, engineering, and design solutions such as the use of silt screens, hay bales, modern trash screens, energy dissipaters, and/or absorbent devices. Stormwater runoff water quality monitoring procedures shall be clearly detailed in the SWPPP.

Compliance with existing regulations, implementation of mitigation measures, and the use of BMP's would reduce potential impacts to **less than significant** levels.

Deplete Groundwater Supplies and Groundwater Discharge

The proposed water source for the project would rely on surface water supplies from the North Coast County Water District (NCCWD), the purveyor of potable water in the City of Pacifica and other portions of the north coastal area of San Mateo County. NCCWD obtains all of its water from the City and County of San Francisco's regional system,

operated by the San Francisco Public Utilities Commission (SFPUC). This supply is predominantly from the Sierra Nevada, delivered through the Hetch Hetchy aqueducts, but also includes treated water produced by the SFPUC from its local watersheds and facilities in Alameda and San Mateo Counties. Since the proposed project would not rely on groundwater supplies, **no impacts** would occur.

Substantially Alter Existing Drainage Patterns

Impact 3.6-2 Construction and operation of the proposed development on the project site would not substantially alter existing drainage patterns of the project site or result in substantial erosion or siltation on- or off-site, nor would it increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site. This is considered a **less than significant impact**.

Implementation of the proposed project would allow for development of the largely vacant project site; however, much of the project site is developed with buildings and consists of impervious surfaces. As the project site has already been developed and is surrounded on three sides by existing development, it is served by existing storm water collection and conveyance systems.

New buildings and streets constructed within project site would include design features that would aid in the conveyance of storm water to existing facilities. All runoff would continue to be conveyed via streets and gutters to storm drain locations within the project site. Consequently, this would be considered a **less than significant impact**, and no mitigation is required.

Exceed Capacity of Existing or Planned Stormwater Drainage Systems

Impact 3.6-3 The project site and surrounding area is largely built-out and stormwater flows with the proposed project are expected to be similar to existing conditions. Additional proposed streets would increase the capacity of stormwater conveyance through the project site. This is considered a **potentially significant impact**.

The City of Pacifica Public Works Department maintains the City's storm drain pipes that are located within the public streets. The existing on-site stormwater collection system drains to an outfall on the beach adjacent to the project site. The Beach Boulevard Property Development Strategy Site Engineering Evaluation Memorandum prepared by CSG Consulting, Inc. (September 28, 2011) states that it is reasonable to assume that the storm drain system has sufficient capacity to serve new development, but the City of Pacifica Public Works Department would require calculations to confirm. The proposed new streets would include storm drainage facilities that would tie into the citywide storm drainage system and would thus increase stormwater capacity.

Mitigation Measure

MM 3.6-3: **Adequately Size Storm Drain Facilities.** Prior to issuance of building permit, each project applicant within the project site shall coordinate with the City of Pacifica Public Works Department to prepare the necessary calculations to ensure that future proposed development on the project site would be adequately served by the existing storm drain facilities and that new storm drain facilities under new streets would be sized appropriately for the proposed development.

Coordination with the City of Pacifica Public Works Department would reduce potential impacts to **less than significant** levels.

Place Housing or Structures within a 100-Year Flood-Hazards Area which would Impede or Redirect Flows

As stated previously, the project site is within the FEMA FIRM Zones B and C, which are outside of the 100-year flood zone, and therefore, **no impacts** would occur.

Flooding Exposure / Risk, Including Failure of a Levee or Dam

Impact 3.6-4 The proposed project would not expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam. Structures and personnel would not be subject to greater risk with implementation of the proposed project as compared to existing conditions. This is considered a **less than significant impact**.

Based on the Association of Bay Area Governments “Dam Failure Inundation Areas” map, the project area would not be inundated by dam failure. In addition, structures and personnel would not be subject to greater risk with implementation of the proposed project as compared to existing conditions. Therefore, a seismic-related or sudden, accidental breach of dam structures is considered remote and speculative. Therefore, this would be considered a **less than significant impact**, and no mitigation is required.

Inundation by Seiche, Tsunami, or Mudflow

Impact 3.6-5 Future proposed development on the project site would occur in an area identified with potential for tsunami inundation. Shore protection features (seawall) and standard operating procedures for tsunami warnings are in place to minimize the damage caused by tsunami inundation. This is considered a **less than significant impact**.

The project site is not near a body of water susceptible to seiche and since the project site and surroundings are relatively flat, the project site would not be subject to mudflows. The project is identified on the County of San Francisco Coastal Tsunami Inundation Map in an area with a wave run-up of 42 feet. As stated previously, Skelly Engineer’s Coastal Hazards

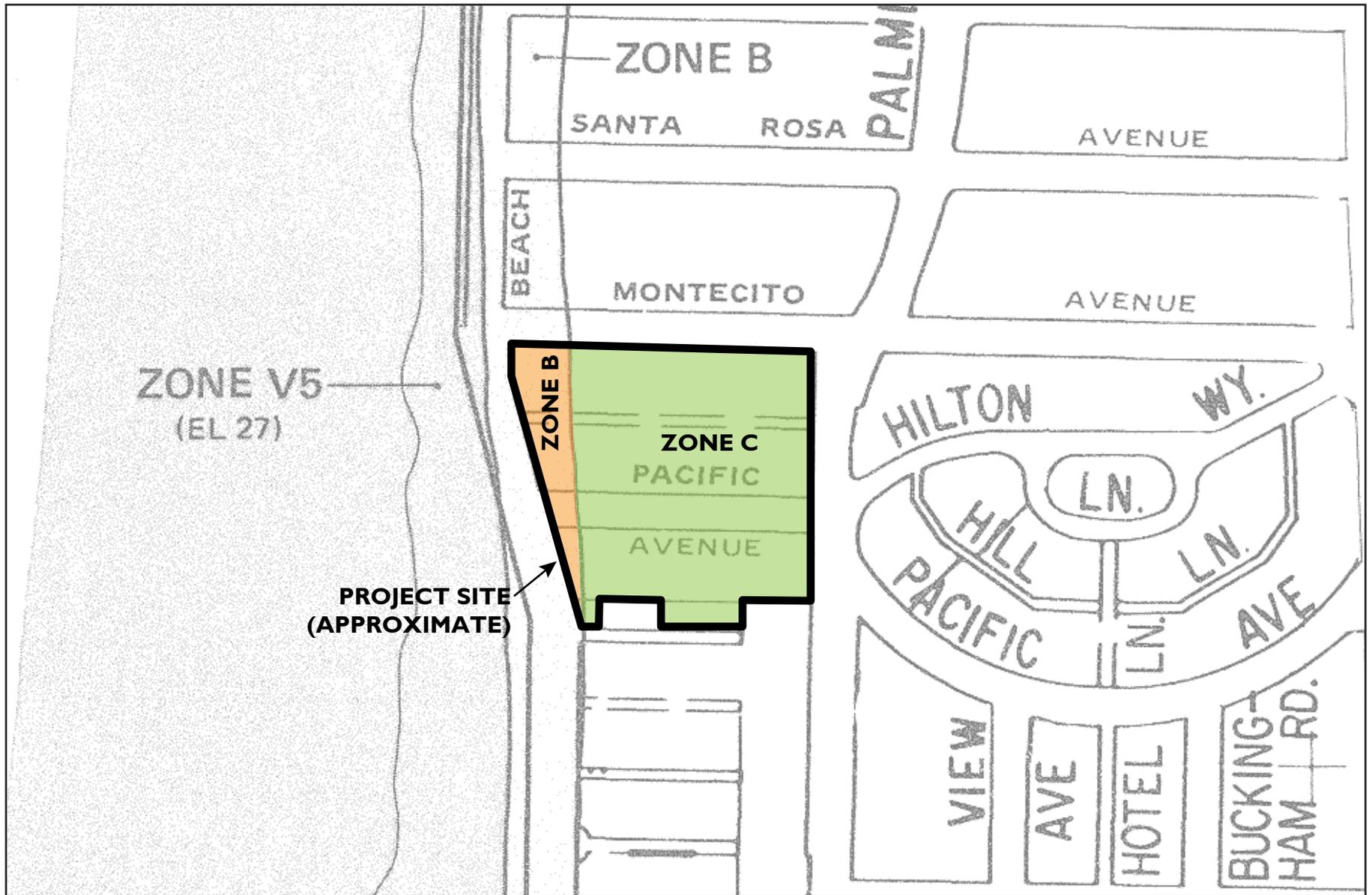
Study (2004) of the immediate area concluded that a 3-meter tsunami, during a very high tide, will impact the area behind the bluff in a very similar way as the 100-year recurrence interval wave height overtopping. Specifically, the tsunami, much like the design extreme wave, will break on or before the beachfront wall, losing much of its energy and, therefore, the project site is reasonably safe from tsunami hazards. This study included a tsunami risk evaluation for a proposed condominium development just north of the project site (1567 Beach Boulevard). Both sites are east of Beach Boulevard and have shore protection features (seawall). The following is from the study by Skelly Engineers:

“Tsunami are waves generated by submarine earthquakes, landslides, or volcanic action. Lander et. Al. 1993 discusses the frequency and magnitude of recorded or observed tsunami in the Pacifica area. In 1960 a 1.6 meter high tsunami was recorded in Santa Cruz with 1.0 meter high tsunami in Stinson Beach. In 1964 a 1.4 meter tsunami was recorded in Pacifica. A tsunami in the Pacifica area can reasonably be expected to be 2 or more meters in height. Any wave including tsunami that approaches the Beach Boulevard seawall will be depth limited, that is to say it will break in water depth that is about 1.3 times the wave height. The wave run-up and overtopping analysis herein considers the maximum possible unbroken wave at the toe of the revetment. This wave is about 3 meters high. The run-up and overtopping analysis can also serve to estimate the amount of wave overtopping as a result of a tsunami occurring at the peak high tide. A 3-meter tsunami, during a very high tide, will impact the site much like the 100-year recurrence interval wave height overtopping. The tsunami, much like the design extreme wave, will break on or before the revetment and reinforced earth wall, losing much of its energy. Due to the presence of the shore protection fronting Beach Boulevard, the site is reasonably safe from tsunami hazards.”

The site identified in this study is similar in location to the project site and both sites have shore protection features (seawall). The conclusion that the site is “reasonably safe from tsunami hazards” would apply to similar structures located along Beach Boulevard that are separated from the ocean by the existing shore protection and from Beach Boulevard. According to the study, “a tsunami with a height on the order of 2 meters arriving in the Pacifica area is a very infrequent event (over 100 year occurrence interval).” Due to the relatively low occurrence and given that the project site is located behind the shore protection features and Beach Boulevard, development on the project site is considered reasonably safe from tsunami hazard. Proposed buildings on the project site would likely not be damaged by a tsunami of two meters or less—the size that is most likely to occur in the area.

The proposed project would expose more people to the potential threat of a tsunami because of the increased development and the additional employees, residents, and visitors that would be on the project site as a result of proposed development. However, the potential risk of tsunami inundation is not considered significant because of the remoteness of occurrence, the size of the wave limited by the shore run-up, the existing shore protection features (seawall), and the standard operating procedures the City has in place

for tsunami warnings. These operating procedures would ensure that the people employed at, residing in, or visiting proposed development on the project site would be moved away from danger. Therefore, this would be considered a **less than significant impact**, and no mitigation is required.



Source: Federal Emergency Management Agency (1987)

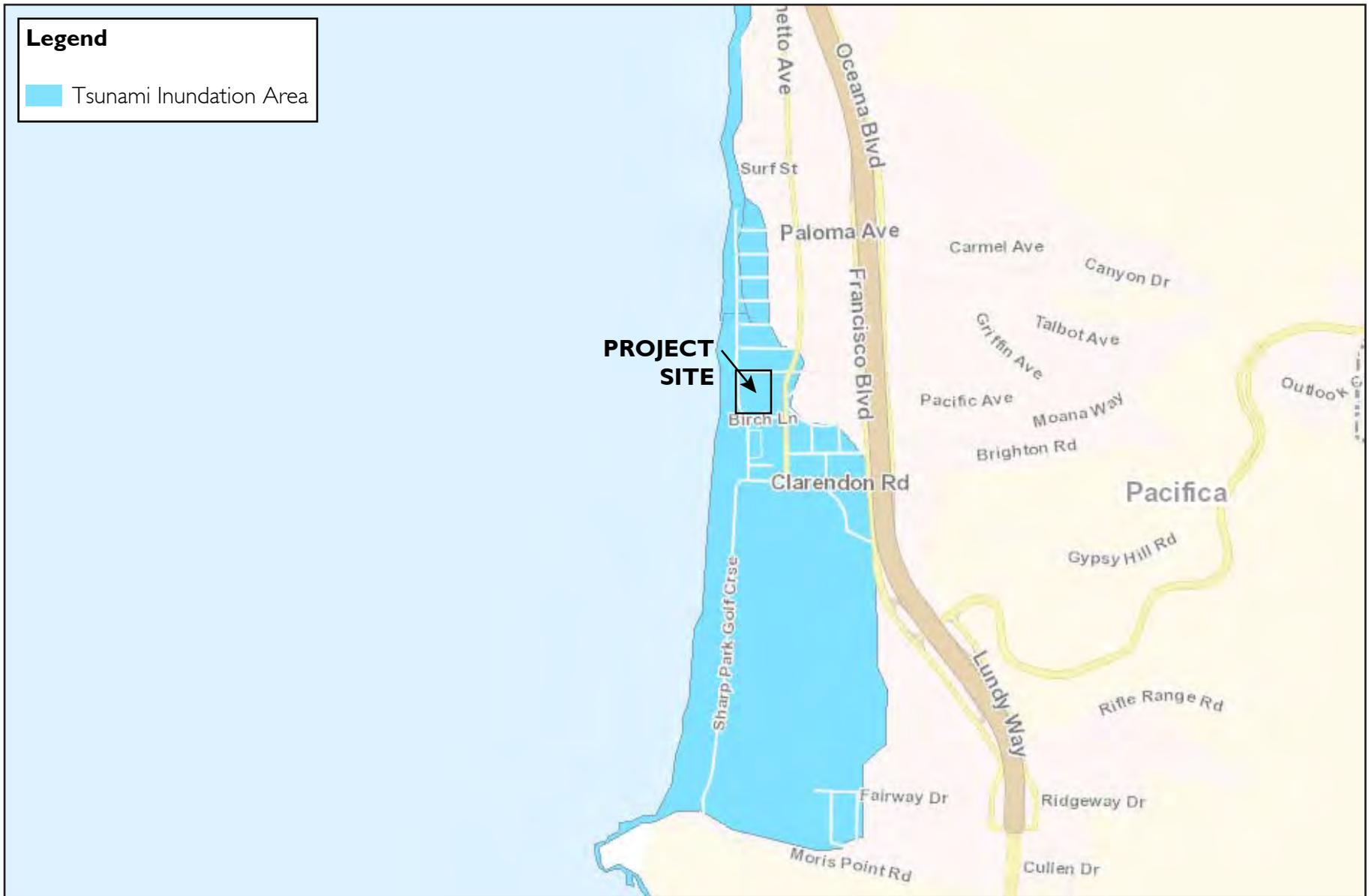


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Flood Insurance Rate Map

Redevelopment of the Beach Boulevard Property EIR

Figure 3.6-1



Source: Association of Bay Area Governments; *Tsunami Inundation Map for Emergency Planning* by CalEMA, CGS, and USC (2009)



Tsunami Inundation Area
 Redevelopment of the Beach Boulevard Property EIR

3.7. Land Use & Planning

This section of the EIR examines the land use and planning impacts associated with proposed project. Specifically, this section analyzes the change in land use characteristics and analyzes potential conflicts between proposed land uses on site and existing and/or proposed land uses in the vicinity of the project area, as well as the relationship of the proposed land use changes to relevant planning policies that guide land use decisions.

Preparation of this analysis used data from various sources. These sources include the *City of Pacifica General Plan* (various resource elements, including the Land Use Element), and the Pacifica Municipal Code.

