Draft

ALAMEDA POINT PROJECT

Environmental Impact Report
SCH No. 2013012043

Prepared for
City of Alameda

September 2013

ESA

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CHAPTER 1
Introduction

A. Project Overview

The project site is located in the City of Alameda in Alameda County, California. The City of Alameda occupies approximately 12.4 square miles of land area immediately south of the City of Oakland and the Oakland-Alameda Estuary (the “Estuary”), east of San Francisco, and north and east of the San Francisco Bay (the “Bay”). Alameda Island makes up approximately 80 percent of the City’s land area, with the remainder on Bay Farm Island across the San Leandro Channel. Alameda Point occupies much of the western tip of Alameda Island.

The Alameda Point project site is approximately 878 acres of uplands and 1,229 acres of submerged lands (total of 2,107 acres) of the former Naval Air Station (NAS Alameda) located west of Main Street at the western end of Alameda (project site). The project site is bounded by the Oakland-Alameda Estuary on the north, Main Street on the east, and the San Francisco Bay and the federal property to the west and south. For detailed location information, please see Chapter 3.[1]

The property is currently occupied by over five million square feet of existing former Navy buildings, former airplane runways, taxiways, and staging areas, and water and maritime uses within what is referred to as the Seaplane Lagoon.

To facilitate redevelopment and reuse consistent with the NAS Alameda Community Reuse Plan (“Reuse Plan”), adopted by the City of Alameda in 1996, and the Alameda General Plan, the City of Alameda (the “lead agency”) is proposing to adopt and implement a comprehensive zoning amendment, and associated general plan amendment, a Master Infrastructure Plan, and a Town Center and Waterfront Precise Plan (“Precise Plan”). Figure 3-1, in Chapter 3, Project

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1 Approximately 624 acres at the southwest corner of the former NAS Alameda are not part of the proposed project, but are proposed for separate transfer by the U.S. Navy to the U.S. Department of Veterans Affairs (VA) for use, in part, for a veterans’ outpatient health clinic and a columbarium. Upon transfer from the Navy, the VA is proposing to construct the outpatient clinic and columbarium on 112 acres of land adjacent to the project site. The health clinic, operated by the Veterans Health Administration, a branch of the VA, would be a two-story building of approximately 158,000 square feet and would replace an existing facility on Martin Luther King Jr. Way in Oakland. The columbarium would be under the governance of the National Cemetery Administration (NCA), also part of the VA. Throughout this EIR, the term “Alameda Point” refers the project site only, and does not include these federal lands outside the project site, which are identified as “Federal Property.” A draft Environmental Assessment, prepared pursuant to the National Environmental Policy Act, was issued for the VA project in January 2013. Department of Veterans Affairs and Department of the Navy, *Transfer of Excess Property and Development of an Outpatient Clinic, Offices, and National Cemetery at the Former Naval Air Station Alameda, California which is* available on the internet at: http://www.northerncalifornia.va.gov/planning/Alameda/ea-toc.asp. This EIR includes the Veterans Health Clinic and Columbarium as part of the cumulative impact analysis.

Description, depicts the project site divided into sub-areas. A detailed project description can be found in Chapter 3.

The proposed project includes:

- Adopting a Master Infrastructure Plan for the replacement, reconstruction, and rehabilitation of deteriorated and substandard infrastructure, buildings, and shoreline protections.
- Rehabilitation and new construction of open space, parks and trails for public enjoyment.
- Rehabilitation, reuse, and new construction of approximately 5.5 million square feet of commercial and workplace facilities for approximately 8,900 jobs.
- Maritime and water related recreation uses in and adjacent to the Seaplane Lagoon.
- Rehabilitation and new construction of 1,425 residential units for a wide variety of household types for approximately 3,240 residents.
- Adopting a General Plan Amendment, a Zoning Ordinance Amendment, and a precise plan that would create planning sub-districts within Alameda Point to facilitate a seamless and integrated mixed-use, transit-oriented community consistent with the existing General Plan and Reuse Plan.

Subsequent approvals from the City that would be necessary for the proposed mixed use project include: subdivision map(s); conditional use permits, as deemed necessary for subsequent individual development projects; and design review of these developments, among other approvals. For more discussion on the project approvals, please see Chapter 3, Project Description.

B. California Environmental Quality Act

The proposed Alameda Point Project approvals constitute a “project” as defined by, and subject to the requirements of, the California Environmental Quality Act (CEQA) (Public Resources Code, Section 21000 et seq.) and the “CEQA Guidelines” (California Code of Regulations, Title 14, Section 15000 et seq.). For purposes of CEQA, the term “project” refers to the whole of an action that has the potential for resulting in a direct physical change or a reasonably foreseeable indirect physical change in the environment (CEQA Guidelines Section 15378). As the principal public agency responsible for approving the Alameda Point Project, the City of Alameda is the “lead agency” overseeing and administering the CEQA environmental review process.

As set forth in CEQA Guidelines Sections 15126.2 and 15126.4, before deciding whether to approve a project, public agencies must consider the significant environmental impacts of the project and must identify feasible measures to minimize those impacts. Pursuant to CEQA Guidelines Section 15063(b), if any aspect of the proposed project, either individually or cumulatively, may cause a significant effect on the environment, the lead agency must prepare an Environmental Impact Report (EIR) unless the project can be modified to mitigate all of the significant adverse environmental effects before an EIR is prepared (CEQA Guidelines Section 15063(c)(2)). The City of Alameda has determined that the size, scale, and potential impacts resulting from the proposed project require the preparation of an EIR.

This EIR is a factual informational document, prepared in conformance with CEQA, and written for the purpose of making the public and decision-makers aware of the environmental consequences of the proposed project. For any consequence, or project impact, that is considered “significant,” the EIR identifies mitigation measures, where feasible, to reduce or avoid the significant impact. The EIR also considers the objectives of the project and identifies whether there might be alternative ways of accomplishing those objectives while substantially reducing the project’s impacts. Before any action may be taken to approve the Alameda Point Project, the City of Alameda must certify that it has reviewed and considered the information in the EIR, that it has exercised its independent judgment and analysis, and that the EIR has been completed in compliance with the requirements of CEQA. Certification of the EIR does not approve or deny the proposed project.

C. Environmental Review

Consistent with CEQA, this EIR is an informational document for use by governmental agencies and the public to identify and evaluate potential environmental consequences of the proposed project, to recommend mitigation measures and/or alternatives to the project to minimize the project’s significant adverse impacts (CEQA Guidelines Section 15121(a)).

C.1 Notice of Preparation

On January 10, 2013, the City sent a Notice of Preparation (NOP) to responsible, trustee, and federal agencies, as well as to organizations, and individuals potentially interested in the project. The NOP is included as **Appendix A** of this EIR. The NOP requested that agencies with regulatory authority over any aspect of the project describe that authority and identify the relevant environmental issues that should be addressed in the EIR. Interested members of the public were also invited to comment. Responses to the NOP are included as **Appendix B1**.

Public scoping meetings on the EIR were held on January 29 and February 25, 2013. Meeting minutes, which identify the commenters and their concerns, are included in **Appendix B2**.

This Draft EIR is available for public review for the period identified on the notice inside the front cover of the document, during which time written comments on the Draft EIR may be submitted to the City of Alameda at the address indicated on the notice. Public comments may also be submitted during the public hearings on the Draft EIR. The public hearings will be held on September 9 and September 25, 2013. Responses to all comments received on environmental issues regarding the Draft EIR and submitted within the specified review period will be prepared and included in the Final EIR.

Mineral Resources

The project site is in a developed urban area and is not a known source of minerals. Implementation of the proposed project would not affect operation of a mine. There would be no impact to mineral resources. Please refer to Chapter 6, Section E for further discussion.

Agricultural and Forestry Resources

The project site is in a developed urban area and is not in an area designated as important farmland. There is no forest land on the project site. There would be no impact to agricultural or forestry resources. Please refer to Chapter 6, Section E for further discussion.

C.2 Draft EIR

This document constitutes the Draft EIR. The Draft EIR contains a description of the project, description of the environmental setting, identification of significant environmental impacts and mitigation measures for impacts found to be significant, as well as an analysis of project alternatives. Upon completion of the Draft EIR, the City filed a Notice of Completion (NOC) with the Governor's Office of Planning and Research to begin the public review period (CEQA Section 21161).

Public Notice and Public Review

Concurrent with the NOC, the City has provided public notice of the availability (NOA) of the Draft EIR for public review, and is inviting comment from the general public, agencies, organizations, and other interested parties. The public review period will be forty-five (45) days beginning September 3, 2013.

All comments or questions regarding the Draft EIR should be addressed to:

Andrew Thomas, AICP
City Planner
Planning and Building Department
2263 Santa Clara Avenue, Room 190
Alameda, CA 94501

or via e-mail to:

athomas@alamedaca.gov

C.3 Final EIR and Certification

Following the public review period, a Final EIR will be prepared. The Final EIR will respond to comments on environmental issues that are received during the public review period, including both written comments and oral comments made at the public hearing on the Draft EIR.

Certification of the EIR and Project Consideration

The City will review and consider the Final EIR. If the City finds that the Final EIR is adequate and complete, the City will certify the Final EIR. Upon review and consideration of the Final EIR, the Alameda City Council may take action to approve, conditionally approve, revise, or reject the proposed project. A decision to approve the project would be accompanied by written findings in accordance with CEQA Guidelines Section 15091, and a Statement of Overriding Considerations with respect to significant and unavoidable impacts in accordance with CEQA Guidelines Section 15093, as applicable (See Public Resources Code Section 21081).

Mitigation Monitoring and Reporting Program

Throughout the EIR, mitigation measures have been clearly identified and presented in language that will facilitate establishment of a monitoring and reporting program. CEQA Section 21081.6(a) requires lead agencies to adopt a mitigation monitoring and reporting program to list the measures that have been adopted and incorporated into the project or adopted and or made a condition of project approval in order to mitigate or avoid the project's significant effects on the environment. The Mitigation Monitoring and Reporting Program will be designed to ensure that these measures are carried out during project implementation. The Mitigation Monitoring and Reporting Program will be presented to the City Council for adoption at the time of project approval.

D. Range of Alternatives

CEQA requires that an EIR discuss a reasonable range of alternatives to the proposed project. This EIR describes and analyzes a reasonable range of alternatives, including a "No Project" alternative as required under CEQA (CEQA Guidelines Section 15126.6[e]); compares the environmental effects of each alternative with the effects of the proposed project; and addresses the relationship of each alternative to the project objectives. The determinations of the Lead Agency concerning the feasibility, acceptance, or rejection the alternatives considered in this EIR will be addressed in the findings when the City of Alameda considers approval of the project, as required by CEQA.

E. Organization of the Draft EIR

This *Introduction* (Chapter 1) presents an overview of the process by which this EIR will be reviewed and used by the decision-makers in their consideration of the proposed project.

The *Summary* (Chapter 2) includes a brief project description and a summary table that lists the environmental impacts, proposed mitigation measures, and the level of significance after mitigation. Detailed analysis of these impacts and mitigation measures is provided in Chapter 4 (Environmental Setting, Impacts and Mitigation Measures). Chapter 2 also provides a summary of the alternatives to the proposed project.

The *Project Description* (Chapter 3) describes the project location and boundaries; lists the project objectives; and provides a general description of the technical, economic, and environmental characteristics of the proposed project. This chapter also includes a list of the City's required approvals and other agencies that may be responsible for approving aspects of the project.

The *Environmental Setting, Impacts and Mitigation Measures* (Chapter 4) contains a description of the environmental setting (existing physical environmental conditions), the regulatory framework, and the environmental impacts (including cumulative impacts) that could result from the proposed project. It includes the thresholds of significance used to determine the significance of adverse environmental effects. This chapter also identifies the mitigation measures that would avoid or substantially lessen these significant adverse impacts. The impact discussions disclose the significance of the each impact both with and without implementation of mitigation measures.

Alternatives (Chapter 5) evaluates a range of reasonable alternatives to the proposed project and identifies an environmentally superior alternative, consistent with the requirements of CEQA. The alternatives analysis evaluates each alternative's ability to meet the project objectives and its ability to reduce environmental impacts.

Other Statutory Sections (Chapter 6) presents growth-inducing effects, significant irreversible changes, and a summary of cumulative impacts, significant and unavoidable environmental impacts, and effects found to be less than significant.

Report Preparation (Chapter 7) identifies the authors of the EIR. Persons and documents consulted during preparation of the EIR are listed at the end of each analysis section (Sections 4.A through 4.M).

Appendices. The NOP/Initial Study, comment letters received on the NOP, comments from the scoping hearing, as well as supporting documents and technical information for the impact analyses, such as the zoning amendment, the Master Infrastructure Plan, and the conceptual framework for the Precise Plan, are presented in Appendices A through M.

All reference documents listed at the end of each analysis section (Chapter 4) are available for review by the public. These documents are available at the City of Alameda Community Development Department, at 2263 Santa Clara Avenue, Alameda, CA 94501, during normal business hours.

F. Intended Uses of the EIR

This EIR is the CEQA compliance documentation upon which the City of Alameda's consideration of, and action on, all applicable land use permits and other approvals (collectively, "approvals") for development under the proposed project or an alternative may be based. These include all approvals listed in this EIR, as well as any additional approvals that may be necessary to implement the proposed project or alternative, including activities such as planning, construction, operation and maintenance (e.g., use permits, grading permits, building permits, certificates of occupancy and other development-related approvals). The approvals that will rely on this EIR also include the adoption and implementation of the Master Infrastructure Plan, including all of its improvements to onsite streets, utilities; new parks and open spaces; and flood protection features.

It is anticipated that buildout of the project site is likely to take many years and thus sequential, logical phasing of development and infrastructure is necessary to minimize uncertainty and improve the economic feasibility of future site development. For the purposes of this analysis, project construction could commence at the earliest in 2014 and the buildout of the project would be complete in 2035.

Vacant portions of the project site would be used for construction staging areas and parking of construction workers' personal vehicles. No off-site construction employee parking or staging areas would be required.

F.1 Plan Bay Area, NAS Alameda PDA, and CEQA Streamlining

Plan Bay Area, which sets forth the region's proposed Sustainable Communities Strategy (SCS), was adopted by the Association of Bay Area Governments and the Metropolitan Transportation Commission in July 2013. NAS Alameda, including the project site, Bayport, the adjacent former Fleet Industrial Supply Center (or Alameda Landing) and North Housing, is a designated regional Priority Development Area (PDA) in Plan Bay Area. PDAs are intended to provide lands for regional employment and housing growth in proximity to regional transportation systems to reduce green house gas emissions and combat climate change. Thus, the EIR for Plan Bay Area included the proposed project in its programmatic analysis. Plan Bay Area provides housing and employment projections for the San Francisco Bay Area, as well as counties, cities, and priority development areas (PDAs).[2] Through incentives, Plan Bay Area encourages future development within PDAs. According to ABAG, "this allows the region to reduce the emission of GHGs, house our population in a wide range of neighborhoods, preserve our natural resources, and support the creation of and greater access to new employment opportunities" (ABAG and MTC, 2013).

The project site is included in Plan Bay Area as the NAS Alameda PDA, which also includes Bayport, Alameda Landing, and the North Housing areas. Plan Bay Area describes its vision for this PDA as follows:

> This area includes substantial acres of underutilized land. The overall vision for the redevelopment of the Alameda's former Naval Air Station lands and Fleet Industrial Supply Center is to create a transit-oriented, mixed- use, sustainable development that provides homes for a variety of family sizes and income levels, jobs for the region to replace those lost by the closure of the base, as well as parks and open spaces for conservation and regional recreation (ABAG and MTC, 2012).

According to the Plan Bay Area, the Bay Area is expected to "experience more modest growth than in past decades." Even so, ABAG still projects "healthy economic growth of 1.1 million jobs and 2 million people by 2040 as the Bay Area continues to attract cutting-edge, high technology companies, talent, and investment from around the world." This regional projection "assumes a full-employment economy with unemployment rates returning to normal levels within a successful national economy. The forecast also recognizes the challenges with building new housing in the region that is largely multi-family and in infill locations, and the impact that has on our ability to capture potential job growth. Achieving this growth will require that the region respond to an aging

2 PDAs are areas where future growth within the Bay Area is intended to be concentrated. Within PDAs, "new development will support the day-to-day needs of residents and workers in a pedestrian-friendly environment served by transit" (ABAG and MTC, 2013).

and diversifying population, polarizing wages, high housing and transportation costs, and other issues affecting our quality of life" (ABAG and MTC, 2012).

Pursuant to SB 375, after adoption of an SCS, projects consistent with the land use designation, density, building intensity, and applicable policies included in the SCS may be found by the lead agency to be exempt from CEQA if they meet certain specified criteria intended to ensure that the individual project is consistent with the SCS and will not have additional impacts not considered in the SCS EIR. To facilitate tiering under SB 375, the Plan Bay Area EIR analysis provides substantial evaluation of cumulative and growth-inducing impacts at a regional level. In line with the intent of SB 375, the analysis describes how land use and transportation program choices would influence individual and household transportation behavior, and the resulting air quality, greenhouse gas emissions, and transportation and noise impacts.

References – Introduction

ABAG and MTC, 2012. Plan Bay Area. *Final Jobs-Housing Connection Strategy*. May 16, 2012

ABAG and MTC, 2013. Plan Bay Area. *Strategy for a Sustainable Region*. July 2013

ABAG and MTC, 2013. Plan Bay Area. *Environmental Impact Report*. July 2013

California Environmental Quality Act (CEQA) Statutes and Guidelines; Public Resources Code Section 21000 et seq.) and California Code of Regulations, Title 14, Sections 15000-et seq. 2010.

CHAPTER 2
Executive Summary

A. Project Under Review

The proposed project is the redevelopment and reuse of the 878 acres of land and approximately 1,229 acres of water at the former Naval Air Station Alameda ("NAS Alameda").

The property is currently occupied by over five million square feet of existing former Navy buildings, former airplane runways, taxiways, and staging areas, and water and maritime uses within what is referred to as the Seaplane Lagoon.

The proposed project includes:

- Adopting a Master Infrastructure Plan for the replacement, reconstruction, and rehabilitation of deteriorated and substandard infrastructure, buildings, and shoreline protections.
- Rehabilitation and new construction of open space, parks and trails for public enjoyment.
- Rehabilitation, reuse, and new construction of approximately 5.5 million square feet of commercial and workplace facilities for approximately 8,900 jobs.
- Maritime and water related recreation uses in and adjacent to the Seaplane Lagoon.
- Rehabilitation and new construction of 1,425 residential units for a wide variety of household types for approximately 3,240 residents.
- Adopting a General Plan Amendment, a Zoning Ordinance Amendment, and a precise plan that would create planning sub-districts within Alameda Point to facilitate a seamless and integrated mixed-use, transit-oriented community consistent with the existing General Plan and NAS Alameda Community Reuse Plan ("Reuse Plan").

To facilitate redevelopment and reuse consistent with the Reuse Plan and City of Alameda General Plan, the City of Alameda (the "lead agency") is proposing to adopt and implement a comprehensive zoning amendment, an associated general plan amendment, a Master Infrastructure Plan, and a Town Center and Waterfront Precise Plan. **Figure 2-1** depicts the project site divided into sub-areas.

SOURCE: ESA, 2013

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Figure 2-1
Project Site Location

A.1 Regional and Local Setting

The project site is located in the City of Alameda in Alameda County, California.[1] The City of Alameda occupies approximately 12.4 square miles of land area immediately south of the City of Oakland and the Oakland-Alameda Estuary (the "Estuary"), east of San Francisco, and north and east of the San Francisco Bay (the "Bay").[2] Alameda Island makes up approximately 80 percent of the City's land area, with the remainder on Bay Farm Island across the San Leandro Channel. Alameda Point occupies much of the western tip of Alameda Island. The project site location and regional context are presented in **Figure 2-2**.

The Alameda Point project site is approximately 878 acres of uplands and 1,229 acres of submerged lands (total of 2,107 acres) of the former NAS Alameda located west of Main Street at the western end of Alameda (project site). The project site, as illustrated in Figure 3-1, is bounded by the Oakland-Alameda Estuary on the north, Main Street on the east, and the San Francisco Bay on the south and by the federal property ("Federal Property") to the west.

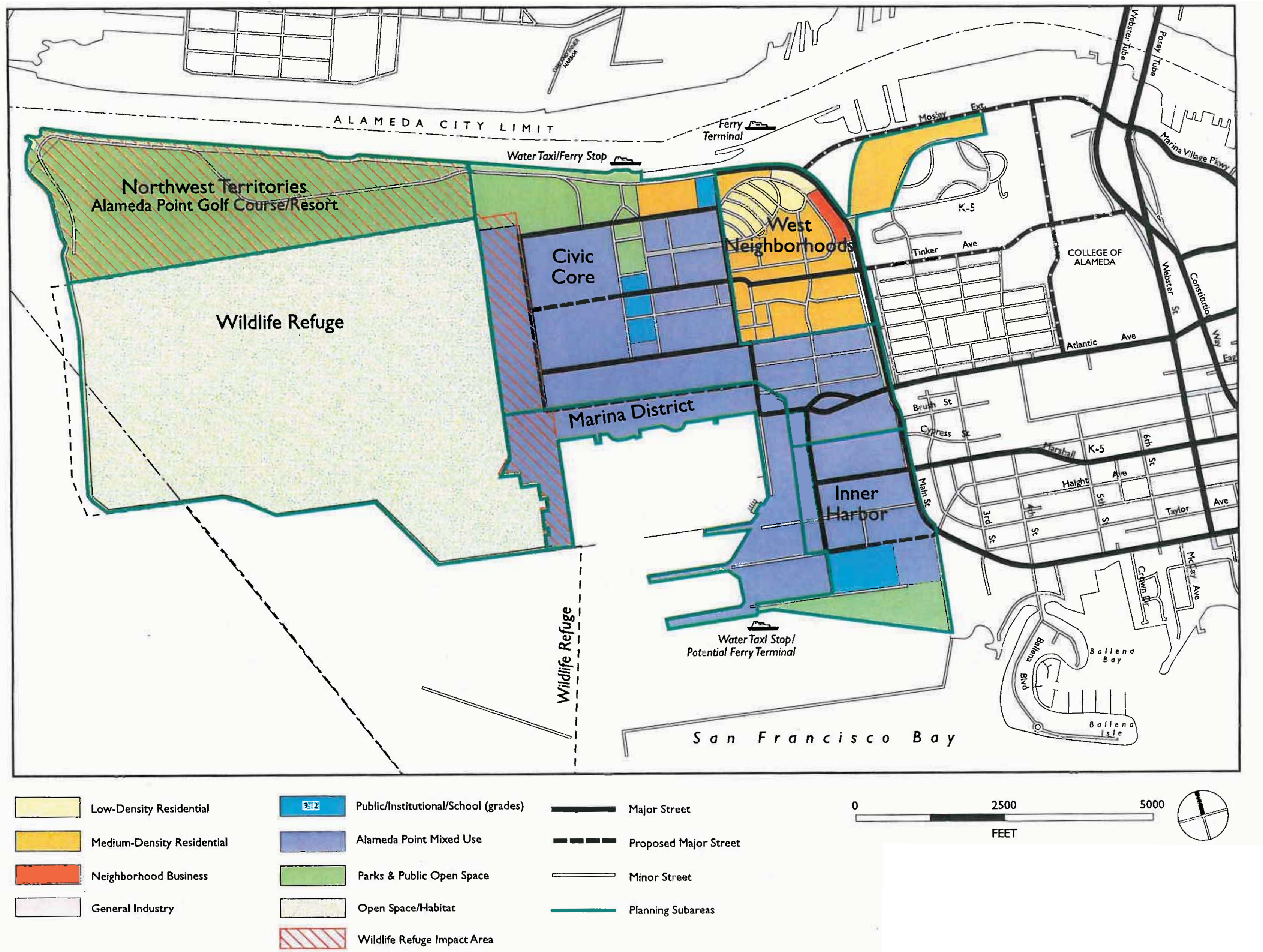
A.2 Sub-Area Descriptions

Alameda Point would include four distinct sub-areas (see Figure 2-1): Open space, Town Center and Waterfront Sub-area, Main Street Neighborhoods Sub-area, Adaptive Reuse Sub-area, and the Enterprise Sub-area. The density and intensity of development that potentially would be accommodated in each sub-area is shown in **Table 2-1**.

TABLE 2-1
DEVELOPMENT ASSUMPTIONS

Subarea	Acres	Approximate Existing Building Square Feet/ Housing Units	Buildout Building Square Feet/ Housing Units
Open space	291	100,000 sq. ft. /0 units	100,000 sq. ft. /0 Units
Town Center and Waterfront Sub-area	129	640,000 sq. ft. /0 units	1,151,000 sq. ft. /500 units
Main Street Neighborhoods Sub-area	140	500,000 sq. ft. /268 units	100,000 sq. ft. /760 units
Adaptive Reuse Sub-area	207	3,350,000 sq. ft. /0 units	2,079,000 sq. ft. /165 units
Enterprise Sub-area	111	800,000 sq. ft. /0 units	2,070,000 sq. ft. /0 units
Total	**878**	**5,390,000 sq. ft./268 units**	**5,500,000 sq. ft./1,425 units**

[1] The area referred to as "project site" in this EIR is the same as "Plan Area" in the MIP and the Reuse Plan.
[2] Throughout this EIR, West Atlantic Avenue in the project site runs east-west (parallel to the Estuary and I-880); Main Street along the project site runs north-south (generally parallel to the Webster-Posey Tube / Webster Street in Alameda and Broadway in Oakland).



SOURCE: SCC Alameda Point LLC

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Figure 2-2
General Plan Land Use

A.3 Development Areas and Reuse Areas

For purposes of infrastructure planning, the Master Infrastructure Plan (MIP) defines the project site as two main areas: Development Areas and Reuse Areas. The infrastructure needs and requirements for each of these areas are unique for the reasons discussed below. Accordingly, the MIP describes the planned backbone infrastructure specific for each of the areas. See **Figure 2-3**. Development Areas and Reuse Areas, depicting the limits of the Reuse and Development Areas assumed for the draft MIP.

The Development Areas are those areas within the project site that are anticipated to consist of primarily new construction. Most of the existing structures, streets and utilities within these areas would be demolished. New infrastructure would be installed to support the proposed uses within the Development Areas. It is anticipated that development within the Development Areas would occur in cohesive areas and would be implemented in orderly phases.

The Reuse Areas include areas that overlap with the NAS Alameda Historic District that are intended to be primarily preserved and adaptively reused. The preservation of the historic buildings, landscapes and streetscapes require specific infrastructure considerations and requirements. It is anticipated that development within Reuse Areas would be incremental and determined by market demand for existing buildings and highest priority maintenance and repair needs. A sequenced implementation of rehabilitation and incremental replacements of the existing street and utility systems are discussed in the draft MIP.

B. Project Objectives

CEQA *Guidelines* Section 15124(b) requires the description of the project in an EIR to state the objectives sought by the project.

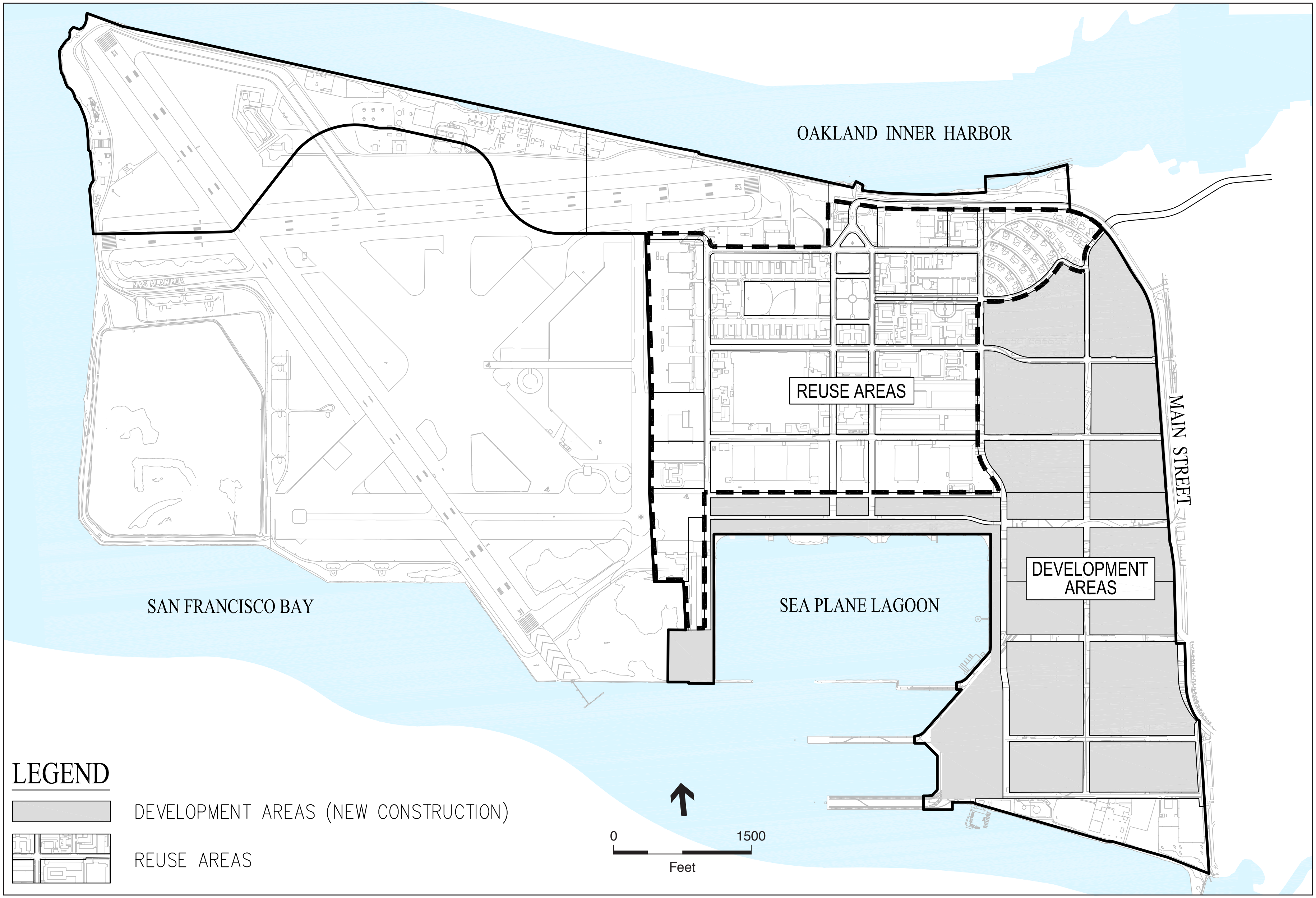
> "A clearly written statement of objectives will help the lead agency develop a reasonable range of alternatives to evaluate in the EIR and will aid the decision makers in preparing findings or a statement of overriding considerations, if necessary. The statement of objectives should include the underlying purpose of the project."

This section states the project objectives for the CEQA review of the Alameda Point Project. The project objectives are:

B.1 Property Rehabilitation and Reinvestment Objectives

The project should eliminate the blighted conditions on the property, and correct geotechnical and flood hazards and infrastructure deficiencies in the area by:

- Ensuring orderly and systematic reinvestment and development of the project site into an integrated mixed use community with an integrated network of public open spaces, trails, and streets.
- Facilitating reinvestment in substandard infrastructure systems and buildings, including reinvestment in contributing structures and cultural landscapes within the NAS Alameda Historic District, where feasible.



SOURCE: Carlson, Barbee, & Gibson, Inc., 2013

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Figure 2-3
Reuse vs Development Areas

- Ensuring orderly and timely clean-up and conveyance of the remaining property under Navy ownership consistent with the Economic Development Conveyance Memorandum of Agreement (EDC MOA), and the Navy's other conveyance obligations.

B.2 Environmental Protection and Sustainability Objectives

The project should protect the local, regional, and global environment and facilitate sustainable reuse and redevelopment of Alameda Point by:

- Creating opportunities for transit-oriented development consistent with Regional Sustainable Communities Strategies for greenhouse gas emission reductions as required by SB 375.
- Reinvesting in the replacement and rehabilitation of substandard infrastructure systems that may contribute to regional water quality impacts due to infiltration, inflow, storm water run-off, and substandard storm water treatment facilities.
- Investing in improvements to adapt to sea-level rise and climate change over time.
- Applying sustainability principles in the design and development of open spaces, recreation facilities, buildings, and infrastructure, including wastewater, storm water, electrical and transportation systems, including promotion of alternative modes of transportation through preparation and implementation of a Transportation Demand Management (TDM) Program.

B.3 Public Benefit Objectives

The project should produce tangible community benefits for the Alameda community as a whole by:

- Creating an open space network that incorporates preservation, restoration and enhancement of wetlands and other natural habitats and provides for both passive and active recreational uses.
- Enhancing views of water and public access to the waterfront in all development and creatively encouraging the usage of the waterfront, by providing a waterfront promenade, public art, open space, and other public amenities.

B.4 Economic Development and Employment Objectives

The project should strengthen and diversify the economic base of the community by:

- Emphasizing employment and a mix of economic development opportunities that complement economic development strategies in other parts of Alameda; and provide a range of employment opportunities and quality jobs, through adaptive reuse of existing buildings and new construction to replace up to 9,000 of the 14,000 jobs lost to Alameda and the region by the closure of NAS Alameda.
- Reoccupying existing buildings and constructing new buildings to create 5.5 million square feet of business, commercial, industrial, maritime and retail uses that will provide jobs, services, tax revenue, and new amenities for Alameda residents.
- Actively marketing to new retail land uses that will complement and provide synergies with existing retail development at Webster Street, Park Street and other locations within Alameda.
- Provide for clear and orderly phasing, sizing, and financing of site infrastructure for both the circulation and utility network and provide for a predictable development process.

- Address the impact of the site development on the City's operating budget to comply with City Council Policies adopted by Resolution 13643 related to fiscal neutrality.

B.5 Transit Oriented Mixed Use Development Objectives

The project should provide transit oriented mixed use development opportunities, by

- Ensuring that the project site design is in concert with the established transit-oriented and mixed-use goals, policies, and objectives of the *NAS Alameda Community Reuse Plan* as incorporated into the Alameda General Plan.
- Balancing development objectives with transportation constraints and opportunities.
- Providing for mixed use development opportunities and sites within close proximity to existing and planned transit and encouraging the types of non-residential uses that provide for the everyday needs of Alameda Point residents and employees and reduce the need to use an automobile to obtain goods and services.
- Creating human-scale, tree-lined walkable streets and bicycle routes throughout the project site and extending the street grid street pattern that is characteristic of the existing city neighborhoods and districts throughout Alameda Point.
- Increasing the City's supply of land available for residential development and increasing the supply of affordable housing sites for Alameda and the region to balance the jobs proposed for the project site and attract potential riders for proposed transit.
- Including a mix of single-family homes, attached townhomes, a mix of stacked flats and low and midrise multifamily housing with higher-density housing concentrated around transit nodes, where possible.
- Including a diversity of housing types and pricing that attract the market segments most likely to use alternatives to the automobile, such as self-selective transit commuters and households with zero to low-automobile ownership.
- Facilitating the relocation and consolidation of existing supportive housing providers in new facilities at Alameda Point to help ensure a mix of incomes and populations are represented at the project site.

C. Environmental Impacts and Mitigation Measures

Potentially significant environmental impacts of the proposed project are summarized in **Table 2-2**. This table lists impacts and mitigation measures in three major categories: significant impacts that would remain significant even with mitigation (significant and unavoidable); significant impacts that could be mitigated to a less than significant level (significant but mitigable); and impacts that would not be significant (less than significant). For each significant impact, the table includes a summary of feasible mitigation measure(s) and an indication of the level of significance of the impact following implementation of mitigation measures. A complete discussion of each impact and associated mitigation measure is provided in Chapter 4, *Environmental Setting, Impacts, and Mitigation Measures*.

As one of the major off-site environmental concerns, analysis of peak-hour traffic conditions was conducted at the 32 existing intersections in Alameda (Intersection #1 to #32) and 24 intersections in Oakland (Intersection #33 to #56) shown in **Figure 2-4**. They were selected because they represent locations along major traffic routes to and from the project site as well as locations that could affect operations of other traffic modes or may be affected by traffic diverting and seeking alternative routes to the Webster and Posey Tubes.

D. Alternatives

Alternatives to the proposed project are addressed in detail in Chapter 5 of the EIR and are summarized as follows:

No Project Alternative: This alternative considers the environmental impacts of continuing the existing uses on the site, which include 267 existing housing units and existing non-residential business leases with approximately 1,000 jobs. No construction of new housing units or new commercial development would occur under this alternative.

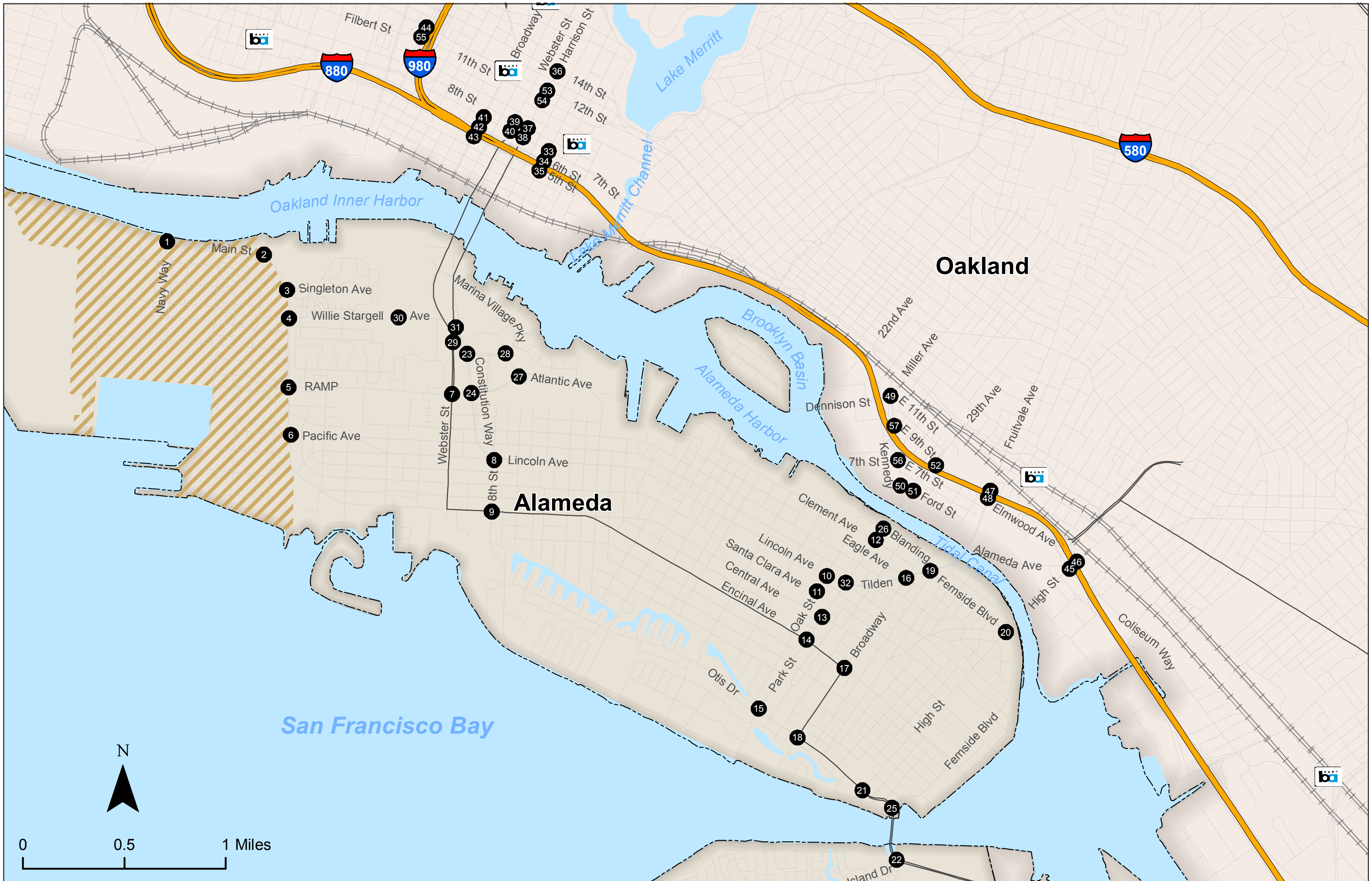
Less Development/Preservation Alternative: This alternative considers the environmental impacts of allowing some additional development, but not as much as the proposed project. This alternative would include a total of 1,000 housing units (733 additional units) and up to 6,000 jobs (5,000 additional jobs). Approximately 733 of the housing units would be created through new construction. Of the 5,000 new jobs, approximately half (2,500) of the new jobs would occur in new non-residential buildings and the other half would occur in exiting vacant or underutilized buildings, primarily in the Historic District. In this alternative, no new construction would be allowed within the Historic District.

The Existing General Plan/More Housing and Less Jobs Alternative: This alternative compares the environmental impacts of 500 more housing units (up to 1,928), but fewer jobs (6,000 instead of 9,000) than then proposed project. The development program reflects the development program from the 2003 Alameda Point General Plan Amendment. This, therefore, would constitute the No Project Alternative applicable to a proposed plan, under which existing land use plans continue in effect and are implemented.

The Multifamily Alternative: Under this alternative, the City would allow the same number of housing units and jobs as the proposed project but the all new housing would be limited to multifamily housing. Existing single family housing units and the “Big Whites” would remain, but no new single family housing would be constructed.

The Transit Oriented Mixed Use Alternative: This alternative examines the relative environmental impacts of 1) adding more residential units for a total of 3,400 units, and 2) maintaining the total number of square feet of non-residential uses, but increasing the relative amount of retail uses on the site from 300,000 square feet to 1 million.

High Density Alternative: This alternative is modeled on the plan contained in the 2009 Ballot Initiative for Alameda Point. It includes 4,841 housing units and 3,800,000 square feet of commercial uses.



Study Intersections

SOURCE: Kittelson & Associates, Inc.

Alameda Point Project . 130025

Figure 2-4
Study Intersections

Typically, an environmental impact report will examine an “off-site” alternative in which the proposed project is constructed on a different site. This alternatives analysis does not include an analysis of an off-site alternative. The purpose of the subject project is to determine the best uses and development standards and requirements for a specific property: the lands vacated by the Navy when the federal government vacated NAS Alameda. Consideration of an alternative that considers the impact of developing a different property located at some other location would have no practical use or relevance to the decisions that must be made about the development of this particular piece of property.

E. Areas of Controversy

CEQA Guidelines Section 15123 specifies that the EIR summary shall identify “areas of controversy” known to the Lead Agency including issues raised by agencies and the public, and issues to be resolved including the choice among alternatives and whether or how to mitigate the significant effects. The following issues are known to the Lead Agency to be controversial or that have the potential to be controversial: built environment; increased air quality impacts; impacts to biological resources; land use; increased traffic; increased noise; hazardous materials; and historic context of the site.

The potential impacts associated with all of these areas of controversy are addressed in Chapter 4 of the Draft EIR.

TABLE 2-2
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA POINT PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
A. Land Use Consistency and Compatibility		
Impact 4.A-1: Development facilitated by the proposed Alameda Point project would not physically divide an established community within the City of Alameda. (Less than Significant)	None required.	
Impact 4.A-2: Development facilitated by the proposed project could potentially conflict with an applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, the General Plan and zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect. (Less than Significant)	None required.	
Impact 4.A-3: Development facilitated by the proposed project could potentially conflict with an applicable Habitat Conservation Plans or Natural Community Conservation Plans. (Less than Significant)	None required.	
Impact 4.A-4: Development facilitated by the proposed project, combined with cumulative development in the defined geographic area, including past, present, reasonably foreseeable future development, could potentially have significant adverse cumulative impacts in the area. (Less than Significant)	None required.	
B. Population and Housing		
Impact 4.B-1: Development facilitated by the proposed project could potentially induce substantial population or housing growth both directly and indirectly. (Less than Significant)	None required.	
Impact 4.B-2: Development facilitated by the proposed could potentially displace a substantial number of people or housing. (Less than Significant)	None required.	
Impact 4.B-3: Development facilitated by the proposed project, in conjunction with potential past, present, and future development in the surrounding region could potentially introduce additional population to the region, and would result in unanticipated population, housing, or employment growth, or the displacement of existing residents or housing units on a regional level. (Less than Significant)	None required.	

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA POINT PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
C. Transportation and Circulation		
Impact 4.C-1: Development facilitated by the proposed project would generate temporary increases in traffic volumes on area roadways during construction. (Significant)	**Mitigation Measure 4.C-1:** The City shall require that project applicant(s) and construction contractor(s) shall develop a construction management plan for review and approval by the Public Works Department prior to issuance of any permits. The plan shall include at least the following items and requirements to reduce traffic congestion during construction: 1. A set of comprehensive traffic control measures shall be developed, including scheduling of major truck trips and deliveries to avoid peak traffic hours, detour signs if required, lane closure procedures, signs, cones for drivers, and designated construction access routes. 2. The Construction Management Plan shall identify haul routes for movement of construction vehicles that would minimize impacts on motor vehicle, bicycle, and pedestrian traffic, circulation, and safety, and specifically to minimize impacts to the greatest extent possible on streets in the project area. The haul routes shall be approved by the City. 3. The Construction Management Plan shall provide for notification procedures for adjacent property owners and public safety personnel regarding when major deliveries, detours, and lane closures would occur. 4. The Construction Management Plan shall provide for monitoring surface streets used for haul routes so that any damage and debris attributable to the haul trucks can be identified and corrected by the project applicant.	Less than Significant
Impact 4.C-2: Development facilitated by the proposed project would potentially result in a transportation impact at study intersection under Existing plus Project conditions. (Significant)	**Mitigation Measure 4.C-2a (TDM Program):** Prior to issuance of building permits for each development project at Alameda Point, the City of Alameda shall prepare, and shall require that the sponsor of the development project participate in implementation of, a Transportation Demand Management (TDM) program for Alameda Point aimed at meeting the General Plan peak-hour trip reduction goals of 10 percent for residential development and 30 percent for commercial development. **Mitigation Measure 4.C-2b (Monitoring and Improvement Program):** Prior to issuance of the first building permits for any development project at Alameda Point, the City of Alameda shall adopt a Transportation Network Monitoring and Improvement Program to: 1) determine the cost of the transportation network improvements identified in this EIR; 2) identify appropriate means and formulas to collect fair share financial contributions from Alameda Point development; 3) monitor conditions at the locations that will be impacted by the redevelopment of Alameda Point; 4) monitor traffic generated by Alameda Point; and 5) establish the appropriately time to implement the necessary improvements described in this EIR to minimize or eliminate significant transportation impacts prior to the impacts occurring.	**Auto Travel Impact Significance after Mitigation:** Less than Significant. **Transit Travel Secondary Impact after Auto Mitigation:** Less than Significant. **Bicycle Travel Secondary Impact after Auto Mitigation:** Less than Significant. **Pedestrian Travel Secondary Impact after Auto Mitigation:** Less than Significant.

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA POINT PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
C. Transportation and Circulation (cont.)		
Impact 4.C-2 (cont.)	**Mitigation Measure 4.C-2c (Otis/Fernside):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and C-2b) and, when and if required to avoid the impact or reduce its severity, shall implement the following improvements: • Remove the right turn island for the westbound approach on Otis Drive, add a dedicated right turn lane with approximately 50 feet of storage length, and move the northbound stop-bar upstream approximately 20 feet to accommodate the right turn lane storage length. Restripe Fernside Boulevard with two receiving lanes. • Optimize signal timing.	
	Mitigation Measure 4.C-2d (Jackson/Sixth): The City of Alameda shall implement Mitigation Measures 4.C-2a (TDM Program) and 4.C-2b (Monitoring), which could improve intersection LOS by reducing vehicle trips.	Significant and Unavoidable
	Mitigation Measure 4.C-2e (Brush/11th): The City of Alameda shall implement Mitigation Measures 4.C-2a (TDM Program) and 4.C-2b (Monitoring), which could improve intersection LOS by reducing vehicle trips.	Significant and Unavoidable
	Mitigation Measure 4.C-2f (23rd/Seventh): The City of Alameda shall implement Mitigation Measures 4.C-2a (TDM Program) and 4.C-2b (Monitoring), which could improve intersection LOS by reducing vehicle trips.	Significant and Unavoidable
	Mitigation Measure 4.C-2g (Main/Pacific Pedestrian): The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and C-2b) and, when required to avoid the impact or reduce its severity, shall implement the following physical improvements: • change the signal timing to a two-phase timing plan (i.e., northbound and southbound move concurrently; then eastbound and westbound move concurrently); and • optimize cycle length.	**Pedestrian Travel Impact Significance after Mitigation:** Less than Significant. **Transit Travel Secondary Impact after Pedestrian Mitigation:** Less than Significant. **Bicycle Travel Secondary Impact after Pedestrian Mitigation:** Less than Significant. **Auto Travel Secondary Impact after Pedestrian Mitigation:** Less than Significant.
	Mitigation Measure 4.C-2h (Webster/Appezzato Parkway Pedestrian): The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and C-2b) and, when required to avoid the impact or reduce its severity, shall optimize the signal timing during the p.m. peak hour.	**Pedestrian Travel Impact Significance after Mitigation:** Less than Significant. **Transit Travel Secondary Impact after Pedestrian Mitigation:** Less than Significant. **Bicycle Travel Secondary Impact after Pedestrian Mitigation:** Less than Significant. **Auto** Travel **Secondary Impact after Pedestrian Mitigation:** Less than Significant.

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA POINT PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
C. Transportation and Circulation (cont.)		
Impact 4.C-2 (cont.)	**Mitigation Measure 4.C-2i (Park/Otis Pedestrian):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and C-2b) and, when required to avoid the impact or reduce its severity, shall optimize the signal timing during the a.m. and p.m. and peak hours.	**Pedestrian Travel Impact Significance after Mitigation:** Less than Significant. **Transit Travel Secondary Impact after Pedestrian Mitigation:** Less than Significant. **Bicycle Travel Secondary Impact after Pedestrian Mitigation:** Less than Significant. **Auto Travel Secondary Impact after Pedestrian Mitigation:** Less than Significant.
	Mitigation Measure 4.C-2j (Broadway/Tilden Pedestrian): The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and C-2b) and, when required to avoid the impact or reduce its severity, shall optimize the signal timing during the a.m. and p.m. peak hours.	**Pedestrian Travel Impact Significance after Mitigation:** Less than Significant. **Transit Travel Secondary Impact after Pedestrian Mitigation:** Less than Significant. **Bicycle Travel Secondary Impact after Pedestrian Mitigation:** Less than Significant. **Auto Travel Secondary Impact after Pedestrian Mitigation:** Less than Significant.
	Mitigation Measure 4.C-2k (High/Fernside Pedestrian): The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and C-2b) and, when required to avoid the impact or reduce its severity, shall optimize the signal timing during the p.m. peak hour.	**Pedestrian Travel Impact Significance after Mitigation:** Less than Significant. **Transit Travel Secondary Impact after Pedestrian Mitigation:** Less than Significant. **Bicycle Travel Secondary Impact after Pedestrian Mitigation:** Less than Significant. **Auto Travel Secondary Impact after Pedestrian Mitigation:** Less than Significant.
	Mitigation Measure 4.C-2l (Atlantic/Constitution Pedestrian): The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and C-2b) and, when required to avoid the impact or reduce its severity, shall implement the following physical improvements: • modify the existing signal phasing for eastbound and westbound Atlantic Avenue approaches from split to permitted-protected lefts; and • optimize the signal timing.	**Pedestrian Travel Impact Significance after Mitigation:** Less than Significant. **Transit Travel Secondary** Impact **after Pedestrian Mitigation:** Less than Significant. **Bicycle Travel Secondary Impact after Pedestrian Mitigation:** Less than Significant. **Auto Travel Secondary Impact after Pedestrian Mitigation:** Less than Significant.

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA POINT PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
C. Transportation and Circulation (cont.)		
Impact 4.C-2 (cont.)	**Mitigation Measure 4.C-2m (Stargell Avenue Bike):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and C-2b) and, when required to avoid the impact or reduce its severity, shall construct a Class I or Class II bicycle facility between Main Street and Webster Street.	**Bicycle Travel Impact Significance after Mitigation:** Significant and Unavoidable. **Transit Travel Secondary Impact after Bicycle Mitigation:** Less than Significant. **Pedestrian Travel Secondary Impact after Bicycle Mitigation:** Less than Significant. **Auto Travel Secondary Impact after Bicycle Mitigation:** Less than Significant.
	Mitigation Measure 4.C-2n (Main Street Bike): The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and C-2b) and, when required to avoid the impact or reduce its severity, shall implement the following physical improvements: • construct a Class II bicycle lane or improve the existing Class I bicycle path on the west side of the street between Appezzato Parkway and Pacific Avenue to current City standards; • provide connectivity to existing Class I bicycle path on the east and west sides of the street north of Appezzato Parkway. Appropriate intersection treatments for connectivity may include striping, signage, and/or bicycle boxes at the intersection of Main Street and Appezzato Parkway; and • if Mitigation Measure 4.C-4c (described below) is implemented, provide connectivity to that bicycle facilities on west side of the street north of the Main Street-Pacific Street intersection.	**Bicycle Travel Impact Significance after Mitigation:** Significant and Unavoidable. **Transit Travel Secondary Impact after Bicycle Mitigation:** Less than Significant. **Pedestrian Travel Secondary Impact after Bicycle Mitigation:** Less than Significant. **Auto Travel Secondary Impact after Bicycle Mitigation:** Less than Significant.
	Mitigation Measure 4.C-2o(Central Avenue Bike): The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and C-2b) and, when required to avoid the impact or reduce its severity, shall implement the following physical improvements: • construct a Class II bicycle lane or improve the existing Class I bicycle path on the west (south) side of the street between the Main Street-Pacific Street intersection and Lincoln Avenue to current City standards; • extend a Class I bicycle path to Third Street; and • restripe and sign the street segment between Third Street and Fourth Street to provide Class II bicycle lanes between Lincoln Avenue and Fourth Street.	**Bicycle Travel Impact Significance after Mitigation:** Significant and Unavoidable. **Transit Travel Secondary Impact after Bicycle Mitigation:** Less than Significant. **Pedestrian Travel Secondary Impact after Bicycle Mitigation:** Less than Significant. **Auto Travel Secondary Impact after Bicycle Mitigation:** Less than Significant.

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA POINT PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
C. Transportation and Circulation (cont.)		
Impact 4.C-3: The increase in traffic on the freeway mainline due to the project would result in negligible changes in density (vehicles per lane) and no change in LOS, with the exception of the segment of I-980 south of I-580. (Less than Significant)	None required.	
Impact 4.C-4: The change in traffic volumes on the freeway ramps due to the project would result in no change in LOS and minimal, if any, change in density (vehicles per lane). (Less than Significant)	None required.	
Impact 4.C-5: Cumulative development, including the proposed project, would potentially result in transportation impacts at local study intersections under Cumulative plus project conditions. (Significant)	**Mitigation Measure 4.C-5a (Park/Clement):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and C-2b) and, when required to avoid the impact or reduce its severity, fund a fair share contribution to implement the following physical improvements: • Add northbound left turn pocket along Park Street; • Optimize the signal offsets and splits; and • Complete the Clement Avenue extension, which would reduce the demand for left turn movements onto Park Street from eastbound traffic on Clement Avenue.	**Auto Travel Impact Significance after Mitigation:** Significant and Unavoidable. **Pedestrian Travel Secondary Impact after Auto Mitigation:** Less than Significant. **Bicycle Travel Secondary Impact after Auto Mitigation:** Less than Significant. **Transit Travel Secondary Impact after Auto Mitigation:** Less than Significant.
	Mitigation Measure 4.C-5b (Park/Encinal): The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and C-2b) and, when required to avoid the impact or reduce its severity, fund a fair share contribution to implement the following physical improvements: • Convert one eastbound through lane on Encinal Avenue to a left-turn lane to provide two left-turn lanes and a shared through-right lane on the eastbound approach; and • Optimize offsets and splits.	**Auto Travel Impact Significance after Mitigation:** Significant and Unavoidable. **Pedestrian Travel Secondary Impact after Auto Mitigation:** Less than Significant. **Bicycle Travel Secondary Impact after Auto Mitigation:** Less than Significant. **Transit Travel Secondary Impact after Auto Mitigation:** Less than Significant.
	Mitigation Measure 4.C-5c: (Broadway/Otis): The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and C-2b) and, when required to avoid the impact or reduce its severity, fund a fair share contribution to implement, the following physical improvements: • Add a southbound left-turn lane on Broadway to provide two left-turn lanes and a shared through-right for that approach;) • Convert the southbound Broadway left-turn phase to permitted-protected; • Convert to actuated-uncoordinated timing plan during the p.m. peak hour; and • Optimize the signal timing during both peak hours.	**Auto Travel Impact Significance after Mitigation:** Significant and Unavoidable. **Pedestrian Travel Secondary Impact after Auto Mitigation:** Less than Significant. **Bicycle Travel Secondary Impact after Auto Mitigation:** Less than Significant. **Transit Travel Secondary Impact after Auto Mitigation:** Less than Significant.

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA POINT PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
C. Transportation and Circulation (cont.)		
Impact 4.C-5 (cont.)	**Mitigation Measure 4.C-5d: (Tilden/Blanding/Fernside):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and C-2b) and, when required to avoid the impact or reduce its severity, fund a fair share contribution to implement the following improvements: • Add a westbound left turn to provide a left turn lane, a through lane and a right turn lane on the westbound Fernside Boulevard approach. • Add an eastbound left turn lane to provide a left turn lane, a through lane and a right turn lane on the eastbound Blanding Avenue approach. • Optimize the offsets and splits.	**Auto Travel Impact Significance after Mitigation:** Less than Significant. **Pedestrian Travel Secondary Impact after Auto Mitigation:** Less than Significant. **Bicycle Travel Secondary Impact after Auto Mitigation:** Less than Significant. **Transit Travel Secondary Impact after Auto Mitigation:** Less than Significant.
	Mitigation Measure 4.C-5e (High/Fernside): The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and C-2b) and, when required to avoid the impact or reduce its severity, fund a fair share contribution to implement the following improvements: • Adjust the signal cycle phasing during the a.m. and p.m. peak hours such that the southbound left turn from High Street is a permitted rather than protected movement; and • Optimize signal timing.	**Auto Travel Impact Significance after Mitigation:** Significant and Unavoidable. **Pedestrian Travel Secondary Impact after Auto Mitigation:** Less than Significant. **Bicycle Travel Secondary Impact after Auto Mitigation:** Less than Significant. **Transit Travel Secondary Impact after Auto Mitigation:** Less than Significant.
	Mitigation Measure 4.C-5f (High/Otis): The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and C-2b) and, when required to avoid the impact or reduce its severity, fund a fair share contribution to implement the following improvements: • Add a northbound right turn lane on High Street to provide a shared through-left and right turn lane on the northbound approach; • Add an overlap phase for the northbound High Street right-turn movement and prohibit the conflicting westbound Otis Drive U-turn movement; and • Optimize the signal timing for both peak hours.	**Auto Travel Impact Significance after Mitigation:** Significant and Unavoidable. **Pedestrian Travel Secondary Impact after Auto Mitigation:** Less than Significant. **Bicycle Travel Secondary Impact after Auto Mitigation:** Less than Significant. **Transit Travel Secondary Impact after Auto Mitigation:** Less than Significant.
	Mitigation Measure 4.C-5g (**Island Drive/Otis Drive and Doolittle Drive):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and C-2b) and, when required to avoid the impact or reduce its severity, fund a fair share contribution to implement the following improvements: • Add a westbound left-turn lane to provide two left-turn lanes and two through lanes on the westbound Doolittle Drive approach; and • Optimize signal timing during both peak hours.	**Auto Travel Impact Significance after Mitigation:** Significant and Unavoidable. **Pedestrian Travel Secondary Impact after Auto Mitigation:** Less than Significant. **Bicycle Travel Secondary Impact after Auto Mitigation:** Less than Significant. **Transit Travel Secondary Impact after Auto Mitigation:** Less than Significant. **Mitigation**

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA POINT PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
C. Transportation and Circulation (cont.)		
Impact 4.C-5 (cont.)		**Measure 4.C-5h** (**Fernside Boulevard and Otis Drive):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and C-2b) and implement Mitigation Measure 4.C-2-c (Otis/Fernside), and fund a fair share contribution to add a westbound right-turn overlap phase from Fernside Boulevard.
	Mitigation Measure 4.C-5h (**Fernside Boulevard and Otis Drive):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and C-2b) and implement Mitigation Measure 4.C-2-c (Otis/Fernside), and fund a fair share contribution to add a westbound right-turn overlap phase from Fernside Boulevard.	**Auto Travel Impact Significance after Mitigation:** Less than Significant. **Pedestrian Travel Secondary Impact after Auto Mitigation:** Less than Significant. **Bicycle Travel Secondary Impact after Auto Mitigation:** Less than Significant. **Transit Travel Secondary Impact after Auto Mitigation:** Less than Significant.
	Mitigation Measure 4.C-5i (Park/Blanding). The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and C-2b) and, when required to avoid the impact or reduce its severity, fund a fair share contribution to implement the following improvements: • Add two eastbound left turn lanes to provide two left turn lanes and a shared through/right turn lane on the eastbound Blanding Avenue approach; • Add a westbound left turn lane to provide a left turn lane, a through lane and a right turn lane on the westbound Blanding Avenue approach; • Separate the operation of the Nursing Home driveway from the Park Street and Blanding Avenue intersection; • Change east-west signal phasing to protected phasing; and • Optimize signal timing during both peak hours.	**Auto Travel Impact Significance after Mitigation:** Significant and Unavoidable. **Pedestrian Travel Secondary Impact after Auto Mitigation:** Less than Significant. **Bicycle Travel Secondary Impact after Auto Mitigation:** Less than Significant. **Transit Travel Secondary Impact after Auto Mitigation:** Less than Significant.
	Mitigation Measure 4.C-5j (Challenger/Atlantic): The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and 4.C-2b) and, when required to avoid the impact or reduce its severity, a fairshare to contribution optimize signal timing during the p.m. peak hour.	**Auto Travel Impact Significance after Mitigation:** Significant and Unavoidable. **Pedestrian Travel Secondary Impact after Auto Mitigation:** Less than Significant. **Bicycle Travel Secondary Impact after Auto Mitigation:** Less than Significant. **Transit Travel Secondary Impact after Auto Mitigation:** Less than Significant.

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA POINT PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
C. Transportation and Circulation (cont.)		
Impact 4.C-5 (cont.)	**Mitigation Measure 4.C-5k (Park/Lincoln):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and 4.C-2b) and, when required to avoid the impact or reduce its severity, the City shall fund a fairshare to optimize signal timing during the p.m. peak hour.	**Auto Travel Impact Significance after Mitigation:** Less than Significant. **Pedestrian Travel Secondary Impact after Auto Mitigation:** Less than Significant. **Bicycle Travel Secondary Impact after Auto Mitigation:** Less than Significant. **Transit Travel Secondary Impact after Auto Mitigation:** Less than Significant.
	Mitigation Measure 4.C-5l (Jackson/Sixth): The City of Alameda shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and 4.C-2b).	This impact would remain **significant and unavoidable.**
	Mitigation Measure 4.C-5m (Webster/Eighth): The City of Alameda shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and 4.C-2b).	This impact would remain **significant and unavoidable.**
	Mitigation Measure 4.C-5n (Broadway/Fifth): The City of Alameda shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and 4.C-2b).	This impact would remain **significant and unavoidable**.
	Mitigation Measure 4.C-5o (Brush/12th): The City of Alameda shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and 4.C-2b).	Because the potential future mitigation for this intersection, and the cost of that mitigation, are not known, and because the City of Alameda has no jurisdiction over the mitigation, this impact is conservatively considered to be **significant and unavoidable**.
	Mitigation Measure 4.C-5p (High/Oakport): The City of Alameda shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and 4.C-2b) and work with the City of Oakland to optimize the signal timing to allow for more green time for northbound traffic.	Because the potential future mitigation for this intersection, and the cost of that mitigation, are not known, and because the City of Alameda has no jurisdiction over the mitigation, this impact is conservatively considered to be **significant and unavoidable**.
	Mitigation Measure 4.C-5q (High/Coliseum): The City of Alameda shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and 4.C-2b) and work with the City of Oakland to optimize the signal timing.	Because the potential future mitigation for this intersection, and the cost of that mitigation, are not known, and because the City of Alameda has no jurisdiction over the mitigation, this impact is conservatively considered to be **significant and unavoidable**.

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA POINT PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
C. Transportation and Circulation (cont.)		
Impact 4.C-5 (cont.)	**Mitigation Measure 4.C-5r (29th/Ford):** The City of Alameda shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and 4.C-2b).	Because no feasible mitigation has been identified to improve the intersection, and because the City of Alameda has no jurisdiction over the mitigation, this impact is conservatively considered to be **significant and unavoidable**.
	Mitigation Measure 4.C-5s (23rd Ave./Seventh St.): The City of Alameda shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and 4.C-2b) and work with the City of Oakland to modify the northbound to provide a separate left – turn lane and a shared through-right-turn lane, and optimize the signal.	Because the City of Alameda has no jurisdiction over the mitigation, this impact is conservatively considered to be **significant and unavoidable**.
	Mitigation Measure 4.C-5t (Main/Pacific Pedestrian): The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and 4.C-2b) and, when required to avoid the impact or reduce its severity, fund a fairshare contribution to change signal timing to two-phase timing plan (i.e., northbound and southbound move concurrently; then eastbound and westbound move concurrently) and optimize cycle length.	**Pedestrian Travel Impact Significance after Mitigation:** Less than Significant. **Transit Travel Secondary Impact after Pedestrian Mitigation:** Less than Significant. **Bicycle Travel Secondary Impact after Pedestrian Mitigation:** Less than Significant. **Auto Travel Secondary Impact after Pedestrian Mitigation:** Less than Significant.
	Mitigation Measure 4.C-5u (**Webster/Appezzato Pedestrian):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and 4.C-2b) and, when required to avoid the impact or reduce its severity, fund a fair share contribution to optimize signal timing.	**Pedestrian Travel Impact Significance after Mitigation:** Less than Significant. **Transit Travel Secondary Impact after Pedestrian Mitigation:** Less than Significant. **Bicycle Travel Secondary Impact after Pedestrian Mitigation:** Less than Significant. **Auto Travel Secondary Impact after Pedestrian Mitigation:** Significant and Unavoidable.
	Mitigation Measure 4.C-5v (High/Fernside Pedestrian): The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and 4.C-2b) and Mitigation Measure 4.C-5e (optimize signal timing during the p.m. peak hour).	**Pedestrian Travel Impact Significance after Mitigation:** Less than Significant. **Transit Travel Secondary Impact after Pedestrian Mitigation:** Less than Significant. **Bicycle Travel Secondary Impact after Pedestrian Mitigation:** Less than Significant. **Auto Travel Secondary Impact after Pedestrian Mitigation:** Less than Significant.

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA POINT PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
C. Transportation and Circulation (cont.)		
Impact 4.C-5 (cont.)	**Mitigation Measure 4.C-5w** (**Appezzato/Constitution Pedestrian):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and 4.C-2b) and, when required to avoid the impact or reduce its severity, fund a fair share contribution to implement the following improvements: • Modify the existing signal phasing for eastbound and westbound approaches from split to permitted-protected lefts; and • Optimize the signal timing.	**Pedestrian Travel Impact Significance after Mitigation:** Significant and Unavoidable. **Transit Travel Secondary Impact after Pedestrian Mitigation:** Less than Significant. **Bicycle Travel Secondary Impact after Pedestrian Mitigation:** Less than Significant. **Auto Travel Secondary Impact after Pedestrian Mitigation:** Less than Significant.
	Mitigation Measure 4.C-5x (Park Street Transit): The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and 4.C-2b) and, when required to avoid the impact or reduce its severity, fund a fair share contribution to implement the following improvements: • Provide transit signal priority at intersections along this corridor; • Separate the operation of the Nursing Home driveway from the Park Street and Blanding Avenue intersection; and • Optimize splits at the Park Street and Blanding Avenue intersection during a.m. and p.m. peak hours.	**Transit Travel Impact Significance after Mitigation:** Less than Significant. **Pedestrian Travel Secondary Impact after Transit Mitigation:** Significant and Unavoidable. **Bicycle Travel Secondary Impact after Transit Mitigation:** Less than Significant. **Auto Travel Secondary Impact after Transit Mitigation:** Less than Significant.
	Mitigation Measure 4.C-5y (Appezzato Parkway Transit): The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and 4.C-2b) and, when required to avoid the impact or reduce its severity, fund a fair share contribution to implement the following improvements: • Install transit signal priority at intersections along this corridor; • Optimize cycle length at the Appezzato Parkway and Webster Street intersection during a.m. and p.m. peak hours and provide signal priority; and • Establish exclusive transit lanes or queue jump lanes from Alameda Point to Webster Street.	**Transit Travel Impact Significance after Mitigation:** Less than Significant. **Pedestrian Travel Secondary Impact after Transit Mitigation:** Significant and Unavoidable. **Bicycle Travel Secondary Impact after Transit Mitigation:** Less than Significant. **Auto Travel Secondary Impact after Transit Mitigation:** Significant and Unavoidable.
	Mitigation Measure 4.C-5z (Stargell Avenue Transit): The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and 4.C-2b) and, when required to avoid the impact or reduce its severity, implement the following improvements: • Provide eastbound and westbound queue jump lanes on Willie Stargell Avenue at Main Street and at Fifth Street or construct exclusive transit lanes on Willie Stargell Avenue; • Install transit signal priority at intersections along this corridor; and • Optimize cycle length at the Main Street and Willie Stargell Avenue intersection during a.m. and p.m. peak hours.	**Transit Travel Impact Significance after Mitigation:** Less than Significant. **Pedestrian Travel Secondary Impact after Transit Mitigation:** Significant and Unavoidable. **Bicycle Travel Secondary Impact after Transit Mitigation:** Less than Significant. **Auto Travel Secondary Impact after Transit Mitigation:** Less than Significant.

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA POINT PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
C. Transportation and Circulation (cont.)		
Impact 4.C-5 (cont.)	**Mitigation Measure 4.C-5zi (Stargell Avenue Bike):** The City shall implement Mitigation Measure 4.C-2m (Stargell Avenue bike path).	**Bicycle Travel Impact Significance after Mitigation:** Significant and Unavoidable. **Transit Travel Secondary Impact after Bicycle Mitigation:** Less than Significant. **Pedestrian Travel Secondary Impact after Bicycle Mitigation:** Less than Significant. **Auto Travel Secondary Impact after Bicycle Mitigation:** Less than Significant.
	Mitigation Measure 4.C-5zii: The City shall implement Mitigation Measure 4.C-2n (Main Street bicycle improvements).	**Bicycle Travel Impact Significance after Mitigation:** Significant and Unavoidable. **Transit Travel Secondary Impact after Bicycle Mitigation:** Less than Significant. **Pedestrian Travel Secondary Impact after Bicycle Mitigation:** Less than Significant. **Auto Travel Secondary Impact after Bicycle Mitigation:** Less than Significant.
	Mitigation Measure 4.C-5ziii (Central Avenue Bike): The City shall implement Mitigation Measure 4.C-2o (Central Avenue bicycle improvements).	**Bicycle Travel Impact Significance after Mitigation:** Significant and Unavoidable. **Transit Travel Secondary Impact after Bicycle Mitigation:** Less than Significant. **Pedestrian Travel Secondary Impact after Bicycle Mitigation:** Less than Significant. **Auto Travel Secondary Impact after Bicycle Mitigation:** Less than Significant.
	Mitigation Measure 4.C-5ziv (Oak Street Bike): The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and 4.C-2b) and, when required to avoid the impact or reduce its severity, fund a fair share contribution to implement the completion of a bicycle boulevard with appropriate signage and striping along Oak Street from Blanding Avenue to Encinal Avenue to advise motorists and bicyclists to share the street.	**Bicycle Travel Impact Significance after Mitigation:** Significant and Unavoidable. **Transit Travel Secondary Impact after Bicycle Mitigation:** Less than Significant. **Pedestrian Travel Secondary Impact after Bicycle Mitigation:** Less than Significant. **Auto Travel Secondary Impact after Bicycle Mitigation:** Less than Significant.

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA POINT PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
C. Transportation and Circulation (cont.)		
Impact 4.C-6: The increase in traffic on the freeway mainline due to the project results in negligible changes in density and no change in LOS under cumulative conditions. (Less than Significant)	None required.	
Impact 4.C-7: The change in traffic volumes on the freeway ramps due to the project results in no change in LOS and minimal, if any, change in density under existing conditions. (Less than Significant)	None required.	
Impact 4.C-8: Development facilitated by the proposed project would potentially result in inadequate emergency access. (Less than Significant)	None required.	
Impact 4.C-9: Development facilitated by the proposed project could potentially increase traffic safety hazards for vehicles, bicyclists, and pedestrians on public roadways due to roadway design features or incompatible uses. (Significant)	**Mitigation Measure 4.C-9 (Chinatown Pedestrians):** The City of Alameda shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and 4.C-2b) and shall continue to work with the City of Oakland, the ACTC, and Caltrans, to evaluate and implement measures to reduce or divert the volume of traffic that travels through Oakland Chinatown to and from Alameda Point and other City of Alameda destinations.	Because the City of Alameda has no jurisdiction over mitigation other than implementation of the project TDM Program and Monitoring, the impact at four intersections in Oakland Chinatown is conservatively considered to be **significant and unavoidable**.
Impact 4.C-10: Development facilitated by the proposed project could potentially be inconsistent with adopted polices, plans, and programs supporting alternative transportation. (Less than Significant)	None required.	
Impact 4.C-11: The addition of project-generated traffic would increase traffic volumes on many CMP and MTC roadways above levels identified under 2020 Baseline Conditions. (Less than Significant)	None required.	
Impact 4.C-12: The addition of project-generated traffic would increase traffic volumes on many CMP and MTC roadways above levels identified under 2035 Baseline Conditions. (Less than Significant)	None required.	
Impact 4.C-13: The addition of project-generated traffic would increase ridership on AC Transit buses above that under 2020 Baseline conditions. (Less than Significant)	None required.	

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA POINT PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
C. Transportation and Circulation (cont.)		
Impact 4.C-14: The addition of project-generated traffic would increase ridership on AC Transit buses above that under 2035 Cumulative Baseline conditions. (Less than Significant)	None required.	
Impact 4.C-15: The addition of project-generated passengers would increase ridership on BART above that under 2020 Baseline conditions. (Less than Significant)	None required.	
Impact 4.C-16: The addition of project-generated passengers would increase ridership on BART above that under 2035 Cumulative Baseline conditions. (Less than Significant)	None required.	
D. Cultural and Paleontological Resources		
Impact 4.D-1: Development facilitated by the proposed project could potentially have a significant, adverse impact on Historic Resources within the Alameda Historic District. (Significant)	**Mitigation Measure 4.D-1a:** The City shall implement the requirements of the Historic Preservation Ordinance, which requires a certificate of approval by the HAB for modifications to contributors and resources within the Historic District. As part of the certificate of approval process, project sponsors shall provide: 1) An analysis of the proposal's conformity with the *Guide to Preserving the Character of the Naval Air Station Alameda Historic District* as adopted and amended by the City Council; 2) An analysis of the proposal's conformity with general management and design guidelines contained within the NAS Alameda Cultural Landscape Report (JRP, 2012), including application of the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes*. These include special treatments organized by functional area for such topics as spatial organization, topography, vegetation, views and vistas, circulation, as well as structures, furnishings and objects; and 3) An analysis of impacts to the integrity of the Historic District, as a whole, and an analysis of alternatives to avoid potential impacts on the District as a whole, on an individual resource.	Significant and Unavoidable
	Mitigation Measure 4.D-1b: Prior to approval of new buildings within the Historic District the City shall complete and adopt Guidelines for New Infill Development within the Historic District. All new building will be reviewed for conformance with the guidelines.	Significant and Unavoidable
	Mitigation Measure 4.D-1c: As a condition of approval for demolition or removal of a contributor to the Historic District, the City shall require that the project applicant:	

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA POINT PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
D. Cultural and Paleontological Resources (cont.)		
Impact 4.D-1 (cont.)	1) Document any Historic District contributor contemplated for demolition under the proposed project in accordance with the Historic American Building Survey (HABS) Level II documentation standards of the National Park Service[3] including the following: 1. *Photographs*. Large-format (4 x 5-inch negatives or greater), black and white photographs will be taken of all elevations of the building(s), plus limited context and detail shots. A limited number of historical photos of buildings, where available, should also be photographically reproduced. All photographs should be printed on acid-free archival bond paper on 8 x 10 enlargements. Digital photography may be substituted for large-format photographs where necessary. 2. *Written History*. Prepare a written history of the resource using the HABS standard outline format. Building-specific historical and architectural information from the National Register Nominations and prior inventories and technical reports can be utilized for this effort. If available, reproduce original building drawings on mylar or through photographic means. 3. *Archiving*. The completed HABS documentation package (photos, report, and drawings) shall be archived at the City of Alameda, the City of Alameda Public Library, the Alameda Naval Air Station Museum, and the Northwest Information Center of Sonoma State University. 2) Prepare and implement a public interpretation plan to describe and convey the historic significance of the NAS Alameda Historic District or resource to the general public. The plan will contain recommendations for the location and design of interpretive elements, such as plaques, markers, exhibits, expansion of the existing Alameda Point self-guided tour,[4] and other methods for interpreting the history of the former NAS Alameda. Information generated from the HABS documentation effort, described above, as well as historical information from the National Register Nomination and other technical background reports may be utilized. The interpretive plan will be designed by a professional architectural historian meeting the qualifications of the Secretary of the Interior's Standards. 3) Prepare and implement an architectural salvage plan for any District contributor contemplated for demolition under the proposed project. The plan will identify architectural components that are worthy of salvage and reuse either as part of the design of the replacement structures, or elsewhere on the project site. The salvage plan will be prepared by a professional architectural historian meeting the qualifications of the Secretary of the Interior's Standards.	