Existing Conditions

On-site and Surrounding Land Uses

The project site formerly housed equipment and buildings associated with the SPWWTP. Most of the facilities associated with the treatment plant have been demolished; however, four structures remain on site: The Administration Building and the Chlorine/Pump Station Building have adjoining walls and are located on the northwest corner of the property. The Administration Building is a two-story structure with a footprint of roughly 4,400 square feet. The lower floor is vacant and the second floor is currently used by the City of Pacifica as Council Chambers and includes a Council conference room, restrooms, and storage space.

The Pump Station Building is an approximately 8,100 square foot building located east of the Administration Building. The Sharp Park pump station is housed in the basement and the east end of the building which also contains a garage and workshop. The lower floor contains mechanical and electrical equipment rooms, a loading bay and a grit room for the former SPWWTP operation. The building also includes a janitor's restroom and shower. The building footprint encompasses roughly 5,100 square-feet, roughly half of which is used by the Sharp Park pump station.

The Thickening Building is a single-story structure located on the southern end of the project site. The building footprint is roughly 3,300 square feet. The building is presently vacant and formerly housed equipment processing wastewater sludge generated from the plant operations.

The fourth building on the project site is a small garage located at the southeastern corner of the property. The garage was used as an equipment maintenance work area for the SPWWTP. The building is approximately 2,000 square-feet.

A stucco wall exists along the northern, eastern, and western property boundary. A 55-space public parking lot is located on the western side of the property, west of Beach Boulevard. Approximately one-third of the project site is covered by impervious surface (e.g. parking lot, buildings, pavement). The remainder of the site contains disturbed soils. Images of the project site are shown in [Figure 2-4: Photographs of the Existing Project Site](#).

As shown in [Figure 2-5: Surrounding Land Uses](#), land uses surrounding the project site is characterized by urban development. Single- and multi-family residential uses occur directly north and south of the property. Retail commercial uses are located on both sides of Palmetto Avenue. Hilton Way (or Sharp Park) Library is located east of Palmetto Avenue on Hilton Way.

West of the project site, an oceanfront pedestrian promenade is located on the west side of Beach Boulevard along the Pacific Ocean. This is a very popular regional pedestrian pathway that is used for walking, jogging, biking, etc. The Rev. Herschell Harkins Memorial Pacifica Pier (Pacifica Pier) is a popular fishing pier located at the west end of Santa Rosa Avenue. The L shaped concrete pier extends a quarter mile into the Pacific Ocean.

Pacifica General Plan

As shown in [Figure 2-6: General Plan Land Use Map](#), the project site is designated Public Facilities (P-F) in the City of Pacifica General Plan and the City of Pacifica Local Coastal Land Use Plan.

Pacifica Zoning Designations

The project site is zoned P-F (Public Facilities) in the City of Pacifica Municipal Code.

Impacts and Mitigation Measures

Criteria for Determining Significance

The following thresholds of significance are based on Appendix G of the CEQA Guidelines, as amended, with the exception of a threshold added to consider physical impacts on the environment from potential urban decay or blight (often characterized by property abandonment and/or desolate urban landscapes). For purposes of this EIR, implementation of the proposed project may have a significant adverse land use and planning impact if it would result in any of the following:

- Intensify development within the project area that creates incompatibilities with adjacent land uses
- Physical division of an established community
- Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, the general plan, specific plan, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect
- Conflict with any applicable habitat conservation plan or natural community conservation plan
- Result in urban decay or urban blight (i.e., significant physical changes in the environment)

Create Land Use Incompatibilities or Physically Divide a Community

Impact 3.7-1: Implementation of the proposed project would amend the City's General Plan land uses within the project site and could involve new uses and structures that may result in intensification of development. However, the proposed project is not anticipated to create incompatibilities with adjacent land uses or physically divide an established community. This is considered a **less than significant impact**.

Land use incompatibility can occur where differences exist among uses that are near each other. These incompatibilities may result from differences in the physical scale of development, noise levels, traffic levels, hours of operations, and other factors.

Implementation of the proposed project would allow for the intensification of development within the project site. Development proposed as part of the project includes a library with internal cafe, attached residential units, a boutique hotel, and a waterfront restaurant. [Figure 2-7: Conceptual Land Use Plan](#) identifies the location of proposed development.

The proposed two-story library would be the first new building on the project site at the corner of Palmetto Avenue and Montecito Avenue. The building would be a maximum of 35 feet in height and would replace the existing library use across Palmetto Avenue on Hilton Way. The proposed multi-purpose meeting rooms/City Council chambers would replace the current City Council chambers in the existing Administration Building.

The proposed boutique hotel and restaurant would be located along Beach Boulevard where the existing parking lot and Administration Building are located. The buildings would be a maximum of 35 feet in height, which is compatible with the existing high density residential units north of Montecito Avenue.

The proposed residential units would be spread over multiple buildings on the interior of the project site and would front along a new plaza on Pacific Avenue. The buildings would be a maximum of 45 feet.

The proposed project would be entitled as Planned Development project. The primary purpose of the P-D District is to allow diversification of the relationships of various buildings, structures and open spaces in planned building groups. In this case, the entire site is being designed to accommodate of unique variety of civic, residential, and commercial land uses, as well as a public plaza extending through the center of the site. The architectural character of the buildings, streetscape, and open space areas would all be designed as a cohesive set of elements that would be integrated in their form and function and would aesthetically complement each other.

As described in Sec. 9-4.2211 - Modification of Regulations for the Planned Development (P-D) District, regulations for the lot area, coverage, density, yard requirements, parking, building height, fences, and landscaping are generally the same as for the residential, commercial, or other zoning district most similar in nature and function to the proposed P-

D District land uses. However, such regulations may be modified in the P-D district when certain conditions have been determined by the Planning Commission to exist. These include

- There is improved site design utilizing progressive concepts of building groupings,
- Provisions have been made for substantial usable open space (maximum slope ten (10%) percent) for the use of the occupants of the area or the general public,
- A better community environment or improved public safety has been created by the dedication of public areas or space; and
- Utility and all other service distribution lines will be put underground.

With the exception of the residential buildings, all of the structures would be 35 feet in height and are located on the periphery of the project site. Two of the four residential structures would be located in the interior of the site and would be a maximum of 45 feet in height. A third 45-foot residential structure would front Palmetto Avenue which contains commercial uses. Across the street is a surface parking lot. South of this proposed structure is single-family residential, however, a landscaped buffer, which would include trees, would separate the two structures. The fourth residential structure would be two-to-four townhouses along Birch Lane and would be no taller than 35 feet.

Because the project would be developed as a Planned Development requiring careful site planning and design which would be reviewed by the Planning Commission, and the buildings would be compatible in scale and character with surrounding commercial and residential uses, the proposed project is not anticipated to create incompatibilities with adjacent land uses or physically divide an established community. Therefore, this would be considered **less than significant**, and no mitigation is required.

Conflict with Applicable Land Use Plans, Policies, or Regulations

Impact 3.7-2: Implementation of the proposed project would not conflict with goals and policies of the City of Pacifica General Plan, the City of Pacifica Local Coastal Land Use Plan, nor the City of Pacifica Municipal Code. This is considered a **less-than-significant impact**.

The proposed project would require a General Plan Amendment and a Zoning change, adoption of a Local Coastal Plan amendment, a Coastal Development Permit and issuance of a Development Plan to permit the proposed uses. With the adoption of the General Plan amendment and rezoning, the proposed uses would be allowed within the project site.

The City of Pacifica Design Guidelines provides design guidance for all new development. Future development of the project site would be required to follow the appropriate guidelines.

The proposed project's consistency with the City of Pacifica General Plan and the California Coastal Act are discussed in [Table 3.7-1: City of Pacifica General Plan Consistency Analysis](#) and consistency with the City of Pacifica Local Coastal Land Use Plan is discussed in [Table 3.7-2: City of Pacifica Local Coastal Land Use Plan Consistency Analysis](#). As demonstrated, the proposed project would not be in conflict with the applicable policies of the General Plan. Therefore, this would be considered **less than significant**, and no mitigation is required.

Table 3.7-1: City of Pacifica General Plan and CA Coastal Act Consistency Analysis

City of Pacifica General Plan	Consistency Analysis
Land Use Element	
<p>Policy 7 – Development shall maximize beach and open space access and be oriented as much as possible to the carrying capacity of each particular coastal environment in use, design, and intensity.</p>	<p>Consistent. The proposed project would include new streets, including a new east-west street that would also serve as a plaza. This new connection would provide direct access from Palmetto Avenue to Beach Boulevard and the ocean. The proposed hotel and restaurant would be oriented toward the ocean.</p>
<p>Policy 8 – Land use and development shall protect and enhance the individual character of each neighborhood.</p>	<p>Consistent. The proposed project would replace a perimeter wall and underutilized buildings with a library, hotel, restaurant, and residential units. Additional streets would be created which would improve connectivity to the ocean and within the neighborhood. Buildings along the perimeter of the project site would be developed at compatible heights and with existing nearby buildings and would be set-back appropriately.</p>
Circulation Element	
<p>Policy 9 – Develop safe and efficient bicycle, hiking, equestrian and pedestrian access within Pacifica and to local points of interest.</p>	<p>Consistent. The proposed project would include new streets, including a new east-west street that would also serve as a plaza. This new connection would provide direct access from Palmetto Avenue to Beach Boulevard and the ocean. Although this street is designed to accommodate vehicular traffic, it would accommodate bicycling, walking, and equestrian access.</p>
Open Space Element	
<p>Policy 4 – Promote communitywide links to open space and recreation facilities which do not abuse the open space resource or threaten public safety.</p>	<p>Consistent. The proposed project would include new streets, including a new east-west street that would also serve as a plaza. This new connection would provide direct access from Palmetto Avenue to Beach Boulevard and the ocean.</p>
Community Facilities Element	
<p>Policy 1 – Maintain and improve the present level of City services.</p>	<p>Consistent. The proposed project would include new library and a new City Council Chambers.</p>

Table 3.7-2: City of Pacifica Local Coastal Land Use Plan Consistency Analysis

Policy	Consistency Analysis
<p>Policy 4 – Wherever appropriate and feasible, public utilities, including parking areas or facilities, shall be distributed throughout an area so as to mitigate against the impacts, social and otherwise, of overcrowding or overuse by the public of any single area.</p>	<p>Consistent. The proposed project would be designed to provide adequate parking, including providing new surface street parking and parking underneath new development.</p>
<p>Policy 23 – New development, except as otherwise provided in this policy, shall be located within, contiguous with, or in close proximity to, existing developed areas able to accommodate it, in other areas with adequate public services and where it will not have significant adverse effects, either individually or cumulatively, on coastal resources. In addition, land divisions, other than leases for agricultural uses, outside existing developed areas shall be permitted only where 50 percent of the usable parcels in the area have been developed and the created parcels would be no smaller than the average size of surrounding parcels. Where feasible, new hazardous industrial development shall be located away from existing developed areas. Visitor-serving facilities that cannot feasibly be located in existing developed areas shall be located in existing isolated developments or at selected points of attraction for visitors.</p>	<p>Consistent. The project site has been developed already and is surrounded on three sides by urbanized development. The proposed project does not include any new hazardous industrial development. Visitor-serving uses proposed as part of the project would be contained within the project site.</p>
<p>Policy 25 – The location and amount of new development should maintain and enhance public access to the coast by: (1) facilitating the provision or extension of transit services; (2) providing commercial facilities within or adjoining residential development, or in other areas that will minimize the use of coastal access roads; (3) providing non-automobile circulation within the development; (4) providing adequate parking facilities or providing substitute means of serving the development with public transportation; (5) assuring the potential for public transit for high intensity uses, such as high-rise office buildings, and by; (6) assuring that the recreational needs of new residents will not overload nearby coastal recreation areas by correlating the amount of development with local park acquisition and development plans with the provision of on-site recreational facilities to serve the new development.</p>	<p>Consistent. The proposed project would include new streets, including a new east-west street that would also serve as a plaza. This new connection would provide direct access from Palmetto Avenue to Beach Boulevard and the ocean. The proposed project does not alter transit service. The proposed project would be required to meet parking requirements to ensure adequate parking is provided for the proposed development.</p>
<p>California Coastal Act</p>	
<p>Section 30210: Access; recreational opportunities; posting In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum</p>	<p>Consistent. At present, the project site is surrounded by a perimeter wall and is not accessible. The proposed project would remove these walls and open the site up to a mix of public, semi-private, and</p>

Policy	Consistency Analysis
<p>access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.</p>	<p>private amenities including a new public library, a hotel, a restaurant, and residential units. The development would also include a series of new streets, including a new east-west street that would also serve as a public plaza. This new connection would provide direct pedestrian and bicycle connectivity between Palmetto Avenue and the Pacific Ocean and the main street.</p>
<p>Section 3021 I: Development not to interfere with access</p> <p>Development shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.</p>	<p>West of the project site, an oceanfront pedestrian promenade is located on the west side of Beach Boulevard along the Pacific Ocean. This is a popular regional pedestrian pathway that is used for walking, jogging, biking, etc. The Rev. Herschell Harkins Memorial Pacifica Pier (Pacifica Pier) is a popular fishing pier located at the west end of Santa Rosa Avenue. The L shaped concrete pier extends a quarter mile into the Pacific Ocean.</p>
<p>Section 30212: New development projects</p> <p>(a) Public access from the nearest public roadway to the shoreline and along the coast shall be provided in new development projects except where: (1) It is inconsistent with public safety, military security needs, or the protection of fragile coastal resources, (2) Adequate access exists nearby, or, (3) Agriculture would be adversely affected. Dedicated accessway shall not be required to be opened to public use until a public agency or private association agrees to accept responsibility for maintenance and liability of the accessway.</p> <p>(b) For purposes of this section, "new development" does not include:</p> <ul style="list-style-type: none"> (1) Replacement of any structure pursuant to the provisions of subdivision (g) of Section 30610. (2) The demolition and reconstruction of a single-family residence; provided, that the reconstructed residence shall not exceed either the floor area, height or bulk of the former structure by more than 10 percent, and that the reconstructed residence shall be sited in the same location on the affected property as the former structure. (3) Improvements to any structure which do not change the intensity of its use, which do not increase either the floor area, height, or bulk of the structure by more than 10 percent, which do not block or impede public access, and which do not result in a seaward encroachment by the structure. (4) The reconstruction or repair of any 	<p>The proposed project would not impede access to these facilities. Instead, it would facilitate increased use by visitors and residents access these coastal recreational amenities.</p>

Policy	Consistency Analysis
<p>seawall; provided, however, that the reconstructed or repaired seawall is not a seaward of the location of the former structure.</p> <p>(5) Any repair or maintenance activity for which the commission has determined, pursuant to Section 30610, that a coastal development permit will be required unless the commission determines that the activity will have an adverse impact on lateral public access along the beach.</p> <p>As used in this subdivision "bulk" means total interior cubic volume as measured from the exterior surface of the structure.</p> <p>(c) Nothing in this division shall restrict public access nor shall it excuse the performance of duties and responsibilities of public agencies which are required by Sections 66478.1 to 66478.14, inclusive, of the Government Code and by Section 4 of Article X of the California Constitution.</p>	
<p>Section 30212.5: Public facilities; distribution</p> <p>Wherever appropriate and feasible, public facilities, including parking areas or facilities, shall be distributed throughout an area so as to mitigate against the impacts, social and otherwise, of overcrowding or overuse by the public of any single area.</p>	<p>Consistent. Parking for the proposed project would be accommodated by both below-grade and surface parking. Parking for each use will be dedicated to that use, though some shared parking will be allowed, particularly between the boutique hotel and restaurant.</p> <p>The general public currently uses parking on and adjacent to the site to access, in part, the Pacifica Promenade, beach and the Pacifica Pier. The Beach Boulevard parking lot currently has 54 spaces. As part of the proposed project, this parking will be relocated to the western edge of Beach Boulevard in order to allow site redevelopment. In addition, parking on Montecito Avenue will be reconfigured from parallel to angled parking. Following redevelopment, there will be a net addition of four public parking spaces.</p> <p>The final on-site parking plan may vary depending on the ultimate development program and densities developed on the site. Some parking will be located along interior access alleys; however, no parking will be provided along Pacific Avenue in order to enhance this street's pedestrian-oriented nature.</p>
<p>Section 30213: Lower cost visitor and recreational facilities; encouragement and provision; overnight room rentals. Lower cost visitor and recreational facilities shall be protected,</p>	<p>Consistent. The proposed project includes a boutique hotel of between 35 and 75 rooms, which would be located along the western edge of the project site, adjacent to Beach Boulevard. A</p>

Policy	Consistency Analysis
<p>encouraged, and, where feasible, provided. Developments providing public recreational opportunities are preferred.</p> <p>The commission shall not: (1) require that overnight room rentals be fixed at an amount certain for any privately owned and operated hotel, motel, or other similar visitor-serving facility located on either public or private lands; or (2) establish or approve any method for the identification of low or moderate income persons for the purpose of determining eligibility for overnight room rentals in any such facilities.</p>	<p>boutique hotel is a small hotel with a unique niche or stylish theme to help differentiate it from the competition and make it a unique destination.</p> <p>The location of the project site on the waterfront, near the Pacifica Pier, Beach Boulevard Pedestrian Promenade and Palmetto Avenue create a unique site that is well suited to overnight visitor accommodation. Given market conditions and economic demographic conditions, the hotel is anticipated to be a moderately-priced hotel.</p>
<p>Section 30214: Implementation of public access policies; legislative intent</p> <p>(a) The public access policies of this article shall be implemented in a manner that takes into account the need to regulate the time, place, and manner of public access depending on the facts and circumstances in each case including, but not limited to, the following:</p> <ul style="list-style-type: none"> (1) Topographic and geologic site characteristics. (2) The capacity of the site to sustain use and at what level of intensity. (3) The appropriateness of limiting public access to the right to pass and repass depending on such factors as the fragility of the natural resources in the area and the proximity of the access area to adjacent residential uses. (4) The need to provide for the management of access areas so as to protect the privacy of adjacent property owners and to protect the aesthetic values of the area by providing for the collection of litter. <p>(b) It is the intent of the Legislature that the public access policies of this article be carried out in a reasonable manner that considers the equities and that balances the rights of the individual property owner with the public's constitutional right of access pursuant to Section 4 of Article X of the California Constitution. Nothing in this section or any amendment thereto shall be construed as a limitation on the rights guaranteed to the public under Section 4 of Article X of the California Constitution.</p> <p>(c) In carrying out the public access policies of this article, the commission and any other responsible</p>	<p>Consistent. The proposed project is comprised of a mix of complementary uses including residential uses, a public library, a boutique hotel, and a restaurant. The boutique hotel and restaurant would provide coastal, publicly- accessible, visitor serving uses in proximity to the Pacifica Pier and the Pedestrian Promenade.</p> <p>The proposed project would include new streets, including a new east-west street that would also serve as a public pedestrian plaza and would not restrict public access to and from the project site.</p>

Policy	Consistency Analysis
public agency shall consider and encourage the utilization of innovative access management techniques, including, but not limited to, agreements with private organizations which would minimize management costs and encourage the use of volunteer programs.	
<p>Section 30250: Location; existing developed area</p> <p>(a) New residential, commercial, or industrial development, except as otherwise provided in this division, shall be located within, contiguous with, or in close proximity to, existing developed areas able to accommodate it or, where such areas are not able to accommodate it, in other areas with adequate public services and where it will not have significant adverse effects, either individually or cumulatively, on coastal resources. In addition, land divisions, other than leases for agricultural uses, outside existing developed areas shall be permitted only where 50 percent of the usable parcels in the area have been developed and the created parcels would be no smaller than the average size of surrounding parcels.</p> <p>(b) Where feasible, new hazardous industrial development shall be located away from existing developed areas.</p> <p>(c) Visitor-serving facilities that cannot feasibly be located in existing developed areas shall be located in existing isolated developments or at selected points of attraction for visitors.</p>	<p>Consistent. The project site would be an urban development surrounded by existing single- and multi-family residential uses directly north and south of the property; and retail commercial uses on both sides of Palmetto Avenue. The Hilton Way (or Sharp Park) Library is located east of Palmetto Avenue on Hilton Way. Therefore development within the project site would be located within an existing developed area.</p>

Conflict with Applicable Conservation Plans

The project area is located in an urban area that is completely developed. There are no habitat or natural community conservation plans in the project area and therefore, **no impacts** would occur.

Urban Blight or Decay

Economic and social changes are not in themselves significant impacts on the environment; however, a physical change in the environment caused by economic and social factors attributable to a development could sometimes result in a reasonably foreseeable indirect environmental impact, such as urban decay or deterioration.

The proposed project would include future development and intensification of the project site and would replace vacant and underutilized land with more productive uses. The combination of land uses would function to increase retail and commercial sales and

activities (associated with the hotel, restaurant, and retail associated with the library) within the City, as well as enhance the economic viability of the area. The creation of new commercial activities would contribute to the economic vitality of the City, which would enable the continued provision of high quality services and programs for residents.

Increased economic activity and revenues may result in the creation of indirect and induced jobs. Indirect jobs are those that would be created when the future owners and/or managers of the retail and commercial uses purchase goods and services from businesses in the region, and induced jobs are those that are created when wage incomes of those employed in direct and indirect jobs are spent on the purchase of goods and services in the region. The beneficial results are primarily the result of purchases of goods and services as well as payment of taxes and salaries, which affects the regional economy of the City and County, and on a more indirect basis, California. Therefore, the positive revenue stream and the resulting increased economic viability of the proposed project would be a benefit to the City and not result in urban blight or decay and therefore, **no impacts** would occur.

3.8. Noise

This section addresses potential noise impacts from the short-term construction and long-term operational impacts from both mobile and stationary sources associated with the proposed project. This analysis was based on the traffic analysis prepared by RBF, the *City of Pacifica General Plan* and *City of Pacifica Municipal Code*, and the project description.

Environmental Setting

Noise Scales and Definitions

Sound is technically described in terms of the loudness (amplitude) of the sound and frequency (pitch) of the sound. The standard unit of measurement of the loudness of sound is the decibel (dB). Since the human ear is not equally sensitive to sound at all frequencies, a special frequency-dependent rating scale has been devised to relate noise to human sensitivity. The A-weighted decibel scale (dBA) performs this compensation by discriminating against frequencies in a manner approximating the sensitivity of the human ear.

Decibels are based on the logarithmic scale. The logarithmic scale compresses the wide range in sound pressure levels to a more usable range of numbers in a manner similar to the Richter scale used to measure earthquakes. In general, a 1 dB change in the sound pressure levels of a given sound is detectable only under laboratory conditions. A 3 dB change in sound pressure level is considered a “just detectable” difference in most situations. A 5 dB change is readily noticeable and a 10 dB change is considered a doubling (or halving) of the subjective loudness. It should be noted that, generally speaking, a 3 dBA increase or decrease in the average traffic noise level is realized by a doubling or halving of the traffic volume; or by about a seven mile per hour (mph) increase or decrease in speed.

For each doubling of distance from a point noise source (a stationary source, such as a loudspeaker or loading dock), the sound level will decrease by 6 dBA. In other words, if a person is 100 feet from a machine, and moves to 200 feet from that source, sound levels will drop approximately 6 dBA. For each doubling of distance from a line source, like a roadway, noise levels are reduced by 3 to 4.5 dBA, depending on the ground cover between the source and the receiver. In terms of human response to noise, a sound 10 dBA higher than another is judged to be twice as loud; 20 dBA higher four times as loud; and so forth. Everyday sounds normally range from 30 dBA (very quiet) to 100 dBA (very loud). Examples of various sound levels in different environments are shown in [Figure 3.8-1: Sound Levels and Human Response](#).

There are three methods used to measure sound over a period of time: the Community Noise Equivalent Level (CNEL), the equivalent energy level (L_{eq}) and the Day/Night Average Sound Level (L_{dn}). The predominant community noise rating scale used in California for land use compatibility assessment is the Community Noise Equivalent Level (CNEL). The CNEL reading represents the average of 24 hourly readings of equivalent levels, known as L_{eq} 's, based on an A-weighted decibel with upward adjustments added to

account for increased noise sensitivity in the evening and night periods. These adjustments are +5 dBA for the evening (7:00 p.m. to 10:00 p.m.), and +10 dBA for the night (10:00 p.m. to 7:00 a.m.). CNEL may be indicated by “dBA CNEL” or just “CNEL”.

The L_{eq} is the sound level containing the same total energy over a given sample time period. The L_{eq} can be thought of as the steady (average) sound level which, in a stated period of time, would contain the same acoustic energy as the time-varying sound level during the same period. L_{eq} is typically computed over 1, 8 and 24-hour sample periods.

Another commonly used method is the day/night average level or L_{dn} . The L_{dn} is a measure of the 24-hour average noise level at a given location. It was adopted by the U.S. Environmental Protection Agency (EPA) for developing criteria for the evaluation of community noise exposure. It is based on a measure of the average noise level over a given time period called the L_{eq} . The L_{dn} is calculated by averaging the L_{eq} 's for each hour of the day at a given location after penalizing the “sleeping hours” (defined as 10:00 p.m. to 7:00 a.m.), by a 10 dBA to account for the increased sensitivity of people to noises that occur at night. The maximum noise level recorded during a noise event is typically expressed as L_{max} . The sound level exceeded over a specified time frame can be expressed as L_n (i.e., L_{90} , L_{50} , L_{10} , etc.). L_{50} equals the level exceeded 50 percent of the time.

Existing Noise Environment

Mobile and Stationary Noise Sources

The major source of noise in the City of Pacifica is traffic, including both automobiles and trucks, particularly on Highway 1 and 35. Noise levels are expected to be lower further away from the roadways. According to Figure 5-14: Noise Contours in the *Pacifica General Plan Existing Conditions and Key Issues Report* (City of Pacifica 2010), noise levels are expected to be between 60 and 65 dB at the project site. These noise levels are based on observed peak period traffic counts along the City's two highways and Sharp Park Road.

Sensitive Receptors

Land uses that are considered sensitive receptors to noise include residential areas, schools, hospitals, churches, recreational areas, and transient lodging. Residential areas are also considered particularly sensitive to noise during the nighttime hours. Sensitive receptors in the project vicinity include residential uses located to the north and south along Montecito Avenue and Birch Lane, respectively.

Existing Regulatory Setting

State of California Guidelines

The State of California Office of Planning and Research (OPR) *Noise Element Guidelines* include recommended interior and exterior level standards for local jurisdictions to identify and prevent the creation of incompatible land uses due to noise. The *OPR Guidelines*

describe the compatibility of various land uses with a range of environmental noise levels in terms of dBA CNEL.

A noise environment of 50 dBA CNEL to 60 dBA CNEL is considered to be “normally acceptable” for residential uses. The State indicates that locating residential units, parks, and institutions (such as churches, schools, libraries, and hospitals) in areas where exterior ambient noise levels exceed 65 dBA CNEL is undesirable. The OPR recommendations also note that, under certain conditions, more restrictive standards than the maximum levels cited may be appropriate. As an example, the standards for quiet suburban and rural communities may be reduced by 5 to 10 dB to reflect their lower existing outdoor noise levels in comparison with urban environments.

In addition, *Title 25, Section 1092* of the *California Code of Regulations*, sets forth requirements for the insulation of multiple-family residential dwelling units from excessive and potentially harmful noise. Whenever multiple-family residential dwelling units are proposed in areas with excessive noise exposure, the developer must incorporate construction features into the building’s design that reduce interior noise levels to 45 dBA CNEL.

[Table 3.8-1: Noise and Land Use Compatibility Matrix](#), illustrates the State standards established by the State Department of Health Services for acceptable noise levels. These standards are incorporated into the land use planning process to reduce future noise and land use incompatibilities.

Table 3.8-1: Noise and Land Use Compatibility Matrix

Land Use Category	Community Noise Exposure (L_{dn} or CNEL, dBA)			
	Normally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
Residential - Low Density, Single-Family, Duplex, Mobile Homes	50 - 60	55 - 70	70-75	75-85
Residential – Multiple Family	50 - 65	60 - 70	70 - 75	70 – 85
Transient Lodging - Motel, Hotels	50 - 65	60 - 70	70 - 80	80 – 85
Schools, Libraries, Churches, Hospitals, Nursing Homes	50 - 70	60 - 70	70 - 80	80 – 85
Auditoriums, Concert Halls, Amphitheaters	NA	50 - 70	NA	65 – 85
Sports Arenas, Outdoor Spectator Sports	NA	50 - 75	NA	70 – 85
Playgrounds, Neighborhood Parks	50 - 70	NA	67.5 - 75	72.5 – 85
Golf Courses, Riding Stables, Water Recreation, Cemeteries	50 - 70	NA	70 - 80	80 – 85
Office Buildings, Business Commercial and Professional	50 - 70	67.5 - 77.5	75 - 85	NA
Industrial, Manufacturing, Utilities, Agriculture	50 - 75	70 - 80	75 - 85	NA
NA: Not Applicable				
<p><u>Normally Acceptable:</u> Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.</p> <p><u>Conditionally Acceptable:</u> New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features have been included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning, will normally suffice.</p> <p><u>Normally Unacceptable:</u> New Construction or development should 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 must be included in the design.</p> <p><u>Clearly Unacceptable:</u> New construction or development should generally not be undertaken.</p>				

Source: OPR 2003

Local

City of Pacifica General Plan

The City of Pacifica primarily regulates community noise exposure through land use controls. The City’s General Plan Noise Element identifies standards of community noise levels for various land uses within the City for use in evaluating a project’s compatibility with the on-site noise environment. Exterior and interior noise level guidelines established by the State office of Noise Control have been adopted for this purpose.

Noise levels for office buildings, business commercial and professional land uses are considered “normally acceptable” by the *City of Pacifica General Plan* Noise Element in noise environments of 65 dBA L_{dn} or less. Noise exposures of 67 dB to 75 dB are “conditionally acceptable” and noise exposure levels in excess of 75 dB are considered “unacceptable.”

The City of Pacifica regulates construction noise through the building permit process which limits the hours of construction activities to weekdays (Monday through Friday) from 7:00 am to 7:00 pm and on weekends (Saturday and Sunday) from 9:00 am to 5:00 pm.

The following policies in the Noise Element of the *City of Pacifica General Plan* are applicable to the proposed project:

Noise Element Policy 1. Work with other agencies, airports, and jurisdictions to reduce noise levels in Pacifica created by their operations.

Noise Element Policy 2. Establish and enforce noise emission standards for Pacifica which are consistent with the residential character of the City and environmental, health, and safety needs of the residents.

City of Pacifica Municipal Code

Title 5, Public Welfare, Morals and Conduct

Chapter 29, Mandatory Real Estate Transfer of Disclosure Regarding Airport Noise (Sections 5-29-01 through 5.29-03) in Title 5, Public Welfare, Morals and Conduct of the City of Pacifica Municipal Code, codifies that any seller of a single or multifamily residential dwelling located in the City, and any agent representing a seller of such real property, shall be required to make the appropriate disclosures in this chapter to the prospective purchaser as soon as practicable before transfer of title. The required disclosures shall be made on a copy of the Local Option, Real Estate Transfer Disclosure Statement Form set out in Civil Code Section 1102.6a.

Title 8, Building Regulations

Chapter 8, Residential Code (Section 8-8.04) of the *City of Pacifica Municipal Code* regulates the hours of construction for any project for which a building permit is required to the hours of 7:00 am to 7:00 pm on Monday, Tuesday, Wednesday, Thursday and Friday and from 9:00 am to 5:00 pm on Saturday and Sunday.