3 It shall be noted that pursuant to CEQA Guidelines Section 15126(b)(2), "In some circumstances, documentation of an historical resource, by way of historic narrative, photographs or architectural drawings, as mitigation for the effects of demolition of the resource will not mitigate the effects to a point where clearly no significant effect on the environment would occur."
4 http://www.alameda-point.com/resources/pdf/self-guided-tour-map.pdf

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA POINT PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
D. Cultural and Paleontological Resources (cont.)		
Impact 4.D-2: Development facilitated by the proposed project could potentially result in the inadvertent discovery of unique archaeological resources. (Significant)	**Mitigation Measure 4.D-2:** If cultural resources are encountered, all activity within 100 feet of the find shall halt until it can be evaluated by a qualified archaeologist and a Native American representative. Prehistoric archaeological materials might include obsidian and chert flaked-stone tools (e.g., projectile points, knives, scrapers) or toolmaking debris; culturally darkened soil ("midden") containing heat-affected rocks, artifacts, or shellfish remains; and stone milling equipment (e.g., mortars, pestles, handstones, or milling slabs); and battered stone tools, such as hammerstones and pitted stones. Historic-era materials might include stone, concrete, or adobe footings and walls; filled wells or privies; and deposits of metal, glass, and/or ceramic refuse. If the archaeologist and Native American representative determine that the resources may be significant, they shall notify the City of Alameda and shall develop an appropriate treatment plan for the resources. The archaeologist shall consult with Native American monitors or other appropriate Native American representatives in determining appropriate treatment for unearthed cultural resources if the resources are prehistoric or Native American in nature. In considering any suggested measures proposed by the archaeologist and Native American representative in order to mitigate impacts to cultural resources, the project applicant shall determine whether avoidance is necessary and feasible in light of factors such as the nature of the find, project design, costs, and other considerations. If avoidance is infeasible, other appropriate measures (e.g., data recovery) shall be instituted. Work may proceed on other parts of the project area while mitigation for cultural resources is being carried out. Pursuant to CEQA Guidelines Section 15126(b), *Mitigation Measures Related to Impacts on Historical Resources*, the City of Alameda will, whenever feasible, seek to avoid damaging effects on any historical resource of an archaeological nature. The following factors shall be considered for a project involving an archaeological site: A. Preservation in place is the preferred manner of mitigating impacts to archaeological sites. Preservation in place maintains the relationship between artifacts and the archaeological context. Preservation may also avoid conflict with religious or cultural values of groups associated with the site. B. Preservation in place may be accomplished by, but is not limited to, the following: 1. Planning construction to avoid archaeological sites; 2. Incorporation of sites within parks, greenspace, or other open space; 3. Covering the archaeological sites with a layer of chemically stable soil before building tennis courts, parking lots, or similar facilities on the site. 4. Deeding the site into a permanent conservation easement.	Less than Significant

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA POINT PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
D. Cultural and Paleontological Resources (cont.)		
Impact 4.D-2 (cont.)	C. When data recovery through excavation is the only feasible mitigation, a data recovery plan, which makes provisions for adequately recovering the scientifically consequential information from and about the historical resource, shall be prepared and adopted prior to any excavation being undertaken. Such studies shall be deposited with the California Historical Resources Regional Information Center. Archeological sites known to contain human remains shall be treated in accordance with the provisions of Section 7050.5 Health and Safety Code. If an artifact must be removed during project excavation or testing, curation may be an appropriate mitigation. D. Data recovery shall not be required for an historical resource if the lead agency determines that testing or studies already completed have adequately recovered the scientifically consequential information from and about the archaeological or historical resource, provided that the determination is documented in the EIR and that the studies are deposited with the California Historical Resources Regional Information Center.	
Impact 4.D-3: Development facilitated by the proposed project could potentially result in the discovery of unidentified unique paleontological resources. (Significant)	**Mitigation Measure 4.D-3:** If paleontological resources, such as fossilized bone, teeth, shell, tracks, trails, casts, molds, or impressions are discovered during ground-disturbing construction activities, all such activities within 100 feet of the find shall be halted until a qualified paleontologist can assess the significance of the find and, if necessary, develop appropriate salvage measures in consultation with the City of Alameda and in conformance with Society of Vertebrate Paleontology Guidelines (SVP, 1995; SVP, 1996).	Less than Significant
Impact 4.D-4: Development facilitated by the proposed project could potentially result in the inadvertent discovery of human remains. (Significant)	**Mitigation Measure 4.D-4:** In the event of discovery or recognition of any human remains during construction activities, such activities within 100 feet of the find shall cease. The Alameda County Coroner shall be contacted immediately. If the remains are determined to be Native American, and no investigation of the cause of death is required, the Native American Heritage Commission (NAHC) will be contacted within 24 hours. The NAHC will identify and contact the person or persons it believes to be the "most likely descendant (MLD)" of the deceased Native American, who in turn would make recommendations for the appropriate means of treating the human remains and any grave goods.	Less than Significant
Impact 4.D-5: Development facilitated by the proposed project, in conjunction with, past, present, and future development, could potentially adversely affect historic architectural resources in the project vicinity. (Significant)	**Mitigation Measure 4.D-5:** Implement Mitigation Measure 4.D-1.	Significant and Unavoidable.

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA POINT PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
D. Cultural and Paleontological Resources (cont.)		
Impact 4.D-6: Development facilitated by the proposed project, in conjunction with cumulative development, would have a less-than-significant impact on unique archaeological and paleontological resources, as well as human remains, in the project vicinity. (Significant)	**Mitigation Measure 4.D-6:** Implement Mitigation Measures 4.D-2, -3, and -4.	Less than Significant
E. Biological Resources		
Impact 4.E-1: Development facilitated by the proposed project would have a substantial adverse effect, either directly or through habitat modifications, on species identified as candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the United States Fish and Wildlife Service. (Significant)	**Mitigation Measure 4.E-1a:** Prior to the start of marina or ferry terminal construction, the City shall require a NMFS-approved sound attenuation monitoring plan to protect fish and marine mammals, if pile driving is planned for the Seaplane Lagoon. This plan shall provide detail on the sound attenuation system, detail methods used to monitor and verify sound levels during pile driving activities, and describe management practices to be taken to reduce impact hammer pile-driving sound in the marine environment to an intensity level of less than 183 dB. The sound monitoring results shall be made available to the NMFS. The plan shall incorporate, but not be limited, to the following best management practices (BMPs): • To the extent feasible, all pilings shall be installed and removed with vibratory pile drivers only. Vibratory pile driving will be conducted following the Corps' "*Proposed Procedures for Permitting Projects that will Not Adversely Affect Selected Listed Species in California*". USFWS and NOAA completed Section 7 consultation on this document, which establishes general procedures for minimizing impacts to natural resources associated with projects in or adjacent to jurisdictional waters. • An impact pile driver may only be used where necessary to complete installation of larger steel pilings in accordance with seismic safety or other engineering criteria • The hammer shall be cushioned using a 12-inch thick wood cushion block during all impact hammer pile driving operations • All piling installation using impact hammers shall be conducted between June 1 and November 30, when the likelihood of sensitive fish species being present in the work area is minimal • If pile installation using impact hammers must occur at times other than the approved work window, the project applicant shall obtain incidental take authorization from NMFS and CDFW, as necessary, to address potential impacts on steelhead trout, chinook salmon, and Pacific herring and implement all requested actions to avoid impacts	Less than Significant

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA POINT PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
E. Biological Resources (cont.)		
Impact 4.E-1 (cont.)	• The project applicant shall monitor and verify sound levels during pile driving activities. The sound monitoring results will be made available to NMFS and the City • In the event that exceedance of noise thresholds established and approved by NMFS occurs, a contingency plan involving the use of bubble curtains or air barrier shall be implemented to attenuate sound levels to below thresholds **Mitigation Measure 4.E-1b:** During the project permitting phase, the City will ensure that any projects requiring in-water work include consultation with NMFS to determine if the work can be covered under one of the programmatic consultations for federally listed species described above or if a project-level BO would be required and whether an Incidental Harassment Authorization for marine mammals would be needed for dredging or pile driving activities. The project applicant shall also consult with CDFW regarding State special-status fish and the potential need for an incidental take permit (ITP). The project applicant shall submit to the City copies of any IHA and/or ITP received or, alternatively, copies of correspondence confirming that an IHA and/or ITP is not required for the project in question. **Mitigation Measure 4.E-1c:** As part of the NMFS-approved sound attenuation monitoring plan required for pile driving in the Seaplane Lagoon in Mitigation Measure 4.E-1a, the City shall ensure that the project applicant implements the following actions in addition to those listed in Mitigation Measure 4.E-1a to reduce the effect of underwater noise transmission on marine mammals. These actions shall include at a minimum: • Establishment of a 1,600-foot (500-meter) safety zone that shall be maintained around the sound source, for the protection of marine mammals in the event that sound levels are unknown or cannot be adequately predicted • Work activities shall be halted when a marine mammal enters the 1,600-feet (500-meter) safety zone and resume only after the animal has been gone from the area for a minimum of 15 minutes • A “soft start” technique shall be employed in all pile driving to marine mammals an opportunity to vacate the area • Maintain sound levels below 90 dBA in air when pinnipeds (seals and sea lions) are present • A NMFS-approved biological monitor will conduct daily surveys before and during impact hammer pile driving to inspect the work zone and adjacent Bay waters for marine mammals. The monitor will be present as specified by NMFS during the impact pile-driving phases of construction	

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA POINT PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
E. Biological Resources (cont.)		
Impact 4.E-1 (cont.)	**Mitigation Measure 4.E-1d:** Prior to occupancy, the City shall ensure that the project applicant installs dock lighting on all floating docks that minimizes artificial lighting of Bay waters by using shielded, low-mounted, and low light-intensity fixtures and bulbs. **Mitigation Measure 4.E-1e:** Prior to opening the proposed regional park in the Northwest Territories and the proposed Bay Trail in the Northwest Territories and on the Federal Property, the City shall ensure that measures are taken to identify sensitive resources in these areas and to restrict access of humans and dogs to those resources. Measures to be implemented could include, but are not limited to, the following: • Surveys conducted by a qualified biologist to identify sensitive resources locations throughout the City's portion of the Northwest Territories and on the Federal Property along the proposed Bay trail alignment • Additional seasonal access restrictions, as appropriate • Educational signage and brochures regarding sensitive resources and the need to avoid them • Fencing trails where they run proximate to sensitive biological resources (e.g. wetlands, known breeding grounds) • On-leash restrictions on dogs throughout or prohibition of dogs altogether in certain areas based on the results of the sensitive resources surveys (e.g., on the Bay Trail in the Federal Property) **Mitigation Measure 4.E-1f:** Potential direct and indirect disturbances to bats shall be identified by locating colonies, and instituting protective measures prior to construction. No more than two weeks in advance of tree removal, demolition of buildings onsite, or initiation of construction within 100 feet of trees or structures providing potential bat roosting sites, a qualified bat biologist (e.g., a biologist holding a CDFW collection permit and a Memorandum of Understanding with CDFW allowing the biologist to handle and collect bats) shall conduct pre-construction surveys for bat roosts. No activities that could disturb active roosts shall proceed prior to the completed surveys. **Mitigation Measure 4.E-1g:** If a maternity colony is located within the project site during pre-construction surveys, the project shall be redesigned to avoid impacts if feasible, and a no-disturbance buffer acceptable in size to the CDFW shall be created around the roost. Bat roosts (maternity or otherwise) initiated during construction are generally presumed to be unaffected by increased noise, vibration, or human activity, and no buffer is necessary as long as roost sites are not directly altered or destroyed. However, the "take" of individuals is still prohibited at any time.	

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA POINT PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
E. Biological Resources (cont.)		
Impact 4.E-1 (cont.)	• If there is a maternity colony present and the project cannot be redesigned to avoid removal of the tree or structure inhabited by the bats, demolition of that tree or structure shall not commence until after young are flying (i.e., after July 31, confirmed by a qualified bat biologist) or before maternity colonies form the following year (i.e. prior to March 1). • If a non-maternity roost must be removed as part of the project, the non-maternity roost shall be evicted prior to building/tree removal by a qualified biologist, using methods such as making holes in the roost to alter the air-flow or creating one-way funnel exits for the bats. • If significant (e.g., maternity roosts or large non-maternity roost sites) bat roosting habitat is destroyed during building/tree removal, artificial bat roosts shall be constructed in an undisturbed area in the project site vicinity away from human activity and at least 200 feet from project demolition/construction activities. The design and location of the artificial bat roost(s) shall be determined by a qualified bat biologist. **Mitigation Measure 4.E-1h:** The City shall ensure that the project applicant for development facilitated by the proposed project protects active autumnal/overwintering roost sites used by monarch butterflies by conducting construction activities in and around identified butterfly autumnal roost/overwintering sites outside of the autumnal migratory/overwintering season (October to March), to the greatest extent feasible, to avoid potential impacts on monarch butterfly. • The project applicant shall retain a biologist familiar with monarch butterfly life history and habitat requirements to conduct surveys for active monarch butterfly roost sites anywhere groves (greater than 3 trees planted together) of mature conifers (e.g. Italian stone pine, Monterey cypress) and/or eucalyptus occur in the Main Street Neighborhood Sub-area and in open space to the south of Main Street as it skirts the northern edge of the project area between November and January and prior to start of construction. • All active roost sites encountered during the survey shall be identified and mapped for future reference. The previously active roost site identified in 2002 shall be considered active until proven otherwise. Active sites shall be monitored annually to inform future development. Once identified, such sites shall be considered active until such time as monarchs have not returned to the site for a period of ten years. Once ten years have passed with no significant butterfly use (as determined by the qualified biologist) of a site the restrictions below would no longer apply.	

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA POINT PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
E. Biological Resources (cont.)		
Impact 4.E-1 (cont.)	• No tree removal shall be conducted at any time in or around active roost sites to the extent that such removal would: a) result in the loss of an active roost tree; b) result in changes to the amount of wind affecting an active roost; or c) result in changes of the thermal environment surrounding an active roost tree. If active roost sites are identified and it is not feasible to avoid the overwintering season and construction activities take place during this time (October through March), the following measures shall apply: • Mapped autumnal roost/overwintering roosts within 100 feet of construction areas shall be surveyed not more than two weeks prior to construction to determine whether they are actively being used by butterflies. • If a mapped autumnal roost/overwintering site is supporting butterflies, work activities shall be delayed within 100 feet of the site location until avoidance measures have been implemented. Appropriate avoidance measures shall include the following measures (which may be modified as a result of consultation with CDFW to provide equally effective measures): - If the qualified wildlife biologist determines that construction activities shall not affect an active autumnal roost/overwintering site, activities may proceed without restriction. - A no-disturbance buffer may be established around the autumnal roost/overwintering site to avoid disturbance or destruction until butterflies resume their migration. - The extent of the no-disturbance buffers is typically 100 feet but shall be determined by a qualified wildlife biologist in consultation with the CDFW.	
Impact 4.E-2: Development facilitated by the proposed project would have a substantial adverse effect on riparian habitat or other sensitive natural communities identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service. (Significant)	**Mitigation Measure 4.E-2a:** Prior to marina or ferry terminal construction, the City shall ensure that the project applicant conducts a pre-construction survey to determine if native oysters and eelgrass are present in Seaplane Lagoon. • The eelgrass survey shall be conducted according to the methods contained in the California Draft Eelgrass Mitigation Policy (CDEMP) (NMFS 2011). • If found within or immediately adjacent to the construction footprint, the project applicant shall request guidance from the National Marine Fisheries Service (or other applicable agency) as to the need and/or feasibility to move affected beds. Any translocation of eelgrass beds shall be conducted consistent with the methods described in the CDEMP and/or those described in Eelgrass Conservation in San Francisco Bay: Opportunities and Constraints (Boyer and Wyllie-Echeverria, 2010). Translocation of oyster beds shall be consistent with methods and recommendations presented in Shellfish Conservation and Restoration in San Francisco Bay: Opportunities and Constraints (Zabin et al., 2010)	Less than Significant

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA POINT PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
E. Biological Resources (cont.)		
Impact 4.E-2 (cont.)	• If it is not possible to translocate oyster or eelgrass beds then the City shall ensure that the project applicant provides compensatory mitigation consistent with the CDEMP for eelgrass (a ratio of 3.01:1 [transplant area to impact area]) and a minimum 1:1 ratio for oyster beds. **Mitigation Measure 4.E-2b:** Prior to occupancy the City shall ensure that the marina project applicant prepares educational information regarding sensitive biological resources at Alameda Point, the adjacent Federal Property, and within Bay waters. This information shall be disseminated to all boaters using the marina and shall include, but not be limited to, information educating boat owner/operators about sensitive habitats and species in the Bay and actions they are required to implement to avoid impacts to marine resources. The educational information will be disseminated to visiting boaters through multiple methods including, but not limited to, brochures or pamphlets; marina and/or City websites; boating, cruising, and newspaper periodicals; and social media. The information shall be prepared soliciting input from, and in cooperation with, the National Marine Fisheries Service (NMFS), United States Coast Guard (USCG), California State Lands Commission, National Park Service (NPS), California Department of Parks and Recreation (CDPR), Bay Conservation and Development Commission (BCDC), and local organizations active in protecting Bay marine resources, as appropriate. Educational information shall clearly address in multiple languages, but not be limited to, the following topics: • Information on the location of eelgrass beds in the vicinity of Alameda Island, as well as the greater central Bay and the importance of protecting and avoiding these sensitive habitats (e.g., by not anchoring in or boating through them) • Marinas and safe anchoring locations in the Bay where boaters may dock or anchor their vessels • Common sources of pollution from boats and marinas and outline relevant regulations and clean boating policies • Information on proper and legal waste handling in the Bay and facilities for onshore disposal • Information on invasive species and their impact on Bay marine ecosystems and preventative steps that boaters should take to prevent the introduction or spread of invasive species into the Bay • Federal and state regulations prohibiting the harassment of marine mammals	

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA POINT PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
E. Biological Resources (cont.)		
Impact 4.E-2 (cont.)	• Information on the watercraft exclusion zones and no wake zones in effect for the waters off Alameda Island and any other buffer zones established in other Bay locations to protect sensitive biological resources (e.g., Breakwater Island, other bird nesting sites, harbor seal haul outs) • Information about onsite and nearby environmental services that support clean boating practices (such as the locations of sewage pumpouts, oil change facilities, used oil recycling centers, bilge pumpouts, absorbent pad distribution and spent pad collection, and boat-to-boat environmental services) • Information regarding the importance of keeping plastic and other trash out of Bay waters • Signage regarding locations of waste collection containers posted at the marina **Mitigation Measure 4.E-2c:** The City shall require that the project applicant develop and implement a Marine Invasive Species Control Plan prior to commencement of any in-water work including, but not limited to, construction of piers and seawalls, dredging, pile driving, and construction of new stormwater outfalls. The plan shall be prepared in consultation with the United States Coast Guard (USCG), RWQCB, and other relevant state agencies. Provisions of the plan shall include but not be limited to the following: • Environmental training of construction personnel involved in in-water work • Actions to be taken to prevent the release and spread of marine invasive species, especially algal species such as *Undaria* and *Sargasso* • Procedures for the safe removal and disposal of any invasive taxa observed on the removed structures prior to disposal or reuse of pilings, docks, wave attenuators, and other features • The onsite presence of qualified marine biologists to assist the contractor in the identification and proper handling of any invasive species on removed Port equipment or materials • A post-construction report identifying which, if any, invasive species were discovered attached to equipment and materials following removal from the water, and describing the treatment/handling of identified invasive species. Reports shall be submitted to the City, as well as the USCG and the RWQCB if requested by the agencies.	

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA POINT PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
E. Biological Resources (cont.)		
Impact 4.E-3: Development facilitated by the proposed project would have a substantial adverse effect on federally protected wetlands, 'other waters', and navigable waters as defined by Sections 404 and 10 of the Clean Water Act and waters of the State through direct removal, filling, hydrological interruption, or other means. (Significant)	**Mitigation Measure 4.E-3a:** Prior to issuance of final grading or building permits that include work within or in the vicinity of jurisdictional waters, the City shall confirm that the project applicant has obtained all necessary wetland permits and shall further ensure that the project applicant implements measures to avoid or minimize adverse effects on jurisdictional waters and sensitive natural communities. Specifically: • The existing wetlands in the Northwest Territories shall be preserved and incorporated into compatible open space uses to the maximum extent feasible. • Wetlands to be avoided shall be protected by setbacks throughout project construction. Based on recommendations in the *Baylands Ecosystem Habitat Goals* (Goals Project, 1999) a minimum 300-foot wetland buffer shall be incorporated into project design wherever possible to protect water quality and the wildlife that use the wetlands. Where existing uses preclude the establishment of a 300 foot or larger buffer-, the largest buffer possible shall be established. Buffer width should be determined by considering the quality of the wetlands, actual or potential wildlife use, existing and proposed future uses, amount and type of vegetation within the buffer, and angle and direction of slope in proximity to the wetland (McElfish et al. 2008). Open space uses shall incorporate these buffers in the siting of recreational trails and development of facilities to ensure the wetlands and the wildlife that use them are adequately buffered from recreational uses. • During project construction, areas to be avoided and provided with setbacks pursuant to the provisions described above shall be further protected by best management practices (BMPs), as described in Mitigation Measure 4.E-3b, below. Such measures shall include the installation of silt fencing, straw wattles, or other appropriate erosion and sediment control methods or devices along roads and at the 100-foot setback limits. To minimize impacts on wetlands and other waters, equipment such as backhoes and cranes used for installation of rip-rap or other shore stabilization measures along the Bay shoreline shall operate from dry land where possible. Any construction operations within Bay waters shall be barge-mounted or use other water-based equipment such as scows, derrick barges, and tugs. **Mitigation Measure 4.E-3b:** Standard BMPs shall be employed to avoid degradation of aquatic habitat and wetlands by maintaining water quality and controlling erosion and sedimentation during construction as required by compliance with the National Pollutant Discharge Elimination System (NPDES) General Permit for Construction Activities (see also Section 4.H, *Hydrology and Water Quality*, of this EIR, which addresses impacts on water quality).	Less than Significant

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA POINT PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
E. Biological Resources (cont.)		
Impact 4.E-3 (cont.)	BMPs shall include, but not be limited to, the following: (1) installing silt fencing between wetlands and aquatic habitat and construction-related activities, (2) locating fueling stations away from potentially jurisdictional features, and (3) otherwise isolating construction work areas from any identified jurisdictional features. In addition, BMPs to avoid impacts on water quality resulting from dredging or other activities within open waters that are identified in the *Long-term Management Strategy for the Placement of Dredged Material in the San Francisco Bay Region* (LTMS) (Corps, 2001) shall be implemented. These BMPs include silt fencing and gunderbooms or other appropriate methods for keeping dredged materials or other sediments from leaving a project site. **Mitigation Measure 4.E-3c:** Where disturbance to jurisdictional waters cannot be avoided, compensation shall be provided at a minimum 1:1 ratio for temporary impacts and permanent loss. Actual compensatory mitigation ratios will be specified in project permits issued by the Corps, RWQCB, and BCDC. Where applicable, compensation shall be detailed on a project-specific basis and shall include development of an onsite wetland mitigation and monitoring plan, which shall be developed prior to the start of the first phase of development or in coordination with permit applications and/or conditions. Alternatively, off-site mitigation may be pursued through an approved mitigation bank, although this option may result in a higher mitigation ratio. At a minimum, such plans shall include: • Baseline information, including a summary of findings for the most recent wetland delineation applicable to the project site; • Anticipated habitat enhancements to be achieved through compensatory actions, including mitigation site location (onsite enhancement or offsite habitat creation) and hydrology; • Performance and success criteria for wetland creation or enhancement including, but not limited to, the following[5]**:** - At least 70 percent survival of installed plants for each of the first three years following planting. - Performance criteria for vegetation percent cover in Years 1-4 as follows: at least 10 percent cover of installed plants in Year 1; at least 20 percent cover in Year 2; at least 30 percent cover in Year 3; at least 40 percent cover in Year 4.	

5 Vegetation-related criteria listed here apply only mitigation required for impacts to vegetated wetlands and would not be required for mitigation required for impacts to unvegetated wetlands.

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA POINT PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
E. Biological Resources (cont.)		
Impact 4.E-3 (cont.)	- Performance criteria for hydrology in Years 1-5 as follows: Fourteen or more consecutive days of flooding, ponding, or a water table 12 inches or less below the soil surface during the growing season at a minimum frequency of three of the five monitoring years; OR establishment of a prevalence of wetland obligate plant species. - Invasive plant species that threaten the success of created or enhanced wetlands should not contribute relative cover greater than 35 percent in Year 1, 20 percent in Years 2 and 3, 15 percent in Year 4, and 10 percent in Year 5. - If necessary, supplemental water shall be provided by a water truck for the first two years following installation. Any supplemental water must be removed or turned off for a minimum of two consecutive years prior to the end of the monitoring period, and the wetland must meet all other criteria during this period. At the end of the five-year monitoring period, the wetland must be self-sufficient and capable of persistence without supplemental water. - At least 75 percent cover by hydrophytic vegetation at the end of the five-year monitoring period. In addition, wetland hydrology and hydric soils must be present and defined as follows: ▪ *Hydrophytic vegetation* – A plant community occurring in areas where the frequency and duration of inundation or soil saturation produce permanently or periodically saturated soils of sufficient duration to exert a controlling influence on the plant species present. ▪ *Wetland hydrology* – Identified by indicators such as sediment deposits, water stains on vegetation, and oxidized rhizospheres along living roots in the upper 12 inches of the soil, or satisfaction of the hydrology performance criteria listed above. ▪ *Hydric soils* – Soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions, which are often characterized by features such as redox concentrations, which form by the reduction, translocation, and/or oxidation of iron and manganese oxides. Hydric soils may lack hydric indicators for a number of reasons. In such cases, the same standard used to determine wetland hydrology when indicators are lacking can be used. - Five years after any wetland creation, a wetland delineation shall be performed to determine whether created wetlands are developing according to the success criteria outlined in the project permits. If they are not, remedial measures such as re-planting and or re-design and construction of the created wetland shall be taken to ensure that the Project's mitigation obligations are met.	

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA POINT PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
E. Biological Resources (cont.)		
Impact 4.E-3 (cont.)	• If permanent and temporary impacts on jurisdictional waters cannot be compensated onsite through the restoration or enhancement of wetland features incorporated within proposed open space areas, the specific project applicant shall provide additional compensatory mitigation for these habitat losses. Potential options include the creation of additional wetland acreage onsite or the purchase of offsite mitigation. Offsite compensatory mitigation would be required to fulfill the performance standards described above.	
Impact 4.E-4: Development facilitated by the proposed project would interfere with the movement of native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. (Significant)	**Mitigation Measure 4.E-4a:** The City shall deploy buoys between Breakwater Island and the shoreline to create a 500-foot access corridor for all marine craft, including pleasure crafts and ferries, under non-emergency situation, in order to minimize disturbance to biological habitat on the shoreline and on the breakwater. Signs shall be posted that include a speed limit of 10 mph on the harbor side of Breakwater Island. **Mitigation Measure 4.E-4b:** Prior to the issuance of the first building permit for each new building, or for any exterior renovation that would increase the surface area of glazing by 50 percent or more or that would replace 50 percent or more of existing glazing, the City shall require that the project applicant retain a qualified biologist experienced with bird strike issues to review and approve the design of the building to ensure that it sufficiently minimizes the potential for bird strikes. The City may also consult with resource agencies such as the California Department of Fish and Wildlife, U.S. Fish and Wildlife Service, or others, as it determines to be appropriate during this review. The project applicant shall provide to the City a written description of the measures and features of the building design that are intended to address potential impacts on birds. The design shall include some of the following measures or measures that are equivalent to, but not necessarily identical to, those listed below, as new, more effective technology for addressing bird strikes may become available in the future: • Employ design techniques that create “visual noise” via cladding or other design features that make it easy for birds to identify buildings as such and not mistake buildings for open sky or trees; • Decrease continuity of reflective surfaces using “visual marker” design techniques, which techniques may include: - Patterned or fritted glass, with patterns at most 28 centimeters apart, - One-way films installed on glass, with any picture or pattern or arrangement that can be seen from the outside by birds but appear transparent from the inside,	Less than Significant

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA POINT PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
E. Biological Resources (cont.)		
Impact 4.E-4 (cont.)	- Geometric fenestration patterns that effectively divide a window into smaller panes of at most 28 centimeters, and/or - Decals with patterned or abstract designs, with the maximum clear spaces at most 28 centimeters square. • Up to 60 feet high on building facades facing the shoreline, decrease reflectivity of glass, using design techniques such as plastic or metal screens, light-colored blinds or curtains, frosting of glass, angling glass towards the ground, UV-A glass, or awnings and overhangs; • Eliminate the use of clear glass on opposing or immediately adjacent faces of the building without intervening interior obstacles such that a bird could perceive its flight path through the glass to be unobstructed; • Mute reflections in glass using strategies such as angled glass, shades, internal screens, and overhangs; and • Place new vegetation sufficiently away from glazed building facades so that no reflection occurs. Alternatively, if planting of landscapes near a glazed building façade is desirable, situate trees and shrubs immediately adjacent to the exterior glass walls, at a distance of less than 3 feet from the glass. Such close proximity will obscure habitat reflections and will minimize fatal collisions by reducing birds' flight momentum. ***Lighting.*** In addition to implementation of the City/VA Lighting MOA, the project applicant shall similarly ensure that the design and specifications for buildings implement design elements to reduce lighting usage, change light direction, and contain light. These include, but are not limited to, the following general considerations that should be applied wherever feasible throughout Alameda Point to reduce night lighting impacts on species other than least terns: • Avoid installation of lighting in areas where not required for public safety • Examine and adopt alternatives to bright, all-night, floor-wide lighting when interior lights would be visible from the exterior or exterior lights must be left on at night, including: - Installing motion-sensitive lighting - Installing task lighting - Installing programmable timers - Installing fixtures that use lower-wattage, sodium, and yellow-red spectrum lighting. • Install strobe or flashing lights in place of continuously burning lights for any obstruction lighting.	

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA POINT PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
E. Biological Resources (cont.)		
Impact 4.E-4 (cont.)	• Where exterior lights are to be left on at night, install fully shielded lights to contain and direct light away from the sky. ***Antennae, Monopole Structures, and Rooftop Elements*.** The City shall ensure, as a condition of approval for every building permit, that buildings minimize the number of and co-locate rooftop-antennas and other rooftop equipment, and that monopole structures or antennas on buildings, in open areas, and at sports and playing fields and facilities do not include guy wires. ***Educating Residents and Occupants.*** The City shall ensure, as a condition of approval for every building permit, that the project applicant agrees to provide educational materials to building tenants and occupants, hotel guests, and residents encouraging them to minimize light transmission from windows, especially during peak spring and fall migratory periods, by turning off unnecessary lighting and/or closing window coverings at night. The City shall review and approve the educational materials prior to building occupancy. ***Documentation.*** The project applicant and/or City shall document undertaking the activities described in this mitigation measure and maintain records that include, among others, the written descriptions provided by the building developer of the measures and features of the design for each building that are intended to address potential impacts on birds, and the recommendations and memoranda prepared by the qualified biologist experienced with bird strikes who reviews and approves the design of any proposed projects to ensure that they sufficiently minimize the potential for bird strikes. **Mitigation Measure 4.E-4c:** The City shall require project applicants to conduct pre-construction breeding bird surveys for projects proposed in areas containing, or likely to contain, habitat for nesting birds as a condition of approval for any development-related permit. Specific measures to avoid and minimize impacts on nesting birds include, but are not limited to, those described below. • To avoid and minimize potential impacts on nesting raptors and other birds, preconstruction surveys shall be performed not more than two weeks prior to initiating vegetation removal and/or construction activities during the breeding season (i.e., February 1 through August 31) • To avoid and minimize potential impacts on nesting raptors and other birds, a no-disturbance buffer zone shall be established around active nests during the breeding season until the young have fledged and are self-sufficient, when no further mitigation would be required • Typically, the size of individual buffers ranges from a minimum of 250 feet for raptors to a minimum of 50 feet for other birds but can be adjusted based on an evaluation of the site by a qualified biologist in cooperation with the USFWS and/or CDFW	

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA POINT PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
E. Biological Resources (cont.)		
Impact 4.E-4 (cont.)	• Birds that establish nests after construction starts are assumed to be habituated to and tolerant of the indirect impacts resulting from construction noise and human activity. However, direct take of nests, eggs, and nestlings is still prohibited and a buffer must be established to avoid nest destruction. • If construction ceases for a period of more than two weeks, or vegetation removal is required after a period of more than two weeks has elapsed from the preconstruction surveys, then new nesting bird surveys must be conducted. **Mitigation Measure 4.E-4d:** The City shall ensure that any project applicant for work on City property in the Northwest Territories or on Bay Trail construction through the Federal Property implements the following measures to avoid and minimize impacts on burrowing owl: a) Prior to the issuance of grading or building permits, protocol surveys for burrowing owl shall be conducted by a qualified biologist. The survey methodology shall be consistent with the methods outlined in the California Department of Fish and Wildlife (CDFW) *Staff Report on Burrowing Owl Mitigation* (CDFG March 2012) and shall consist of walking parallel transects 7 to 20 meters apart, adjusting for vegetation height and density as needed, and noting any potential burrows with fresh burrowing owl sign or presence of burrowing owls. A copy of the survey results shall be submitted to the City and CDFW. b) In areas positive for burrowing owl presence the Lead Biologist or biological monitor shall be onsite during all construction activities in potential burrowing owl habitat. c) A qualified wildlife biologist (i.e., a wildlife biologist with previous burrowing owl survey experience) shall conduct pre-construction surveys of the permanent and temporary impact areas to locate active breeding or wintering burrowing owl burrows not more than 14 days prior to construction and/or prior to exclusion fencing installation. The survey methodology shall be consistent with the methods outlined in the *Staff Report*. d) If no burrowing owls are detected, no further mitigation is necessary. If burrowing owls are detected, no ground-disturbing activities, such as road construction or installation of solar arrays or ancillary facilities, shall be permitted within the distances specified in Table 4.E-3 from an active burrow during the nesting and fledging seasons (April 1 to August 15 and August 16 to October 15, respectively), unless otherwise authorized by CDFW. The specified buffer distance ranges from 656 feet to 1,640 feet, according to the time of year and the level of disturbance. Buffers shall be established in	

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA POINT PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
E. Biological Resources (cont.)		
Impact 4.E-4 (cont.)	accordance with Table 4.E-3 and occupied burrows shall not be disturbed during the nesting season unless a qualified biologist approved by CDFW, verifies through noninvasive methods that either: (1) the birds have not begun egg-laying and incubation; or (2) juveniles from the occupied burrows are foraging independently and are capable of independent survival. Burrowing owls shall not be moved or excluded from burrows during the breeding season (April 1 to October 15). e) During the nonbreeding (winter) season (October 16 to March 31), consistent with Table 4.E-3, ground-disturbing work shall maintain a distance ranging from 164 feet to 1,640 feet from any active burrows depending on the level of disturbance. If active winter burrows are found that would be directly affected by ground-disturbing activities, owls can be displaced from winter burrows according to recommendations made in the *Staff Report*. If active winter burrows are found that would not be directly affected and it is not possible to establish a buffer in accordance with Table 4.E-3 then owls shall not be evicted and the largest buffer possible shall be established in consultation with CDFW. f) Burrowing owls should not be excluded from burrows unless or until a Burrowing Owl Exclusion Plan is developed by the project applicant approved by CDFW, and submitted to the City. The plan shall include, at a minimum: i. Confirmation by site surveillance that the burrow(s) is empty of burrowing owls and other species preceding burrow scoping; ii. Type of scope to be used and appropriate timing of scoping to avoid impacts; iii. Occupancy factors to look for and what shall guide determination of vacancy and excavation timing (e.g., one-way doors should be left in place 48 hours to ensure burrowing owls have left the burrow before excavation, visited twice daily and monitored for evidence that owls are inside and can't escape). iv. Methods for burrow excavation. Excavation using hand tools with refilling to prevent reoccupation is preferable whenever possible (may include using piping to stabilize the burrow to prevent collapsing until the entire burrow has been excavated and it can be determined that no owls reside inside it); v. Removal of other potential owl burrow surrogates or refugia onsite; vi. Photographing the excavation and closure of the burrow to demonstrate success and sufficiency;	

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA POINT PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
E. Biological Resources (cont.)		
Impact 4.E-4 (cont.)	vii. Monitoring of the site to evaluate success and, if needed, to implement remedial measures to prevent subsequent owl use and to avoid take; viii. Methods to ensure the impacted site shall continually be made inhospitable to burrowing owls and fossorial mammals (e.g., by allowing vegetation to grow tall, heavy disking, or immediate and continuous grading) until development is complete. g) Site monitoring shall be conducted prior to, during, and after exclusion of burrowing owls from their burrows sufficient to ensure take is avoided. Daily monitoring shall be conducted for one week to confirm young of the year have fledged if the exclusion occurs immediately after the end of the breeding season. h) In accordance with the Burrowing Owl Exclusion Plan a qualified wildlife biologist shall excavate burrows using hand tools. Sections of flexible plastic pipe or burlap bag shall be inserted into the tunnels during excavation to maintain an escape route for any animals inside the burrow. One-way doors shall be installed at the entrance to the active burrow and other potentially active burrows within 160 feet of the active burrow. Forty-eight hours after the installation of the one-way doors, the doors can be removed, and ground-disturbing activities can proceed. Alternatively, burrows can be filled to prevent reoccupation. Excluded burrowing owls shall be documented if observed using artificial or natural burrows on an adjoining mitigation site (if able to confirm by band re-sight). i) During construction activities, monthly and final compliance reports shall be provided to CDFW, and the City documenting the effectiveness of mitigation measures and the level of burrowing owl take associated with the proposed project. j) Should burrowing owls be found onsite, compensatory mitigation for lost breeding and/or wintering habitat shall be implemented on-site or off-site in accordance with burrowing owl *Staff Report* guidance and in consultation with CDFW. The project applicant or its contractor shall prepare a Burrowing Owl Habitat Mitigation Plan and, at a minimum, the following recommendations shall be implemented: i. Temporarily disturbed habitat shall be restored, if feasible, to pre-project conditions, including decompacting soil and revegetation. ii. Permanent impacts to nesting, occupied and satellite burrows and/or burrowing owl habitat shall be mitigated such that the habitat acreage, number of burrows and burrowing owl impacted are replaced based on a site-specific analysis and shall include:	

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA POINT PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
E. Biological Resources (cont.)		
Impact 4.E-4 (cont.)	a. Permanent conservation of similar grassland habitat to provide for burrowing owl nesting, foraging, wintering, and dispersal (i.e., during breeding and non-breeding seasons) comparable to or better than that of the impact area, and with sufficiently large acreage, and presence of fossorial mammals. 1. Mitigation lands should be on, adjacent or proximate to the impact site where possible and where habitat is sufficient to support the number of burrowing owls present. 2. The CDFW shall be consulted when determining off-site mitigation acreages. b. Permanent protection of mitigation land through a conservation easement deeded to a nonprofit conservation organization or public agency with a conservation mission. If the project is located within the service area of a CDFW approved burrowing owl conservation bank, burrowing owl conservation bank credits may be purchased. c. Development and implementation of a mitigation land management plan in accordance with burrowing owl *Staff Report* guidelines to address long-term ecological sustainability and maintenance of the site for burrowing owls. d. Funding the maintenance and management of mitigation land through the establishment of a long-term funding mechanism such as an endowment. k) Habitat shall not be altered or destroyed, and burrowing owls shall not be excluded from burrows, until mitigation lands have been secured, are managed for the benefit of burrowing owls according to CDFW-approved management, monitoring and reporting plans, and the endowment or other long-term funding mechanism is in place or security is provided until these measures are completed. l) Copies of all completed survey reports and plans shall be submitted to the City and the CDFW. **Mitigation Measure 4.E-4e:** The City shall ensure that project construction activities on City property that would result in noise levels exceeding existing maximum ambient noise levels in the Northwest Territories or as measured on the Federal Property by more than 10 dBA and/or generally exceeding 60 dBA will avoid and minimize adverse effects on California least tern and other breeding bird reproductive success through one or more of the following measures: a) Demolition and construction on City owned property in the Northwest Territories directly adjacent to the Federal Property, and construction of the	

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA POINT PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
E. Biological Resources (cont.)		
Impact 4.E-4 (cont.)	Bay Trail on Federal Property shall take place in September-January, outside the general bird breeding season of February through August, to the extent feasible. When such work is unavoidable, solid plywood fences shall be constructed between the project site and sensitive wildlife habitat prior to initiation of construction to serve as noise attenuation barriers. The fencing shall be a minimum of 8 feet in height. The fences shall shield the breeding birds from major noise generating phases of demolition and; b) In all other areas, major noise generating phases of demolition and construction that would exceed ambient noise levels as measured in the Federal Property by more than 10 dBA shall take place in September-January, outside the general bird breeding season of February through August; OR solid plywood fences shall be constructed as described above. **Mitigation Measure 4.E-4f:** The City shall prohibit open refuse containers that contain food waste throughout the project area. This prohibition shall be incorporated into the terms and conditions of all City approvals for future development at Alameda Point.	
Impact 4.E-5: Development facilitated by the proposed project would conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. (Significant)	**Mitigation Measure 4.E-5:** Implementation of **Mitigation Measures 4.E-1a through 4.E-1h** (avoid and minimize impacts on special-status wildlife), **Mitigation Measures 4.E-2a through 4.E-2c** (avoid and minimize impacts to sensitive natural communities), **Mitigation Measures 4.E-3a through 4.E-3c** (avoid and minimize impacts to jurisdictional waters), and **Mitigation Measures 4.E-4a through 4.E-4f** (avoid and minimize impacts to migratory and breeding wildlife)	Less than Significant
Impact 4.E-6: Development facilitated by the proposed project would conflict with an adopted local, regional, or State Habitat Conservation Plan. (Significant)	**Mitigation Measure 4.E-5:** Implementation of **Mitigation Measures 4.E-1a through 4.E-1h** (avoid and minimize impacts on special-status wildlife), **Mitigation Measures 4.E-2a through 4.E-2c** (avoid and minimize impacts to sensitive natural communities), **Mitigation Measures 4.E-3a through 4.E-3c** (avoid and minimize impacts to jurisdictional waters), and **Mitigation Measures 4.E-4a through 4.E-4f** (avoid and minimize impacts to migratory and breeding wildlife)	Less than Significant
Impact 4.E-7: The proposed project, in conjunction with other past, current, or foreseeable development in Alameda, could result in cumulative impacts on special-status species, habitats, wetlands and other waters of the U.S. (Significant)	**Mitigation Measure 4.E-6:** Implementation of **Mitigation Measures 4.E-1a through 4.E-1h** (avoid and minimize impacts on special-status wildlife), **Mitigation Measures 4.E-2a through 4.E-2c** (avoid and minimize impacts to sensitive natural communities), **Mitigation Measures 4.E-3a through 4.E-3c** (avoid and minimize impacts to jurisdictional waters), and **Mitigation Measures 4.E-4a through 4.E-4f** (avoid and minimize impacts to migratory and breeding wildlife)	Less than Significant

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA POINT PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
F. Air Quality and Greenhouse Gases		
Impact 4.F-1: Development facilitated by proposed project could potentially result in air quality impacts due to construction activities. (Significant)	**Mitigation Measure 4.F-1a: Fugitive Dust.** The following BAAQMD Best Management Practices for fugitive dust control will be required for all construction activities within the project area. These measures will reduce fugitive dust emissions primarily during soil movement, grading and demolition activities, but also during vehicle and equipment movement on unpaved project sites: ***Basic Controls that Apply to All Construction Sites*** 1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day. 2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered. 3. 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. 4. All vehicle speeds on unpaved roads shall be limited to 15 mph. 5. All streets, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used. 6. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of CCR). Clear signage shall be provided for construction workers at all access points. 7. 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. 8. A publicly visible sign shall be posted with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations. **Mitigation Measure 4.F-1.b: Construction Exhaust.** The following control measures for construction emissions will be required for all construction activities within the project area: • 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.	Although estimated construction emissions of regional ozone precursors (ROG and NOx) would be reduced below the BAAQMD thresholds for the reasonable conservative development scenario, because construction schedule and phasing have not been determined and development may overlap, there is the potential for project construction emissions to exceed the BAAQMD thresholds. This impact would be considered **significant and unavoidable**. However, unlike regional ozone, localized emissions of fugitive dust and TACs would be considered less than significant with mitigation based on the substantial emission reductions due to applied controls, even if additional development overlap were to occur.

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA POINT PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
F. Air Quality and Greenhouse Gases (cont.)		
Impact 4.F-1 (cont.)	• Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to two minutes. Clear signage shall be provided for construction workers at all access points. • The Project shall develop a plan demonstrating that the off-road equipment (more than 50 horsepower) to be used in the construction project (i.e., owned, leased, and subcontractor vehicles) would achieve a project wide fleet-average 20 percent NOx reduction and 45 percent PM reduction compared to the most recent CARB fleet average. Acceptable options for reducing emissions include the use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, add-on devices such as particulate filters, and/or other options as such become available. (The Level 3 Verified Diesel Emissions Control (VDEC) required under Mitigation Measure 4.F-1d would also comply with this measure) • Require that all construction equipment, diesel trucks, and generators be equipped with Best Available Control Technology for emission reductions of NOx and PM. • Require all contractors to use equipment that meets CARB's most recent certification standard for off-road heavy duty diesel engines **Mitigation Measure 4.F-1c: Demolition Controls.** Demolition and disposal of any asbestos containing building material shall be conducted in accordance with the procedures specified by Regulation 11, Rule 2 (Asbestos Demolition, Renovation and Manufacturing) of BAAQMD's regulations. **Mitigation Measure 4.F-1d: Toxic Air Contaminants and PM2.5.** The project sponsors shall ensure that construction contract specifications include a requirement that all off-road construction equipment used for project improvements be equipped with a Level 3 Verified Diesel Emissions Control (VDEC), which would reduce diesel particulate emissions by at least 85 percent. **Mitigation Measure 4.F-1.e: Delayed Occupancy.** Health risks from construction-related emissions to new residences proposed under the project shall be minimized by delaying issuance of occupancy permits for new residential until after the completion of construction activities at adjacent buildings upwind in prevailing west and northwest winds during individual development phases of the project.	

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA POINT PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
F. Air Quality and Greenhouse Gases (cont.)		
Impact 4.F-2: Development facilitated by the proposed project could potentially generate operational emissions that would result in a considerable net increase of criteria pollutants and precursors for which the air basin is in nonattainment under an applicable federal or state ambient air quality standard. (Significant)	**Mitigation Measure 4.F-2:** The following measures shall be incorporated into the project design for properties within the project area: • Implement a Transportation Demand Management (TDM) program, as described in detail in Mitigation Measure 4.C.1a in Section 4.C, Transportation. • Require only natural gas hearths in residential units as a condition of final building permit; • Require smart meters and programmable thermostats; • Meet Green Building Code standards in all new construction; • Install solar water heaters for all uses as feasible; • Use recycled water when available; • Install low-flow fixtures (faucets, toilets, showers); • Use water efficient irrigation systems; and • Institute recycling and composting services.	Significant and Unavoidable
Impact 4.F-3: Operation of the development facilitated by the proposed project could potentially expose sensitive receptors to substantial concentrations of toxic air contaminants or respirable particulate matter (PM2.5). (Less than Significant)	None required.	Less than Significant
Impact 4.F-4: Development facilitated by the proposed project could potentially expose persons (new receptors) to substantial levels of TACs, which may lead to adverse health. (Significant)	**Mitigation Measure 4.F-4:** Implement Mitigation Measures 4.F-1a, 4.F-1b, and 4.F-1e.	Less than Significant
Impact 4.F-5: Development facilitated by the proposed project could potentially expose sensitive receptors to substantial carbon monoxide concentrations. (Less than Significant)	None required.	
Impact 4.F-6: Development facilitated by the proposed project could potentially create objectionable odors affecting a substantial number of people. (Less than Significant)	None required.	Less than Significant
Impact 4.F-7: Development facilitated by the proposed project could potentially conflict with or obstruct implementation of the applicable air quality plan. (Significant)	**Mitigation Measure 4.F-7a:** Implement Mitigation Measure 4.F-2. **Mitigation Measure 4.F-7b:** The City shall include of clean fuel-efficient through preferential parking, installation of charging stations, and low emission electric vehicle carsharing programs to reduce the need to have a car or second car vehicles in the TDM Program.	Less than Significant

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA POINT PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
F. Air Quality and Greenhouse Gases (cont.)		
Impact 4.F-8: Development facilitated by the proposed, when combined with past, present and other reasonably foreseeable development in the vicinity, could potentially result in cumulative criteria air pollutant air quality impacts. (Significant)	**Mitigation Measure 4.F-8:** Implement Mitigation Measures 4.F-2 and 4.F-7b.	Significant and Unavoidable
Impact 4.F-9: Development facilitated by the proposed project could cumulatively expose persons to substantial levels of TACs, which may lead to adverse health effects. (Less than Significant)	None required.	
Impact 4.F-10: Development facilitated by the proposed project could potentially generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment. (Less than Significant)	None required.	
Impact 4.F-11: Development facilitated by the proposed project could potentially conflict with an applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases. (Less than Significant)	None required.	
G. Noise		
Impact 4.G-1: Construction facilitated by the proposed project could potentially expose persons to or generate noise levels in excess of the City noise standards. (Significant)	**Mitigation Measure 4.G-1a:** The City will require construction contractors to limit standard construction activities hours to be in compliance with the Noise Ordinance. Pile driving activities greater than 90 dBA limited to between 8:00 a.m. and 4:00 p.m. Monday through Friday. No pile driving shall be allowed on weekends and National holidays. **Mitigation Measure 4.G-1b:** To reduce daytime noise impacts due to construction, the City will require construction contractors to implement the following measures: • Equipment and trucks used for project construction will utilize the best available noise control techniques, such as improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures and acoustically-attenuating shields or shrouds, wherever feasible. • Impact tools (i.e., jack hammers, pavement breakers, and rock drills) used for project construction shall be hydraulically or electrically powered wherever possible to avoid noise associated with compressed air exhaust from pneumatically powered tools. However, where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust will be used;	Significant and Unavoidable

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA POINT PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
G. Noise (cont.)		
Impact 4.G-1 (cont.)	this muffler can lower noise levels from the exhaust by up to about 10 dBA. External jackets on the tools themselves will be used where feasible, and this could achieve a reduction of 5 dBA. Quieter procedures will be used, such as drills rather than impact equipment, whenever feasible. • Stationary noise sources will be located as far from adjacent receptors as possible, and they shall be muffled and enclosed within temporary sheds, incorporate insulation barriers, or other measures to the extent feasible. • Haul routes that affect the fewest number of people will be selected. **Mitigation Measure 4.G-1c:** Pile driving activities within 300 feet of sensitive receptors will require additional noise attenuation measures. Prior to commencing construction, a plan for such measures will be submitted for review and approval by the City to ensure that maximum feasible noise attenuation will be achieved. These attenuation measures will include as many of the following control strategies as feasible: • Erect temporary plywood noise barriers if they would block the line of sight between sensitive receptors and construction activities, particularly for existing residences in the northern area of the project site and for residences across Main Street; • Implement “quiet” pile driving technology (such as pre-drilling of piles or use of sonic pile drivers), where feasible, in consideration of geotechnical and structural requirements and conditions; and • Utilize noise control blankets on the building structure as the building is erected to reduce noise emission from the site. **Mitigation Measure 4.G-1d:** Prior to the issuance of each building permit, along with the submission of construction documents, the project applicant will submit to the City a list of measures to respond to and track complaints pertaining to construction noise. These measures will include: • Signs will be posted at the construction site that include permitted construction days and hours, a day and evening contact number for the job site, and a contact number with the City of Alameda in the event of noise complaints. The project applicant will designate an onsite complaint and enforcement manager to track and respond to noise complaints; and • Notification of neighbors within 300 feet of the project construction area at least 30 days in advance of pile-driving activities about the estimated duration of the activity.	

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA POINT PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
G. Noise (cont.)		
Impact 4.G-2: Construction facilitated by the proposed project could potentially result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels. (Significant)	**Mitigation Measure 4.G-2:** Implement Mitigation Measures 4.G-1a through 4.G-1d.	Less than Significant
Impact 4.G-3: Transportation-related operations facilitated by the proposed project could potentially result in a substantial permanent increase in ambient noise levels in the vicinity or above levels existing without the project. (Significant)	**Mitigation Measure 4.G-3:** To reduce automobile trips and associated automobile noise impacts, implement Mitigation Measure 4.C2a (TDM Program).	Significant and Unavoidable
Impact 4.G-4: Non-transportation-related operations facilitated by the proposed project could potentially result in a substantial permanent increase in ambient noise levels in the vicinity. (Significant)	**Mitigation Measure 4.G-4:** During individual project phase design preparation, the City will require a project applicant to comply with the Noise Ordinance and General Plan standards. These measures implement noise control measures to ensure that all non-transportation source operations comply with City standards and will include, but not be limited to, the following: • The proposed land uses will be designed so that on-site mechanical equipment (e.g., HVAC units, compressors, generators) and area-source operations (e.g., loading docks, parking lots, and recreational-use areas) are located as far as possible and/or shielded from nearby noise sensitive land uses to meet City noise standards. • On-site landscape maintenance equipment will be equipped with properly operating exhaust mufflers and engine shrouds, in accordance with manufacturers' specifications. • The following activities will be limited to the hours of 7:00 a.m. to 10:00 p.m. unless site-specific analysis confirms that noise impacts to sensitive receptors would be less-than-significant: - Truck deliveries; - Operations of motor powered landscape maintenance equipment; and - Outdoor use of amplified sound systems.	Less than Significant
Impact 4.G-5: Development facilitated by the proposed project could potentially place noise-sensitive residential uses in a noise environment that would exceed the City's goal for exterior/interior noise exposure. (Significant)	**Mitigation Measure 4.G-5:** The City will require project sponsors for residential development to submit a detailed noise study, prepared by a qualified noise consultant, to determine design measures necessary to achieve acceptable interior noise levels at the proposed new residences. The study will be submitted to the City for review and approval. Design measures such as the following could be required, depending on the specific findings of the noise study: double-paned glass windows facing noise sources; solid-core doors; increased sound insulation of exterior walls (such as through staggered-or double-studs, multiple layers of gypsum board, and incorporation of resilient channels); weather-tight seals for doors and windows; or mechanical ventilation such as an air conditioning system.	Less than Significant

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA POINT PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
G. Noise (cont.)		
Impact 4.G-6: Increases in traffic from development facilitated by the proposed project in combination with other development could potentially result in cumulatively considerable noise increases. (Significant)	**Mitigation Measure 4.G-6:** Implement Mitigation Measures 4.G-3 and 4.G-5.	Significant and Unavoidable
H. Geology, Soils, and Seismicity		
Impact 4.H-1: In the event of a major earthquake in the region, seismic ground-shaking could potentially injure people and cause collapse of or structural damage to structures and/or retaining walls developed under the proposed project. (Significant)	**Mitigation Measure 4.H-1:** Prior to approval of a building permit, a site specific, design-level geotechnical investigation shall be prepared for all proposed development on the project site. The investigation shall include detailed characterization of the distribution and compositions of subsurface materials and an assessment of their potential behavior during violent seismic ground-shaking. The analysis shall recommend site preparation and design parameters that would be necessary to avoid or substantially reduce structural damage under anticipated peak ground accelerations in accordance with seismic design requirements within the most current version of the California Building Code and Alameda Municipal Code. The investigation and recommendations shall be in conformance with all applicable city ordinances and policies and consistent with the design requirements of the calculated Seismic Design Category for each site in accordance with the California Building Code. The geotechnical report shall be prepared by a California-registered geotechnical engineer and approved by the City, and all recommendations contained in the report shall be included in the final design of the project. Mitigation Measure 4.H-1 would ensure that the proposed project would be designed to withstand strong seismic ground-shaking, and that the occupants of the proposed development are informed of safety procedures to follow in the event of an earthquake.	Less than Significant
Impact 4.H-2: In the event of a major earthquake in the region, people and property at the project site could potentially be exposed to seismically-induced ground failure, including liquefaction, lateral spreading and earthquake-induced settlement. (Significant)	**Mitigation Measure 4.H-2:** Prior to issuance of a building permit, earthwork, foundation and structural design for proposed development under the project shall be conducted in accordance with all recommendations contained in the required geotechnical investigation (Mitigation Measure 4.H-1a). The investigation must include an assessment of all potentially foreseeable seismically-induced ground failures, including liquefaction, sand boils, lateral spreading and rapid settlement. Mitigation strategies must be designed for the site-specific conditions of the project and must be reviewed for compliance with the guidelines of CGS Special Publication 117A prior to incorporation into the project. Examples of possible strategies include edge containment structures (berms, diked sea walls, retaining structures, compacted soil zones), removal or treatment of liquefiable soils, soil modification, modification of site geometry, lowering the groundwater table, in-situ ground densification, deep foundations, reinforced shallow foundations, and structural design that can accommodate predicted displacements.	Less than Significant

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA POINT PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
H. Geology, Soils, and Seismicity (cont.)		
Impact 4.H-3: In the event of a major earthquake in the region, development facilitated by the proposed project could potentially be subject to adverse effects resulting from seismically induced landslides. (Significant)	**Mitigation Measure 4.H-3:** Prior to issuance of a building or grading permit for any building located within 50 feet of the northern shoreline, a slope stability plan shall be prepared by a California-licensed geotechnical engineer or engineering geologist and all recommendations implemented in accordance with City requirements. The required geotechnical stability report plan shall determine the stabilization measures (e.g., cement/soil mixing, construction of a bulkhead wall) necessary to obtain acceptable factors of safety in accordance with California Geological Surveys Special Publication 117A. All construction activities and design criteria shall comply with applicable codes and requirements of the most recent California Building Code, and applicable City construction and grading ordinances.	Less than Significant
Impact 4.H-4: Development facilitated by the proposed project could potentially 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 landslide, lateral spreading, subsidence, liquefaction or collapse. (Significant)	**Mitigation Measure 4.H-4:** The required geotechnical report for each development project (Mitigation Measure 4.H-1a) shall determine the susceptibility of the project site to settlement and prescribe appropriate engineering techniques for reducing its effects. Where settlement and/or differential settlement is predicted, mitigation measures—such as lightweight fill, geofoam, surcharging, wick drains, deep foundations, structural slabs, hinged slabs, flexible utility connections, and utility hangers—shall be used. These measures shall be evaluated and the most effective, feasible, and economical measures shall be recommended. Engineering recommendations shall be included in the project engineering and design plans, and be reviewed and approved by a registered geotechnical engineer. All construction activities and design criteria shall comply with applicable codes and requirements of the most recent California Building Code, and applicable City construction and grading ordinances.	Less than Significant
Impact 4.H-5: Development facilitated by the proposed project could potentially be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code creating substantial risks to life or property. (Significant)	**Mitigation Measure 4.H-5:** Prior to issuance of a building permit, subsurface earthwork (e.g., placement of engineered fill), shall be conducted in accordance with all recommendations contained in the required geotechnical investigation (Mitigation Measure 4.H-1). The geotechnical report must include an assessment of all potentially expansive soils that could adversely affect proposed improvements. Geotechnical strategies must be designed for the site-specific conditions of the project and must be reviewed for compliance with the requirements of the most recent California Building Code as well as any additional City of Alameda requirements.	Less than Significant
I**mpact 4.H-6:** Development facilitated by the proposed project, combined with past, present, and reasonably foreseeable probable projects, could potentially result in substantial adverse cumulative impacts to geology, soils, or seismic hazards. (Less than Significant)	**Mitigation:** Implement Mitigation Measures 4.H-1a, -1b, and 4.H-2 through 4.H-5.	Less than Significant

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA POINT PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
I. Hydrology and Water Quality		
Impact 4.I-1: Project construction facilitated by the proposed project, on-land and in-water, would potentially involve activities that could violate water quality standards or waste discharge requirements or otherwise substantially degrade water quality. (Less than Significant)	None required.	Less than Significant
Impact 4.I-2: Development facilitated by the proposed project could potentially involve dewatering and shoring activities, which would potentially result in a discharge, which if contaminated would adversely affect the receiving water quality. (Significant)	**Mitigation Measure 4.I-1:** The City shall ensure that project applicants for projects at Alameda Point implement the following measures as part associated with the extracted water during project construction: • The RWQCB could require compliance with certain provisions in the permit such as treatment of the flows prior to discharge. The project applicant shall discharge the extracted water to the sanitary sewer or storm drain system with authorization of and required permits from the applicable regulatory agencies, in this case the City of Alameda. • The project applicant shall comply with applicable permit conditions associated with the treatment of groundwater prior to discharge. • If necessary a dewatering collection and disposal method shall be prepared and implemented for the project.	Less than Significant
Impact 4.I-3: Development facilitated by the proposed project would potentially increase runoff and result in flooding on or offsite. (Less than Significant)	None required.	Less than Significant
Impact 4.I-4: Development facilitated by the proposed project would potentially result in increased use at the project site, including maintenance of new landscaping areas and open lawns, which would affect receiving water quality. (Significant)	**Mitigation Measure 4.I-2:** The City shall ensure that future project applicants implement Integrated Pest Management measures to reduce fertilizer and pesticide contamination of receiving waters, as follows: • Prepare and Implement an Integrated Pest Management Plan (IPM) for all common landscaped areas. The IPM shall be prepared by a qualified professional and shall recommend methods of pest prevention and turf grass management that use pesticides as a last resort in pest control. Types and rates of fertilizer and pesticide application shall be specified. • The IPM shall specify methods of avoiding runoff of pesticides and nitrates into receiving storm drains and surface waters or leaching into the shallow groundwater table. Pesticides shall be used only in response to a persistent pest problem that cannot be resolved by non-pesticide measures. Preventative chemical use shall not be employed. • The IPM shall fully integrate considerations for cultural and biological resources into the IPM with an emphasis toward reducing pesticide application.	Less than Significant

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA POINT PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
I. Hydrology and Water Quality (cont.)		
Impact 4.I-5: Maintenance dredging to serve development facilitated by the proposed project would potentially affect water quality of the Bay. (Less than Significant)	None required.	Less than Significant
Impact 4.I-6: Development facilitated by the proposed project would potentially place housing and other structures in an area subject to 100-year flooding, however would not subject people or structures to a substantial risk of loss from a 100-year storm event. (Significant)	**Mitigation Measure 4.I-6:** The City will require that any new construction within the Adaptive Reuse areas, prior to the installation of the proposed storm drain system and flood protection measures, would be constructed at an elevation of 1 foot above the 100-year flood risk elevation.	Less than Significant
Impact 4.I-7: Development facilitated by the proposed project could expose people or structures to risk of loss, injury, or death from inundation by a tsunami. (Less than Significant)	None required.	Less than Significant
Impact 4.I-8: Development facilitated by proposed project would potentially be subjected to flooding as a result of sea level rise. (Significant)	**Mitigation Measure 4.I-8:** The City shall implement the following steps prior to project implementation: • Apply for membership in the National Flood Insurance Program (NFIP) Community Rating System (CRS), and as appropriate through revisions to the City Code, obtain reductions in flood insurance rates offered by the NFIP to community residents. • Cooperate with FEMA in its efforts to comply with recent congressional mandates to incorporate predictions of sea level rise into its Flood Insurance Studies and FIRM. • Implement climate adaptation strategies such as avoidance/planned retreat, enhance levees, setback levees to accommodate habitat transition zones, buffer zones and beaches, expanded tidal prisms for enhanced natural scouring of channel sediments, raising and flood-proofing structures, or provisions for additional floodwater pumping stations, and inland detention basins to reduce peak discharges.	Less than Significant
Impact 4.I-9: Increased construction activity and new development facilitated by the proposed project, in conjunction with past, present, reasonably foreseeable future development in Alameda, could potentially impact hydrologic resources including water quality. (Less than Significant)	None required.	Less than Significant

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA POINT PROJECT

<table>
<tr><th>Potential Impact</th><th>Mitigation Measures</th><th>Level of Significance after any recommended mitigation measures</th></tr>
<tr><td colspan="3">J. Hazards and Hazardous Materials</td></tr>
<tr><td>Impact 4.J-1: Demolition of the existing structures on Alameda Point which contain hazardous building materials—such as lead-based paint, asbestos, and PCBs—could potentially expose workers, the public, or the environment from the transport, use, or disposal of these hazardous materials and waste. (Significant)</td><td>Mitigation Measure 4.J-1a: Prior to issuance of any demolition permit, the project applicant shall submit to the City a hazardous building material assessment prepared by qualified licensed contractors for each structure intended for demolition indicating whether LBP or lead-based coatings, ACMs, and/or PCB-containing equipment are present.

Mitigation Measure 4.J-1b: If the assessment required by Mitigation Measure 4.J-1a indicates the presence of LBP, ACMs, and/or PCBs, the project applicant shall create and implement a health and safety plan to protect demolition and construction workers and the public from risks associated with such hazardous materials during demolition or renovation of affected structures.

Mitigation Measure 4.J-1c: If the assessment required by Mitigation Measure 4.J-1a finds presence of LBP, the project applicant shall develop and implement a LBP removal plan. The plan shall specify, but not be limited to, the following elements for implementation:
Develop a removal specification approved by a Certified Lead Project Designer.
Ensure that all removal workers are properly trained.
Contain all work areas to prohibit off-site migration of paint chip debris.
Remove all peeling and stratified LBP on building and non-building surfaces to the degree necessary to safely and properly complete demolition activities according to recommendations of the survey. The demolition contractor shall be responsible for the proper containment and disposal of intact LBP on all equipment to be cut and/or removed during the demolition.
Provide on-site personnel and area air monitoring during all removal activities to ensure that workers and the environment are adequately protected by the control measures used.
Clean up and/or vacuum paint chips with a high efficiency particulate air (HEPA) filter.
Collect, segregate, and profile waste for disposal determination.
Properly dispose of all waste.
Mitigation Measure 4.J-1d: If the assessment required by Mitigation Measure 4.J-1a finds asbestos, the project applicant shall prepare an asbestos abatement plan and shall ensure that asbestos abatement is conducted by a licensed contractor prior to building demolition. Abatement of known or suspected ACMs shall occur prior to demolition or construction activities that would disturb those materials. Pursuant to an asbestos abatement plan developed by a state-certified</td><td>Less than Significant</td></tr>
</table>

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA POINT PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
J. Hazards and Hazardous Materials (cont.)		
Impact 4.J-1 (cont.)	asbestos consultant and approved by the City, all ACMs shall be removed and appropriately disposed of by a state certified asbestos contractor. **Mitigation Measure 4.J-1e:** If the assessment required by Mitigation Measure 4.J-1a finds PCBs, the project applicant shall ensure that PCB abatement is conducted prior to building demolition or renovation. PCBs shall be removed by a qualified contractor and transported in accordance with Caltrans requirements.	
Impact 4.J-2: Construction at Alameda Point could potentially disturb soil and groundwater impacted by historical hazardous material use, which could expose construction workers, the public, or the environment to adverse conditions related to the transport, use, or disposal of hazardous materials and waste. (Significant)	**Mitigation Measure 4.J-2:** Prior to issuance of a building or grading permit for any ground breaking activities within the project site, the City shall prepare a Site Management Plan (SMP) that is approved by US EPA, DTSC, and the Water Board for incorporation into construction specifications. Any additional or remaining remediation on identified parcels from the City's tracking system shall be completed as directed by the responsible agency, U.S. EPA, DTSC, or Water Board, in accordance with the deed restrictions and requirements as well as any Covenants(s) to Restrict Use of Property (CRUP), prior to commencement of construction activities. Where necessary, additional remediation shall be accomplished by the project applicant prior to issuance of any building or grading permits in accordance with all requirements set by the overseeing agency (i.e., U.S. EPA, DTSC, or Water Board). The SMP shall be present on site at all times and readily available to site workers. The SMP shall specify protocols and requirements for excavation, stockpiling, and transport of soil and for disturbance of groundwater as well as a contingency plan to respond to the discovery of previously unknown areas of contamination (e.g., discolored soils, strong petroleum odors, an underground storage tank unearthed during normal construction activities, etc.). At a minimum the SMP shall include the following components: 1. *Soil management requirements*. Protocols for stockpiling, sampling, and transporting soil generated from onsite activities. The soil management requirements must include: • Soil stockpiling requirements such as placement of cover, application of moisture, erection of containment structures, and implementation of security measures. Additional measures related to BAAQMD dust control requirements as they apply to contamination shall also be included, as needed (see also Air Quality section). • Protocols for assessing suitability of soil for on-site reuse through representative laboratory analysis of soils as approved by U.S. EPA, DTSC, or Water Board, taking into account the site-specific health-based remediation goals, other applicable health-based standards, and the proposed location, circumstances, and conditions for the intended soil reuse.	Less than Significant

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA POINT PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
J. Hazards and Hazardous Materials (cont.)		
Impact 4.J-2 (cont.)	• Requirements for offsite transportation and disposal of soil not determined to be suitable for onsite reuse. Any soil identified for offsite disposal must be packaged, handled, and transported in compliance with all applicable state, federal, and the disposal facility's requirements for waste handling, transportation and disposal. • Protocols for adherence to the City of Alameda's Marsh Crust Ordinance. • Measures to be taken for areas of IR Site 13 where refinery wastes and asphaltic residues known as tarry refinery waste might be encountered. Measures shall include requirements for the storage, handling and disposal/recycling of any suspected tarry refinery waste that may be encountered. • Radiological screening protocols for the radiological sites identified by the Navy as approved by the U.S. EPA, where necessary. 2. *Groundwater management requirements*. Protocols for conducting dewatering activities and sampling and analysis requirements for groundwater extracted during dewatering activities. The sampling and analysis requirements shall specify which groundwater contaminants must be analyzed or how they will be determined. The results of the groundwater sampling and analysis shall be used to determine which of the following reuse or disposal options is appropriate for such groundwater: • Onsite reuse (e.g., as dust control); • Discharge under the general permit for stormwater discharge for construction sites; • Treatment (as necessary) before discharge to the sanitary sewer system under applicable East Bay MUD waste discharge criteria; • Treatment (as necessary) before discharge under a site-specific NPDES permit; • Offsite transport to an approved offsite facility. For each of the options listed, the SMP shall specify the particular criteria or protocol that would be considered appropriate for reuse or disposal options. The thresholds used must, at a minimum, be consistent with the applicable requirements of the Water Board and East Bay MUD. 3. *Unknown contaminant/hazard contingency plan*. Procedures for implementing a contingency plan, including appropriate notification, site worker protections, and site control procedures, in the event unanticipated potential subsurface hazards or hazardous material releases are discovered during construction. Control procedures shall include:	

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA POINT PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
J. Hazards and Hazardous Materials (cont.)		
Impact 4.J-2 (cont.)	• Protocols for identifying potential contamination though visual or olfactory observation; • Protocols on what to do in the event an underground storage tank is encountered; • Emergency contact procedures; • Procedures for notifying regulatory agencies and other appropriate parties; • Site control and security procedures; • Sampling and analysis protocols; and • Interim removal work plan preparation and implementation procedures.	
Impact 4.J-3: Hazardous materials used onsite during construction activities (e.g., oils, solvents, etc.) at Alameda Point could potentially be spilled through improper handling or storage, potentially increasing public health and/or safety risks to future residents, maintenance workers, visitors, and the surrounding area. (Less than Significant)	None required.	Less than Significant
Impact 4.J-4: Development facilitated by the proposed project could potentially involve the transportation, use, and storage of hazardous materials, which could present public health and/or safety risks to residents, visitors, and the surrounding area. (Less than Significant)	None required.	Less than Significant
Impact 4.J-5: Hazardous materials used at Alameda Point during the operational phase could potentially be spilled through upset or accidental conditions, potentially increasing public health and/or safety risks to future residents, workers, visitors, and the surrounding area. (Less than Significant)	None required.	Less than Significant
Impact 4.J-6: Hazardous materials use at Alameda Point could potentially emit hazardous emissions or handle hazardous or acutely hazardous materials, substances or waste within 0.25 mile of an existing or proposed school. (Less than Significant)	None required.	Less than Significant

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA POINT PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
J. Hazards and Hazardous Materials (cont.)		
Impact 4.J-7: Development facilitated by the proposed project could potentially be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and could result in a safety hazard to the public or environment through exposure to previous contamination of soil or groundwater including vapor intrusion into buildings (Significant)	**Mitigation Measure 4.J-7:** The City shall include closed and open IR CERCLA sites that have land-use controls within its Land-use Restriction Tracking Program for identification and disclosure of any past cleanup efforts and current status of any remaining contamination, if any. Additional control measures such as vapor barriers and venting may be required as a condition of approval in areas where soil gas emissions have been identified. Prior to transfer of title for any parcel, the City shall require that the SMP as approved by US EPA, DTSC, and the Water Board be incorporated into intrusive site operations as required through deed restriction, enforceable Land Use Covenant, or any other applicable legal requirement.	With the continued remediation efforts currently being conducted by the Navy and any that would be assumed by the City[6] as overseen by the DTSC or Water Board, combined with the City's tracking system, continued compliance with deed restrictions, SMP, and other permit requirements including adherence to the Marsh Crust Ordinance, the potential for residual contamination to significantly impact residents, employees or the general public would be minimized and is considered less than significant with mitigation.
Impact 4.J-8: Development facilitated by the proposed project could potentially impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan. (Less than Significant)	None required.	Less than Significant
Impact 4.J-9: Hazards at Alameda Point, in combination with past, present, and future projects could potentially contribute to cumulative hazards in the vicinity of the project site. (Less than Significant)	None required.	Less than Significant
K. Aesthetics		
Impact 4.K-1: Development facilitated by the proposed project could potentially have an adverse effect on a scenic vista. (Significant)	None required.	Less than Significant
Impact 4.K-2: Development facilitated by the proposed project could potentially damage scenic resources, including, but not limited to, trees, rocks, outcroppings, and historic buildings within a state scenic highway. (Less than Significant)	None required.	
Impact 4.K-3: Development facilitated by the proposed project could potentially degrade the existing visual character or quality of the site and its surroundings in a substantial manner. (Less than Significant)	None required.	Less than Significant

6 In some instances there may be a change from the assumed future land use originally used in the risk analysis where additional remediation is necessary to maintain protection of human health. As with any other development associated with the project, occupancy of the subject site would still not occur until the risk analysis indicates no unacceptable health risks or hazards are present at the site.

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA POINT PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
K. Aesthetics (cont.)		
Impact 4.K-4: Development facilitated by proposed project could potentially create a new source of substantial light or glare which could potentially adversely affect day or nighttime views in the project area. (Significant)	**Mitigation Measure 4.K-4:** All lighting installations shall be designed and installed to be fully shielded (full cutoff) and to minimize glare and obtrusive light by limiting outdoor lighting that is misdirected, excessive, or unnecessary, unless expressly exempted below. The location and design of all exterior lighting shall be shown on any site plan submitted to the City of Alameda for approval. The following lighting is exempt from these requirements: 1. Lighting in swimming pools and other water features. 2. Exit signs and other illumination required by building codes. 3. Lighting for stairs and ramps, as required by the building code. 4. Signs that are regulated by the City sign code. 5. Holiday and temporary lighting (less than thirty days use in any one year). 6. Low-voltage landscape lighting, but such lighting should be shielded in such a way as to eliminate glare and light trespass.	Less than Significant
Impact 4.K-5: Development facilitated by the proposed project, in combination with other past, present, existing, approved, pending, and reasonably foreseeable future projects, could potentially result in cumulatively considerable impacts to aesthetic resources. (Less than Significant)	None required.	
L. Public Services and Recreation		
Impact 4.L-1: Development facilitated by proposed project could potentially result in an increase in calls for fire protection and emergency medical response services, and could require new or physically altered fire protection facilities in order to maintain acceptable performance standards. (Less than Significant)	None required.	Less than Significant
Impact 4.L-2: Development facilitated by the proposed project could potentially result in an increase in calls for police services, but would not require new or physically altered police facilities in order to maintain acceptable performance objectives. (Less than Significant)	None required.	Less than Significant
Impact 4.L-3: Development facilitated by the proposed project could potentially result in new students for local schools, but would not require new or physically altered school facilities to maintain acceptable performance objectives. (Less than Significant)	None required.	Less than Significant

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA POINT PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
L. Public Services and Recreation (cont.)		
Impact 4.L-4: Development facilitated by the proposed project could potentially result in increased use of other governmental facilities, including libraries, but would not require new or physically altered government facilities to maintain acceptable performance objectives. (Less than Significant)	None required.	Less than Significant
Impact 4.L-5: Development facilitated by the proposed project could potentially increase the use of existing neighborhood and regional parks and recreation centers, but not to the extent that substantial physical deterioration of the facilities would occur or be accelerated, nor would it cause the necessity for new or expanded facilities. (Less than Significant)	None required.	Less than Significant
Impact 4.L-6: Development facilitated by the proposed project would include recreational facilities and the construction or expansion of recreational facilities which could potentially have an adverse physical effect on the environment. (Less than Significant)	None required.	Less than Significant
Impact 4.L-7: Development facilitated by the proposed project, in conjunction with other past, current, or foreseeable development in Alameda, could potentially result in impacts related to public services and recreation. (Less than Significant)	None required.	Less than Significant
M. Utilities and Service Systems		
Impact 4.M-1: Development facilitated by the proposed project could potentially result in an exceedance of wastewater treatment requirements of the applicable Regional Water Quality Control Board. (Less than Significant)	None required.	Less than Significant
Impact 4.M-2: Development facilitated by the proposed project could potentially result in wastewater service demands that would result in a determination by the wastewater treatment provider that it does not have adequate capacity to serve projected demand or result in the construction of new or expanded wastewater treatment facilities. (Less than Significant)	None required.	Less than Significant
Impact 4.M-3: Development facilitated by the proposed project would require and result in the need for new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects. (Less than Significant)	None required.	Less than Significant

TABLE 2-2 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA POINT PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
M. Utilities and Service Systems (cont.)		
Impact 4.M-4: Development facilitated by the proposed project could potentially have insufficient water supplies available to serve the development from existing entitlements and could require construction of new water treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects. (Less than Significant)	None required.	Less than Significant
Impact 4.M-5: Development facilitated by the proposed project could potentially be served by a landfill with insufficient permitted capacity to accommodate solid waste generated by the project, and would comply with federal, state, and local statutes and regulations related to solid waste. (Significant)	**Mitigation Measure 4.M-5:** The City shall develop a solid waste management plan for the Alameda Point project consistent with Alameda's demolition and debris ordinance. Plans for managing construction debris from specific reuse and development projects that require separation of waste types and recycling, and provide for reuse of materials onsite for the reuse and development areas, shall be developed by the project sponsor. The solid waste management plan shall be prepared in coordination with City staff, the project sponsor(s), and demolition subcontractors, and shall be approved by City staff prior to issuance of a demolition permit. The City and sponsors of projects shall work with organizations able to provide funding and technical assistance for managing and financing deconstruction, demolition, and recycling and reuse programs, should those programs exist at the time of site clearance.	
Impact 4.M-6: Development facilitated by the proposed project, in combination with other past, present, existing, approved, pending, and reasonably foreseeable future projects, could potentially result in cumulatively considerable impacts to utilities and service systems. (Less than Significant)	None required.	