Relevant Project Characteristics

The proposed project is a mixed-use development that would include an approximately 36,500 square-foot library with internal café, up to 84 attached residential units, a boutique hotel of up to 75 rooms, and a waterfront restaurant of up to 4,500 square feet. The library will have a large meeting space which will also function as the City Council chambers and multipurpose meeting room for the community. The proposed project would result in

a net increase of 3,160 vehicles per day with 113 vehicle trips during the AM peak hour and 336 vehicle trips during the PM peak hour, which would result in an increase in noise from vehicle trips to adjacent sensitive receptors. The proposed project would also include stationary noise sources associated with operational activities of future on-site uses generated by children and adults playing, pets, amplified music, mechanical equipment, and home repair.

The project site is the former location of Sharp Park Waste Water Treatment Plant (SPWWTP). When the Calera Creek Water Recycling Plant was completed in 2000, the SPWWTP was demolished. A majority of the project site has been cleared, but there are four buildings that remain on the site that would be demolished with implementation of the proposed project except the pump station located along the northern edge of the property.

Impacts and Mitigation Measures

Criteria for Determining Significance

In accordance with the CEQA, *State CEQA Guidelines*, agency and professional standards, a project impact would be considered significant if the project would:

- Expose persons to, or generate, noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- Expose persons to, or generate, excessive ground borne vibration or ground borne noise levels;
- Substantially permanently increase ambient noise levels in the project vicinity above levels existing without the project;
- Substantially temporarily or periodically increase ambient noise levels in the project vicinity above levels existing without the project;
- For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, expose people residing or working in the project area to excessive noise levels; and
- For a project within the vicinity of a private airstrip, expose people residing or working in the project area to excessive noise levels.

Significance of Changes in Traffic Noise Levels

If the ambient noise environment is quiet and the new noise source greatly increases the noise exposure, an impact may occur even though a criterion level might not be exceeded. The project would create a significant impact for traffic noise levels when the following occurs:

- An increase of the existing ambient noise levels by 5 dBA or more, where the existing ambient level is less than 60 dBA CNEL;
- An increase of the existing ambient noise level by 3 dBA or more, where the existing ambient level is 60 to 65 dBA CNEL; or
- An increase of the existing ambient noise level by 1.5 dBA or more, where the existing ambient level is greater than 65 dBA CNEL.

Exposure to Short-term Construction Noise and Vibration

Impact 3.8I: The proposed project could result in short-term construction-related noise and vibration (e.g. building demolition and construction) that could exceed applicable noise standards at nearby noise sensitive land uses. This is considered a **less than significant impact**.

Construction activities would be considered a short and temporary duration, lasting from a few days to a period of several months during project construction during the various phases of the proposed project. Groundborne noise and vibration, as well as other types of construction-related noise impacts may occur during the initial site preparation, which can create the highest levels of noise and vibration. Generally, site preparation has the shortest duration of all construction phases. Activities that occur during this phase include earthmoving and soils compaction. High groundborne noise and other vibration levels and other miscellaneous noise levels can occur during this phase by the operation of heavy-duty trucks, backhoes, and other heavy-duty construction equipment.

Short-Term Construction Noise

Noise from construction activities is generated by two primary sources: (1) the transport of workers and equipment to construction sites, and (2) the noise related to active construction equipment. These noise sources can be a nuisance to local residents and businesses or unbearable to sensitive receptors (i.e., residences, hospitals, senior centers, schools, day care facilities, etc.). The Federal Transit Administration (FTA) has compiled data regarding noise generating characteristics of specific types of construction equipment and typical construction activities. Noise levels generated by construction equipment are shown in [Table 3.8-2, Maximum Noise Levels Generated by Construction Equipment](#). Operating cycles for these types of construction equipment may involve one or two minutes of full power operation followed by three to four minutes at lower power settings. Other primary sources of acoustical disturbance would be due to random incidents, which would last less than one minute (such as dropping large pieces of equipment or the hydraulic movement of machinery lifts). These noise levels would decrease rapidly with distance from the construction site at a rate of approximately 6 dBA per doubling of distance.

Table 3-8-2: Maximum Noise Levels Generated by Construction Equipment

Type of Equipment	Acoustical Use Factor ¹	L _{max} at 50 Feet (dBA)
Concrete Saw	20	90
Crane	16	81
Concrete Mixer Truck	40	79
Backhoe	40	78
Dozer	40	82
Forklift	40	78
Paver	50	77
Roller	20	80
Tractor	40	84
General Industrial Equipment	50	85
Note: 1. Acoustical Use Factor (percent): Estimates the fraction of time each piece of construction equipment is operating at full power (i.e., its loudest condition) during a construction operation.		

Source: Federal Highway Administration, *Roadway Construction Noise Model (FHWA-HEP-05-054)*, January 2006.

Sensitive receptors in the project vicinity include single family homes located along Montecito Avenue to the north of the project site and along Birch Lane to the south of the project site.

During construction activities, adjacent sensitive receptors would be exposed to sporadic high noise and vibration levels associated with construction equipment, as well as short-term construction traffic. The City of Pacifica regulates construction noise through the building permit process in accordance with Section 8-8.04 of the *City of Pacifica Municipal Code*, which limits the hours of construction activities to weekdays (Monday through Friday) from 7:00 am to 7:00 pm and on weekends (Saturday and Sunday) from 9:00 am to 5:00 pm. Therefore, by complying with the City's Municipal Code and restricting hours of development at the project site during short-term construction, impacts during construction would be considered **less than significant**.

Vibration

Construction can generate varying degrees of ground-borne vibration, depending on the construction procedure and the construction equipment used. Operation of construction equipment generates vibrations that spread through the ground and diminish in amplitude with distance from the source. The effect on buildings located in the vicinity of the construction site often varies depending on soil type, ground strata, and construction characteristics of the receiver building(s). The results from vibration can range from no perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibration at moderate levels, to slight damage at the highest levels. Ground-borne vibrations from construction activities rarely reach levels that damage structures.

The City of Pacifica has not adopted policies or guidelines relative to ground-borne vibration. However, the Federal Transit Administration has adopted guidelines / recommendations to limit ground-borne vibration based on the age and/or condition of the structures that are located in close proximity to construction activity. As described in the Federal Transit Administration publication titled, *Transit Noise and Vibration Impacts Assessment* (May 2006), a ground-borne vibration level of 0.2 inch-per-second peak particle velocity (PPV) should be considered as the damage threshold criterion for “non-engineered timber and masonry buildings,” which include typical single-family residences, and a ground-borne vibration level of 0.12 inch-per-second PPV should be considered as the damage criterion for structures deemed “extremely fragile,” such as historic buildings. With respect to structures that are considered “well engineered,” a ground-borne vibration level of 2.0 inch-per-second PPV should be considered as the damage threshold criterion. The project area is located in a residential area. Thus, the analysis assumes a threshold of 0.2 inch-per-second PPV.

The Federal Transit Administration has also published standard vibration velocities for construction equipment operations. The peak particle velocities for construction equipment anticipated to be used during future construction in the project area are listed in [Table 3.8-3: Typical Vibration Levels for Construction Equipment](#).

Table 3.8-3: Typical Vibration Levels for Construction Equipment

Equipment	Approximate peak particle velocity at 25 feet (inches/second)	Approximate peak particle velocity at 75 feet (inches/second)
Large Bulldozer	0.089	0.017
Loaded trucks	0.076	0.015
Small Bulldozer	0.003	0.001

Source: Federal Transit Administration, *Transit Noise and Vibration Impact Assessment*, May 2006

As indicated in [Table 3-8-3](#) based on the Federal Transit Administration data, vibration velocities from typical heavy construction equipment operations that could be used during future development would range from 0.003 to 0.089 inch-per-second PPV at 25 feet from the source of activity. At 75 feet from the source of activity, vibration velocities range from 0.001 to 0.017 inch-per-second PPV. Construction equipment utilized in construction activities would therefore not produce vibration velocities greater than 0.2 inch-per-second PPV at adjacent sensitive receptors. In addition, construction activities would be limited to the hours in accordance with Section 8-8.04 of the *City of Pacifica Municipal Code*. Therefore, vibration impacts would be considered a **less than significant impact**.

Exposure to Long-Term Noise Mobile and Stationary Noise Sources

Impact 3.8-2: The proposed project would result in an increase noise levels slightly from mobile sources (i.e. vehicular traffic) generated by the proposed project. This is considered a **less than significant impact**.

Ambient noise levels at the project site average are between 60 and 65 dBA. The proposed project is expected to result in an increase in the ambient noise levels, both within and outside the project site, from mobile sources (i.e., vehicular traffic) and stationary sources.

Mobile Sources

The primary source of noise from mobile sources would be from traffic generated by project residents, patrons, and delivery/service vehicles. The proposed project would result in a net increase of 3,160 vehicles per day with 113 vehicle trips during the AM peak hour and 336 vehicle trips during the PM peak hour.

Generally, a doubling of traffic volumes is required before an increase in ambient noise will be perceived by the average person, which corresponds to an increase of 3 dBA. In the case of the proposed project, an increase of the existing ambient noise levels by 5 dBA or more would be considered significant since the ambient noise levels are below 60 dBA CNEL.

The traffic analysis analyzed two primary street segments, Palmetto Avenue and Montecito Avenue, which would experience the greatest increase in noise volumes from mobile sources. The segment of Palmetto Avenue that fronts the project site has a weekday volume of 2,900 vehicles per day with 269 trips during the AM peak hour and 288 trips during the PM peak hour and the segment of Montecito Avenue has a weekday volume of 400 vehicles per day with 23 trips during the AM peak hour and 33 trips during the PM peak hour. Under existing plus project conditions, traffic volumes on Palmetto Avenue would increase to 3,635 vehicles per day with 317 trips during the AM peak hour and 410 trips during the PM peak hour, which is an increase of 735 daily trips with 38 additional trips during the AM peak hour and 122 trips during the PM peak hour. Traffic volumes on Montecito Avenue would increase to 1,750 vehicle trips per day with 101 trips during the AM peak hour and 249 trips during the PM peak hour, which is an increase of 1,350 vehicles per day with 78 additional trips during the AM peak hour and 226 additional trips during the PM peak hour.

The average weekday traffic would not result in a doubling of traffic volumes on Palmetto Avenue, which would increase by approximately 25 percent. However, traffic volumes on Montecito Avenue would result in an increase of over 300 percent over existing conditions, which would result in an increase in noise levels over ambient conditions. However, as the existing noise levels at the project site are below 60 dBA, the additional vehicles would result in a slight increase in noise. However, noise levels are not anticipated to exceed the City's noise thresholds.

Consequently, the increase in noise that would be caused by project-generated traffic would be considered **less than significant impact**. No mitigation measures are necessary.

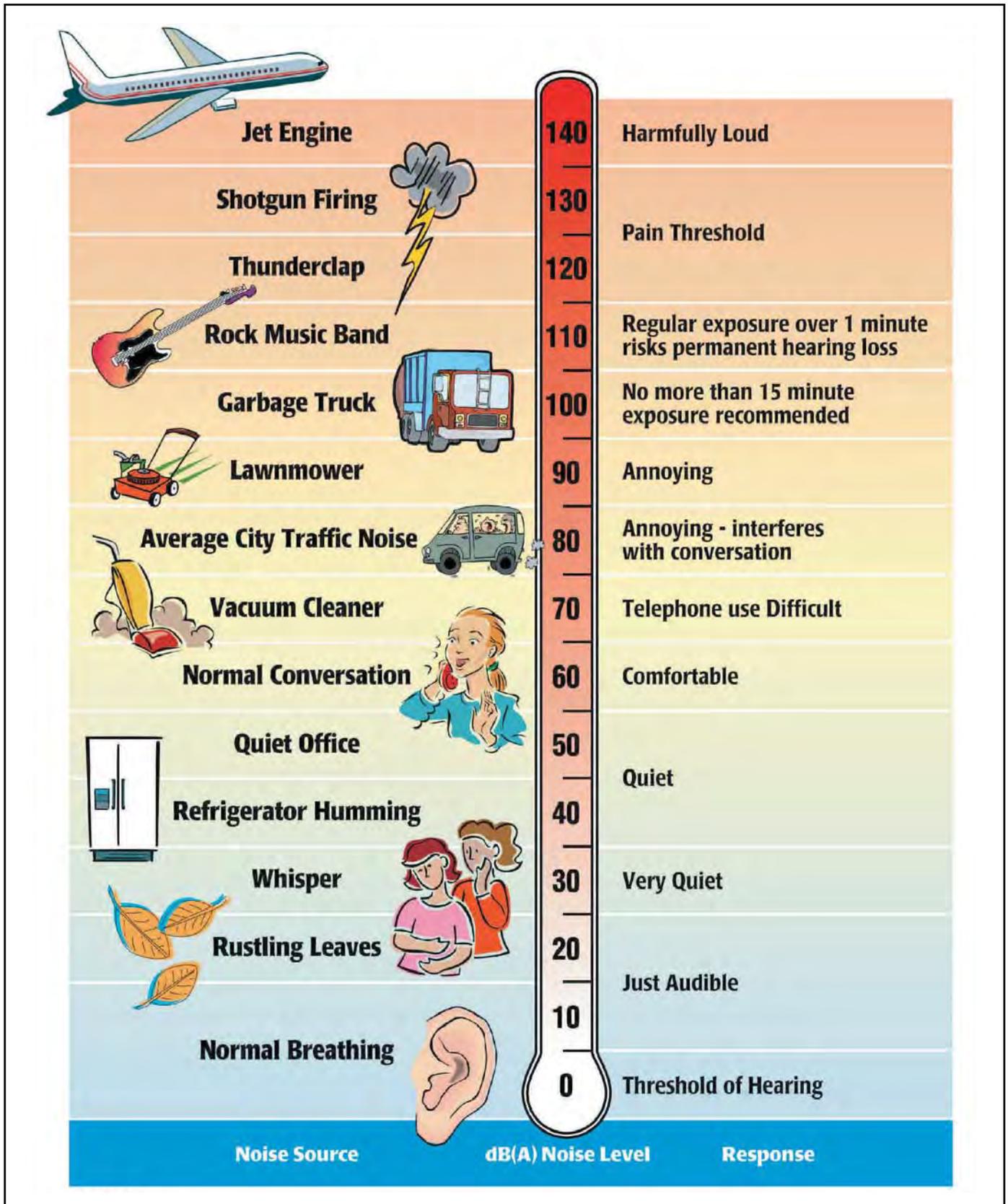
Stationary Sources

Stationary noise associated with operational activities of future on-site uses is typically generated by children and adults playing, pets, amplified music, mechanical equipment, and home repair. The proposed project would allow for the future development of up to 84 residential units; construction of a 36,500 square foot library with internal café, up to a 75-room hotel; and a 4,500 square foot restaurant. Noise from these uses would be typical of surrounding residential uses in the project vicinity and would primarily occur during the “daytime” activity hours. These noise sources would include but not be limited to: children and adults playing outside, pets, amplified music, mechanical equipment, yard maintenance, and home repair. Noise impacts to surrounding uses from residential uses associated with future development that would occur under the proposed project would therefore not conflict with City noise standards and would be considered a **less than significant impact**.

Aircraft Noise

Impact 3.8-3 At its closest point, portions of the City are located approximately 2.5 miles from the San Francisco International Airport and development in the City is exposed to aircraft noise. Future development of the proposed project would include construction of up to 84 residential units. Future residential development would be required to comply with disclosure requirements in the *City of Pacifica Municipal Code*. This is considered a **less than significant impact**.

According to the Aircraft Noise Footprint (FAA 1983 CNEL Noise Exposure Map) in the *City of Pacifica Municipal Code*, the project site is not located within the footprint of the 65 CNEL boundary. However, in accordance with Section 5.29-02 (Mandatory Real Estate Transfer Disclosure Regarding Airport Noise) of the *City of Pacifica Municipal Code*, future residential development at the project site would be required to disclose the following information in the connection with the sale of townhomes at the project site: a) at its closest point, the project site is located 2.5 miles from San Francisco International Airport, b) San Francisco International Airport is the fifth largest airport by volume in the United States; and c) the project site is subject to noise from aircraft overflight. With disclosure in accordance with the *City of Pacifica Municipal Code*, impacts from aircraft noise to residents and workers at the project site would be considered **less than significant**.



Source: Melville C. Branch and R. Dale Beland (1970), Environmental Protection Agency (1974), RBF Consulting (2012)



A Baker Company

JN 70-100421

Sound Levels and Human Response

Redevelopment of the Beach Boulevard Property EIR

Figure 3.8-1

3.9. Public Services, Utilities, & Service Systems

This section of the Draft EIR analyzes the impacts associated with implementation of the proposed project on public services and facilities and services, including fire protection, law enforcement, schools, libraries, parks/recreation facilities, stormwater drainage, potable water, wastewater treatment, solid waste management, and other public utilities.

Environmental Setting

Fire Protection

The North County Fire Authority serves the cities of Pacifica, Brisbane and Daly City. Pacifica is served by two North County Fire Authority stations. The closest fire station to the project site is located less than two miles south at 1100 Linda Mar Boulevard and the other is located less than four miles north from the project site at 616 Edgemar Avenue. In most cases, response time is within the established goal of a seven (7) minute total reflex time for arrival of a first due company to 90% of all emergency incidents (North County Fire Authority, 2012).

The Insurance Services Office, Inc. (ISO) does evaluations and ratings of the fire protection provided in communities. This system is called the ISO Public Protection Classification program, or PPC. The PPC process grades a community's fire protection on a scale of 1-10, based on ISO's Fire Suppression Rating Schedule. The ISO rating also provides a reflection of standards that have been developed over many years from the study of "pertinent fire protection conditions and performance standards". The ISO rating for the City of Pacifica is a 4 as of the rating of December 2004 (North County Fire Authority, 2012).

Law Enforcement

The City of Pacifica is served by the Pacifica Police Department, located at 2075 Coast Highway. The Pacifica Police Department is a full-service department that presently consists of 33 sworn officers and six non-sworn positions. There are police reserves and explorer units that supplement these full-time employees with their duties throughout the year (City of Pacifica, 2012).

Schools

Elementary and Middle School services are provided by the Pacifica School District (PSD). Cabrillo School (K-8) located at 601 Crespi Drive and Vallemar School (K-8) located at 377 Reina Del Mar are both located approximately one mile from the project site. Ingrid B. Lacy Middle School (6-8 grades) is located at 1427 Palmetto Avenue, approximately one-half mile north of the project site. High school grade levels are provided by the Jefferson Union High School District (JUHSD). The nearest high school is Oceana High School, located at 401 Paloma Avenue, approximately one-half mile northeast of the project site.

Libraries

The City currently has two libraries: one at Hilton Way, directly across the street from the subject site, and another approximately four miles south on Sanchez Way in the Linda Mar neighborhood. The City, in coordination with San Mateo County Library, conducted a Pacifica Library Needs Assessment in 2011 (Anderson Brulé Architects 2011). Based on comparisons with library districts of comparable size and location, the consultant team and citizens concluded that the current libraries were severely undersized and offered an inadequate array of services.

Parks/Recreation Facilities

The City of Pacifica maintains 232.5 acres of open space in parklands which include city parks, school recreation areas and shared sports fields, providing approximately 6.29 acres of parkland per 1,000 residents based on a population of 37,000 people. The City also maintains access to beaches through the Access component of Coastal Land Use Plan and participates in regional trail systems.

The Conservation Element in the General Plan specifies that open space within neighborhoods should be dedicated as development occurs and that open space retention should be encouraged within developments, with each neighborhood served by a local park or an elementary school playground. Where adequate open space cannot be maintained as a secondary component of a development project, the plan specifies that State mandated in-lieu fees should be earmarked for purchase and improvement of open space where needed "within a reasonable relationship to the neighborhood."

Storm Water Drainage

The storm drain that services the area is 24 inches in diameter and is located along Palmetto Avenue and Beach Boulevard. Storm water from the project site flows into the existing storm water system.

Water

Water service to the proposed project site is provided by the North Coast County Water District (NCCWD). NCCWD purchases water from the San Francisco Public Utility Commission's Hetch Hetchy water system. This water has already been treated and is thus potable when it reaches the NCCWD's storage tanks.

Sewer/Wastewater

Wastewater treatment for the proposed project site will be provided by the City of Pacifica's Calera Creek Water Recycling Plant (CCWRP). Currently the annual average daily wastewater flow in Pacifica is 3.1 million gallons per day (gpd). The CCWRP has been designed to handle an annual average daily flow of 4 million gpd. For peak flows, the plant can accommodate 7 million gpd for dry weather flows and 20 million gpd for peak wet weather conditions. The plant design is sufficient to handle flows from complete build-out of the City's General Plan (City of Pacifica 2012).

Solid Waste Management

Solid waste (trash and recycling) services in the City are provided to the City of Pacifica by Recology of the Coast and are disposed of at the Ox Mountain Sanitary Landfill. Ox Mountain Sanitary Landfill is a Class III Municipal Solid Waste Landfill which accepts all types of solid waste and is prohibited from accepting hazardous waste. The landfill is located at 12310 San Mateo Rd (Hwy 92), Half Moon Bay, CA 94019. The most recently reported closure date and remaining capacity for the landfill is January 2018 and 44,646,148 cubic yards, respectively.

Electricity and Natural Gas

Electricity and natural gas in the City is provided by Pacific Gas and Electric (PG&E).

Regulatory Setting

State

Schools

School Facilities Act of 1998

The School Facilities Act of 1998 (also known as Senate Bill [SB] 50), provides state funding for new school construction projects that can satisfy certain criteria for such funding, including eligibility due to growth, Division of State Architect plan approval. However, the Act also dramatically limits the maximum amount of impact fees, which can be charged by school districts as mitigation for new residential, commercial, and industrial construction. The Act also prohibits local agencies from denying a development application on the basis of a person's refusal to provide school facilities mitigation that exceeds the fee amount and refusing to approve any legislative or adjudicative act on the basis that school facilities are inadequate.

Parks and Recreation

Quimby Act

Since the passage of the 1975 Quimby Act (California Government Code §66477), cities and counties have been authorized to pass ordinances requiring that developers set aside land, donate conservation easements, or pay fees for park improvements. The goal of the Quimby Act was to require subdividers to provide park and recreational lands to meet the increased demand from new subdivisions. Originally, the Act was designed to ensure "adequate" open space acreage in jurisdictions adopting Quimby Act standards, which ranged from three to five acres per 1,000 residents.

Water Supply and Distribution

Title 22 California Code of Regulations

The California Department of Public Health (CDPH) promulgates and enforces state regulations for drinking water treatment facilities and distribution systems. These state

regulations are at least as strict as federal drinking water regulations, although not all federal regulations are currently incorporated into corresponding state regulations. These state drinking water regulations are contained in California Code of Regulations (CCR) Title 22. The CDPH also regulates the distribution and use of recycled water through CCR Title 22.

Urban Water Management Plan

In 1983, the California Legislature enacted the Urban Water Management Planning Act (Water Code Sections 10610 - 10656). The California Urban Water Management Planning Act requires that each urban water supplier, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually, shall prepare, update and adopt its urban water management plan at least once every five years on or before December 31, in years ending in five and zero.

Stormwater Pollution Prevention

Clean Water Act

The Federal Water Pollution Control Act Amendments of 1972 (CWA (33 U.S.C. 1251 et seq.)) have as their goal the restoration of the physical, chemical, and biological integrity of the nation's waters. The primary regulatory mechanism to achieve the goal is the National Pollutant Discharge Elimination System (NPDES). The CWA requires that parties seeking to discharge pollutants to the water of the United States obtain a permit under the NPDES. The federal government has delegated responsibilities for implementing the CWA NPDES program in California to the State. A discharge of pollutants from a source with a single readily identifiable point of discharge, such as a municipal wastewater outfall, is only permitted if it meets certain quality standards, known as effluent limits. Effluent limits are based on available wastewater treatment technology. For surface water discharges of stormwater runoff, additional regulations may apply, as discussed further below.

CWA Section 303(d)(1)(A) requires states to identify surface waters within their boundaries where numeric or narrative water quality objectives are not being achieved or maintained and/or where beneficial uses are not fully protected after application of technology-based controls. Section 401 of the CWA requires applicants for federal licenses or permits to obtain safe certification that any discharge of pollutants to surface waters from a proposed activity will comply with the CWA, including applicable water quality standards. CWA Section 404(b)(1) Guidelines (40 CFR 230) regulate dredge and fill activities that affect jurisdictional wetlands and waters, including water quality aspects of such activities.

California Porter-Cologne Act

The California Porter-Cologne Act created an administrative structure and procedures for management of water quality in the state. California's water quality program is administered by the State Water Resources Control Board (SWRCB) and by nine Regional Water Quality Control Boards (RWQCBs). Each RWQCB is responsible for regulating

water quality within their watershed. In accordance with the Porter-Cologne Act, each RWQCB implements the Basin Plan developed for its region by issuing and enforcing waste discharge requirements to individuals, communities, or businesses whose waste discharges can affect water quality. These requirements can be either waste discharge requirements (WDRs) for discharges to land (which may impact groundwater), or federally delegated NPDES permits for discharges to surface water.

Solid Waste

Integrated Waste Management Act

The Integrated Waste Management Act (AB 939) mandates that communities reduce their solid waste. The Act requires local jurisdictions to divert 25 percent of their solid waste by 1995 and 50 percent by 2000, compared to a baseline of 1990. AB 939 also establishes an integrated framework for program implementation, solid waste planning, and solid waste facility and landfill compliance.

Local

City of Pacifica Municipal Code

Chapter 19, Park Facilities Impact Fee

The Park Facilities Impact fee was enacted by the City for the purpose of providing land and/or funds for such additional parks, recreational facilities, and open space as may be deemed appropriate pursuant to the General Plan, Local Coastal Program, Coastal Land Use Plan, and zoning laws of the City. The Park Facilities Impact Fee requires the dedication of such funds and/or lands to offset the impact on the need for parks, recreational facilities, and open space created by new residential development which does not require a tentative subdivision or parcel map pursuant to Title 10 of this Code.

Relevant Project Characteristics

The project site is located within an existing urban/developed area of the City of Pacifica and can be readily served by existing service providers and utilities.

Impact and Mitigation Measures

Criteria for Determining Significance

In accordance with the CEQA, *State CEQA Guidelines*, agency and professional standards, a project impact would be considered significant if the project would:

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

- Police protection,
- Schools,
- Parks, or
- Other public facilities;
- Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board;
- Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated;
- Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment;
- Result in a determination by the wastewater treatment provider that serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments;
- Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- Have insufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed;
- Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- Be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs; and/or
- Comply with federal, state and local statutes and regulations related to solid waste.

Impact and Mitigation Measures

Increased Demand for Fire and Law Enforcement Protection Services

Impact 3.9-1 The proposed project would not significantly increase the need for fire or law enforcement protection services, which would not result in the need for the construction of new or physically altered facilities in order to meet the City's response times for fire protection services. Therefore, the proposed project would result in a **less than significant** impact to fire and law enforcement protection services.

The proposed project is implementing redevelopment of the project site with construction of a library, commercial uses, a boutique hotel and residential uses; however, the current

fire protection and law enforcement service is well equipped to handle the new population associated with the proposed project and would not result in the need for or the construction of new or physically altered facilities in order to meet the City's response times. Therefore, the proposed project would have a **less than significant impact** on fire protection and law enforcement protection services.

Increased Demand for Educational Facilities

Impact 3.9-2 The proposed project would increase the population and could potentially increase the number of students within the Pacifica School District and the Jefferson Union High School District. However, the proposed project would be required to pay the State-mandated school impact fees, which would ensure that impacts associated with the proposed project on the local school districts would be considered **less than significant**.

Implementation of the proposed project increase the number of students in all three of the Pacifica School Districts with the construction of approximately 84 attached residential units. The average family size in the City of Pacifica is 3.21 persons per household, which would result in a total of 269 residents. Based on the statewide average student yield factors, 0.5 elementary and middle school students and 0.2 high school students are anticipated per dwelling unit. Therefore, the addition of 84 new residential homes would result in 42 elementary and middle school students and 17 high school students to the school districts.

Under California law, the payment of current school impact fees associated with a proposed development effectively mitigates any impact that such development may have on the facilities of the local school district. The proposed project would be required to pay the State-mandated school impact fees, and the proposed project would therefore have a **less than significant impact** on schools in the City.

Increased Demand for Parks and Recreation Facilities

Impact 3.9-3 The proposed project would increase the population and could potentially increase the demand for park and recreation facilities in the City. However, the proposed project would be required to pay the City's Public Facilities Fee. Therefore, this would be considered a **less than significant**.

The average family size in the City of Pacifica is 3.21 persons per household, which would result in a total of 269 residents. These residents would increase the demand for park and recreational uses within the project vicinity. However, future developers of the project site would be required to pay the City's Park Facilities Impact Fee prior to Building Permit issuance, which would mitigate their impact to parks and recreation facilities. Therefore, this would be considered a **less than significant impact**.

Increased Demand for Library Services or Other Public Facilities

The proposed project would not increase the demand for library services because the project itself includes the construction of a new 36,500 square feet library within the project site. In addition, the proposed project would not physically impact other public facilities. Therefore, the proposed project would have **no impact** on library services or other public facilities.

Increased Wastewater and Water Demand

Impact 3.9-4 The proposed project would generate increased wastewater and would require water and the extension of water infrastructure to the project site. However, based on the projected population, the proposed project is not anticipated to exceed the City's wastewater treatment capacity and/or require additional water that would exceed anticipated water entitlements and resource. Therefore, this would be considered a **less than significant**.

Implementation of the proposed project would not exceed the City's wastewater treatment capacity. The CCWRP has the ability to provide wastewater to the project site and therefore there are no impacts on the ability to provide wastewater treatment services to the project site. Implementation of this project would not require the construction of new wastewater treatment facilities, or the expansion of existing facilities. Regardless of the increase in residential units, the existing service provider has an adequate capacity to meet this demand. Therefore, this would be considered a **less than significant impact**.

Implementation of the proposed project would generate an additional demand for water; however, the additional demand would be adequately served by anticipated water entitlements and resources. Impacts are considered **less than significant**.

Storm water Runoff

Impact 3.9-5 Construction and operation of the proposed development on the project site would not substantially increase the amount of stormwater runoff that would require an expansion of existing facilities. This is considered a **less than significant impact**.

Implementation of the proposed project would allow for development of the largely vacant project site; however, much of the project site is developed with buildings and consists of impervious surfaces. As the project site has already been developed and is surrounded on three sides by existing development, it is served by existing storm water collection and conveyance systems.

New buildings and streets constructed within project site would include design features that would aid in the conveyance of storm water to existing facilities. All runoff would continue to be conveyed via streets and gutters to storm drain locations within the project site. [Mitigation Measure 3.6-3](#) would require that prior to issuance of a building permit that

each project applicant within the project site coordinate with the City of Pacifica Public Works Department to prepare the necessary calculations to ensure that future development within the project site is adequately served by existing storm drain facilities and that new storm drains are sized appropriately for the proposed development. Consequently, this would be considered a **less than significant impact**.

Increased Generation of Solid Waste

Impact 3.9-6 The proposed project would generate increased solid waste. However, based on the projected population, the proposed project is not anticipated to exceed the capacity of the Ox Mountain Sanitary Landfill and/or result in the inability to provide solid waste services. Therefore, this would be considered a **less than significant**.

Implementation of the proposed project would result in an estimated generation of approximately 1,268 lbs./day of solid waste per day with implementation of the proposed project as shown in Table 3.9-1: Estimated Solid Waste Generation.