CHAPTER 3
Project Description

A. Project Overview

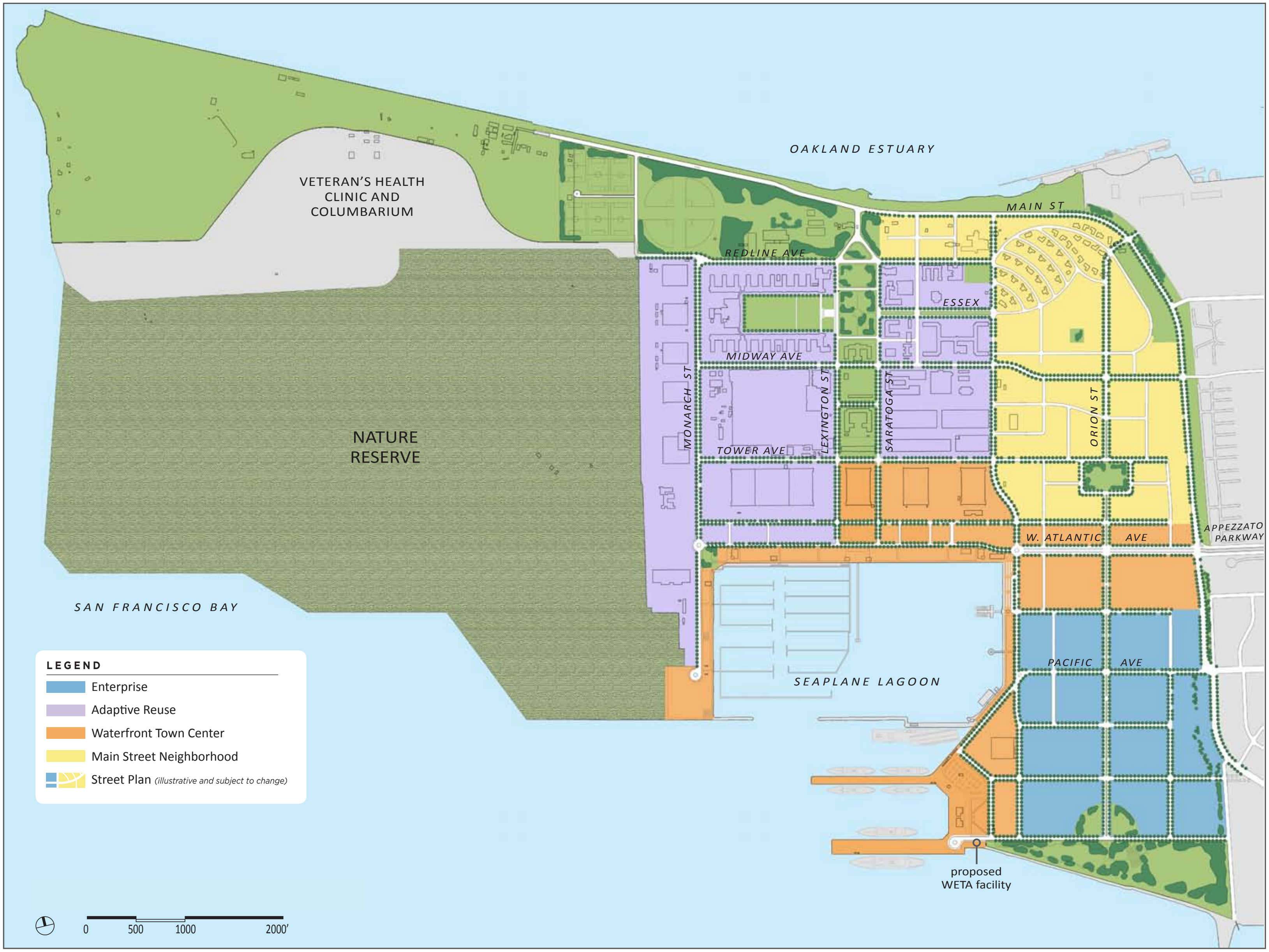
The proposed project is the redevelopment and reuse of the 878 acres of land and approximately 1,229 acres of water at the former Naval Air Station Alameda ("NAS Alameda").

The property is currently occupied by over five million square feet of existing former Navy buildings, former airplane runways, taxiways, and staging areas, and water and maritime uses within what is referred to as the Seaplane Lagoon.

The proposed project includes:

- Adopting a Master Infrastructure Plan for the replacement, reconstruction, and rehabilitation of deteriorated and substandard infrastructure, buildings, and shoreline protections (see **Appendix C**).
- Rehabilitation and new construction of open space, parks and trails for public enjoyment.
- Rehabilitation, reuse, and new construction of approximately 5.5 million square feet of commercial and workplace facilities for approximately 8,900 jobs.
- Maritime and water related recreation uses in and adjacent to the Seaplane Lagoon.
- Rehabilitation and new construction of 1,425 residential units for a wide variety of household types for approximately 3,240 residents.
- Adopting a General Plan Amendment, a Zoning Ordinance Amendment, and a precise plan that would create planning sub-districts within Alameda Point to facilitate a seamless and integrated mixed-use, transit-oriented community consistent with the existing General Plan and NAS Alameda Community Reuse Plan ("Reuse Plan").

To facilitate redevelopment and reuse consistent with the Reuse Plan and City of Alameda General Plan, the City of Alameda (the "lead agency") is proposing to adopt and implement a comprehensive zoning amendment, an associated general plan amendment, a Master Infrastructure Plan, and a Town Center and Waterfront Precise Plan. Figure 3-1 depicts the project site divided into sub-areas.



SOURCE: Alameda Point Planning Guide

Alameda Point Project . 130025

Figure 3-1
Alameda Point Sub-Areas

B. Project Objectives

CEQA *Guidelines* Section 15124(b) requires the description of the project in an EIR to state the objectives sought by the project.

> "A clearly written statement of objectives will help the lead agency develop a reasonable range of alternatives to evaluate in the EIR and will aid the decision makers in preparing findings or a statement of overriding considerations, if necessary. The statement of objectives should include the underlying purpose of the project."

This section states the project objectives for the CEQA review of the Alameda Point Project. The project objectives are:

B.1 Property Rehabilitation and Reinvestment Objectives

The project should eliminate the blighted conditions on the property, and correct geotechnical and flood hazards and infrastructure deficiencies in the area by:

- Ensuring orderly and systematic reinvestment and development of the project site into an integrated mixed use community with an integrated network of public open spaces, trails, and streets.
- Facilitating reinvestment in substandard infrastructure systems and buildings, including reinvestment in contributing structures and cultural landscapes within the NAS Alameda Historic District, where feasible.
- Ensuring orderly and timely clean-up and conveyance of the remaining property under Navy ownership consistent with the Economic Development Conveyance Memorandum of Agreement (EDC MOA), and the Navy's other conveyance obligations.

B.2 Environmental Protection and Sustainability Objectives

The project should protect the local, regional, and global environment and facilitate sustainable reuse and redevelopment of Alameda Point by:

- Creating opportunities for transit-oriented development consistent with Regional Sustainable Communities Strategies for greenhouse gas emission reductions as required by SB 375.
- Reinvesting in the replacement and rehabilitation of substandard infrastructure systems that may contribute to regional water quality impacts due to infiltration, inflow, storm water run-off, and substandard storm water treatment facilities.
- Investing in improvements to adapt to sea-level rise and climate change over time.
- Applying sustainability principles in the design and development of open spaces, recreation facilities, buildings, and infrastructure, including wastewater, storm water, electrical and transportation systems, including promotion of alternative modes of transportation through preparation and implementation of a Transportation Demand Management (TDM) Program.

B.3 Public Benefit Objectives

The project should produce tangible community benefits for the Alameda community as a whole by:

- Creating an open space network that incorporates preservation, restoration and enhancement of wetlands and other natural habitats and provides for both passive and active recreational uses.
- Enhancing views of water and public access to the waterfront in all development and creatively encouraging the usage of the waterfront, by providing a waterfront promenade, public art, open space, and other public amenities.

B.4 Economic Development and Employment Objectives

The project should strengthen and diversify the economic base of the community by:

- Emphasizing employment and a mix of economic development opportunities that complement economic development strategies in other parts of Alameda; and provide a range of employment opportunities and quality jobs, through adaptive reuse of existing buildings and new construction to replace up to 9,000 of the 14,000 jobs lost to Alameda and the region by the closure of NAS Alameda.
- Reoccupying existing buildings and constructing new buildings to create 5.5 million square feet of business, commercial, industrial, maritime and retail uses that will provide jobs, services, tax revenue, and new amenities for Alameda residents.
- Actively marketing to new retail land uses that will complement and provide synergies with existing retail development at Webster Street, Park Street and other locations within Alameda.
- Provide for clear and orderly phasing, sizing, and financing of site infrastructure for both the circulation and utility network and provide for a predictable development process.
- Address the impact of the site development on the City's operating budget to comply with City Council Policies adopted by Resolution 13643 related to fiscal neutrality.

B.5 Transit Oriented Mixed Use Development Objectives

The project should provide transit oriented mixed use development opportunities, by

- Ensuring that the project site design is in concert with the established transit-oriented and mixed-use goals, policies, and objectives of the *NAS Alameda Community Reuse Plan* as incorporated into the Alameda General Plan.
- Balancing development objectives with transportation constraints and opportunities.
- Providing for mixed use development opportunities and sites within close proximity to existing and planned transit and encouraging the types of non-residential uses that provide for the everyday needs of Alameda Point residents and employees and reduce the need to use an automobile to obtain goods and services.

- Creating human-scale, tree-lined walkable streets and bicycle routes throughout the project site and extending the street grid street pattern that is characteristic of the existing city neighborhoods and districts throughout Alameda Point.
- Increasing the City's supply of land available for residential development and increasing the supply of affordable housing sites for Alameda and the region to balance the jobs proposed for the project site and attract potential riders for proposed transit.
- Including a mix of single-family homes, attached townhomes, a mix of stacked flats and low and midrise multifamily housing with higher-density housing concentrated around transit nodes, where possible.
- Including a diversity of housing types and pricing that attract the market segments most likely to use alternatives to the automobile, such as self-selective transit commuters and households with zero to low-automobile ownership.
- Facilitating the relocation and consolidation of existing supportive housing providers in new facilities at Alameda Point to help ensure a mix of incomes and populations are represented at the project site.

C. Project Location and Site Characteristics

C.1 Regional Setting

The project site is located in the City of Alameda in Alameda County, California.[1] The City of Alameda occupies approximately 12.4 square miles of land area immediately south of the City of Oakland and the Oakland-Alameda Estuary (the "Estuary"), east of San Francisco, and north and east of the San Francisco Bay (the "Bay").[2] Alameda Island makes up approximately 80 percent of the City's land area, with the remainder on Bay Farm Island across the San Leandro Channel. Alameda Point occupies much of the western tip of Alameda Island. The project site location and regional context are presented in **Figure 3-2**.

Regional access to Alameda Point is provided by a wide variety of transportation modes. Interstate 880 (I-880) through Oakland—the nearest highway to the project site—provides regional access for automobiles and transit. Regional traffic accesses the project site via State Route 61 (SR 61) through the Webster-Posey Tube connecting the island of Alameda and the City of Oakland,--located approximately one mile east of the project site, The Oakland International Airport, located approximately six miles southeast of Alameda Point, provides convenient national and international access to the site via taxi or local bus service. The site is accessible from three BART stations (with connecting bus service) as well as from a public ferry terminal located on the Oakland-Alameda Estuary at the northeastern edge of the project site, which provides service to and from San Francisco and the Peninsula. The ferry is operated by the Water Emergency Transportation Authority ("WETA"), and regional and local bus services are

1 The area referred to as "project site" in this EIR is the same as "Plan Area" in the MIP and the Reuse Plan.
2 Throughout this EIR, West Atlantic Avenue in the project site runs east-west (parallel to the Estuary and I-880); Main Street along the project site runs north-south (generally parallel to the Webster-Posey Tube / Webster Street in Alameda and Broadway in Oakland).

SOURCE: ESA, 2013

Alameda Point Project . 130025

Figure 3-2
Project Site Location

provided by the Alameda-Contra Costa Transit District (“AC Transit”). AC Transit operates bus service island-wide, including a portion of Alameda Point. Finally, Alameda Point can be accessed by bicycle through the City’s network of bicycle lanes and off-street paths, including a connection to Oakland via the Webster-Posey Tube, and by walking using the City’s system of sidewalks, intersection crossing, and off-street paths.

C.2 Local Setting

The Alameda Point project site is approximately 878 acres of uplands and 1,229 acres of submerged lands (total of 2,107 acres) of the former NAS Alameda located west of Main Street at the western end of Alameda (project site). The project site, as illustrated in Figure 3-1, is bounded by the Oakland-Alameda Estuary on the north, Main Street on the east, and the San Francisco Bay on the south and by the federal property (“Federal Property”) to the west.

The project site is relatively flat, with sparse vegetation, and is occupied by structures and other vestiges of the military activities that took place at NAS Alameda during its operations, 1940 to 1997.

C.3 Site Characteristics and Conditions

In 1927, wetlands at the west end of Alameda Island on the eastern shore of San Francisco Bay were filled to form an airport with an east/west runway, three hangars, an administration building, and a yacht harbor. By 1930, United States Army Air Corps operations referred to the site as Benton Field.

On June 1, 1936, the City ceded the airport to the United States government a few months before the Army discontinued operations from the field. Congressional appropriations passed in 1938 for construction of naval air station facilities for two carrier air wings, five seaplane squadrons and two utility squadrons. Appropriations were increased in 1940 for construction of two seaplane hangars and an aircraft carrier berthing pier, and naval operations began on November 1, 1940.

Alameda remained an important naval base through the Cold War. The base was the focus of the northern California United States Navy Reserve drill after 1961. Runways were lengthened for jet aircraft, and the airport was renamed Nimitz Field in 1967 following the death of Admiral Chester W. Nimitz.

NAS Alameda was decommissioned in 1993 and closed in April 1997.

Existing Buildings and Land Uses

Approximately 925 buildings and structures totaling approximately five million square feet remain on the project site. Many of the existing buildings are vacant. The City currently leases approximately 1.8 million square feet of building space to various entities for commercial, industrial, civic, and recreational uses and 268 housing units for market rate and supportive housing uses.

Existing facilities include administrative, residential, industrial and recreational buildings, warehouses, airfields, large hangars, piers and docks. Approximately 100 buildings are currently occupied and are being used for offices, research and development (R&D), and diverse industrial uses including specialty food and beverage production, marine vessel repair, and wind power; warehousing and storage facilities; and government offices, including Alameda City Hall West. The project site also has soccer and baseball fields, a fire station [vacant], and a church [also vacant].

Approximately 178,000 square feet of the existing piers in the former Navy Seaplane Lagoon are being leased to marine-related industrial uses [the primary lessee is the United States Maritime Administration (MARAD)]. A decommissioned aircraft carrier, the USS Hornet, is moored at one of Alameda Point's piers, adjacent to the Seaplane Lagoon, and is being used as the USS Hornet Museum. A large number of vacant buildings also exist on the project site, including buildings formerly used as barracks.

The southeast corner of the project site, bounded by Main Street, West Atlantic Avenue, Seaplane Lagoon and the Bay, is predominately covered by hardscape and large industrial buildings, and includes a small marina with a breakwater and a landscaped public area and boat ramp.

Existing residential structures on the project site range from the historic, single-family officers' housing to the former enlisted personnel barracks. The residential portion of the NAS Alameda in the northeast portion of the project site has single family and multiple family structures, including approximately 68 single family homes and 200 supportive housing units. See more detailed description of supportive housing providers below.

The northwestern part of the project site is referred to as the Northwest Territories. This area includes seasonal wetlands among concrete runways and other facilities related to the former naval air station. The existing runways host large scale outdoor activities such as the Antiques by the Bay monthly event.

Collaborative Supportive Housing

Alameda Point Collaborative (APC), Building Futures for Women and Children (BFWC), and Operation Dignity (OD), the three supportive housing providers (Supportive Housing Providers), currently serve the housing and job-readiness needs of veterans, the formerly homeless, women and children in need and have already been successful at leveraging funds from several Federal agencies, including the Housing and Urban Development Department, Veteran's Affairs, United States Department of Agriculture, Department of Health and Human Services, and Department of Justice to service those needs.

As part of the 1993 Base Realignment and Closure Act (BRAC) surplus process, the City (or Alameda Reuse and Redevelopment Authority at the time) entered into long-term legally binding agreements with the Supportive Housing Providers for the reuse of 200 units of former Navy housing and for other supportive job-training and social enterprise facilities on approximately 34 acres of the former NAS Alameda.

Existing Infrastructure

The majority of the existing infrastructure within Alameda Point was installed by the Navy over 70 years ago, and is beyond its service life. The Navy installed, maintained and improved the existing infrastructure on an as-needed basis. The active existing utility systems include wastewater, stormwater, potable water, electrical, natural gas and telecommunications. The inactive existing utility systems include industrial waste, steam and fuel. Many of the existing utility pipelines and associated facilities are located outside of the existing streets, within future development areas. The existing infrastructure is currently operable and services the existing tenants at Alameda Point. However, it is deteriorated and generally unreliable. Additionally, the existing infrastructure does not meet current codes or standards.

The existing infrastructure cannot support the redevelopment of Alameda Point without replacement or rehabilitation for the following reasons:

- The existing stormwater system allows high tide waters to enter the system and flood low lying areas within the project site.
- The sanitary sewer system allows infiltration and inflow into the downstream transmission system during wet weather conditions.
- The water system has been subject to breaks, repairs are costly, and existing tenants are sometimes without water service for up to several days until repairs can be completed.
- The telecommunications systems are unreliable and existing tenants have experienced disruptions in service for multiple days.
- The natural gas system does not provide service to portions of the site.
- The sidewalks range from good to poor condition through the site and many locations require replacement and do not meet accessibility standards.

Soil and Groundwater Contamination and Abatement

The project site contains or contained contaminated soils and groundwater associated with past industrial, manufacturing and military activities and uses, including one landfill, an airfield, and an oil refinery. The project site is a designated National Priorities List (“NPL” or “Superfund”) site.

In June 2013, the Navy transferred 509 acres of land and 870 acres of submerged property to the City (“Phase 1 Property”). In most cases, environmental restrictions on the Phase 1 Property are limited to prohibitions on extraction and most uses of groundwater, and excavation below a specific threshold depth without a City marsh crust excavation permit. Only 27 acres contain restrictions on land use (i.e., no residences, hospitals, schools or day care facilities). The land-use restrictions on approximately 13 of these acres are temporary and are expected to be removed within 2 to 5 years. There are also approximately 104 acres of Phase 1 Property that contain open petroleum sites. The Navy will continue to clean up remaining open petroleum sites following conveyance of the land to the City. Many, if not most, of these open petroleum sites have minor contamination or require minor additional investigation before they can be closed. Some of these sites may require environmental deed restrictions to ensure that future uses are protective of human health.

The Navy continues to remediate those portions of the project site not yet transferred to the City. These subsequent phases will be transferred to the City once remediation is completed consistent with federal requirements. The Navy is also responsible for all environmental remediation of unforeseen hazardous materials on the project site due to its previous activities consistent with federal laws. The City and/or future developers are responsible for abating any hazardous materials, such as lead and asbestos that remain in the existing buildings and structures, if required.

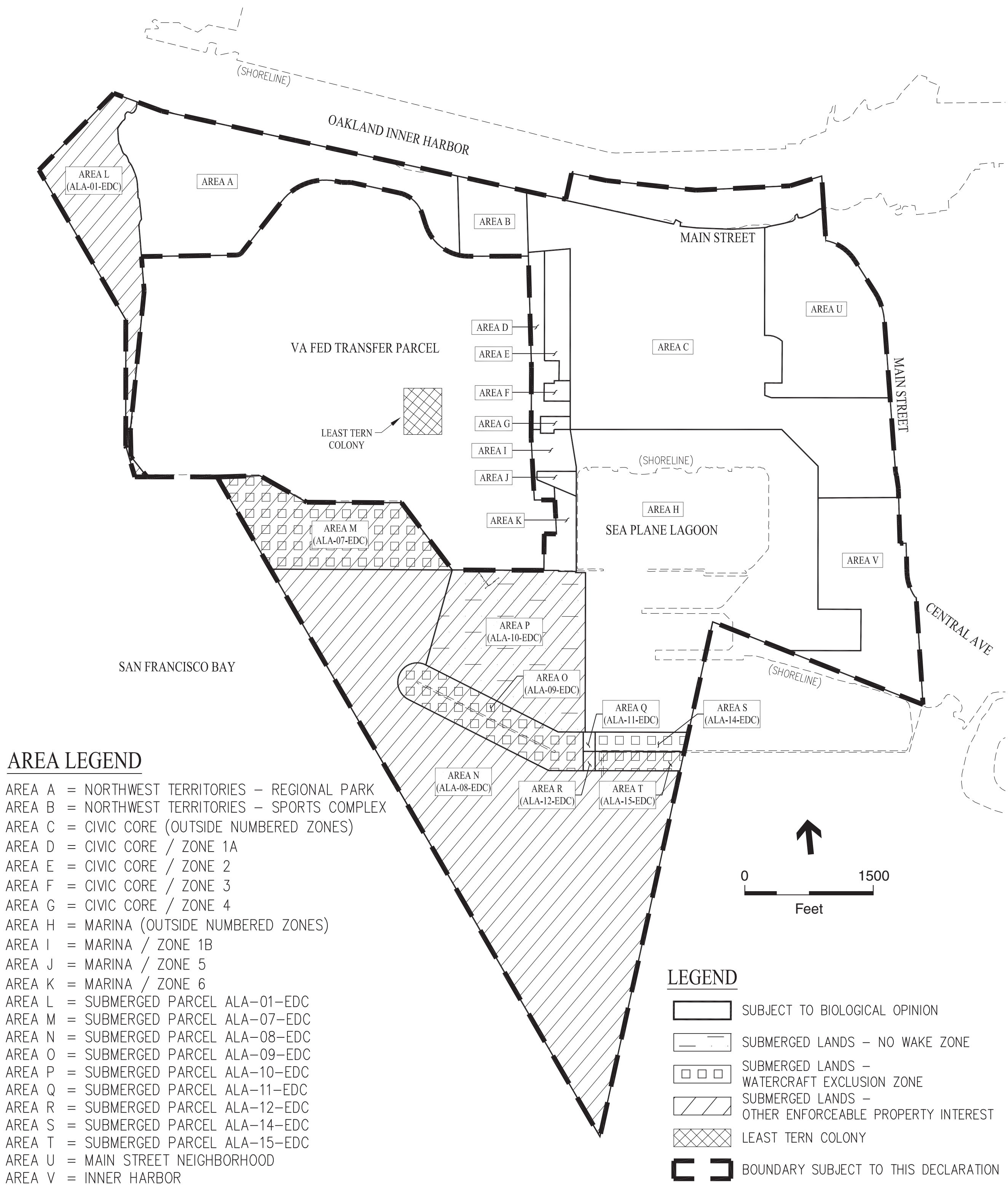
Endangered Species and 2012 Biological Opinion

Approximately 624 acres of land to the west of the property are owned by the Navy and will be transferred to the United States Department of Veteran Affairs ("VA") as part of a separate project ("Federal Property"). The Federal Property contains wetlands, runways, and a breeding colony of the California Least Terns, which are an endangered species under the federal Endangered Species Act. The portions of the Federal Property, which are referred to as the "Nature Reserve" in the City's proposed Zoning Ordinance Amendment, are managed for the protection of the endangered California Least Tern by the federal government. The Nature Reserve is illustrated in Figure 3-1. In 1999, the United States Fish & Wildlife Service (USFWS) issued a Biological Opinion (1999 BO) related to the Reuse Plan's impacts to the Least Tern Colony, which contained terms and conditions (T&Cs) that included lighting, landscaping and use restrictions for the project site. In 2012, a new Biological Opinion was issued by USFWS (2012 BO), which superseded the 1999 BO to reflect the VA's plans for a columbarium and outpatient clinic facilities on the northern portion of the Federal Property and submerged property being transferred to the City (see Figure 3-1). The 2012 BO establishes T&Cs and avoidance and minimization measures (AMMs) limiting the lighting, landscaping, uses and development in certain areas of the project site as well.

The T&Cs and AMMs established by the 2012 BO have been made enforceable upon the project site by a Declaration of Restrictions ("Declaration") recorded on the entire project site by the Navy in June 2013. The Declaration created 22 biological sub-areas within the project site, each of which contains a different set of restrictions that are included in the Declaration and recorded on the property, and must be adhered to by new uses and development at Alameda Point consistent with the 2012 BO. The biological sub-areas are presented in **Figure 3-3**.

NAS Alameda Historic District

Portions of the project site were identified by the Navy in 1996 as being eligible for the National Register of Historic Places as a historic district ("NAS Alameda Historic District"). In 1999 the City designated this historic district as a local Historical Monument under Chapter XIII of the Alameda Municipal Code. In 2012, the Navy submitted documentation to the Keeper of the National Register and requested formal listing of the NAS Alameda Historic District on the National Register, which was listed by the Keeper in January 2013. In February 2013, the Alameda City Council approved revisions to the City's Historical Monument designation to ensure consistency with the Navy's nominations of the NAS Alameda Historic District for listing on the National Register. The NAS Alameda Historic District includes approximately 300 acres



SOURCE: Carlson, Barbee, & Gibson, Inc., 2013

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Figure 3-3
Biological Sub-Areas

of land and 115 acres of water. The NAS Alameda Historic District is comprised of contributing structures and cultural landscape features. None of the individual structures or cultural features is individually eligible for listing on the National Register. The NAS Alameda Historic District is presented in **Figure 3-4**.

Public Trust Lands

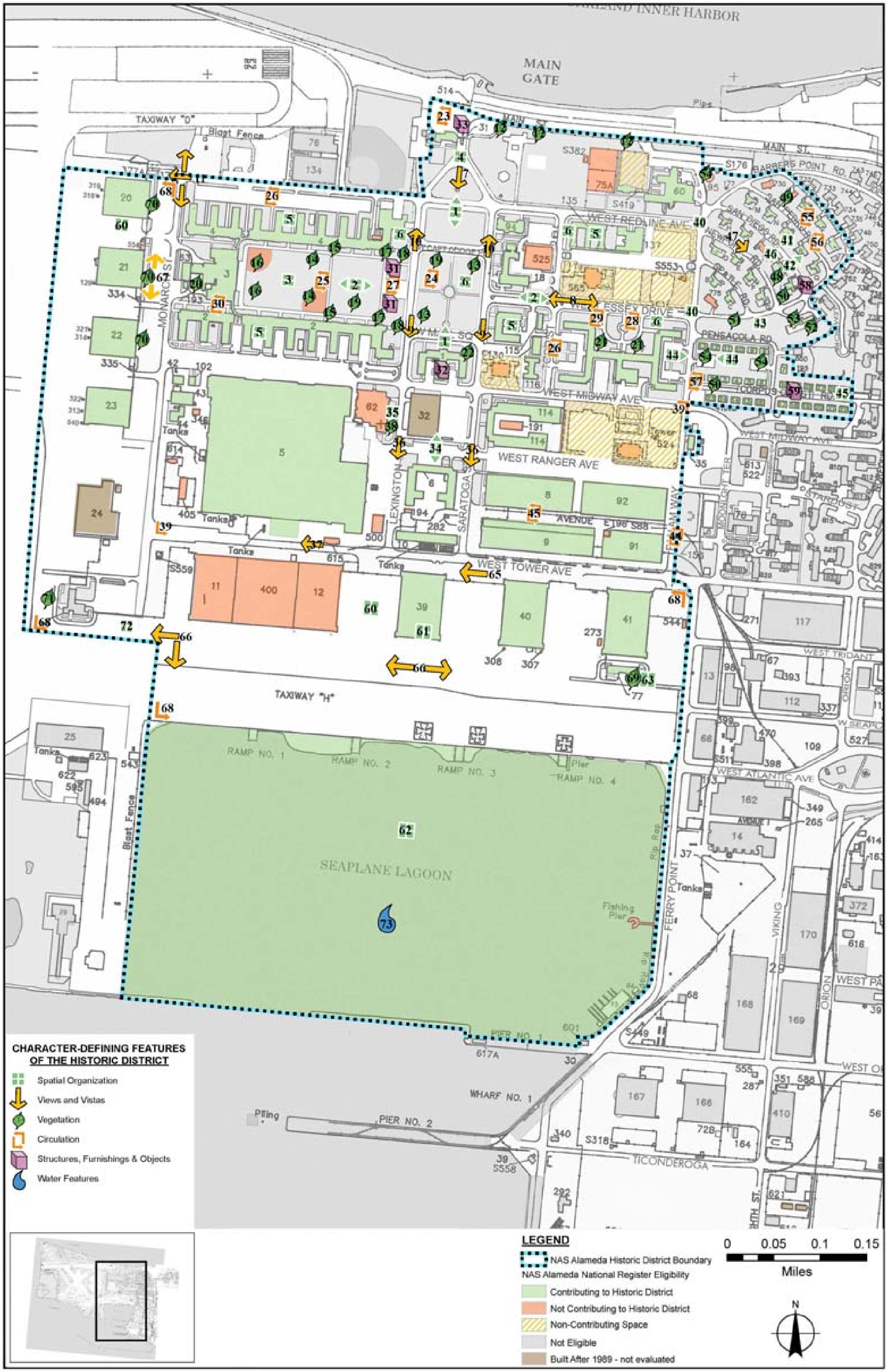
Portions of the project site that constitute reclaimed tide lands and submerged lands within NAS Alameda are subject to the Public Trust for commerce, navigation and fisheries ("Public Trust" or "Trust"), The State of California's Public Trust doctrine gives the state title to tidelands and submerged lands that existed at the time of statehood in 1850. Lands subject to the Public Trust ("Trust Lands") are held in trust by the State of California on behalf of the public and are to be used to promote Public Trust purposes. The State may grant control of such lands to local entities as trustees, subject to Public Trust restrictions on their use. The Public Trust generally limits the allowable uses on Trust Lands (whether filled or unfilled) to uses that further the purposes of the Trust, including maritime-related uses, water-oriented recreation, visitor-serving facilities, habitat preservation, and scientific study. Residential uses are generally prohibited.

Pursuant to the 2000 NAS Alameda Public Trust Exchange Act ("PTEA") (Statutes of 2000, Chapter 734), the California State Lands Commission was authorized to effectuate a land exchange that will remove the Public Trust from certain lands at Alameda Point, allowing them to be used for residential and other non-Trust uses, and impose the Public Trust on certain other lands at Alameda Point that are not currently subject to the Trust, including a substantial portion of the waterfront lands within the project site. The State Lands Commission approved the Public Trust Exchange in October 2012, authorizing removal of approximately 304 acres in the center of the former base from the Public Trust, while adding approximately 121 acres to the Public Trust along the northern and southeastern edges of Alameda Point. In total, approximately 1,599 acres of both filled land and submerged land within the project site are subject to the Public Trust, as illustrated in **Figure 3-5**.

Priority Development Area

In July 2013, the Association of Bay Area Governments (ABAG) and the Metropolitan Transportation Commission (MTC) adopted *Plan Bay Area*. *Plan Bay Area* is an integrated long-range transportation and land-use/housing plan to reduce transportation-related pollution in the San Francisco Bay Area, as required by the California Sustainable Communities and Climate Protection Act of 2008 (California Senate Bill 375, Steinberg) to reduce greenhouse gas emissions from cars and light trucks.

NAS Alameda is a designated regional Priority Development Area (PDA) in *Plan Bay Area*. PDAs are intended to provide lands for regional employment and housing growth in proximity to regional transportation systems to reduce green house gas emission and combat climate change.



SOURCE: The Department of the Interior

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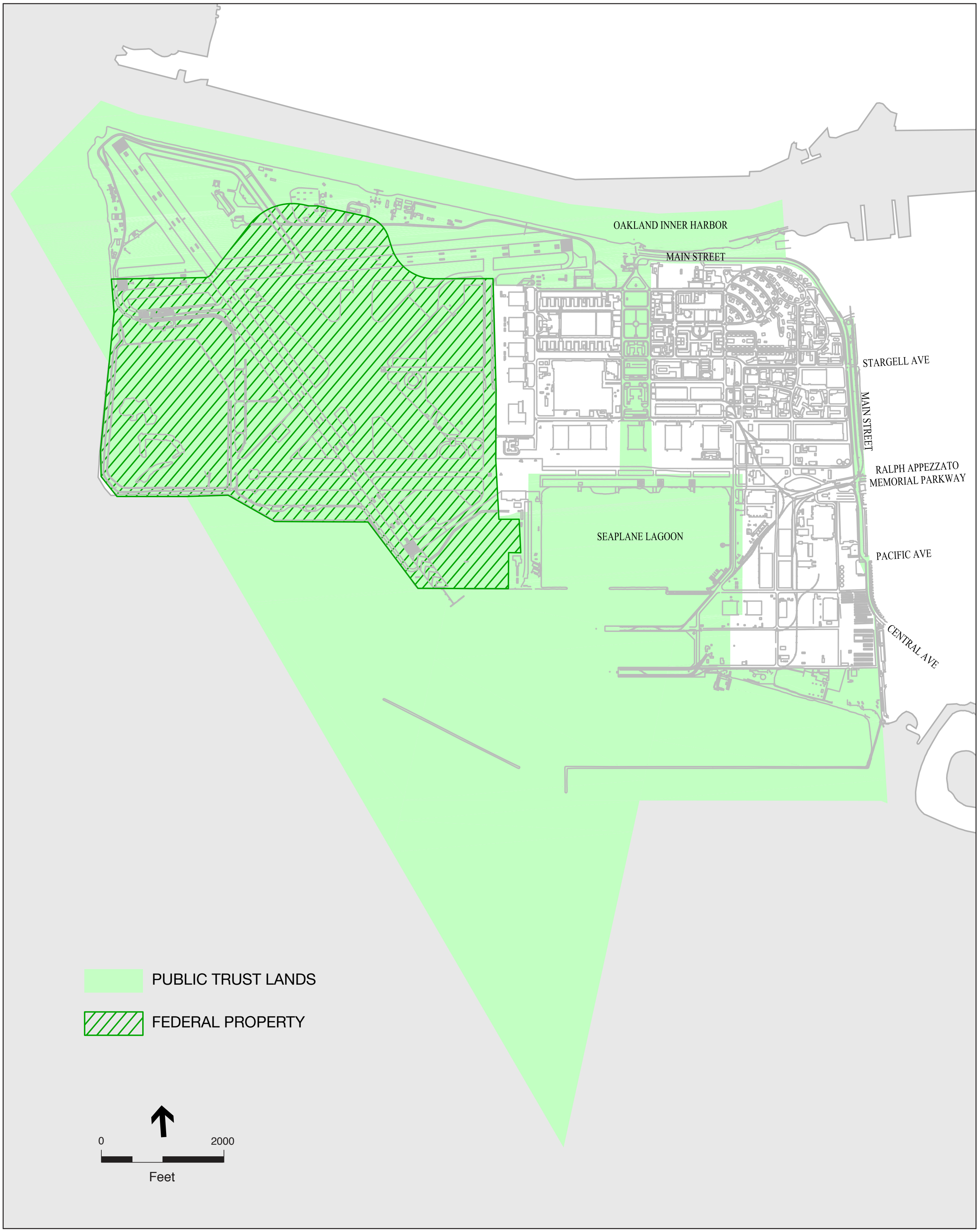
Figure 3-4
NAS Alameda Historic District



SOURCE: Carlson, Barbee & Gibson, Inc., 2013

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Figure 3-5
State Lands Exchange
Post-Exchange

Renewed Hope, et al. v. City of Alameda, et al. Settlement Agreement

In 2001, the parties to a suit filed by Renewed Hope Housing Advocates and Arc Ecology challenging the adequacy of the EIR for the conveyance and reuse of NAS Alameda and FISC[3] entered into a settlement agreement in which the City agreed that 25 percent of all newly constructed housing at Alameda Point will be affordable housing, as defined in the settlement agreement. It is anticipated that the agreement will result in over 300 new affordable housing units constructed at Alameda Point.

Transit System

AC Transit's Line 31 provides daily bus service through the central portions of Alameda Point. The destinations of this bus route include the MacArthur and Oakland City Center 12th Street BART Stations. The Alameda Ferry Terminal is located on the north side of Main Street adjacent to the northeastern portion of the project site. WETA operates daily commuter and excursion ferry service from this terminal to the San Francisco Ferry Building and Pier 41. Limited commuter service to South San Francisco is also provided.

D. Project Description

Alameda Point, the former NAS Alameda property, located at the most westerly tip of the island of the City of Alameda, offers a rare opportunity for the Alameda community to create a series of compact, vibrant, transit-oriented neighborhoods and districts. The Alameda Point project is based on inter-connected frameworks of open space, circulation and vertical development designed to facilitate a cohesive and diverse mixed-use development, consisting of a range of housing, employment, commercial, recreational, and other reuse opportunities.

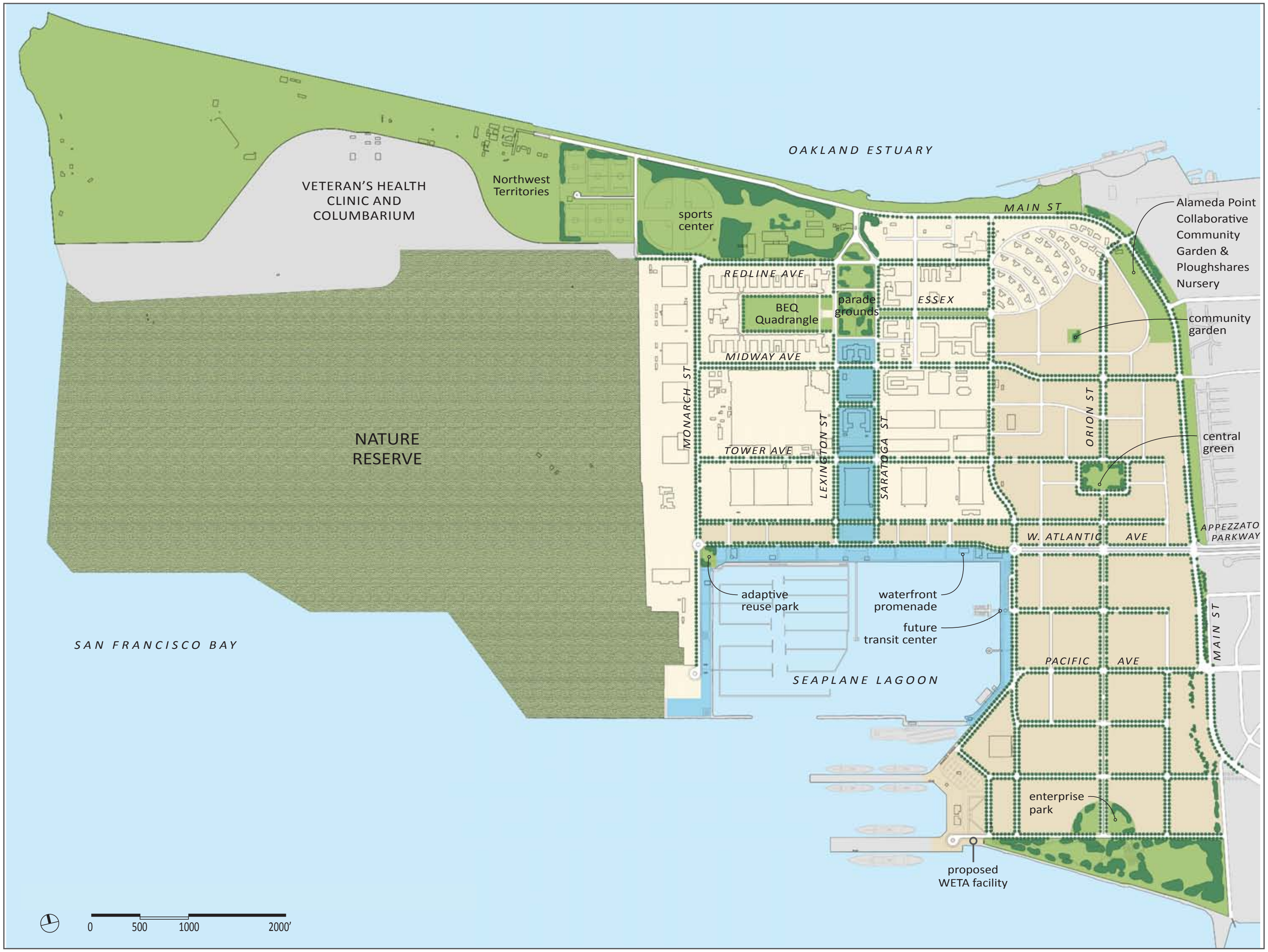
Open Space and Circulation Frameworks

The open space and circulation frameworks establish the major public open spaces, trails and paths, neighborhood parks and centers, and streets. The networks are comprised of publicly owned land dedicated to public park use, public streets and trails, and visitor serving and maritime uses on waterfront lands.

The open space and circulation frameworks organize and define the redevelopment and reuse plan for Alameda Point. The frameworks depict where key public waterfront parklands, streetscapes and greenways could occur to support and organize the redevelopment of Alameda Point (refer to **Figures 3-6** and **3-7**). The primary features that define the frameworks are:

- The San Francisco Bay, the Oakland-Alameda Estuary, and Seaplane Lagoon which surround Alameda Point on three sides;
- North-south open space and transportation corridors that connect the northern and southern waterfronts;

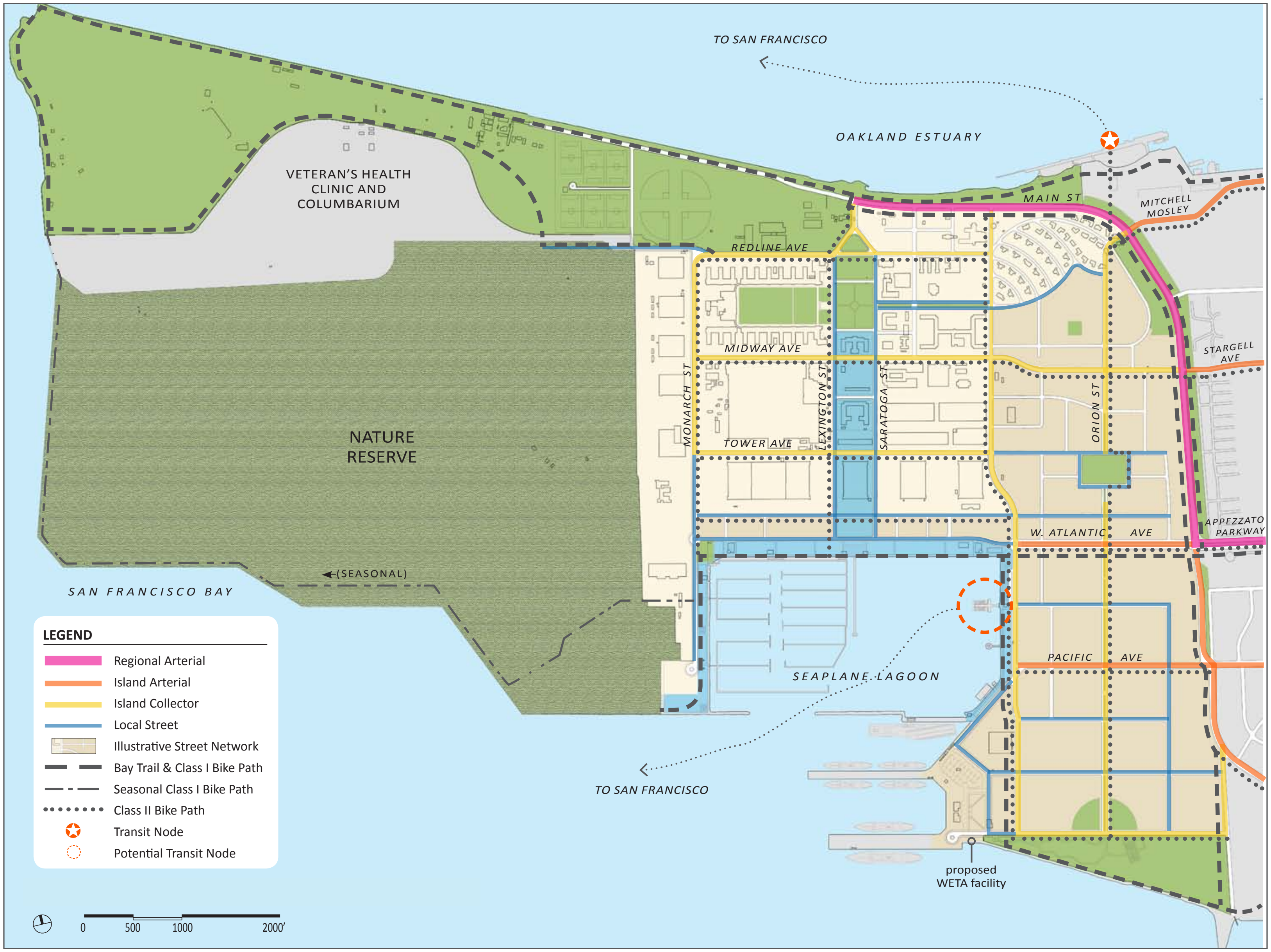
3 *Renewed Hope, et al. v. City of Alameda, et al.* (Alameda County Superior Court, Case No. 825713-8), dismissed March 26, 2001.



SOURCE: Alameda Point Planning Guide

Alameda Point Project . 130025

Figure 3-6
Alameda Point Open Space Framework



SOURCE: Alameda Point Planning Guide

Alameda Point Project . 130025

Figure 3-7
Alameda Point Circulation Framework

- Over 700 acres of former runways to the west of the urban areas of Alameda Point, which are planned for a Nature Reserve, 30 acres of Veterans' facilities, and public park lands;
- Historic open space and circulation networks within the NAS Alameda Historic District; and
- Existing open space and circulation networks in the adjacent neighborhoods to the east of Alameda Point that connect Alameda Point with the existing fabric of the Alameda community.

The open space and circulation frameworks are designed to:

- Conserve, restore and protect natural ecosystems and biological resources;
- Provide recreation amenities that offer associated health and social benefits;
- Provide multi-modal mobility within and through the project site;
- Preserve, sustain and enhance view corridors and connections to the waterfront; and
- Support an integrated water quality protection system, an adaptation to sea-level rise, and flood control.

Open Space Framework

Three levels of open space lands, "Natural," "Primary" and "Secondary," provide a multi-layered system in which natural, managed and built environments are located. These three levels are designated generally by the degree of intensity of use.

The framework does not show the location of every park, plaza, local street and/or other private open space area. As development proposals are prepared and evaluated, the open space and circulation frameworks presented in this document will inform development plans and help ensure they link into the City's overall open space and transportation systems consistent with the diagrams in this section.

Natural Lands

The natural lands consist of the Nature Reserve in the southwestern portions of Alameda Point is owned and managed by the federal government. The Nature Reserve provides long-term protection of habitat primarily for the endangered California Least Tern, but also for other wildlife. Public access within the Nature Reserve will be limited to a seasonal trail along the perimeter of the reserve consistent with the 2012 Biological Opinion. The trail would only be open to the public during the non-breeding season for the California Least Tern between August 1 and February 28. The trail would be approximately 10 feet in width. The trail would accommodate non-motorized traffic such as bicycles, strollers, and pedestrians consistent with the City's multi-use path standards.

Primary Open Spaces

The primary open spaces provide full public access and focus on visitor and community serving uses that support active recreational, community and social functions. These spaces serve not only the Alameda Point community but also the larger City of Alameda and Bay Area communities. These areas consist of approximately 258 acres of parks and open space, including a waterfront promenade, a continuous Bay Trail, historic open spaces and parade grounds, and a sports complex. These lands are often social “focal points” of individual neighborhoods and sub-areas. The primary open spaces include:

- **Northwest Territories.** These lands are suitable to provide passive recreation and gathering facilities along the Oakland Estuary waterfront, which could include trails, picnic areas, viewing areas, wetlands and parking lots. These parklands complement the adjacent Nature Reserve and will be accessed by a road connecting the main portion of the base with the western waterfront. The Northwest Territories and Nature Reserve are connected by a seasonal pedestrian and bicycle trail and visually by views of the San Francisco Bay and Bay Bridge.
- **Sports Complex.** A 44-acre sports complex is located along the Oakland Estuary. The sports complex potentially may include, in addition to an existing gym, ballfield and skate park, additional ballfields, multi-purpose fields, volleyball and basketball courts, tennis courts, picnic areas, recreation buildings and other comparable active recreational amenities. Parking and concessions facilities would also be provided.
- **Parade Grounds and the Bachelor Enlisted Quarters (BEQ) Quadrangle.** The parade grounds are located within the NAS Alameda Historic District and are important to preserving the naval history of the community and incorporating it into the new Alameda Point community. The adjoining BEQ Quadrangle, also within the NAS Alameda Historic District, provides space for active recreational uses, including soccer fields consistent with the Navy’s historic use of these grounds.
- **Seaplane Lagoon Waterfront Promenade.** The Seaplane Lagoon Promenade provides a unique opportunity to create an active and interesting waterfront promenade and/or waterfront park that includes visitor serving, waterfront related uses such as concessions related to maritime activities, boat rentals, hotels and restaurants. Parts of the Promenade may also include more passive waterfront uses.
- **Enterprise Park.** These lands are located along the southern waterfront of Alameda Point with extensive views of the southern San Francisco Bay. Parks, recreational amenities, and trails fronting directly onto the Bay are envisioned here that connect the Bay Trail to the USS Hornet and the Seaplane Lagoon waterfront uses to the north and west.

Secondary Open Spaces

Secondary Open Spaces are park areas of a smaller scale that provide environmental, agricultural and social gathering areas supporting passive recreational, social and transportation uses and provide linkages throughout the new neighborhoods (i.e., neighborhood and pocket parks, community gardens, urban farms, streetscapes and vegetative buffers). The main secondary open space components include:

- **Waterfront Trails.** Waterfront trails around the perimeter of Alameda Point provide trails for walking, biking, hiking and links to the regional and community trail system.
- **Alameda Point Collaborative Community Gardens.** This is an existing urban farm in the Main Street Neighborhood area with an adjacent commercial nursery that is a key open space component of the neighborhood.

- **Neighborhood and pocket parks, small greens.** These parks are located throughout the community to create neighborhood focal points consisting of small-scale outdoor gathering areas for recreational activities, such as picnicking, pick-up games, tot lots, small scale social events, and to complement other larger neighborhood centers.
- **Plazas, Paseos, Gardens and Paths.** The network of smaller, more private open spaces support employment, commercial and residential uses, which connect to the overall open space network.
- **Streets.** The tree-lined streets that provide shade, sidewalks, and links to the community and greater Alameda are an important part of the overall open space system. Street trees will be planted in strips and/or tree wells so that a dominant street tree environment is established which knits the proposed and existing Alameda neighborhoods together.

Circulation Framework

The Alameda Point development would include new streets within the non-historic construction areas and rehabilitate the existing streets within the NAS Alameda Historic District. The proposed onsite street system would provide connected and walkable streets that promote all modes of transportation, emphasizing walking, bicycling and direct and convenient access to high quality transit. The proposed street system at Alameda Point would conform to the City's complete streets policy to provide safe, comfortable and convenient travel for all transportation users. The existing street widths within the NAS Alameda Historic District would be maintained to preserve the historic streetscapes of these streets. Street sections in the non-historic area would be designed as narrow as safely practicable to facilitate a range of users, encourage calm traffic flow, and improve and promote the pedestrian and bicyclist experience.

The circulation framework supports the open space framework by connecting the nature reserve, recreational facilities, and primary and secondary open spaces together with a network of attractive landscaped streets, trails and paths, and at the same time provides a hierarchy of streets for the mobility of pedestrians, bicyclists, transit, goods movement, emergency responders, and private automobiles. The framework's grid of streets connects the NAS Alameda Historic District to the City's existing street grid. The layout of the street grid offers compact blocks with the high degree of connectivity considered essential in creating vibrant, transit-oriented, walkable neighborhoods. The grid also incorporates Alameda's functional classification system of streets, alleys, bikeways and pathways to offer a variety of choices for moving around Alameda Point, The classification of streets, as shown in Figure 3-7, employs familiar General Plan designations including Regional Arterial, Island Arterial, Island Collector and Local Street designations that may emphasize a particular travel mode consistent with the street's primary function.

The defining features of the circulation framework are:

- Ten miles of trails for bicyclists and pedestrians that encircle Alameda Point and provide access to the San Francisco Bay waterfront, the Oakland Alameda Estuary, the Seaplane Lagoon, and the Nature Reserve.
- The seamless extension of the existing Alameda street grid into Alameda Point that connect with the street grid within the NAS Alameda Historic District.

- More than seven miles of new bicycle lanes implemented throughout Alameda Point to facilitate and encourage bicycle use.
- Bus, automobile, bicycle and pedestrian access to existing and future transit terminals and transit routes.
- Preservation of existing street widths within the NAS Alameda Historic District and retrofit of selected streets to incorporate bike lanes and/or on-street parking.
- The standard for new streets establishing a maximum of one travel land in each direction with the exception of West Atlantic Avenue as described in the next section.

The major components of the circulation framework include:

- **Bay Trail.** The Bay Trail will consist of a Class I separated bicycle and pedestrian path of a minimum of twelve feet in width with a four foot graded jogging path on one side and a three foot graded area on the other side, consistent with the City's Bicycle Facility Design Standards. The character of the trail will change in response to changes in the adjacent land uses or location within Alameda Point. The variability in the design and the materials of the trail's surfaces, landscaping, and amenities emphasizes visual, historic and functional compatibility with the surrounding context. The Bay Trail will circumnavigate the entire perimeter of Alameda Point adjacent to the water, except where seasonal and biological limitations apply. Branches of the Bay Trail will extend along West Atlantic Avenue to the Seaplane Lagoon and along Main Street, providing connections to Alameda's existing island-wide network of pedestrian and bicycle facilities. As stated above, the portion of the Bay Trail around the southerly and westerly edges of the former base would be limited to the season when the endangered Least Tern is not in residence. In total 5.9 miles of waterfront trail would be provided within Alameda Point and 1.9 miles of seasonal waterfront trails around the perimeter of the land to be retained by the federal government.
- **Bicycle Lanes.** Bicycle lanes, conforming to the City's Bicycle Facility Design Standards, would be installed along all streets designated as Class II facilities on Figure 3-5. In total, the project includes 7.5 miles of new bicycle lanes.
- **NAS Alameda Historic District Streets.** The circulation framework strives to maintain the historic character of the existing streets within the NAS Alameda Historic District. The streets within the NAS Alameda Historic District would be incrementally rehabilitated over time including pavement section replacement, sidewalk replacement and accessibility improvements conforming to current Americans with Disabilities Act (ADA) standards. Within the NAS Alameda Historic District existing streets will be rehabilitated to preserve the spacing, configuration and character of the historic street grid. The existing curb-to-curb dimensions of the streets in the Historic District will be maintained, but the street surfaces will be reconstructed to increase their safety, durability, and longevity. In some cases, existing travel lane width may need to be reduced and existing on-street parking may need to be removed to accommodate designated bicycle lanes.
- **West Atlantic Avenue.** West Atlantic Avenue will remain as the main "gateway" into Alameda Point. The street will be reconstructed to extend Ralph Appezzato Memorial Parkway and the Cross Alameda Trail from Main Street to the Seaplane Lagoon. The street will include lanes for bicycles, automobiles, and trucks, and may include separate right of way for exclusive transit lanes, consistent with its "exclusive transit" General Plan designation. In addition, the Cross Alameda Trail will be extended from Main Street into Alameda Point to the Seaplane Lagoon as a Class I separated bicycle and pedestrian path.

- **Complete Streets Network.** In accordance with Resolution 14763, Alameda Point will include a comprehensive, integrated transportation network with infrastructure and design that allows safe and convenient travel along and across streets for all users, including pedestrians, bicyclists, persons with disabilities, motorists, movers of commercial goods, users and operators of public transportation, seniors, children, youth, and families.

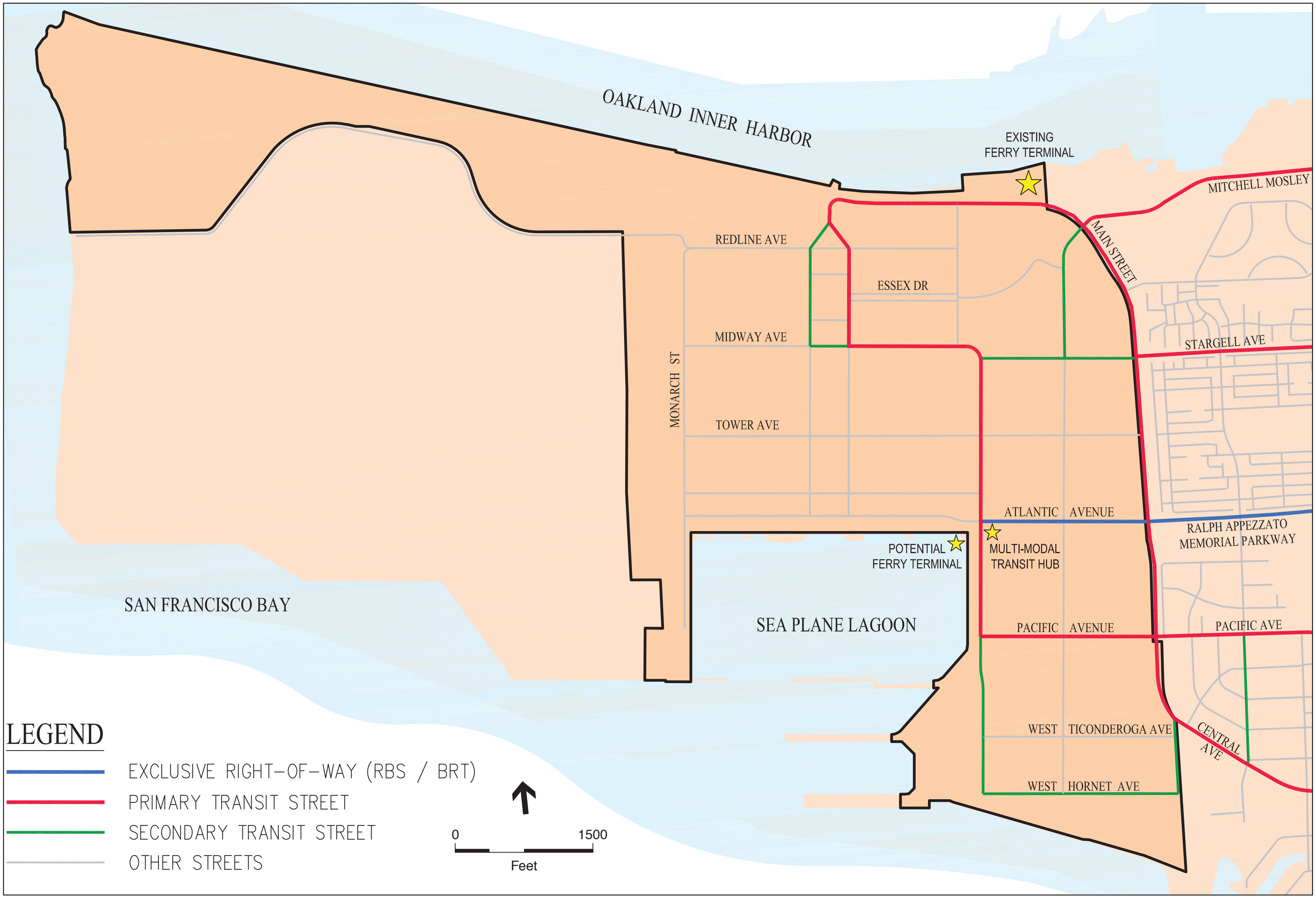
- **Ferry Terminal and Transit Service Access.** Transit services will access Alameda Point via Ralph Appezzato Memorial Parkway, Stargell Avenue, Pacific Avenue, and/or the future Mitchell Extension. The circulation framework provides convenient transit, automobile, bicycle and pedestrian connections to the existing Ferry Terminal at Main Street and the planned terminal at the Seaplane Lagoon. At such time when ferry service is initiated at Seaplane Lagoon, the planned ferry terminal will serve as a multi-modal transportation hub possibly located at the foot of West Atlantic Avenue. The planned terminal at the Seaplane Lagoon would connect ferry, AC Transit bus, and shuttle services with transit riders arriving by bicycle, by foot, or dropped off by automobile. In the interim, depending on the location, rate, and type of the initial development in Alameda Point, a smaller multi-modal transfer point may be located on the existing AC Transit Line 31 route within walking distance of the areas with the greatest concentration of development.

Transit Framework

Alameda Point is a proposed transit-oriented community designed to provide a comprehensive, integrated network of pedestrian, bicycle, and transit options for the community. Reliable and efficient transit service that connects to, and builds upon, the existing regional transit system is critical for the redevelopment of Alameda Point. The transit framework would include an onsite multi-modal transit center, shuttle service, bus service, ferry service, and a Transportation Demand Management program. **Figure 3-8** depicts the locations of the components of the proposed transit system. The elements of the proposed transit system included as part of the project description are described below.

Multi-Modal Transit Center. Transit services, including ferry, shuttles, and Bus Rapid Transit (BRT) will coalesce at a permanent multi-modal transit center at the foot of West Atlantic Avenue near the Seaplane Lagoon. The transit center is envisioned as a multi-functional facility comprised of the following major features:

- Passenger Movement Facilities
  - Bus and shuttle passenger loading and transfer area
  - Walkway connection to ferry terminal
  - Streetside loading zone for passenger drop off and pick up including taxi stands
  - Covered passenger waiting plaza
- Terminal Building and Passenger Support / Amenity Facilities
  - Transportation Demand Management coordinator office
  - Ferry personnel office and ticket / info counter and machines
  - Transit employee break room / restrooms
  - Café / coffee / retail spaces
  - Indoor passenger waiting area/seating and restrooms
  - Mechanical / storage / maintenance / custodial spaces
  - Bicycle station (bicycle valet and repair) space



SOURCE: Carlson, Barbee, & Gibson, Inc., 2013

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Figure 3-8
Proposed Transit Network

- Parking Facilities
  - Bike locker / bike racks
  - Potential onsite or off site park and ride facility
  - Disabled parking onsite
  - Car share parking onsite or off site
  - Electric vehicle charging station onsite or off site
  - Service / staff / police vehicle parking onsite
  - Motorcycle parking onsite or off site

Shuttle Service. The Alameda Point project will include shuttle service connecting Alameda Point to the Oakland City Center 12th Street BART Station. The service is anticipated to evolve with each phase of development of Alameda Point. Implementation and operation of the shuttle service will be flexible so that it can quickly adapt to development patterns guided by market forces. The initial shuttle service may be a City contracted service for direct, but limited, peak period connections to and from BART and employing small interim transit hubs located where development is concentrated. An Alameda Point Transportation Management Association will oversee the service. Through the initial stages of the shuttle service, the City of Alameda and AC Transit will collaborate on implementing the capital improvements for the planned BRT system as well as construction the multi-modal transit center in its permanent location. Once BRT is operational, shuttle services will transition to a support service for the regional rapid system and may eventually be entirely replaced by the comprehensive BRT system with its central hub located at the Alameda Point multi-modal transit center.

Future Ferry Service from the Seaplane Lagoon. Ferry service is currently being offered from the ferry terminal located on Main Street. A ferry terminal in Seaplane Lagoon would facilitate a new high-speed service between Alameda and San Francisco. A substantial increase in service time is anticipated with the bifurcation of the current Oakland-Alameda to San Francisco service into two separate routes. Services from the Seaplane Lagoon would avoid to some degree, the lower speed requirements of the Oakland-Alameda Estuary. Regular ferry service from Alameda is consistent with the Bay Area WETA Regional Ferry Plan. Future connections to other regional ferry destinations may also be possible.

Transportation Demand Management Plan. Transportation Demand Management (TDM) refers to a range of strategies, measures, and services that, individually or combined into a comprehensive program, help to achieve the City of Alameda's General Plan goals to reduce automobile trips, and in particular, target the reduction of Single Occupant Vehicle (SOV) trips. TDM strategies are designed to change travel behavior (when, where, and by what means people travel) by using combinations of incentives, disincentives, and convenient services.

Beyond helping to mitigate the potential traffic impacts of the Alameda Point development, TDM contributes to meeting regional goals that include reducing traffic congestion on the Bay Area's routes of regional significance; reducing the primary source of mobile emissions; improving safety, and thus increasing mobility, for those who bicycle, walk or take public transit; conserving of energy; and improving the health of the population by encouraging physically active forms of transportation.

The residents and employers of Alameda Point are required to fund, comply with and collaboratively, manage, monitor and continuously improve upon a TDM program that mitigates traffic impacts as well as improves the quality of life for those who live and work at Alameda Point.

The TDM plan would be developed by the City with the flexibility to a) adapt to future phasing of Alameda Point land uses; b) implement transit services starting at the commencement of development and introduce larger and more comprehensive services as specific development thresholds are met; and c) use annual monitoring of performance as a mechanism for continuous improvement of individual employer TDM plans and TMA provided services. The property owners, residents and tenants of Alameda Point will fund, implement, and direct the management of the TDM plan and be accountable for the plan's success. Every development at Alameda Point will be required to comply with, and provide an annual financial contribution to fund TDM services.

Sub-Area Descriptions

Alameda Point would include four distinct sub-areas (see Figure 3-1). The density and intensity of development that potentially would be accommodated in each sub-area is shown in Table 3-1.

Town Center and Waterfront Sub-Area

The 129-acre Town Center and Waterfront Sub-area is envisioned as the heart of Alameda Point. The area includes the retail, restaurant, recreational, entertainment, residential and transit center at Alameda Point, along the Seaplane Lagoon and West Atlantic Avenue, the traditional "gateway" to Alameda Point.

The Town Center and Waterfront Sub-area would include active and passive recreational uses, special events, waterfront restaurants, retail, hotels, entertainment, other visitor-serving uses, multi-family housing, and convenient transit terminals and connections to and from Oakland and San Francisco by bus and ferry, and pedestrian friendly streets. Uses in this Sub-area would also incorporate the existing commercial recreation, light manufacturing, arts and crafts, and maritime uses.

New buildings, open spaces, and streets would be designed to create a pedestrian friendly, transit supportive mixed-use area around the Seaplane Lagoon. A mix of existing and new commercial, industrial, and multifamily building types would address project streets and open spaces and the Seaplane Lagoon and preserve and frame views of the San Francisco skyline and Bay Bridge.

Public Trust-compliant uses would front around the edge of the Seaplane Lagoon, including public open spaces, maritime and visitor-serving uses, concessions related to maritime activities, hotels, and restaurants. At the northeastern corner of the Seaplane Lagoon, visitor-serving uses such as hotels, restaurants will face onto an active waterfront promenade.

The Seaplane Lagoon would include existing and new maritime uses, such as the existing Maritime Administration (MARAD) ready-reserve fleet, the USS Hornet Museum, a future ferry terminal and services to San Francisco, a marina and commercial recreational and boating related uses. The marina would include up to 530 boat slips. The new marina design would be in conformance with Department of Boating and Waterways Guidelines. The northern and eastern shoreline edges will be upgraded and raised to address sea level rise.

To the south and along the eastern edge of the Seaplane Lagoon, maritime and commercial activities similar to those that currently operate in the Sub-area would continue and expand into existing and new buildings, such as the MARAD fleet, maritime contractors, and the future WETA Central Bay Area Maintenance Facility. New uses along the northeastern edge may include multi-family residential, retail, and other commercial uses.

The western edges of the Sub-area adjacent to the Nature Reserve would include a natural edge and the eventual creation of wetlands. This edge would ultimately become inundated as sea-level rises and become a passive natural open space area similar to the southeastern corner of the federal property. New adaptive wetlands and tidal marshes may be created in the Seaplane Lagoon as sea-level rises to create natural areas for wildlife to thrive.

Rehabilitation of the existing buildings and new infill construction would occur incrementally. Rehabilitation of contributing structures in the NAS Alameda Historic District that overlaps with portions of the Sub-area would be reviewed for conformance with the Guide to Preserving the Character of the NAS Alameda Historic District, and all new buildings within the NAS Alameda Historic District would be reviewed for conformance with the character defining features of the NAS Alameda Historic District.

New streets and buildings would be constructed between the Seaplane Hangars and the Seaplane Lagoon in the area of the former taxiways to provide opportunities for new waterfront development. The streets and new buildings would be designed to complement and support the NAS Alameda Historic District balanced with the other needs of the development.

New building types would include: commercial block, workplace commercial, adaptive reuse, parking structures and attached residential building types, such as work-live, stacked flats, multiplex and row houses. Single-family housing would not be appropriate for this Sub-area. More detailed descriptions of these building types are contained in the proposed Zoning Ordinance Amendment.

The maximum height of new buildings would be limited by the height of the existing hangars (Buildings 39 through 41) around five stories or sixty feet. Buildings along Main Street would be a maximum of 40 feet to create a transition to the existing Alameda residential neighborhoods on the east side of Main Street. Exceptions to these height limits could be granted for landmark or signature buildings outside of the NAS Alameda Historic District.

Tree-lined streets, parks, paseos, and civic spaces provide an open space network that connects to the Seaplane Lagoon waterfront, adjoining open space system and adjacent sub-areas. Open spaces preserve views of the San Francisco Bay and Peninsula and respect the historic pattern and character of the NAS Alameda Historic District.

West Atlantic Avenue would be reconstructed and re-aligned to provide the main entrance to Alameda Point. Buildings would face onto West Atlantic to support a pedestrian friendly environment. Ground floor commercial or residential uses with either residential or office uses above would be permitted. Parking would be located under and behind buildings.

The Cross Alameda Trail – a planned pedestrian and bicycle trail from the Fruitvale Bridge to Alameda Point- would extend into Alameda Point along West Atlantic and connect to the waterfront trails that circle the Seaplane Lagoon and the balance of Alameda Point.

Main Street Neighborhood Sub-Area

The 140-acre Main Street Neighborhood Sub-area would be a mixed-use residential neighborhood with a variety of building types and complementary small-scale, neighborhood-serving commercial, service uses, urban agriculture and parks. The Sub-area would build upon many of its existing assets and features including the community comprised of the Supportive Housing Units and its Ploughshares Nursery, the "O'Club" community center, and the historic "Big White" homes and their distinctive "beehive" street network.

The new neighborhoods would be organized around one or more neighborhood centers that include public gathering spaces and parks and /or new neighborhood commercial services. Neighborhood serving commercial and community uses, such as the "corner store", day care centers, community garden, car show, community centers, and/or places of worship may occur at key intersections or neighborhood centers as this district evolves. Other uses that could occur in this Sub-area are small office, small grocery stores, art galleries, urban farms, community centers, health clinics and institutional uses, such as a post office.

Rehabilitation of the existing buildings and new infill construction would occur incrementally. Rehabilitation of contributing structures in the NAS Alameda Historic District that overlaps with portions of the Sub-area would be reviewed for conformance with the Guide to Preserving the Character of the NAS Alameda Historic District and all new buildings within the NAS Alameda Historic District would be reviewed for conformance with the character defining features of the NAS Alameda Historic District.

The NAS Alameda Historic District grid of streets would be extended into the area to create an interconnected network of tree lined two-lane streets with on-street parking throughout the neighborhood. Bike lanes, paths and trails would connect this Sub-area to the comprehensive trail system both within Alameda Point and to adjacent existing neighborhoods to the east. A north-south collector with bicycle lanes and wide sidewalks bisects the neighborhood to create a convenient pedestrian and bicycle route between the neighborhood, the existing ferry terminal, the Town Center, and the parks and open spaces along the southern edge of Alameda Point.

The Main Street Neighborhood would include a wide variety of residential building types including single-family detached homes and multi-family buildings such as attached town homes and row houses. The maximum building height in this Sub-area would be 40 feet.

In the northern area near the historic "Big Whites," lower density, one-, two- and three-story residential single family detached and attached buildings ranging from smaller cottages and in-law units to two and three bedroom homes would be likely to fill in around the historic homes.

The existing Supportive Housing Units may be relocated into a new well-designed neighborhood center with multifamily housing, community spaces, supportive facilities and public gathering spaces (see **Figure 3-9**). A Collaborative Supportive Housing plan was collaboratively developed with all three Supportive Housing Providers from 2009-2012. The replacement supportive housing may provide 200 new operationally efficient housing units specially designed with support services and job training facilities for populations at-risk of homelessness, distributed as follows:

Alameda Point Collaborative		120 units
Building Futures with Women and Children		52 units
Operation Dignity		28 units
	Total	200 units

The proposed facilities would improve service delivery to support job-readiness training for formerly homeless veterans, women and children and other at-risk populations:

- APC employment training, social enterprise, administrative space and Ploughshares
- APC permanent and transitional housing and social services
- OD housing, veterans services and community facilities
- BFWC housing and social services, shelter for women and children with shelter services, and wellness center
- Shared community center, multi-purpose hall & daycare

The plan is designed to achieve a high score on site location criteria to be eligible for and competitive to receive federal tax credits per the Federal Low Income Housing Tax Credit program and successfully integrate supportive housing into the surrounding planned residential neighborhood and Alameda Point.

The plan features an attractive, walkable, neighborhood with tree-lined streets, designed with social services and enterprises located at a central, highly visible and accessible village center. Clustered around the village center are essential social services and community facilities to equal access for residents from all three service providers. Services include: community economic development, job training, social enterprises, mental health and wellness, substance abuse, micro enterprise and small business, community center, daycare and public plaza uses.

To create a safe and secure community environment for families, housing is clustered into residential blocks for each service provider. Individual unit entrances and porches would face the street with shared private open space within each block and shared community open space and gardens at the center of the neighborhood. All units are designed to be American with Disabilities Act accessible. Units are a mix of two, three and four bedrooms in a mix of flats, townhouses and apartments.

In the southern areas with the Sub-area adjacent to the Town Center and Waterfront Sub-area, retail services, and transit, residential densities may increase. Building types may include two-, three-, and four-story townhomes and multifamily buildings.

PROGRAM

1. Employment Training & Social Enterprises
2. APC Transitional Housing and Social Services
3. Community Center Multi-Purpose Hall
4. BFWC Wellness Center
5. OD Veterans Services and Community Facilities
6. APC Housing
7. BFWC Housing
8. Operation Dignity Housing
9. Village Center
10. APC Administrative
11. Ploughshares Social Enterprise
12. Main Street
13. Narrow Streets
14. Pedestrian and Bike Paths
15. Community Gardens & Pavilion

Alameda Point Collaborative	120 units
Building Futures with Women and Children	52 units
Operation Dignity	28 units
Total	200 units

SOURCE: Fukuji Planning & Design

Figure 3-9
Collaborative Concept Site Plan

In the northerly areas of this Sub-area, towards the Oakland Estuary, a mix of open spaces and community gardens mingle with the historic Big White homes and naval housing and the redesigned Supportive Housing Units, including their existing nursery and farm.

A new central green is envisioned in this Sub-area to provide a main gathering and event space. Temporary and/or permanent open-space, agricultural, park uses may be pursued in this Sub-area, including the potential for neighborhood park uses, such as a tot lot.

Adaptive Reuse Sub-Area

The Adaptive Reuse Sub-area provides 207 acres of land and over 2 million square feet of existing buildings for a broad range of uses and employment opportunities and is situated entirely within the NAS Alameda Historic District.

The area would continue to house existing light manufacturing, distilleries and food-related businesses, office, warehousing, institutional, and commercial recreational uses. Existing uses such as St. Georges Spirits, Rockwall Winery, and Delphi Productions would continue in this Sub-area. New uses may include additional food and beverage manufacturing, maritime wholesaling, concessions related to maritime activities, printing and publishing, research and development, educational, institutional uses, public services, such as a fire station and satellite corporation yard, and residential uses limited to the former residential buildings (BEQ and Bachelor Officers Quarters (BOQ)).

Although the emphasis in this Sub-area would be to adapt existing historic buildings for new uses, new construction could also occur. Rehabilitation of contributing structures in this Sub-area would be reviewed for conformance with the Guide to Preserving the Character of the NAS Alameda Historic District. Along the western edge of the Sub-area, all new construction and new uses would be strictly reviewed for conformance with federal requirements to protect the endangered Least Tern.

Rehabilitation of the existing buildings would occur incrementally on a building-by-building basis. New two to four-story commercial block, research and development, and workplace commercial buildings may be constructed to accommodate new businesses. All new buildings would be reviewed for conformance with the NAS Alameda Historic District.

The maximum permitted height for any building in the Adaptive Reuse Sub-area would be 60-feet. Building massing, form and setbacks would be reviewed on a case-by-case basis to ensure that buildings are compatible with adjacent structures and complement the historic character of the Sub-area.

The open space and street network in this area is determined by the historic landscape and street patterns that are contributing characteristics to the NAS Alameda Historic District.

A perpendicular east-west spine is established by the BEQ Quad’s central recreational fields and Tower and Midway Streets. The street network in this area would be preserved. Tower and Midway Avenues, both east-west oriented streets, provide the main transit and street corridors that link this area to the City, the transit hub, and waterfront areas.

The parklands within the Adaptive Reuse Sub-area include the central parade grounds located generally along the Lexington and Saratoga Street spine. This north-south central spine provides primary view corridors north to the Estuary and south to the Seaplane Lagoon.

Enterprise Sub-Area

The Enterprise Sub-area provides approximately 111 acres of land for new high-quality research and development, industrial, manufacturing and office uses. Outside the NAS Alameda Historic District and well buffered from the Nature Reserve, the Enterprise Sub-area provides opportunities for new construction to accommodate modern uses and specialized industry needs in high quality, well-designed buildings.

Uses in this area are intended to create a thriving employment center. Potential uses range from executive and/or research and development offices to maritime wholesaling and manufacturing to light industrial. Along the southwestern edge of the Sub-area, research and development, light manufacturing, warehousing, and other maritime related uses that are compatible with the existing maritime uses would occupy the lands adjacent to the MARAD fleet, and future WETA Central Bay Area Maintenance Center.

New commercial block, research and development, workplace and industrial buildings will be organized around a grid of tree-lined two-lane streets with on-street parking and a network of parks and civic spaces. Parking would be placed behind buildings that face onto the streets in surface parking lots or in parking structures so that a pedestrian environment is established.

The maximum permitted height for buildings in this sub-area will be 100 feet, with the exception of buildings that front onto Main Street which would be a maximum of 40 feet in height. New buildings along Main Street would step back and step down from Main Street to provide for a transition to the adjacent residential neighborhood on the east side. These buildings would also be set back behind a new linear park on the west side of Main Street.

The open space and circulation frameworks are defined by the Seaplane Lagoon, Bay Trail, and public promenade to the west, the Cross Alameda Trail and Town Center to the north, the Main Street Linear park to the east and the 25-acre Enterprise Park and Bay Trail to the south.

A linear park along Main Street will provide Class I bicycle facilities and pedestrian paths separated from on-street traffic and a green “buffer” between the Enterprise Sub-area buildings and the adjacent existing Alameda neighborhood. The Main Street linear park would also provide an important bicycle and pedestrian connection between this Sub-area and Enterprise Park to the south and the Town Center and Waterfront Sub-area to the North.