Table 3.9-1: Estimated Solid Waste Generation

Land Use	Square Feet /Units	Generation Rates	Estimated Solid Waste Generation¹
Residential	84 units	10 lbs./dwelling unit/day	840 lbs./day
Library	36,500 sf	0.007 lbs./square foot/day	255.5 lbs./day
Boutique Hotel	75 rooms	2 lbs./room/day	150 lbs./day
Restaurant	4,500 sf	0.005 lbs./square foot/day	22.5 lbs./day
Total			1,268 lbs./day
Notes: 1. Estimates of waste generation rates provided by the California State Department of Resources Recycling and Recovery (http://www.calrecycle.ca.gov).			

Solid waste from the proposed project would be disposed of at the Ox Mountain Sanitary Landfill, which has an estimated closure date of January 2018 and 44,646,148 cubic yards respectively. Therefore, based on the remaining capacity of the landfill, the proposed project would not affect the capacity of the Ox Mountain Sanitary Landfill. Therefore, the increase in the generation of solid waste would be considered a **less than significant impact**.

Electricity, Gas, and Telecommunications

The proposed project may result in a minor expansion of electricity, gas, and telecommunications because of its entry of new residents and new infrastructure; however, this is an infill project meaning that these services will be provided by the same of those

surrounding buildings. Therefore, the proposed project would have **no impact** on electricity, gas, and telecommunications services in the City.

3.10. Transportation & Circulation

This section evaluates the potential impacts of the Project in terms of traffic and circulation and provides information on potential traffic impacts of the Project on local roadways and intersections. The analysis also evaluates impacts on public transit operations, traffic hazards, bicycle facilities, site access, circulation, and parking.

The following scenarios were evaluated to provide a baseline for determining project related impacts.

- **Existing Conditions:** Existing Condition analyzes Current Year 2012 traffic volumes within the study area
- **Existing plus Background Conditions:** Existing plus Background Conditions analyzes Current Year 2012 traffic volumes plus traffic generated by approved projects that are anticipated to be occupied and operational at Current Year 2012.
- **Cumulative without Project Conditions:** Cumulative without Project Conditions analyzes Cumulative Year 2030 traffic volumes. This scenario consists of Current Year 2012 traffic volumes projected to the year 2030 by an assumed 0.4% per annum growth plus traffic generated by approved projects.
- In order to determine the Project's impact at each of the study locations, two Project Condition scenarios were developed to compare the baseline and Project Condition traffic volumes in both the Current Year 2012 and Cumulative Year 2030. The following scenarios were evaluated to determine Project impacts:
 - **Existing plus Background with Project Conditions:** Existing plus Background plus Project conditions analyzes Current Year 2012 traffic volumes plus traffic generated by approved projects that are anticipated to be occupied and operational at Current Year 2012 and the Project generated traffic volumes.
 - **Cumulative with Project Conditions:** Cumulative with Project Conditions analyzes the Cumulative Year 2030 traffic volumes and the Project generated traffic volumes.

Environmental Setting

Existing Roadway Network

The Project is located in the City of Pacifica in San Mateo County. Regional access to the site is provided by State Route 1 (SR 1) which is located approximately 0.25 mile east of the project site. The location of the proposed project is bounded by Montecito Avenue, Palmetto Avenue, Beach Boulevard, and Birch Lane. Currently, site access and parking is provided from Beach Boulevard and Montecito Avenue on the west and north, respectively. A gated entry is also located on the east at Palmetto Avenue. The Project will construct Pacific Avenue, a proposed east-west multimodal link from Palmetto Avenue to Beach Boulevard.

A description of the street system providing direct access and circulation to the Project site is included below. [Figure 3.10-1 Existing Intersection Geometry](#), shows existing intersection geometry and control type for the following streets:

- **State Route 1** is a north-south state highway within San Mateo County, providing access to I-280 and San Francisco to the north and southern Pacifica, Half Moon Bay and Santa Cruz County to the south. In the vicinity of the project, State Route (SR) 1 is a four-lane expressway with a posted speed limit of 65 miles per hour (mph). SR 1 transitions to a four lane arterial with a posted speed limit of 45 mph south of the site at Westport Drive.
- **Palmetto Avenue** is a two-lane arterial within the City of Pacifica. Palmetto Avenue provides north-south access through the project area from north Pacifica to Clarendon Road. Class II bike lanes are provided on Palmetto Avenue in both directions between the SR 1 southbound on-ramp, north of the intersection of Palmetto Avenue and Sharon Way, to Clarendon Road. On-street parking is provided in both directions along most portions of Palmetto Avenue. The speed limit is 25 mph.
- **Oceana Boulevard** is a two-lane, north-south arterial, east and parallel to SR 1. Oceana Boulevard provides access to northbound SR 1, Oceana High School and the surrounding residential and commercial areas. On-street parking is provided along portions of the eastside of the roadway. The speed limit is 30 mph.
- **Francisco Boulevard** is a two-lane, north-south collector, west and parallel to SR 1 through the project area. Francisco Boulevard intersects SR 1 at the intersection of SR 1 southbound off-ramp / Francisco Boulevard and Paloma Avenue and at the intersection of SR 1 southbound on-ramp and Francisco Boulevard. Francisco Boulevard is designated as a Class-III bike facility south of Lakeside Way. On-street parking is provided on both sides of the roadway. The posted speed limit on Francisco Boulevard is 25 mph north of Lakeside Way and 30 mph south of Lakeside Way.
- **Clarendon Road** is a two-lane, local street originating at the south end of Beach Boulevard. Clarendon Road is a one-way (eastbound only) street west of Palmetto Avenue and a two-way facility east of Palmetto Way.
- **Paloma Avenue** is a two-lane, east-west local street providing access over SR 1 between the Oceana High School neighborhood and north end of Beach Boulevard. Paloma Avenue is a one-way (westbound only) facility between Francisco Boulevard and Beach Boulevard. On-street parking is provided along the entire roadway except at the SR 1 overcrossing. The speed limit is 25 mph.
- **Montecito Avenue** is a two-lane, east-west, local street that travels between Beach Boulevard and Francisco Boulevard serving the surrounding beach and residential neighborhood. On-street parking is provided along both sides of the roadway and the speed limit is 25 mph.

- **Beach Boulevard** is a single-lane, one-way (southbound only), local street that provides access to the Pacifica Pier and beachfront. On-street parking is provided along portions of Beach Boulevard. A pedestrian path runs along the west side of the roadway which provides access to the beachfront area. The speed limit is 25 mph.
- **Birch Lane** is a narrow two-lane, east-west, local alley street that extends east from Beach Boulevard. There is no on-street parking and the speed limit is 25 mph.

Pedestrian and Bicycle Circulation

Existing pedestrian access is provided via sidewalks throughout the project area. A paved pedestrian trail is located along the west side of Beach Boulevard, providing access to the beachfront and Pacifica Pier and Promenade. Bicycle and pedestrian access across SR 1 is provided at the Paloma Avenue overpass, the San Jose Avenue pedestrian bridge, and at the Clarendon Road underpass.

The City of Pacifica adopted the Pacifica Bicycle Plan in 2000. North-south bicycles movements are accommodated on existing bicycle facilities within the project area. The existing bicycle facilities within the project area include Class-II bike lanes on both sides of Palmetto Avenue and Class-III bicycle facilities on Lakeside Way and Francisco Boulevard south of Laguna Way. Class-III facilities are proposed on Beach Boulevard, Clarendon Road, and Paloma Avenue.

Descriptions of the bicycle facility classifications are as follows.

Class I Bikeway (Bike Path) – A Class I Bikeway is a physically separated bike path that does not share the roadway with motorized vehicles. They can be separated by either open space or a physical barrier and are generally two-way facilities.

Class II Bikeway (Bike Lane) – A Class II Bikeway is a bike lane that shares a portion of the roadway with motorized vehicles. They are separated by striping and are signed and marked for exclusive use by bicycle traffic. Class II Bikeways provide service for one-way bicycle traffic and are located outside of the through lanes for motorized vehicles.

Class III Bikeway (Bike Route) – A Class III Bikeway is a bike route that shares the roadway with motorized vehicles. They are identified by signs and not separated by striping. Class III Bikeways are utilized in locations that do not have Class I or Class II facilities or to connect Class II Bikeways to provide a continuous bikeway system.

Transit Service

The San Mateo County Transit District (SamTrans) provides bus service throughout the City of Pacifica to San Mateo County, San Francisco, and Palo Alto.

Route 16 loops through the southern and northern areas of Pacifica. Within the project vicinity, Route 16 travels on Palmetto Avenue, Clarendon Road, and Oceana Boulevard. The route operates on weekdays only between 7:00 AM and 9:00 AM and between 2:45 PM and 4:00 PM, and is designed to serve students.

Route 110 is a primary north-south route traveling between the southern terminus at the Linda Mar Shopping Center and the northern terminus at the Daly City BART station. This route travels along Oceana Boulevard and Francisco Boulevard within the project area and operates every day of the week at half-hour to hour headways.

Route 112 is a north-south route running from the Linda Mar Shopping Center in southern Pacifica to the Bay Area Rapid Transit (BART) Colma station north of Pacifica. Within the project vicinity Route 112 travels on Palmetto Avenue and Clarendon Road. Hour headways on the route are typically provided during both weekdays and weekends.

Traffic Analysis Methodology

Study Intersections

Operations of ten key intersections in the vicinity of the project area were evaluated during the weekday morning and evening peak commute periods. The intersections analyzed were determined, in consultation with City staff, based on the amount of traffic projected due to the Project. The locations of these intersections are shown on [Figure 3.10-1: Existing Intersection Geometry](#) and represent the locations most likely to experience traffic impacts associated with the project. The following ten intersections were analyzed.

- Oceana Boulevard & SR 1 Northbound On-Ramp
- Oceana Boulevard & Paloma Boulevard
- Francisco Boulevard & Paloma Boulevard
- Palmetto Avenue & Paloma Avenue
- Francisco Boulevard & Montecito Avenue
- Palmetto Avenue & Montecito Avenue
- Palmetto Avenue & Clarendon Road
- Francisco Road & Clarendon Road
- Ocean Road & Clarendon Road
- Francisco Boulevard & SR 1 Southbound On-Ramp

Level of Service Methodology

Operational traffic analyses focus on intersections rather than roadway segments, due to the capacity constraints typically occurring at the intersections. The operational performance of a roadway network is commonly described with the term level of service

(LOS). LOS is a qualitative description of operating conditions, ranging from LOS A (free-flow traffic conditions with little or no delay) to LOS F (oversaturated conditions where traffic flows exceed design capacity, resulting in long queues and delays). The LOS analysis methods outlined in the *Highway Capacity Manual* (HCM) (Transportation Research Board, 2000) were used in this study.

Traffic operations at unsignalized intersections were evaluated using the LOS method described in Chapter 17 of the HCM. The LOS for unsignalized intersections (side-street or all-way stop controlled intersections) is defined by the average control delay per vehicle (measured in seconds). The control delay incorporates delay associated with deceleration, acceleration, stopping, and moving up in the queue. [Table 3.10-1: Unsignalized Intersection Level of Service Criteria](#) summarizes the relationship between delay and LOS for unsignalized intersections. The delay ranges for unsignalized intersections are lower than for signalized intersections as drivers expect less delay at unsignalized intersections.

Table 3.10-1: Unsignalized Intersection Level of Service Criteria

Level of Service	Description	Average Control Delay (Seconds Per Vehicle)
A	Little or no delays	≤ 10.0
B	Short traffic delays	> 10.0 to 15.0
C	Average traffic delays	> 15.0 to 25.0
D	Long traffic delays	> 25.0 to 35.0
E	Very long traffic delays	> 35.0 to 50.0
F	Extreme traffic delays with intersection capacity exceeded	> 50.0

Source: *Highway Capacity Manual*, Transportation Research Board, 2000

For side-street stop-controlled intersections, delay is calculated for each stop-controlled movement and for the uncontrolled left turns, if any, from the main street. The delay and LOS for the overall intersection and for the movement experiencing the most delay are reported for side-street, stop intersections. At all-way stop intersections, the intersection average delay is reported. Traffix 8.0 software was used to determine the delay and LOS of the intersections within the study area.

Existing Traffic Volumes

Existing Year 2012 peak hour traffic volumes were collected on Tuesday May 1, 2012, during the AM (7:00 – 9:00 AM) and PM (4:00 – 6:00 PM) peak hours at the 10 study intersections. The existing peak hour turning movement volumes can be seen in [Figure 3.10-2: Existing Peak Hour Intersection Volumes](#).

Existing Levels of Service

[Table 3.10-2: Existing and Existing Plus Background Intersection Levels of Service](#) provides a summary of the existing conditions level of service results. All study intersections operate

at an acceptable LOS, except for the intersection of Oceana Boulevard and Paloma Avenue which operates at an unacceptable LOS E during the AM peak hour and acceptable LOS B during the PM peak hour. LOS E conditions exist during the AM peak hour due to the proximity of Oceana High School from where most vehicle trips occur only during the 20 minute period before school start time.

Existing Plus Background Level of Service

Existing Plus Background Conditions analyzes Current Year 2012 traffic volumes plus traffic generated by approved projects that are anticipated to be occupied and operational at Current Year 2012. The Background Conditions projects were provided by the City of Pacifica. Trip generation was calculated using the Institute of Transportation Engineers (ITE) Trip Generation Manual, 8th Edition. Anticipated trip generated traffic was distributed through the project area using existing traffic flow patterns. Projections of trip generation traffic volumes for the Background Conditions are provided in [Appendix E](#).

One Background Conditions project is anticipated to be constructed and occupied by the Current Year 2012. This project does not include any modifications to the existing roadway network. The Existing plus Background Conditions peak hour intersection turning movement traffic volumes are illustrated in [Figure 3.10-3: Existing Plus Background Intersection Volumes](#).

The TRAFFIX analysis software program, which uses the 2000 HCM methodologies, was used to determine the LOS for Existing plus Background conditions during the AM and PM peak hour at each of the study intersections. The results of this analysis are provided in [Table 3.10-2: Existing and Existing Plus Background Intersection Levels of Service](#). All intersections are anticipated to operate at an acceptable LOS, except for the intersection of Oceana Boulevard and Paloma Avenue which is anticipated to operate at a LOS E in the AM peak hour. The intersection of Oceana Boulevard and Paloma Avenue is anticipated to operate at an acceptable LOS B during the PM peak hour.

Table 3.10-2: Existing and Existing Plus Background Intersection Level of Service

#	Intersection:	Ctrl. Type	LOS Std.	Overall / Worst Approach	Existing Conditions						Existing + Background Conditions					
					AM Pk. Hr.			PM Pk. Hr.			AM Pk. Hr.			PM Pk. Hr.		
					V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS
1	Oceana Blvd./ NB SR I On-Ramp	SSS	D	Overall	0.386	4.6	A	0.162	3.1	A	0.389	4.6	A	0.163	3.1	A
				Worst Approach		9.5	A		8.1	A		9.5	A		8.1	A
2	Oceana Blvd./ Paloma Ave.	AWS	D	Overall	0.997	42.0	E	0.593	13.3	B	1.001	42.7	E	0.593	13.3	B
3	Francisco Blvd./ Paloma Ave.	AWS	D	Overall	0.521	12.7	B	0.591	12.1	B	0.522	12.7	B	0.594	12.1	B
4	Palmetto Ave./ Paloma Ave.	AWS	D	Overall	0.513	11.8	B	0.290	9.0	A	0.514	11.9	B	0.290	9.0	A
5	Francisco Blvd./ Montecito Ave.	SSS	D	Overall	0.019	0.6	A	0.012	0.6	A	0.019	0.6	A	0.012	0.6	A
				Worst Approach		10.2	B		9.9	A		10.2	B		9.9	A
6	Palmetto Ave./ Montecito Ave.	AWS	D	Overall	0.212	8.1	A	0.223	8.1	A	0.213	8.1	A	0.225	8.2	A
7	Palmetto Ave./ Clarendon Ave.	SSS	D	Overall	0.164	9.2	A	0.142	9.2	A	0.165	9.3	A	0.143	9.2	A
				Worst Approach		12.9	B		12.6	B		13.1	B		12.6	B
8	Francisco Blvd./ Clarendon Ave.	AWS	D	Overall	0.533	11.0	B	0.476	10.6	B	0.535	11.1	B	0.478	10.7	B
9	Oceana Blvd./ Clarendon Ave.	AWS	D	Overall	0.485	10.2	B	0.410	9.7	A	0.489	10.2	B	0.413	9.7	A
10	Francisco Blvd./ SR I SB On-Ramp	SSS	D	Overall	0.205	9.8	A	0.329	10.7	B	0.206	9.8	A	0.329	10.7	B
				Worst Approach		9.9	A		11.0	B		9.9	A		11.0	B

Notes:
 1. Analysis performed using HCM 2000 methodologies
 2. Delay indicated in seconds
 3. Overall level of service (LOS) standard for the City of Pacifica is LOS D
 4. Highlighted values indicate operations worse than Caltrans adopted minimum LOS standards.