The main streets in this Sub-area are Pacific Avenue, Main Street (along the eastern border), and two new primary north-south streets. Pacific Avenue is the main east-west spine that interconnects the existing residential neighborhood to the Enterprise Sub-area and terminates at the Seaplane Lagoon near the future transit center location. A central north-south spine is planned that would provide bicycle lanes and convenient pedestrian access through the center of the Sub-area from Enterprise Park in the south to the existing ferry terminal at Main Street to the north.

Development Program

The development assumptions in each of the sub-areas are presented in **Table 3-1**.

TABLE 3-1
DEVELOPMENT ASSUMPTIONS

Subarea	Acres	Approximate Existing Building Square Feet/ Housing Units	Buildout Building Square Feet/ Housing Units
Open space	291	100,000 sq. ft. /0 units	100,000 sq. ft. /0 Units
Town Center and Waterfront Sub-area	129	640,000 sq. ft. /0 units	1,151,000 sq. ft. /500 units
Main Street Neighborhoods Sub-area	140	500,000 sq. ft. /268 units	100,000 sq. ft. /760 units
Adaptive Reuse Sub-area	207	3,350,000 sq. ft. /0 units	2,079,000 sq. ft. /165 units
Enterprise Sub-area	111	800,000 sq. ft. /0 units	2,070,000 sq. ft. /0 units
Total	**878**	**5,390,000 sq. ft./268 units**	**5,500,000 sq. ft./1,425 units**

Development intensities have been assigned to each of the sub-areas as presented in Table 3-1 and **Table 3-2**; however, the development increments may be moved from one sub-area to another to optimize development opportunities, and address site specific conditions.

TABLE 3-2
EMPLOYMENT AND RESIDENT PROJECTIONS

Subarea	Acres	Existing Employment	Projected Employment	Existing Residents	Projected Residents
Open space	291	0	0	0	0
Town center and Waterfront Sub-area	129	235	1,899	0	931
Main Street Neighborhoods Sub-area	140	50	0	500	1,976
Adaptive Reuse Sub-area	207	235	3,596	0	333
Enterprise Sub-area	111	440	3,164	0	0
Total	**878**	**1,000**	**8,909**	**500**	**3,240**

SOURCE: City of Alameda, 2013

Zoning Ordinance and General Plan Amendments

Implementation of the project requires a Municipal Code Amendment to amend the Zoning Map and Section 30-4 District Uses and Regulations of the Alameda Municipal Code and a General Plan amendment to establish consistency between the Reuse Plan for Alameda Point and the City of Alameda General Plan and Alameda Municipal Code (“AMC”). Successful reuse and redevelopment of Alameda Point requires that the Zoning Ordinance be amended in a manner that is consistent with the goals and policies of the Reuse Plan and General Plan. The existing zoning is not appropriate for the mixed use, civilian use of the property as envisioned in the Reuse Plan or as required by the General Plan. The City of Alameda Zoning Map is currently not consistent with the Reuse Plan or the General Plan. Currently the entire area is zoned for General Industrial (M-2) with a Special Government (G) overlay district. (The G overlay district identifies sites in federal ownership and operations).

The proposed project would require the following General Plan, Municipal Code, and Zoning Map amendments:

1. A Zoning Map Amendment to replace the M-2/G designation and replace with a new zoning designation comprised of the Alameda Point Zoning District, which consists of seven sub-districts. As illustrated in **Figure 3-10**, the Zoning Ordinance Amendment proposes seven sub-districts to regulate the variety of new uses and improvements envisioned for Alameda Point. The seven sub-districts are shown in Figure 3-8.

2. An amendment to the AMC to add Section 30-4.25 Alameda Point Zoning District (See Appendix F, Section 30-4.25 Zoning Ordinance Amendment). The standards and regulations are designed to implement Reuse Plan and the General Plan goals and policies for Alameda Point. To ensure that new development is appropriately designed to fully achieve policy goals for job generation, transit development, housing diversity, mixed-use development, historic preservation and water-oriented design, the planning area is divided into seven sub-districts. The sub-districts are intended to ensure high quality, well designed new buildings that are appropriately buffered from sensitive uses while complimenting the NAS Alameda Historic District, the physical environment, and existing land uses. The seven sub-districts each include form-based development standards, including permitted building types, heights, and orientation and use regulations for the property, including permitted and conditional permitted uses.

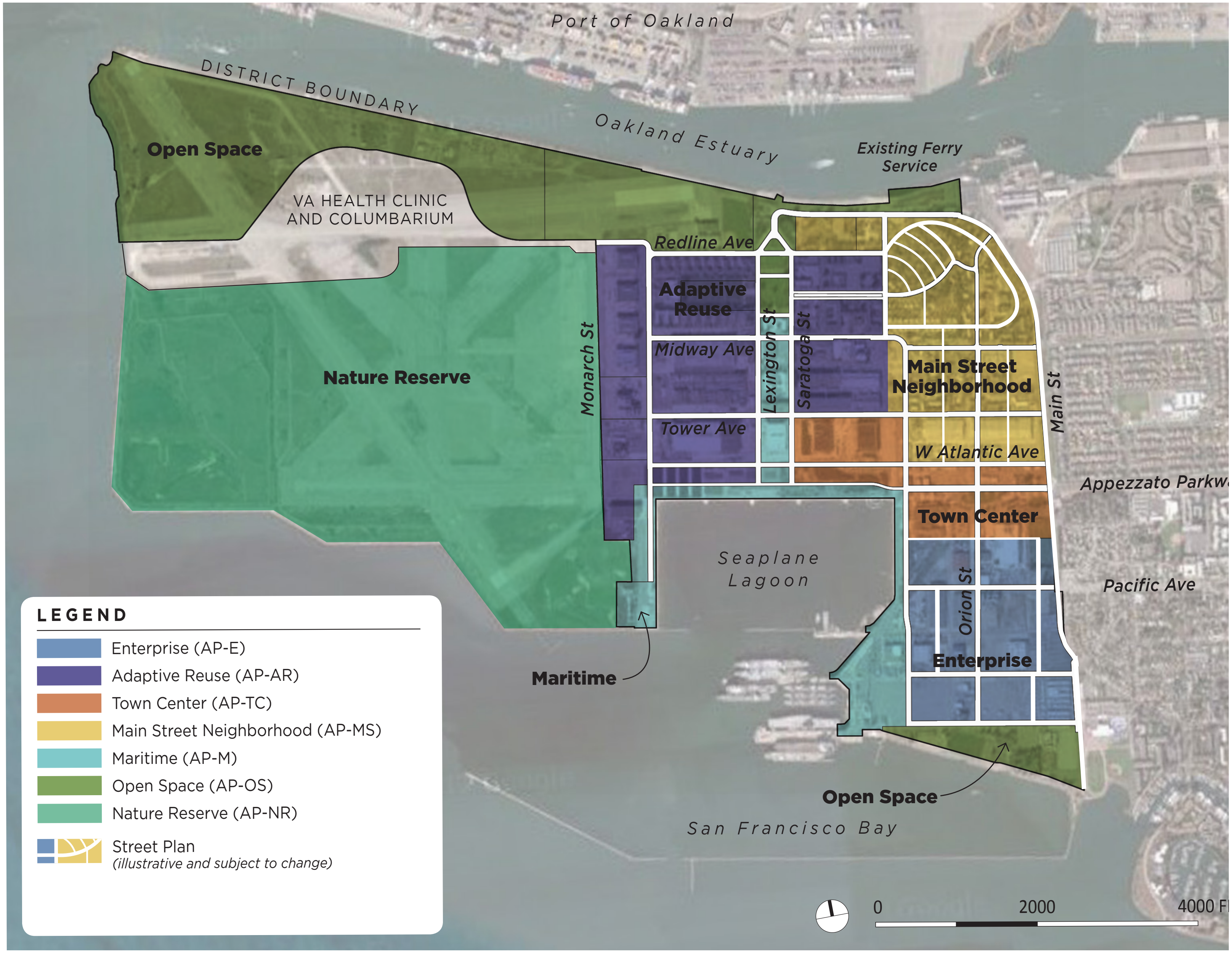
3. The proposed General Plan Amendment amends Table 2-7 of Chapter 9 to create consistency with the Reuse Plan. The amendments increase the square footage of permitted non-residential uses at Alameda Point from 2.3 million square feet to 5.5 million square feet and reduce the number of permitted housing units from 1,928 to 1,425. Table 2-7 of Chapter 9 will be deleted and replaced with the following amended Table 2-7:

TABLE 2-7
ALAMEDA POINT BUILDOUT, 2014-2039

Land Use Categories	Units	Civic Core	Inner Harbor	Marina	West Neighbor-hoods	NW Territories	Alameda Point Total
Office/Business Park/Institutional	sq. ft.	537,500	800,000	290,000	0	0	**1,627,500**
Manufacturing/Warehouse	sq. ft.	1,907,000	560,000	593,500	0	0	**3,060,500**
Retail/Commercial Service	sq. ft.	628,500	100,000	83,500	0	0	**812,000**
Parks and Open Space	acres	--	--	--	--	--	**291**
Marina Slips	slips	0	0	530	0	0	**530**
Residential	units	680	0	27	718	0	**1,425**

NOTE: This table represents the maximum build-out for Alameda Point. While development intensities have been assigned to each Planning Area, the development increments can be moved from one Planning Area to another to optimize development opportunities.

SOURCE: City Alameda (2013)



SOURCE: SCC Alameda Point LLC

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Figure 3-10
Proposed Zoning Map

Town Center and Waterfront Precise Plan

The proposed Precise Plan consists of a form-based development plan and an accompanying zoning amendment to facilitate [4] transit supportive standards and regulations for the arrangement of public and private street streets, public open space and parks, infrastructure, and associated private development consistent with City's goals and expectations for a transit-oriented, waterfront, visitor serving mixed-use community. The Precise Plan addresses the phasing of development within the Town Center and Waterfront Area, which would allow for interim uses, changes of uses in existing buildings, and integration of near-term projects with long-term goals. The Precise Plan also includes design guidelines to shape the aesthetics of new construction such that there is compatibility with the existing community and the NAS Alameda Historic District. The standards implement General Plan and Reuse Plan policies and supplement the Zoning Ordinance Amendment standards to ensure that that the ultimate development of this Sub-area is transit-oriented, pedestrian-friendly, economically diverse, environmentally sustainable, and compatible to the NAS Alameda Historic District. The draft Precise Plan Conceptual Framework is presented in **Appendix E**.

D.1 Master Infrastructure Plan

The draft Master Infrastructure Plan (MIP), presented in **Appendix C**, establishes the requirements and standards for the infrastructure to support the redevelopment and reuse of Alameda Point. The draft MIP describes the required replacement and/or rehabilitation of existing utility systems, streets and open spaces at Alameda Point. The draft MIP includes information regarding the stormwater, wastewater, potable water, recycled water, electrical, natural gas and telecommunication utility systems. Additionally, the draft MIP describes a "complete streets" internal transportation network to support a variety of modes of transportation.

The draft MIP also outlines the required corrective geotechnical and flood protection improvements for the project site. Corrective geotechnical measures are necessary to provide seismic stability of the project's shorelines and underlying soils. Flood protection improvements including site grading, perimeter improvements and establishing future adaptive measures are necessary to protect the site from the current 100-year tidal event and provide long-term protection for sea-level rise due to climate change.

For purposes of infrastructure planning, the MIP defines the project site as two main areas: Development Areas and Reuse Areas. The infrastructure needs and requirements for each of these areas are unique for the reasons discussed below. Accordingly, the MIP describes the planned backbone infrastructure specific for each of the areas. See **Figure 3-11** Development Areas and Reuse Areas, depicting the limits of the Reuse and Development Areas assumed for the draft MIP.

The Development Areas are those areas within the project site that are anticipated to consist of primarily new construction. Most of the existing structures, streets and utilities within these areas

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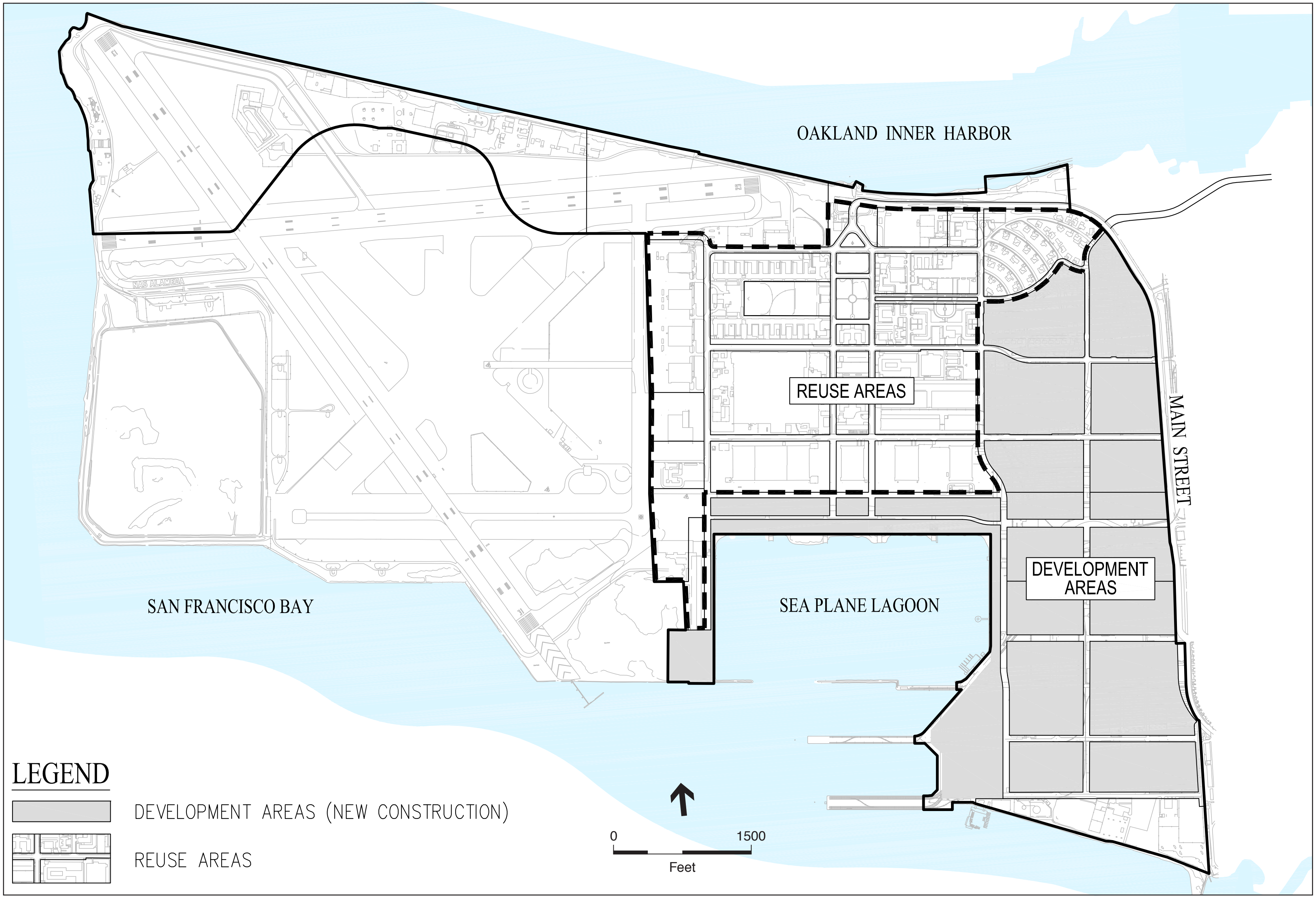
4 Form-based zoning is a means of regulating development to achieve a specific urban form. Form-based zoning strives to create a predictable public realm primarily by controlling physical form, with a lesser focus on land use, through municipal regulations.



SOURCE: Carlson, Barbee, & Gibson, Inc., 2013

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Figure 3-11
Reuse vs Development Areas

would be demolished. New infrastructure would be installed to support the proposed uses within the Development Areas. It is anticipated that development within the Development Areas would occur in cohesive areas and would be implemented in orderly phases.

The Reuse Areas include areas that overlap with the NAS Alameda Historic District that are intended to be primarily preserved and adaptively reused. The preservation of the historic buildings, landscapes and streetscapes require specific infrastructure considerations and requirements. It is anticipated that development within Reuse Areas would be incremental and determined by market demand for existing buildings and highest priority maintenance and repair needs. A sequenced implementation of rehabilitation and incremental replacements of the existing street and utility systems are discussed in the draft MIP.

Proposed Flood and Sea Level Rise Protection Measures

Sea Level Rise

The San Francisco Bay Conservation and Development Commission (BCDC) updated the San Francisco Bay Plan in October 2011 to address the expected impacts of climate change in San Francisco Bay. The updates to the Bay Plan include guidance for addressing future sea level rise with regard to planning projects along the San Francisco Bay shoreline that are susceptible to future inundation.

The California Climate Action Team's sea level rise projections, ranging from 10 to 17 inches at mid-century and 31 to 69 inches at the end of the century, currently provide the best available sea level rise projections for the West Coast. The Bay Plan recommends planning for future sea level rise at amounts of 16-inches by 2050 and 55-inches by 2100.

Adaptive Management Plan

Future sea level rise would increase the areas of flooding within the project site. An Adaptive Management Plan would ensure Alameda Point maintains flood protection and addresses sea level rise over time. The proposed Adaptive Management Plan would commence with constructing an initial flood protection system that would be designed to provide protection from the current 100-year tidal event, plus wave/wind run-up and plus accommodation for 18-inches of future sea level rise.

Scientific uncertainty remains regarding the pace and amount of future sea level rise, therefore a sea level rise monitoring program would be established to periodically review actual sea level rise amounts, trajectories, and updated projections.

If future sea level rise amounts exceed 18-inches, additional flood protection measures would be implemented. The flood protection system would be adaptively designed to address sea level rise in excess of 18-inches. The adaptive measures would include preserving inland land and right of way along the perimeter of the site such that existing shorelines and floodwalls could be elevated to manage sea level rise. The perimeter improvements would be designed to allow for the future flood protection measures to be widened and support additional height such that no fill is placed in the

Bay. A funding mechanism to implement these future adaptive measures would be established for Alameda Point.

Initial Flood Protection System

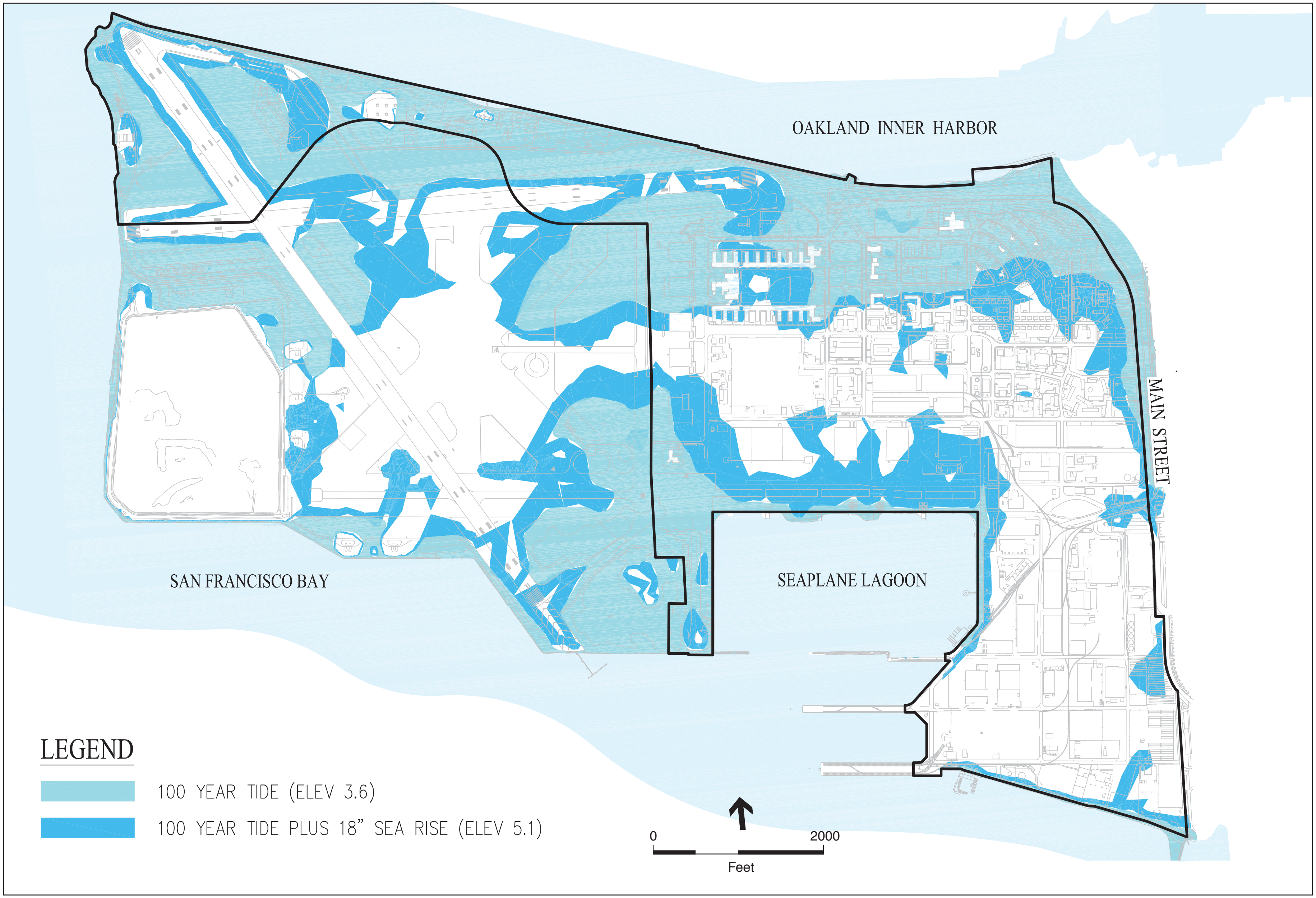
The flood protection criteria for Alameda Point combine the Federal Emergency Management Agency (FEMA) regulations applicable to 100-year flood zones with additional considerations for sea level rise. The FEMA guidelines for establishing flood protection from the 100-year flood event are different for shoreline areas and for inland areas. The guidelines that apply to the project site include the Code of Federal Regulations (CFR) for the National Flood Insurance Program, 44 CFR Parts 59, 60, 65 and 70.

As illustrated in **Figure 3-12**, much of the Development Areas are at an existing elevation that is above the 100-year flood protection elevation of 5.1 (City of Alameda datum). This elevation is established by the 100-year tidal elevation of 3.6 (City of Alameda datum) plus 18-inches of sea level rise. Portions of the Development Areas are below the elevation of the 100-year flood protection. These areas that are inland would be elevated to an elevation at or above 5.1 by importing material to the project site and raising the site grades. Similarly, the shoreline areas within the Development Areas would be constructed to be at or above the 100-year tidal elevation, plus 18-inches of sea level rise and consideration for wave/wind run up, which ranges from 1 to 4 feet along the project’s shoreline. Accordingly, the elevations of the shoreline areas within the Development Areas would range between 6.1 and 9.1.

The Reuse Areas include historic structures and landscapes that would be preserved. Generally, many of the existing structures are elevated relative to the street elevations. A sample of the existing structures was field surveyed. The majority of these structures had an existing finish floor elevation above the 100-year tidal elevation plus some component of future sea level rise. However, there were some existing structures in the northwest and southwest portions of the project site that have existing finish floor elevations at or below the 100-year tidal elevation. Additionally, the majority of the existing streets within the Reuse Areas are at an elevation below the 100-year tide. Therefore, the initial flood protection system for the Reuse Areas would be comprised of a perimeter system of levees and floodwalls. These perimeter measures would be designed to have a crest elevation that meets FEMA’s guidelines, which include 100-year tidal elevation, plus wave / wind run up, plus 18-inches of sea level rise and plus two-feet of additional freeboard. The wave/wind run up along the Reuse Area shorelines is typically 1-foot. Accordingly, the elevations of the perimeter measures within the Reuse Areas would be 7.1.

Figure 3-13 illustrates the initial flood protection system and minimum elevations throughout Alameda Point.

The Bay Trail outside of the Development and Reuse Areas would mostly be constructed along the shoreline. In some areas the alignment of the Bay Trail will head inland to avoid existing wetlands or to avoid areas planned for constructed tidal wetlands. The minimum elevation of the Bay Trail in these areas shall be in conformance with BCDC’s design guidelines for public use areas along the Bay shoreline. Generally, the Bay Trail would be constructed at or above the 100-year tidal elevation, plus wind / wave run-up, plus consideration for sea level rise.



SOURCE: Carlson, Barbee, & Gibson, Inc., 2013

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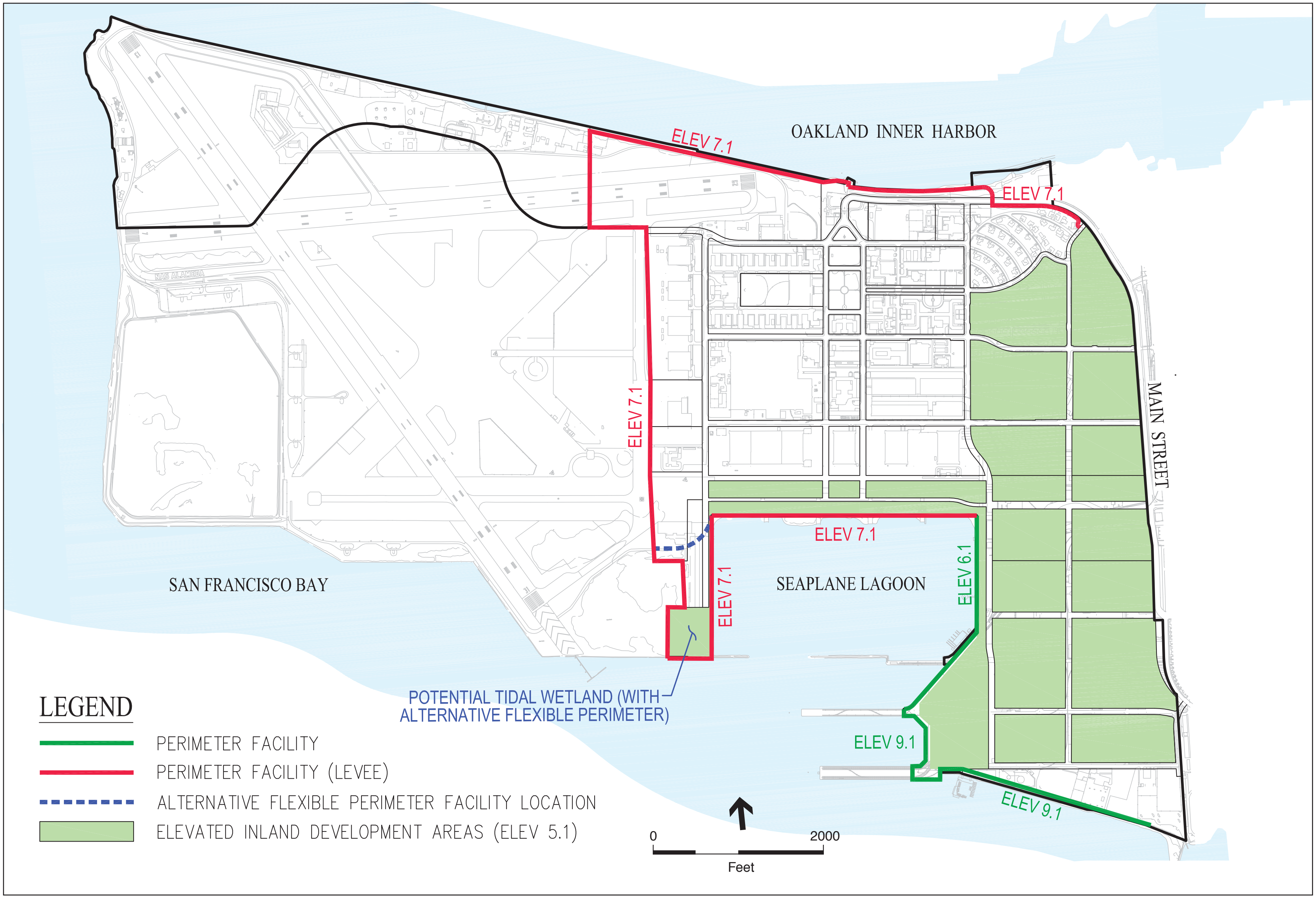
Figure 3-12
Existing Areas of Inundation



SOURCE: Carlson, Barbee, & Gibson, Inc., 2013

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Figure 3-13

Initial Flood Protection

Flood Protection System Adaptations for Future Sea Level Rise

Adaptive Measure Criteria

As previously described, the initial flood protection system would provide flood protection for up to 18-inches of sea level rise. These initial flood protection measures would be designed to be adapted if the amount of future sea level rise exceeds 18-inches. The adaptive measures for the Development Areas would include constructing a perimeter system of levees and floodwalls. The adaptive measures for the Reuse Areas would include elevating the initially constructed perimeter levees and floodwalls. The adapted perimeter measures would be elevated to meet FEMA's guidelines with the necessary amount of sea level rise. The inland edge along the eastern boundary of Alameda Point would rely on protection from sea level rise in excess of 18-inches by regional flood protection measures along the perimeter of the island of Alameda.

A funding mechanism would need to be established to generate long term funding from the Alameda Point residents and businesses to implement the adaptive flood protection measures in the future if necessary.

Figures 3-14 and **3-15** depict the future flood protection system and how the adaptive measures would be implemented for future sea level rise in excess of 18-inches, respectively.

Sea Level Rise Monitoring Program

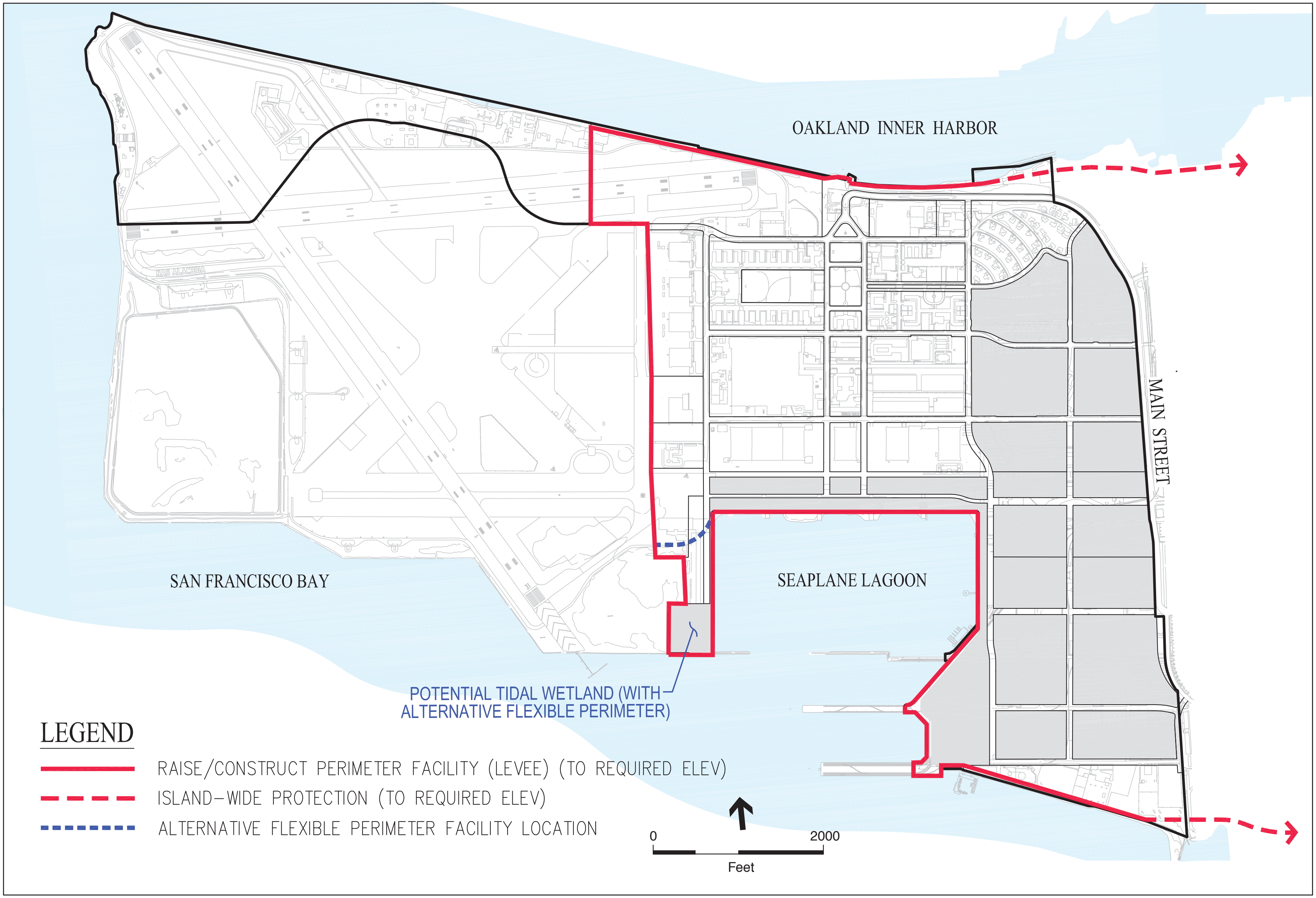
An on-going sea level rise program would be established for Alameda Point. This program would be administered through the City of Alameda. The program would review the sea level rise estimates prepared for the San Francisco Bay by the National Oceanic Atmospheric Administration. The program would also periodically review other relevant publications regarding updated sea level rise estimates that are available at that time. It is anticipated that these reviews would be completed no more than every five years, or more frequent if new regulatory requirements are created to address sea level rise.

Proposed Corrective Geotechnical Measures

The main geotechnical considerations for Alameda Point are similar to those of other waterfront sites in the Bay Area. The considerations include: stability of the north shoreline, liquefaction, and compressible soils.

North Shoreline

The northern shoreline of Alameda Point is adjacent to a portion of the Port of Oakland's shipping channel. The historical dredging of the shipping channel has resulted in the northern shoreline having a steep slope below the water surface, down to the bottom of the channel. The northern shoreline slopes adjacent to the Development and Reuse Areas are marginally stable under static conditions. However, under seismic loads the northern shoreline is unstable and likely to experience deformations.



SOURCE: Carlson, Barbee, & Gibson, Inc., 2013

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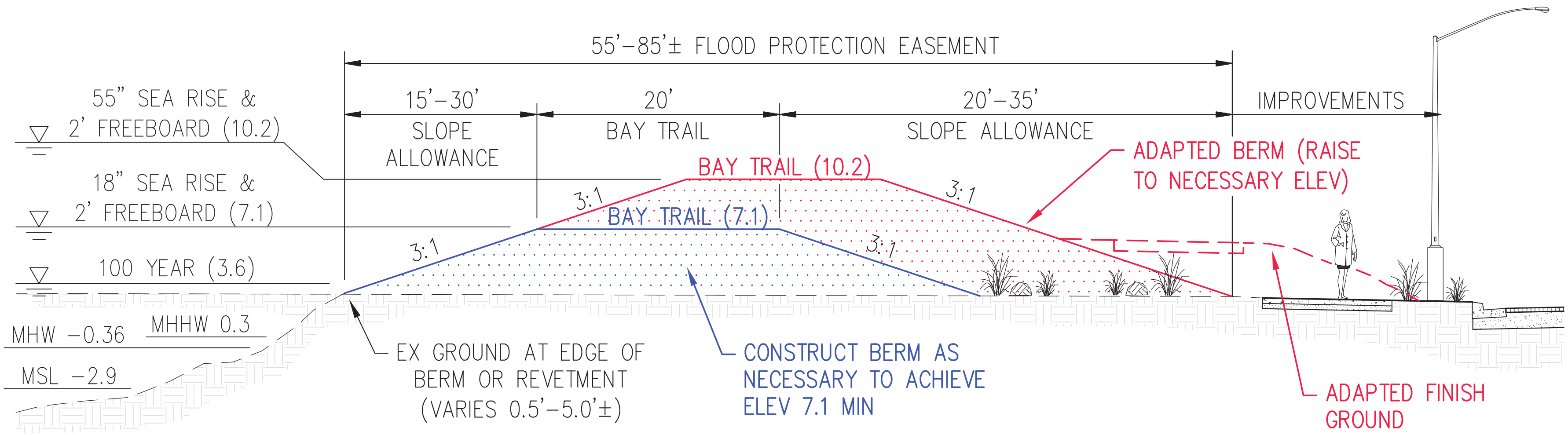
Figure 3-14
Adapted Flood Protection



RAISE BERM OR REVETMENT

NOT TO SCALE

NORTH

SOURCE: Carlson, Barbee, & Gibson, Inc., 2013

Alameda Point Project . 130025

Figure 3-15
Flood Protection
Adaptive Measures

For the portion of the northern shoreline adjacent to the Reuse and Development Areas a significant setback from the shoreline is not feasible. There are existing key components of infrastructure, such as Main Street, Pump Station 1 and the 20-inch force main, within the zone of potential deformation. Therefore, strengthening of the shoreline would be necessary in these areas to reduce the loss or damage of these facilities in a seismic event. The most cost effective shoreline stabilization measure is anticipated to be performing ground improvement such as soil/cement mixing. Because both the liquefiable fill and Young Bay Mud impact the seismic slope stability, the soil/cement mixing would need to extend about 40 feet below the ground surface to the bottom of the Young Bay Mud layer. Other shoreline improvement measures, such as a levee and flood protection system could be constructed in conjunction with the improvement area. An alternative to soil/cement mixing would be construction of a structure, such as a bulkhead wall.

There are no corrective measures proposed for the remainder of the northern shoreline adjacent to the Northwest Territories. This area is generally planned for passive open space uses that can accommodate the potential deformations in a seismic event. Any critical or important improvements or amenities planned within the Northwest Territories would be located outside of the zone of deformation. Otherwise, additional shoreline stability measures would be required in these areas.

Liquefaction

The project site is underlain by potentially liquefiable soils. The amount of potential liquefaction settlement and lateral spreading are greater than typical structures and infrastructure can tolerate without corrective measures. Ground improvement techniques would likely be necessary to reduce the liquefaction potential of the sandy deposits at the project site to levels that improvements can be designed to tolerate. Liquefiable soil can be addressed by either dynamic impact/vibration to densify the soil or mixing with cement to create zones of non-liquefiable soil. The following are four methods of corrective measures that may be implemented to address liquefiable soils:

- Deep Dynamic Compaction (DDC)
- Rapid Impact Compaction (RIC)
- Vibratory Replacement
- Soil/Cement Mixing

In the Development Areas, DDC would be the most applicable and cost effective liquefaction mitigation method. DDC results in relatively large noise and vibration impacts, so a buffer zone of up to 100 feet would be necessary from any existing structures to minimize impacts. Inside this buffer zone, other ground improvement methods such as rapid impact compaction, vibratory replacement or soil/cement mixing would be implemented.

In the Reuse Areas, liquefaction mitigation measures would be constrained by existing structures and utilities. Ground improvement techniques are not possible for existing buildings; therefore, potential liquefaction induced settlement must be mitigated structurally. Where new utilities are to be installed, RIC could be used to densify the top 15- feet of liquefiable material, and the utilities could be designed to withstand settlement up to 8-inches and differential settlement up to 4-inches. Alternatively, vibratory replacement or soil/cement mixing could be used in these areas to reduce settlement of utilities and other improvements; total and differential settlement using these approaches would be less than using RIC. Existing utilities that would remain in place can be supported by grouting underneath the utility.

Compressible Soil

Soft, highly compressible Young Bay Mud deposits exist with varying depths throughout the project site. The locations and thicknesses of these deposits are variable, ranging from nil to over 130-feet in thickness. The Young Bay Mud can settle due to loading from any new fill or from new structures constructed at the site.

A surcharge program is anticipated to be implemented in the Development Areas. The surcharge would achieve the amount of pre-consolidation to reduce the risk of settlement associated with the planned structures and fill material planned for these areas. The surcharge program would include both the building areas, street areas and perimeter flood protection measure areas. This program is intended to eliminate the potential for long term settlement within the Development Areas. Wick drains would be implemented as part of the surcharge program for areas with Young Bay Mud thicker than 20 feet or when surcharge timeframes are desired to be accelerated.

New structures proposed within the Reuse Areas would be constructed on a deep foundation system. New utilities would be designed to accommodate the anticipated remaining amount of potential long-term settlement. The perimeter flood protection measures surrounding the Reuse Areas would either be surcharged or be supported on a soil/cement mixed corridor.

Proposed Utility Systems

Infrastructure Phasing and Implementation

The existing utility systems within the project site are aged and require rehabilitation or replacement in order to support redevelopment. The backbone infrastructure improvements required for the redevelopment of Alameda Point would be phased to match the development phases as closely as possible. The required improvements for each phase would include demolition, flood protection, corrective geotechnical measures, site grading, utilities, streets and transit and park improvements. In most cases, each phase of development would construct only that portion of infrastructure required to support the proposed uses and surrounding existing uses to maintain financial feasibility of the project. In some cases, initial phases of development would need to construct components of the backbone infrastructure that will also benefit subsequent phases.

The implementation of the backbone infrastructure would require constant coordination. Certain areas may develop concurrently, while other areas may only develop in smaller phases or on a “project-by-project basis.” An Alameda Point Infrastructure Fee Program (APIFP) would be established to facilitate the infrastructure implementation and provide a mechanism to coordinate adequate funding. The APIFP would collect fees from both Development and Reuse areas to generate funds to construct infrastructure with site-wide benefits. The APIFP would also provide repayments to initial developments that constructed infrastructure improvements, which benefit larger areas.

Wastewater

The proposed project would replace the entire existing wastewater collection system within the project site. The onsite collection system collects and conveys the wastewater generated within the project site to an existing pump station (Pump Station 1) located near the Main Gate. This pump station, along with other off-site transmission facilities including a force main, siphons and interceptor trunk mains, are owned and maintained by EBMUD and convey the project site wastewater to EBMUD's Main Wastewater Treatment Plant (MWWTP)located at the eastern landing of the Bay Bridge. These EBMUD transmission and treatment facilities are not proposed to be improved with the proposed project.

Wastewater Demand and Treatment

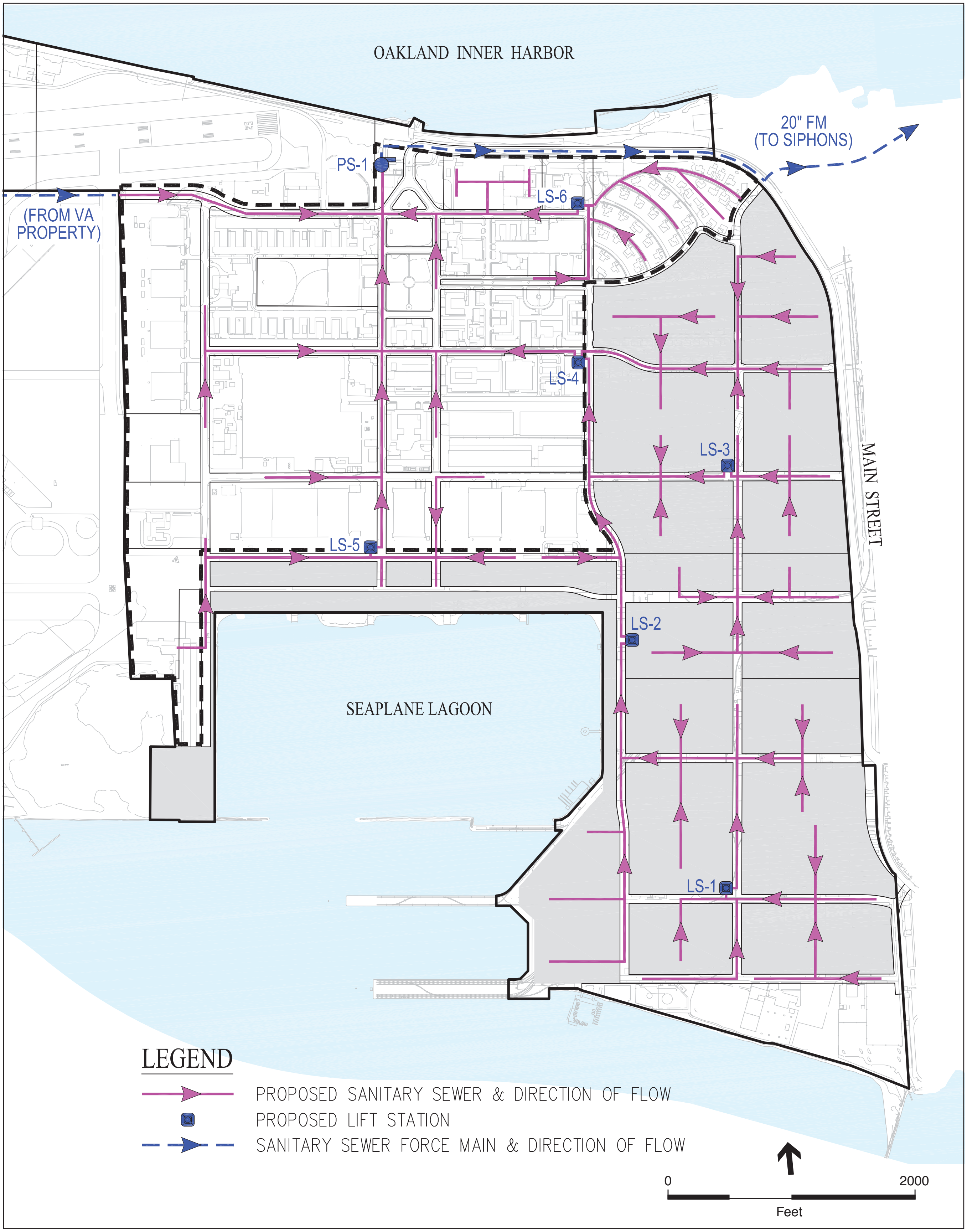
The total estimated peak wastewater generated by the full build-out of the redevelopment of Alameda Point is approximately 2.16 MGD. Conservatively, this estimated total flow includes the wastewater anticipated to be generated by the Department of Veteran Affairs project (VA Project) proposed on the northwestern portions of Alameda Point, which is not part of the proposed project or project site. The wastewater flow generation factors for the various proposed land uses are based on the current City of Alameda design criteria. The existing peak wastewater flows from Alameda Point were quantified as 1.93 MGD by EBMUD's 2012 Flow Modeling and Limits Report.

The redevelopment of Alameda Point would increase the peak wet weather flow by approximately 0.23 MGD above the existing peak flows. This takes into consideration that replacement of the existing infrastructure is expected to reduce peak infiltration/inflow and partially offset the projected increase in base wastewater flow. Based on the current total peak wastewater flow from the City of Alameda of 28 MGD, the estimated maximum additional flow from Alameda Point represents an increase of less than 1 percent in current peak wastewater flow conveyed through the Alameda Siphon. It represents an even smaller percentage of the current peak wastewater flow of 107 MGD in EBMUD's South Interceptor just downstream from the Alameda Siphon.

Proposed Wastewater Collection

A new wastewater collection system would be installed within the Development Areas, where large-scale areas of new construction are anticipated. The proposed collection system would include gravity pipelines, ranging in size from 8-inch to 24-inch in diameter, and 6 lift stations. The proposed system would connect to the existing Pump Station 1 located at the Main Gate. The existing wastewater system, pipelines and pump / lift stations, within the Development Areas would be replaced in phases consistent with the development buildout. The proposed wastewater collection facilities would be installed within all backbone streets within the Development Areas. **Figure 3-16** illustrates the proposed onsite wastewater collection system schematic within the Development Areas.

The existing wastewater collection system within the Reuse Areas would be replaced over time. Initially, the Reuse Areas would continue to utilize the existing wastewater collection system through an enhanced maintenance program. Each proposed development within the Reuse Areas



SOURCE: Carlson, Barbee, & Gibson, Inc., 2013

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Figure 3-16
Proposed Sanitary Sewer
Ultimate System

would be responsible for investigating and documenting the condition of the existing collection facilities that collect and convey the wastewater from that specific site. The anticipated enhanced maintenance improvements include cleaning and lining of existing pipelines and manholes to address infiltration and inflow. Also, it is anticipated that portions of the existing pipelines would be required to be replaced to address adverse flow conditions and areas that have settled resulting in stagnant wastewater conditions. Additionally, each development project within the Reuse Areas would replace the wastewater lateral serving that site, consistent with the City of Alameda's Private Sewer Lateral Replacement Ordinance.

Ultimately, the wastewater collection system within the Reuse Areas would be replaced. The new system would be installed and funded through the Alameda Point Infrastructure Fee Program, infrastructure grant programs or private development projects. The proposed collection system would be similar to the system proposed within the Development Areas, including new gravity pipelines and lift stations.

Stormwater

Stormwater runoff at Alameda Point is currently conveyed directly to outfalls by a storm drain system that is owned and operated by the City of Alameda. The system is currently operable, but does not meet current standards in several regards. These include notable capacity limitations and the fact that there is no stormwater quality infrastructure in place at present. The proposed project would replace the entire stormwater management system.

The existing drainage patterns of the project site are consistent with the existing topography. Stormwater runoff from the northern half of the project site, generally north of West Midway Avenue, is collected and conveyed by the existing system and discharged to the Oakland / Alameda Estuary through multiple outfalls along the northern shoreline. Stormwater runoff from the southeastern portion of the site is collected and conveyed by the existing system and discharged to San Francisco Bay through multiple outfalls along the southern shoreline. Stormwater runoff from the central portions of the project site is collected and conveyed to the Seaplane Lagoon through multiple outfalls along the Lagoon shoreline.

The watersheds for the existing stormwater system are almost exclusively limited to areas within the project site. However, there is one notable exception. Off-site runoff from a small watershed located along Main Street immediately to the north of Ralph Appezzato Memorial Parkway is collected and conveyed to the southwest to an outfall into the Seaplane Lagoon.

Proposed Stormwater Management System

A new stormwater collection system would be installed at Alameda Point. The proposed system would integrate new pipelines, pump stations, multi-purpose basins, and outfalls with water quality treatment features designed to meet current City of Alameda, County of Alameda, and Regional Water Quality Control Board design criteria. The new stormwater management system would also be designed to address the potential impacts of future sea level rise through forward planning of adaptation strategies and infrastructure.

The proposed stormwater collection system would maintain the existing drainage patterns of the project site. Additionally, the proposed system would significantly reduce the number of outfalls to the surrounding waters in order to facilitate and minimize future maintenance obligations of the City of Alameda. Preliminary system design calls for a total of approximately five outfalls, down markedly from over 30 outfalls at present. The proposed outfalls would be constructed at existing outfall locations to minimize potential environmental impacts associated with installation and operation of these facilities. Where used, stormwater pump stations would include redundant pump systems, alarms, and emergency backup power supplies to reduce the risk of flooding by ensuring high levels of reliability.

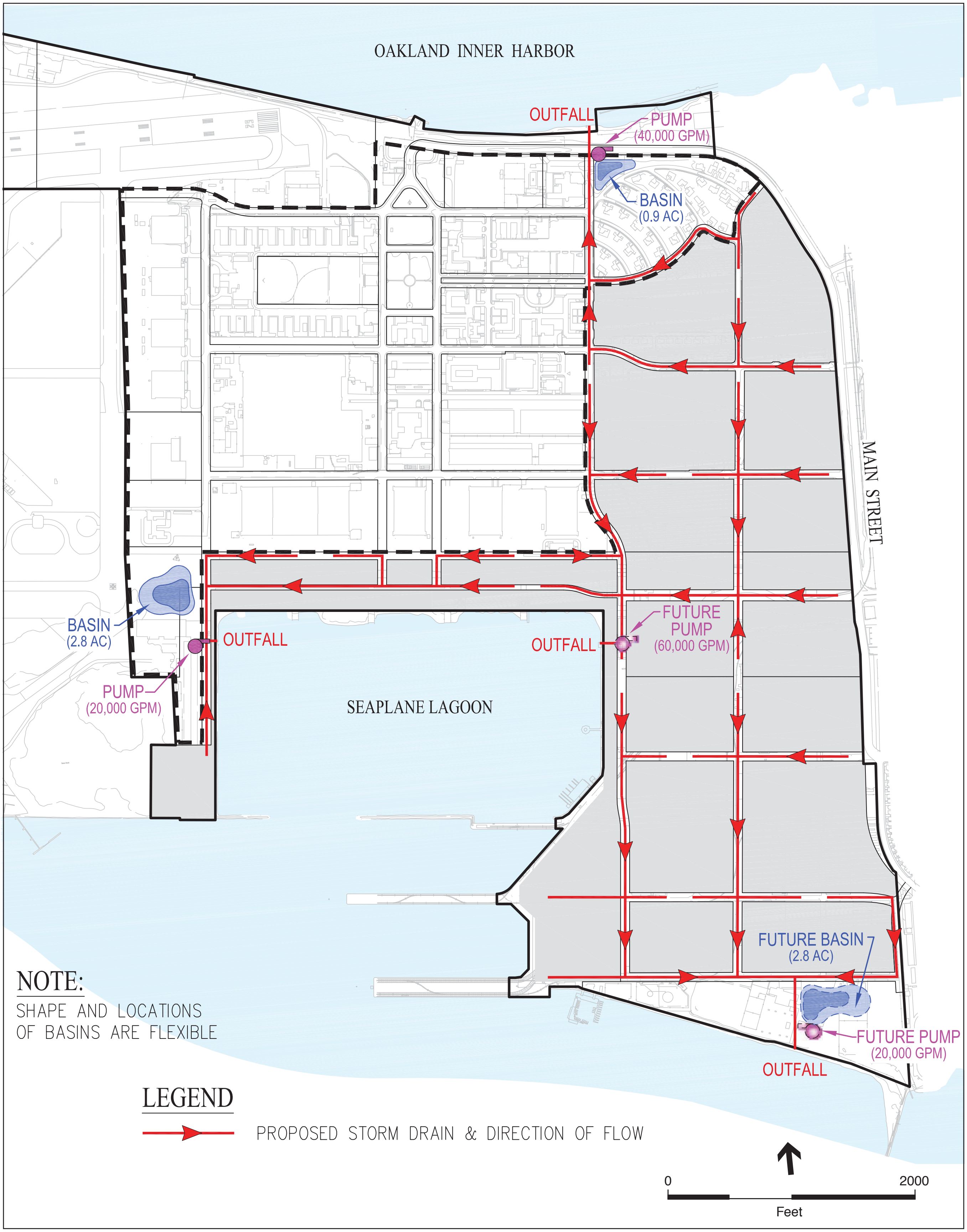
The new stormwater system would be built within all Development Areas. In the Reuse Areas, the downstream components, including trunk stormwater lines, multi-purpose basins, pump stations, and outfalls, would be installed at the initial construction stages. Ultimately, incremental replacements and installation of new stormwater management infrastructure would be completed throughout the Reuse Areas.

An entirely new stormwater management system will be installed within the Development Areas. The proposed system would include gravity storm drain pipes ranging in size from 12 to 60 inches in diameter and new outfall structures. These facilities would be installed within all backbone streets in the Development Areas. **Figure 3-17** illustrates the proposed onsite stormwater collection system schematic within the Development Areas.

Storm drain lines would drain by gravity to the respective outfall locations, which would be equipped with flap gates and energy dissipation to control discharge to the receiving waters. Storm drain pipes would be designed to accommodate settlement at locations where long-term differential settlement is considered possible. Development areas may also require future pump stations and/or multi-use stormwater basins as an adaptive response measure to future sea level rise as discussed later.

The Reuse Areas, with their constraints on building and street replacement, would require a stormwater management system that can function effectively with many areas of low ground elevation. These low elevations would require stormwater pump stations to meet City design standards, the latter to be met in pace with rehabilitation activities. **Figure 3-18** illustrates the ultimate stormwater collection system schematic within the Reuse Areas.

Initially, the Reuse Areas would continue to utilize the existing onsite stormwater collection system with improvements limited to the downstream components of the system. The new downstream facilities would include major storm drain trunk lines, pump stations, multi-purpose basins, and outfalls and would connect to the existing onsite pipe networks to intercept runoff flows and convey them to the receiving waters. These initial improvements would work in conjunction with perimeter levees and floodwalls to minimize the risk of flooding within the Reuse Areas and provide for adaptation to future sea level rise.



SOURCE: Carlson, Barbee, & Gibson, Inc., 2013

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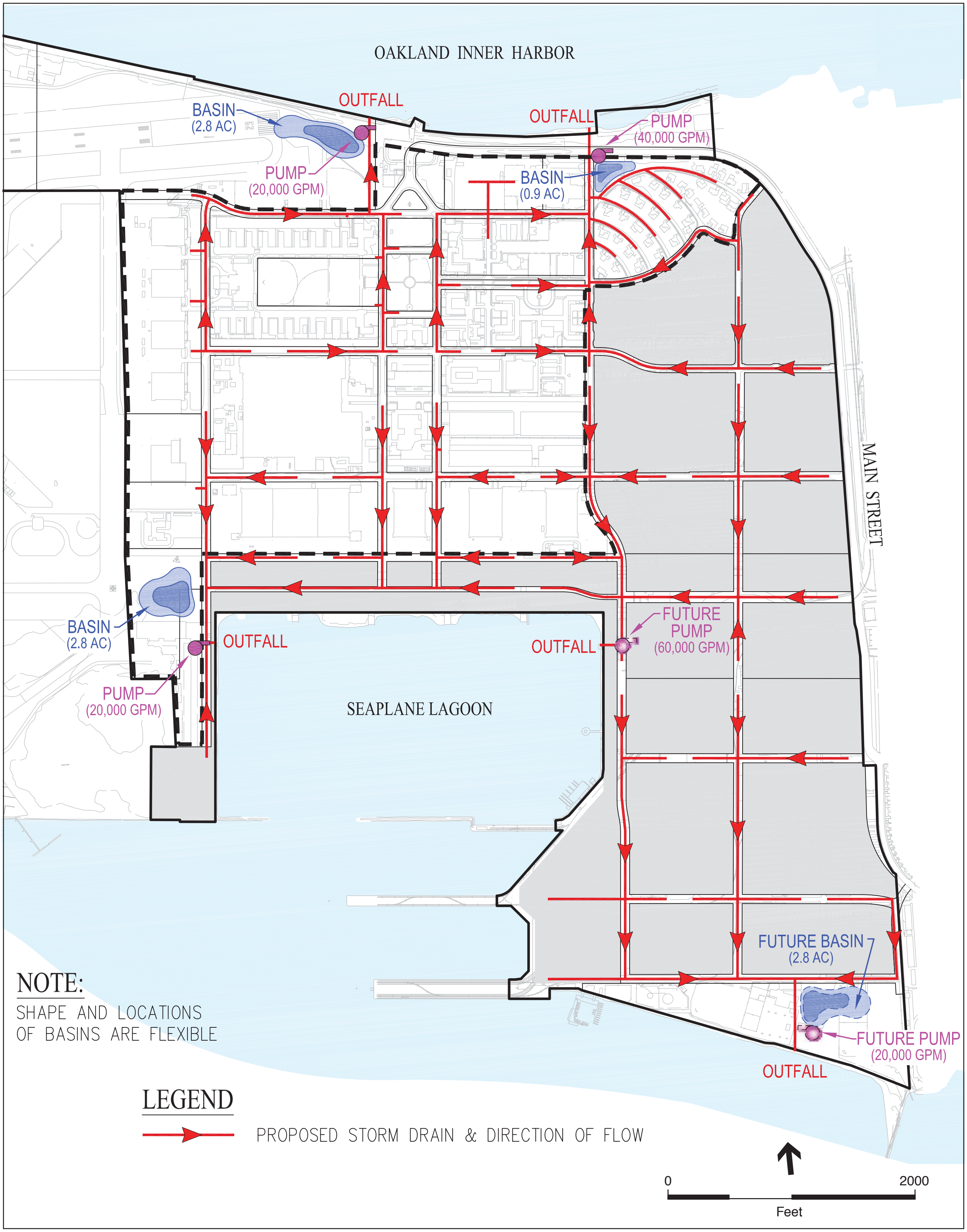
Figure 3-17
Proposed Storm Drain
in Development Areas



SOURCE: Carlson, Barbee, & Gibson, Inc., 2013

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Figure 3-18
Proposed Storm Drain
Ultimate System

The remaining portions of the stormwater management system would be progressively improved through an enhanced maintenance program. The enhanced maintenance program would rehabilitate the existing system in a step-wise manner to address deficiencies. Each proposed development within the Reuse Areas would be responsible for investigating and documenting the condition of the existing stormwater infrastructure within that specific site. Any deficiencies identified would be addressed at that time and funded by that development project to the satisfaction of the Public Works Director. Anticipated enhanced maintenance improvements include cleaning and lining of existing pipelines and manholes as well as required replacement of existing pipelines to address adverse flow conditions in areas that have settled. Additionally, each development project within the Reuse Areas would replace the stormwater facilities inside each respective parcel as presented in Figure 3-18.

Ultimately, the enhanced maintenance program would lead to replacement of the entire stormwater management system within the Reuse Areas. The collection system would connect to the downstream facilities installed with the initial phases of construction and provide a system that full complies with the City's 25-year stormwater design criteria. The new system would be installed and be funded through the Alameda Point Infrastructure Fee Program, infrastructure grant programs or private development projects

Adaptation to Sea Level Rise. Adaptation strategies for potential sea level rise would be an integral part of stormwater management planning at Alameda Point. The stormwater management systems would be designed such that initial construction accounts for 18-inches of sea level rise. The systems would also be designed to incorporate adaptive measures that are capable of accommodate up to 55-inches of future sea level rise.

Several aspects of the planning process are important to note with respect to stormwater infrastructure design and sea level rise. First and foremost among these is the understanding that, with significant enough increases in sea level, safely and effectively discharging stormwater to the Bay would require some combination of onsite detention storage and pump capacity. Storage and pump capacity are complimentary infrastructural components. That is to say, larger onsite detention storage capacity reduces the required pumping needs and vice versa. In fact, with sufficiently large storage capacity (e.g., equal or nearly equal to the total design storm runoff), stormwater pumping would not be required at all. Conversely, where space and land use constraints prevail, large detention storage facilities may not be practical and increased pump capacity would be required.

Where ground elevations are high enough, conventional gravity storm drain systems can be designed to meet City 25-year-stormwater design criteria. However, as the difference between ground and coincident tide elevations decreases, the aforementioned need for storage/pumping becomes increasingly necessary if City criteria are to be met. The direct implication for Alameda Point is that even the near-term construction sea level rise criteria (i.e., 18 inches above current levels) would require storage/pumping facilities for the lower-lying Reuse Areas.

Finally, it is important to understand that adaptive management with respect to stormwater conveyance is not unbounded. Once sufficient storage and/or pump capacity is in place to handle the entire runoff from the design storm without gravity outflow, tide levels in the Bay no longer matter significantly and further increases in sea level (even above the maximum adaptive criteria) can be readily addressed by only further elevating the perimeter flood protection measures.

Proposed Multi-Purpose Basins and Pump Stations. The preliminary modeling efforts confirmed that multi-purpose stormwater basins and pump stations would be integral components necessary to ensure the reliability of the system and achieve the specified design criteria, effectively minimizing the risk of flooding within the project site.

The multi-purpose basins are only proposed for watersheds that include parks / open spaces uses near the downstream portion of the system. The locations of the multi-purpose basins are flexible and can be adjusted such that the basins remain within reasonable proximity to the outfall. Basins would function in an “off-line” manner to enhance their multi-use functionality. Stormwater runoff would be routed to a vault structures at the downstream ends of the storm drain systems. Each vault structure would function as the wet well for the stormwater pumps in that system and would have an overflow weir connecting to the multi-purpose basin. The vault structures would be connected to the outfalls by both gravity lines and a force main from the pumps. This would allow discharge by gravity flow when storm events coincide with lower tide conditions. In this configuration, stormwater runoff would only enter the basins via the overflow weir when inflow to the vault exceeds the combined gravity and pumped discharge capacity. The off-line configuration would markedly reduce the frequency and quantity of runoff directed to each basin.

The basins would be designed to have two tiers, allowing for public use of the upper tier, potentially including active recreation facilities such as sports fields. The lower tier would be occupy roughly one quarter of the basin area and would be subject to more frequent inundation than the upper tier area. The upper tier can be managed such that it is flooded in only the largest storm events. Preliminary design calls for the floor elevation of the lower tier in each basin to generally be set five feet below the adjacent grade. The upper tier would encompass the remaining 75 percent of the basin area and would generally be only three feet deep in comparison to adjacent grade elevations outside the basin. There would need to be appropriate signage and management of these areas to prohibit public uses during times of anticipated large storm events. Each basin would be drained (by gravity flow and/or pumping via the vault structures) within 24-hours of each storm event, limiting the periods of inundation to only a couple of days even if back to back storms occur. The multi-purpose basins are intended to be landscaped and under-drained to create a usable amenity for the community.

Proposed Outfall Structures. The proposed outfall structures would be located at locations of existing stormwater outfalls. The outfalls would include provisions for both gravity pipes and the pump station force main pipe to discharge to the receiving waters. The proposed gravity pipeline outfall would be set at an elevation above the current mean low water, -5.0 feet (City of Alameda Datum), allowing for the conveyance pipelines to gravity drain at low tides and to facilitate inspection and maintenance activities. The force main pipe outfall would be set above the gravity pipeline at an elevation providing minimum or greater cover over the pipe. Outfall structures would be constructed on the shoreline and include rock slope protection designed to maintain a stable configuration. Interior to the outfall structures would be separate manholes with backflow prevention tide valves and gate valves. This configuration would protect the tide valves from wave action, allow the manholes to be closed off from the Bay to facilitate maintenance of the tide valves, and prevent high tides from encroaching into the collection systems multi-purpose basins.

Proposed Water Quality Treatment Measures. The Alameda Countywide Clean Water Program oversees the implementation of the Municipal Regional Stormwater NPDES Permit (MRP) that was issued for urban stormwater discharges from Alameda County, including the City of Alameda. The MRP outlines a number of regulatory goals and requirements for stormwater management for new development and redevelopment sites. The permit previsions require the implementation of Low Impact Development (LID) measures as described in Section C.3.c of the MRP. These measures include source control, site design, and treatment requirements to reduce the amount of stormwater runoff and improve the quality of the stormwater runoff.

The MRP identifies appropriate LID stormwater management measures such as rainwater harvesting and re-use, infiltration, evapotranspiration, and biotreatment, while emphasizing that biotreatment systems are only to be used where it is practically infeasible to utilize the other three cited measures. Alameda Point is a practically infeasible site for large-scale rainwater harvesting and infiltration by utilizing the Alameda Countywide Clean Water Program's Infiltration/ Harvesting and Use Feasibility Screening Worksheet, as determined by the analysis conducted for the MIP. Accordingly, biotreatment would be the primary method of accomplishing stormwater treatment within Alameda Point. The LID biotreatment measures that would be implemented throughout Alameda Point would include bio-retention planters, street planters, bioswales, subgrade infiltration areas, permeable paving and any other treatment measures approved by the Regional Board. Permeable surfaces (pavement and concrete) have been installed as part of the adjacent Bayport development, however, because of shallow groundwater they were ineffective and had to be removed because they did not function properly. Implementation of these types of surfaces is not allowed without approval from the Public Works Director and a determination that the groundwater elevation would not interfere with the functioning of these units. The following describes the water quality plan for the Development and Reuse Areas:

> ***Development Areas*:** The new backbone streets would be constructed with water quality facilities that provide treatment for the runoff from the impervious areas within the street right-of-way. These streets are anticipated to include linear bio-retention planters, bioswales and street planters providing bio-filtration of stormwater within the landscape strips of the street cross-section. The water quality improvements within the backbone streets would be phased to closely match the development phasing.
>
> The onsite / in-tract areas of development parcels within the Development Area would be required to be designed with LID principle and treat the runoff interior to that parcel. This treatment could be accomplished by allocating and integrating water quality treatment measures within onsite / in-tract landscape areas. Development parcels also may implement onsite / in-tract rain harvesting systems, where feasible.
>
> With implementation of the water quality measures in the backbone streets and onsite / in-tract development parcels, all runoff from impervious areas within the Development Areas

would be treated in compliance with MRP. When the City of Alameda determines that it is not feasible or practical for a development parcel to provide all of the necessary treatment for that parcel, then that development parcel may implement water quality improvements elsewhere, within Alameda Point, consistent with the “Alternative or In-Lieu Compliance” previsions outlined in Section C.3.e of the MRP.

Reuse Areas: Water quality improvements within the Reuse Areas would be implemented incrementally over time. Development applications or long term leases for Reuse parcels would be required to construct onsite water quality improvements to provide treatment for the Reuse parcel. At this time, the water quality treatment of these existing streets is exempt from the requirements of the MRP. However, as each backbone street is improved with the Reuse Areas, water quality improvements would be implemented, to the maximum extent feasible, to treat the runoff from that street.

Water Quality Certification

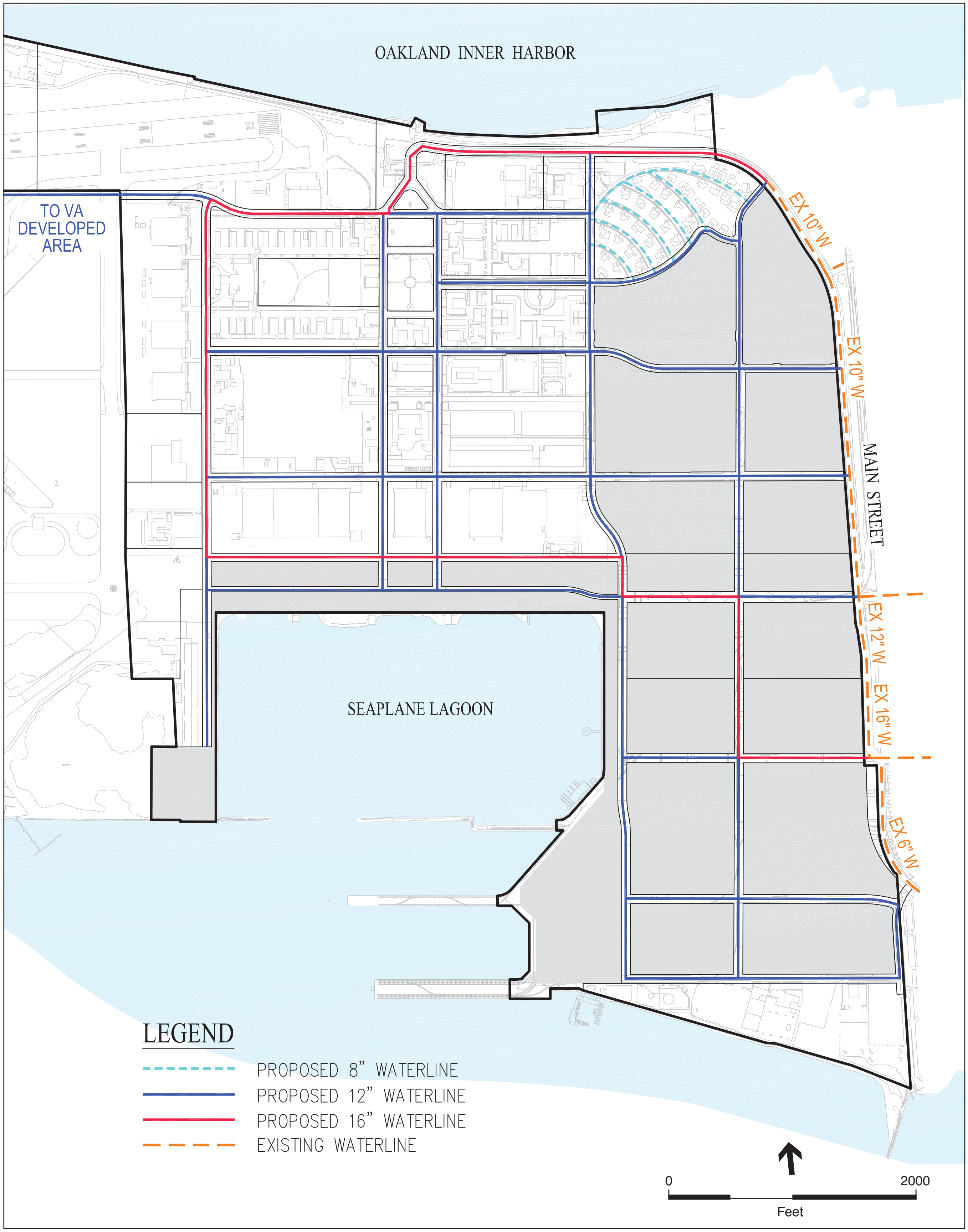
A water quality certification, Section 401, would be required from the Regional Water Quality Board (RWQCB) for activities within wetlands or below the ordinary high water line. This certification would be required for the outfall construction at Alameda Point. The project would need to demonstrate compliance with the water quality regulations of the MRP for the storm runoff from the project site. As described above, the implementation of the water quality improvements would be phased in the Development Areas and incremental in the Reuse Areas. Accordingly, it is anticipated that a site-wide water quality certification would be pursued for all outfalls and waste discharge requirements would be established for the site outlining how the water quality compliance will be achieved over time. The waste discharge requirements would conclude and be achieved once all required water quality treatment improvements have been constructed within the tributary area to each outfall watershed.

Potable Water

The proposed project would replace the entire existing potable water distribution system within the project site. EBMUD supplies potable water to the project site. The onsite distribution system connects to the existing EBMUD pipelines within Main Street along the eastern edge of the project site.

The total estimate average daily demand of potable water at full buildout of the redevelopment of Alameda Point is approximately 1.83 MGD. Conservatively, this estimated total demand includes the estimated water demand anticipated for the VA Project. EBMUD’s Water Supply Management Program 2040 has included the water demand projections associated with the land uses included in the 2003 GPA maintaining adequate supply allocation to the project site.

A new potable water distribution system would be installed within the Development Areas at Alameda Point. The proposed distribution pipelines would connect to the existing EBMUD water facilities in Main Street. The existing water system would be replaced with the existing system in phases consistent with the development buildout. The proposed distribution system would range in size from 8-inches to 16-inches in diameter. The proposed water distribution facilities would be installed within all backbone streets providing reliable potable and fire water to all development parcels within the Development Areas. **Figure 3-19** illustrates the proposed potable water system.



SOURCE: Carlson, Barbee, & Gibson, Inc., 2013

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Figure 3-19
Proposed Ultimate Water System

The Reuse Areas within Alameda Point initially would continue to utilize the existing potable water distribution system through an enhanced maintenance program. This program would rehabilitate the existing system to address deficiencies. Each proposed development within the Reuse Areas would be responsible for investigated and documenting the condition of the existing distribution facilities directly adjacent to that specific site. Any deficiencies identified would be addressed at the time of that development to the satisfaction of the Public Works Director. Additionally, each development project within the Reuse Areas would replace the potable and fire water laterals serving that site.

The proposed distribution system would be similar to the system proposed within the Development Areas, including new pipelines and appurtenances. The new system would be funded through the Alameda Point Infrastructure Fee Program, infrastructure grant programs or private development projects.

Recycled Water

The proposed project would construct a backbone network of recycled water distribution pipelines throughout the project site. Currently, there is not an existing source of recycled water at Alameda Point. EBMUD is implementing the East Bayshore Recycled Water Project, which currently supplies recycled water to portions of Oakland and Emeryville. EBMUD plans to extend their recycled water service to the City of Alameda, including Alameda Point. The East Bayshore Recycled Water Project will eventually construct a recycled water supply line from West Oakland, across the Oakland **-** Alameda Estuary, and into the western portions of Alameda. Alameda Point would connect to the existing recycled water facilities constructed within the Bayport development, near the intersection of Stargell Avenue and Coral Sea Street.

A new recycled water distribution system would be installed within Alameda Point. A network of recycled water pipelines would be constructed within the proposed rights of ways of the backbone streets and would range in size from 6 to 12 inches. The recycled water facilities would be designed and constructed in accordance with EBMUD’s regulations, standards and specifications.

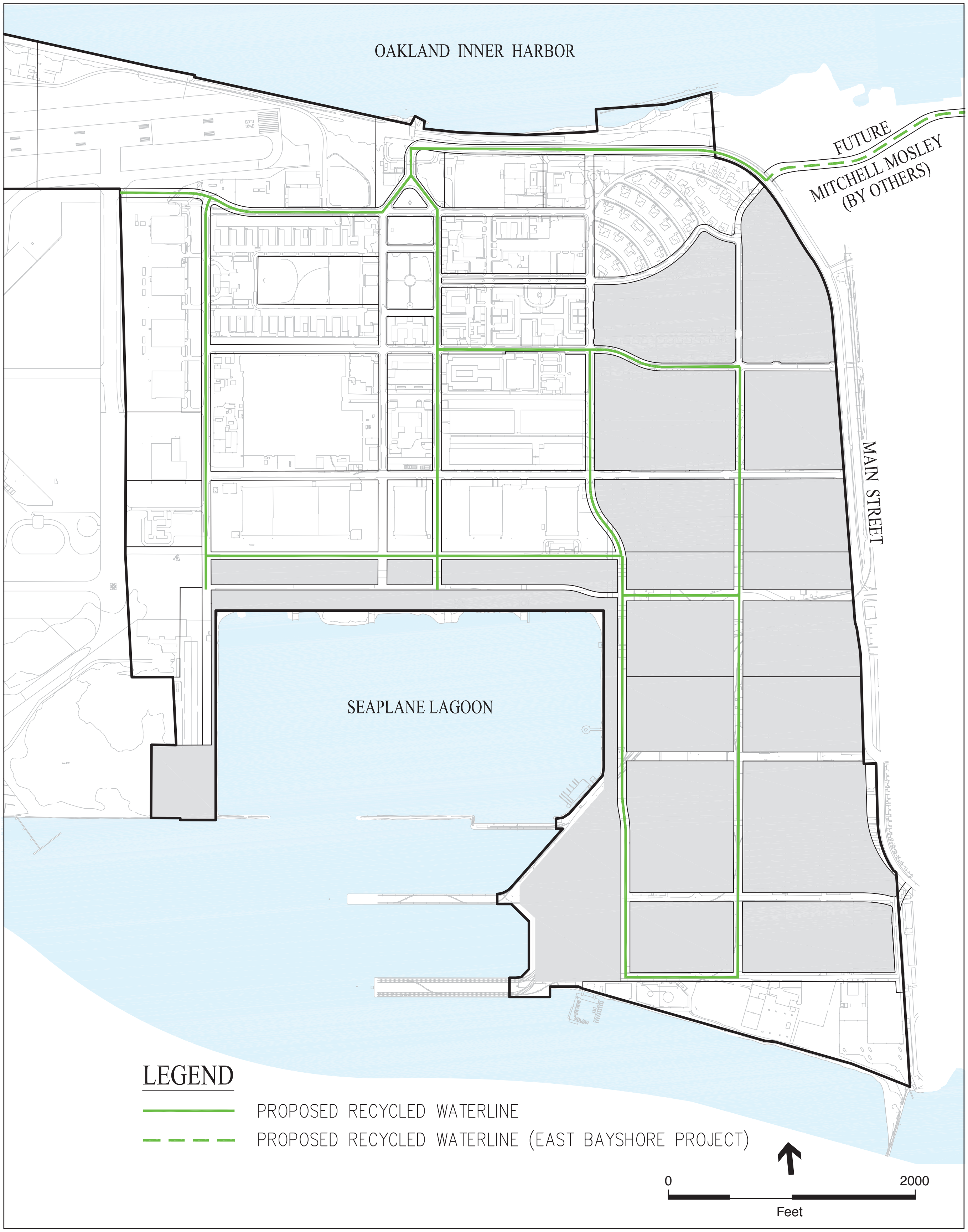
This network of facilities would allow for continued growth of recycled water uses and flexibility for the Development and Reuse Areas to use this resource. The system would also extend to all anticipate large open space or park facilities, such as the Northwest Territories, Sports Complex and Enterprise Park areas. **Figure 3-20** illustrates the proposed recycled water system.

Dry Utilities

The dry utilities at the project site include electric power, natural gas, communications and cable television. The proposed project would replace the existing dry utility systems over time.

Electric System

Alameda Municipal Power (AMP) owns and operates the existing electric power facilities at the project site and throughout the City of Alameda. The existing electric system at Alameda Point consists of 115kV transmission, 12kV and 4kV distribution facilities. The proposed project would



SOURCE: Carlson, Barbee, & Gibson, Inc., 2013

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Figure 3-20
Proposed Recycled Water

replace the existing distribution facilities. The transmission facilities and substation would be preserved. Electricity is supplied to the project site via the existing overhead 115kV transmission facilities along Main Street and extending to the east of the project site. These 115 kV facilities connect to the Cartwright Substation within the project site near the Main Street and W. Atlantic Avenue intersection. The Cartwright Substation is a critical component of the existing electric system and is intended to remain in service throughout the redevelopment of Alameda Point. The substation provides local electric distribution to Alameda Point and portions of the surrounding areas omitted to the east.

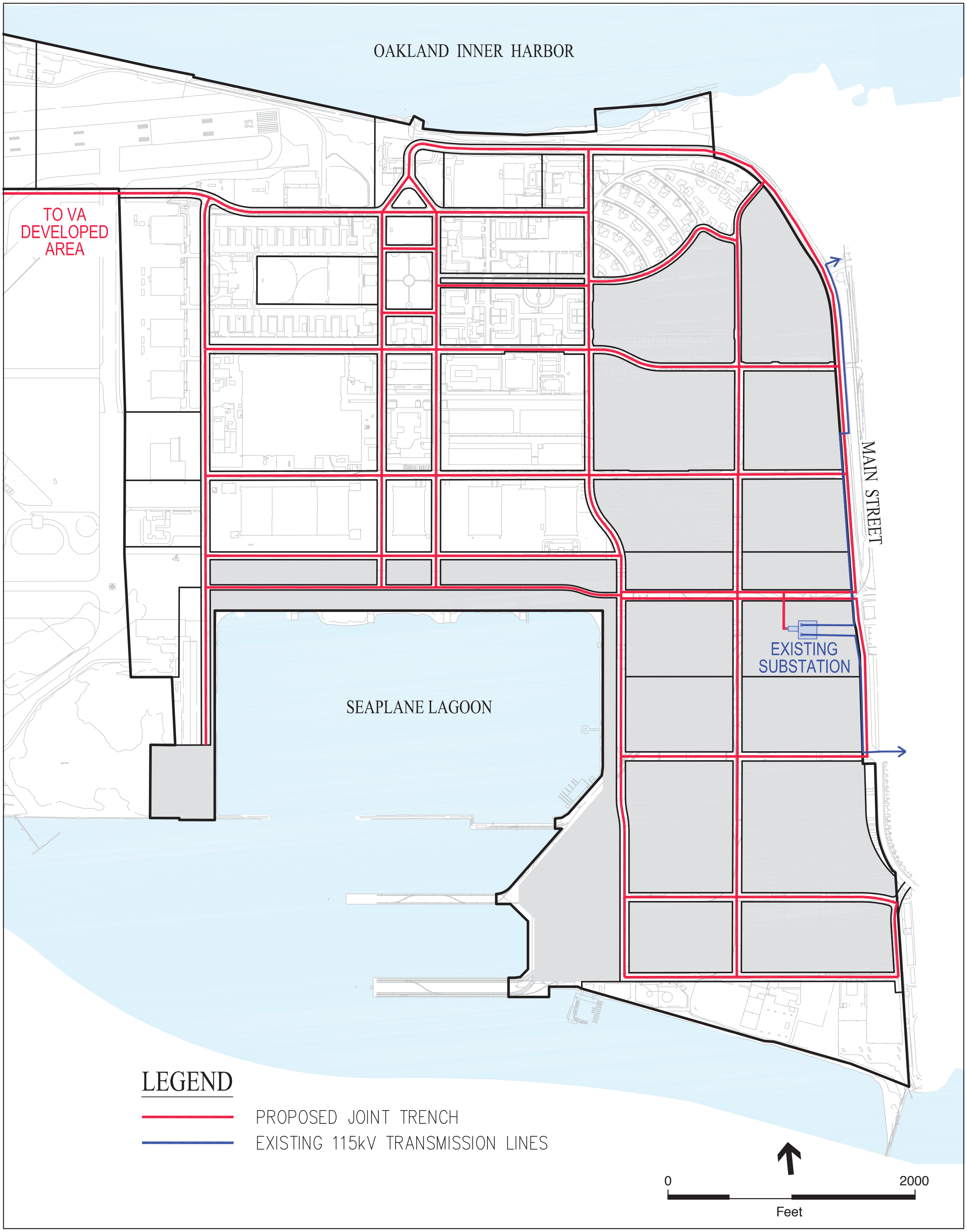
The estimated total coincident electric demand for the ultimate redevelopment of Alameda Point is approximately 40 – 50 MVA. Conservatively, this estimate total demand includes the estimated electric demand anticipated for the VA Project. The existing transmission facilities and Cartwright Substation have adequate capacity for the Project’s estimated ultimate electric demand.

The existing 115kV overhead transmission facilities would remain and continue to provide electric power to the project site. The 115kV pole lines directly east and connecting to the Cartwright Substation would be preserved. An easement, approximately 140-feet wide, would be dedicated to AMP for this area, restricting the potential land uses to landscaping or parking areas. The 115kV pole lines along the west side of Main Street would remain but may be relocated to eliminate conflicts with proposed street improvements or development sites. A new 115 kV transmission line must be constructed prior to removal/relocation of the existing lines.

The Cartwright Substation would be preserved and remain as a key component of the proposed electric distribution system.

From the Cartwright Substation, a new underground electric distribution system would be installed within the Development Areas. This new electric system would replace the existing electric system in phases consistent with the development buildout. The proposed electric distribution system would consist of new underground conduits, vaults, boxes, and pads; which will accommodate 12kV rated cables, transformers, switches and other utility distribution equipment including its SCADA communication monitoring and controls. The existing nine (9) active electric main lines emanating from the west side of the Cartwright Substation would be replaced with approximately six new main lines. These main lines would require a utility corridor and reserved easement, approximately 40-feet wide, to assure utility compliance for minimizing exposure and maintaining separation of circuits to avoid mutual heating of conductors.

From the main lines, the electric distribution facilities would be installed within all backbone streets within the Development Areas. The electric conduits and cables would be placed in a joint utility trench. This trench would also accommodate the Pacific Gas & Electric (PG&E) natural gas, telephone, cable television, possible ancillary fiber optic cable systems and street light facilities. The proposed electric system and joint trench would be constructed in accordance with AMP’s rules and regulations as outlined in their Material and Installation Criteria for Underground Electric Systems, latest revision. **Figure 3-21** depicts the schematic proposed joint trench system at Alameda Point.



SOURCE: Carlson, Barbee, & Gibson, Inc., 2013

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Figure 3-21
Proposed Ultimate Joint Trench

The Reuse Areas within Alameda Point initially would continue to utilize the existing electrical distribution system through an enhanced maintenance program. Each proposed development within the Reuse Areas would be responsible for investigating and documenting the condition of the existing distribution facilities directly adjacent to that specific site. Any deficiencies identified would be address at the time of that development to the satisfaction of AMP. Additionally, each development project within the Reuse Areas would replace the transformer and electrical service to that site.

Ultimately, the electrical distribution system within the Reuse Areas would be replaced. The proposed system would be similar to the system proposed within the Development Areas, constructed in a joint utility trench. Similarly, the unit substations at preserved buildings within the Reuse Areas would likely remain and be served from the proposed distribution system. The new system would be installed and be funded through the Alameda Point Infrastructure Fee Program, infrastructure grant programs or private development projects

Natural Gas

The proposed project would replace the entire existing natural gas distribution system within the project site. PG&E supplies natural gas to the project site via an existing eight inch supply line that enters the project site at the intersection of Main Street and W. Atlantic Avenue.

The estimated total coincident natural gas demand for the ultimate redevelopment of Alameda Point is approximately 1,160 mcfh. Conservatively, this estimate total demand includes the estimated natural gas demand anticipated for the VA Project. The existing gas supply line in W. Atlantic Avenue has adequate capacity for the project's anticipated gas demand. Atypical natural gas demands may necessitate the extension of gas distribution or transmission facilities and regulating stations. These would include any use with a natural gas demand of approximately 10 psi or higher, which is above typical distribution load and or pressure requirements.

A new natural gas distribution system would be installed throughout the Development Areas. This system would connect to the existing eight-inch steel main near the intersection of Main Street and W. Atlantic Avenue. The proposed gas facilities would be constructed in all backbone streets, providing reliable gas service. The new natural gas system would replace the existing natural gas system in phases consistent with the development buildout. The proposed gas system would be installed in a joint utility trench as previously described.

The existing system within the Reuse Areas would be rehabilitated by PG&E. The rehabilitation improvements would include cathodic protection improvements and system reliability upgrades. New gas distribution facilities would be extended by PG&E into backbone streets where there currently are no facilities.

Telecommunications and Cable Television

The proposed project would replace the entire existing telecommunications and cable television systems within the project site. The existing communication utility systems at Alameda Point are owned and operated by AT&T, AMP and Comcast.

AT&T operates the existing telephone system east of the project site. AT&T's system includes conduits and fiber optic cables that extend across the project site and terminate at the eastern corner of Building 2, near the W. Midway Ave / Lexington Street intersection. The AT&T facilities terminate at this location which is AMP's "head-end" facility and the demarcation point of AMP's telephone system. This telephone system provides service to the project site via conduits and sub-structure facilities that emanate from the AMP "head-end."

Comcast operates the existing cable TV system within the project site. Comcast has extended their wires within existing available conduits within AMP's sub-structure facilities. This approach results in inadequate clearances between the electric system and the cable TV system.

The existing communications, telephone, fiber optic and cable TV systems operated by AT&T and Comcast to the east of the project site have adequate capacity to serve the proposed project.

Proposed Telephone and Cable Television System

New telecommunications systems would be installed within the Development Areas. These systems would connect to the existing systems east of the project site, near Main Street. The proposed telecommunication facilities would be constructed in all backbone streets, within the Development Areas. The new telecommunication system would replace the existing systems in phases consistent with the development buildout. The proposed telecommunications systems would be installed in a joint utility trench as previously described.

The Reuse Areas within Alameda Point initially would continue to use the existing telecommunication system through an enhanced maintenance program. Each proposed development within the Reuse Areas would be responsible for investigating and documenting the condition of the existing facilities directly adjacent to that specific site. Any deficiencies identified would be addressed at the time of that development.

Ultimately, the telecommunication system within the Reuse Areas would be replaced. The proposed system would be similar to the system proposed within the Development Areas, constructed in a joint utility trench.

Street Light System

The proposed project would replace the entire existing street light system within the project site. The existing street lighting system at Alameda Point is owned and operated by AMP.

A new street lighting system would be installed within all backbone streets of the Development Areas. The street light system within the Reuse Areas would be replaced over time. The lighting criteria would also be compliant with the latest Illuminating Engineering Society (IES) standards. The lighting units would utilize energy efficient luminaires such as light emitting-diode (LED) type luminaires.

The proposed lighting system would be designed in accordance with the requirements of the 2012 Biological Opinion, Declaration of Restrictions and Memorandum of Agreement between the City and the VA regarding implementation of joint lighting measurements contained in the 2012 Biological Opinion and Declaration of Restrictions (see Appendix D).

E. Project Construction Phasing

It is anticipated that buildout of the project site is likely to take many years and thus sequential, logical phasing of development and infrastructure is necessary to minimize uncertainty and improve the economic feasibility of infrastructure development. The City would sell or lease land to developers who would undertake construction on particular portions of the project site. The pace, location, and type of development would be driven by the following factors: market demand, community priorities, regulatory framework, financial feasibility, infrastructure development, and fiscal impact. For the purposes of this analysis, project construction could commence at the earliest in 2014 and the buildout of the project would be complete 2035.

Vacant portions of the project site would be used for construction staging areas and parking of construction workers' personal vehicles. No off-site construction employee parking or staging areas would be required.

F. Project Entitlements and Approvals

The proposed project would be presented to the City of Alameda Planning Board for comment, review and recommendations. The Alameda City Council, as the City's legislative body, is the approving authority for the Alameda Point Project. In addition to the City of Alameda, which is the lead agency under CEQA, a number of other public agencies may use this EIR in their decision-making, and a number of other discretionary permits and approvals associated with the project would be required. **Table 3-3**, Major Project Approvals Required identifies these other required permits and approvals to the extent that they are known to the City of Alameda at the time this EIR was prepared. Table 3-3 lists permits and approvals required by the Lead Agency, responsible agencies, trustee agencies, and federal agencies that may have authority over certain portions of the proposed project.

TABLE 3-3
MAJOR PROJECT APPROVALS REQUIRED

Lead Agency	
City of Alameda	• General Plan Amendment • Rezoning • Improvement Plans and Subdivision Maps, and Agreements • Conditional Use Permits or Variances, if determined necessary once Development Plans are Submitted • Development Plans/Design Review • Excavation Permits, including Marsh Crust Excavation Permits • Demolition Permits • Grading and Building Permits • Electricity Agreements (Alameda Municipal Power) • Approval of improvement to facilities for distribution of electricity and connection permits (and possibly cable connection) • Project Financing Districts or other funding mechanism • Alameda Point Infrastructure Fee Program

TABLE 3-3 (Continued)
MAJOR PROJECT APPROVALS REQUIRED

Responsible Agencies	
San Francisco Bay Conservation and Development Commission (BCDC)	• Approval of any development located within 100 feet of the shoreline
East Bay Municipal Utility District (EBMUD)	• Approval of water line, water hookups and review of water needs • Approval for sewer treatment capacity
California Department of Transportation (Caltrans)	• Approval of plans and encroachment permits for improvements located within the Caltrans right-of-way, if any
California Regional Water Quality Control Board, San Francisco Bay Region (RWQCB)	• National Pollutant Discharge Elimination System (NPDES) permit for stormwater discharge • Approval and oversight of remediation of groundwater contamination • Clean Water Act Section 401 Certification, if needed
California Department of Toxic Substances Control (DTSC)	• Approval and oversight of hazardous materials remediation
Bay Area Quality Management District (BAAQMD)	• Permitting of asbestos abatement activities
Federal Agencies	
US Army Corps of Engineers	• Clean Water Act Section 404 Authorization, if needed
US Environmental Protection Agency	• Approval and oversight of remediation of National Priority List (NPL) hazardous substances sites.

References – Project Description

Alameda Reuse and Redevelopment Authority, 1996. NAS Alameda Community Reuse Plan. Community Reuse Plan. Adopted January 1996.

City of Alameda, 1991. *City of Alameda General Plan*. http://www.cityofalamedaca.gov/City-Hall/General-Plan, accessed March 3, 20121.

City of Alameda, 2010. *City of Alameda Zoning Map.* Community Development. http://www.cityofalamedaca.gov/City-Hall/Zoning-Map, accessed March 3, 2013.

Keyser Marston Associates, 2012. Alameda Point Tenant Assessment and Forum: Task 2 Findings. April 19, 1012.

U.S. Department of the Interior, Fish and Wildlife Service, *Biological Opinion on the Proposed Naval Air Station Alameda Disposal and Reuse Project in the City of Alameda, Alameda County, California*, August 2012.

CHAPTER 4
Environmental Setting, Impacts, and Mitigation Measures

This Draft EIR has been prepared in accordance with CEQA, as amended (Public Resources Code § 21000, et seq.), and the CEQA *Guidelines* (California Code of Regulations § 15000 through 15378).

This chapter contains the analysis of the potentially significant adverse effects on the environment (significant impacts) due to the proposed development at Alameda Point in the City of Alameda. This chapter describes the existing setting for each topic, the potentially significant impacts that could result from the construction and operation of new development and infrastructure at Alameda Point, and relevant plans and policies that would minimize or avoid potential adverse environmental impacts that could result. Finally, this chapter identifies mitigation measures that would reduce the significant impact resulting from the proposed project.

The following provides an overview of the scope of the analysis included in this chapter, the organization of the sections, and the methods for determining significant impacts.

Environmental Topics

The following sections in this chapter analyze the environmental topics as listed below and presented in the Table of Contents at the front of this document:

4.A Land Use
4.B Population and Housing
4.C Transportation and Circulation
4.D Cultural Resources
4.E Biological Resources
4.F Air Quality and Greenhouse Gases
4.G Noise
4.H Geology, Soils, and Seismicity
4.I Hydrology and Water Quality
4.J Hazards and Hazardous Materials
4.K Aesthetics
4.L Public Services and Recreation
4.M Utilities and Service Systems

Agricultural Resources and Mineral Resources were determined not to be directly relevant to the proposed Specific Plan and are briefly discussed in Chapter 6, *Impact Overview and Growth Inducement*, under Section 6.E, *Effects Found Not to Be Significant*.

Format of Environmental Topic Sections, Impact Statements and Mitigation Measures

Each environmental topic section generally includes two main subsections:

- **Existing Setting** – includes baseline conditions, regulatory setting, Thresholds/Criteria of Significance; and
- **Impacts and Mitigation Measures** – identifies and discusses the potential impacts and mitigation measures that would, to the extent possible, reduce or eliminate adverse impacts identified in this chapter.

This EIR identifies all impacts with an alpha-numeric designation that corresponds to the environmental topic addressed in each section (e.g., "4.D-1" for Section 4.D, *Cultural Resources*). The topic designator is followed by a number that indicates the sequence in which the impact statement occurs within the section. For example, "Impact 4.D-1" is the first (i.e., "1") cultural impact identified in the EIR. All impact statements are presented in bold text.

The Impact Classification of the project's effects prior to implementation of mitigation measures is stated in parentheses immediately following the impact statement.

Similarly, each mitigation measure is numbered to correspond with the impact that it addresses. Where multiple mitigation measures address a single impact, each mitigation measure is numbered sequentially. For example "Mitigation Measure 4.D-1" is the first mitigation identified to address the first noise impact (i.e., "4.D-1").

Thresholds/Criteria of Significance

The CEQA *Guidelines* § 15382 defines a significant effect on the environment as "*a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. An economic or social change by itself shall not be considered a significant effect on the environment. A social or economic change related to a physical change may be considered in determining whether the physical change is significant.*" Determinations of significance vary with the physical conditions affected and the setting in which the change occurs. The significance criteria used in this EIR are the thresholds for determining significance of potential impacts and are based on Appendix G of the CEQA *Guidelines*.

Impact Classifications

The following level of significance classifications are used throughout the impact analysis in this EIR:

- **Less than Significant (LS) –** The impacts of the proposed project do not reach or exceed the defined Threshold/Criteria of Significance. Generally, no mitigation measure is required for a LS impact.

- **Significant (S)** – The impact of the proposed project is expected to reach or exceed the defined Threshold/Criteria of Significance. Feasible mitigation measures are identified to reduce the significant impact to a less than significant level.

- **Significant Unavoidable (SU)** – The impact of the proposed project reaches or exceeds the defined Threshold/Criteria of Significance. No feasible mitigation measure is available to reduce the S impact to LS. In these cases, feasible mitigation measures are identified to reduce the S impact to the maximum feasible extent, and the significant impact is considered SU. Impacts are also classified as SU if a feasible mitigation measure is identified that would reduce the impact to LS, but the approval and/or implementation of the mitigation measure is not within the District's sole control, in which case the analysis cannot presume implementation of the mitigation measure and the resulting LS impact. It is important to clarify that SU is an impact classification that only applies *after* consideration of possible mitigation measures.

- **No Impact (N)** – No noticeable adverse effect on the environment would occur.

Environmental Baseline

Overall, pursuant to CEQA *Guidelines* §15125(a), this EIR measures the physical impacts of the proposed project (i.e., the development and operations at Alameda Point) against a "baseline" of physical environmental conditions at and in the vicinity of the project site. The environmental "baseline" is the combined circumstances existing around the time the Notice of Preparation of the EIR was published, which is January 10, 2013. In most cases, the baseline conditions relevant to the environmental topic being analyzed are described within each environmental topic section in this chapter. In some cases (such as Section 4.A, *Land Use and Planning*), discussion of the baseline condition is detailed or restated in the Impacts Analysis to provide the impact analysis in the most reader-friendly format and organization.

Cumulative Analysis

Approach to the Cumulative Analysis

CEQA defines cumulative as "two or more individual effects which, when considered together, are considerable, or which can compound or increase the other environmental impacts." CEQA *Guidelines* § 15130 requires that an EIR evaluate potentially signficant environmental impacts when the project's incremental effect is cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past, present, existing, approved, pending and reasonably foreseeable future projects. These impacts can result from a combination of the proposed project together with other projects causing related impacts. "The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonable foreseeable probable future projects." The analysis approach for this EIR included "past, present, existing, approved, pending and reasonably foreseeable future projects."

Cumulative Context

The context used for assessing cumulative impacts typically varies depending on the specific topic being analyzed to reflect the different geographic scope of different impact areas. For example, considerations for the cumulative air quality analysis are different from those used for the cumulative analysis of aesthetics. In assessing aesthetic impacts, only development within the vicinity of the project would contribute to a cumulative visual effect. In assessing air quality impacts, on the other hand, all development within the air basin contributes to regional emissions of criteria pollutants, and basin-wide projections of emissions is the best tool for determining the cumulative effect. Accordingly, the geographic setting and other parameters of each cumulative analysis discussion can vary.

The cumulative analysis for water demand, wastewater generation, solid waste generation, and energy usage (i.e., topics influenced by physical construction activity, direct population and or user demand) was based on evaluating the project and the cumulative development in the context of the overall development in the City of Alameda.

The cumulative analysis for traffic and the related air quality, GHG/climate change, and noise were based on existing counts (reflecting past and present projects) and growth reflected in the Alameda County travel demand model projections, which reflects traffic from projects in Oakland and countywide and that were applied to develop 2035 traffic growth projections for project study roadways (as described in Section 4.C, *Transportation and Circulation*, and in Appendix G to this Draft EIR). Past and present cumulative projects are primarily reflected in the existing or near-term conditions reported for certain environmental topics. The main cumulative projects in Alameda, in the project vicinity, that would contribute to the cumulative setting are:

- The proposed San Francisco Bay Area Water Emergency Transportation Authority Central Bay Operations and Maintenance Facility will be located at the intersection of West Hornet Avenue and Ferry Point Road, near Pier 3 along the southeastern shore of the Alameda Point project site. It will include a 25,000-square-foot structure to provide maintenance functions and storage for vessel spare parts, and office and meeting space for WETA staff. In the water adjacent to the building, a 20,000-square foot berthing facility would provide slips for 11 vessels (WETA, 2011). Construction is anticipated to begin as soon as 2014.

- The U.S. Navy Department of Veterans Affairs (VA) Alameda Transfer, Clinic, and Cemetery project would involve disposition (transfer) of 624 acres of property at the former NAS via federal-to-federal transfer to the VA. Upon transfer from the Navy, the VA is proposing to construct an outpatient clinic and columbarium on 112 acres of land adjacent to the project site; the remaining approximately 512 acres of VA land would remain undeveloped and managed for the conservation of the existing California least tern colony. The clinic, to be operated by the Veterans Health Administration, a branch of the VA, would be a two-story building of approximately 158,000 square feet and would replace an existing facility on Martin Luther King Jr. Way in Oakland. The clinic and associated parking and landscaping would occupy approximately 20 of the 112 acres to be developed. The 80-acre columbarium (within the 112-acre site) would be under the governance of the National Cemetery Administration (NCA), also part of the VA. Streets and utilities would occupy about 10 acres, and the remaining 2 acres would be devoted to an office for oversight of the conservation management area. The VA project is adjacent to the Alameda Point project site (VA, 2013).

- The 2007-2014 Housing Element was adopted in 2012 by the City, and includes the rezoning of 16 sites in other parts of Alameda to allow for residential development. In all, these sites have a capacity for more than 2,400 residential units.
- The Alameda Landing Mixed-Use Development project would comprise 400,000 square feet of office space, 300,000 square feet of retail space, and 300 residential units on a 77-acres site west of Webster Street and north of Willie Stargell Avenue. Demolition and infrastructure improvements for the first phase of retail development are under way.
- Harbor Bay Business Park is located on the western shoreline of Bay Farm Island. The following projects have been approved, but are not fully built out:
  - The Esplanade is an office park that offers small to mid-size stand-alone buildings ranging in size from 10,000-45,000 square feet. One of the five approved buildings has been constructed and occupied.
  - The approved VF Outdoor Campus would consist of five-buildings at buildout with 210,000 square feet of office and research and development space for approximately 650 employees

All development identified in the *General Plan* and *Housing Element* and reasonably foreseeable projects were considered in the cumulative analysis, especially as related to the development of the cumulative land uses in the traffic model. Cumulative development was analyzed by adding the project and foreseeable projects to assess cumulative traffic impacts, as well as air quality and noise. Cumulative analysis for population, employment, housing, water demand, wastewater generation, and solid waste generation were based on evaluating the project and the identified reasonably foreseeable projects in the context of the Alameda General Plan and master plans prepared by service providers.

Generally, the projects listed above were used to identify past, present, existing, approved, pending and reasonably foreseeable future projects in the vicinity of the proposed project. It should be noted, however, that this list is not an exclusive list of cumulative projects considered in this EIR. As discussed above, the cumulative context considered in the cumulative context can vary by environmental topic; therefore, some of the projects listed above may not be directly relevant to the cumulative context, depending on the environmental topic.

In addition, in some cases, the cumulative context may include more development than the list of known projects, such as approved and pending projects in Oakland (e.g., Jack London Square, Lake Merritt Station Area Plan, and the Oakland Estuary Plan). A primary example is the transportation analysis (and the analysis of transportation-related traffic air quality), which uses a growth rate to account for background traffic from projects Countywide and the broader regional context. Alternatively, as mentioned above, the aesthetics analysis would primarily consider projects within the viewsheds of the project site, which may not, for example, include projects on the list that are located in distant areas.

The cumulative discussions in each topical section throughout this chapter describe the cumulative geographic context considered for each topic at a level appropriate to the level of analysis presented in this EIR. Cumulative impacts from the proposed project, per CEQA *Guidelines* §15130, are further address in Chapter 6 of this EIR, under B. Cumulative Impacts.

References – Environmental Setting

California Environmental Quality Act (CEQA) Statutes and Guidelines; Public Resources Code 21000-21177) and California Code of Federal Regulations, Title 14, Division 6, Chapter 3, Sections 15000-15387. 2010.

Department of Veterans Affairs (VA), *Transfer of Excess Property and Development of an Outpatient Clinic, Offices, and National Cemetery at the Former Naval Air Station Alameda, California*, January 2013.

Water Emergency Management Authority (WETA), *Notice of Intent to Adopt a Mitigated Negative Declaration: The San Francisco Bay Area WETA Central Bay Operations and Maintenance Facility*, March 31, 2011.

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A. Land Use Consistency and Compatibility

A.1 Introduction

This section describes the existing and planned land uses in the project area, identifies adopted plans that guide the City's land use and planning decisions, and evaluates land use impacts resulting from implementation of the proposed Alameda Point project.

A.2 Environmental Setting

Regional and Local Setting

The City of Alameda is located in western Alameda County, adjacent to the City of Oakland and the San Francisco Bay (see **Figure 3-1**).

The City of Alameda spans 12.4 square miles and extends over two islands (Alameda Island and Coast Guard Island) and a portion of a peninsula connected to the mainland (Bay Farm Island). Alameda Island consists of the original City and the former Naval Air Station Alameda (Alameda Point), which is the western end. Coast Guard Island, located in the Oakland Estuary between Alameda Island and the City of Oakland, is home to the U.S. Coast Guard's Integrated Support Command. Bay Farm Island is adjacent to Oakland International Airport. The topography of the City is predominantly flat.

The Alameda Point project site is a portion of the former Naval Air Station (NAS Alameda) and consists of approximately 878 acres of uplands and 1,229 acres of submerged lands (total of 2,107 acres). Former NAS Alameda is located west of Main Street at the western end of Alameda. It is bounded by the Oakland-Alameda Estuary on the north, Main Street on the east, and the San Francisco Bay on the south and west. The project site are bounded on the south and west by a 624-acre area of former runways that is proposed for transfer by the Navy to the Department of Veterans Affairs (VA), and is therefore not a part of the project site.

Existing Land Uses

Approximately 925 buildings and structures from the former military base remain on the project site. The residential portion of the former NAS Alameda in the north portion of the project site has single family and multiple family structures and large historic single family residences ("Big Whites"). The former NAS Alameda Bachelors' Officers Quarters and former Bachelors' Enlisted Quarters, which once housed the majority of Navy personnel, are both vacant. Two hundred units currently provide supportive housing for formally homeless, mean, women, and children, and veterans in transition.

Approximately 1,838,300 square feet of existing buildings are occupied by non-residential uses through the City NAS Interim Lease Program. **Table 4.A-1** and **Figure 4.A-1** indicate the location of tenant uses across the site.

TABLE 4.A-1
APPROXIMATE SQUARE FOOTAGE OF
EXISTING TENANT USES BY CATEGORY

Existing Use Category	Square Feet
Arts / Entertainment / Recreation	272,500
Business-Related Storage	198,800
Civic & Non Profit	262,500
Construction	4,000
Film / Event Production	82,100
Manufacturing / Repair (Light)	53,200
Manufacturing / Repair (Midsize)	187,200
Marine	306,200
Other (Cellular & Utility)	5,200
Professional, Scientific, & Technical	34,000
Public Storage	70,989
Specialty Beverage and Food	127,000
Transportation and Warehousing	234,600
Total Occupied Space*	1,838,300
Vacant – Available	476,700
Vacant – Unavailable	1,833,000
Total Vacant Space *	2,309,700
Navy Controlled	1,148,700

* May not total due to rounding

SOURCE: Keyser Marston Associates, Inc., 2012

Land Uses in the Vicinity

Approximately 624 acres of land to the west of the project site is owned by the Navy, and will be transferred to the United States Department of Veteran Affairs (VA) as part of a separate project.[1] The proposed VA transfer property and project site includes most of the former runways of the old naval air station, and also includes wetlands and a seasonal colony of California least terns, which is an endangered species under the federal Endangered Species Act.

Directly north of the project site is the Oakland Estuary, across which operates the Port of Oakland container terminal, including roadways, railroad facilities, shipping cranes, and container storage areas. The Estuary is a 7- mile long, approximately 1,000-foot-wide water body separating Oakland and Alameda. It receives boat traffic from both commercial and recreational users. The Alameda Main Street Ferry Terminal is located on the Estuary northeast of the project site. To the west,

1 A draft Environmental Assessment, prepared pursuant to the National Environmental Policy Act, was issued for the VA project in January 2013. Department of Veterans Affairs and Department of the Navy, *Transfer of Excess Property and Development of an Outpatient Clinic, Offices, and National Cemetery at the Former Naval Air Station Alameda, California.* Available on the internet at: http://www.northerncalifornia.va.gov/planning/Alameda/ea-toc.asp.

SOURCE: Keyser Marston Associates, Inc., 2012

Alameda Point Project . 130025

Figure 4.A-1
Alameda Point Business Clusters

adjacent to the ferry terminal is a ship and boat repair yard, a marine services and equipment company, and a winery. Moving southward, a self-storage facility is on the north side of Singleton Avenue, slightly east of Main Street.

East of Alameda Point is a mix of residential neighborhoods and schools. North of Ralph Appezzato Memorial Parkway is a development consisting of detached single-family homes known as Bayport, and the Alameda Unified School District (AUSD) Ruby Bridges Elementary School. South of Ralph Appezzato Memorial Parkway is the West End Neighborhood, which is made up of both single-family homes and duplexes. South of the residential neighborhoods, on the south side of Main Street and adjacent to Alameda Point is AUSD's Encinal High School.

A.3 Regulatory Framework

Applicable plans and major policies and regulations that pertain to the project site are presented below, followed by a discussion of the project's overall consistency (or inconsistency) with each plan. Several land use plans, policies, and regulations apply to the project site. Consistent with CEQA, not every policy that could apply to the project is included here. Rather, the focus of this analysis is on potential conflicts with policies that were adopted for the purpose of avoiding or mitigation and environmental effect and could result in significant adverse physical effects on the environment.

Federal

U.S. Army Corp of Engineers

Section 404 of the Clean Water Act regulates activities that involve a discharge of dredged or fill material into waters of the United States. USACE is responsible for issuing permits for discharges covered by Section 404, including, most notably, the filling of wetlands. USACE requires avoiding and minimizing impacts to wetlands where feasible. When impacts to wetlands cannot be avoided, compensatory mitigation is generally required as part of the Section 404 permit process to ensure there is no net loss of wetlands values and functions. USACE owns and controls the partially underwater strip of land at the edge of the Oakland Estuary within the site boundary.

USFWS 2012 Biological Opinion and Navy Declaration of Restrictions

The United States Fish and Wildlife Service (USFWS) issued a Biological Opinion in 2012 for the purpose of protecting the endangered California least tern nesting colony while at the same time allowing for development of surrounding areas. As a condition of the transfer of the property to the City, the Navy has recorded a Declaration of Restrictions based on the Biological Opinion that will serve as enforceable covenants, codes, and restrictions on subsequent development at Alameda Point (see **Appendix D**). Because these restrictions are intended to avoid and minimize impacts on least terns by controlling, to some degree, the amount and nature of development in the project area, they are discussed here. Different restrictions apply to different parts of the project area (see **Figure 3-3**).

Biological Opinion Avoidance Measures incorporated into the Declaration of Restrictions

The following is a list of avoidance measures from the 2012 Biological Opinion that are applicable to the project site and incorporated into the Navy's Declaration of Restrictions.

BO-AMM-7 Lighting shall be allowed as long as the cumulative increase in ambient nighttime light levels within 750 feet of the least tern colony, from VA and City sources, do not increase by more than 10 percent of pre-conveyance levels, as set forth in the Alameda Point California Least Tern Colony Existing Lighting Study, attached hereto as Exhibit 5, with full development of the Northwest Territories ("NWT"), Civic Core, and Marina areas, including VA development. The City shall perform a design review for all proposed development within the NWT to ensure that the cumulative increase in ambient nighttime light levels from VA and City sources will not violate this condition, and shall provide lighting requirements to all project applicants. (Applies to Areas A through K)

BO-AMM-8c No artificial features greater than 20 feet in height shall be constructed with the exception of 25 feet in the Veteran's memorial plaza area. (Applies to Area A)

BO-AMM-8c No tree species capable of growing to greater than 20 feet in height shall be planted in the Regional Park area. Tree and shrub density shall not exceed one tree or shrub per 10,000 square feet. The City shall prepare a palette of shrub and herbaceous vegetation species proposed for planting throughout the Regional Park area. The palette shall be reviewed and approved by the Service prior to the planting of any vegetation in this area. (Applies to Area A)

BO-AMM-8c The final Regional Park design/configuration, herbicide/pesticide drift control plan, and landscaping and management plans shall be developed in coordination with the Service. The plans shall be reviewed and approved by the Service prior to any new development in this area. (Applies to Area A)

BO-AMM-8d The Sports Complex fields shall not be lighted for nighttime play from April 1 through August 15, unless proposed lighting in these areas can be designed to ensure that light levels within 750 feet of the least tern colony, from VA and City sources, do not increase by more than 10 percent of pre-conveyance levels. (Applies to Area B)

BO-AMM-8f No artificial features greater than 20 feet in height shall be constructed. (Applies to Area B)

BO-AMM-8f The cumulative square footage of buildings associated with the Sports Complex shall not exceed 7,500 square feet or be greater than 20 feet in height. All buildings associated with the Sports Complex area shall be located greater than 200 feet from the southern boundary of the east-west runway. (Applies to Area B)

BO-AMM-9a No new buildings, light posts, vegetation greater than 4 feet in height, landscape turf, or other structures greater than 4 feet in height shall be constructed in this area without prior approval from the Service. The Service shall review all proposed plans to ensure compliance with the 2012 Biological Opinion. (Applies to Area D)

BO-AMM-9b Any new buildings constructed or extensions of existing[2] buildings shall not exceed the height of the existing buildings. (Applies to Areas E and F)

BO-AMM-9b No palm trees shall be allowed in this zone. Within line-of-sight of the existing least tern colony, landscaping shall be restricted to vegetation less than 4 feet in height. In areas outside of the line-of-sight of the existing least tern colony, no tree species capable of growing to greater than 20 feet in height shall be planted and shrubs shall be managed as to not exceed 6 feet in height. The density of trees and shrubs in this area shall not exceed one tree or shrub per 550 square feet. The City shall prepare a palette of tree and shrub species proposed for planting in this area. The palette shall be reviewed and approved by the Service prior to the planting of any trees or shrubs in this area. (Applies to Areas E and F)

BO-AMM-9b Light posts in this area 20 feet or greater in height shall contain anti-perching devices, which will be maintained in perpetuity. (Applies to Areas E and F)

BO-AMM-9c If Building 19 or the fire house is replaced with a new building, the new building shall not exceed 20 feet in height, not extend farther west and east than the western and eastern most point of the existing building, and not exceed the existing width of the building as measured from north to south. (Applies to Area G)

BO-AMM-9c A new building, not to exceed 20 feet in height, may be constructed just east of Building 19 or may be added on to the fire house provided that the new building/extension is not in direct line-of-sight of any portion of the existing least tern colony. (Applies to Area G)

BO-AMM-9c New buildings may have an additional 5 feet of height to accommodate heating/conditioning/ventilation units as long as these units are not within the line of sight of the least tern colony or the units are placed as far back and away from the side of the building facing the tern colony as possible and avian predator perch deterrents are installed and maintained on these units in perpetuity. (Applies to Area G)

BO-AMM-9d Sporting fields within the Civic Core Area shall not be lighted for nighttime play from April 1 through August 15, unless proposed lighting in these areas can be designed to ensure the cumulative increase in ambient nighttime light levels within 750 feet of the least tern colony, from VA and City sources, do not increase by more than 10 percent of pre-conveyance levels. (Applies to Areas C through G)

BO-AMM-10a No new buildings, light posts, vegetation greater than 4 feet in height, landscape turf, or other structures greater than 4 feet in height shall be constructed. The Service shall review all proposed plans to ensure compliance with the 2012 Biological Opinion. (Applies to Area I)

BO-AMM-10b Building 25 may be reconstructed within the footprint of this zone, but any new building in this zone cannot exceed the height of the existing building (55 feet). (Applies to Area J)

[2] Any reference to “existing” refers to the date that the 2012 Biological Opinion was issued – August 29, 2012.

BO-AMM-10b Landscaping shall be restricted to vegetation less than 4 feet in height (no palm trees) within the current line-of-sight portion of the northeast comer of this zone. Within line-of-sight of the existing least tern colony, landscaping shall be restricted to vegetation less than 4 feet in height. In areas outside of the line-of-sight of the existing least tern colony, no tree species capable of growing to greater than 20 feet in height shall be planted and shrubs shall be managed as to no exceed 6 feet in height. The density of trees and shrubs in this area shall not exceed one tree or shrub per 550 square feet. The City shall prepare a palette of tree and shrub species proposed for planting in this area. The palette shall be reviewed and approved by the Service prior to the planting of any trees or shrubs in this area. (Applies to Area J)

BO-AMM-10b Newly constructed buildings and any artificial structures 20 feet or greater in height shall contain anti-perching devices which will be maintained in perpetuity. (Applies to Area J)

BO-AMM-10c No new buildings greater than 20 feet in height shall be constructed in this zone. (Applies to Area K)

BO-AMM-10c New buildings may have an additional 5 feet of height to accommodate heating/conditioning/ventilation units as long as these units are not within the line of sight of the least tern colony or the units are placed as far back and away from the side of the building facing the tern colony as possible and avian predator perch deterrents are installed and maintained on these units in perpetuity. (Applies to Area K)

BO-AMM-10c No palm trees shall be allowed in this area. Within line-of-sight of the existing least tern colony landscaping shall be managed as to not exceed 4 feet in height. In areas outside of the line-of-sight of the existing least tern colony no tree species capable of growing to greater than 20 feet in height shall be planted and shrubs shall be managed as to no exceed 6 feet in height. The density of trees and shrubs in this area shall not exceed one tree or shrub per 550 square feet. The City shall prepare a palette of tree and shrub species proposed for planting in this area. The palette shall be reviewed and approved by the Service prior to the planting of any trees or shrubs in this area. (Applies to Area K)

BO-AMM-10c Newly constructed buildings and any artificial structures 20 feet or greater in height shall contain anti-perching devices which will be maintained in perpetuity. (Applies to Area K)

BO-AMM-55 Fireworks displays will not be authorized from April 1 to August 15. (Applies to Areas A through V)

BO-AMM-56 The portion of the potential future Bay Trail that surrounds the western, southern, and eastern sides of the VA Fed Transfer Parcel will be closed from April 1 to August 15, and no public access to those areas will be allowed during that time. Such public access will be restricted by a secure fence, at least 8 feet in height. Signage shall be placed at Bay Trail entrances describing the purpose of the annual trail closure. Enforcement of the potential future Bay Trail annual closure restrictions and access to the VA Undeveloped Area will be conducted by East Bay Regional Park District or other Service-approved entity. (Applies to Areas A through L, U, and V)

BO-TC-1C Within line of sight of the VA Undeveloped Area:

1. The number of new lights shall be limited to the minimum number required for building security.
2. All lights shall be directed away and/or screened from the VA Undeveloped Area. Tinting of windows, with non-reflective tinting material, within the line of sight of the VA Undeveloped Area shall be required. (Applies to Areas A through K, U, and V)

Memorandum of Agreement By and Between the US, Acting By and Through the Department of Veterans Affairs and the City of Alameda

A Memorandum of Agreement between the Department of Veterans Affairs (VA) and the City of Alameda contains an agreement between the VA and City to implement the applicable lighting AMMs and T&Cs. The two major provisions of the MOA involve coordinating to monitor nighttime lighting levels on an annual basis and take any corrective actions necessary to reduce nighttime lighting levels; and implementing lighting mitigation measures for new improvements and development at the former NAS Alameda, as applicable.

State

San Francisco Bay Conservation and Development Commission's Plans and Policies

BCDC is a state agency with permit authority over the Bay and its shoreline. Created by the McAteer-Petris Act in 1965 (Title 7.2, commencing with Section 66000, of the California Government Code), BCDC regulates filling, dredging, and changes in use in San Francisco Bay. The creation of BCDC was a legislative response to address environmental damage created by years of extensive and unmanaged filling, by developing policies and regulations that recognize and protect San Francisco Bay, an invaluable natural resource of the Bay Area region.

Of primary concern to BCDC is the placement of new "fill" (generally defined as any material in or over the water surface, including pilings, structures placed on pilings, and floating structures) in the Bay. The McAteer-Petris Act imposes very strict standards for the placement of new fill. Placement of fill may be allowed only for uses that are (1) necessary for public health, safety or welfare of the entire Bay Area; (2) water-oriented uses, such as water-related industry, water-oriented recreation, and public assembly and the like; or (3) minor fill to improve shoreline appearance and public access. Fill must be the minimum necessary for the purpose and can be permitted only when no alternative upland location exists.

In addition, BCDC regulates new development within 100 feet of the shoreline to ensure that maximum feasible public access to and along the Bay is provided. BCDC is also charged with ensuring that the limited amount of shoreline property suitable for regional high-priority water-oriented uses (e.g., ports, water-related industry, water-oriented recreation, airports, and wildlife areas) is reserved for these purposes. Land-side uses and structural changes are governed by policies regarding public access. BCDC can require, as conditions of permits, shoreline public access improvements consistent with a proposed project, such as, but not limited to, pathways, observation points, bicycle racks, parking, benches, landscaping, and signs.

BCDC planning documents applicable to San Francisco's waterfront are described below.

San Francisco Bay Plan

The San Francisco Bay Plan (Bay Plan) was prepared by BCDC from 1965 through 1969 and amended through 2007 in accordance with the McAteer-Petris Act (California Government Code Sections 66600-66682). The Bay Plan guides the protection and use of the Bay and its shoreline within the nine Bay Area counties. BCDC has permit jurisdiction over shoreline areas subject to tidal action up to the mean high tide line and including all sloughs, tidelands, submerged lands, and marshlands lying between the mean high tide and 5 feet above mean sea level, and the land lying between the Bay shoreline and a line drawn parallel to and 100 feet from the Bay shoreline which is known as the 100-foot shoreline band. Under the McAteer-Petris Act, the Bay Plan provides policy direction for BCDC's permit authority regarding the placement of fill, extraction of materials, determining substantial changes in use of land, water, or structures within its jurisdiction, protection of the Bay habitat and shoreline, and maximizing public access to the Bay.

Part IV of the Bay Plan contains findings and policies that pertain to development of the Bay and shoreline. These findings and policies address the many facets that comprise the uses, needs and design issues associated with balancing the environmental, ecological, economic, recreational and social objectives of development within or along the shoreline of the Bay. The categories of policies include: climate change; safety of fills; shoreline protection; dredging; water-related industry; ports; airports; transportation; commercial fishing; recreation (including marinas); public access; appearance, design and scenic views; salt ponds; managed wetlands; other uses of the Bay and shoreline; fill for various uses; mitigation; Public Trust; and navigational safety and oil spill prevention.

The Bay Plan policies with which the proposed project or variants may pose a potential conflict are listed below. The physical effects associated with the potential conflicts with these policies are discussed in Chapter 4, Environmental Setting, Impacts and Mitigation Measures, under the appropriate resource topic. The compatibility of the project with policies that do not relate to physical environmental issues will be considered by decision-makers as part of their decision whether to approve or disapprove the proposed project.

Bay Plan, Development of the Bay and Shoreline, Public Access Policies

Policy 4 Structures and facilities that do not take advantage of or visually complement the Bay should be located and designed so as not to impact visually on the Bay and shoreline. In particular, parking areas should be located away from the shoreline. However, some small parking areas for fishing access and Bay viewing may be allowed in exposed locations.

Policy 14 Views of the Bay from vista points and from roads should be maintained by appropriate arrangements and heights of all developments and landscaping between the view areas and the water. In this regard, particular attention should be given to all waterfront locations, areas below vista points, and areas along roads that provide good views of the Bay for travelers, particularly areas below roads coming over ridges and providing a "first view" of the Bay.

Bay Plan, Development of the Bay and Shoreline, Other Uses of the Bay Shoreline Policies

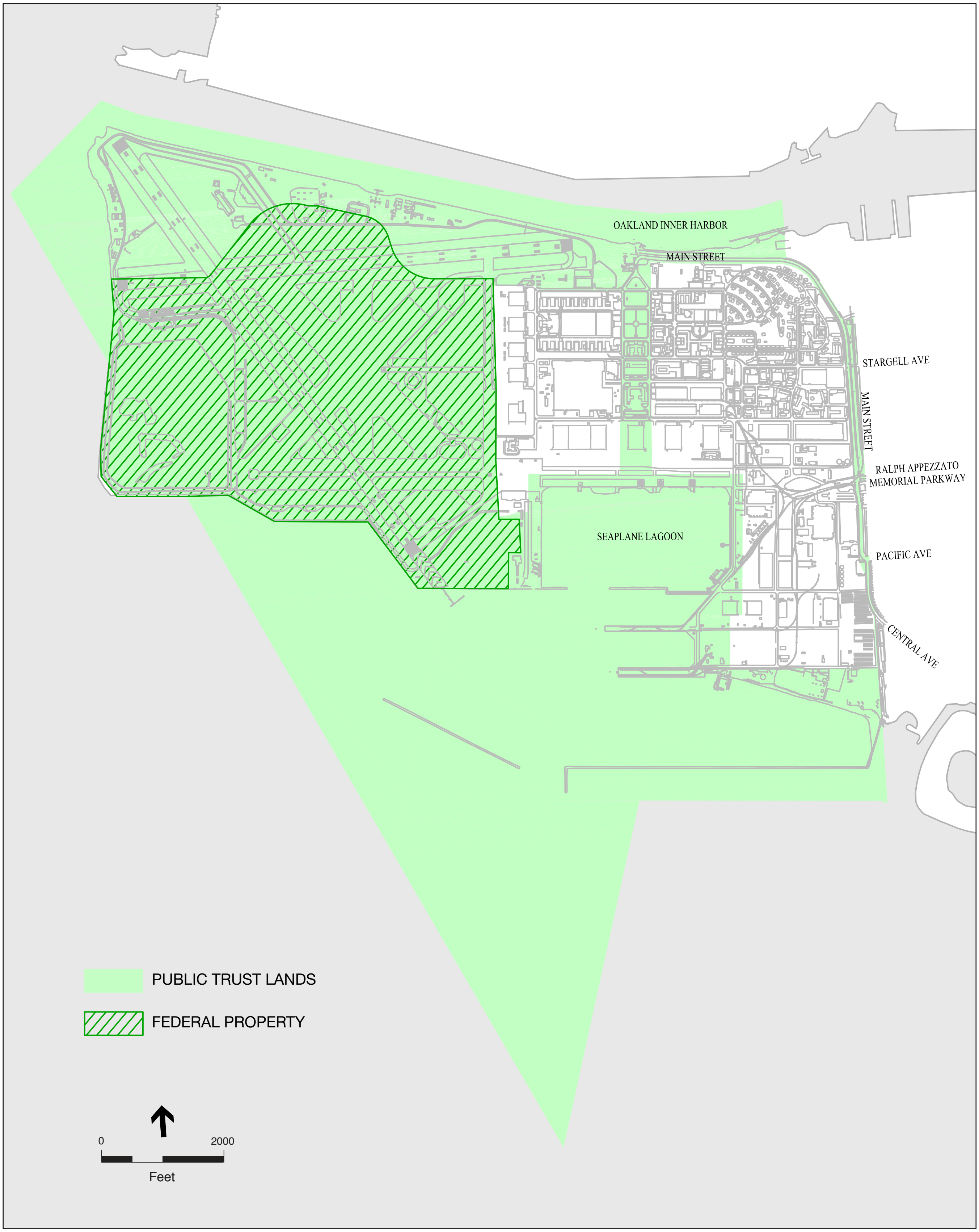
Policy 1 Shore areas not proposed to be reserved for a priority use should be used for any purpose (acceptable to the local government having jurisdiction) that uses the Bay as an asset and in no way affects the Bay adversely. This means any use that does not adversely affect enjoyment of the Bay and its shoreline by residents, employees, and visitors within the site area itself or within adjacent areas of the Bay or shoreline.

Public Trust Lands

Portions of the project site that are presently or were formerly tide lands or submerged lands (i.e., lands below the historic mean high tide line) within the former NAS Alameda are subject to the Public Trust for commerce, navigation and fisheries ("Public Trust" or "Trust"). In California, the Public Trust doctrine gives the state title to tidelands and submerged lands that existed at the time of statehood in 1850. Lands subject to the Public Trust ("Trust Lands") are held in trust by the State of California on behalf of the public and are to be used to promote Public Trust purposes. The State may grant Trust Lands to local entities as trustees. Granted Trust Lands are subject to Public Trust restrictions on their use, as well as any limitations set forth in the granting statute. In 1913, the Legislature granted Trust Lands within the limits of the City of Alameda to the City as trustee. The Trust Lands within former NAS Alameda were later acquired by the United States by deed or by condemnation.

Pursuant to the 2000 NAS Alameda Public Trust Exchange Act (Statutes of 2000, Chapter 734), the California State Lands Commission was authorized to effectuate a land exchange that would remove the Public Trust from certain lands, allowing them to be used for residential and other non-Trust uses, and impose the Public Trust on certain other lands that are not currently subject to the Trust, including a substantial portion of the waterfront lands within the project site. The State Lands Commission approved the Public Trust Exchange in October 2012, authorizing removal of approximately 304 acres in the center of the former base from the Public Trust, while adding approximately 121 acres to the Public Trust along the northern and southeastern edges of Alameda Point.

Navigation, fisheries, maritime uses, hotels, water-oriented recreation, restaurants, visitor-serving retail, parks and open space are among the activities generally permitted on Trust Lands. Housing and general office are examples of uses generally not permitted on Trust Lands. Areas of Alameda Point that will be subject to the Public Trust following the exchange (excluding federally-retained lands) are shown in **Figure 4.A-2**.



SOURCE: Carlson, Barbee & Gibson, Inc., 2013

Alameda Point Project . 130025

Figure 4.A-2
State Lands Exchange
Post-Exchange

Regional

Plan Bay Area and NAS Alameda PDA

The *Plan Bay Area*, which sets forth the region's proposed Sustainable Communities Strategy, was formally adopted by ABAG and MTC in July 2013.

The *Plan Bay Area* provides housing and employment projections for the San Francisco Bay Area, as well as counties, cities, and priority development areas (PDAs).[3] In contrast to previous trends where new development primarily occurred on raw rural lands, the *Plan Bay Area* directs development to PDAs. According to ABAG, "this allows the region to reduce the emission of GHGs, house our population in a wide range of neighborhoods, preserve our natural resources, and support the creation of and greater access to new employment opportunities" (ABAG and MTC, 2013).

The project site is included in *Plan Bay Area* as the NAS Alameda PDA, which also includes Bayport, Alameda Landing, and the North Housing areas. The *Plan Bay Area* describes its vision for this PDA as follows:

> This area includes substantial acres of underutilized land. The overall vision for the redevelopment of the Alameda's former Naval Air Station lands and Fleet Industrial Supply Center is to create a transit-oriented, mixed- use, sustainable development that provides homes for a variety of family sizes and income levels, jobs for the region to replace those lost by the closure of the base, as well as parks and open spaces for conservation and regional recreation.

According to the *Plan Bay Area*, the Bay Area is expected to "experience more modest growth than in past decades." Even so, ABAG still projects "healthy economic growth of 1.1 million jobs and 2 million people by 2040 as the Bay Area continues to attract cutting-edge, high technology companies, talent, and investment from around the world." This regional projection "assumes a full-employment economy with unemployment rates returning to normal levels within a successful national economy. The forecast also recognizes the challenges with building new housing in the region that is largely multi-family and in infill locations, and the impact that has on our ability to capture potential job growth. Achieving this growth will require that the region respond to an aging and diversifying population, polarizing wages, high housing and transportation costs, and other issues affecting our quality of life" (ABAG and MTC, 2013).

San Francisco Bay Trail

ABAG administers the San Francisco Bay Trail Plan (Bay Trail Plan). The Bay Trail is a multi-purpose recreational trail that, when complete, would encircle San Francisco Bay and San Pablo Bay with a continuous 500-mile network of bicycling and hiking trails; to date, 330 miles of the alignment have been completed. The trail would connect the shoreline of all nine Bay Area counties, link 47 cities, and cross the major bridges in the region.

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3 PDAs are areas where future growth within the Bay Area is intended to be concentrated. Within PDAs, "new development will support the day-to-day needs of residents and workers in a pedestrian-friendly environment served by transit" (ABAG and MTC, 2013).

Local Plans

City of Alameda General Plan

The City of Alameda General Plan is the principal policy document for guiding future development within the City. It is the framework on which the City must base decisions regarding growth, public services and facilities, and protection and enhancement of the community).

The General Plan establishes comprehensive, long-term land use policies for the City. Consistent with state law, the General Plan includes a Land Use Element; City Design Element; Transportation Element; Open Space and Conservation Element; Parks and Recreation, Shoreline Access, Schools and Cultural Facilities Element; Airport Environs Element (relates to Metropolitan Oakland International Airport); Health and Safety Element; and Housing Element; along with specific elements pertaining to Alameda Point and the Northern Waterfront. Each of the General Plan elements is discussed below, except for the Airport Environs Element and Northern Waterfront chapter, because the project site is not located in those planning areas.

The General Plan, by its comprehensive nature, contains policies that could sometimes conflict with one another, depending on the nature of a particular project. City decision-makers must determine whether, on balance, a project is consistent (i.e., in general harmony) with the General Plan. The fact that a specific project does not meet all General Plan goals, policies, and objectives does not inherently result in a significant effect on the environment, because a significant effect must be related to a significant adverse physical change. To the extent that a General Plan policy that is adopted for the purpose of avoiding or mitigating an environmental effect is used as a significance criterion or contains a regulatory threshold that the project must meet, the project's consistency with such policies is addressed within the relevant impact analysis discussions throughout Chapter 4.

The NAS Alameda Community Reuse Plan was adopted by the former Alameda Reuse and Redevelopment Authority in 1996 as a roadmap for the conversion of the NAS to civilian use. The plan proposed several land uses that would be considered as part of preparation of the General Plan Amendment, and it contained the community's general goals and policies to guide redevelopment. The City considered the Reuse Plan in preparing the Alameda Point General Plan Amendment that resulted in the current land use designations across the project site.

Site-Specific Land Use Designations

As shown in **Figure 3-10**, most of the project site is currently designated for Mixed Use Development. Nine areas of the City shown in the General Plan Diagram are designated to allow for mixed uses specific to implement General Plan Policies. These Mixed-Use areas are subject to limitations on development intensity as described in the General Plan. Three of these Mixed-Use areas are located in the project site and are described below:

- **AP1: Alameda Point Civic Core.** This designation encompasses most of the NAS Historic District and many of the historic buildings. The core is envisioned to provide public-serving and civic-serving uses, and business park, office, civic, residential, public/institutional, parks, commercial, and other supporting uses are permitted.

- **AP2: Alameda Point Inner Harbor.** This area is designated as a mixed-use area with a focus on research and development and light industrial uses. Light industry, office, retail, commercial, and residential uses are permitted.
- **AP3: Alameda Point Marina.** This designation permits marine-related industry, office, commercial, residential, recreational, and supporting retail uses. Waterfront activity is promoted.

The northeastern portion of the project site is designated for a mix of residential uses, as follows:

- The area of "Big Whites" officer housing is designated for Low-Density Residential areas designated for single-family detached units, typically on 5,000-square-foot (or larger) lots, or in planned unit developments not exceeding 8.7 units per acre. Secondary dwelling units are permitted and are not limited by the 8.7 units per acre density range.
- Most of the remainder of the northeast portion of the project site—which comprises a mix of 200 units of supportive housing for formerly homeless populations, an urban farm, a and a commercial nursery—is designated for Medium-Density Residential use.
- A small portion of the northeast portion of the site is designated for Neighborhood Business uses. These areas are intended to meet the shopping needs of nearby residents, and activities during business hours would be controlled to maintain compatibility with residential neighborhoods. Residential use would be encouraged on the second floor and permitted elsewhere. The maximum floor area ratio (FAR) is 0.6.

The three blocks directly south of the mall—bounded by Second Street to the west and Saratoga Street to the east—are designated for Public / Institutional / School uses. Such areas are designated for schools and city facilities that have unique public character. The mall itself, as well as the athletic fields in the northwest corner and southeast corners of the project site, is designated for Parks & Open Space. This designation allows for outdoor recreational uses, including City parks, golf courses, beaches, and public and private land committed to or proposed as permanent space for public access. This designation also applies to parcels along the northern edge of the project site, across from the Estuary, and in the southeastern portion of the site, north of the existing recreational fields.

Site-Specific Policies

Because the entirety of the General Plan Element is applicable to the project site, only guiding land use policies are listed here.[4]

- Create a series of neighborhoods, each with a central focus of mixed-use development, including local serving commercial and recreational uses and a mixture of housing types and densities serving all income levels. *(Policy 9.2.a)*

Civic Core

- Develop the Civic Core as a major new center of the City, and a focus of the Alameda Point district. *(Policy 9.3.a)*

[4] The entirety of the Element is available for review on the City's website: http://alamedaca.gov/city-hall/general-plan.

Inner Harbor

- Foster cohesion between development of this new mixed-use area and existing surrounding neighborhoods and the City of Alameda. *(Policy 9.3.f)*

Marina

- Create a mixed-use area that is sensitive to the restrictions and recommendations regarding the neighboring Wildlife Refuge. *(Policy 9.3.k)*
- Foster development of residential, commercial, and retail uses that promote vitality and pedestrian activity along the waterfront. *(Policy 9.3.l)*

West Neighborhood

- Guide further development of this primarily residential area to improve quality of life for residents, accessibility for pedestrians, and supporting uses to promote a balanced neighborhood. *(Policy 9.3.s)*
- Consider the need for workforce housing and childcare. *(Policy 9.3.t)*
- Preserve the Big Whites for their historical significance, and encourage surrounding development that is complementary (*Policy 9.3.x*).

Northwest Territories

- Preserve the Northwest Territories for parks and open space, which may include a golf course/hote*l-resort, pe*destrian and bicycle trails, and public access. *(Policy 9.3.cc)*
- Incorporate recommendations and regulations regarding the Wildlife Refuge into development in the Northwest Territories. *(Policy 9.3.dd)*

Wildlife Refuge

- Help maintain a Wildlife Refuge that balances natural conservation with public access, education, and ship navigation. *(Policy 9.3.kk)*[5]

Other Relevant General Plan Policies

The Alameda General Plan includes policies relating to several CEQA topics. Each section of Chapter 4 includes a Regulatory Setting that describes General Plan policies applicable to that resource topic. The General Plan Elements relating to land use are described below, and applicable land use policies are listed.

Land Use Element Policies

- Maintain and enhance the residential environment of Alameda's Neighborhoods. *(Policy 2.4a)*
- Where a suitable residential environment can be created, give priority to housing on land to be developed or redeveloped in order to meet the qualified objectives of the Housing Element *(Policy 2.4c)*
- Expand housing opportunities for households in all income groups. *(Policy 2.4.e)*

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[5] The potential wildlife refuge would be on federal land; however, a refuge that is owned and operated by the USFWS is not currently proposed. The VA will oversee the least tern colony following transfer of the 624-acre proposed VA transfer parcel and project site from the Navy to the VA. The City Council recently affirmed its support for a wildlife refuge.

- Provide enough retail businesses and services space to enable Alameda to realize its full retail sales potential and provide Alameda residents with the full range of retail business and services *(Policy 2.5a)*
- Maximize opportunities for retail development at Alameda Point to support creation of a mixed use, transit oriented community at Alameda Point as envisioned in the Alameda Point General Plan policies. *(Policy 2.5j)*
- Develop a pedestrian oriented town center at Alameda Point with community retail shops and services in close proximity to transit, ferry, and other transportation facilities. *(Policy 2.5x)*

City Design Element Policy

- Work with BCDC staff to prepare a schematic plan for development of the 100-foot-wide strip above mean high tide on properties likely to require BCDC development approval. *(Policy 3.2.g)*

Transportation Element Policy

- Encourage development patterns and land uses that promote the use of alternate modes and reduce the rate of growth in region-wide vehicle miles traveled. *(Policy 4.2.4.b)*
- Encourage mixed use development that utilizes non-single occupancy vehicle transportation modes. *(Policy 4.2.4.c)*

Open Space and Conservation Element

- Preserve buffers between wetlands and urban areas. *(Policy 5.1.c)*

Parks and Recreation, Shoreline Access, Schools and Cultural Facilities Element

- Expand Alameda's park system. *(Policy 6.1.a)*
- Require shoreline access where appropriate as a condition of development approval regardless of whether development occurs within the area of BCDC regulation. *(Policy 6.2.h)*

Health and Safety Element

Health and Safety Element policies regarding seismic and geologic hazards are discussed in Section 4.H, *Geology and Seismicity*. With respect to flooding, the General Plan's Alameda Point Element contains policies specific to the project site; these policies are discussed in Section 4.I, *Hydrology and Water Quality*.

Housing Element

Housing Element goals, objectives and/or policies that apply to the project land use are listed below:

- Provide Housing to Meet the City's Needs: Within the limits of available resources, seek to meet the City's fair share housing needs, increase affordable housing opportunities, and provide for groups with special needs. (*Goal a*)
- Promote the conservation and rehabilitation of the City's existing housing stock. *(Policy a, i)*
- Preserve and expand the City's supply of affordable rental and ownership housing for extremely low, very low, low and moderate income households. *(Policy a, ii)*
- Maintain the integrity of existing residential neighborhoods by protecting and enhancing the historic architecture and ensuring that new development respects the density, physical, and aesthetic character of the neighborhood and surrounding areas. *(Policy a, vi)*

- Ensure that new neighborhoods seamlessly integrate with older residential neighborhoods by designing new housing developments that complement the historic, architectural, aesthetic, and physical qualities of existing neighborhoods. (*Policy a, vi*)
- Support efforts to increase the homeownership rate in Alameda to 60 percent by promoting homeownership opportunities for Alameda residents and employees of all income groups, including lower income renters and newly formed households. (*Policy b, i*)
- Create rental and homeownership opportunities for people of all incomes, ethnic origins, cultures, gender, family structures, and special needs populations such as the elderly and physically and mentally challenged persons. (*Policy b, iii*)
- Designate an adequate amount of land for residential use to encourage housing development that will meet the needs of all income groups. (*Policy c, i*)
- Encourage development that offers residents easy access to goods, services, jobs, transportation, education and recreation. (*Policy c, iii*)
- Encourage development of homeownership units priced to meet the needs of families with incomes between 80 percent and 120 percent of area median income. (*Policy c, vi*)
- Consider and evaluate the viability of providing housing on non-residential, publicly owned property that becomes available or is deemed surplus *(Policy c, ix)*

City of Alameda Zoning Ordinance

The Zoning Ordinance is a primary tool for implementing the policies of the General Plan, and addresses the physical development standards and criteria for the City. One of the purposes of zoning is to implement the land use designations set forth in the General Plan.

The entirety of the project site is zoned General Industrial (Manufacturing) District and Special Government Combining District (M-2-G), reflecting the Navy's prior industrial uses on the project site. The current zoning designation is not consistent with the General Plan and would be amended as part of this project.

A.4 Impacts and Mitigation Measures

Significance Criteria

This analysis evaluates the proposed project's impacts on land uses based on the criteria identified in the State CEQA *Guidelines*, Appendix G. A land use impact is considered significant if implementation of the project would result in any of the following:

1. Physically divide an established community.
2. 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 plans, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.
3. Conflict with any applicable habitat conservation plan or natural community conservation plan.

The evaluation of land use impacts resulting from implementation of the proposed project is based on: 1) a review of planning documents pertaining to the project site, including the City of Alameda General Plan and City of Alameda Zoning Ordinance; 2) a field review of the project site; 3) a review of planning documents pertaining to lands adjacent to the proposed project site; and 4) consultation with appropriate agencies. Changes in land use are not, in and of themselves, adverse environmental impacts.

Impact Analysis

This following impact analysis focuses on potential impacts of the proposed project related to land use changes and policy conflicts

Impact 4.A-1: Development facilitated by the proposed Alameda Point project would not physically divide an established community within the City of Alameda. (Less than Significant)

For the purpose of this impact analysis, physically dividing an established community means the creation of barriers that prevent or hinder the existing flow of people or goods through an established community, or the placement of a development in such a manner that it physically separates one portion of an established community from the remainder of that community. For example, a freeway or other limited access roadway or a rail line would be considered such a barrier, as could a fence or wall or, potentially, a system of discontinuous streets, depending on wayfinding guidance provided.

The project site is physically separated from nearby properties by fences and streets. To the west, a fence separates the site from the land owned by the Navy, which will be transferred to the United States Department of Veterans Affairs. To the east, the site is separated from the Bayport neighborhood by Main Street and a Class 1 bicycle path. A fence marks the boundary of Encinal High School. Fences line the eastern side of Alameda Point along Main Street, although access is available at each roadway intersection, including W. Midway Avenue, W. Atlantic Avenue, Avenue K, and Avenue L.

The proposed project would reduce barriers and improve connections between Alameda and the site. The draft Master Infrastructure Plan (MIP) establishes the street system for the project site, as shown in **Figure 3-7**. The proposed project's onsite circulation system would be designed to provide connectivity to the outside street network (along the eastern and northern edges of the project site) and onsite transit facilities and services. Combined with the proposed bicycle and pedestrian network, the onsite street and trail system would join the existing City street and trail system on the eastern edge and northern edges of the project site. Although some of the larger existing parcels on the project site would be subdivided by this new street system, these vacant or underutilized parcels do not currently accommodate an established community. The project proposes a grid-like street system that would provide ready connections between sub-areas and between the project site and other developed areas of Alameda. Therefore, the proposed project would not physically divide an established community but would improve connections. The impact would be less than significant.

Mitigation: None required.

Impact 4.A-2: Development facilitated by the proposed project could potentially conflict with an applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, the General Plan and zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect. (Less than Significant)

Project Consistency with the San Francisco Bay Plan

Because a portion of the project site lies within BCDC jurisdiction, development would be subject to the *San Francisco Bay Plan*. Buildout of the proposed shoreline improvements and seaplane lagoon marina—including dredging, piers, and piling for the marina—would require BCDC review and permit approval. The project would also be subject to BCDC review to ensure that adequate public access to and along the shoreline has been incorporate. BCDC would rely upon information in the EIR but would make separate consistency findings with respect to its own plan.

In accordance with Policy 1 *Fills in Accord with the Bay Plan*, improved shoreline appearance and public access would be provided. Additionally, in accordance with Policy 1, *Bay-Oriented Commercial Recreation and Bay-Oriented Public Assembly on Privately-owned Property*, Bay-oriented commercial recreation and public assembly are proposed. The onsite fill in the redevelopment area and berms in the adaptive-reuse area (**Figure 3-11**) would provide long-term sea-level rise protection to the project site.

Dredging would be necessary to support expanded maritime uses, which would be considered a permissible water-oriented use according to the Bay Plan. The new marina must be consistent with *Fills in Accord with the Bay Plan* Policy 1, which requires that fill and dredging be for Bay-related activities. Also, consistent with Policy 2 of *Other Uses of the Bay and Shoreline*, most of the fill that would comprise the marina would consist of docks on piles over water that would provide boat slips.

The development facilitated by the proposed project must be consistent with Bay Plan polices related to public view corridors and waterfront access. Ensuring consistency with Bay Plan policies is part of the BCDC permitting process. The proposed project would be consistent with the *San Francisco Bay Plan* in that it would provide recreational access to the Bay and would not result in new fill beyond those allowed for under the Plan (i.e., Bay-oriented commercial recreation and improved shoreline appearance and public access to the Bay).

Project Consistency with the Public Trust Doctrine

Upon completion of the land exchange approved by the California State Lands Commission, approximately 1,599 acres of both filled land and present tide and submerged land within the project site will be subject to the Public Trust. The proposed Northwest Territories Open Space District, the proposed Open Space District south of W. Hornet Avenue, and the shoreline adjacent to the Seaplane Lagoon will be subject to the Public Trust. The Public Trust also will remain on the corridor bounded by Saratoga and Second streets, extending north to the Oakland Inner Harbor and south to the Seaplane Lagoon.

Navigation, fisheries, maritime uses, hotels, water-oriented recreation, restaurants visitor-serving retail, parks and open space are among the activities generally permitted on Trust Lands. Housing and general office are examples of uses generally not permitted on Trust Lands. Buildout of the proposed project consistent with the proposed Zoning Amendment would adhere to these requirements and would be consistent with the Public Trust.

Project Consistency with Plan Bay Area

The project site is included in *Plan Bay Area* as the NAS Alameda Priority Development Area (PDA), which also includes Bayport, Alameda Landing, and the North Housing areas. *Plan Bay Area* describes its vision for this PDA as follows:

> This area includes substantial acres of underutilized land. The overall vision for the redevelopment of the Alameda's former Naval Air Station lands and Fleet Industrial Supply Center is to create a transit-oriented, mixed- use, sustainable development that provides homes for a variety of family sizes and income levels, jobs for the region to replace those lost by the closure of the base, as well as parks and open spaces for conservation and regional recreation (ABAG and MTC, 2012).

The proposed project is consistent with the description of the PDA in the *Plan Bay Area*, and the projected growth in housing and employment opportunities on the site. For further discussion refer to Section 4.B, *Population and Housing*.

Project Consistency with the Bay Trail

The proposed recreational trail will pass through the undeveloped portion of the old runways, and would be consistent with the Bay Trail Plan policies for protecting existing trail segments and expanding proposed trail links along the San Francisco Bay.

Project Consistency with the Alameda General Plan

According to *The General Plan Guidelines* published by the State Office of Planning and Research (OPR), a general rule for consistency determinations can be stated as follows: "An action, program, or project is consistent with the general plan if, considering all its aspects, it will further the objectives and policies of the general plan and not obstruct their attainment."

The City Council, as the legislative body of the City of Alameda, is ultimately responsible for determining whether an activity is consistent with the Alameda General Plan. Perfect conformity with a general plan is not required. Instead, the City Council must balance various competing considerations and may find overall consistency with the General Plan despite potential inconsistencies with some individual provisions. The potential inconsistencies with General Plan goals, objectives, and policies do not themselves create a significant environmental impact under the thresholds established in CEQA *Guidelines* Appendix G, because not all land use goals and policies at issue are "adopted for the purpose of avoiding or mitigating an environmental effect." These policies are, instead, expressions of community planning and organization preferences, and the City of Alameda may modify these preferences without necessarily creating a significant adverse impact on the environment. However, project policy consistency is discussed below.

Project Consistency with Land Use Element Policies. The policies from the Land Use Element encourage development of a balance of uses in the City of Alameda, including residential development for various income levels, a range of retail businesses and services, mixed-use areas, public open spaces, and pedestrian-oriented districts. As stated in Chapter 3, Project Description, the proposed project divides the site into four sub-areas to ensure that new development is appropriately designed to fully achieve policy goals for job generation, transit development, housing diversity, mixed-use development, historic preservation and water-oriented design. Development intensities currently envisioned for each sub-area can be moved from one sub-area to another to optimize development opportunities, and the mix of development types (land use categories) is flexible. Development of the sub-areas--Enterprise, Adaptive Reuse, Town Center and Waterfront, Main Street Neighborhood—would further the goals of the Land Use Element policies listed above. The proposed project also would include Zoning Ordinance and General Plan amendments, which would ensure consistency with the Land Use Element.

Project Consistency with City Design Element Policies. The policies from the City Design Element seek to maximize public enjoyment of the waterfront, as well as ensure that development is compatible with its surroundings. As stated in Section 4.K, *Aesthetics*, the proposed project would not substantially or adversely affect scenic views or scenic resources, and the changes in visual character of the project site would meet the objectives of the General Plan and not result in adverse visual impacts. As stated above and in Chapter 3, Project Description, development located within 100 feet of the shoreline would require the approval of BCDC, and structural development would be reviewed by BCDC's Design Review Board in accordance with Bay Plan findings and policies. Therefore, the proposed project would be consistent with the City Design Element.

Project Consistency with Transportation Element Policies. The proposed project would be consistent with the policies from the Transportation Element because it would encourage development of mixed-use districts with transit access, as well as buildout of the bicycle and pedestrian network in the Draft MIP. The proposed project's potential impacts to vehicular traffic, transit, bicycle, and pedestrian circulation and safety are discussed in Section 4.C, *Transportation and Circulation*.

Project Consistency with Open Space and Conservation Element Policies. The consistency of the proposed project with the requirements of the 2012 Biological Opinion is discussed in Section 4.E, *Biological Resources*.

The project site is adjacent to the Oakland Estuary and the San Francisco Bay. Onsite vegetation and stormwater best-management practices would be included in the project, and the proposed project would be consistent with the Open Space and Conservation Element policies. Please see Sections 4.E, *Biological Resources* and 4.H, *Hydrology and Water Quality*, for further discussion of these measures.

Project Consistency with Parks and Recreation, Shoreline Access, Schools and Cultural Facilities Element Policies. The proposed project would expand access to the shoreline and provide new public open spaces by creating a passive and active open spaces on the project site, including the Sports Complex and the extension of the Bay Trail. As described in Section 4.L, *Public Services and Recreation*, the City of Alameda Fiscal Neutrality Policy requires that development projects at Alameda Point pay for the cost of municipal services and public infrastructure improvements, and payment of the development fees for schools would ensure less than significant impacts related to the provision of school facilities. The proposed project would therefore be consistent with the Parks and Recreation, Shoreline Access, Schools and Facilities Element.

Project Consistency with Health and Safety Element Policies. The proposed project would be required, through existing City and State health and safety regulations, codes and ordinances, to comply with the Health and Safety Element policies. The proposed project would, therefore, be consistent with the Health and Safety Element. Noise impacts are addressed in Section 4.D. Impacts related to seismic events, flooding, and hazardous materials are discussed in Sections 4.H, 4.I, and 4.J, respectively.

Project Consistency with Housing Element Policies. Buildout pursuant to the General Plan would provide up to 1,425 units of housing intended for households at a range of income levels, including 200 units of supportive housing and an additional new residential units available for lower-income households. As stated in Section 4.B, *Population and Housing*, development that would occur under the proposed project would help Alameda accommodate anticipated growth as opposed to substantially increasing population, and the residential development that would occur under the proposed project would help to meet housing demands from projected population growth in the City and the region.

Project Consistency with Site-Specific General Plan Policies in the Alameda Point Element. The proposed project appears consistent with the following site-specific policies:

- Create a series of neighborhoods, each with a central focus of mixed-use development, including local serving commercial and recreational uses and a mixture of housing types and densities serving all income levels. *(Policy 9.2.a)*

  Buildout of the proposed project would adhere to development controls of four sub-areas, described in the Project Description, which would result in mixed-use development and housing types for various income levels.

- Develop the Civic Core as a major new center of the City, and a focus of the Alameda Point district. *(Policy 9.3.a)*

  The proposed project's Zoning and General Plan Amendments envision a Waterfront Town Center Sub-District with a mix of residential, commercial, and recreational uses included in the proposed Town Center and Waterfront Area Precise Plan.

- Foster cohesion between development of this new mixed-use area and existing surrounding neighborhoods and the City of Alameda. *(Policy 9.3.f)*

As described under Impact 4.A-1, above, the project would enhance physical connectivity between the project site and existing developments to the east by creating an expanded street network and bicycle and pedestrian improvements.

- Create a mixed-use area that is sensitive to the restrictions and recommendations regarding the neighboring Wildlife Refuge. *(Policy 9.3.k)*

  The project's consistency with policies protecting the neighboring proposed nature reserve is discussed in Section 4.E, Biological *Resources*.