Relevant Project Characteristics

The project proposes providing several roadways through the site, designed to enhance pedestrians' walking experience and encouraging automobiles to travel slowly. The proposed internal roadways will include special paving treatments, aesthetic improvements and narrow travel lane widths.

The general public currently uses parking on and adjacent to the site to access the Pacifica Promenade, beach and pier, Palmetto Avenue merchants, and other destinations. Some of this parking will be relocated to allow site redevelopment. In addition, parking on Montecito Avenue will be reconfigured from parallel to angled parking. The parking modifications will result in a net addition of 4 public spaces following redevelopment.

Project Trip Generation

The City is proposing to rezone the site to allow for a mixed-use development that would include an approximately 36,500 square-foot library with internal café, and up to 84 attached residential units, a boutique hotel of up to 75 rooms, and a waterfront restaurant of up to 4,500 square feet. The library will have a large meeting space which will also function as the City Council chambers and multipurpose meeting room for the community.

Of the 36,500 square feet of library space proposed as part of the Project, 7,082 square feet of library space will be relocated from the existing Sharp Park Library directly across the street from the Project site at the corner of Palmetto Avenue and Hilton Way. The City currently has no plans to redevelop the existing Sharp Park Library which will be vacated upon opening of the project library site.

Trip generation estimates for the entitled projects during both AM and PM peak hours were estimated using the trip generation equations and rates presented in Institute of Transportation Engineers' (ITE) *Trip Generation, 8th Edition*. The estimate of vehicle trips to be generated by the proposed project is shown in [Table 3.10-3: Project Trip Generation](#). The project trip generation was adjusted to account for the closure of the Sharp Park Library and includes a reduction of 398 daily, 7 AM peak hour and 52 PM peak hour trips. The proposed project is estimated to generate 3,160 daily, 133 AM peak hour, and 336 PM peak hour net new trips. The resulting peak hour turning movements generated by the project is shown in [Figure 3.10-4: Project Peak Hour Trip Assignment](#).

Table 3.10-3: Project Trip Generation

ITE #	Land Use	Size	Units	Total Generated Trips						
				Daily	AM Pk Hr.	PM Pk Hr.	AM In	AM Out	PM In	PM Out
590	Library	36,500	S.F.	2,053	38	266	27	11	128	139
230	Townhomes	84	DU's	488	37	44	6	31	29	14
310	Hotel	75	Rooms	613	42	44	26	16	23	21
931	Quality Restaurant	4,500	S.F.	405	4	34	3	1	23	11
<i>Trip Generation Subtotal</i>				3,558	121	388	62	59	203	185
Trip Generation Credit for Closure of Sharp Park Library										
590	Library	7,082	S.F.	-398	-7	-52	-5	-2	-25	-27
Total Project Trip Generation				3,160	113	336	57	57	178	158

Notes:

(1) Source: Institute of Transportation Engineers' (ITE) Trip Generation, 8th Edition

Project Trip Assignment and Distribution

Trip distribution is based on the origins and destinations of all trips to and from the project site. The majority of the project trips would distribute along Palmetto Avenue, Francisco Boulevard, and Paloma Avenue. Regional traffic would distribute to northbound SR 1 to San Francisco and the Bay Area and southbound SR 1 to southern Pacifica. Project trip distribution was primarily based on the information from the C/CAG travel demand model and existing turning movements at each of the ten study intersections. The assumed vehicle trip distribution is shown on [Figure 3.10-5: Project Trip Distribution](#). Project with Background volumes are shown on [Figure 3.10-6: Existing Plus Background Plus Project Intersection Volumes](#).

Impacts and Mitigation Measures

This section presents the relevant project details pertaining to the transportation impact analysis, and describes the analysis scenarios and analysis methods.

Criteria for Determining Significance

CEQA Guidelines

In accordance with the California Environmental Quality Act (CEQA), *State CEQA Guidelines*, agency and professional standards, a project impact would be considered significant if the project would:

- a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?

- b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?
- c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?
- d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?
- e) Result in inadequate emergency access?
- f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?

City of Pacifica Level of Service Standards

The City of Pacifica has established quantitative standards to determine if a project causes (either individually or cumulatively) an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system. For all unsignalized intersections in the City, projects are considered to have a significant impact under the following conditions:

The worst stop-controlled approach at an intersection is projected to operate at an unacceptable LOS E or F under project conditions and the addition of project traffic causes the traffic volumes at the intersection to satisfy the peak-hour volume traffic signal warrant adopted by Caltrans.

Project Impacts and Mitigation Measures

Level of Service Analysis

To determine the impacts of the Project during the Current Year 2012, the intersection analyses for the Existing plus Background Conditions and Existing plus Background Conditions plus Project are summarized in [Table 3.10-4: Project Conditions Intersection Level of Service](#). As shown in this table, all of the study intersections are anticipated to operate at an acceptable level of service during the AM and PM peak hours, except for the intersection of Oceana Boulevard and Paloma Avenue.

The intersection of Oceana Boulevard and Paloma Avenue would operate at LOS E during the AM peak hour without project traffic. Under Existing plus Background plus Project conditions, traffic operations at this intersection will deteriorate to LOS F during the AM peak hour, however the addition of project traffic would not cause the traffic volumes at the intersection to satisfy the peak-hour volume traffic signal warrant adopted by Caltrans, and therefore, **no impact** would occur.

Traffic signal warrant worksheets for Existing plus Background and Existing plus Background plus Project conditions are provided in [Appendix E](#).

Table 3.10- 4. Project Conditions Intersection Level of Service

#	Intersection:	Ctrl. Type	LOS Std.	Overall / Worst Approach	Existing + Background Conditions						Existing + Background + Project					
					AM Pk. Hr.			PM Pk. Hr.			AM Pk. Hr.			PM Pk. Hr.		
					V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS
1	Oceana Blvd./ NB SR I On-Ramp	SSS	D	Overall	0.389	4.6	A	0.163	3.1	A	0.422	4.9	A	0.215	3.7	A
				Worst Approach		9.5	A		8.1	A		9.8	A		8.3	A
2	Oceana Blvd./ Paloma Ave.	AWS	D	Overall	1.001	42.7	E	0.593	13.3	B	1.080	52.3	F*	0.684	15.8	C
3	Francisco Blvd./ Paloma Ave.	AWS	D	Overall	0.522	12.7	B	0.594	12.1	B	0.543	13.5	B	0.713	14.7	B
4	Palmetto Ave./ Paloma Ave.	AWS	D	Overall	0.514	11.9	B	0.290	9.0	A	0.536	12.4	B	0.333	10.0	A
5	Francisco Blvd./ Montecito Ave.	SSS	D	Overall	0.019	0.6	A	0.012	0.6	A	0.061	1.4	A	0.075	1.8	A
				Worst Approach		10.2	B		9.9	A		10.6	B		10.9	B
6	Palmetto Ave./ Montecito Ave.	AWS	D	Overall	0.213	8.1	A	0.225	8.2	A	0.255	8.4	A	0.384	9.4	A
7	Palmetto Ave./ Clarendon Ave.	SSS	D	Overall	0.165	9.3	A	0.143	9.2	A	0.196	9.6	A	0.249	10.0	A
				Worst Approach		13.1	B		12.6	B		14.1	B		16.1	C
8	Francisco Blvd./ Clarendon Ave.	AWS	D	Overall	0.535	11.1	B	0.478	10.7	B	0.566	11.5	B	0.584	12.3	B
9	Oceana Blvd./ Clarendon Ave.	AWS	D	Overall	0.489	10.2	B	0.413	9.7	A	0.513	10.6	B	0.505	11.0	B
10	Francisco Blvd./ SR I SB On-Ramp	SSS	D	Overall	0.206	9.8	A	0.329	10.7	B	0.221	9.8	A	0.391	11.1	B
				Worst Approach		9.9	A		11.0	B		10.0	A		11.6	B

Notes:

1. Analysis performed using HCM 2000 methodologies
 2. Delay indicated in seconds
 3. Overall level of service (LOS) standard for the City of Pacifica is LOS D
 4. Highlighted values indicate operations worse than Caltrans adopted minimum LOS standards.
- * The intersection of Oceana Boulevard / Paloma Avenue does not meet Caltrans signal warrants

Congestion Management Program

None of the roadways within the immediate vicinity of the project site are designated Congestion Management Program (CMP) and Metropolitan Transportation System (MTS) routes (Tier 1 and Tier 2), as identified by Metropolitan Transportation Commission, and therefore **no impact** would occur.

Change in Air Traffic Patterns

The closest airport to the project site is San Francisco International Airport, which is approximately six miles away. The proposed project would not increase in traffic levels nor cause a change in location that would result in substantial safety risks, and therefore **no impact** would occur.

Increase Hazards Due to a Roadway Design Features or Inadequate Emergency Access

Impact 3.10-1: The proposed project would reconfigure the existing Beach Boulevard (a public roadway) and add new internal project roadways which has the potential to increase pedestrian and vehicular hazards both on and off the project site. However, the proposed would be subject to applicable zoning regulations, design guidelines, and design review to reduce these impacts. This is considered a **less than significant impact**.

The primary off-site roadway improvement associated with the proposed project would be a reconfiguration of Beach Boulevard and the adjacent parking lot. At present, Beach Boulevard is located west of the existing parking lot and is separated by a raised median. The proposed project would integrate Beach Boulevard into the parking lot and incorporate parallel parking on the west side of Beach Boulevard. This reconfiguration would slightly constrict traffic moving south on Beach Boulevard as there would be more congestion in the form of cars moving in and out of parking spaces, and increased pedestrian activity associated with the proposed development.

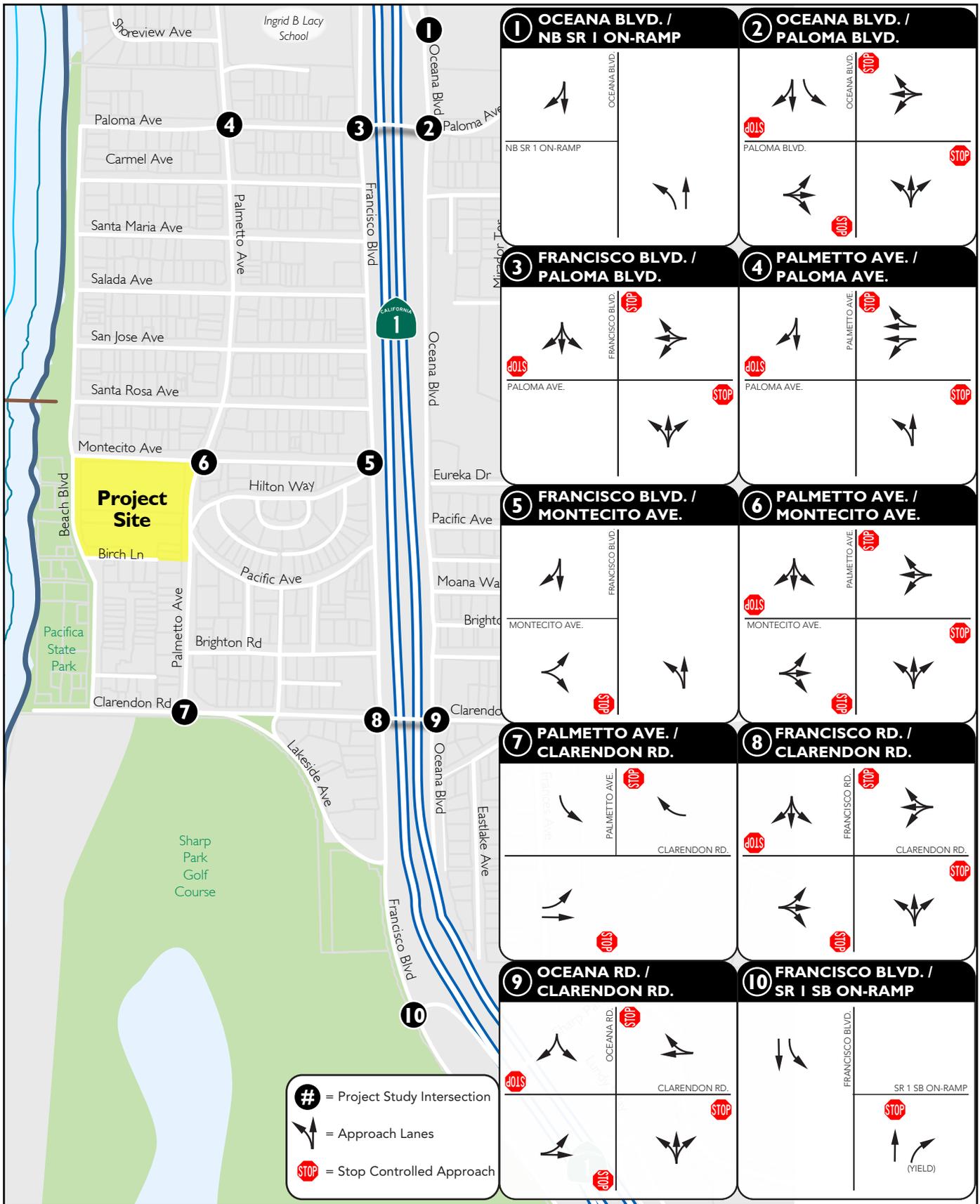
On-site improvements include the construction of two one-way roadways extending north-south connecting Montecito Avenue and Birch Lane. Additionally, a newly proposed Pacific Avenue would extend east-west connecting Palmetto Avenue to Beach Boulevard and the Pacific Ocean. While this roadway will be accessible by vehicles, it will function as a linear public plaza and include special pavement treatments, narrow intersections, street trees, special lighting and pedestrian amenities such as benches, trash receptacles, etc. The design will purposefully constrict vehicles (e.g. curbing, street trees, etc.) requiring them to move slowly and thereby ensure safe use by pedestrian and bicyclists.

All on- and off-site improvements would be carefully designed to minimize the potential for vehicular and non-vehicular conflicts and would be designed consistent with all City regulations including emergency access requirements as identified by the Pacifica Police and Fire departments. Given the characteristics of the project design to encourage a safe circulation network and the requirement to adhere to existing City design regulations, the

project is not anticipated to cause an increase in hazards due to new roadway design features or inadequate emergency access and therefore impacts would be **less than significant**.

Conflict with Public Transit, Bicycle, or Pedestrian Facilities

The proposed project would not alter existing public transit, bicycle or pedestrian facilities and would provide a beneficial impact in that it would help facilitate public transit use (e.g. to and from the library and public meetings). Additionally, bike racks would be incorporated into the site design and thereby encourage biking to and from the project site. Therefore, because there would be no altering of public transit, bicycle or pedestrian facilities and in fact there would be some benefits, **no impacts** would occur.