- Foster development of residential, commercial, and retail uses that promote vitality and pedestrian activity along the waterfront. *(Policy 9.3.l)*

  The project site's waterfront areas are proposed to be zoned for Open Space along the northern and southern shoreline and Maritime-Visitor Serving uses along the Seaplane Lagoon. The Open Space areas would provide lands for recreation and public assembly. The Maritime-Visitor Serving District would encourage a variety of commercial, visitor-serving, and other Public Trust-complaint uses. Both the Open Space and Maritime-Visitor Serving use areas would be adjacent to other districts that would complement the active and passive use of these areas, including the Enterprise, Adaptive Reuse, Town Center, and Main Street Neighborhood Sub-Districts.

- Guide further development of this primarily residential area [West Neighborhoods] to improve quality of life for residents, accessibility for pedestrians, and supporting uses to promote a balanced neighborhood. *(Policy 9.3.s)*

  The Main Street Neighborhood (formerly West Neighborhoods) area would provide lands for a variety of housing types and densities with complementary small-scale, neighborhood-serving commercial and service uses, urban agriculture and parks uses.

- Consider the need for workforce housing and childcare. *(Policy 9.3.t)*

  The variety of housing types to accommodate a mix of income levels would partially meet the need for workforce housing, and, childcare would be a permitted use in several of the sub-areas under their applicable zoning designations.

Northwest Territories

- Preserve the Northwest Territories for parks and open space, which may include a golf course/hotel-resort, pedestrian and bicycle trails, and public access. *(Policy 9.3.cc)*

  This area would be zoned for Open Space uses consistent with this provision.

- Incorporate recommendations and regulations regarding the Wildlife Refuge into development in the Northwest Territories. *(Policy 9.3.dd)*

  The project's consistency with policies projecting the neighboring Wildlife Refuge is discussed in Section 4.F, Biological Resources.

Wildlife Refuge

- Help maintain a Wildlife Refuge that balances natural conservation with public access, education, and ship navigation. *(Policy 9.3.kk)*

The project's consistency with policies projecting the neighboring Wildlife Refuge, or proposed nature reserve, are discussed in Section 4.F, Biological Resources.

The General Plan is currently in substantial compliance with the Reuse Plan due to a 2003 comprehensive GPA and EIR to incorporate the Reuse Plan goals and policies into the General Plan. (See General Plan Chapter 9: *Alameda Point.*) The proposed General Plan amendments are designed to harmonize the General Plan with the Reuse Plan by increasing the square footage of permitted non-residential uses at Alameda Point from 2.3 million square feet to 5.5 million square feet and reduce the number of permitted housing units from 1,928 to 1,425 consistent with the Reuse Plan.

Project Consistency with the Alameda Zoning Ordinance

The existing M-2-G zoning designation for the project site is not consistent with the majority of the land use designations in both the existing General Plan and the proposed Amendments to the General Plan. As described in the Project Description, the proposed project would involve amending the Zoning Ordinance in a manner that implements the Reuse Plan and General Plan, as shown in **Figure 3-10**. The Zoning Map Amendment would replace the M-2/G with a new zoning designation. As illustrated in Figure 3-10, the Zoning Ordinance Amendment proposes seven sub-districts to regulate the variety of new uses and improvements envisioned for Alameda Point. The seven sub-districts include:

Enterprise (AP-E). The Sub-district would provide lands for high quality industrial and office park development to accommodate employment generating research and development, manufacturing, engineering, and sales and administration businesses. Generalized development standards in this district are intended to ensure high quality, well designed new buildings that are appropriately buffered from sensitive nearby residential and open space uses. Allowed uses are limited to prevent intrusion of uses that would limit or constrain future use of these lands by manufacturing, research, and other preferred uses.

Adaptive Reuse (AP-AR). The Sub-district would provide lands for a broad range of uses that create employment opportunities, support reinvestment in the existing buildings within the NAS Alameda Historic District, and support the adjacent Sub-districts. As noted above, the emphasis would be on reuse of existing buildings, particularly those that are contributory to the National Register and City Historical Monument historic district. However, demolition of identified historical resources would not be prohibited, and in instances where existing buildings are not readily adaptable to new uses, it is anticipated that some historic buildings and resources would be demolished over time.

Town Center (AP-TC). Pursuant to the Zoning Ordinance and Town Center and Waterfront Precise Plan, this Sub-district would provide lands for a mixed-use, waterfront town center that serves as a retail, entertainment, lodging, recreational, visitor-serving and transit center for Alameda Point. Medium to high-density residential uses are appropriate in Town Center to support a transit and pedestrian-friendly mixed-use neighborhood. Portions of this sub-district fall within the NAS Alameda Historic District.

Main Street Neighborhood (AP-MS). The Sub-district would provide lands for a variety of housing types and densities with complementary small-scale, neighborhood-serving commercial and service uses, urban agriculture and parks uses. This area would be subject to a subsequent precise plan to ensure that it is carefully designed to allow for a mix of residential densities compatible with the adjacent Main Street Ferry Terminal, open space and waterfront lands, and former officer family housing, commonly referred to as the "Big Whites." Portions of this sub-district fall within the NAS Alameda Historic District.

Maritime (AP-M). The Sub-district would provide lands for primarily waterfront, Public Trust compliant uses, including a variety of maritime and visitor-serving uses, concessions related to maritime activities, hotels, restaurants and other Public Trust compliant commercial uses.

Open Space (AP-OS). The Sub-district would provide lands for parks, recreation, trails, and large-scale public assembly and event areas.

Nature Reserve (AP-NR). The Sub-district would provide land for long-term protection of habitat primarily for the endangered California Least Tern, but also for other wildlife.

The proposed zoning would provide a foundation for more detailed planning efforts for certain sub-districts. For example, the "Town Center" and the "Main Street Neighborhood" sub-districts would require additional, detailed development standards. These areas would be guided by detailed form-based design and development standards (i.e., master plans or precise plans) which would provide more detailed standards and requirements to ensure that that the ultimate development of these areas would reflect the transit-oriented, pedestrian-friendly, environmentally sustainable, mixed-use vision described in the Reuse Plan and General Plan. As noted, the Town Center and Waterfront Precise Plan is being prepared and is analyzed in this EIR as part of the proposed project. The City anticipates future preparation of a precise plan for the Main Street Neighborhood Sub-district.

In contrast, other sub-districts and/or activities would not have as detailed or prescriptive standards, but instead would be more general in nature. The proposed site-wide zoning would be sufficiently clear in identifying the types of permitted and conditional uses that are appropriate, and the development standards that are required for the "Enterprise," "Adaptive Reuse," and "Maritime" sub-districts.

While the immediate opportunities within the "Enterprise" sub-district, due to the NAS Alameda Historic District, would be directed towards adaptive reuse opportunities for new business, the "Enterprise" sub-district would focus on new job-generating construction opportunities that become available similar to the Lawrence Berkeley National Laboratory (LBNL) 2nd Campus process.

Conclusion

Conflicts with a General Plan or other relevant plans do not necessarily result in a significant effect on the environment within the context of CEQA. Section 15358(b) of the CEQA Guidelines states that "effects analyzed under CEQA must be related to a physical change." Appendix G of the

CEQA Guidelines makes explicit the focus on physical environmental policies and plans, asking whether the project would "conflict with any applicable land use plan, policy, or regulation…. *adopted for the purpose of avoiding or mitigating an environmental effect*" (emphasis added). Hence, the project's conflict or inconsistency with the policy could indicate that an environmental threshold has been exceeded. To the extent that the project exceeds an environmental threshold and significant physical impacts may result from a policy conflict or inconsistency, such physical impacts have been identified and fully analyzed in the relevant topical sections of this EIR.

The physical environmental effects of the proposed General Plan amendment and rezoning, and associated increases in development, such as increased traffic, noise, air emissions, habitat degradation, visual resources effects and hydrologic impacts, are discussed in their respective sections in this EIR. Assuming approval and adoption of the General Plan Amendment and Zoning designation described above, the project would be consistent with the applicable land use plans and policies and there would be a less-than-significant land use impact.

Mitigation: None required.

Impact 4.A-3: Development facilitated by the proposed project could potentially conflict with an applicable Habitat Conservation Plans or Natural Community Conservation Plans. (Less than Significant)

The San Francisco Estuary Project (SFEP) is a federal-state-local partnership established under the Clean Water Act's National Estuary Program. It is a cooperative effort working to promote effective management of the Bay-Delta Estuary, and to restore and maintain its water quality and natural resources while maintaining the region's economic vitality. The SFEP oversees and tracks implementation of its Comprehensive Conservation and Management Plan (CCMP) goals, objectives and actions to protect and restore the Estuary. The CCMP serves as a roadmap for restoring the Estuary's chemical, physical, and biological health and was adopted in 1993, with an updated CCMP adopted in 2007.

The San Francisco Baylands Habitat Goals and Subtidal Habitat Goals Reports, provide a scientific foundation and approach for the conservation and enhancement of the baylands and submerged areas of San Francisco Bay. The Baylands Habitat Goals establish a long-term vision for a healthy and sustainable baylands ecosystem. The Goals Project was recommended by the Governor's "California Wetlands Conservation Policy" and by the Comprehensive Conservation and Management Plan (CCMP) of the U.S. Environmental Protection Agency's San Francisco Estuary Project. The Subtidal Habitat Goals were prepared as a collaboration among BCDC, California Ocean Protection Council/California State Coastal Conservancy, NOAA, and the San Francisco Estuary Partnership (Goals Project 2010). These reports contain recommended conservation goals for Bay habitats potentially affected by project activities that can be used by permitting agencies when evaluating proposed projects within their jurisdiction. Although the Comprehensive Conservation Plan and Goals Project are not regulatory documents they are supported by most of the agencies and non-governmental groups with major planning, operational, or regulatory interests in Bay Area wetlands and any adverse effects on wetlands, shorelines, and subtidal habitats would also have potential negative effects on special-status species, critical habitat for federal listed species, managed fish species Essential Fish Habitat, or habitat for protected marine mammals.

Further, implementation of the avoidance and minimization measures contained in the USFWS Biological Opinion for Alameda Point and embodied in the Navy's Declaration of Restrictions, which place restrictions on Alameda Point development protective of biological resources. It would also help ensure that development facilitated by the proposed project would be implemented in a manner intended to maintain consistency with the Comprehensive Conservation Management Plan (CCMP) for the San Francisco Bay Estuary.

Mitigation: None required.

Cumulative Impact

Impact 4.A-4: Development facilitated by the proposed project, combined with cumulative development in the defined geographic area, including past, present, reasonably foreseeable future development, could potentially have significant adverse cumulative impacts in the area. (Less than Significant)

The geographic context considered for the cumulative land use, plans, and policy impacts includes the surrounding area that, when combined with the proposed project, could result in cumulative land use, plans, and policy impacts. Past projects are included in the existing setting described in this section and in the introduction for this chapter. Present projects would include any projects currently under construction and reasonably foreseeable future projects are those that could be developed or occur in the project site area by 2035.

As concluded in this section, the proposed project would result in less-than-significant impacts resulting from physically dividing an established community or conflicting with any land use plan, policy or regulation adopted for purposes of avoiding or mitigating an environmental effect. The proposed project site is primarily self-contained, because it is bounded by roadways, the Oakland Estuary, federal land, and San Francisco Bay.

Land use impacts from the proposed project are local and limited to the project site. The area immediately east of the project site is generally built out pursuant to the General Plan with a mix of residential, institutional and commercial land uses. Although redevelopment of the project site would increase the intensity of commercial, industrial, residential, and recreational uses, these uses would not combine with the developments above to result in cumulative impacts related to physical division of an established community. To the contrary, the cumulative effect of these development projects would be to integrate existing underutilized sites into the larger city fabric, and the projects would improve land use compatibility compared to existing conditions. The cumulative impact would be less than significant.

Regarding consistency with plans and policies, future development within the project must be consistent with the City's General Plan and other applicable land use plans and requirements. The cumulative projects also would be subject to the General Plan, Specific Plan (if applicable) and the Zoning Ordinance to ensure land use compatibility. Further, implementation of the avoidance and minimization measures contained in the USFWS Biological Opinion for Alameda Point and embodied in the Navy's Declaration of Restrictions, which place restrictions on Alameda Point development protective of biological resources. It would also help ensure that development facilitated by the proposed project would be implemented in a manner intended to maintain consistency with the Comprehensive Conservation Management Plan (CCMP) for the San Francisco Bay Estuary, as discussed under Impact 4.A-3. The proposed project would not combine with other developments to result in a significant cumulative land use impact associated with conflicts with plans and policies. As described above, the General Plan and Zoning Ordinance would be amended under the proposed project to ensure consistency with applicable policies.

Therefore, it is not anticipated that the proposed project, together with other past, present or reasonably foreseeable future development in the area, would result in a cumulative impact with respect to conflicts with land use, plans and policies adopted for the purpose of avoiding or mitigating an environmental effect. Thus, the proposed project would not result in a significant cumulative land use impact.

Mitigation: None required.

A.5 References – Land Use Consistency and Compatibility

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B. Population and Housing

B.1 Introduction

This section describes the City's existing and projected population, employment and housing characteristics and evaluates the Alameda Point project in terms of potential impacts on population, employment and/or housing.

B.2 Environmental Setting

Population and Households

The City of Alameda is an urban island city with limited developable land remaining within its boundaries, with the exception of the project area. According to the Department of Finance 2012 population estimates, Alameda's population was 74,640 on January 1, 2012. The population in Alameda is less than its peak in 1994 of 79,291 residents, due to the closing of Naval Air Station Alameda (NAS Alameda), the project site, and the Fleet Industrial Supply Center, now called Alameda Landing (Housing Element, 2012). However, between 2000 and 2010 the City of Alameda population increased from 72,259 persons to approximately 73,812 persons, an increase of 2.1 percent (Census Bureau, 2013).

Between 1990 and 2000, the number of households in the City of Alameda decreased by 1,148, or by less than 4 percent when compared to the 1990 pre-base closure average of 29,078 households (2000 Census). Between 2000 and 2010, the number of households decreased from 30,226 households (2000 Census) to 30,123 households (2010 Census). The number of households is projected by ABAG to increase to 36,570 households in 2040 as shown in **Table 4.B-1** (ABAG and MTC, 2012).

TABLE 4.B-1
CITY OF ALAMEDA POPULATION, HOUSING, AND JOBS

	2000	2010	2040
Population	72,259	73,812	N/A[1]
Households	30,226	30,120	36,570
Housing Units	31,644	32,350	38,250
Jobs	27,380	24,030	33,180

NOTE:
1 Population projections at the City level are not available in *Plan Bay Area*.
SOURCE: 2000 Census, *Plan Bay Area*, 2013.

Housing

According to the 2000 Census, there were 31,644 housing units in the City of Alameda. Of these, 40.4 percent were detached single-family units, 12.5 percent were attached single-family units, and 46.1 percent were multi-family units. By 2010, the number of housing units increased to 32,350.[1]

Existing residential structures on the project site range from the historic, single-family officers housing to the former enlisted personnel barracks. The residential portion of the NAS Alameda in the northeast portion of the project site has single family and multiple-family structures. These include: ranchettes, large historic single family residences (the "Big Whites"), the NAS Alameda Bachelors' Officers Quarters (BOQ), and the NAS Alameda Bachelors' Enlisted Quarters (BEQ). The City leases 68 of these units at market rates. An additional 200 units (Supportive Housing Units) are currently leased as supportive housing for the homeless, women and children in need, and veterans in transition. It is estimated that currently 500 people reside in the Supportive Housing Units and 161 people reside in the 67 market rate units (assumed population of 2.4 persons per unit) (Alameda, 2013).

Employment

Just as with population growth, employment history has been turbulent in Alameda over the past decades. Jobs decreased in the 1990's as the result of the NAS and FISC closures. The closure of NAS and FISC resulted in the net loss of an estimated 14,000 jobs between 1990-1998 out of a total of 38,730 jobs in 1990 (Alameda, 2012). As presented in Table 4.B-1, jobs decreased from 27,380 in 2000 to 24,030 in 2010. *Plan Bay Area* projects approximately 33,180 jobs in Alameda by 2040.

The Alameda Point project site currently contains over 1.8 million square feet of occupied building space that the City leases to various entities for uses such as offices, research and development, recreational uses, and industrial uses such as distilleries; warehousing and storage facilities; and government offices. These uses currently provide approximately 1,000 jobs (Keyser Marston, 2012).

Jobs/Housing Balance

Jobs/housing balance is defined as the ratio of the number of jobs to the number of housing units in a given area. Although the term "jobs/housing balance" is still often used, the more precise relationship is between jobs and the number of employed residents (because some households have no workers, while others have multiple workers). Jobs and housing are said to be balanced when there is an equal number of employed residents and jobs within a given area, generating a ratio of approximately 1.0. An area that has too many jobs relative to its housing supply is likely to experience rising housing costs and declining affordability. If an area has too few jobs relative to its housing supply, this may be an indication that residents are commuting elsewhere to work. Environmental effects of this imbalance may include traffic congestion and adverse impacts on air quality.

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1 Note, the number of housing units increase, while the number of households decreased due to the recession; vacancy rates went up.

The City of Alameda currently has more employed residents than jobs. As described above, it is estimated that the City has approximately 26,970 jobs and 37,799 employed persons, which indicates that many of Alameda's employed residents commute to work outside of the City. The ratio of jobs to employed residents within the City of Alameda is 0.71.

Regulatory Framework

This subsection briefly describes regional and local regulations and policies pertaining to population and housing as they apply to the proposed project.

State and Regional

Association of Bay Area Governments

State Housing Element Law, Government Code Section 65584, requires local governments to plan for their fair share of projected, future regional housing needs. Each jurisdiction must plan for its Regional Housing Needs Allocation (RHNA) when its General Plan Housing Element is updated. The allocation takes into consideration regional and local factors such as jobs, housing, land use and transportation.

The City of Alameda Housing Element was certified by HCD on July 17, 2012 for the period 2007 through 2014, with the 2008 RHNA allocations. The allocation of affordability levels for these units for the five-year planning period ending June 30, 2014, is provided in **Table 4.B-2**. ABAG has developed RHND for the 2014-2022 planning period, which is also provided in Table 4.B-2.

TABLE 4.B-2
CITY OF ALAMEDA RHND ALLOCATIONS

Income Limits	Extremely Low	Very Low	Low	Moderate	Above Moderate	Total
2007-2014	241	241	329	392	843	2,046
2014-2022	n/a	442	247	282	745	1,716

SOURCE: ABAG, 2013

Plan Bay Area and NAS Alameda PDA

Since the publication of its most recent *Projections* series in 2009, ABAG's forecasts have changed from a two-year cycle to a four-year cycle that is coordinated with the regional Sustainable Communities Strategy. On May 16, 2012, *Projections 2009* was supplanted by the *Plan Bay Area*, which sets forth the region's proposed Sustainable Communities Strategy. The region's Sustainable Communities Strategy was formally adopted by ABAG and MTC in July 2013. The EIR for *Plan Bay Area* analyzes the proposed project as part of the land use scenario.

The methodology used for housing and employment projections contained in the *Plan Bay Area* is set forth in detail in Appendix B of the *Plan Bay Area Jobs-Housing Connection Strategy*, which states that the projected distribution of housing "takes into account local input and key sustainability, equity, and economic factors. These factors utilize new data sources that better identify sustainable locations for growth and planned levels of development. The housing distribution is linked to existing and future transit service and expected level of GHG emissions from each area of the region, with the goal of utilizing the existing transit infrastructure efficiently and directing growth to places that can provide the best opportunity for emissions reductions. However, growth in each place is tied directly to housing potential that has been defined by local jurisdictions."

Appendix B of the *Plan Bay Area Jobs-Housing Connection Strategy* further states that projected distribution of future employment "takes into account employment growth by sector and is linked to transit infrastructure and local input. Employment growth is organized under three major groups: knowledge-sector jobs, population-serving jobs, and all other jobs. The knowledge-sector jobs are expected to grow based on current concentration, specialization, and past growth as well as transit service and access. Population-serving jobs, such as retail stores are expected to grow based on residential growth. All other jobs are expected to grow according to the existing distribution of jobs in each of these sectors."

Plan Bay Area provides housing and employment projections for the San Francisco Bay Area, as well as counties, cities, and priority development areas (PDAs).[2] In contrast to previous trends where new development primarily occurred on raw rural lands, *Plan Bay Area* directs development to PDAs. According to ABAG, "this allows the region to reduce the emission of GHGs, house our population in a wide range of neighborhoods, preserve our natural resources, and support the creation of and greater access to new employment opportunities" (ABAG and MTC, 2013a).

The project site is included in *Plan Bay Area* as the NAS Alameda PDA, which also includes Bayport, Alameda Landing, and the North Housing areas. *Plan Bay Area* describes its vision for this PDA as follows:

> This area includes substantial acres of underutilized land. The overall vision for the redevelopment of the Alameda's former Naval Air Station lands and Fleet Industrial Supply Center is to create a transit-oriented, mixed- use, sustainable development that provides homes for a variety of family sizes and income levels, jobs for the region to replace those lost by the closure of the base, as well as parks and open spaces for conservation and regional recreation.

According to *Plan Bay Area*, the Bay Area is expected to "experience more modest growth than in past decades." Even so, ABAG still projects "healthy economic growth of 1.1 million jobs and 2 million people by 2040 as the Bay Area continues to attract cutting-edge, high technology companies, talent, and investment from around the world." This regional projection "assumes a full-

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2 PDAs are areas where future growth within the Bay Area is intended to be concentrated. Within PDAs, "new development will support the day-to-day needs of residents and workers in a pedestrian-friendly environment served by transit" (ABAG and MTC, 2013).

employment economy with unemployment rates returning to normal levels within a successful national economy. The forecast also recognizes the challenges with building new housing in the region that is largely multi-family and in infill locations, and the impact that has on our ability to capture potential job growth. Achieving this growth will require that the region respond to an aging and diversifying population, polarizing wages, high housing and transportation costs, and other issues affecting our quality of life" (ABAG and MTC, 2013a).

Local

City of Alameda General Plan Housing Element

The City's General Plan Housing Element was adopted on July 3, 2012. The Housing Element accommodates the City's RHND allocation and identifies parcels in the City that are available or underutilized that could be used for development of housing and to meet the City's RHND.

The City of Alameda General Plan Land Use Element contains the following project relevant policies related to population, employment and housing:

Residential Areas

Policy 2.4.c Where a suitable residential environment can be created, give priority to housing on land to be developed or redeveloped in order to meet the quantified objectives of the Housing Element.

Policy 2.4.e Expand housing opportunities for households in all income groups.

Policy 5.5.e Minimize commuting by balancing jobs and nearby housing opportunities.

Policy 2.4.i Encourage the inclusion of family child care homes in residential areas and child care centers in major residential and commercial developments with special consideration to areas or developments convenient to transit, community centers, and schools.

Retail Business and Services

Policy 2.5.a Provide enough retail business and services space to enable Alameda to realize its full retail sales potential and provide Alameda residents with the full range of retail business and services.

Policy 2.5.g Maintain neighborhood business districts for small stores that attract mainly pedestrian traffic and can be acceptable neighbors for nearby residents.

Policy 2.5.j Maximize opportunities for retail development at Alameda Point to support creation of a mixed use, transit oriented community at Alameda Point as envisioned in the Alameda Point General Plan policies.

Policy 2.5.k Pursue and encourage new retail development that is consistent with the retail policies of the General Plan and Economic Development Strategic Plan; primarily serves the community or addresses a high priority local retail or service need; and will not have a significant long term deleterious effects on existing retail areas and/or the local economy.

Policy 2.5.x Develop a pedestrian oriented town center at Alameda Point with community retail shops and services in close proximity to transit, ferry, and other transportation facilities.

Alameda Point Element

- Create a series of neighborhoods, each with a central focus of mixed-use development, including local serving commercial and recreational uses and a mixture of housing types and densities serving all income levels. *(Policy 9.2.a)*

Civic Core

- Develop the Civic Core as a major new center of the City, and a focus of the Alameda Point district. *(Policy 9.3.a)*

Inner Harbor

- Foster cohesion between development of this new mixed-use area and existing surrounding neighborhoods and the City of Alameda. *(Policy 9.3.f)*

Marina

- Create a mixed-use area that is sensitive to the restrictions and recommendations regarding the neighboring Wildlife Refuge. *(Policy 9.3.k)*
- Foster development of residential, commercial, and retail uses that promote vitality and pedestrian activity along the waterfront. *(Policy 9.3.l)*

West Neighborhood

- Guide further development of this primarily residential area to improve quality of life for residents, accessibility for pedestrians, and supporting uses to promote a balanced neighborhood. *(Policy 9.3.s)*
- Consider the need for workforce housing and childcare. *(Policy 9.3.t)*

B.3 Impacts and Mitigation Measures

Significance Criteria

Appendix G of the CEQA *Guidelines* provides that a project would have a significant population or housing impact if it would:

- Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure);
- Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere; or
- Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere.

Approach to Analysis

The methodology for this analysis included reviewing relevant documents, statistics, and policies about the City's housing population and employment data. Additionally, local regulations were reviewed for project applicability, including the General Plan, ABAG, U.S. Census Bureau, and California Department of Finance. The proposed project was evaluated based on the potential effects on Alameda's housing, population and employment.

Impact Analysis

Impact 4.B-1: Development facilitated by the proposed project could potentially induce substantial population or housing growth both directly and indirectly. (Less than Significant)

Housing development implemented under the proposed project would include approximately 1,425 residential units, of which 1,158 would be new units and 268 are existing single family and multifamily housing units. Of these existing units, 200 are Supportive Housing Units and may be reconstructed as new units. In addition, approximately 25 percent (306 units) of the new residential units would be made available for lower income households.

In addition to the residential development, the proposed project would include approximately 5.5 million square feet of employment-generating uses in existing and newly constructed buildings. Employment uses would include a mix of retail; commercial recreation; commercial office; business park; industrial; institutional; maritime; and marina uses. This new development could induce population growth because it provides new homes and businesses in Alameda.

As presented in **Table 4.B-3**, there are 32,350 housing units in Alameda and *Plan Bay Area* projects 38,240 housing units by 2040, an increase of 5,890 housing units or, an increase of 18 percent. The addition of approximately 1,158 residential units on the project site would be within the project growth of Alameda housing stock as a whole. Further, according to *Plan Bay Area*, the Alameda Point PDA is expected to grow from 1,460 housing units in 2010 to 5,470 housing units in 2040.[3] Therefore, the growth in housing units proposed by the project, and thus population growth generated by the proposed project, would be within the ABAG projections for the City of Alameda (ABAG and MTC, 2013a).

TABLE 4.B-3
PLAN BAY AREA HOUSING UNIT PROJECTIONS

	2010	2040	2010-2040	Growth
City of Alameda	32,350	38,240	5,890	18%
NAS Alameda Transit Town Center	1,460	5,470	4,010	27%

SOURCE: ABAG and MTC, 2013a

3 NAS Alameda PDA, also includes Bayport, Alameda Landing, and the North Housing areas.

The proposed project includes a total of approximately 5.5 million square feet of employment generating uses that would generate approximately 8,910 employees in the project area (as described under Impact 4.B-2). Because these positions would include a wide range of staffing needs (as shown in Table 4.B-3) that largely do not require a specialized workforce, it is anticipated that most of these jobs would be filled by people already living in the area or the new residents of the new housing units, and would not induce an unanticipated influx of new labor into the region.

Alameda is a largely built out City and future development by the proposed project would consist of redevelopment of the form Navy base. Development that would occur under the proposed project would help Alameda accommodate anticipated growth as opposed to substantially increasing population, and the residential development that would occur under the proposed project would help to meet housing demands from projected population growth in the City and the region. Furthermore, the project addresses requirements for inclusionary housing/affordable housing, making approximately 25 percent of the new residential units (in addition to the existing 200 Supportive Housing Units) available for lower income households. These affordable housing units would help the City meet its RHND requirements per the State’s housing laws while also meeting the requirements of a settlement agreement.

Although the project represents a substantial portion of projected population growth, it would not exceed the estimated regional projections and the maximum number of residential units proposed would help accommodate rather than induce population growth. Therefore, the proposed project would result in less than significant direct impacts related to population and housing.

Implementation of the proposed project would include a Master Infrastructure Plan that consists of major infrastructure and site improvements that include replacement and/or rehabilitation of the existing streets, wastewater, storm drain, electrical, water, and telecommunications facilities to support the reuse and redevelopment of Alameda Point. The infrastructure portion of the project would improve and rehabilitate existing aged infrastructure to support redevelopment of Alameda Point and accommodate the projected growth that has been identified by ABAG. Therefore, the project would not result in indirect population growth; and even though the project would result in development of housing units and employment opportunities, the project would accommodate, rather than induce population and housing growth. As a result, impacts related to population and housing growth would be less than significant.

Further, the proposed project would replace the jobs lost when the Navy departed. Because most of the City is built out, with the exception of the project area, it is already anticipated that most growth would occur in Alameda Point. As a result, the employment generated by the proposed project does not conflict with the adopted regional growth projections, and impacts would not occur.

The proposed project would be a transit oriented design with many residential uses located within walking distance of the employment land uses. The proposed project would result in the construction of housing in an urban City that is experiencing a housing shortage as identified in the City’s Housing Element. As described above, it is estimated that the City had approximately

26,970 jobs and 37,799 employed persons in 2010, which indicates that many of Alameda's employed residents commute to work outside of the City. The ratio of jobs to employed residents within the City of Alameda is 0.71.

The project's addition of approximately 2,779 residents and 7,900 job opportunities (8,900 jobs proposed minus 1,000 existing jobs) would provide balance to the City's jobs/housing ratio by providing more job opportunities that would not require Alameda's employed residents to commute out of the City to work. As a result, implementation of the proposed project would result in less than significant impacts related to a jobs/housing imbalance.

Mitigation: None required.

Impact 4.B-2: Development facilitated by the proposed could potentially displace a substantial number of people or housing. (Less than Significant)

As described above, implementation of the proposed project would include development of approximately 1,425 residential units, which includes 268 existing single family and multifamily housing units. The proposed project would not displace any people or existing housing, and the project would not necessitate construction of replacement housing. The proposed project would improve the existing housing and provide additional housing within the project area. As a result, impacts related to the displacement of persons or housing would be less than significant.

Mitigation: None required.

Cumulative Impacts

Impact 4.B-3: Development facilitated by the proposed project, in conjunction with potential past, present, and future development in the surrounding region could potentially introduce additional population to the region, and would result in unanticipated population, housing, or employment growth, or the displacement of existing residents or housing units on a regional level. (Less than Significant)

The increase in housing and population facilitated by the proposed project would not have a significant cumulative impact on population, housing or employment grow. The General Plan enables the construction of residential and commercial growth, and incorporates construction of additional infrastructures, including roads, utilities, and government services that would support future growth. Specifically, the General Plan planned for growth at Alameda Point. Additionally, *Plan Bay Area* accounted for regional growth at Alameda Point, noting the site as a priority development area (PDA).

The new residences provided by the project and related projects would be added to the City, which is largely built-out and would fall within ABAG's growth estimates for the City of

Alameda and for the region. The direct and indirect impacts of population and housing growth on the project site are considered throughout this EIR and include potential impacts to traffic, air quality, noise, visual resources, the provision of public services and utilities, and other resource areas. To the extent that the projected population would result in significant adverse effects to these resources, these impacts have been identified and considered within relevant sections of this document.

Because the population from the proposed project, plus related projects, is within ABAG's projections, the new population has been anticipated by the various utilities and public service providers and other agencies that rely on ABAG's population projections for anticipating future impacts on various resources. The proposed project according to the City's Housing Element, in combination with the development of cumulative projects in the area, would accommodate, rather than induce, population growth. As a result, cumulative impacts related to population and housing are less than significant.

Mitigation: None required.

B.4 References – Population and Housing

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United States Census Bureau, 2013. American FactFinder, Table DP-1 Profiles of General Population and Housing Characteristics 2010 Demographic Profile Data, Table DP-1 for each jurisdiction (i.e., the nine Bay Area counties and Alameda County cities), accessed via factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml.

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C. Transportation and Circulation

C.1 Introduction

This section describes the current transportation network and regulatory setting and summarizes the effects on the future circulation system that would result from the implementation of the Alameda Point project.

C.2 Environmental Setting

Regional Setting

The City of Alameda consists of Alameda Island and Bay Farm Island that are connected by Doolittle Drive / Otis Drive (State Route 61) across the San Leandro Channel. The proposed project is located on Alameda Island, which is separated from the city of Oakland by the Oakland Estuary. Access to and from the island across the Oakland Estuary is provided by a one-way couplet of underwater tunnels at Webster and Harrison Streets (Webster and Posey Tubes) (State Route 260), and three draw bridges at Park Street / 29th Avenue, Tilden Way / Fruitvale Avenue, and High Street. Access between the project site and downtown Oakland is via the Webster and Posey Tubes and the one-way couplet of Seventh Street (eastbound) and Eighth Street (westbound). All of these streets run through Oakland's Chinatown neighborhood.

Regional vehicular access to the site is provided primarily by the freeway system that serves the Bay Area region. Specifically, Interstate 880 (I-880), located approximately 2.5 miles from the project site, connects the study area with the remainder of the interstate freeway network. Other key freeways in the study area include Interstate 980 (I-980), Interstate 580 (I-580), and State Route 24 (SR 24).

I-880 is a north-south eight-lane freeway (though oriented east-west in the study area) that runs from Oakland to San Jose through East Bay cities such as San Leandro, Hayward, Union City, Newark, Fremont and Milpitas. Besides providing access to the Bay Bridge, I-880 also provides linkage to the Peninsula to the west via the San Mateo Bridge (State Route 92) and the Dumbarton Bridge (State Route 84). Access to and from the project site is available on I-880 via the Webster and Posey Tubes, which connect to freeway ramps on Fifth Street and Sixth Street ramps. Travel via each of these ramps except the southbound I-880 off-ramp also requires motorists to travel through the southern or southeastern portion of Oakland Chinatown, along Sixth and Seventh Streets. Additional access to and from I-880 is available from points farther east in Alameda via the Park Street Bridge, Fruitvale Avenue Bridge, and High Street Bridge.

I-980 connects I-880 and I-580 in the study area and becomes SR 24 north of I-580. SR 24 connects Oakland with Contra Costa County via the Caldecott Tunnel. I-980 can be reached from Alameda through the Webster and Posey Tubes via the I-980/I-880 junction or on local Oakland streets.

State Route (SR) 61 bisects the City of Alameda, running along Encinal Avenue, Park Street, and Otis Drive before crossing the Bay Farm Island Bridge to continue renamed as Doolittle Drive past the Oakland International Airport and into San Leandro.

Local Setting

The proposed project is located in the west end of Alameda. Key roadways that provide access to the project site are described below, and shown in **Figure 4.C-1**.

Main Street is a regional arterial that runs from its western terminus just west of Navy Way and Pacific Avenue. Main Street forms the eastern boundary of the project site. South of Pacific Avenue, it continues south, then eastward where it becomes Central Avenue. The four-lane, designated truck route serves as the project's western boundary and intersects with Stargell Avenue/W. Midway Avenue, Atlantic Avenue / Ralph Appezzato Memorial Parkway, and Pacific Avenue that provide the main east-west connections to/from the project site.

Stargell Avenue / W. Midway Avenue is an east-west road that runs between Monarch Street / First Street on the project site and Webster Street. West of Main Street, within the project site, it is called W. Midway Avenue and designated as an island collector. East of Main Street, it is named Stargell Avenue and is classified as an island arterial. Between Fifth Street and Webster Street there are two lanes in each direction. West of Fifth Street there is one travel lane in each direction with primarily residential land use found along the Stargell Avenue portion of the roadway.

Atlantic Avenue / Ralph Appezzato Memorial Parkway, a designated truck route, extends from Ferry Point on the project to the east side of the Alameda Beltline, at Marina Village. South of the Beltline, it continues as Sherman Street. The segment between Main Street and Webster Street is called Ralph Appezzato Memorial Parkway and continues as W. Atlantic Avenue to the west, within the project site, and Atlantic Avenue to the east of Webster Street. W. Atlantic Avenue is classified as an island arterial. The remainder of Atlantic Avenue, outside Alameda Point, is a regional arterial. In the project vicinity, the arterial has four travel lanes divided by a striped or raised median. The road narrows to two travel lanes with left-turn lanes just west of Constitution Way.

Pacific Avenue operates between Viking Street on the project site and Park Street. It has three distinct segments. West of Main Street, within Alameda Point, it is an island arterial called W. Pacific Avenue and has two travel lanes. The island arterial designation continues eastward on a four-lane segment until its junction with Marshall Way, where it becomes a two-lane local street and Marshall Way/Lincoln Avenue continues as a four-lane island arterial.

Central Avenue runs the length of Alameda Island between Main Street/Pacific Avenue on the west and Eastshore Drive on the east. It operates as an island arterial west of Webster Street and a regional arterial to the east. The segment of Central Avenue west of the Encinal Avenue fork has four travel lanes and is a designated truck route; while it continues as a two-lane island collector east of the fork. The segment from Encinal Avenue to Webster Street is a state highway.

SOURCE: Kittelson & Associates, Inc.

Alameda Point Project . 130025

Figure 4.C-1
Project Vicinity Map

Webster Street is a four-lane road that operates between Crolls Garden Court just south of Central Avenue and the Webster-Posey Tubes. This regional arterial road is a designated truck route. The segment north of Appezzato Parkway/Atlantic Avenue is a state route.

Park Street runs from Shoreline Drive and Park Street Bridge. It has four travel lanes with the exception of the segment between San Jose Avenue and Otis Drive where there are only two lanes. The entire roadway is classified as a regional arterial road and the segment north of Encinal Avenue is a designated truck route.

Otis Drive is an east-west roadway that extends between Eighth Street near Washington Park and Bay Farm Island Bridge. It operates as State Route 61 east of Broadway and serves as a truck route. Otis Drive is classified as an island arterial west of Park Street and a regional arterial east of Park Street.

Pedestrian / Bicycle / Transit Travel Modes

Pedestrian Travel

Alameda is a very walkable city with flat topography, compact development patterns, varied architecture, moderate block sizes, sidewalks, and street trees. Sidewalks are provided along both sides of most residential streets. In former industrial areas such as the North Waterfront area, sidewalks were not provided, but as portions of these areas have been recently developed, new sidewalks have been constructed.

Due to the nature of existing land uses and past federal ownership, sidewalks are not consistently provided on the project site. Sidewalks are generally found on streets where residential uses are located but are less common away from the residential clusters. The City's Pedestrian Plan has identified Main Street, Second Street, W. Atlantic Avenue and W. Pacific Avenue as "primary pedestrian streets" where key origins and destinations are located and where pedestrian demands are highest. However, there is currently no sidewalk along W. Pacific Avenue, and sidewalks are discontinuous along the portion of Main Street west of the Alameda Main Street Ferry Terminal due to a drainage channel and wetlands.

Two off-street trails are provided on Main Street, both of which serve as shared paths for pedestrians and bicyclists. An older trail is provided on the west side of Main Street between the Ferry Terminal and Pacific Avenue and a newer trail, part of the Bay Trail system, runs on the east side of Main Street between Singleton Avenue and Atlantic Avenue. The two trails then join together and continue to Pacific Avenue on the west side of Main Street, with the Bay Trail extending further to Lincoln Avenue and Encinal High School. The Pedestrian Plan has identified high priority sidewalk projects on Main Street between the Ferry Terminal and Singleton Avenue and between Atlantic Avenue and W. Oriskany Avenue.

Bicycle Travel

Because of the flat terrain of Alameda, the bicycle and pedestrian travel modes are particularly feasible for able-bodied travelers. The Park Street Bridge and Miller-Sweeney (Fruitvale Avenue)

Bridge provide good connections for cyclists traveling to Oakland and/or to the Fruitvale BART station. Bicycle facilities are defined as the following three classes according to Chapter 1000 of the Caltrans *Highway Design Manual*:

- **Class I** – Provides a completely separated facility designed for the exclusive use of bicyclists and pedestrians with crossing points minimized.
- **Class II** – Provides a restricted right-of-way designated lane for the exclusive or semi-exclusive use of bicycles with through travel by motor vehicles or pedestrians prohibited, but with vehicle parking and cross-flows by pedestrians and motorists permitted.
- **Class III** – Provides a right-of-way designated by signs or permanent markings and shared with pedestrians and motorists.

Existing facilities include paths along the shoreline and around Bay Farm Island and bike lanes on portions of Atlantic Avenue, Grand Street, Santa Clara Avenue, Central Avenue, and Fernside Boulevard. The City of Alameda Bike Master Plan identifies existing and proposed bicycle facilities. Proposed bikeways in the project vicinity include Class I along the estuary filling in gaps in the current trail as well as Class I along Ralph Appezzato Memorial Parkway, and Class II along Willie Stargell Avenue, Fifth Street north of Willie Stargell Avenue to the estuary, and Mitchell-Mosley extension.

Bicycle and pedestrian access from the west end of the island to Oakland's downtown and transit stations is provided by a narrow shared raised walkway on the east side of the Posey Tube. Bicyclists and pedestrian can also take an AC Transit bus across the estuary via the tube. Access across the estuary in eastern Alameda is allowed on the bridge sidewalks.

Transit Services

Public transit services in the project vicinity are provided by the Alameda-Contra Costa Transit District (AC Transit), the San Francisco Bay Ferry, the Bay Area Rapid Transit District (BART), and Amtrak.

AC Transit provides fixed route bus service to 13 cities and unincorporated areas in Alameda and Contra Costa counties from Richmond/Pinole in the north, to Fremont in the south, to Castro Valley in the east, and west into and from San Francisco. The project site is currently served by Route 31, which operates between Alameda Point and the MacArthur BART station via downtown Oakland on weekdays and between Alameda Point and downtown Oakland on weekends. Both weekday and weekend services operates in 30-minute intervals and provide connection to BART and Amtrak services, as well as to other bus routes along Webster Street and other transfer points.

The San Francisco Bay Ferry provides services to nine terminal locations around the bay. The Alameda Main Street Terminal is located at the northeast corner of the project site, where Main Street makes a curve and becomes oriented east-west. From the terminal, daily ferry service is provided to/from San Francisco (Ferry Building and Pier 41), weekday commuter peak only service to South San Francisco, seasonal service to Angel Island, and baseball game day service to AT&T Park. Other cities served by the ferry service are Oakland and Vallejo.

BART provides heavy rail service to San Francisco as well as Contra Costa, Alameda, and San Mateo counties. BART operates in 15- to 20-minute intervals between 4:00 a.m. and midnight Monday through Friday; 6:00 a.m. to midnight on Saturdays; and 8:00 a.m. to midnight on Sundays and major holidays. The closest stations from the project site are Lake Merritt station and 12th Street Oakland City Center station in Oakland. The latter is served by Route 31 of the AC Transit.

The Oakland Jack London Square Amtrak station, located just across the Oakland Estuary, is the connecting point for two Amtrak routes. The Capitol Corridor, which serves Sacramento and Auburn to the east and Fremont and San Jose to the south, operates 15 eastbound and 15 westbound trains on weekdays and 11 trains per direction on weekends. The Amtrak San Joaquin, which serves the Central Valley corridor of Stockton, Fresno and Bakersfield, operates six trains per direction through the Jack London Square station on a daily basis.

Oakland Chinatown

As noted above, the vehicular access route between the project site and downtown Oakland and between the project site and I-880, through the Webster and Posey Tubes, passes through Oakland's Chinatown neighborhood. Chinatown is located in proximity to the Webster and Posey Tubes and the Broadway and Jackson on and off-ramps to I-880. As a result, Chinatown experiences a large volume of through traffic that passes through the neighborhood from downtown Oakland, Alameda, and Jack London Square to the Webster/Posey Tubes or the Broadway-Jackson on-ramp to I-880. The existing high volume of traffic in Chinatown, combined with high pedestrian volumes and a vibrant commercial district, has resulted in concerns in the community about pedestrian safety.

The Chinatown Commercial District is where local residents walk to shop, eat out at restaurants, take children to schools, and attend many cultural facilities. Chinatown has a high percentage of elderly residents, many of whom speak little or no English. Because of its proximity to downtown Oakland and other commercial areas, many residents walk to work. The Hong Lok Senior Center is located on Seventh Street between Harrison and Alice Streets.

Generally, the street grid creates pedestrian-scale city blocks (280-foot north-south and 380-foot east-west) with continuous sidewalks on both sides of the street. A network of primarily one-way streets (Seventh Street, Eighth Street, Ninth Street, 10th Street, Webster Street, Franklin Street, and Harrison Street) that are three and four lanes wide creates an environment that carries high volumes of traffic and is not necessarily conducive to walking.

Crosswalks are striped where crossings are allowed, and signals include separate "countdown" pedestrian signal indicators on most approaches; several new pedestrian signal heads have been installed in recent years where they previously did not exist. Pedestrian scramble signals, which provide an exclusive all-red phase for pedestrians to cross, including diagonally across the intersection, are located at the intersections of Eighth/Webster, Eighth/Franklin, Ninth/Webster, and Ninth/Franklin Streets. Additional scramble signals are planned. Bulb-outs have been added to these four scramble intersections to widen the sidewalks and decrease the distance pedestrians must travel, and the time that it takes, to cross the street. These four intersections also have decorative crosswalks, including the diagonal crosswalks, to enhance the visibility of pedestrian crossings. In addition, lighted “No Left Turn” and “No Right Turn” signs have been installed at these four intersections to prohibit turns on red lights.

Sidewalks are generally in good condition and mostly 12 feet wide throughout the Chinatown Commercial area.[1] Sidewalks in proximity to the I-880 freeway are generally narrower and shared with streetscape features (e.g., street lamps, utility boxes, trash receptacles) that create four-foot wide chokepoints; some are in poor condition. Furthermore, many sidewalks within the Chinatown neighborhood are difficult to negotiate because merchant displays encroach onto the pedestrian right-of-way. These displays minimize sidewalk width and inhibit pedestrian access, mainly for the disabled and elderly population.

Most intersections in the Chinatown Commercial area are equipped with updated curb ramps complete with detectable (dimpled) warning strips, have marked sidewalks, and allow crossings at all legs. One exception is the 10th/Webster Street intersection, where pedestrians are prohibited from crossing the south leg due to the heavy volumes of westbound left-turning traffic (10th Street meets Webster Street at a “T” intersection and does not extend between Webster and Franklin Streets). Each of the intersections of Seventh/Harrison, Seventh/Jackson, and Sixth/Jackson streets has a separate right-turn channel for traffic bound from the Posey Tube to the I-880 northbound on-ramp; although each channel has a marked crosswalk, only the two-lane channel at Seventh/Harrison streets has a signal light.

Collision data for the greater Chinatown area, bounded by Sixth, 14th, and Oak Streets and Broadway, was reviewed for the approximately three-and-one-half year period between January 2009 and August 2012. There were a total of 83 pedestrian-related collisions in this area, of which 22 occurred in the core Chinatown area studied in the *Revive Chinatown* report in 2004 (Seventh to 11th Streets and Harrison to Franklin Streets, extending to Broadway between Eighth and Ninth Streets). Of the 83, all but five involved pedestrian injuries (all 22 in the core area involved injuries). Two of these collisions resulted in a fatality—one each at the intersection of Eighth/Harrison Streets (inside the core) and at Ninth/Madison (outside the core). The 22 injury collisions in the Chinatown core area over three and a half years (6.3 per year) occurred at a lesser frequency than the 38 injury collisions (7.6 per year) and 50 overall collisions (10 per year) in the same area over a five-year period reported in the *Revive Chinatown* report. Most of the change is attributable to the installation of a traffic signal at Seventh/Franklin Streets, where collisions declined from 11 to zero, The pedestrian scramble signals and related improvements (bulb-outs, decorative crosswalks, electronic signage) also appear to have had a positive effect, with the number of collisions at the four scramble intersections dropping from 16 in five years to five in three and a half years. The greatest number of accidents in the Chinatown core between 2009 and 2012 was three each at Seventh/Webster Streets and at 11th/Harrison Streets. In the larger study area, there were four accidents each at the Ninth/Jackson Streets and 10th/Jackson Streets intersections; of east-west streets, Eighth Street experienced 13 accidents between

1 CHS Consulting Group; Freedman, Tung & Bottomley; and T.Y. Lin International/CCS Planning & Engineering, *Revive Chinatown Community Transportation Plan: Final Report*, City of Oakland, September 2004. Prepared for the Oakland Community and Economic Development Agency; Figure 2.

Broadway and Oak Street. Of north-south streets, Broadway had 15 accidents between Sixth and 14th Streets.

Over the past 15 years, the City of Alameda has worked with the Alameda County Transportation Commission (ACTC) on developing a solution to improve access to I-880 and reduce the amount of Alameda traffic passing through Chinatown. The Broadway-Jackson Project Study Report, which evaluated and refined a number of options and was approved by Caltrans in March 2011. The ACTC is working with the City of Oakland, the City of Alameda, and Caltrans to determine the next steps in moving the Broadway-Jackson project forward. The most recent ACTC Project Fact Sheet (June 2013) depicts a proposed roadway improvement that shows a connection from Harrison Street to Sixth Street with a connection from Sixth Street at Martin Luther King, Jr. Way to I-880. The ACTC is working with the community in preparation for transition into the Preliminary Engineering / Environmental phase for this project.

Vehicular Operations

Traffic conditions in urban areas are affected more by the operations of intersections than by the capacities of local streets because traffic control devices (signals and stop signs) at intersections control the capacity of the street segments. The operations are measured in terms of a grading system called Level of Service (LOS), which is based on "control delay" experienced at the intersections. That delay is a function of the signal timing, intersection lane configuration, hourly traffic volumes, pedestrian volumes, and parking and bus conflicts among other factors.

Analysis of peak-hour traffic conditions was conducted at the 32 existing intersections in Alameda (Intersection #1 to #32) and 24 intersections in Oakland (Intersection #33 to #56) shown in **Figure 4.C-2**. They were selected because they represent locations along major traffic routes to and from the project site as well as locations that could affect operations of other traffic modes or may be affected by traffic diverting and seeking alternative routes to the Webster and Posey Tubes.

Level of Service Analysis Methodologies

The operation of a local roadway network is commonly measured and described using an LOS grading system, which qualitatively characterizes traffic conditions associated with varying levels of vehicle traffic, ranging from LOS A (indicating free-flow traffic conditions with little or no delay experienced by motorists) to LOS F (indicating congested conditions where traffic flows exceed design capacity and result in long queues and delays). This LOS grading system applies to both signalized and unsignalized intersections (see **Table 4.C-1**).

Signalized Intersections. For the signalized study intersections, traffic conditions were evaluated applying the 2000 *Highway Capacity Manual* (HCM) operations methodology, using Synchro computer software program (TRB, 2000). The operation analysis uses various intersection characteristics (e.g., traffic volumes, lane geometry, and signal phasing/timing) to estimate the average control delay experienced by motorists traveling through an intersection.

● Study Intersections

SOURCE: Kittelson & Associates, Inc.

Alameda Point Project . 130025

Figure 4.C-2

Study Intersections

TABLE 4.C-1
DEFINITIONS FOR INTERSECTION LEVEL OF SERVICE

Unsignalized Intersections		Level of Service Grade	Signalized Intersections	
Description	**Average Total Vehicle Delay (Seconds)**		**Average Control Vehicle Delay (Seconds)**	**Description**
No delay for stop-controlled approaches.	≤10.0	A	≤10.0	Free Flow or Insignificant Delays: Operations with very low delay, when signal progression is extremely favorable and most vehicles arrive during the green light phase. Most vehicles do not stop at all.
Operations with minor delay.	>10.0 and ≤15.0	B	>10.0 and ≤20.0	Stable Operation or Minimal Delays: Generally occurs with good signal progression and/or short cycle lengths. More vehicles stop than with LOS A, causing higher levels of average delay. An occasional approach phase is fully utilized.
Operations with moderate delays.	>15.0 and ≤25.0	C	>20.0 and ≤35.0	
Operations with increasingly unacceptable delays.	>25.0 and ≤35.0	D	>35.0 and ≤55.0	Approaching Unstable or Tolerable Delays: Influence of congestion becomes more noticeable. Longer delays result from unfavorable signal progression, long cycle lengths, or high volume to capacity ratios. Many vehicles stop. Drivers may have to wait through more than one red light. Queues may develop, but dissipate rapidly, without excessive delays.
Operations with high delays, and long queues.	>35.0 and ≤50.0	E	>55.0 and ≤80.0	Unstable Operation or Significant Delays: Considered to be the limit of acceptable delay. High delays indicate poor signal progression, long cycle lengths and high volume to capacity ratios. Individual cycle failures are frequent occurrences. Vehicles may wait through several signal cycles. Long queues form upstream from intersection.
Operations with extreme congestion, and with very high delays and long queues unacceptable to most drivers.	>50.0	F	>80.0	Forced Flow or Excessive Delays: Occurs with oversaturation when flows exceed the intersection capacity. Represents jammed conditions. Many cycle failures. Queues may block upstream intersections.

SOURCE: Transportation Research Board, Special Report 209, *Highway Capacity Manual*, 2000.

Unsignalized Intersections. For the unsignalized (all-way stop-controlled and side-street stop-controlled) study intersections, traffic conditions were evaluated applying the 2000 HCM operations methodology, using the Synchro computer software program. With this methodology, the LOS is related to the total delay per vehicle for the intersection as a whole (for all-way stop-controlled intersections), and for each stop-controlled movement or approach (for side-street stop-controlled intersections). Total delay is defined as the total elapsed time from when a vehicle stops at the end of the queue until the vehicle departs the stop line. This time includes the time required for a vehicle to travel from the last-in-queue position to the first-in-queue position.

Table 4.C-2 shows the existing intersection level of service at the 56 study intersections. LOS calculation reports and figures showing lane geometry and a.m. and p.m. peak-hour volumes at the 56 existing intersections are provided in **Appendix G**.

TABLE 4.C-2
EXISTING INTERSECTION LEVEL OF SERVICE

			AM Peak Hour		PM Peak Hour	
Study Intersection Name		**Control**	**Delay[a]**	**LOS**	**Delay[a]**	**LOS**
Alameda Intersections						
1	Main St. & Navy Way	One-Way Stop[b]	8.7	A	9.3	A
2	Main St. & Ferry Terminal Way	Signal	3.3	A	8.2	A
3	Main St. & Singleton Ave.	Signal	5.2	A	4.4	A
4	Main St. & W. Midway Ave.	Signal	10.6	B	10.8	B
5	Main St. & Atlantic Ave.	Signal	10.1	B	10.3	B
6	Main St. & Pacific Ave.	Signal	16.5	B	13.3	B
7	Webster St. & Atlantic Ave.	Signal	33.5	C	31.5	C
8	Constitution Way & Lincoln Ave.	Signal	21.6	C	25.7	C
9	Eighth St. & Central Ave.	Signal	34.2	C	32.8	C
10	Oak St. & Lincoln Ave.	Signal	11.5	B	13.0	B
11	Oak St. & Santa Clara Ave.	Signal	9.9	A	11.4	B
12	Park St. & Clement Ave.	Signal	26.2	C	19.7	B
13	Park St. & Central Ave.	Signal	12.1	B	11.3	B
14	Park St. & Encinal Ave.	Signal	22.6	C	25.3	C
15	Park St. & Otis Dr.	Signal	22.3	C	31.0	C
16	Broadway & Tilden Way	Signal	22.6	C	20.5	C
17	Broadway & Encinal Ave.	Signal	22.9	C	10.8	B
18	Broadway & Otis Dr.	Signal	38.2	D	37.8	D
19	Tilden Way & Blanding Ave.	Signal	13.6	B	17.3	B
20	High St. & Fernside Blvd.	Signal	33.3	C	20.9	C
21	High St. & Otis Dr.	Signal	21.5	C	20.8	C
22	Island Dr. & Otis Dr.	Signal	33.3	C	16.5	B
23	Constitution Way & Marina Village Pkwy.	Signal	10.8	B	22.1	C
24	Constitution Way & Atlantic Ave.	Signal	25.5	C	27.7	C
25	**Fernside Blvd. & Otis Dr.**	Signal	**67.6**	**E**	**58.8**	**E**
26	**Park St. & Blanding Ave.**	Signal	**65.5**	**E**	36.2	D
27	Challenger Dr. & Atlantic Ave.	Signal	8.9	A	13.3	B
28	Challenger Dr. & Marina Village Pkwy.	Signal	20.3	C	21.3	C
29	Webster St. & Willie Stargell Ave.	Signal	10.4	B	12.3	B
30	Fifth St. & Willie Stargell Ave.	One-Way Stop[b]	11.0	B	10.9	B
31	Constitution Way & Mariner Square Dr.	Signal	12.0	B	15.8	B
32	Park St. & Lincoln Ave.	Signal	15.0	B	16.8	B

TABLE 4.C-2 (Continued)
EXISTING INTERSECTION LEVEL OF SERVICE

Study Intersection Name		Control	AM Peak Hour		PM Peak Hour	
			Delay[a]	LOS	Delay[a]	LOS
Oakland Intersections						
33	Jackson Street & Seventh Street	Signalized	12.7	B	10.5	B
34	Jackson Street & Sixth Street	Signalized	38.2	D	77.0	E
35	Jackson Street & Fifth Street	Signalized	20.6	C	14.6	B
36	Harrison Street & 14th Street	Signalized	13.6	B	13.6	B
37	Harrison Street & Eighth Street	Signalized	5.4	A	18.6	B
38	Harrison Street & Seventh Street	Signalized	36.7	D	21.6	C
39	Webster Street & Eighth Street	Signalized	25.8	C	27.6	C
40	Webster Street & Seventh Street	Signalized	11.6	B	16.2	B
41	Broadway & Seventh Street	Signalized	11.2	B	14.0	B
42	Broadway & Sixth Street	Signalized	21.3	C	22.4	C
43	Broadway & Fifth Street	Signalized	28.1	C	36.9	D
44	Brush Street & 12th Street	Signalized	31.3	C	23.1	C
45	High Street & Oakport Street	Signalized	28.9	C	29.0	C
46	High Street & Coliseum Way	Signalized	29.6	C	33.9	C
47	Fruitvale Ave & Ninth Street	Signalized	31.2	C	30.6	C
48	Fruitvale Ave & Eighth Street	Signalized	13.9	B	20.8	C
49	23rd Avenue & E 11th Street / I-880 NB on-ramp	Signalized	20.7	C	44.3	D
50	23rd Avenue & Ford Street	Signalized	13.2	B	11.4	B
51	29th Avenue & Ford Street	One-Way Stop[c]	29.2	D	13.5	B
52	**29th Avenue & I-880 NB off ramp / E. Eighth / E. Ninth Street**	**All-Way Stop**	93.4	**F**	49.9	**E**
53	Harrison Street & 12th Street	Signalized	10.9	B	9.5	A
54	Harrison Street & 11th Street	Signalized	15.7	B	12.2	B
55	**Brush Street & 11th Street**	**Signalized**	80.4	**F**	14.5	B
56	**23rd Avenue & Seventh Street**	**Signalized**	>120 v/c = 0.93	**F**	38.7	D

NOTES:
[a] The LOS/Delay for Side-Street Stop-Control (SSSC) intersections represents the worst movement or approach; for Signalized intersections, the LOS/Delay represents the overall intersection. For signalized intersections with delay in excess of 120 seconds, volume-to-capacity ratio is provided, as delay calculation may not be accurate.
[b] T-intersection.
[c] Ford Street is one-way westbound west of 29th Street; only westbound Ford Street is stop-controlled.

Bold indicates locations with unacceptable level of service.

SOURCE: Kittelson & Associates, Inc., 2013.

C.3 Regulatory Framework

State

The California Department of Transportation (Caltrans) is responsible for operations and maintenance of the state highway system, and serves as a reviewing agency for Environmental Impact Reports (EIRs) to ensure that impacts of proposed projects would be analyzed and significant impacts on state highway facilities would be disclosed.

Regional

The ACTC, through its Congestion Management Program (CMP), oversees how roads of regional significance function, and requires local jurisdictions to evaluate the impact of proposed land use changes (i.e., General Plan amendments, and developments with trip-generating potential of more than 100 new peak-hour vehicle trips) on the regional transportation systems.

Local

The City of Alameda General Plan Transportation Element sets forth goals, objectives and policies that provide guidance for residents, businesses, policymakers and elected officials in making choices that shape the City's environment. The following are relevant to the proposed project and this analysis. Street or intersection improvements that would be inconsistent with these policies would require a General Plan Amendment prior to being approved.

Objective 4.1.1 Provide for the safe and efficient movement of people, goods, and services.

Policy 4.1.1.i Design transportation facilities to accommodate current and anticipated transportation use.

Policy 4.1.1.j Maintain the historic street grid and maximize connectivity of new developments to the grid, as well as within any new developments.

Objective 4.1.2 Protect and enhance the service level of the transportation system.

Policy 4.1.2.b Monitor the multimodal level of service at major intersections to identify priorities for improvement.

Policy 4.1.2.c Promote methods to increase vehicle occupancy levels.

Policy 4.1.2.d Support and monitor the City's Traffic Capacity Management Procedure (TCMP), which was developed to meet the City's development and transportation goals west of Grand Street.

Objective 4.1.6 Increase the efficiency of the existing transportation system by emphasizing Transportation System Management (TSM) strategies and Transportation Demand Management (TDM) techniques.

Policy 4.1.6.a Identify, develop, and implement travel demand management strategies to reduce demand on the existing transportation system.

1. Establish peak hour trip reduction goals for all new developments as follows
   - 10 percent peak hour trip reduction for new residential developments
   - 30 percent peak hour trip reduction for new commercial developments

Policy 4.1.6.d Minimize the cross-island portion of regional vehicular trips by providing alternative connections to Oakland, such as Water Taxis, shuttles, and a Bicycle Pedestrian Bridge and by encouraging Transportation Systems Management (TSM) and Transportation Demand Management (TDM) techniques.

Policy 4.1.6.e Support and maintain an up-to-date Transportation System Management (TSM) and Transportation Demand Management (TDM) plan consistent with state law to provide adequate traffic flow to maintain established LOS.

1. Develop a TDM plan which would include specific requirements for new developments to implement measures to mitigate their traffic impacts based on an applicable nexus.
2. Develop one or more sub-area TDM plans to help address the unique conditions of different areas within Alameda.

Policy 4.1.6.f Require monitoring programs to ensure that TSM and TDM measures mitigate impacts.

1. Develop thresholds of significance for ongoing monitoring and evaluation of TSM/TDM measures

Objective 4.2.4 Develop a Transportation plan based on existing and projected land uses and plans. Encourage land use decisions that facilitate implementation of this transportation system.

Policy 4.2.4.a Encourage development patterns and land uses that promote the use of alternate modes and reduce the rate of growth in region-wide vehicle miles traveled.

Policy 4.2.4.b Integrate planning for Environmentally Friendly Modes, including transit, bicycling and walking, into the City's development review process.

Policy 4.2.4.c Encourage mixed use development that utilizes non-single occupancy vehicle transportation modes.

Objective 4.3.1 Develop programs and infrastructure to encourage the use of high occupancy vehicles (HOVs), such as buses, ferries, vans and carpools.

Policy 4.3.1.a Update and implement the recommendations of the Alameda Long Range Transit Plan.

Policy 4.3.1.h Encourage the creation of transit-oriented development and mixed-use development.

Policy 4.3.1.j Implement queue jump lanes and other strategies for improving transit operations.

Objective 4.3.4 Manage demand placed on the street system through a TDM program to be developed with available funding in accordance with state law.

Policy 4.3.4.a Work with major employers to accommodate and promote alternative transportation modes, flexible work hours, and other travel demand management techniques and require that appropriate mitigation be funded through new development if a nexus exists.

Objective 4.3.5 Assess the impacts on all transportation modes (including auto, transit, bike and pedestrian) when considering mobility and transportation improvements.

Objective 4.3.6 Coordinate and integrate the planning and development of transportation system facilities to meet the needs of users of all transportation modes.

Policy 4.3.6.a Review and update multimodal design standards for lane widths, parking, planting area, sidewalks, and bicycle lanes to guide construction, maintenance, and redevelopment of transportation facilities consistent with the street classification system.

Policy 4.3.6.b Identify areas of conflict and of compatibility between modes (e.g. walking, bicycling, transit, automobiles, and people with disabilities). Pursue strategies to reduce or eliminate conflicts, increase accessibility, and foster multimodal compatibility.

Objective 4.4.2 Ensure that new developments implement[s] approved transportation plans, including the goals, objectives, and policies of the Transportation Element of the General Plan and provides the transportation improvements needed to accommodate that development and cumulative development. Street or intersection improvements that would be inconsistent with these policies would require a General Plan Amendment prior to being approved.

Policy 4.4.2.a Roadways will not be widened to create additional automobile travel lanes to accommodate additional automobile traffic volume, with the exception of increasing transit exclusive lanes or non-motorized vehicle lanes.

Policy 4.4.2.b Intersections will not be widened beyond the width of the approaching roadway with the exception of a single exclusive left turn lane when necessary, with the exception of increasing transit exclusive lanes or non-motorized vehicle lanes.

Policy 4.4.2.c Speed limits on Alameda's new roads should be consistent with existing roadways and be designed and implemented as 25 mph roadways.

Policy 4.4.2.d All EIRs must include analysis of the effects of the project on the city's transit, pedestrian and bicycling environment, including adjacent neighborhoods and the overall City network.

Policy 4.4.2.e EIRs will not propose mitigations that significantly degrade the bicycle and pedestrian environment, which are bellwethers for quality of life issues, and staff should identify "Levels of Service" or other such measurements to ensure that the pedestrian and bicycling environment will not be significantly degraded as development takes place.

Policy 4.4.2.f Transportation-related mitigations for future development should first implement TDM measures with appropriate regular monitoring; transit, bicycle and pedestrian capital projects; and more efficient use of existing infrastructure such as traffic signal re-timing in order to reduce the negative environmental effects of development, rather than attempting to accommodate them. Should appropriate regular monitoring indicate that these mitigations are unable to provide the predicted peak-hour vehicle trip reductions, additional TDM measures, development specific traffic caps, or mitigations through physical improvements of streets and intersections, consistent with policy 4.4.2.a and policy 4.4.2.b, may be implemented.

Policy 4.4.2.g After the implementation of quantifiable/verifiable TDM measures (verified through appropriate regular monitoring), and mitigation measures consistent with 4.4.2.f and identification of how multimodal infrastructure relates to congestion concerns, some congestion may be identified in an EIR process as not possible to mitigate. This unmitigated congestion should be evaluated and disclosed (including intersection delay length of time) during the EIR process, and acknowledged as a by-product of the development and accepted with the on-going funding of TDM measures.

Objective 4.4.6 Work with area employers and other stakeholders to develop one or more TMAs to implement TDM programs.

Policy 4.4.6.1 For new development projects, require residential, business associations, property owners, and lessees to be dues-paying members in the TMA, as allowed by law.

Policy 4.4.6.2 Encourage existing and previously approved developments to join a TMA, through which they would contribute toward, and benefit from, TDM programs.

Objective 4.4.7 Require developers to contribute toward the implementation of appropriate TSM/TDM measures to mitigate the impacts of their projects on the bridges, tubes, specific intersections, and corridors.

Policy 4.4.7.a Develop standardized method for calculating the appropriate financial contribution for TSM/TDM fees.

Policy 4.4.7.b Develop TSM/TDM fee collection mechanism.

C.4 Impacts and Mitigation Measures

Significance Criteria

According to Appendix G of the CEQA *Guidelines*, a project would have a significant impact on the environment if it 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 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.

Alameda: Multimodal Analysis

For the purpose of this EIR[2], the project would have a significant transportation impact if it has one or more of the following effects:

- **Pedestrian:** Causes the Pedestrian LOS to degrade below LOS B at a signalized intersection. If the intersection were already below LOS B, an impact would be considered significant if the delay for a crosswalk increases by 10 percent. (Pedestrian LOS would be determined using the 2000 *Highway Capacity Manual* methodology for determining the average delay for pedestrians at a signalized intersection.)

- **Bicycle:** Causes the Bicycle segment LOS to degrade below LOS B. If a street segment were already below LOS B, an impact would be considered significant if the LOS score increases by 10 percent or more in value. If a segment has an existing adjacent Class I facility and has not been recommended for a future bicycle lane, the degradation of the Bicycle LOS to E would not be considered a significant impact. (Florida Department of Transportation methodology for street segments will be used for the LOS analysis).

- **Transit:** Causes travel speed to degrade by 10 percent or more along a street segment. A segment would be defined as the impacted bus stop location plus the two previous stops

2 The significance criteria used for this analysis are the transportation threshold of significance recommended by the City of Alameda Transportation Commission on April 22, 2009 to implement General Plan Policy 4.4.2d. This methodology has also been accepted by the City of Alameda Planning Board.

and the two subsequent stops. A segment that crosses a City boundary shall also include five bus stops, but the last stop shall be the first bus stop outside the City of Alameda. (Transit LOS for an arterial segment would be calculated using the 2000 *Highway Capacity Manual*'s methodology for Urban Street (arterial) Level of Service).

- **Automobile:** Causes an intersection to degrade below LOS D. If an intersection were already at LOS E or worse, an impact would be considered significant if there is a 3 percent or greater increase in the traffic volume. (Automobile LOS at intersections would be calculated using the 2000 *Highway Capacity Manual*'s methodology for determining the average vehicle delay at an intersection.)

Procedures for Ranking Modes at Locations Where the Transportation Element Designates Multiple Modal Priorities

If an acceptable level of service cannot be achieved for all modes, then the modes shall be prioritized based upon the General Plan street functional classification system. Priority shall be given to maintaining acceptable level of service for the higher priority mode. Mitigations should be adopted to improve the level of service for the lower priority mode, but those mitigations shall be designed to ensure that they do not impact the level of service for a higher priority mode.

The street functional classification system adopted as part of the City's Transportation Element includes a street type layer, a modal layer, and a land use layer. The modal hierarchy is based primarily on the street type layer, as follows:

Regional and Island Arterials
- Exclusive Right of Way Transit
- Primary Transit
- Secondary Transit
- Pedestrian
- Bicycle
- Automobile

Collectors
- Bicycle
- Pedestrian
- Transit
- Automobile

Local
- Pedestrian
- Bicycle
- Transit
- Automobile

For all street types, if the LOS thresholds are not being achieved, the LOS for automobiles is reduced first. To determine which mode would be impacted next, the modal overlay is used to modify the hierarchy. Note that there are no pedestrian priorities designated in the modal layer, so the Commercial/Main and School/Recreation designations in the land use layer are used to identify the pedestrian priority areas.

Here is an illustration of how this method would apply. For a regional arterial, transit would be the highest priority and the last mode to be impacted. In the absence of any priority designations for bicycles or pedestrians (or if both modes are designated priorities), the pedestrian mode would be given a higher priority than the bicycle mode. If a street segment were identified as a bicycle priority, but not as a pedestrian priority, then the bicycle mode would be given a higher priority than the pedestrian mode.

Below is a list of the types of potential conflicts that were identified and how they would be resolved using the method described above.

a. On Regional Arterials with Commercial/Main or School/Recreation land use designation, modal preference would be in the following order: transit, pedestrian, bicycles, automobiles. Since transit is the highest preference, if necessary, a queue jump lane may share space with a Class II bicycle facility.

b. On Regional Arterials with land use designations other than Commercial/Main or School/Recreation, modal preference would be in the following order: transit, bicycle, pedestrian, automobiles. Since transit is the highest preference, if necessary, a queue jump lane may share space with a Class II bicycle facility.

c. On Island Arterials with Primary Transit or Exclusive Transit Right of Way, modal preference will be prioritized in the following order: transit, pedestrians, bicycles, automobiles.

d. On Island Arterials with Primary Transit or Exclusive Transit Right of Way <u>and</u> bicycle preference, modal preference will be in the following order: transit, bicycles, pedestrians, automobiles.

e. On Island Arterials with Primary Transit or Exclusive Transit Right of Way, <u>and</u> bicycle preference, <u>and</u> a Commercial/Main or School/Recreational Zone, modal preference will be in the following order: transit, pedestrians, bicycles, automobiles.

f. On Island Arterials with bicycle preference <u>and</u> Commercial/Main or School/Recreational Zone, modal preference will be in the following order: bicycles, pedestrians, transit, and automobiles.

g. On Island Arterials with Primary Transit or Transit Exclusive Right-of-Way <u>and</u> Commercial/Main or School/Recreation Zone, modal preference will be in the following order: transit, pedestrians, bicycles, automobiles.

h. On Island Collectors, modal preference will be in the following order: bicycles, pedestrians, transit, and automobiles.

i. On Local Streets, modal preference will be in the following order: pedestrians, bicycles, transit, and automobiles.

Oakland Intersections

For intersections in Oakland, the impacts were assessed according to the City of Oakland CEQA thresholds of significance guidelines, which state that the project would have a significant impact on the environment if it would[3]:

> 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, specifically:

3 City of Oakland Transportation Impact Study Guidelines, The City of Oakland – Transportation Planning and Funding Division, April 4, 2013.

Traffic Load and Capacity Thresholds

a. At a signalized intersection which is located outside the Downtown area[4] and that does not provide direct access to Downtown, the project would cause the motor vehicle level of service (LOS) to degrade to worse than LOS D (i.e., LOS E or F) and cause the total intersection average vehicle delay to increase by four (4) or more seconds;

b. At a signalized intersection which is located within the Downtown area or that provides direct access to Downtown, the project would cause the motor vehicle LOS to degrade to worse than LOS E (i.e., LOS F) and cause the total intersection average vehicle delay to increase by four (4) or more seconds;

c. At a signalized intersection outside the Downtown area and that does not provide direct access to Downtown where the motor vehicle level of service is LOS E, the project would cause the total intersection average vehicle delay to increase by four (4) or more seconds;

d. At a signalized intersection outside the Downtown area and that does not provide direct access to Downtown where the motor vehicle level of service is LOS E, the project would cause an increase in the average delay for any of the critical movements of six (6) seconds or more;

e. At a signalized intersection for all areas where the level of service is LOS F, the project would cause (a) the overall volume-to-capacity (“V/C”) ratio to increase 0.03 or more or (b) the critical movement V/C ratio to increase 0.05 or more;

f. At a unsignalized intersection the project would add ten (10) or more vehicles to the critical movement and after project completion satisfy the California Manual on Uniform Traffic Control Devices (MUTCD) peak hour volume traffic signal warrant;

Freeway and Ramps

Caltrans Measures of Effectiveness

Caltrans bases its LOS for operating State highway facilities upon certain measures of effectiveness (MOEs). For basic freeway segments and ramps operating at a free-flow speed of 65 mph, the MOE is density, measured in passenger cars per mile per lane. LOS C or better is desirable on State highway facilities; however, Caltrans acknowledges that LOS C may not be feasible in some cases. The Caltrans traffic impact study guidelines state that “if an existing State highway facility is operating at less than the appropriate target LOS, the existing MOE should be maintained.”

Alameda County Transportation Commission CMP LOS Standards for Monitoring

The ACTC Congestion Management Program (CMP) establishes LOS E as the standard for facilities under LOS monitoring in the CMP network.

[4] The Downtown area is defined in the Land Use and Transportation Element of the General Plan (page 67) as the area generally bounded by the West Grand Avenue to the north, Lake Merritt and Channel Park to the east, the Oakland Estuary to the south, and I-980/Brush Street to the west. Intersections that provide direct access to downtown are generally defined as principal arterials within two (2) miles of Downtown and minor arterials within one (1) mile of Downtown, provided that the street connects directly to Downtown.

Grandfathered Segments. Certain segments are identified in the CMP as “grandfathered segments,” which were operating at LOS F during the p.m. peak in 1991 when existing LOSs were established for the CMP network. The following segments are included in the CMP Table 6 – LOS F Freeways for Alameda County CMP-Designated Roadway System:

- Southbound I-580 during p.m. peak between I-80/580 and I-980/SR 24: This encompasses the one I-580 analysis segment for the southbound direction during the p.m. peak.
- Southbound I-880 during p.m. peak between Washington Street and Hegenberger Road: This encompasses all but one of the I-880 analysis segments for the southbound direction during the p.m. peak. The I-880 segment west of Adeline Street is not within the grandfathered segment.
- Eastbound I-980 during the p.m. peak between I-880 and I-580: This encompasses the one I-980 analysis segment for the eastbound direction during the p.m. peak.

In addition to the freeway segments, CMP Table 7 – LOS F Arterial Segments, Alameda County CMP-Designated Roadway System, identifies southbound SR 260 (the Webster Tube) from Seventh and Webster Streets in Oakland to Atlantic Avenue in Alameda as such a “grandfathered” roadway segment.

The CMP also identifies a Deficiency Plan (a plan for prioritizing street or freeway improvements) as currently being implemented for the freeway connection between eastbound (northbound) SR 260 (the Posey Tube) and I-880 northbound, in Oakland. This I-880 Broadway/Jackson Interchange, ramp and circulation Improvements Study involves the ACTC, Caltrans, cities of Alameda and Oakland, BART, and AC Transit, and is evaluating multi-modal solutions to movement through and around Oakland’s Chinatown, including travel to and from the west end of Alameda.

Local Agency Thresholds

Because the CMP does not define the threshold of significance for locations that already exceed the LOS standard, local agencies can define the applicable significance criteria. The City of Alameda has defined significance criteria for local roads and intersections, but not for freeway facilities. The freeway facilities under analysis are located within Oakland, and the City of Oakland has analyzed traffic impacts on those facilities for several recent EIRs. The City of Oakland’s CEQA Thresholds of Significance Guidelines was applied for analyzing the freeway mainline segments and ramp merge/diverge areas identified for the Alameda Point EIR analysis. The relevant criterion is:

> For a roadway segment of the Congestion Management Program (CMP) Network, the project would cause (a) the LOS to degrade from LOS E or better to LOS F or (b) the V/C ratio to increase 0.03 or more for a roadway segment that would operate at LOS F without the project.

The roadway impacts of the project would be considered significant if the addition of project-related traffic would result in a service level worse than LOS E, except where the roadway link was already at LOS F under existing without project conditions. For those locations where this existing without project condition is LOS F, the impacts of the project were considered significant if the contribution of project-related traffic represents three percent or more of the total traffic. This criterion has been included to address impacts along roadway segments currently operating under unacceptable levels and was developed based on professional judgment using a “reasonableness test” of daily fluctuations of traffic. Also a change of volume-to-capacity (V/C) ratio of 0.03 has been found to be the threshold for which a perceived change in congestion is observed. The V/C ratio is calculated by comparing the peak-hour link volume to the peak-hour capacity of the road link. That change is equivalent to about one-half of the change from one level of service to the next.

Impact Analysis

The travel demand model was used to analyze the effects of the proposed project on traffic operations in the study area. This approach captures not only the increased traffic associated with the proposed land uses, but also the diversion of existing and future background traffic due to the project traffic. For the purpose of this analysis, the model was used to evaluate the impact of Alameda Point redevelopment compared to both existing conditions and to future “cumulative” conditions (2035) without the proposed project.

Travel Demand Modeling Approach

For consistency with recent model forecasts for other studies in Alameda, the recently updated Alameda Countywide travel demand model, which is based on ABAG *Projections ’09* and includes network changes and regional improvements outside the City of Alameda, was used. The zonal detail, street network and land use from the City of Alameda travel model developed as part of the Transportation Element were merged into the Alameda Countywide travel model. The updated 2035 street network includes improvements such as the improvements at the 23rd Avenue/29th Avenue interchanges on I-880.

The land use in the City of Alameda was updated to 2012 conditions by including the developments that were approved and built between 2007 and 2012. The 2035 No Project land use was derived from the City of Alameda travel demand model developed as part of the Transportation Element. Adjustments were made to the residential land use for consistency with the City’s Land Use Element and 2012 Housing Element. The rest of the model area outside Alameda used the 2005 land use from *Projections ‘09*. This updated model was used for the traffic forecasts for all study scenarios:

- **Existing + Project:** The Base Year model was run with and without the Alameda Point project. The incremental change in volume between the model runs was added to the existing volumes to develop turning movement volume forecasts using procedures outlined in NCHRP 255[5].

- **2035 No Project:** The full increment between the Base Year model and 2035 No Project forecasts was added to the existing volumes. Where the future network included improvements, manual adjustments were necessary to estimate existing volumes and project increments.

5 Highway Traffic Data for Urbanized Area Project Planning and Design, Transportation Research Board, 1992.

- **2035 + Project:** Similarly, for the 2035 Plus Project volumes, the full increment between the Base Year and 2035 Plus Project forecasts was added to the existing volumes.

The net changes in land use from the proposed Alameda Point project were added to the Existing No Project and 2035 No Project land use data sets to create the Existing plus Project and 2035 plus Project land use input files. The proposed project land uses were obtained from the City of Alameda. The residential uses were converted from dwelling units to total households, household population, and employed residents, while the commercial square footages were converted to employment by sector for each of the 35 traffic analysis zones (TAZs) in Alameda Point.

The transportation modeling assumes that the share of trips made using transit will be consistent with existing transit ridership patterns in Alameda, and does not assume reduction in automobile trip generation rates to account for the potential future benefits of Transportation Demand Management (TDM) programs at the project site. The framework for the TDM program is set forth in Chapter 3, Project Description.

Project Vehicle Trip Generation

The project vehicle trip generation was derived from the travel demand model, which was used to assess the impacts of the project traffic on the local roadways, and is shown in **Table 4.C-3**.

TABLE 4.C-3
PROJECT VEHICLE TRIP GENERATION

Trip Type	Daily	AM	PM
Total Trips	33,429	2,928	3,294

Analysis Methodologies

The transportation analysis was conducted for typical weekday a.m. and p.m. peak commute hour conditions at local intersections, on the state highways, and on regional facilities.

Multimodal Analysis

The discussion of potential impacts generally follows the travel mode preferences set forth in the City's Transportation Element policies and Street Classifications. Those impacts are described first for the direct project impacts, second for any secondary impacts to other modes. Procedures for prioritizing improvements to different (potentially competing) modes of travel are consistent with recommendations by the City's Transportation Commission in April 2009 and acceptance by the Planning Board. Travel modes were given different rankings for different road classifications (i.e., Regional Arterials, Island Arterials, Island Collectors, and Local Streets), with variations in the ranking based on subheadings of the road classifications (i.e., a modal layer and a land use layer). The recommended procedures apply to situations when acceptable levels of service cannot be achieved for all travel modes, and when a mitigation measure for an impact to a travel mode would cause an impact to a different travel mode, making it necessary to determine which mode receives priority.

Pedestrian Travel. The 2000 *Highway Capacity Manual* method was used to compute pedestrian delay and level of service at all of the signalized study intersections (TRB, 2000). Pedestrian LOS is based on the average delay, in seconds per person that pedestrians will encounter as they wait to cross a signalized intersection. Delay (tied to a LOS letter grade, as shown in **Table 4.C-4**) is computed using the following two data requirements:

1. Effective green time for pedestrians for each crossing "leg"; and
2. The actuated cycle length of the signal.

TABLE 4.C-4
LEVEL OF SERVICE (LOS) CRITERIA FOR PEDESTRIANS AT SIGNALIZED INTERSECTIONS

LOS	Pedestrian Delay (seconds)
A	< 10
B	≥ 10 and ≤ 20
C	> 20 and ≤ 30
D	> 30 and ≤ 40
E	> 40 and ≤60
F	> 60

SOURCE: Transportation Research Board, 2000 Highway Capacity Manual, 2000

Bicycle Travel. The Florida Department of Transportation (DOT) method for computing bicycle levels of service was used to calculate the LOS for the following street segments (FDOT, 2009)

- Webster Street between Buena Vista Avenue and Atlantic Avenue
- Park Street between Alameda Avenue and Central Avenue
- Otis Drive between Broadway and High Street
- Willie Stargell Avenue between Main Street and Webster Street
- Main Street between Ralph Appezzato Memorial Parkway and Pacific Street
- Central Avenue between Main Street and Fourth Street
- Pacific Avenue between Main Street and Third Street
- Ralph Appezzato Memorial Parkway between West Campus Drive and Webster Street
- Clement Avenue between Park Street and Broadway
- Oak Street between Santa Clara Avenue and Central Avenue
- Constitution Way between Marina Village Parkway and Atlantic Avenue/Appezzato Pkwy.

The Florida DOT method for bicycle LOS is based on bicyclists' perceptions of their level of comfort along a roadway segment (not at intersections). A numerical score (tied to a LOS letter grade, as shown in **Table 4.C-5**), is computed using the following five variables:

1. Average effective width of the outside through lane (and presence of a bike lane),
2. Motorized vehicle volumes,
3. Motorized vehicle speeds,
4. Heavy vehicle (truck) volumes, and
5. Pavement condition.

TABLE 4.C-5
LEVEL OF SERVICE (LOS) CRITERIA FOR BICYCLES ON ROADWAY SEGMENTS

LOS	Bicycle LOS Score
A	< 1.5
B	> 1.5 and ≤ 2.5
C	> 2.5 and ≤ 3.5
D	> 3.5 and ≤ 4.5
E	> 4.5 and ≤5.5
F	> 5.5

SOURCE: Florida Department of Transportation, 2009 Quality/Level of Service Handbook, 2009

Transit Travel. The 2000 *Highway Capacity Manual* arterial level-of-service analysis method (based on the average speed for the segment under consideration, computed from the running times on the street segment and the control delay of through movements at signalized intersections) was used to calculate the level of service along the following transit corridors (TRB, 2000).

- Main Street at Willie Stargell Avenue to Pacific Avenue at Webster Street
- Webster Street between the Webster Tubes and Central Avenue
- Park Street between Blanding Avenue and Otis Drive
- Ralph Appezzato Memorial Parkway between Main Street and Webster Street (future)
- Lincoln Avenue between Webster Street and Park Street (future)
- Otis Street between Willow Drive and Robert Davey, Jr. Drive

Transit LOS is analyzed based on the average speed (calculated using the 2000 Highway Capacity Manual urban streets methodology) along a transit corridor spanning at least five bus stops. Under existing conditions, the addition of project-related traffic would not cause any significant impacts to transit LOS along the study corridors.

Freeway Operations. Several freeway segments and ramp merge/diverge areas[6] that would potentially be affected by the changes in traffic due to the Alameda Point project were analyzed. Six freeway mainline locations and 10 freeway ramps were studied based on the proximity to the project, and the list was then refined based on a review of volume difference plots from the travel demand model for the impact analysis. All 10 ramps were analyzed; however, for the freeway mainline, project traffic was found to result in a meaningful increase (i.e., increase over existing volumes of more than 2.5 percent) only on the segment of I-980 south of I-580. (Smaller increases in volume at other locations were not considered significant, as they would be within the normal daily fluctuations in volumes.) Accordingly, only this segment of I-980 and the segment of I-580 west of I-980 were carried forward for analysis in the EIR.

6 Merge/diverge areas are those locations where on-ramps merge with the main flow of freeway traffic and where off-ramps diverge from the freeway, respectively.

Freeway Mainline Segments. The 2000 *Highway Capacity Manual* (HCM) procedures, as applied by Highway Capacity Software (HCS+), were used to calculate average peak hour capacities for each freeway mainline segment. The LOS was determined using “density,” which is measured as passenger cars per mile per lane (pc/mi/ln) given an estimated free-flow speed. The estimated free-flow speed of 70 MPH was used for those freeway segments with posted speed limits of 65 MPH. Seventy miles per hour (70 MPH) is the base free-flow speed for urban areas from the HCM. An estimated free-flow speed of 60 MPH was used for two segments of I-880 (segment west of Adeline and segment west of 23rd Street) where the posted speed limit is 55 MPH. **Table 4.C-6** contains the density thresholds for both free-flow conditions.

TABLE 4.C-6
LOS AND DENSITY FOR FREE-FLOW SPEED @ 60 MPH AND 70 MPH

Level of Service	Maximum Density (pc/mi/ln)[a]
A	11
B	18
C	26
D	35
E	45

NOTE:
[a] Passenger cars per mile per lane

SOURCE: Transportation Research Board, *Highway Capacity Manual,* 2000; 23-4.

Ramp Merge/Diverge Areas. Highway Capacity Software (HCS+) was used to analyze the ramp merge/diverge areas. Freeway ramp area operating conditions are dependent upon traffic volumes and the ramp characteristics. These characteristics include the length and type of acceleration/deceleration lanes, free-flow speed of the ramps, number of freeway and acceleration/deceleration lanes, grade along the facility, and types of facilities a ramp connects. **Table 4.C-7**contains the density thresholds from A to F for ramp merge/diverge areas.

TABLE 4.C-7
LOS AND DENSITY FOR FREEWAY RAMP MERGE/DIVERGE AREAS

Level of Service	Maximum Density (pc/mi/ln)[a]
A	10
B	20
C	28
D	35
E	>35
F	Demand Exceeds Capacity

NOTE:
[a] Passenger cars per mile per lane

SOURCE: Transportation Research Board, *Highway Capacity Manual,*2000; 23-4.

The 2000 *Highway Capacity Manual* requires that several criteria be considered in addition to density so that LOS F is automatically attained for a ramp if:

At an on-ramp, volume exceeds capacity (V>C) in:

- The segment of a freeway downstream, or
- The merge-area defined by the on-ramp and the two adjacent freeway lanes,

Or at an off-ramp volume exceeds capacity (V>C) in:

- The segment of a freeway upstream OR downstream,
- The off-ramp itself, or
- The diverge-area defined by the two adjacent freeway lanes approaching the ramp.

The HCM 2000 methodology has certain limitations. It does not apply when the traffic along a segment is influenced by downstream blockages or queuing, nor does it apply when free-flow speeds are below 55 miles per hour (mph). The ACTC CMP originally identified most of the study segments as deficient (LOS F) in certain directions during the p.m. peak and grandfathered those segments into the CMP as deficient in 1991. The 2012 CMP Report identified I-580 west of I-980 as LOS F (average speeds less than 20 mph) during the p.m. peak for both directions of travel as well as during the a.m. peak for the northbound direction. For some study segments, the traffic counts used in the analysis of those segments may represent saturated flows resulting from downstream queuing and not reflect the demand during the study periods. Collectively, these limitations need to be considered when reviewing the results of the HCS+ analysis.

Project Impacts Compared to Existing Conditions

The following analysis evaluates the transportation impacts of the proposed development at Alameda Point on the existing transportation network.

Automobile LOS

Tables 4.C-8 and **4.C-9** present the intersection level of service under Existing conditions for the a.m. and p.m. peak hours, respectively. The impact analysis assumed no change in the signal timings to accommodate the addition of project traffic.

Pedestrian LOS

Table 4.C-10 compares the pedestrian LOS for existing with existing plus project conditions for those locations where a significant impact was identified. The pedestrian impacts identified below are caused by existing automated “actuated” traffic signals, which automatically adjust the signal timing to accommodate the additional traffic volume generated the project. The automatic adjustments result in longer delay for pedestrians crossing the street. The longer pedestrian delays at the following intersections are considered significant pedestrian impacts under the City of Alameda pedestrian thresholds. The full table showing the pedestrian LOS results for all signalized intersections in Alameda can be found in Appendix G.

TABLE 4.C-8
EXISTING PLUS PROJECT AM PEAK HOUR INTERSECTION LEVEL OF SERVICE

Study Intersection Name		Control	Existing		Existing + Project	
			Delay[a]	LOS	Delay[a]	LOS
Alameda Intersections						
1	Main St. & Navy Way	One-Way Stop[b]	8.7	A	9.1	A
2	Main St. & Ferry Terminal Way	Signal	3.3	A	2.2	A
3	Main St. & Singleton Ave.	Signal	5.2	A	3.9	A
4	Main St. & W. Midway Ave.	Signal	10.6	B	39.5	D
5	Main St. & Atlantic Ave.	Signal	10.1	B	14.1	B
6	Main St. & Pacific Ave.	Signal	16.5	B	24.9	C
7	Webster St. & Atlantic Ave.	Signal	33.5	C	37.9	D
8	Constitution Way & Lincoln Ave.	Signal	21.6	C	22.6	C
9	Eighth St. & Central Ave.	Signal	34.2	C	48.7	D
10	Oak St. & Lincoln Ave.	Signal	11.5	B	12.6	B
11	Oak St. & Santa Clara Ave.	Signal	9.9	A	10.6	B
12	Park St. & Clement Ave.	Signal	26.2	C	30.5	C
13	Park St. & Central Ave.	Signal	12.1	B	15.1	B
14	Park St. & Encinal Ave.	Signal	22.6	C	24.5	C
15	Park St. & Otis Dr.	Signal	22.3	C	22.9	C
16	Broadway & Tilden Way	Signal	22.6	C	28.0	C
17	Broadway & Encinal Ave.	Signal	22.9	C	23.0	C
18	Broadway & Otis Dr.	Signal	38.2	D	35.3	D
19	Tilden Way & Blanding Ave.	Signal	13.6	B	15.4	B
20	High St. & Fernside Blvd.	Signal	33.3	C	34.9	C
21	High St. & Otis Dr.	Signal	21.5	C	25.3	C
22	Island Dr. & Otis Dr.	Signal	33.3	C	33.6	C
23	Constitution Way & Marina Village Pkwy.	Signal	10.8	B	11.1	B
24	Constitution Way & Atlantic Ave.	Signal	25.5	C	28.2	C
25	**Fernside Blvd. & Otis Dr.**	Signal	**67.6**	**E**	**89.4**	**F**
26	Park St. & Blanding Ave.	Signal	65.5	E	47.8	D[e]
27	Challenger Dr. & Atlantic Ave.	Signal	8.9	A	9.1	A
28	Challenger Dr. & Marina Village Pkwy.	Signal	20.3	C	20.4	C
29	Webster St. & Willie Stargell Ave.	Signal	10.4	B	10.6	B
30	Fifth St. & Willie Stargell Ave.	One-Way Stop[b]	11.0	B	12.9	B
31	Constitution Way & Mariner Square Dr.	Signal	12.0	B	11.5	B
32	Park St. & Lincoln Ave.	Signal	15.0	B	15.4	B
Oakland Intersections						
33	Jackson Street & Seventh Street	Signal	12.7	B	13.1	B
34	Jackson Street & Sixth Street	Signal	38.2	D	35.8	D

TABLE 4.C-8 (Continued)
EXISTING PLUS PROJECT AM PEAK HOUR INTERSECTION LEVEL OF SERVICE

			Existing		Existing + Project	
Study Intersection Name		**Control**	**Delay[a]**	**LOS**	**Delay[a]**	**LOS**
Oakland Intersections (cont.)						
35	Jackson Street & Fifth Street	Signal	20.6	C	22.4	C
36	Harrison Street & 14th Street	Signal	13.6	B	13.4	B
37	Harrison Street & Eighth Street	Signal	5.4	A	7.3	A
38	Harrison Street & Seventh Street	Signal	36.7	D	31.1	C
39	Webster Street & Eighth Street	Signal	25.8	C	26.1	C
40	Webster Street & Seventh Street	Signal	11.6	B	12.5	B
41	Broadway & Seventh Street	Signal	11.2	B	14.1	B
42	Broadway & Sixth Street	Signal	21.3	C	20.8	C
43	Broadway & Fifth Street	Signal	28.1	C	39.8	D
44	Brush Street & 12th Street	Signal	31.3	C	70.5	E
45	High Street & Oakport Street	Signal	28.9	C	30.3	C
46	High Street & Coliseum Way	Signal	29.6	C	30.8	C
47	Fruitvale Ave & Ninth Street	Signal	31.2	C	39.6	D
48	Fruitvale Ave & Eighth Street	Signal	13.9	B	22.1	C
49	23rd Avenue & E 11th Street / I-880 NB on-ramp	Signal	20.7	C	22.4	C
50	23rd Avenue & Ford Street	Signal	13.2	B	33.9	C
51	29th Avenue & Ford Street	One-Way Stop[c]	29.2	D	36.3	E
52	**29th Avenue & I-880 NB off ramp / E. Eighth / E. Ninth Street** [d]	**All-Way Stop**	**93.4**	**F**	**>120**	**F**
53	Harrison Street & 12th Street	Signal	10.9	B	12.7	B
54	Harrison Street & 11th Street	Signal	15.7	B	15.5	B
55	**Brush Street & 11th Street**	**Signal**	**80.4 v/c = 0.58**	**F**	**>120 v/c = 0.63**	**F**
56	**23rd Avenue & Seventh Street**	**Signal**	**>120** v/c = **0.93**	**F**	**>120** v/c = **1.04**	**F**

NOTES:

a The LOS/Delay for Side-Street Stop-Control (SSSC) intersections represents the worst movement or approach; for Signalized intersections, the LOS/Delay represents the overall intersection. For signalized intersections in Oakland with delay in excess of 120 seconds, volume-to-capacity ratio is provided, as delay calculation may not be accurate.
b T-intersection.
c Ford Street is one-way westbound west of 29th Street; only westbound Ford Street is stop-controlled.
d The 29th Ave./I-880 NB off-ramp intersection will be reconstructed beginning in late 2013. With completion scheduled for 2017, before the project would add substantial traffic, this new intersection will avoid the project's otherwise significant impact; therefore, no significant impact is identified in this EIR.
e The total intersection AM peak hour volumes increase at this intersection with the proposed project, but the increase is to the movements (NB thru and SB thru on Park St) that are operating at LOS C and B, respectively, so that the average HCM intersection control delay decreases from 65.5 to 47.8 seconds, which changes the LOS from E to D.

Bold indicates locations with unacceptable level of service.

SOURCE: Kittelson & Associates, Inc., 2013.

TABLE 4.C-9
EXISTING PLUS PROJECT PM PEAK HOUR INTERSECTION LEVEL OF SERVICE

Study Intersection Name		Control	Existing		Existing + Project	
			Delay[a]	LOS	Delay[a]	LOS
Alameda Intersections						
1	Main St. & Navy Way	One-Way Stop[b]	9.3	A	10.9	B
2	Main St. & Ferry Terminal Way	Signal	8.2	A	5.2	A
3	Main St. & Singleton Ave.	Signal	4.4	A	3.5	A
4	Main St. & W. Midway Ave.	Signal	10.8	B	22.0	C
5	Main St. & Atlantic Ave.	Signal	10.3	B	13.6	B
6	Main St. & Pacific Ave.	Signal	13.3	B	25.8	C
7	Webster St. & Atlantic Ave.	Signal	31.5	C	35.6	D
8	Constitution Way & Lincoln Ave.	Signal	25.7	C	24.6	C
9	Eighth St. & Central Ave.	Signal	32.8	C	35.9	D
10	Oak St. & Lincoln Ave.	Signal	13.0	B	15.1	B
11	Oak St. & Santa Clara Ave.	Signal	11.4	B	11.2	B
12	Park St. & Clement Ave.	Signal	19.7	B	19.2	B
13	Park St. & Central Ave.	Signal	11.3	B	12.6	B
14	Park St. & Encinal Ave.	Signal	25.3	C	27.0	C
15	Park St. & Otis Dr.	Signal	31.0	C	32.9	C
16	Broadway & Tilden Way	Signal	20.5	C	30.7	C
17	Broadway & Encinal Ave.	Signal	10.8	B	10.8	B
18	Broadway & Otis Dr.	Signal	37.8	D	45.2	D
19	Tilden Way & Blanding Ave.	Signal	17.3	B	20.5	C
20	High St. & Fernside Blvd.	Signal	20.9	C	38.1	D
21	High St. & Otis Dr.	Signal	20.8	C	21.2	C
22	Island Dr. & Otis Dr.	Signal	16.5	B	17.9	B
23	Constitution Way & Marina Village Pkwy.	Signal	22.1	C	23.0	C
24	Constitution Way & Atlantic Ave.	Signal	27.7	C	31.4	C
25	**Fernside Blvd. & Otis Dr.**	Signal	**58.8**	**E**	**75.0**	**E**
26	Park St. & Blanding Ave.	Signal	36.2	D	47.3	D
27	Challenger Dr. & Atlantic Ave.	Signal	13.3	B	13.5	B
28	Challenger Dr. & Marina Village Pkwy.	Signal	21.3	C	21.2	C
29	Webster St. & Willie Stargell Ave.	Signal	12.3	B	12.4	B
30	Fifth St. & Willie Stargell Ave.	One-Way Stop[b]	10.9	B	17.9	C
31	Constitution Way & Mariner Square Dr.	Signal	15.8	B	15.3	B
32	Park St. & Lincoln Ave.	Signal	16.8	B	18.7	B

TABLE 4.C-9 (Continued)
EXISTING PLUS PROJECT PM PEAK HOUR INTERSECTION LEVEL OF SERVICE

Study Intersection Name		Control	Existing		Existing + Project	
			Delay[a]	LOS	Delay[a]	LOS
Oakland Intersections						
33	Jackson Street & Seventh Street	Signal	10.5	B	22.2	C
34	**Jackson Street & Sixth Street**	**Signal**	**77.0**	**E**	**91.4**	**F**
35	Jackson Street & Fifth Street	Signal	14.6	B	14.6	B
36	Harrison Street & 14th Street	Signal	13.6	B	13.1	B
37	Harrison Street & Eighth Street	Signal	18.6	B	21.2	C
38	Harrison Street & Seventh Street	Signal	21.6	C	36.4	D
39	Webster Street & Eighth Street	Signal	27.6	C	28.8	C
40	Webster Street & Seventh Street	Signal	16.2	B	15.5	B
41	Broadway & Seventh Street	Signal	14.0	B	14.4	B
42	Broadway & Sixth Street	Signal	22.4	C	21.0	C
43	Broadway & Fifth Street	Signal	36.9	D	44.1	D
44	Brush Street & 12th Street	Signal	23.1	C	24.1	C
45	High Street & Oakport Street	Signal	29.0	C	34.7	C
46	High Street & Coliseum Way	Signal	33.9	C	35.6	D
47	Fruitvale Ave & Ninth Street	Signal	30.6	C	32.7	C
48	Fruitvale Ave & Eighth Street	Signal	20.8	C	20.3	C
49	23rd Avenue & E 11th Street / I-880 NB on-ramp	Signal	44.3	D	43.9	D
50	23rd Avenue & Ford Street	Signal	11.4	B	17.3	B
51	29th Avenue & Ford Street	One-Way Stop[c]	13.5	B	19.4	C
52	29th Avenue & I-880 NB off ramp / E. Eighth / E. Ninth Street d	All-Way Stop	49.9	E	45.7	E
53	Harrison Street & 12th Street	Signal	9.5	A	9.3	A
54	Harrison Street & 11th Street	Signal	12.2	B	12.6	B
55	Brush Street & 11th Street	Signal	14.5	B	14.7	B
56	23rd Avenue & Seventh Street	Signal	38.7	D	44.6	D

NOTES:

a The LOS/Delay for Side-Street Stop-Control (SSSC) intersections represents the worst movement or approach; for Signalized intersections, the LOS/Delay represents the overall intersection.
b T-intersection.
c Ford Street is one-way westbound west of 29th Street; only westbound Ford Street is stop-controlled.
d The 29th Ave./I-880 NB off-ramp intersection will be reconstructed beginning in late 2013. With completion scheduled for 2017, before the project would add substantial traffic, this new intersection will avoid the project's otherwise significant impact; therefore, no significant impact is identified in this EIR.

Bold indicates locations with significant impacts.

SOURCE: Kittelson & Associates, Inc., 2013.

TABLE 4.C-10
EXISTING PLUS PROJECT PEDESTRIAN LEVELS OF SERVICE (LOS) BY CROSSWALK

Intersection	Peak Hour	Scenario	South		North		East		West		5th Leg	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Main St. & Pacific Ave.	AM	Existing	21.7	C	17.4	B	13.0	B	14.6	B	-	-
		Plus Project	29.3	C	27.6	C	19.7	B	15.6	B	-	-
	PM	Existing	18.2	B	17.7	B	12.5	B	10.3	B	-	-
		Plus Project	28.6	C	31.7	D	23.1	C	14.1	B	-	-
Webster St. & Atlantic Ave.	AM	Existing	20.9	C	29.2	C	21.8	C	24.4	C	-	-
		Plus Project	20.6	C	29.5	C	23.0	C	25.7	C	-	-
	PM	Existing	23.7	C	27.9	C	22.9	C	20.6	C	-	-
		Plus Project	22.8	C	30.5	D	23.3	C	25.0	C	-	-
Park St. & Otis Dr.	AM	Existing	17.0	B	17.4	B	19.9	B	14.6	B	-	-
		Plus Project	16.2	B	16.6	B	21.5	C	16.1	B	-	-
	PM	Existing	23.2	C	24.1	C	24.4	C	19.7	B	-	-
		Plus Project	22.3	C	23.2	C	24.3	C	20.3	C	-	-
Broadway & Tilden Way	AM	Existing	25.5	C	23.7	C	11.0	B	11.0	B	-	-
		Plus Project	29.5	C	22.3	C	16.0	B	16.0	B	-	-
	PM	Existing	21.9	C	17.5	B	14.4	B	14.4	B	-	-
		Plus Project	26.7	C	21.1	C	23.7	C	23.7	C	-	-
High St. & Fernside Blvd.	AM	Existing	40.0	E	25.6	C	24.9	C	12.9	B	25.6	C
		Plus Project	41.3	E	26.8	C	26.5	C	12.7	B	26.8	C
	PM	Existing	36.2	D	19.4	B	24.7	C	13.4	B	19.4	B
		Plus Project	42.4	E	25.1	C	28.8	C	12.0	B	25.1	C
Constitution Way & Atlantic Ave.	AM	Existing	25.5	C	27.6	C	18.2	B	17.5	B	-	-
		Plus Project	26.0	C	29.4	C	19.9	B	21.6	C	-	-
	PM	Existing	25.6	C	27.2	C	20.9	C	17.6	B	-	-
		Plus Project	28.9	C	32.8	D	25.2	C	21.2	C	-	-

Shading indicates a significant impact due to degradation of pedestrian level of service.

SOURCE: Kittelson & Associates, Inc., 2013.

Bicycle LOS

Table 4.C-11 compares the bicycle LOS for existing with existing plus project conditions for those locations where a significant impact was identified. The full table showing the all the bicycle LOS results can be found in Appendix G.

Transit LOS

Table 4.C-12 displays the results for transit LOS under existing conditions with and without project-related traffic for both a.m. and p.m. peak hours.

TABLE 4.B-11
EXISTING PLUS PROJECT BICYCLE LEVELS OF SERVICE (LOS)

			NB / WB			SB / EB		
Segment	**Peak Hour**	**Scenario**	**Bike Score**	**LOS**	**% Change in Bike Score**	**Bike Score**	**LOS**	**% Change in Bike Score**
Willie Stargell Ave. (Main St./ Webster St.)	AM	Existing	2.3	B	56%	2.8	C	19%
		Plus Project	3.6	D		3.3	C	
	PM	Existing	2.6	C	35%	2.7	C	33%
		Plus Project	3.4	C		3.7	D	
Main St. (Appezzato Pkwy./ Pacific Ave.)	AM	Existing	3.6	D	15%	3.1	C	32%
		Plus Project	4.2	D		4.0	D	
	PM	Existing	2.9	C	42%	3.3	C	26%
		Plus Project	4.1	D		4.2	D	
Central Ave. (Main St./ 4th St.)	AM	Existing	2.9	C	33%	2.8	C	33%
		Plus Project	3.9	D		3.8	D	
	PM	Existing	2.2	B	76%	2.4	B	63%
		Plus Project	3.8	D		3.9	D	

Shading indicates a significant impact due to degradation of bicycle level of service.

SOURCE: Kittelson & Associates, 2013.

TABLE 4.C-12
EXISTING AND EXISTING PLUS PROJECT TRANSIT LEVEL OF SERVICE (LOS)

			NB / WB			SB / EB		
Segment	**Peak Hour**	**Scenario**	**Travel Speed (MPH)**	**LOS**	**% Change in Travel Speed**	**Travel Speed (MPH)**	**LOS**	**% Change in Travel Speed**
Main St. at Willie Stargell Ave. to Pacific Ave. at Webster St.	AM	Existing	19.0	B	-4%	17.8	C	-3%
		Plus Project	18.2	C		17.2	C	
	PM	Existing	18.8	C	-1%	17.9	C	-3%
		Plus Project	18.6	C		17.3	C	
Webster St. (Webster Tube to Central Ave.)	AM	Existing	9.8	D	1%	14.4	C	-1%
		Plus Project	9.9	D		14.3	C	
	PM	Existing	10.2	D	0%	14.0	C	-1%
		Plus Project	10.2	D		13.8	C	
Park St. (Blanding Ave. to Otis Dr.)	AM	Existing	10.7	D	-7%	12.6	D	-2%
		Plus Project	10.0	D		12.3	D	
	PM	Existing	11.3	D	-1%	11.4	D	-7%
		Plus Project	11.2	D		10.6	D	

TABLE 4.C-12 (Continued)
EXISTING AND EXISTING PLUS PROJECT TRANSIT LEVEL OF SERVICE (LOS)

Segment	Peak Hour	Scenario	NB / WB Travel Speed (MPH)	NB / WB LOS	NB / WB % Change in Travel Speed	SB / EB Travel Speed (MPH)	SB / EB LOS	SB / EB % Change in Travel Speed
Otis St. (Willow Dr. to Robert Davey Jr. Dr.)	AM	Existing	13.2	C	-8%	16.7	C	0%
		Plus Project	12.2	D		16.7	C	
	PM	Existing	12.8	D	-6%	15.5	C	-3%
		Plus Project	12.0	D		15.0	C	

SOURCE: Kittelson & Associates, 2013

Freeway Mainline

The results on the analysis for the freeway mainline are shown in **Table 4.C-13** for the existing conditions. The change in traffic due to the project has minimal effect on the freeway operations with no change in LOS and minimal, if any, change in density under existing conditions, with the exception of I-980 south of I-580 in the westbound direction during the a.m. peak hour.

TABLE 4.C-13
EXISTING PLUS PROJECT FREEWAY MAINLINE CONDITIONS – AM(PM)

FWY section	Direction	Without Project Volume (pc/h/ln)[a]	Without Project Density (pc/mi/ln)[b]	Without Project LOS	With Project Volume (pc/h/ln)[a]	With Project Density (pc/mi/ln)[b]	With Project LOS
I-980 s/o I-580	WB	1610(945)	25.8(15.1)	C(B)	1658(953)	26.6(15.2)	D(B)
	EB	731(1326)	11.7(21.2)	B(C)	735(1370)	11.8(21.9)	B(C)
I-580 w/o I-980	WB	2369(1360)	44.7(20.1)	E(C)	2368(1374)	44.6(20.4)	E(C)
	EB	1118(1679)	16.6(25.1)	B(C)	1130(1676)	16.7(25.1)	B(C)

NOTES:
a Passenger cars per hour per lane
b Passenger cars per mile per lane

SOURCE: KAI, 2013.

Ramps Results

The results on the analysis for the ramps are shown in **Table 4.C-14** for the existing conditions. As shown, the change in traffic due to the project has minimal effect on the ramp operations with no change in LOS and minimal, if any, change in density under existing conditions.

TABLE 4.C-14
EXISTING PLUS PROJECT FREEWAY RAMP CONDITIONS – AM(PM)

		Without Project		With Project	
Ramp	**FWY**	**Density (pc/mi/ln)[a]**	**LOS**	**Density (pc/mi/ln)[a]**	**LOS**
Jackson St. on	I-880 NB	38.8(39.0)	F(F)	38.9(39.2)	F(F)
Broadway off	I-880 NB	32.7(29.8)	D(D)	33.0(29.9)	D(D)
18th St. off	I-980 WB	36.6(13.6)	F(B)	38.6(13.7)	F(B)
Fifth St. off (to Broadway)	I-880 SB	14.0(15.3)	B(B)	14.4(15.4)	B(B)
High St. on	I-880 SB	33.4(33.6)	D(D)	33.4(33.5)	D(D)
High St. off	I-880 NB	27.2(27.4)	C(C)	27.4(27.3)	C(C)
Jackson St. off	I-980 WB	19.8(16.3)	B(B)	20.0(16.5)	C(B)
Oak St. on	I-880 SB	24.1(26.4)	C(C)	24.1(26.5)	C(C)
12th St. on	I-980 EB	29.1(62.0)	D(F)	29.3(62.8)	D(F)
12th St. off	I-980 EB	19.1(26.3)	B(C)	18.8(26.3)	B(C)

NOTE:
[a] Passenger cars per mile per lane

SOURCE: KAI, 2013.

Project Construction Analysis

Impact 4.C-1: Development facilitated by the proposed project would generate temporary increases in traffic volumes on area roadways during construction. (Significant)

Project construction activities would generate off-site traffic that would include the initial delivery of construction vehicles and equipment to the project site, the daily arrival and departure of construction workers, and the delivery of materials throughout the construction period and removal of construction debris. Deliveries would include shipments of concrete, lumber, and other building materials for on-site structures, utilities (e.g., plumbing equipment and electrical supplies), and paving and landscaping materials.

Construction-generated traffic would be temporary and therefore would not result in any long-term degradation in operating conditions on roadways in the project site vicinity. The impact of construction-related traffic would be a temporary and intermittent lessening of the capacities of streets in the project site vicinity because of the slower movements and larger turning radii of construction trucks compared to passenger vehicles. Most construction traffic would be dispersed throughout the day. Thus, the temporary increase would not significantly disrupt daily traffic flow on roadways in the project site vicinity in the long term.

Although the impact would be temporary, truck movements could have an adverse effect on traffic flow in the project site vicinity. As such, the impact is considered to be potentially significant.

> **Mitigation Measure 4.C-1:** The City shall require that project applicant(s) and construction contractor(s) shall develop a construction management plan for review and approval by the

Public Works Department prior to issuance of any permits. The plan shall include at least the following items and requirements to reduce traffic congestion during construction:

1. A set of comprehensive traffic control measures shall be developed, including scheduling of major truck trips and deliveries to avoid peak traffic hours, detour signs if required, lane closure procedures, signs, cones for drivers, and designated construction access routes.

2. The Construction Management Plan shall identify haul routes for movement of construction vehicles that would minimize impacts on motor vehicle, bicycle, and pedestrian traffic, circulation, and safety, and specifically to minimize impacts to the greatest extent possible on streets in the project area. The haul routes shall be approved by the City.

3. The Construction Management Plan shall provide for notification procedures for adjacent property owners and public safety personnel regarding when major deliveries, detours, and lane closures would occur.

4. The Construction Management Plan shall provide for monitoring surface streets used for haul routes so that any damage and debris attributable to the haul trucks can be identified and corrected by the project applicant.

Significance after Mitigation: Less than Significant.

Project Operational Analysis – Multimodal Level of Service

As stated above in the discussion of travel demand modeling, the impact analysis does not assume, prior to implementation of mitigation, the benefits of future TDM programs at the project site.

Impact 4.C-2: Development facilitated by the proposed project would potentially result in a transportation impact at study intersection under Existing plus Project conditions. (Significant)

Automobile Travel

For each of the significant impact locations, mitigation measures are identified.

Fernside/Otis. The signalized intersection of Fernside Boulevard and Otis Drive (#25) operates at an unacceptable LOS E during both peak hours under Existing conditions. Under Existing plus Project conditions, this intersection would operate at LOS F in the a.m. peak and LOS E in the p.m. peak. The increase in traffic volumes due to the project would contribute more than three percent to the intersection traffic volume under existing conditions during both peak hours.

The increase in traffic volumes due to the project represents a three percent increase when compared to existing volumes during the a.m. peak hour. Similarly, during the p.m. peak hour, the increase in traffic from the project represents a six percent increase. This change in traffic volume can be attributed in part to some project trips directly as well as diverted trips.

Mitigation Measure 4.C-2a (TDM Program): Prior to issuance of building permits for each development project at Alameda Point, the City of Alameda shall prepare, and shall require that the sponsor of the development project participate in implementation of, a Transportation Demand Management (TDM) program for Alameda Point aimed at meeting the General Plan peak-hour trip reduction goals of 10 percent for residential development and 30 percent for commercial development.

Mitigation Measure 4.C-2b (Monitoring and Improvement Program): Prior to issuance of the first building permits for any development project at Alameda Point, the City of Alameda shall adopt a Transportation Network Monitoring and Improvement Program to: 1) determine the cost of the transportation network improvements identified in this EIR; 2) identify appropriate means and formulas to collect fair share financial contributions from Alameda Point development; 3) monitor conditions at the locations that will be impacted by the redevelopment of Alameda Point; 4) monitor traffic generated by Alameda Point; and 5) establish the appropriately time to implement the necessary improvements described in this EIR to minimize or eliminate significant transportation impacts prior to the impacts occurring.

Mitigation Measure 4.C-2c (Otis/Fernside): The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and C-2b) and, when and if required to avoid the impact or reduce its severity, shall implement the following improvements:

- Remove the right turn island for the westbound approach on Otis Drive, add a dedicated right turn lane with approximately 50 feet of storage length, and move the northbound stop-bar upstream approximately 20 feet to accommodate the right turn lane storage length. Restripe Fernside Boulevard with two receiving lanes.

- Optimize signal timing.

Level of Significance after Mitigation: The degree to which implementation of the TDM Program and Monitoring (Mitigation Measures 4.C-2a and 4C-2b) would reduce peak-hour travel cannot be accurately determined at this time, particularly given that effectiveness would be anticipated to improve over time as an increasing number of residential and non-residential tenants and residents of Alameda Point begin to contribute to, and participate in, program implementation. Accordingly, it would be speculative to assume that the TDM mitigation measure would reduce the impact to less than significant. Therefore, if determined by the Monitoring and Improvement Program to be needed, Mitigation Measure 4.C-2c is recommended.

Implementation of Mitigation Measure 4.C-2c would improve the LOS from LOS F to LOS C during the a.m. peak and from LOS E to LOS B during the p.m. peak. The mitigation would increase pedestrian delay by a marginal amount but would not result in a significant degradation of pedestrian LOS for any leg. It would not cause a diminution of transit travel speed in the vicinity of the intersection, so transit LOS would not degrade.

Auto Travel Impact Significance after Mitigation: Less than Significant.

Transit Travel Secondary Impact after Auto Mitigation: Less than Significant.

Bicycle Travel Secondary Impact after Auto Mitigation: Less than Significant.

Pedestrian Travel Secondary Impact after Auto Mitigation: Less than Significant.

Jackson/Sixth. The signalized intersection of Jackson Street and Sixth Street (#34) operates at LOS E with 77 seconds of delay during the p.m. peak hour under Existing conditions. Under Existing plus Project conditions, this intersection would degrade to LOS F with 91 seconds of delay. The project traffic would cause the overall volume-to-capacity ("V/C") ratio to increase by 0.06 during the p.m. peak hour.

As documented in the City of Oakland's Central Estuary Implementation Guide Supplemental EIR, this intersection was previously identified by the City of Oakland as having a **significant and unavoidable** impact under existing conditions in the Kaiser Center Redevelopment Project EIR.[7] An improvement identified as part of the Broadway-Jackson Interchange project to provide direct access to Sixth Street from the Posey Tube would reduce traffic through Oakland Chinatown. With the assistance of the ACTC, the cities of Alameda and Oakland are working to develop consensus on this improvement. To date, Oakland and Caltrans, which has jurisdiction over the freeway and its ramps, have not agreed upon a solution.

> **Mitigation Measure 4.C-2d (Jackson/Sixth):** The City of Alameda shall implement Mitigation Measures 4.C-2a (TDM Program) and 4.C-2b (Monitoring), which could improve intersection LOS by reducing vehicle trips.

Significance after Mitigation: Significant and Unavoidable.

Brush and 11th Street. The signalized intersection of Brush Street and 11th Street (#55) operates at LOS F with 80 seconds of delay during the a.m. peak hour under Existing conditions. Under Existing plus Project conditions, this intersection would degrade to LOS F with more than 120 seconds of delay. The addition of project traffic (almost all of which would be exiting westbound I-980 at 12th Street and approaching this intersection from the north) would cause the overall volume-to-capacity ("V/C") ratio to increase by 0.05.

As documented in the Central Estuary Implementation Guide Supplemental EIR (November 2012), this intersection was previously identified as having a **significant and unavoidable** impact (LOS E) under future conditions during the a.m. peak hour in the Kaiser Center Redevelopment Project DEIR. The City of Oakland has not required any mitigation for this location to mitigate the impacts of the Central Estuary Implementation Guide or Kaiser Center development.

[7] An earlier (2010) Oakland EIR for a project at 325 Seventh Street, identified signal optimization as potentially feasible mitigation for a lesser impact. However, because that measure would require Caltrans approval, the project impact was conservatively considered to be significant and unavoidable. Moreover, no feasible mitigation measure was identified by the City of Oakland for the cumulative impact at this intersection.

A potential improvement would be to optimize the splits to provide more green time for the southbound traffic. If the City of Oakland were to choose signal optimization, this intersection would improve from LOS F to LOS B during the a.m. peak. The mitigation would reduce delays for the southbound movements, resulting in an overall intersection delay of 11. 3 seconds. However, because the City of Alameda cannot implement the mitigation measure without the City of Oakland cooperation, the City of Alameda cannot require that the improvement be implemented**.**

> **Mitigation Measure 4.C-2e (Brush/11th):** The City of Alameda shall implement Mitigation Measures 4.C-2a (TDM Program) and 4.C-2b (Monitoring), which could improve intersection LOS by reducing vehicle trips.

Significance after Mitigation: Significant and Unavoidable.

23rd Avenue and Seventh Street. The signalized intersection of 23rd Avenue and Seventh Street (#56) would operate at LOS F with more than 120 seconds of delay during the a.m. peak hour under the Existing conditions. Under Existing plus Project conditions, project-related vehicle traffic would degrade the LOS to F with greater delay, also more than 120 seconds. The project traffic would cause the overall volume-to-capacity ("V/C") ratio to increase by 0.11.

This intersection was studied as part of the I-880 Operational improvements. The incremental traffic due to the project as identified in the travel demand model indicates an increase in the northbound left-turn movements which would allow for access to the I-880 southbound on-ramp. With the future reconfiguration of the 23rd Avenue and 29th Avenue overpasses and ramps, this intersection would continue to operate at a level of service in excess of Oakland's standard for significance, and the impact would be **significant and unavoidable**.

A potential improvement would be to optimize the signal timing by providing for a longer cycle length and optimizing the splits. If the City of Oakland were to choose signal optimization, this intersection would operate at LOS C with 32.7 seconds of average delay during the a.m. peak hour. However, the City of Alameda cannot implement the mitigation without City of Oakland cooperation, therefore the City of Alameda cannot require that the improvement be implemented.

> **Mitigation Measure 4.C-2f (23rd/Seventh):** The City of Alameda shall implement Mitigation Measures 4.C-2a (TDM Program) and 4.C-2b (Monitoring), which could improve intersection LOS by reducing vehicle trips.

Significance after Mitigation: Significant and Unavoidable.

Pedestrian Travel

Implementation of Mitigation Measures 4.C-2a (TDM Program) and 4.C-2b (Monitoring), p. 4.C-37, would lessen the pedestrian impacts at the affected locations by reducing vehicle trips, although it would be speculative to quantify the potential improvement. Therefore, additional mitigation measures are identified, as applicable, for each impact.

Main/Pacific Pedestrian. At the actuated signal at Main Street and Pacific Avenue (#6), the increase in volumes due to project-related traffic during the a.m. and p.m. peak hours would cause increases in pedestrian delay for several legs of the intersection.

As shown in Table 4.C-10, at the actuated signalized intersection of Main Street and Pacific Avenue, the increase in volumes due to project-related traffic during the a.m. and p.m. peak hours would cause increases in green time for several approaches. These green times increase the overall cycle length, causing increases in pedestrian delay for all legs during both peak hours. Project-related vehicle traffic would increase the a.m. peak hour pedestrian delay along the south leg by more than 10 percent, from 21.7 seconds (LOS C) to 29.3 seconds (LOS C) and along the north leg from 17.4 seconds (LOS B) to 27.6 seconds (LOS C), which would be considered a significant impact. The increase in delay on the east and west legs would not be significant. Project-related vehicle traffic would increase the p.m. peak hour pedestrian delay along the south leg from 18.2 seconds (LOS B) to 28.6 seconds (LOS C), along the north leg from 17.7 seconds (LOS B) to 31.7 seconds (LOS D), and along the east leg from 12.5 seconds (LOS B) to 23.1 seconds (LOS C), which would be considered a significant impact. The increase in delay on the west leg would not be significant.

> **Mitigation Measure 4.C-2g (Main/Pacific Pedestrian):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and C-2b) and, when required to avoid the impact or reduce its severity, shall implement the following physical improvements:
>
> - change the signal timing to a two-phase timing plan (i.e., northbound and southbound move concurrently; then eastbound and westbound move concurrently); and
> - optimize cycle length.

Level of Significance after Mitigation: Implementation of Mitigation Measure 4.C-3a would reduce projected pedestrian delay during the a.m. peak hour from 29.3 seconds (LOS C) to 11.2 seconds (LOS B) for the south leg and from 27.6 seconds (LOS C) to 11.2 seconds (LOS B) for the north leg. During the p.m. peak hour, this mitigation measure would reduce projected pedestrian delay from 28.6 seconds (LOS C) to 11.0 seconds (LOS B) for the south leg, from 31.7 seconds (LOS D) to 11.0 seconds (LOS B) for the north leg, and from 23.1 seconds (LOS C) to 2.6s (LOS A) for the east leg. This measure would increase average speed along Main Street, thereby also benefitting transit service along the corridor, and it would not degrade auto LOS at the intersection.

Pedestrian Travel Impact Significance after Mitigation: Less than Significant.

Transit Travel Secondary Impact after Pedestrian Mitigation: Less than Significant.

Bicycle Travel Secondary Impact after Pedestrian Mitigation: Less than Significant.

Auto Travel Secondary Impact after Pedestrian Mitigation: Less than Significant.

Webster/Appezzato Parkway Pedestrian. At the actuated signal at Webster Street and Ralph Appezzato Memorial Parkway (#7), the increase in volumes due to project-related traffic during the p.m. peak hour would cause increases in pedestrian delay for several legs of the intersection.

At the actuated signalized intersection of Webster Street and Appezzato Parkway, the increase in volumes due to project-related traffic during the p.m. peak hour would cause increases in green time for several approaches. These green time increases cause increases in pedestrian delay for all legs. Project-related vehicle traffic would increase the p.m. peak hour pedestrian delay along the west leg from 20.6 seconds (LOS C) to 25.0 seconds (LOS C), which would be considered a significant impact.

> **Mitigation Measure 4.C-2h (Webster/Appezzato Parkway Pedestrian):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and C-2b) and, when required to avoid the impact or reduce its severity, shall optimize the signal timing during the p.m. peak hour.

Level of Significance after Mitigation: Implementation of Mitigation Measure 4.C-3b would reduce projected pedestrian delay during the p.m. peak hour from 25.0 seconds (LOS C) to 19.7 seconds (LOS B) for the west leg. It would increase average speed along Webster Street, thereby benefitting transit service along that corridor. It would not change the average travel speed along Appezzato Parkway, thereby not impacting transit service along that corridor. It would not degrade auto LOS at the intersection.

Pedestrian Travel Impact Significance after Mitigation: Less than Significant.

Transit Travel Secondary Impact after Pedestrian Mitigation: Less than Significant.

Bicycle Travel Secondary Impact after Pedestrian Mitigation: Less than Significant.

Auto Travel Secondary Impact after Pedestrian Mitigation: Less than Significant.

Park/Otis Pedestrian. At the actuated signal at Park Street and Otis Drive (#15), the increase in volumes due to project-related traffic during the a.m. and p.m. peak hours would cause increases in pedestrian delay for several legs of the intersection.

At the actuated signalized intersection of Park Street and Otis Drive, the increase in volumes due to project-related traffic during the a.m. and p.m. peak hours would cause increases in green time for several approaches. These green time increases cause increases in pedestrian delay for the east and west legs during both peak hours. Project-related vehicle traffic would increase the a.m. peak hour pedestrian delay along the east leg from 19.9 seconds (LOS B) to 21.5 seconds (LOS C), which would be considered a significant impact. The increase in delay on the west leg would not be a significant impact. Project-related vehicle traffic would increase the p.m. peak hour pedestrian delay along the west leg from 19.7 seconds (LOS B) to 20.3 seconds (LOS C), which would be considered a significant impact. The increase in delay on the east leg would not be a significant impact.

> **Mitigation Measure 4.C-2i (Park/Otis Pedestrian):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and C-2b) and, when required to avoid the impact or reduce its severity, shall optimize the signal timing during the a.m. and p.m. and peak hours.

Level of Significance after Mitigation: Implementation of Mitigation Measure 4.C-3c would reduce projected pedestrian delay during the a.m. peak hour from 21.5 seconds (LOS C) to 19.2 seconds (LOS B) for the east leg. During the p.m. peak hour, this measure would reduce projected pedestrian delay from 20.3 seconds (LOS C) to 16.8 seconds (LOS B) for the east leg. It would increase average speed along Park Street and along Otis Drive, thereby benefitting transit service along both corridors, and it would not degrade auto LOS at the intersection.

Pedestrian Travel Impact Significance after Mitigation: Less than Significant.

Transit Travel Secondary Impact after Pedestrian Mitigation: Less than Significant.

Bicycle Travel Secondary Impact after Pedestrian Mitigation: Less than Significant.

Auto Travel Secondary Impact after Pedestrian Mitigation: Less than Significant.

Broadway/Tilden Pedestrian. At the actuated signal at Broadway and Tilden Way (#16), the increase in volumes due to project-related traffic during the a.m. and p.m. peak hours would cause increases in pedestrian delay for several legs of the intersection.

The signal at Broadway and Tilden Way (#16) is an actuated signal. The increase in volumes due to project-related traffic at the intersection of Broadway and Tilden Way during the a.m. and p.m. peak hours would cause increases in green time for several approaches. These green time increases in addition to the overall cycle length cause increases in pedestrian delay for all legs during both peak hours. Project-related vehicle traffic would increase the a.m. peak hour pedestrian delay along the south leg from 23.5 seconds (LOS C) to 29.5 seconds (LOS C), which would be considered a significant impact. The increase in delay on the north, east, and west legs would not be considered a significant impact. Project-related vehicle traffic would increase the p.m. peak hour pedestrian delay along the south leg from 21.9 seconds (LOS C) to 26.7 seconds (LOS C), along the north leg from 17.5 seconds (LOS B) to 21.1 seconds (LOS C), along the east leg from 14.4 seconds (LOS B) to 23.7 seconds (LOS C), and along the west leg from 14.4 seconds (LOS B) to 23.7 seconds (LOS C), which would be considered a significant impact.

> **Mitigation Measure 4.C-2j (Broadway/Tilden Pedestrian):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and C-2b) and, when required to avoid the impact or reduce its severity, shall optimize the signal timing during the a.m. and p.m. peak hours.

Level of Significance after Mitigation: Implementation of Mitigation Measure 4.C-2j would reduce projected pedestrian delay during the a.m. peak hour from 29.5 seconds (LOS C) to 22.4 seconds (LOS C) for the south leg. During the p.m. peak hour, Mitigation 4.C-2j would reduce projected pedestrian delay from 26.7 seconds (LOS C) to 19.3 seconds (LOS B) for the south leg, from 21.1 seconds (LOS C) to 16.2 seconds (LOS B) for the north leg, from 23.7 seconds (LOS C) to 17.5 seconds (LOS B) for the east leg, and from 23.7 seconds (LOS C) to 17.5 seconds (LOS B) for the west leg.

During the a.m. peak hour, this measure would increase average speed along Broadway in the southbound direction, but it would decrease average speed in the northbound direction by 2 percent. This 2 percent decrease in average speed does not meet the significance criteria for an impact and therefore would result in a secondary significant impact on transit. Mitigation Measure 4.C-2j would not degrade auto LOS at the intersection.

During the p.m. peak hour, Mitigation Measure 4.C-2j would increase average speed along Broadway in both directions to the benefit of transit service along the corridor, and it would not degrade auto LOS at the intersection.

Pedestrian Travel Impact Significance after Mitigation: Less than Significant.

Transit Travel Secondary Impact after Pedestrian Mitigation: Less than Significant.

Bicycle Travel Secondary Impact after Pedestrian Mitigation: Less than Significant.

Auto Travel Secondary Impact after Pedestrian Mitigation: Less than Significant.

High/Fernside Pedestrian. At the actuated signal at High Street and Fernside Boulevard (#20), the increase in volumes due to project-related traffic during the p.m. peak hour would cause increases in pedestrian delay for several legs of the intersection.

The signal at High Street and Fernside Boulevard is an actuated signal. The increase in volumes due to project-related traffic at the intersection of High Street and Fernside Boulevard during the a.m. and p.m. peak hours would cause increases in green time for several approaches. These green time increases cause increases in pedestrian delay for most legs during the p.m. peak hour. Project-related vehicle traffic would increase the p.m. peak hour pedestrian delay along the south leg from 36.2 seconds (LOS D) to 42.4 seconds (LOS E), along the north leg from 19.4s (LOS B) to 25.1 seconds (LOS C), along the east leg from 24.7 seconds (LOS C) to 28.8 seconds (LOS C), and along the southwest leg from 19.4 seconds (LOS B) to 25.1 seconds (LOS C), which would be considered a significant impact.

> **Mitigation Measure 4.C-2k (High/Fernside Pedestrian):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and C-2b) and, when required to avoid the impact or reduce its severity, shall optimize the signal timing during the p.m. peak hour.

Implementation of Mitigation Measure 4.C-2k would reduce projected pedestrian delay during the p.m. peak hour from 42.4 seconds (LOS E) to 32.8 seconds (LOS D) for the south leg, from 25.1 seconds (LOS C) to 19.1 seconds (LOS B) for the north leg, from 28.8 seconds (LOS C) to 24.1 seconds (LOS C) for the east leg, and from 25.1 seconds (LOS C) to 19.1 seconds (LOS B) for the southwest leg.

Level of Significance after Mitigation: During the p.m. peak hour, Mitigation Measure 4.C-2k would increase average speed along High Street in both directions and along Fernside Boulevard in both directions to the benefit of transit service along both corridors. It would not degrade auto LOS at the intersection.

Pedestrian Travel Impact Significance after Mitigation: Less than Significant.

Transit Travel Secondary Impact after Pedestrian Mitigation: Less than Significant.

Bicycle Travel Secondary Impact after Pedestrian Mitigation: Less than Significant.

Auto Travel Secondary Impact after Pedestrian Mitigation: Less than Significant.

Atlantic Avenue/Constitution Pedestrian. At the actuated signal at Atlantic Avenue and Constitution Way (#24), the increase in volumes due to project-related traffic during the a.m. and p.m. peak hours would cause increases in pedestrian delay for several legs of the intersection.

The signal at Atlantic Avenue and Constitution Way is an actuated signal. The increase in volumes due to project-related traffic at the intersection of Atlantic Avenue and Constitution Way during the a.m. and p.m. peak hours would cause increases in green time for all approaches. These green time increases in addition to the overall cycle length cause increases in pedestrian delay for the west leg during the a.m. peak hour and for all legs during the p.m. peak hour. Project-related vehicle traffic would increase the a.m. peak hour pedestrian delay along the west leg from 17.5s (LOS B) to 21.6s (LOS C), which would be considered a significant impact. The increase in delay on the south, north, and west legs would not be a significant impact. Project-related vehicle traffic would increase the p.m. peak hour pedestrian delay along the south leg from 25.6s (LOS C) to 28.9s (LOS C), along the north leg from 27.2s (LOS C) to 32.8s (LOS D), along the east leg from 20.9s (LOS C) to 25.2s (LOS C), and along the west leg from 17.6s (LOS B) to 21.2s (LOS C), which would be considered a significant impact.

> **Mitigation Measure 4.C-2l (Atlantic/Constitution Pedestrian):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and C-2b) and, when required to avoid the impact or reduce its severity, shall implement the following physical improvements:
>
> - modify the existing signal phasing for eastbound and westbound Atlantic Avenue approaches from split to permitted-protected lefts; and
> - optimize the signal timing.

Implementation of Mitigation Measure 4.C-2l would reduce projected pedestrian delay during the a.m. and p.m. peak hours to LOS B or C and would reduce delay for all legs. Currently the City has set the pedestrian crossing time at this intersection to accommodate elderly pedestrians crossing at this intersection. Mitigation Measure 4.C-2l would reduce the cycle length while still maintaining this longer crossing time. This measure would not degrade transit LOS along Atlantic Avenue or Constitution Way, nor would it degrade auto LOS at the intersection.

Pedestrian Travel Impact Significance after Mitigation: Less than Significant.

Transit Travel Secondary Impact after Pedestrian Mitigation: Less than Significant.

Bicycle Travel Secondary Impact after Pedestrian Mitigation: Less than Significant.

Auto Travel Secondary Impact after Pedestrian Mitigation: Less than Significant.

Bicycle Travel

Implementation of Mitigation Measures 4.C-2a (TDM Program) and 4.C-2b (Monitoring), p. 4.C-37, would improve bicycle conditions at the affected locations by reducing vehicle trips, although it would be speculative to quantify the potential improvement. Therefore, additional mitigation measures are identified, as applicable, for each location.

Stargell Avenue Bike. The increase in motorized vehicle volume due to project-related traffic along Willie Stargell Avenue between Main Street and Webster Street would be substantial in the eastbound and westbound directions during both peak hours, and it would cause bicycle LOS to degrade in both directions during both peak hours. For westbound bicycle traffic, in the a.m. peak hour, the increase in traffic volume would degrade bicycle operations from LOS B to LOS D and the bicycle score would increase by 56 percent with the project, which exceeds the 10 percent threshold of significance for segments already at LOS B or worse, while in the p.m. peak hour, LOS C would be maintained but the bicycle score would increase by 35 percent, also significant. For eastbound bicycles, the a.m. bicycle score would increase by 19 percent (LOS C would be maintained), while the p.m. LOS would decrease from LOS C to LOS D and the bicycle score would increase by 33 percent; both would be significant impacts.

> **Mitigation Measure 4.C-2m (Stargell Avenue Bike):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and C-2b) and, when required to avoid the impact or reduce its severity, shall construct a Class I or Class II bicycle facility between Main Street and Webster Street.

Implementation of Mitigation Measure 4.C-2m would enhance the cyclist experience along Willie Stargell Avenue. However, due to the limitation of the methodology, bicycle LOS for Class I bicycle paths cannot be calculated directly, and this impact would remain **significant and unavoidable**. If Class II bicycle lanes were to be installed it would improve bicycle LOS for the eastbound a.m. peak hour from LOS C (3.3) to LOS A (1.5), for the eastbound p.m. peak hour from LOS D (3.7) to LOS B (1.9), for the westbound a.m. peak hour from LOS D (3.6) to LOS B

(1.9), and for the westbound p.m. peak hour from LOS C (3.4) to LOS B (1.8). This measure would not degrade the transit LOS or auto LOS along the corridor.

Bicycle Travel Impact Significance after Mitigation: Significant and Unavoidable.

Transit Travel Secondary Impact after Bicycle Mitigation: Less than Significant.

Pedestrian Travel Secondary Impact after Bicycle Mitigation: Less than Significant.

Auto Travel Secondary Impact after Bicycle Mitigation: Less than Significant.

Main Street Bike. The increase in motorized vehicle volume due to project-related traffic along Main Street between Ralph Appezzato Memorial Parkway and Pacific Avenue would cause bicycle LOS to degrade in both directions during both peak hours. For northbound bicycle traffic, in the a.m. peak hour, the increase in traffic volume would degrade the bicycle score by 15 percent with the project (LOS C would be maintained), which exceeds the 10 percent threshold of significance for segments already at LOS B or worse, while in the p.m. peak hour, bicycle operations would degrade from LOS C to LOS D and the score would decrease by 42 percent, also significant. For southbound bicycles, the a.m. bicycle LOS would degrade from LOS C to LOS D and the score would decrease by 32 percent, while the p.m. LOS would also decrease from LOS C to LOS D and the score would decrease by 26 percent; both would be significant impacts.

> **Mitigation Measure 4.C-2n (Main Street Bike):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and C-2b) and, when required to avoid the impact or reduce its severity, shall implement the following physical improvements:
>
> - construct a Class II bicycle lane or improve the existing Class I bicycle path on the west side of the street between Appezzato Parkway and Pacific Avenue to current City standards;
> - provide connectivity to existing Class I bicycle path on the east and west sides of the street north of Appezzato Parkway. Appropriate intersection treatments for connectivity may include striping, signage, and/or bicycle boxes at the intersection of Main Street and Appezzato Parkway; and
> - if Mitigation Measure 4.C-4c (described below) is implemented, provide connectivity to that bicycle facilities on west side of the street north of the Main Street-Pacific Street intersection.

Implementation of Mitigation Measure 4.C-4b would enhance the cyclist experience along Main Street and would likely improve bicycle LOS to LOS B or better. However, due to the limitation of the methodology, bicycle LOS for Class I bicycle paths cannot be calculated directly, and this impact would remain **significant and unavoidable**. If Class II bicycle lanes were to be installed, bicycle LOS would improve for the northbound a.m. peak hour from LOS D (3.6) to LOS C (2.7), for the northbound p.m. peak hour from LOS C (2.9) to LOS C (2.6), for the southbound a.m.

peak hour from LOS C (3.1) to LOS C (2.5), and for the southbound p.m. peak hour from LOS C (3.3) to LOS C (2.7). A Class I bike path would further improve the bicycle LOS to less than significant level. This measure would not degrade the transit LOS or auto LOS along the corridor.

Bicycle Travel Impact Significance after Mitigation: Significant and Unavoidable.

Transit Travel Secondary Impact after Bicycle Mitigation: Less than Significant.

Pedestrian Travel Secondary Impact after Bicycle Mitigation: Less than Significant.

Auto Travel Secondary Impact after Bicycle Mitigation: Less than Significant.

Central Avenue Bike. The increase in motorized vehicle volume due to project-related traffic along Central Avenue between the Main Street-Pacific Street intersection and Fourth Street would cause bicycle LOS to degrade in both directions during both peak hours. For westbound bicycle traffic, in the a.m. peak hour, the increase in traffic volume would degrade bicycle operations from LOS C to LOS D and the bicycle score would increase by 33 percent with the project, which exceeds the 10 percent threshold of significance for segments already at LOS B or worse, while in the p.m. peak hour, operations would degrade from LOS B to LOS D and the bicycle score would increase by 76 percent, also significant. For eastbound bicycles, a.m. bicycle operations would degrade from LOS C to LOS D and the score would increase by 33 percent, while the p.m. LOS would decrease from LOS B to LOS D and the bicycle score would increase by 63 percent; both would be significant impacts.

> **Mitigation Measure 4.C-2o(Central Avenue Bike):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and C-2b) and, when required to avoid the impact or reduce its severity, shall implement the following physical improvements:
>
> - construct a Class II bicycle lane or improve the existing Class I bicycle path on the west (south) side of the street between the Main Street-Pacific Street intersection and Lincoln Avenue to current City standards;
> - extend a Class I bicycle path to Third Street; and
> - restripe and sign the street segment between Third Street and Fourth Street to provide Class II bicycle lanes between Lincoln Avenue and Fourth Street.

Implementation of Mitigation Measure 4.C-2o would enhance the cyclist experience along Central Avenue. As previously described, the limits of the methodology used to evaluate bicycle LOS for this study do not include Class I bicycle paths, so bicycle LOS for Mitigation Measure 4.C-2o cannot be calculated. Were a Class II bicycle lane implemented, it would improve bicycle LOS for the northbound a.m. peak hour from LOS D (3.9) to LOS B (2.2), for the northbound p.m. peak hour from LOS D (3.8) to LOS B (2.1), for the southbound a.m. peak hour from LOS D (3.8) to LOS B (2.0), and for the southbound p.m. peak hour from LOS D (3.9) to LOS B (2.2). Mitigation Measure 4.C-2o would not degrade the transit LOS or auto LOS along the corridor.

Mitigation Measure 4.C-2o would require acquisition of additional right-of-way from the Alameda Unified School District along the northeastern boundary of the Encinal High School property and require removal of on-street parking in order to restripe the street with bicycle lanes. Because the acquisition of right of way is uncertain and removal of on-street parking along the block between Third Street and Fourth Street would adversely affect local residents who use the existing on-street parking regularly, the impact would remain **significant and unavoidable**.

Bicycle Travel Impact Significance after Mitigation: Significant and Unavoidable.

Transit Travel Secondary Impact after Bicycle Mitigation: Less than Significant.

Pedestrian Travel Secondary Impact after Bicycle Mitigation: Less than Significant.

Auto Travel Secondary Impact after Bicycle Mitigation: Less than Significant.

Freeways and Ramps Analysis

Impact 4.C-3: The increase in traffic on the freeway mainline due to the project would result in negligible changes in density (vehicles per lane) and no change in LOS, with the exception of the segment of I-980 south of I-580. (Less than Significant)

The freeway mainline segment of I-980 south of I-580 would experience an increase in volume of about 48 vehicles per hour per lane during the a.m. peak hour. This slight increase in volume would result in change in density from 25.8 to 26.6 passenger cars per mile per lane, which is just enough to drop the LOS from C to D. However, the magnitude of the change in volume is less than three percent of the total volume; therefore, the change would be imperceptible to drivers and within normal daily fluctuation of traffic volumes on the freeway.

Mitigation: None required.

Impact 4.C-4: The change in traffic volumes on the freeway ramps due to the project would result in no change in LOS and minimal, if any, change in density (vehicles per lane). (Less than Significant)

The change in density on the freeway ramps due to the project results in at most a two passenger car per mile per lane difference on only one freeway mainline segment. This magnitude of difference would be imperceptible to drivers.

Mitigation: None required.

Cumulative Analysis

Cumulative traffic operating conditions, and the project's contribution to those cumulative conditions, were analyzed on the basis of forecasts of 2035 conditions. The Cumulative Condition incorporates reasonably foreseeable future growth in the study area, the rest of Alameda, Oakland, and the region. Cumulative scenario forecasts were developed according to the process described in the Travel Demand Modeling Approach section, p. 4.C-22.

Automobile LOS

The cumulative a.m. and p.m. peak hour intersection LOS is summarized in **Table 4.C-15** and **Table 4.C-16**, respectively. As shown, a number of study intersections would operate at unacceptable levels of service as a result of assumed local and regional growth by 2035. Figures showing the Cumulative No Project and Cumulative plus Project peak hour volumes at study intersections and LOS calculation reports are provided in **Appendix G**.

TABLE 4.C-15
CUMULATIVE (2035) AM PEAK HOUR INTERSECTION LEVEL OF SERVICE

Study Intersection Name		Control	2035 No Project		2035 + Project	
			Delay[a]	LOS	Delay[a]	LOS
Alameda Intersections						
1	Main St. & Navy Way	One-Way Stop[b]	9.0	A	9.3	A
2	Main St. & Ferry Terminal Way	Signal	1.3	A	1.3	A
3	Main St. & Singleton Ave.	Signal	62.7	E	51.3	D
4	Main St. & W. Midway Ave.	Signal	11.1	B	22.6	C
5	Main St. & Atlantic Ave.	Signal	10.6	B	14.9	B
6	Main St. & Pacific Ave.	Signal	22.0	C	28.7	C
7	Webster St. & Atlantic Ave.	Signal	35.6	D	42.2	D
8	Constitution Way & Lincoln Ave.	Signal	27.9	C	24.5	C
9	Eighth St. & Central Ave.	Signal	36.2	D	50.2	D
10	Oak St. & Lincoln Ave.	Signal	12.6	B	13.4	B
11	Oak St. & Santa Clara Ave.	Signal	10.8	B	12.8	B
12	**Park St. & Clement Ave.**	**Signal**	**>120**	**F**	**>120**	**F**
13	Park St. & Central Ave.	Signal	23.0	C	21.0	C
14	Park St. & Encinal Ave.	Signal	44.3	D	48.1	D
15	Park St. & Otis Dr.	Signal	26.7	C	27.9	C
16	Broadway & Tilden Way	Signal	38.8	D	39.4	D
17	Broadway & Encinal Ave.	Signal	30.5	C	29.4	C
18	**Broadway & Otis Dr.**	**Signal**	**111.7**	**F**	**94.5**	**F**
19	**Tilden Way & Blanding Ave.**	**Signal**	**>120**	**F**	**>120**	**F**
20	**High St. & Fernside Blvd.**	**Signal**	**>120**	**F**	**>120**	**F**
21	**High St. & Otis Dr.**	**Signal**	**>120**	**F**	**>120**	**F**
22	**Island Dr. & Otis Dr.**	**Signal**	**>120**	**F**	**>120**	**F**
23	Constitution Way & Marina Village Pkwy.	Signal	8.1	A	7.8	A
24	Constitution Way & Atlantic Ave.	Signal	26.6	C	30.5	C
25	**Fernside Blvd. & Otis Dr.**	**Signal**	**114.4**	**F**	**>120**	**F**
26	**Park St. & Blanding Ave.**	**Signal**	**>120**	**F**	**>120**	**F**

TABLE 4.C-15 (Continued)
CUMULATIVE (2035) AM PEAK HOUR INTERSECTION LEVEL OF SERVICE

Study Intersection Name		Control	2035 No Project		2035 + Project	
			Delay[a]	LOS	Delay[a]	LOS
Alameda Intersections (cont.)						
27	**Challenger Dr. & Atlantic Ave.**	**Signal**	**71.2**	**E**	**85.8**	**F**
28	Challenger Dr. & Marina Village Pkwy.	Signal	32.4	C	23.4	C
29	Webster St. & Willie Stargell Ave.	Signal	11.1	B	11.4	B
30	Fifth St. & Willie Stargell Ave.	One-Way Stop[b]	15.3	C	18.0	C
31	Constitution Way & Mariner Square Dr.	Signal	11.7	B	11.8	B
32	Park St. & Lincoln Ave.	Signal	31.8	C	28.5	C
Oakland Intersections						
33	Jackson Street & Seventh Street	Signal	15.7	B	15.5	B
34	**Jackson Street & Sixth Street**	**Signal**	**>120 v/c = 1.75**	**F**	**>120 v/c = 1.88**	**F**
35	Jackson Street & Fifth Street	Signal	>120 v/c =0.63	F	>120 v/c =0.63	F
36	Harrison Street & 14th Street	Signal	13.5	B	13.6	B
37	Harrison Street & Eighth Street	Signal	15.5	B	14.2	B
38	Harrison Street & Seventh Street	Signal	44.2	D	49.1	D
39	Webster Street & Eighth Street	Signal	>120 v/c =0.74	F	>120 v/c =0.73	F
40	Webster Street & Seventh Street	Signal	15.2	B	17.4	B
41	Broadway & Seventh Street	Signal	18.5	B	19.1	B
42	Broadway & Sixth Street	Signal	23.0	C	23.2	C
43	**Broadway & Fifth Street**	**Signal**	**97.0**	**F**	**118.9**	**F**
44	**Brush Street & 12th Street**	**Signal**	**108.8**	**F**	**118.4**	**F**
45	High Street & Oakport Street	Signal	65.3	E	64.0	E
46	High Street & Coliseum Way	Signal	72.8	E	60.8	E
47	Fruitvale Ave & Ninth Street	Signal	77.8	E	79.7	E
48	Fruitvale Ave & Eighth Street	Signal	17.0	B	22.3	C
49	23rd Avenue & E 11th Street / I-880 NB on-ramp	Signal	5.9	A	6.1	A
50	23rd Avenue & Ford Street	Signal	33.3	C	49.1	D
51	29th Avenue & Ford Street	Signal	54.4	D	69.1	E
52	29th Avenue & I-880 NB off ramp / E. Eighth / E. Ninth Street	Signal	10.1	B	10.2	B
53	Harrison Street & 12th Street	Signal	11.8	B	11.5	B
54	Harrison Street & 11th Street	Signal	15.0	B	14.5	B
55	Brush Street & 11th Street	Signal	106.9	F	119.1	F
56	23rd Avenue & Seventh Street	Signal	47.0	D	49.1	D
57	23rd Avenue & I-880 NB on-ramp	Signal	38.8	D	40.1	D

NOTES:
[a] The LOS/Delay for Side-Street Stop-Control (SSSC) intersections represents the worst movement or approach; for Signalized intersections, the LOS/Delay represents the overall intersection. For signalized intersections in Oakland with delay in excess of 120 seconds, volume-to-capacity ratio is provided, as delay calculation may not be accurate.
[b] T-intersection.

Bold indicates locations with significant impacts.

SOURCE: Kittelson & Associates, Inc., 2013.

TABLE 4.C-16
CUMULATIVE (2035) PM PEAK HOUR INTERSECTION LEVEL OF SERVICE

	Study Intersection Name	Control	2035 No Project		2035 + Project	
			Delay[a]	LOS	Delay[a]	LOS
Alameda Intersections						
1	Main St. & Navy Way	One-Way Stop[b]	9.5	A	11.1	B
2	Main St. & Ferry Terminal Way	Signal	5.3	A	3.6	A
3	Main St. & Singleton Ave.	Signal	6.4	A	6.1	A
4	Main St. & W. Midway Ave.	Signal	11.8	B	18.3	B
5	Main St. & Atlantic Ave.	Signal	9.8	A	14.6	B
6	Main St. & Pacific Ave.	Signal	17.7	B	26.0	C
7	Webster St. & Atlantic Ave.	Signal	37.0	D	43.8	D
8	Constitution Way & Lincoln Ave.	Signal	25.3	C	23.5	C
9	Eighth St. & Central Ave.	Signal	39.5	D	50.9	D
10	Oak St. & Lincoln Ave.	Signal	16.7	B	20.5	C
11	Oak St. & Santa Clara Ave.	Signal	11.0	B	10.9	B
12	**Park St. & Clement Ave.**	**Signal**	**>120**	**F**	**>120**	**F**
13	Park St. & Central Ave.	Signal	16.2	B	17.7	B
14	**Park St. & Encinal Ave.**	**Signal**	**97.8**	**F**	**110.8**	**F**
15	Park St. & Otis Dr.	Signal	32.9	C	32.5	C
16	Broadway & Tilden Way	Signal	43.3	D	50.0	D
17	Broadway & Encinal Ave.	Signal	25.1	C	24.2	C
18	**Broadway & Otis Dr.**	**Signal**	51.9	D	**61.9**	**E**
19	**Tilden Way & Blanding Ave.**	**Signal**	**>120**	**F**	**>120**	**F**
20	**High St. & Fernside Blvd.**	**Signal**	**>120**	**F**	**>120**	**F**
21	**High St. & Otis Dr.**	**Signal**	54.4	D	**71.1**	**E**
22	Island Dr. & Otis Dr.	Signal	36.8	D	33.3	C
23	Constitution Way & Marina Village Pkwy.	Signal	7.5	A	7.6	A
24	Constitution Way & Atlantic Ave.	Signal	37.2	D	46.9	D
25	**Fernside Blvd. & Otis Dr.**	**Signal**	**>120**	**F**	**>120**	**F**
26	**Park St. & Blanding Ave.**	**Signal**	**>120**	**F**	**>120**	**F**
27	Challenger Dr. & Atlantic Ave.	Signal	92.9	F	79.8	E
28	Challenger Dr. & Marina Village Pkwy.	Signal	28.0	C	27.1	C
29	Webster St. & Willie Stargell Ave.	Signal	12.3	B	12.5	B
30	Fifth St. & Willie Stargell Ave.	One-Way Stop[b]	13.1	B	19.9	C
31	Constitution Way & Mariner Square Dr.	Signal	14.9	B	14.9	B
32	**Park St. & Lincoln Ave.**	**Signal**	38.5	D	**57.9**	**E**
Oakland Intersections						
33	Jackson Street & Seventh Street	Signal	>120 v/c = 1.60	F	>120 v/c = 1.60	F
34	Jackson Street & Sixth Street	Signal	>120 v/c = 3.26	F	>120 v/c = 3.17	F
35	Jackson Street & Fifth Street	Signal	75.1	E	71.4	E
36	Harrison Street & 14th Street	Signal	13.8	B	13.8	B
37	Harrison Street & Eighth Street	Signal	14.3	B	16.8	B
38	Harrison Street & Seventh Street	Signal	64.9	E	78.5	E
39	Webster Street & Eighth Street	Signal	>120 v/c = 0.93	F	>120 v/c = 0.96	F

TABLE 4.C-16 (Continued)
CUMULATIVE (2035) PM PEAK HOUR INTERSECTION LEVEL OF SERVICE

			2035 No Project		2035 + Project	
Study Intersection Name		**Control**	**Delay[a]**	**LOS**	**Delay[a]**	**LOS**
Oakland Intersections (cont.)						
40	Webster Street & Seventh Street	Signal	46.4	D	51.4	D
41	Broadway & Seventh Street	Signal	32.3	C	37.9	D
42	Broadway & Sixth Street	Signal	26.4	C	28.4	C
43	Broadway & Fifth Street	Signal	43.4	D	49.2	D
44	Brush Street & 12th Street	Signal	37.8	D	38.3	D
45	High Street & Oakport Street	Signal	60	E	60.1	E
46	High Street & Coliseum Way	Signal	74.0	E	82.1	F
47	Fruitvale Ave & Ninth Street	Signal	>120 v/c = 1.36	F	>120 v/c = 1.32	F
48	Fruitvale Ave & Eighth Street	Signal	35.2	D	51.7	D
49	23rd Avenue & E 11th Street / I-880 NB on-ramp	Signal	6.6	A	8.1	A
50	23rd Avenue & Ford Street	Signal	13.2	B	14.9	B
51	29th Avenue & Ford Street	Signal	>120 v/c = 1.24	F	>120 v/c = 1.27	F
52	29th Avenue & I-880 NB off ramp / E. Eighth / E. Ninth Street	Signal	11.6	B	11.9	B
53	Harrison Street & 12th Street	Signal	12.1	B	12.9	B
54	Harrison Street & 11th Street	Signal	12.9	B	13.8	B
55	Brush Street & 11th Street	Signal	16.9	B	16.9	B
56	23rd Avenue & Seventh Street	Signal	47.6	D	60.4	E
57	23rd Avenue & I-880 NB on-ramp	Signal	5.9	A	5.9	A

NOTES:
[a] The LOS/Delay for Side-Street Stop-Control (SSSC) intersections represents the worst movement or approach; for Signalized intersections, the LOS/Delay represents the overall intersection. For signalized intersections in Oakland with delay in excess of 120 seconds, volume-to-capacity ratio is provided, as delay calculation may not be accurate.
[b] T-intersection.