Source: RBF Consulting (August, 2012)

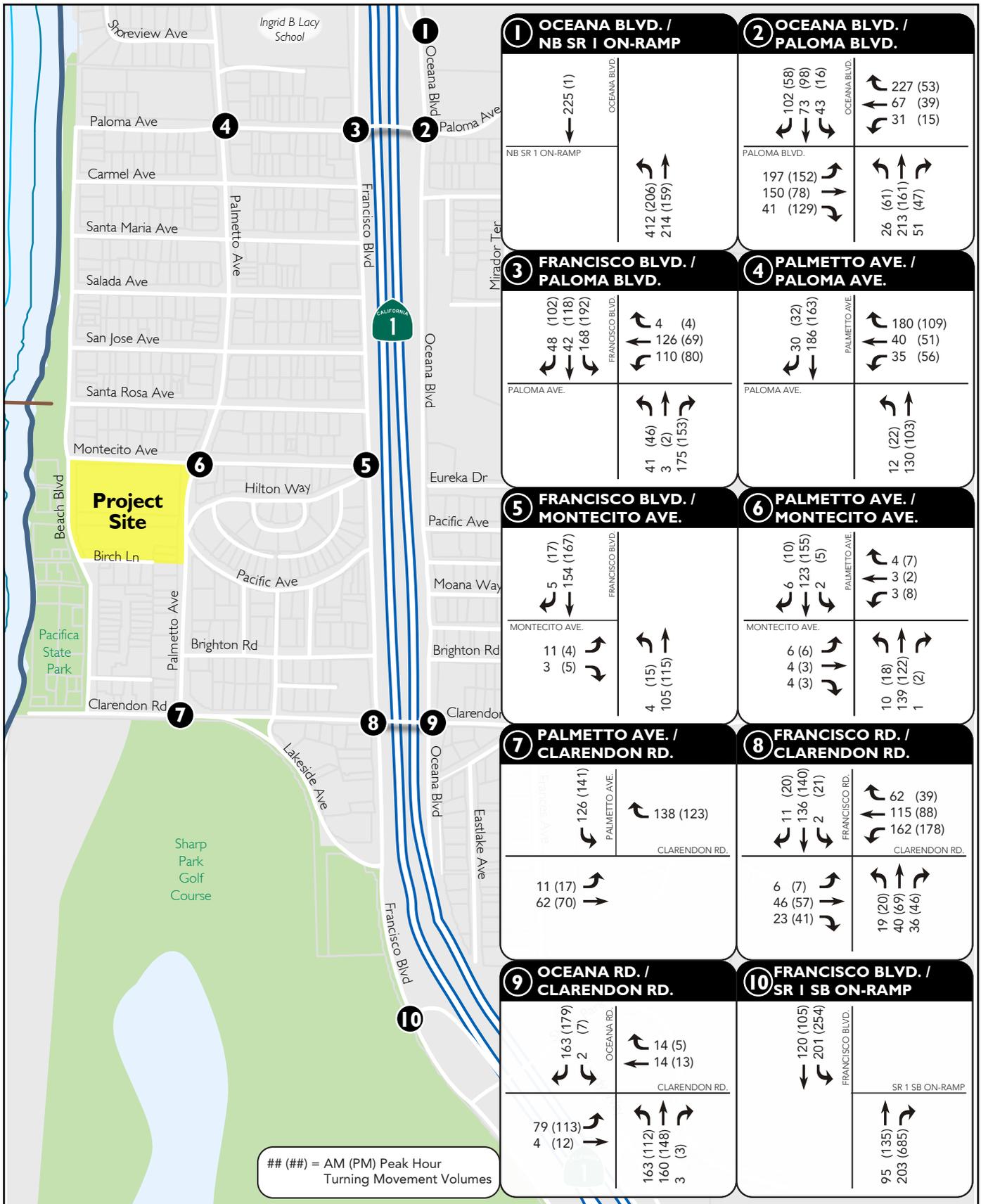


JN 70-100421

Existing Intersection Geometry

Redevelopment of the Beach Boulevard Property EIR

Figure 3.10-1



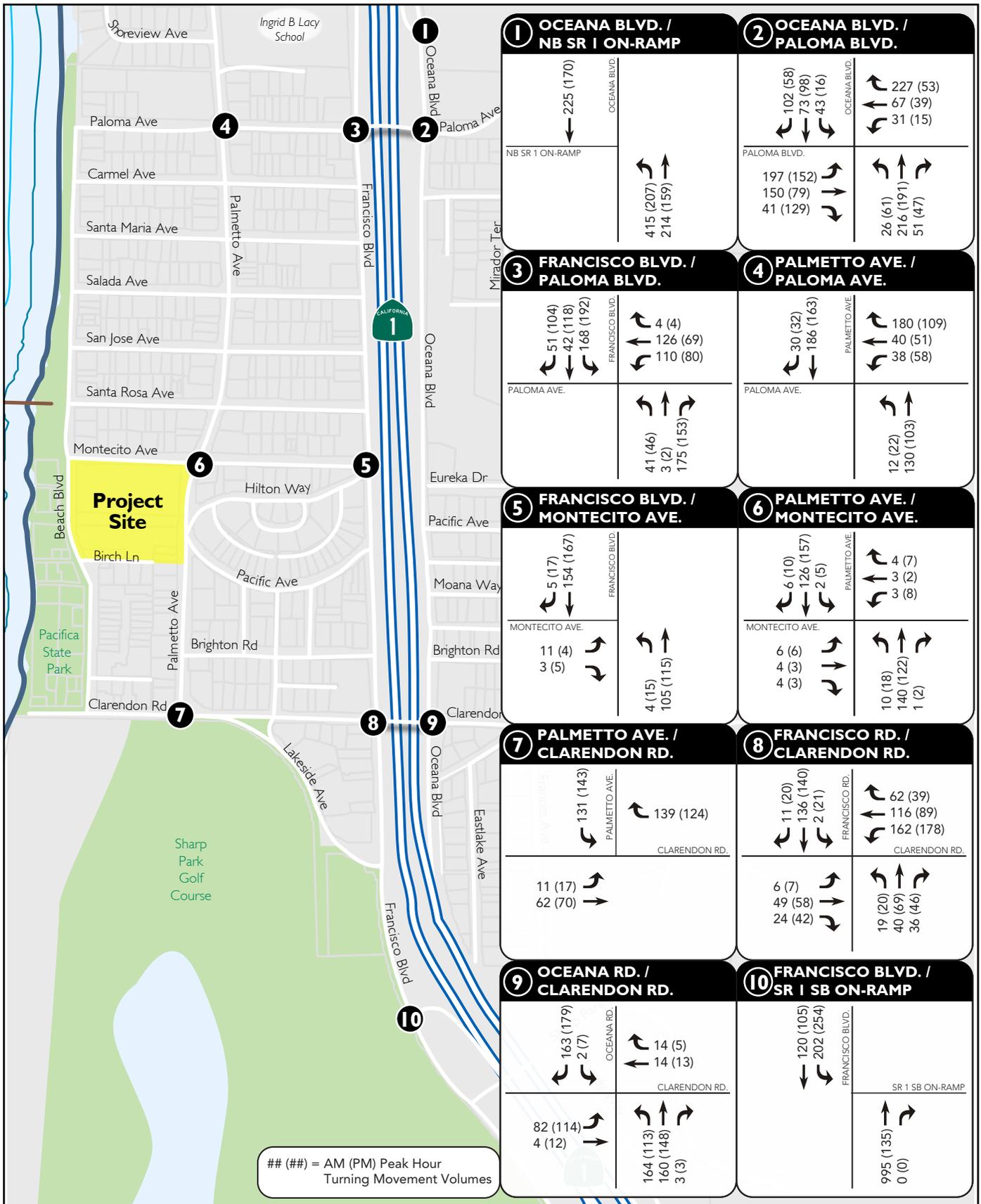
Source: RBF Consulting (August 2012)



Existing Peak Hour Intersection Volumes

Redevelopment of the Beach Boulevard Property EIR

Figure 3.10-2



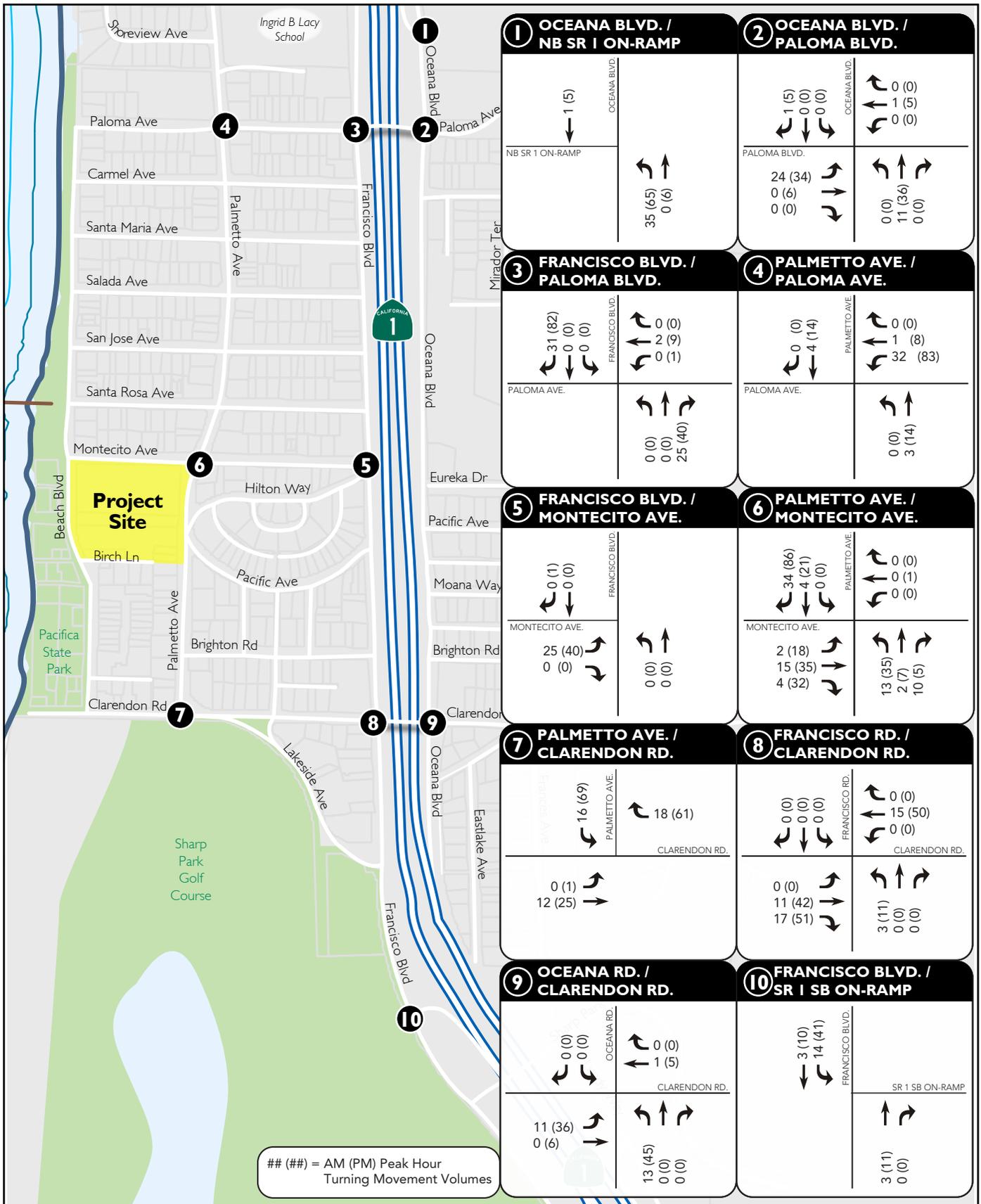
Source: RBF Consulting (August 2012)



Existing Plus Background Peak Hour Intersection Volumes

Redevelopment of the Beach Boulevard Property EIR

Figure 3.10-3



Source: RBF Consulting (August 2012)



JN 70-100421

Project Peak Hour Trip Assignment

Redevelopment of the Beach Boulevard Property EIR

Figure 3.10-4

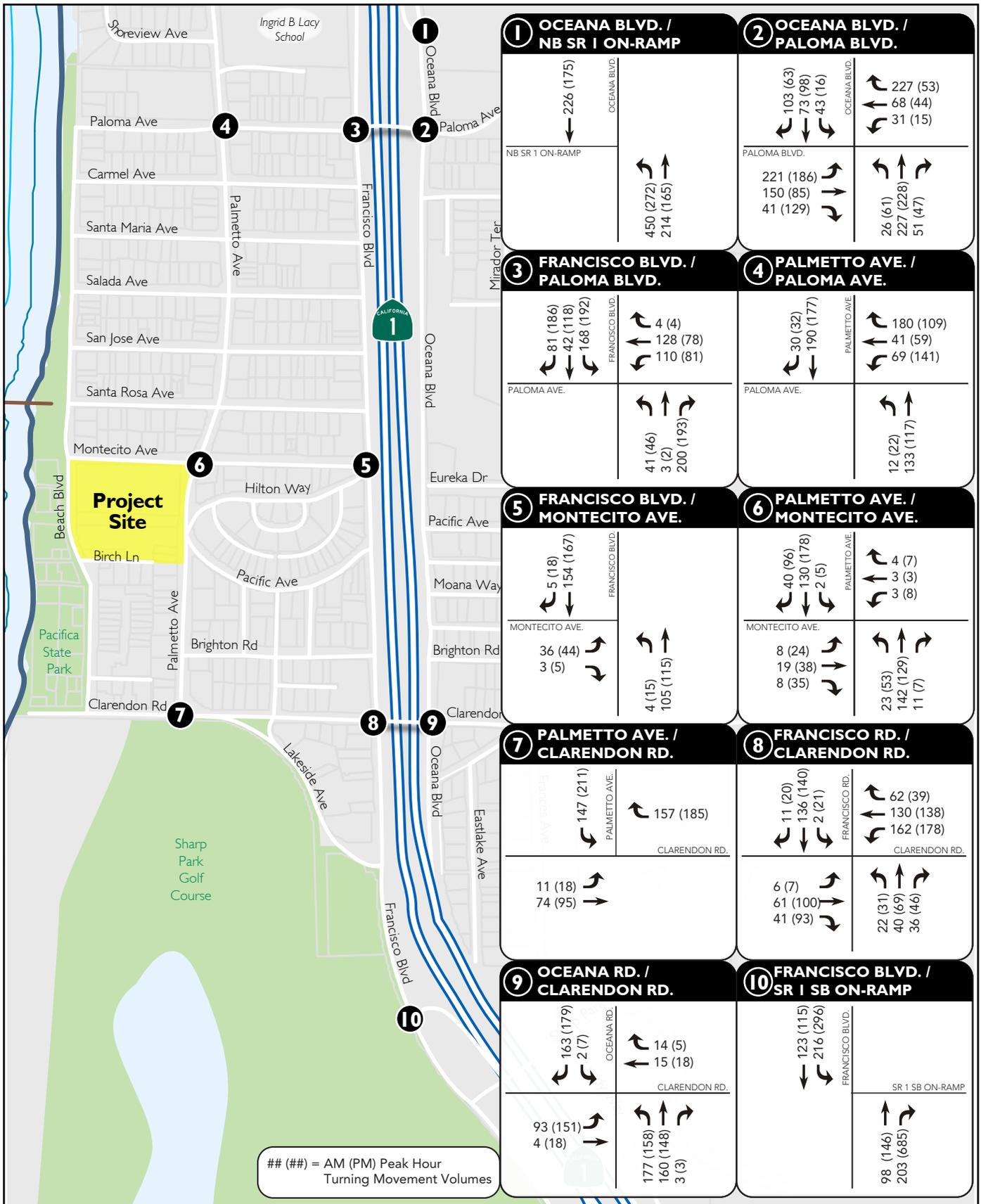


Source: RBF Consulting (August, 2012)



Project Trip Distribution

Redevelopment of the Beach Boulevard Property EIR



Source: RBF Consulting (August 2012)



Existing Plus Background Plus Project Intersection Volumes

Redevelopment of the Beach Boulevard Property EIR

Figure 3.10-6