Bold indicates locations with significant impacts.

SOURCE: Kittelson & Associates, Inc., 2013.

Pedestrian LOS

Table 4.C-17 compares the pedestrian LOS for cumulative conditions with cumulative plus project conditions at those locations where a significant cumulative impact was identified. The full table showing the pedestrian LOS results for all signalized intersections in Alameda can be found in Appendix G.

Transit LOS

Table 4.C-18 displays the results for transit LOS under cumulative conditions with and without project-related traffic for both a.m. and p.m. peak hours.

TABLE 4.C-17
CUMULATIVE PEDESTRIAN LEVELS OF SERVICE (LOS) BY CROSSWALK

Intersection	Peak Hour	Scenario	South		North		East		West		5th Leg	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Main St. & Pacific Ave.	AM	Cumulative	27.3	C	23.9	C	17.3	B	15.1	B	-	-
		Plus Project	31.9	D	28.5	C	23.7	C	15.4	B	-	-
	PM	Cumulative	20.5	C	22.2	C	13.6	B	14.8	B	-	-
		Plus Project	28.5	C	31.5	D	21.3	C	15.4	B	-	-
Webster St. & Atlantic Ave.	AM	Cumulative	21.6	C	29.5	C	24.4	C	24.6	C	-	-
		Plus Project	20.6	C	28.3	C	24.4	C	27.3	C	-	-
	PM	Cumulative	24.5	C	27.3	C	24.0	C	23.4	C	-	-
		Plus Project	23.3	C	27.9	C	26.0	C	25.8	C	-	-
High St. & Fernside Blvd.	AM	Cumulative	38.9	D	24.8	C	20.4	C	13.4	B	24.8	C
		Plus Project	41.2	E	27.4	C	19.3	B	12.5	B	27.4	C
	PM	Cumulative	46.6	E	33.2	D	24.7	C	11.5	B	33.2	D
		Plus Project	46.4	E	33.8	D	25.3	C	11.7	B	33.8	D
Constitution Way & Atlantic Ave.	AM	Cumulative	25.3	C	26.1	C	20.2	C	19.4	B	-	-
		Plus Project	26.8	C	25.1	C	24.7	C	25.8	C	-	-
	PM	Cumulative	29.7	C	34.0	D	29.5	C	26.0	C	-	-
		Plus Project	27.8	C	35.6	D	35.6	D	30.1	D	-	-

Shading indicates a significant impact due to degradation of bicycle level of service.

SOURCE: Kittelson & Associates, Inc., 2013.

TABLE 4.C-18
CUMULATIVE AND CUMULATIVE PLUS PROJECT TRANSIT LEVEL OF SERVICE (LOS)

Segment	Peak Hour	Scenario	NB / WB			SB / EB		
			Travel Speed (MPH)	LOS	% Change in Travel Speed	Travel Speed (MPH)	LOS	% Change in Travel Speed
Main St. at Willie Stargell Ave. to Pacific Ave. at Webster St.	AM	Cumulative	18.3	C	-7%	16.9	C	-10%
		Plus Project	17.1	C		15.2	C	
	PM	Cumulative	18.0	C	-2%	16.5	C	-6%
		Plus Project	17.7	C		15.5	C	
Park St. (Blanding Ave. to Otis Dr.)	AM	Cumulative	8.5	E	2%	8.4	E	-13%
		Plus Project	8.7	E		7.3	E	
	PM	Cumulative	7.6	E	21%	8.5	E	-4%
		Plus Project	9.2	D		8.2	E	
Appezzato Pkwy. (Main St. to Webster St.)	AM	Cumulative	11.0	D	-7%	11.0	D	-1%
		Plus Project	10.2	D		10.9	D	
	PM	Cumulative	11.0	D	-10%	10.9	D	-1%
		Plus Project	9.9	D		10.8	D	
Willie Stargell Ave. (Main St. to Webster St.)	AM	Cumulative	22.4	B	-29%	19.7	B	2%
		Plus Project	15.9	C		20.0	B	
	PM	Cumulative	22.7	B	-20%	19.8	B	-3%
		Plus Project	18.2	C		19.3	B	

Shading indicates a significant impact due to degradation of transit level of service.

SOURCE: Kittelson & Associates, 2013.

Bicycle LOS

Table 4.C-19 compares the bicycle LOS for cumulative with cumulative plus project conditions for those locations where a significant impact was identified. The full table showing the all the bicycle LOS results can be found in Appendix G.

TABLE 4.C-19
CUMULATIVE AND CUMULATIVE PLUS PROJECT BICYCLE LEVELS OF SERVICE (LOS)

Segment	Peak Hour	Scenario	NB / WB Bike Score	NB / WB LOS	NB / WB % Change in Bike Score	SB / EB Bike Score	SB / EB LOS	SB / EB % Change in Bike Score
Willie Stargell Ave. (Main St./ Webster St.)	AM	Cumulative	2.7	C	36%	3.6	D	1%
		Plus Project	3.6	D		3.7	D	
	PM	Cumulative	3.6	D	4%	3.1	C	18%
		Plus Project	3.7	D		3.7	D	
Main St. (RAMP/ Pacific Ave.)	AM	Cumulative	3.7	D	13%	3.7	D	14%
		Plus Project	4.1	D		4.2	D	
	PM	Cumulative	3.6	D	16%	3.5	D	18%
		Plus Project	4.2	D		4.2	D	
Central Ave. (Main St./ 4th St.)	AM	Cumulative	2.9	C	32%	3.5	C	14%
		Plus Project	3.8	D		3.9	D	
	PM	Cumulative	3.0	C	31%	2.5	B	54%
		Plus Project	3.9	D		3.8	D	
Oak St. (Santa Clara Ave./ Central Ave.)	AM	Cumulative	2.5	C	2%	2.3	B	18%
		Plus Project	2.6	C		2.8	C	
	PM	Cumulative	3.0	C	5%	3.5	C	3%
		Plus Project	3.1	C		3.6	D	

SOURCE: Kittelson & Associates, 2013

Freeways Mainline

The results on the analysis for the freeway mainline are shown in **Table 4.C-20** for the cumulative (2035) conditions. As shown, the change in traffic due to the project has minimal effect on the freeway operations with no change in LOS and minimal, if any, change in density under cumulative conditions.

Ramps Results

The results on the analysis for the ramps are shown in **Table 4.C-21** for the cumulative (2035) conditions. As shown, the change in traffic due to the project has minimal effect on the ramp operations with no change in LOS and minimal, if any, change in density under existing conditions.

TABLE 4.C-20
CUMULATIVE FREEWAY MAINLINE CONDITIONS – AM(PM)

		Without Project			With Project		
FWY Section	**Direction**	**Volume (pc/h/ln)[a]**	**Density (pc/mi/ln)[b]**	**LOS**	**Volume (pc/h/ln)[a]**	**Density (pc/mi/ln)[b]**	**LOS**
880 w/o Adeline	NB	2131(2246)	40.1(44.4)	E(E)	2115(2246)	39.6(44.4)	E(E)
	SB	1554(1726)	27.8(30.8)	D(D)	1569(1717)	28.0(30.7)	D(D)
880 w/o 23rd	NB	2642(2729)	N/A*	F(F)	2639(2753)	N/A*	F(F)
	SB	2504(2241)	N/A*(N/A**)	F(F)	2513(2250)	N/A*(N/A**)	F(F)
880 e/o High	NB	1577(1997)	23.4(31.6)	C(D)	1566(1999)	23.3(31.6)	C(D)
	SB	1873(1750)	28.8(26.4)	D(D)	1849(1734)	28.3(26.1)	D(D)
980 s/o 580	WB	1762(1118)	28.4(17.9)	D(B)	1762(1115)	28.4(17.8)	D(B)
	EB	840(1457)	13.4(23.3)	B(C)	860(1481)	13.8(23.7)	B(C)
880 e/o 980	NB	1604(1840)	24.5(28.7)	C(D)	1607(1842)	24.6(28.8)	C(D)
	SB	1198(1172)	18.3(17.9)	C(B)	1219(1176)	18.6(17.9)	C(B)
580 w/o 980	WB	2597(1648)	N/A*(24.6)	F(C)	2595(1646)	N/A*(24.6)	F(C)
	EB	1374(1878)	20.4(28.9)	C(D)	1383(1856)	20.5(28.4)	C(D)

NOTES:
a Passenger cars per hour per lane
b Passenger cars per mile per lane

* Volume exceeds capacity, so HCM methodology does not apply, and density is not calculated; automatic LOS F.
** Adjusted free-flow speed is beyond extents of HCM methodology, so density is not calculated.

TABLE 4.C-21
CUMULATIVE FREEWAY RAMP CONDITIONS – AM(PM)

		Without Project		With Project	
Ramp	**FWY**	**Density (pc/mi/ln)[a]**	**LOS**	**Density (pc/mi/ln)[a]**	**LOS**
Jackson St. on	880 NB	47.4(48.5)	F(F)	47.5(49.0)	F(F)
Broadway off	880 NB	34.5(35.5)	D(E)	34.8(35.9)	D(F)
18th St. off	980 WB	43.1(17.8)	F(B)	43.1(17.7)	F(B)
Fifth St. off (to Broadway)	880 SB	19.7(23.2)	B(F)	20.0(23.0)	C(F)
High St. on	880 SB	38.7(36.4)	F(F)	37.9(36.3)	F(E)
High St. off	880 NB	28.4(35.0)	D(F)	28.2(34.7)	D(F)
Jackson St. off	980 WB	29.9(27.8)	D(C)	30.5(26.8)	D(C)
Oak St. on	880 SB	30.2(32.0)	D(D)	30.6(32.1)	D(D)
12th St. on	980 EB	29.1(64.0)	D(F)	29.7(64.3)	D(F)
12th St. off	980 EB	18.2(27.9)	B(C)	18.2(28.3)	B(D)

NOTE:
a Passenger cars per mile per lane

SOURCE: KAI, 2013.

Cumulative Operational Analysis – Multimodal Level of Service

Impact 4.C-5: Cumulative development, including the proposed project, would potentially result in transportation impacts at local study intersections under Cumulative plus project conditions. (Significant)

Automobile Travel

For each of the significant cumulative impacts, mitigation measures are identified. As shown in **Tables 4.C-15** and **4.C-16,** significant cumulative impact would occur at the following intersections in Alameda and Oakland (intersection number from Table 4.C-2 in parentheses):

Alameda

- Park Street and Clement Avenue (#12)
- Park Street and Encinal Avenue (#14)
- Broadway and Otis Drive (#18)
- Tilden Way and Blanding Avenue (#19)
- High Street and Fernside Boulevard (#20)
- High Street and Otis Drive (#21)
- Island Drive and Otis Drive (#22)
- Fernside Boulevard and Otis Drive (#25)
- Park Street and Blanding Avenue (#26)
- Challenger Drive and Atlantic Avenue (#27)
- Park Street and Lincoln Avenue (#32)

Oakland

- Jackson Street and Sixth Street (#34)
- Webster Street and Eighth Street (#39)
- Broadway and Fifth Street (#43)
- Brush Street and 12th Street (#44)
- High Street and Oakport Street (#45)
- High Street and Coliseum Way (#46)
- 29th Avenue and Ford Street (#51)
- 23rd Avenue and Seventh Street (#56)

Implementation of Mitigation Measures 4.C-2a (TDM Program) and 4.C-2b (Monitoring), p. 4.C-37, would reduce traffic delay by reducing vehicle trips, although it would be speculative to quantify the potential improvement. Therefore, additional mitigation measures are identified, as applicable, for each impact.

Park/Clement. The signalized intersection of Park Street and Clement Avenue (#12) would operate at an unacceptable LOS F during the a.m. peak hour and p.m. peak hours under Cumulative No Project conditions. The increase in traffic volumes due to the project would contribute more than 3 percent (approximately 9 percent) to the growth of intersection traffic volume from Existing to Cumulative plus Project conditions during the p.m. peak hour. The critical movement is the eastbound movement, specifically the heavy left-turn movement towards the Park Street bridge, which occurs from a single eastbound lane. Combined with the heavy traffic on Park Street to and from the Park Street bridge, average delays at this intersection exceed 120 seconds.

Implementation of Mitigation Measures 4.C-2a (TDM Program) and 4.C-2b (Monitoring), p. 4.C-37, could improve intersection LOS by reducing vehicle trips, although it would be speculative to quantify the potential improvement.

Increasing the capacity of the intersection would not reduce traffic volumes but could improve the level of service for automobiles by including the following elements:

- Widen the eastbound Clement Avenue approach to the intersection to add two eastbound left turn lanes, thereby providing two left turn lanes and a shared through/right turn lane on the eastbound approach;
- Add a westbound right turn lane to provide a left turn lane, a through lane and a right turn lane on the westbound approach;
- Add a northbound left turn pocket along Park Street; and
- Optimize signal timing.

With these capacity expansions, the intersection would operate at LOS B during the a.m. peak hour and LOS D during the p.m. peak hour. However, these improvements would require removal of approximately six on street parking spaces, utility relocation, roadway widening, and property acquisition from adjacent property owners. Widening of Clement Avenue would not be consistent with Policy 4.4.2.b of the General Plan Transportation Element ("Intersections will not be widened beyond the width of the approaching roadway with the exception of a single exclusive left turn lane when necessary, with the exception of increasing transit exclusive lanes or non-motorized vehicle lanes."). Therefore, these improvements would not be considered feasible. Additionally, these improvements would also result in a secondary impact on pedestrian levels of service.

To avoid the pedestrian impact and maintain consistency with the General Plan, the City may adopt the following mitigation.

> **Mitigation Measure 4.C-5a (Park/Clement):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and C-2b) and, when required to avoid the impact or reduce its severity, fund a fair share contribution to implement the following physical improvements:
>
> - Add northbound left turn pocket along Park Street;
> - Optimize the signal offsets and splits; and
> - Complete the Clement Avenue extension, which would reduce the demand for left turn movements onto Park Street from eastbound traffic on Clement Avenue.

The northbound left-turn pocket on Park Street could be added within the existing right-of-way. With this mitigation, the intersection would operate at LOS E in the a.m. peak hour and LOS F in the p.m. peak hour. This impact would remain **significant and unavoidable**.

Auto Travel Impact Significance after Mitigation: Significant and Unavoidable.

Pedestrian Travel Secondary Impact after Auto Mitigation: Less than Significant.

Bicycle Travel Secondary Impact after Auto Mitigation: Less than Significant.

Transit Travel Secondary Impact after Auto Mitigation: Less than Significant.

Park/Encinal. The signalized intersection of Park Street and Encinal Avenue (#14) would operate at an unacceptable LOS E during the p.m. peak hour under Cumulative No Project conditions. The increase in traffic volumes due to the project would contribute more than 3 percent (8 percent) to the growth in intersection traffic volume from Existing to Cumulative Plus Project conditions from during the p.m. peak hour.

The critical movement during the a.m. peak is the eastbound left turn from Encinal Avenue for vehicles traveling toward the Park Street bridge. This traffic conflicts with the westbound Encinal Avenue through movement. The project would result in an increase of about 30 vehicles to the eastbound left turn. The addition of a second left turn lane eastbound would address this impact. However, adding a second left turn lane would not be consistent with Transportation Element Policy 4.4.2.b. Conversely, restriping to convert an existing eastbound through lane to a left-turn lane would not require widening of the existing right-of-way, and would therefore be consistent with the General Plan.

Implementation of Mitigation Measures 4.C-2a (TDM Program) and 4.C-2b (Monitoring), p. 4.C-37, would reduce traffic delay by reducing vehicle trips, although it would be speculative to quantify the potential improvement.

> **Mitigation Measure 4.C-5b (Park/Encinal):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and C-2b) and, when required to avoid the impact or reduce its severity, fund a fair share contribution to implement the following physical improvements:
>
> - Convert one eastbound through lane on Encinal Avenue to a left-turn lane to provide two left-turn lanes and a shared through-right lane on the eastbound approach; and
> - Optimize offsets and splits.

With these improvements, the LOS at the intersection of Park Street and Encinal Avenue would remain at LOS F during the p.m. peak hour with a reduction in auto delay from 110.8 seconds to 94.4 seconds under Cumulative plus Project conditions. Restriping the eastbound approach to provide a left turn lane would not require widening of the intersection beyond the current right-of-way. This impact would remain **significant and unavoidable**, as the level of service would remain LOS F.

Auto Travel Impact Significance after Mitigation: Significant and Unavoidable.

Pedestrian Travel Secondary Impact after Auto Mitigation: Less than Significant.

Bicycle Travel Secondary Impact after Auto Mitigation: Less than Significant.

Transit Travel Secondary Impact after Auto Mitigation: Less than Significant.

Broadway/Otis. The signalized intersection of Broadway and Otis Drive (#18) would operate at an unacceptable LOS F during the a.m. peak hour and LOS D during the p.m. peak hour under

Cumulative No Project conditions. The increase in traffic volumes due to the project would contribute more than 3 percent to the growth in intersection traffic volumes (9 percent during the a.m. peak and 8 percent during the p.m. peak) from Existing to Cumulative plus Project conditions.

During the a.m. peak the project would add about 75 vehicle trips to the westbound right-turn from Otis to Broadway. During the p.m. peak hour, a critical movement is the southbound left turn from Broadway to Otis. The project-related traffic would result in an increase of about 50 vehicles to the southbound left turn during the p.m. peak. This p.m. peak-hour impact could be addressed with an additional southbound left turn lane and adjustments to the signal timing to accommodate this movement. However, adding a second left-turn lane would require removal of on-street parking and would not be consistent with Transportation Element Policy 4.4.2.b. Restriping to convert an existing southbound through lane to a left-turn lane would not require widening, and thus would be consistent with the General Plan.

Implementation of Mitigation Measures 4.C-2a (TDM Program) and 4.C-2b (Monitoring), p. 4.C-37, could improve intersection LOS by reducing vehicle trips, although it would be speculative to quantify the potential improvement.

> **Mitigation Measure 4.C-5c: (Broadway/Otis):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and C-2b) and, when required to avoid the impact or reduce its severity, fund a fair share contribution to implement, the following physical improvements:
>
> - Add a southbound left-turn lane on Broadway to provide two left-turn lanes and a shared through-right for that approach;)
> - Convert the southbound Broadway left-turn phase to permitted-protected;
> - Convert to actuated-uncoordinated timing plan during the p.m. peak hour; and
> - Optimize the signal timing during both peak hours.

With the implementation of Mitigation Measure 4.C-5c, the LOS at the intersection of Broadway and Otis Drive would improve to LOS C in the a.m. and p.m. peak hours under Cumulative plus Project conditions. Restriping the southbound approach to provide an additional left-turn lane would not require removal of on-street parking north of the intersection. This improvement would require Caltrans review and approval because Otis Street east of this intersection and Broadway north of this intersection comprise State Route 61. However, because the City of Alameda cannot implement the improvement without Caltrans approval, this impact would remain **significant and unavoidable**.

Auto Travel Impact Significance after Mitigation: Significant and Unavoidable.

Pedestrian Travel Secondary Impact after Auto Mitigation: Less than Significant.

Bicycle Travel Secondary Impact after Auto Mitigation: Less than Significant.

Transit Travel Secondary Impact after Auto Mitigation: Less than Significant.

Tilden/Blanding/Fernside. The signalized intersection of Tilden Way/Blanding Avenue/Fernside Boulevard (#19) would operate at an unacceptable LOS F during the a.m. and p.m. peak hours under Cumulative No Project conditions. The increase in traffic volumes due to the project would contribute more than 3 percent to the growth in intersection traffic volumes (4 percent during the a.m. peak and 5 percent during the p.m. peak) from Existing to Cumulative plus Project conditions, which would exceed the 3 percent criterion for a significant impact.

While the critical movements are the eastbound and westbound shared thru-left-turn movements during both a.m. and p.m. peaks, the project-related traffic does not add volumes to those movements. The project would increase traffic during the a.m. peak on the southbound left from the Fruitvale bridge and during the p.m. peak on the southbound through movement. These increases would further exacerbate the unacceptable peak delays.

> **Mitigation Measure 4.C-5d: (Tilden/Blanding/Fernside):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and C-2b) and, when required to avoid the impact or reduce its severity, fund a fair share contribution to implement the following improvements:
>
> - Add a westbound left turn to provide a left turn lane, a through lane and a right turn lane on the westbound Fernside Boulevard approach.
> - Add an eastbound left turn lane to provide a left turn lane, a through lane and a right turn lane on the eastbound Blanding Avenue approach.
> - Optimize the offsets and splits.

With Mitigation Measure 4.C-5d, the LOS would improve to LOS D during the a.m. and p.m. peak. The geometric reconfigurations of this improvement could be accommodated through removal of part of the existing concrete islands on the southern side of the intersection.

Auto Travel Impact Significance after Mitigation: Less than Significant.

Pedestrian Travel Secondary Impact after Auto Mitigation: Less than Significant.

Bicycle Travel Secondary Impact after Auto Mitigation: Less than Significant.

Transit Travel Secondary Impact after Auto Mitigation: Less than Significant.

High/Fernside. The signalized intersection of High Street and Fernside Boulevard (#20) would operate at an unacceptable LOS F during the a.m. and p.m. peak hours under Cumulative No Project conditions. The increase in traffic volumes due to the project would contribute more than

3 percent to the growth in intersection traffic volumes (12 percent during the a.m. peak and 30 percent during the p.m. peak) from Existing to Cumulative plus Project conditions.

During the a.m. peak, the project-related traffic would add about 35 vehicle to the northbound left turn from High Street to Fernside, which shares a single lane approach with the through and right-turns. During the p.m. peak, the project-related traffic would add shift about 80 trips from Fernside eastbound through to left movement to cross the High Street bridge and add about 50 trips to the northbound through movement on High Street towards the bridge. During the p.m. peak these are both critical movements.

To mitigate this impact to less than significant the following improvements would need to be made:

- Addition of left-turn lane for the eastbound Fernside Boulevard approach to provide two left-turn lanes and one through-right turn lane;
- Addition of northbound High Street left-turn lane to provide a left-turn lane and a shared through-right turn lane;
- Optimize the signal timing; and
- Adjust the signal cycle phasing during the a.m. and p.m. peak hours such that the southbound left turn from High Street is a permitted rather than protected movement.

With improvements described above, the LOS would improve to LOS D during the a.m. peak hour and LOS C during the p.m. peak hour. These improvements would require reconfiguration of the concrete islands that guide access for Gibbons Drive and would adversely impact pedestrian LOS, thereby resulting in a significant secondary impact. Procedures for prioritizing improvements to the different (potentially competing) travel modes for High Street (Island Arterial) and Fernside Boulevard (Island Arterial) establish the following order of the modal preference: transit, pedestrians, bicycles and automobiles. Therefore, the recommended mitigation measure should give priority to pedestrians over automobiles.

> **Mitigation Measure 4.C-5e (High/Fernside):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and C-2b) and, when required to avoid the impact or reduce its severity, fund a fair share contribution to implement the following improvements:
>
> - Adjust the signal cycle phasing during the a.m. and p.m. peak hours such that the southbound left turn from High Street is a permitted rather than protected movement; and
> - Optimize signal timing.

Auto LOS would remain LOS F with a 20 second decrease in delay during the a.m. peak hour and would improve to LOS E with a 55.5 second decrease in delay during the p.m. peak hour. However, this impact would remain **significant and unavoidable**.

Auto Travel Impact Significance after Mitigation: Significant and Unavoidable.

Pedestrian Travel Secondary Impact after Auto Mitigation: Less than Significant.

Bicycle Travel Secondary Impact after Auto Mitigation: Less than Significant.

Transit Travel Secondary Impact after Auto Mitigation: Less than Significant.

High/Otis. The signalized intersection of High Street and Otis Drive (#21) would operate at an unacceptable LOS F during the a.m. peak hour under Cumulative No Project conditions, and would degrade from LOS D to LOS E during the p.m. peak hour. The increase in traffic volumes due to the project would contribute more than 3 percent to the growth in intersection traffic volumes (12 percent during the a.m. peak and 14 percent during the p.m. peak) from Existing to Cumulative plus Project conditions, and, therefore, would be significant.

At the High/Otis intersection, the critical movements are the southbound and the westbound movements. Project-related traffic would result in an increase in westbound traffic of about 110 vehicles during the a.m. peak hour, which would affect the critical movement. During the p.m. peak hour, the project-related traffic would add about 80 vehicles to the eastbound through movement. While the project would not add traffic to the critical southbound approach, the single-lane approach southbound on High Street would not accommodate the high number of southbound left-turns. The additional project traffic would only exacerbate that condition.

To mitigate this impact to less than significant the following improvements would need to be made:

- Add a northbound right turn lane on High Street to provide a shared through-left and right turn lane on the northbound approach;
- Add an overlap phase for the northbound High Street right-turn movement and prohibit the conflicting westbound U-turn movement;
- Add a westbound right-turn lane on Otis Drive to provide one left-turn, two through, and one right-turn lanes;
- Add a southbound left-turn lane on High Street to provide a left-turn lane and a shared through-right lane; and
- Optimize signal timing.

Implementation of these improvements would improve the LOS to LOS D in the a.m. peak hour and to LOS C in the p.m. peak hour under Cumulative plus Project conditions. These improvements would require the removal during peak hours of approximately six parking spaces on the northbound Bayview Drive approach. They would further require acquisition of additional right-of-way to accommodate the westbound right-turn and southbound left-turn lanes, which would be infeasible due to geometric limitations of existing structures. Furthermore, these improvements would have significant secondary impacts on pedestrians at a location near a school, near a park, and on a Safe Routes to School Route with school crosswalks. High Street (Island Arterial) and Otis Drive (Regional Arterial) have modal preferences in the following order: transit, pedestrians, bicycles and automobiles.

> **Mitigation Measure 4.C-5f (High/Otis):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and C-2b) and, when required to avoid the impact or reduce its severity, fund a fair share contribution to implement the following improvements:
>
> - Add a northbound right turn lane on High Street to provide a shared through-left and right turn lane on the northbound approach;
> - Add an overlap phase for the northbound High Street right-turn movement and prohibit the conflicting westbound Otis Drive U-turn movement; and
> - Optimize the signal timing for both peak hours.

Mitigation Measure 4.C-5f would improve LOS to LOS D in the p.m. peak hour. However, the a.m. peak hour LOS would remain LOSF. Therefore, this impact would remain **significant and unavoidable**.

Auto Travel Impact Significance after Mitigation: Significant and Unavoidable.

Pedestrian Travel Secondary Impact after Auto Mitigation: Less than Significant.

Bicycle Travel Secondary Impact after Auto Mitigation: Less than Significant.

Transit Travel Secondary Impact after Auto Mitigation: Less than Significant.

Island/Otis/Doolittle. The signalized intersection of Island Drive/Otis Drive and Doolittle Drive (#22) would operate at an unacceptable LOS F during the a.m. peak hour under Cumulative No Project conditions. The increase in traffic volumes due to the project would contribute more than 3 percent to the growth in intersection traffic volumes (7 percent) from Existing to Cumulative plus Project conditions during the a.m. peak hour.

During the a.m. peak hour, the critical movements would be the eastbound through movement from the bridge, the westbound left turn from Doolittle to Island Drive, and the northbound left from Island Drive. The project would result in an increase of about 100 vehicles to the westbound through on Doolittle during the a.m. peak hour, which would operate at LOS F without the project. Although this is not a critical movement, the increase would exacerbate the excessive delays for this approach.

To mitigate this impact to a less-than-significant level, the following improvements would need to be made:

- Add a westbound left-turn lane to provide two left-turn lanes and two through lanes on the westbound Doolittle Drive approach;

- Add an eastbound through lane to provide three through lanes and a right turn lane on the eastbound Island Drive approach; and
- Optimize signal timing during both peak hours.

Implementation of these improvements would improve the LOS to D during the a.m. peak. However, this mitigation would require additional right-of-way and street widening. The addition of the third eastbound through lane would require modifications to the existing concrete island.

> **Mitigation Measure 4.C-5g (Island Drive/Otis Drive and Doolittle Drive):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and C-2b) and, when required to avoid the impact or reduce its severity, fund a fair share contribution to implement the following improvements:
>
> - Add a westbound left-turn lane to provide two left-turn lanes and two through lanes on the westbound Doolittle Drive approach; and
> - Optimize signal timing during both peak hours.

Implementation of these improvements would maintain LOS F but would decrease the delay for autos. Therefore, this impact would remain **significant and unavoidable**.

Auto Travel Impact Significance after Mitigation: Significant and Unavoidable.

Pedestrian Travel Secondary Impact after Auto Mitigation: Less than Significant.

Bicycle Travel Secondary Impact after Auto Mitigation: Less than Significant.

Transit Travel Secondary Impact after Auto Mitigation: Less than Significant.

Fernside/Otis. The signalized intersection of Fernside Boulevard and Otis Drive (#25) would operate at an unacceptable LOS F during both peak hours under Cumulative No Project conditions. The increase in traffic volumes due to the project would contribute more than 3 percent to the growth in intersection traffic volumes (10 percent during the a.m. peak and 5 percent during the p.m. peak) from Existing to Cumulative plus Project conditions, and therefore would be significant.

The critical movements would be the eastbound through and west/northbound through movements on Otis. During the a.m. peak, the project would add about 180 vehicles to the westbound through movement, while during the p.m. peak; the project would add about 135 vehicles to the eastbound through movement.

> **Mitigation Measure 4.C-5h (Fernside Boulevard and Otis Drive):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and C-2b) and implement Mitigation Measure 4.C-2-c (Otis/Fernside), and fund a fair share contribution to add a westbound right-turn overlap phase from Fernside Boulevard.

Implementation of Mitigation Measures 4.C-5h (4.C-2c) would improve the LOS to D in the a.m. peak and B in the p.m. peak. This mitigation would require geometric modifications, such as removal of the existing concrete island and the Otis Drive median, and reconstruction of the southeast curb along Fernside Boulevard. These improvements would occur within the existing right-of-way by shifting the centerline to allow for the northbound right turn from Otis Drive to Fernside Boulevard.

Auto Travel Impact Significance after Mitigation: Less than Significant.

Pedestrian Travel Secondary Impact after Auto Mitigation: Less than Significant.

Bicycle Travel Secondary Impact after Auto Mitigation: Less than Significant.

Transit Travel Secondary Impact after Auto Mitigation: Less than Significant.

Park/Blanding. The signalized intersection of Park Street and Blanding Avenue (#26) would operate at an unacceptable LOS E during the a.m. peak hour and LOS F during the p.m. peak hour under Cumulative No Project conditions. The increase in traffic volumes due to the project would contribute more than 3 percent to the growth in intersection traffic volumes (12 percent) to the growth of intersection traffic volume from Existing to Cumulative plus Project conditions during both peak hours, and therefore would be significant.

The critical movements would be the southbound through from the Park Street bridge and the eastbound through from a single lane approach on Blanding Avenue, which would experience the longest delays. However, the single lane approach westbound on Blanding Avenue as well as the northbound movements on Park Street would also experience excessive delays. The project would add about 90 trips southbound during the a.m. peak hour and 70 vehicles to the eastbound left turn movement during the p.m. peak hour.

To mitigate this impact to less than significant the following improvements would need to be made:

- Add two eastbound left turn lanes to provide two left turn lanes and a shared through and right turn lane on the eastbound Blanding Avenue approach;
- Add a westbound left turn lane to provide a left turn lane, a through lane and a right turn lane on the westbound Blanding Avenue approach;
- Separate the operation of the Nursing Home driveway from the Park Street and Blanding Avenue intersection;
- Change east-west phasing to protected phasing; and
- Increase the cycle length with respect to the coordination plan along the corridor and timing during both peak hours.

These improvements would improve the LOS to B during the a.m. peak hour and LOS C during the p.m. peak hour. These changes would require removal of approximately 10 on-street parking spaces on the south side of the east leg of Blanding Avenue and three additional parking spaces on the north side of the street to accommodate the addition of westbound turn lanes. The addition of a left turn lane on the eastbound Blanding Avenue approach would require the removal of approximately 10 on-street parking spaces. This improvement would have a significant secondary impact on pedestrians. Park Street (Regional Arterial) has modal preferences in the following order: transit, pedestrians, bicycles and automobiles. Therefore, the suitability of implementing these improvements was considered in the context of impacts to travel modes ranked higher than automobiles.

The following mitigation, which would avoid the secondary impacts to pedestrians, should be implemented:

> **Mitigation Measure 4.C-5i (Park/Blanding).** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and C-2b) and, when required to avoid the impact or reduce its severity, fund a fair share contribution to implement the following improvements:
>
> - Add two eastbound left turn lanes to provide two left turn lanes and a shared through/right turn lane on the eastbound Blanding Avenue approach;
> - Add a westbound left turn lane to provide a left turn lane, a through lane and a right turn lane on the westbound Blanding Avenue approach;
> - Separate the operation of the Nursing Home driveway from the Park Street and Blanding Avenue intersection;
> - Change east-west signal phasing to protected phasing; and
> - Optimize signal timing during both peak hours.

This measure would improve LOS to LOS E during the a.m. and p.m. peak hours. However, this impact would remain **significant and unavoidable**.

Auto Travel Impact Significance after Mitigation: Significant and Unavoidable.

Pedestrian Travel Secondary Impact after Auto Mitigation: Less than Significant.

Bicycle Travel Secondary Impact after Auto Mitigation: Less than Significant.

Transit Travel Secondary Impact after Auto Mitigation: Less than Significant.

Challenger/Atlantic. The signalized intersection of Challenger Drive and Atlantic Avenue (#27) would operate at an unacceptable LOS E during the p.m. peak hour under Cumulative No Project conditions. The increase in traffic volumes due to the project would contribute more than 3 percent to the growth in intersection traffic volumes (4 percent) to the growth of intersection traffic volume from Existing to Cumulative plus Project conditions during the p.m. peak hour, and therefore would be significant.

The critical movement would be the westbound through movement. The project would add 140 vehicles westbound through on Atlantic Avenue during the a.m. peak hour. During the p.m. peak hour, the project would add 50 vehicles to both the eastbound and westbound approaches shifting 50 trips from the southbound left movement.

Implementation of Mitigation Measures 4.C-2a (TDM Program) and 4.C-2b (Monitoring), p. 4.C-37, could improve intersection LOS by reducing vehicle trips, although it would be speculative to quantify the potential improvement. However, given that project traffic would exceed the significance threshold by only one-third (4 percent versus 3 percent), it is possible that TDM alone could avoid this impact.

To mitigate this impact to a less-than-significant level the following improvements would need to be made to increase the capacity of the intersection:

- Restripe the southbound Challenger Drive approach to provide a left-turn lane and a shared left-right lane; and
- Optimize signal timing during both peak hours.

These improvements would improve the LOS to C during the p.m. peak hour under Cumulative plus Project conditions. The two left-turn lanes would funnel into one receiving lane. The additional turn-lane could be accommodated by removing the median on Atlantic Avenue, but that median leads to a left turn lane shortly after the intersection, which would force cars to merge right into a single lane. This quick merge would eliminate the benefit of removing the median to create a second receiving lane for the double left turns, and is deemed ineffective, so this would remain a significant impact. Furthermore, this improvement would have a significant secondary impact on pedestrians. Challenger Drive and Atlantic Avenue (Regional Arterials) have modal preferences in the following order: transit, pedestrians, bicycles and automobiles. Therefore, the suitability of implementing this improvement was considered in the context of impacts to travel modes ranked higher than automobiles. Thus, this mitigation measure would be infeasible and is not recommended. The following recommended mitigation measure would avoid a pedestrian impact.

> **Mitigation Measure 4.C-5j (Challenger/Atlantic):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and 4.C-2b) and, when required to avoid the impact or reduce its severity, a fairshare to contribution optimize signal timing during the p.m. peak hour.

Mitigation Measure 4.C-5j would improve LOS to LOS E in the a.m. and p.m. peak hours. However, this impact would remain **significant and unavoidable**.

Auto Travel Impact Significance after Mitigation: Significant and Unavoidable.

Pedestrian Travel Secondary Impact after Auto Mitigation: Less than Significant.

Bicycle Travel Secondary Impact after Auto Mitigation: Less than Significant.

Transit Travel Secondary Impact after Auto Mitigation: Less than Significant.

Park/Lincoln. The signalized intersection of Park Street and Lincoln Avenue (#32) would operate at an acceptable LOS D during the p.m. peak hour under Cumulative No Project conditions. However, it would operate at an unacceptable LOS E under Cumulative plus Project conditions.

The critical movements would be southbound through and westbound left during the p.m. peak hour. The project would add about 150 trips to the northbound movement, which would increase the delay for that approach to LOS E.

> **Mitigation Measure 4.C-5k (Park/Lincoln):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and 4.C-2b) and, when required to avoid the impact or reduce its severity, the City shall fund a fairshare to optimize signal timing during the p.m. peak hour.

Implementation of Mitigation Measure 4.C-5k would improve the LOS to D during the p.m. peak hour under Cumulative plus Project conditions.

Auto Travel Impact Significance after Mitigation: Less than Significant.

Pedestrian Travel Secondary Impact after Auto Mitigation: Less than Significant.

Bicycle Travel Secondary Impact after Auto Mitigation: Less than Significant.

Transit Travel Secondary Impact after Auto Mitigation: Less than Significant.

Jackson/Sixth. The signalized intersection of Jackson Street and Sixth Street (#34) would operate at LOS F with delay in excess of 120 seconds during the a.m. peak hour and the p.m. peak hour under 2035 Cumulative conditions. Under 2035 Cumulative plus Project conditions, project-related vehicle traffic would increase delay and cause the overall volume-to-capacity (“V/C”) ratio to increase by 0.13 during the a.m. peak hour.

Under cumulative conditions, the growth in background traffic would result in excessive delays at the intersection of Jackson Street and Sixth Street during the a.m. peak hour. The change in traffic volumes due to the project results in a decrease in average delay. However, the overall v/c ratio increased by 0.13 during the a.m. peak hour, which would be considered a significant impact.

As documented in the City of Oakland’s Central Estuary Implementation Guide Supplemental EIR, this intersection was previously identified by the City of Oakland as having a significant and unavoidable impact under existing conditions in the Kaiser Center Redevelopment Project EIR. Implementation of Mitigation Measures 4.C-2a (TDM Program) and 4.C-2b (Monitoring), p. 4.C-37, could improve intersection LOS by reducing vehicle trips, although it would be speculative to quantify the potential improvement. An improvement identified as part of the Broadway-Jackson Interchange project to provide direct access to Sixth Street from the Posey Tube would reduce traffic through Oakland Chinatown. With the assistance of the ACTC, the cities of Alameda and Oakland are working to develop consensus on this improvement. To date, Oakland and Caltrans, which has jurisdiction over the freeway and its ramps, have not agreed upon a solution. No other feasible mitigation measures have been identified.

> **Mitigation Measure 4.C-5l (Jackson/Sixth):** The City of Alameda shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and 4.C-2b).

Significance after Mitigation: This impact would remain **significant and unavoidable.**

Webster/Eighth. The signalized intersection of Webster Street and Eighth Street (#39) would operate at LOS F with delay in excess of 120 seconds during the p.m. peak hour under 2035 Cumulative conditions. Under 2035 Cumulative plus Project conditions, project-related vehicle traffic would degrade the LOS to LOS F with increased delay in excess of 120 seconds. The project traffic would cause the overall volume-to-capacity ("V/C") ratio to increase by 0.04.

These delays reflect the pedestrian scramble at this intersection which results in an all-red phase allowing pedestrians to cross in all directions including diagonally.

As documented in the City of Oakland's Central Estuary Implementation Guide Supplemental EIR, this intersection was previously identified as having a significant and unavoidable impact under existing and future conditions during the p.m. peak hour in the Oak to Ninth Avenue EIR. Implementation of Mitigation Measures 4.C-2a (TDM Program) and 4.C-2b (Monitoring), p. 4.C-37, could improve intersection LOS by reducing vehicle trips, although it would be speculative to quantify the potential improvement. An improvement identified as part of the Broadway-Jackson Interchange project to provide direct access to Sixth Street from the Posey Tube would reduce traffic through Oakland Chinatown. With the assistance of the ACTC, the cities of Alameda and Oakland are working to develop consensus on this improvement. To date, Oakland and Caltrans, which has jurisdiction over the freeway and its ramps, have not agreed upon a solution. No other feasible mitigation measures have been identified.

> **Mitigation Measure 4.C-5m (Webster/Eighth):** The City of Alameda shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and 4.C-2b).

Significance after Mitigation: This impact would remain **significant and unavoidable.**

Broadway/Fifth. The signalized intersection of Broadway and Fifth Street (#43) would operate at LOS F with 97 seconds of delay during the a.m. peak hour under 2035 Cumulative conditions. Under 2035 Cumulative plus Project conditions, project-related vehicle traffic would degrade the LOS to LOS F with 119 seconds of delay. The project traffic would cause the overall volume-to-capacity (“V/C”) ratio to increase by more than 0.04.

As documented in the Central Estuary Implementation Guide Supplemental EIR, this intersection was previously identified as having a significant and unavoidable impact under existing and future conditions during the a.m. and p.m. peak hours in the Oak to Ninth Avenue EIR and the Oakland Army Base Auto Mall Project SEIR. Implementation of Mitigation Measures 4.C-2a (TDM Program) and 4.C-2b (Monitoring), p. 4.C-37, could improve intersection LOS by reducing vehicle trips, although it would be speculative to quantify the potential improvement. No other feasible mitigation measures have been identified.

> **Mitigation Measure 4.C-5n (Broadway/Fifth):** The City of Alameda shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and 4.C-2b).

Significance after Mitigation: This impact would remain **significant and unavoidable**.

Brush/12th. The signalized intersection of Brush Street and 12th Street (#44) would operate at LOS F with 113 seconds of delay during the a.m. peak hour under 2035 Cumulative conditions. Under 2035 Cumulative plus Project conditions, project-related vehicle traffic would degrade LOS to LOS F with delay in excess of 120 seconds. The project traffic would cause the critical volume-to-capacity (“V/C”) ratio to increase by 0.05.

This increase in project-related traffic is due primarily to the increase in traffic from I-980 ramps combined with the background growth in the westbound traffic on 12th Street heading towards West Oakland. Implementation of Mitigation Measures 4.C-2a (TDM Program) and 4.C-2b (Monitoring), p. 4.C-37, could improve intersection LOS by reducing vehicle trips, although it would be speculative to quantify the potential improvement.

> **Mitigation Measure 4.C-5o (Brush/12th):** The City of Alameda shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and 4.C-2b).

Significance after Mitigation: Because the potential future mitigation for this intersection, and the cost of that mitigation, are not known, and because the City of Alameda has no jurisdiction over the mitigation, this impact is conservatively considered to be **significant and unavoidable**.

High/Oakport. The signalized intersection of High Street and Oakport Street (#45) would operate at LOS E with 60 seconds of delay during the p.m. peak hour under 2035 Cumulative conditions. Under 2035 Cumulative plus Project conditions, project-related vehicle traffic would operate the LOS E. However, the project traffic would cause an increase the average delay of the northbound critical movement by 17 seconds.

The City of Oakland's Central Estuary Implementation Guide Supplemental EIR identified an impact at this location during the p.m. peak hour under 2035 conditions. The project-related vehicle traffic resulted in LOS E in a.m. and p.m. peak hours. A third travel lane along High Street would be required to fully mitigate. However, widening of High Street under I-880 was found to be infeasible due to structural columns and existing land use. Therefore, the Central Estuary Implementation Guide EIR found this impact to be significant and unavoidable.

The seismic retrofit once completed with the connection from 42nd Avenue to Alameda Avenue will alleviate some of the traffic to and from Alameda currently using High Street since it provides for a direct connection to the Fruitvale Bridge and Tilden Way.

> **Mitigation Measure 4.C-5p (High/Oakport):** The City of Alameda shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and 4.C-2b) and work with the City of Oakland to optimize the signal timing to allow for more green time for northbound traffic.

Mitigation Measure 4.C-5p would result in LOS C with 34.5 seconds of average delay during the p.m. peak hour.

Significance after Mitigation: Because the potential future mitigation for this intersection, and the cost of that mitigation, are not known, and because the City of Alameda has no jurisdiction over the mitigation, this impact is conservatively considered to be **significant and unavoidable**.

High/Coliseum. The signalized intersection of High Street and Coliseum Way (#46) would operate at LOS E with 74 seconds of delay during the p.m. peak hour under 2035 Cumulative conditions. Under 2035 Cumulative plus Project conditions, project-related vehicle traffic would degrade the LOS to LOS F with 82 seconds of delay. The project traffic would cause to degrade the LOS from E to F and increase delay 8 seconds.

While this intersection would operate at LOS E during the a.m. peak hour, the project-related traffic would result in slightly reduced average delay from 73 seconds to 61 seconds.

The City of Oakland's Central Estuary Implementation Guide Supplemental EIR identified a significant impact at this location during the p.m. peak hour under existing conditions with LOS E conditions. The proposed mitigation assumes the 42nd Avenue / High Street Access Improvements, which widen High Street to accommodate additional travel and left-turn lanes. The widening was found to reduce the impact to less than significant levels under existing plus project conditions.

The seismic retrofit once completed with the connection from 42nd Avenue to Alameda Avenue will alleviate some of the traffic to and from Alameda currently using High Street since it provides for a direct connection to the Fruitvale Bridge and Tilden Way.

> **Mitigation Measure 4.C-5q (High/Coliseum):** The City of Alameda shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and 4.C-2b) and work with the City of Oakland to optimize the signal timing.

Mitigation Measure 4.C-5q would result in LOS E with 70 seconds of average delay during the p.m. peak hour.

Significance after Mitigation: Because the potential future mitigation for this intersection, and the cost of that mitigation, are not known, and because the City of Alameda has no jurisdiction over the mitigation, this impact is conservatively considered to be **significant and unavoidable**.

29th/Ford. The signalized intersection of 29th Avenue and Ford Street (#51) would operate at LOS F during the p.m. peak hour under 2035 Cumulative conditions. Under 2035 Cumulative plus Project conditions, project-related vehicle traffic would cause the p.m. peak hour overall volume-to-capacity (“V/C”) ratio to increase by 0.04.

During the a.m. peak hour, this intersection would operate at LOS F. The project-related traffic would result in an increase in delay from 130 seconds to 135 seconds. However, the changes in overall intersection and critical movement v/c ratios are less than 0.03 and 0.05 thresholds.

The City of Oakland’s Central Estuary Implementation Guide Supplemental EIR identified an impact at this location during the p.m. peak hour under 2035 conditions. The heavy southbound right from the 29th Avenue overpass and the heavy northbound double-left turn coming from Alameda result in LOS E during the p.m. peak hour. Although the 29th/23rd Overcrossing project was assumed to be completed, the improvement were not sufficient to maintain acceptable LOS. Additional mitigations were considered, but the Central Estuary Implementation Guide EIR made a finding that mitigation was not feasible and the impact was significant and unavoidable.

> **Mitigation Measure 4.C-5r (29th/Ford):** The City of Alameda shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and 4.C-2b).

Significance after Mitigation: Because no feasible mitigation has been identified to improve the intersection, and because the City of Alameda has no jurisdiction over the mitigation, this impact is conservatively considered to be **significant and unavoidable**.

23rd Ave./Seventh St. The signalized intersection of 23rd Avenue and Seventh Street (#56) would operate at LOS D with 47.6 seconds of delay during the p.m. peak hour under the 2035

Cumulative conditions. Under 2035 Cumulative plus Project conditions, project-related vehicle traffic would degrade the LOS to LOS E with 60.4 seconds of delay during the p.m. peak hour. During the a.m. peak hour, this intersection would operate at LOS D with and without the project.

> **Mitigation Measure 4.C-5s (23rd Ave./Seventh St.):** The City of Alameda shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and 4.C-2b) and work with the City of Oakland to modify the northbound to provide a separate left –turn lane and a shared through-right-turn lane, and optimize the signal.

Mitigation Measure 4.C-5s would result in LOS D with 40.2 seconds of delay during the a.m. peak hour and would result in LOS D with 37.7 seconds of delay during the p.m. peak hour.

Significance after Mitigation: Because the City of Alameda has no jurisdiction over the mitigation, this impact is conservatively considered to be **significant and unavoidable**.

Pedestrian Analysis

For each of the significant cumulative pedestrian impacts, mitigation measures are identified. As shown in Table 4.C-17**,** the following intersections would be affected, as described in detail below:

- Main Street and Pacific Avenue (#6)
- Webster Street and Atlantic Street (#7)
- High Street and Fernside Boulevard (#20)
- Constitution Way and Atlantic Avenue (#24)

Implementation of Mitigation Measures 4.C-2a (TDM Program) and 4.C-2b (Monitoring), p. 4.C-37, could improve pedestrian LOS by reducing vehicle trips, although it would be speculative to quantify the potential improvement. Therefore, additional mitigation measures are identified, as applicable, for each impact.

Main/Pacific Pedestrian. At the actuated signal at Main Street and Pacific Avenue (#6), the increase in volumes due to project-related traffic during the a.m. and p.m. peak hours would cause increases in pedestrian delay for several legs of the intersection.

The signal at Main Street and Pacific Avenue is an actuated signal. The increase in volumes due to project-related traffic at the intersection of Main Street and Pacific Avenue during the a.m. and p.m. peak hours would cause increases in green time for all approaches. These green time increases cause increases in pedestrian delay for all legs during both peak hours. Pedestrian delay would increase during the a.m. peak from 27.3 seconds to 31.9 seconds on the south leg, from 23.9 seconds to 28.5 seconds on the north leg, and from 17.3 seconds to 23.7 seconds on the east leg. Pedestrian delay would increase during the p.m. peak from 20.5 seconds to 28.5 seconds on the south leg, from 22.2 seconds to 31.5 seconds on the north leg, and from 13.6 seconds to 21.3 seconds on the east leg, which would be considered a significant impact.

> **Mitigation Measure 4.C-5t (Main/Pacific Pedestrian):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and 4.C-2b) and, when required to avoid the impact or reduce its severity, fund a fairshare contribution to change signal timing to two-phase timing plan (i.e., northbound and southbound move concurrently; then eastbound and westbound move concurrently) and optimize cycle length.

Implementation of Mitigation Measure 4.C-5t would reduce projected pedestrian delay during the a.m. and p.m. peak hours to LOS B or LOS A. It would increase average speed along Main Street, thereby benefitting transit service along the corridor, and it would not degrade auto LOS at the intersection.

Pedestrian Travel Impact Significance after Mitigation: Less than Significant.

Transit Travel Secondary Impact after Pedestrian Mitigation: Less than Significant.

Bicycle Travel Secondary Impact after Pedestrian Mitigation: Less than Significant.

Auto Travel Secondary Impact after Pedestrian Mitigation: Less than Significant.

Webster/Appezzato Pedestrian. At the actuated signal at Webster Street and Ralph Appezzato Memorial Parkway (#7), the increase in volumes due to project-related traffic during the a.m. and p.m. peak hours would cause increases in pedestrian delay for several legs of the intersection.

The signal at Webster Street and Appezzato Parkway is an actuated signal. The increase in volumes due to project-related traffic at the intersection of Webster Street and Appezzato Parkway during both peak hours would cause increases in green time for several approaches. These green time increases cause increases in pedestrian delay for most legs. Project-related vehicle traffic would increase pedestrian delay during the a.m. peak hour from 24.6 seconds to 27.3 seconds on the west leg and during the p.m. peak hour from 23.4 seconds to 25.8 seconds on the west leg, which would be considered a significant impact.

> **Mitigation Measure 4.C-5u (Webster/Appezzato Pedestrian):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and 4.C-2b) and, when required to avoid the impact or reduce its severity, fund a fair share contribution to optimize signal timing.

Implementation of Mitigation Measure 4.C-5u would reduce projected pedestrian delay during both peak hours to LOS C or LOS B and would reduce the increase in pedestrian delay to less than 10 percent. It would increase average speed along Webster Street, thereby benefitting transit service along that corridor. The addition of an eastbound queue jump lane would require widening the intersection and providing a receiving lane of adequate length for buses. This mitigation would degrade auto LOS at the intersection to LOS E, which would be considered a significant impact. Procedures for prioritizing improvements to the different (potentially competing) travel modes establish the following order of modal preference for Webster Street and Appezzato Parkway (both Regional Arterials): transit, pedestrians, bicycles, and automobiles.

Therefore, the suitability of implementing Mitigation Measure 4.C-5u was considered in the context of impacts to travel modes ranked higher than automobiles. However, this impact would be **significant and unavoidable**.

Pedestrian Travel Impact Significance after Mitigation: Less than Significant.

Transit Travel Secondary Impact after Pedestrian Mitigation: Less than Significant.

Bicycle Travel Secondary Impact after Pedestrian Mitigation: Less than Significant.

Auto Travel Secondary Impact after Pedestrian Mitigation: Significant and Unavoidable.

High/Fernside Pedestrian. At the actuated signal at High Street and Fernside Boulevard (#20), the increase in volumes due to project-related traffic during the a.m. peak hour would cause increases in pedestrian delay for several legs of the intersection.

The signal at High Street and Fernside Boulevard is an actuated signal. Project-related vehicle traffic would increase the a.m. peak hour pedestrian delay along the north leg (crossing High Street) to increase from 24.8 seconds to 27.4 seconds and along the southwest leg (crossing Gibbons Drive) from 24.8 seconds to 27.4 seconds, which would be considered a significant impact. Because these increased pedestrian delays are only one-half percent above the 10 percent significance threshold, it is anticipated that this impact could be mitigated by implementation of TDM and Monitoring and Mitigation Measure 4.C-5e (High/Fernside Pedestrian).

> **Mitigation Measure 4.C-5v (High/Fernside Pedestrian):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and 4.C-2b) and Mitigation Measure 4.C-5e (optimize signal timing during the p.m. peak hour).

Implementation of Mitigation Measure 4.C-5v would reduce projected pedestrian delay during the a.m. peak hour to LOS C with an increase in delay of less than 10 percent. It would not degrade auto LOS at the intersection.

Pedestrian Travel Impact Significance after Mitigation: Less than Significant.

Transit Travel Secondary Impact after Pedestrian Mitigation: Less than Significant.

Bicycle Travel Secondary Impact after Pedestrian Mitigation: Less than Significant.

Auto Travel Secondary Impact after Pedestrian Mitigation: Less than Significant.

Appezzato/Constitution Pedestrian. At the actuated signal at Ralph Appezzato Memorial Parkway and Constitution Way (#24), the increase in volumes due to project-related traffic during the a.m. peak hour would cause increases in pedestrian delay for several legs of the intersection.

The signal at Appezzato Parkway and Constitution Way is an actuated signal. Project-related vehicle traffic would increase pedestrian delay during the a.m. peak from 20.2 seconds on the east leg and from 19.4 seconds to 25.8 seconds on the west. During the p.m. peak hour, pedestrian delay would increase from 29.5 seconds to 35.6 seconds along the east leg and from 26.0 seconds to 30.1 seconds along the west leg, which would be considered a significant impact.

Mitigation Measure 4.C-5w (**Appezzato/Constitution Pedestrian):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and 4.C-2b) and, when required to avoid the impact or reduce its severity, fund a fair share contribution to implement the following improvements:

- Modify the existing signal phasing for eastbound and westbound approaches from split to permitted-protected lefts; and
- Optimize the signal timing.

Implementation of Mitigation Measure 4.C-5w would reduce projected pedestrian delay during the a.m. and p.m. peak hours to LOS B, C, or D and would reduce delay for all but one leg. The west leg during the p.m. peak hour would experience a 0.5 seconds (2 percent) increase in delay. In order to accommodate elderly pedestrians crossing at this intersection, the cycle length would not be reduced sufficiently to fully mitigate to less than significant. This measure would not degrade transit LOS along Appezzato Parkway or Constitution Way, nor would it degrade auto LOS at the intersection. However, this impact would be **significant and unavoidable**.

Pedestrian Travel Impact Significance after Mitigation: Significant and Unavoidable.

Transit Travel Secondary Impact after Pedestrian Mitigation: Less than Significant.

Bicycle Travel Secondary Impact after Pedestrian Mitigation: Less than Significant.

Auto Travel Secondary Impact after Pedestrian Mitigation: Less than Significant.

Transit Analysis

For each of the significant cumulative transit impacts, mitigation measures are identified. As shown in **Table 4.C-18,** the following segments would be affected, as described in detail below:

- Park Street between Blanding Avenue and Otis Drive
- Ralph Appezzato Memorial Parkway between Main Street and Webster Street
- Willie Stargell Avenue between Main Street and Webster Street

Implementation of Mitigation Measures 4.C-2a (TDM Program), p. 4.C-37, would improve transit operations by reducing vehicle trips, although it would be speculative to quantify the potential improvement. Therefore, additional mitigation measures are identified, as applicable, for each impact.

Park Street Transit. Project-related vehicle traffic would degrade transit LOS during the a.m. peak hour in the southbound direction along the corridor of Park Street between Blanding Avenue and Otis Drive to LOS E with a decrease in average speed of 13% in the southbound direction during the a.m. peak hour.

> **Mitigation Measure 4.C-5x (Park Street Transit):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and 4.C-2b) and, when required to avoid the impact or reduce its severity, fund a fair share contribution to implement the following improvements:
>
> - Provide transit signal priority at intersections along this corridor;
> - Separate the operation of the Nursing Home driveway from the Park Street and Blanding Avenue intersection; and
> - Optimize splits at the Park Street and Blanding Avenue intersection during a.m. and p.m. peak hours.

Implementation of Mitigation Measure 4.C-10a would maintain transit LOS E and would reduce the change in average travel speed through the corridor to a change of less than 10 percent. It would degrade pedestrian LOS at an intersection along the corridor only when a bus is present and transit signal prioritization is engaged at that intersection. At other times, it would not degrade pedestrian LOS. It would not degrade auto LOS at the intersection of Park Street and Blanding Avenue. The pedestrian impact would be **significant and unavoidable**; however, the mode priority is for transit on Park Street.

Transit Travel Impact Significance after Mitigation: Less than Significant.

Pedestrian Travel Secondary Impact after Transit Mitigation: Significant and Unavoidable.

Bicycle Travel Secondary Impact after Transit Mitigation: Less than Significant.

Auto Travel Secondary Impact after Transit Mitigation: Less than Significant.

Appezzato Parkway Transit. Project-related vehicle traffic would degrade transit LOS during the p.m. peak hour in the westbound direction along the corridor of Ralph Appezzato Memorial Parkway between Main Street and Webster Street to LOS D with a decrease in average speed of 10 percent.

> **Mitigation Measure 4.C-5y (Appezzato Parkway Transit):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and 4.C-2b) and, when required to avoid the impact or reduce its severity, fund a fair share contribution to implement the following improvements:
>
> - Install transit signal priority at intersections along this corridor;

- Optimize cycle length at the Appezzato Parkway and Webster Street intersection during a.m. and p.m. peak hours and provide signal priority; and
- Establish exclusive transit lanes or queue jump lanes from Alameda Point to Webster Street.

Implementation of Mitigation Measure 4.C-5y would maintain transit LOS D and would reduce the change in average travel speed through the corridor to a change of less than 10 percent. It would degrade pedestrian LOS at an intersection along the corridor only when a bus is present and transit signal prioritization is engaged at that intersection. At other times, it would not degrade pedestrian LOS. Mitigation Measure 4.C-5y would degrade auto LOS at the intersection to LOS E, which would be considered a significant impact. For Webster Street and Appezzato Parkway (both Regional Arterials), the modal preference is as follows: transit, pedestrians, bicycles, and automobiles. The pedestrian impact would be **significant and unavoidable**; however, the mode priority is for transit.

Transit Travel Impact Significance after Mitigation: Less than Significant.

Pedestrian Travel Secondary Impact after Transit Mitigation: Significant and Unavoidable.

Bicycle Travel Secondary Impact after Transit Mitigation: Less than Significant.

Auto Travel Secondary Impact after Transit Mitigation: Significant and Unavoidable.

Stargell Avenue Transit. Project-related vehicle traffic would degrade transit LOS during the a.m. and p.m. peak hours in the westbound direction along the corridor of Willie Stargell Avenue between Main Street and Webster Street to LOS C.

> **Mitigation Measure 4.C-5z (Stargell Avenue Transit):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and 4.C-2b) and, when required to avoid the impact or reduce its severity, implement the following improvements:

- Provide eastbound and westbound queue jump lanes on Willie Stargell Avenue at Main Street and at Fifth Street or construct exclusive transit lanes on Willie Stargell Avenue;
- Install transit signal priority at intersections along this corridor; and
- Optimize cycle length at the Main Street and Willie Stargell Avenue intersection during a.m. and p.m. peak hours.

Implementation of Mitigation Measure 4.C-5z would maintain transit LOS B. The addition of queue jump lanes at Main Street and Willie Stargell Avenue and at Fifth Street and Willie Stargell Avenue would require widening those intersections and providing receiving lanes of adequate length for buses. It would degrade pedestrian LOS at an intersection along the corridor only when a bus is present and transit signal prioritization is engaged at that intersection. At other times, it would not degrade pedestrian LOS or auto LOS at the intersection. However, the impact would be **significant and unavoidable**.

Transit Travel Impact Significance after Mitigation: Less than Significant.

Pedestrian Travel Secondary Impact after Transit Mitigation: Significant and Unavoidable.

Bicycle Travel Secondary Impact after Transit Mitigation: Less than Significant.

Auto Travel Secondary Impact after Transit Mitigation: Less than Significant.

Bicycle Analysis

For each of the significant cumulative bicycle impacts, mitigation measures are identified. As shown in Table 4.C-19, the following segments would be affected, as described in detail below:

- Willie Stargell Avenue between Main Street and Webster Street
- Main Street between Singleton Avenue and Willie Stargell Avenue
- Central Avenue between Main Street and Fourth Street
- Oak Street between Santa Clara Avenue and Encinal Avenue

Implementation of Mitigation Measures 4.C-2a (TDM Program) and 4.C-2b (Monitoring), p. 4.C-37, would improve bicycle conditions by reducing vehicle trips, although it would be speculative to quantify the potential improvement. Therefore, additional mitigation measures are identified, as applicable, for each impact.

Stargell Avenue Bike. The increase in motorized vehicle volume due to project-related traffic along Willie Stargell Avenue between Main Street and Webster Street would cause bicycle LOS to degrade to LOS D in the westbound direction during the a.m. peak hour and in the eastbound direction during the p.m. peak hour between Cumulative conditions and Cumulative with Project conditions. For westbound bicycle traffic, in the a.m. peak hour, the increase in traffic volume would degrade bicycle operations from LOS C to LOS D and the bicycle score would increase by 36 percent with the project, which exceeds the 10 percent threshold of significance for segments already at LOS B or worse. For eastbound bicycles, the p.m. LOS would decrease from LOS C to LOS D and the bicycle score would increase by 18 percent, also a significant impacts.

> **Mitigation Measure 4.C-5zi (Stargell Avenue Bike):** The City shall implement Mitigation Measure 4.C-2m (Stargell Avenue bike path).

Implementation of Mitigation Measure 4.C-2mwould enhance the cyclist experience along Willie Stargell Avenue. However, due to the limitation of the methodology, bicycle LOS for Class I bicycle paths cannot be calculated. Therefore, this impact would be considered **significant and unavoidable**.

Bicycle Travel Impact Significance after Mitigation: Significant and Unavoidable.

Transit Travel Secondary Impact after Bicycle Mitigation: Less than Significant.

Pedestrian Travel Secondary Impact after Bicycle Mitigation: Less than Significant.

Auto Travel Secondary Impact after Bicycle Mitigation: Less than Significant.

Main Street Bike. The increase in motorized vehicle volume due to project-related traffic along Main Street between Ralph Appezzato Memorial Parkway (Appezzato Parkway) and Pacific Avenue would cause bicycle LOS to degrade in both directions during both peak hours. For northbound bicycle traffic, in the a.m. peak hour, the increase in traffic volume would degrade the bicycle score by 13 percent with the project (LOS D would be maintained), which exceeds the 10 percent threshold of significance for segments already at LOS B or worse, while in the p.m. peak hour, the bicycle score would decrease by 16 percent (LOS D would be maintained), also significant. For southbound bicycles, the a.m. bicycle score would decrease by 14 percent (LOS D would be maintained), while the p.m. bicycle score would decrease by 16 percent (LOS D would be maintained); both would be significant impacts.

> **Mitigation Measure 4.C-5zii:** The City shall implement Mitigation Measure 4.C-2n (Main Street bicycle improvements).

Implementation of Mitigation Measure 4.C-2n would enhance the cyclist experience along Main Street and would likely improve bicycle LOS to LOS B or better. However, due to the limitation of the methodology, bicycle LOS for Class I bicycle paths cannot be calculated. Therefore, this impact would be considered **significant and unavoidable**. If Class II bicycle lanes, a less robust measure, were to be installed, bicycle LOS would improve to LOS C, a less than significant level. A Class I bike path would further improve the bicycle LOS to a less than significant level. Mitigation Measure 4.C-4b would not degrade the transit LOS or auto LOS along the corridor.

Bicycle Travel Impact Significance after Mitigation: Significant and Unavoidable.

Transit Travel Secondary Impact after Bicycle Mitigation: Less than Significant.

Pedestrian Travel Secondary Impact after Bicycle Mitigation: Less than Significant.

Auto Travel Secondary Impact after Bicycle Mitigation: Less than Significant.

Central Avenue Bike. The increase in motorized vehicle volume due to project-related traffic along Central Avenue between the Main Street-Pacific Street intersection and Fourth Street would cause bicycle LOS to degrade in both directions during both peak hours. For northbound bicycle traffic, in the a.m. peak hour, the increase in traffic volume would degrade the bicycle LOS from LOS C to LOS D and decrease the bicycle score by 32 percent with the addition of project traffic to Cumulative conditions, which exceeds the 10 percent threshold of significance for segments already at LOS B or worse, while in the p.m. peak hour, the bicycle LOS would also degrade from LOS C to LOS D and the score would decrease by 31 percent, also significant. For southbound bicycles, the LOS would degrade from LOS C to LOS D and the bicycle score would decrease by 14 percent with the addition of project traffic to Cumulative conditions, while in the p.m. peak hour, LOS would degrade from LOS B to LOS D and the score would decrease by 54 percent; both would be significant impacts.

> **Mitigation Measure 4.C-5ziii (Central Avenue Bike):** The City shall implement Mitigation Measure 4.C-2o (Central Avenue bicycle improvements).

Implementation of Mitigation Measure 4.C-2o would enhance the cyclist experience along Central Avenue. As previously described, the limits of the methodology used to evaluate bicycle LOS for this study do not include Class I bicycle paths, so bicycle LOS cannot be calculated. This measure would not degrade the transit LOS or auto LOS along the corridor. Nevertheless, this impact would be considered **significant and unavoidable**.

Bicycle Travel Impact Significance after Mitigation: Significant and Unavoidable.

Transit Travel Secondary Impact after Bicycle Mitigation: Less than Significant.

Pedestrian Travel Secondary Impact after Bicycle Mitigation: Less than Significant.

Auto Travel Secondary Impact after Bicycle Mitigation: Less than Significant.

Oak Street Bike. The increase in motorized vehicle volume due to project-related traffic along Oak Street between Santa Clara Avenue and Central Avenue would cause bicycle LOS to degrade to LOS C in the southbound direction during the a.m. peak. Implementation of Mitigation Measures 4.C-2a (TDM Program) and 4.C-2b (Monitoring), p. 4.C-37, could improve bicycle LOS by reducing vehicle trips, although it would be speculative to quantify the potential improvement.

> **Mitigation Measure 4.C-5ziv (Oak Street Bike):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and 4.C-2b) and, when required to avoid the impact or reduce its severity, fund a fair share contribution to implement the completion of a bicycle boulevard with appropriate signage and striping along Oak Street from Blanding Avenue to Encinal Avenue to advise motorists and bicyclists to share the street.

Implementation of Mitigation Measure 4.C-5ziv would not reduce the impact to bicyclists to less than significant and impact is considered **significant and unavoidable**.

While additional mitigation could be provided by removing on-street parking along the street and installing bike lanes, it would adversely affect local residents, businesses, and civic uses (City Hall, Library, Police Department) who use the existing on-street parking regularly and is not recommended.

Bicycle Travel Impact Significance after Mitigation: Significant and Unavoidable.

Transit Travel Secondary Impact after Bicycle Mitigation: Less than Significant.

Pedestrian Travel Secondary Impact after Bicycle Mitigation: Less than Significant.

Auto Travel Secondary Impact after Bicycle Mitigation: Less than Significant.

Freeways and Ramp Analysis

Impact 4.C-6: The increase in traffic on the freeway mainline due to the project results in negligible changes in density and no change in LOS under cumulative conditions. (Less than Significant)

The magnitude of the change in volume is such that at almost three percent of the total volume, the change is imperceptible to the driver and within normal daily fluctuation of traffic volumes on the freeway.

Mitigation: None required.

Impact 4.C-7: The change in traffic volumes on the freeway ramps due to the project results in no change in LOS and minimal, if any, change in density under existing conditions. (Less than Significant)

Under cumulative conditions, the project would result in a change in LOS at the following ramps:

- Broadway off-ramp from I-880 northbound during the p.m. peak hour. The project-related traffic volumes increase by 35 vehicles on this ramp and by 46 vehicles along the contiguous portion of the mainline, which results in a change in LOS from E to F during the p.m. peak hour and a corresponding change in density of 0.4 passenger cars per mile per lane (pc/mi/ln) within the diverge area.

- High Street on-ramp from I-880 southbound during the p.m. peak hour. The project-related traffic volumes increase by 28 vehicles on the ramp, but the density at the merge actually decreases from 36.4 to 36.3 since the mainline freeway volume decreases by 102 vehicles. This decrease in mainline volumes drops below the capacity resulting in a change in LOS from F to E with the project-related traffic.

- 12th Street off-ramp from I-980 eastbound during the p.m. peak hour. The project-related traffic volumes increase by one vehicle on this ramp and by 44 vehicles along the contiguous portion of the mainline, affecting the density at the diverge area and resulting in a change in LOS from C to D during the p.m. peak hour.

While this discussion focuses on the change in LOS based on the significance thresholds, the change in project-related traffic is minimal compared to the total volume on the mainline as well as the total volume on the ramps and any resulting change in mainline and ramp operations would likely be imperceptible to the motorist.

Mitigation: None required.

Emergency Vehicle Access

Impact 4.C-8: Development facilitated by the proposed project would potentially result in inadequate emergency access. (Less than Significant)

The proposed project, including the proposed Master Infrastructure Plan (MIP), would improve access and circulation both on the project site and between the project site and other areas of Alameda. To the extent that the traffic analysis, above, reveals significant intersection impacts that cannot be mitigated to a less-than-significant level, the proposed project would result in increased traffic congestion on certain local streets. However, Alameda's streets are generally of sufficient width to permit emergency vehicles responding to an incident to pass stopped traffic, either by the stopped traffic moving to the right shoulder, by emergency vehicles using the opposite lane(s), or a combination thereof. New streets proposed for the project site as part of the MIP would likewise provide sufficient clearance for responding emergency vehicles.

Construction of new development on the project site and of roadway and circulation system improvements also could result in potential temporary obstructions or delays that may affect emergency response times. However, in accordance with the existing City requirements standards and regulations, all development projects and transportation improvements would be reviewed by local emergency services providers (including the police and fire departments) for consistency with their standards and provision of adequate emergency access, both during construction and subsequently, during project operation.

The City maintains up-to-date emergency response plans that establish response routes for emergency services that address emergency service needs. Existing City of Alameda requirements, procedures, and plans ensure that the proposed project would not result in a significant impact to emergency services.

Mitigation: None required.

Traffic Safety Hazards

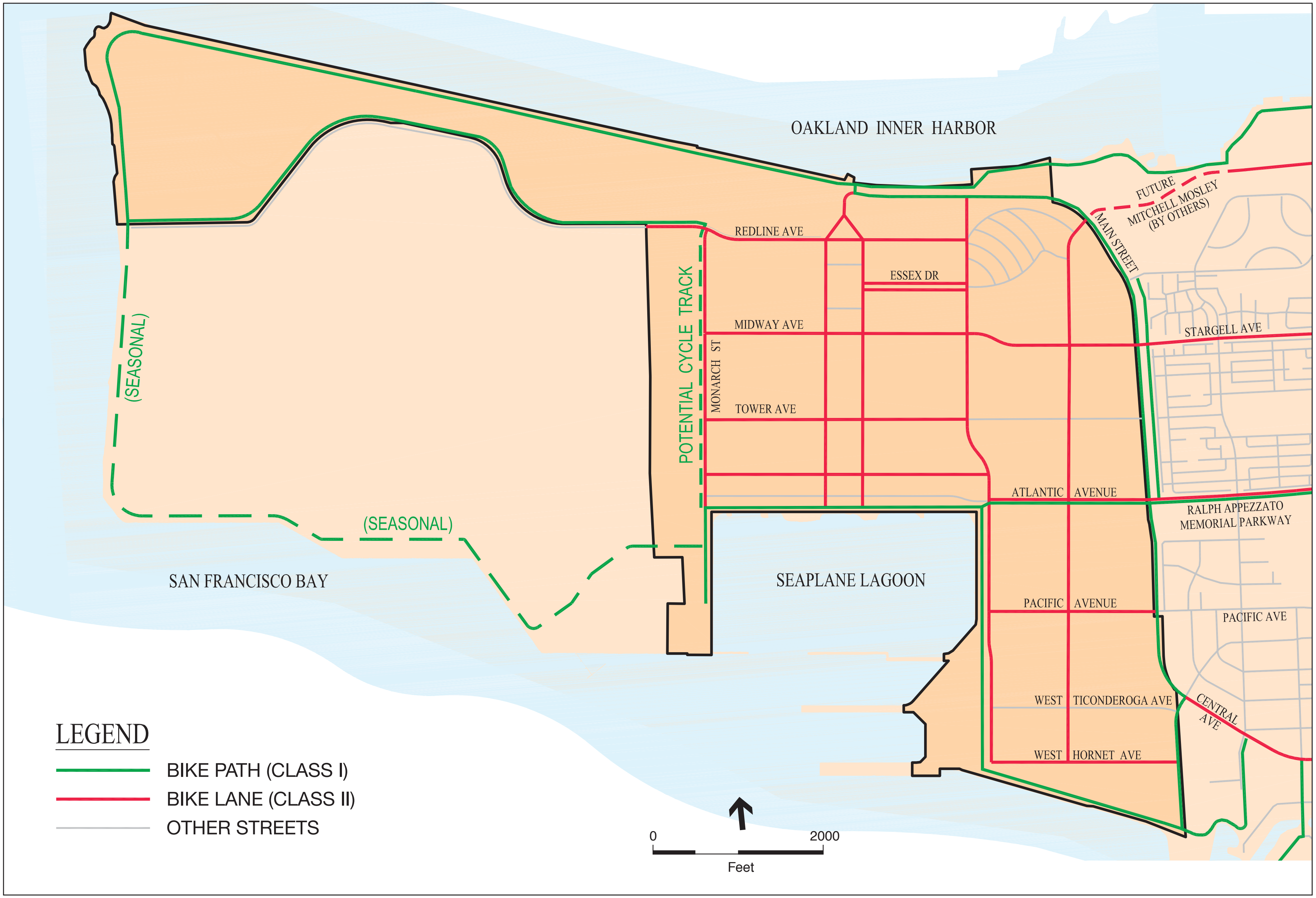
Impact 4.C-9: Development facilitated by the proposed project could potentially increase traffic safety hazards for vehicles, bicyclists, and pedestrians on public roadways due to roadway design features or incompatible uses. (Significant)

The draft Master Infrastructure Plan (MIP) calls for a transportation network of "complete streets" within the project site to support a variety of modes of transportation. By providing for pedestrian and bicycle circulation separated from vehicles, as well as designated truck routes, the MIP would result in a circulation system on the project site that would enhance public safety compared to the existing street network. The MIP also calls for certain potential off-site circulation improvements to enhance connectivity between the project site and the adjacent neighborhoods of Alameda. Proposed onsite bicycle and truck routes are shown in **Figures 4.C-3** and **4.C-4**, respectively.

Potential safety impacts and design features would be considered on a project-by-project basis as specific developments are proposed within the project site and as street improvement and circulation projects are implemented. In accordance with existing City standards and regulations, future development projects and proposed transportation improvements would be reviewed by the City Public Works and Community Development Departments for consistency with applicable regulations and standards. The proposed project would not construct new streets or upgrade existing streets in a manner that would result in unsafe design features, such as sharp turns or blind intersections. Accordingly, potential traffic safety impacts in Alameda would be less than significant.

Project traffic would cause an increase in peak-hour traffic volumes in the core area of Chinatown, compared to existing conditions. In particular, with peak-hour traffic from employment-generating uses entering the Webster Tube in the morning and exiting the Posey Tube in the afternoon, the a.m. peak-hour volume would increase at Seventh/Webster Streets and at Eighth/Webster Streets, while the p.m. peak hour volume would increase at Eighth/Harrison Streets and at Seventh/Harrison Streets. Daily volumes would increase as well, although overall volumes outside the peak hours are, and would remain, lower. Because more than half of the reported collisions involving pedestrians in the 2009 – 2012 period occurred as vehicles were making left-turns, the project impact on pedestrian safety could be particularly pronounced at the Eighth/Harrison Streets intersection, where project traffic would more than double the northbound left-turn volume from Harrison Street to Eighth Street in the p.m. peak hour. At this location, there was only one collision between 2009 and 2012, but that collision, in December 2009, involved a pedestrian fatality. However, the accident report notes that it was raining at the time of the collision, the collision occurred on a Saturday, the vehicle was moving through (westbound) on Eighth Street, and the collision was classified as a hit-and-run. Because this collision occurred on a Saturday, it occurred at a time in which increased weekday peak-hour traffic associated with the proposed project would not change conditions. Moreover, inasmuch as this collision occurred during poor weather and was a hit-and-run incident, it is not necessarily correlated with traffic volume.

Although the collision rate at the Chinatown intersections closest to the tunnel portals (Seventh Street and Eight Street at Webster and Harrison Streets) would not be expected to increase in a linear fashion with the increase in traffic generated by the proposed project, the relatively large increases in peak-hour traffic volume at the these intersections could potentially result in additional collisions involving pedestrians. Therefore, the impact to pedestrian safety at these intersections is conservatively considered to be significant. Other intersections in Chinatown would experience substantially less additional traffic due to the project, and thus lesser effects on pedestrian safety.



SOURCE: Carlson, Barbee, & Gibson, Inc., 2013

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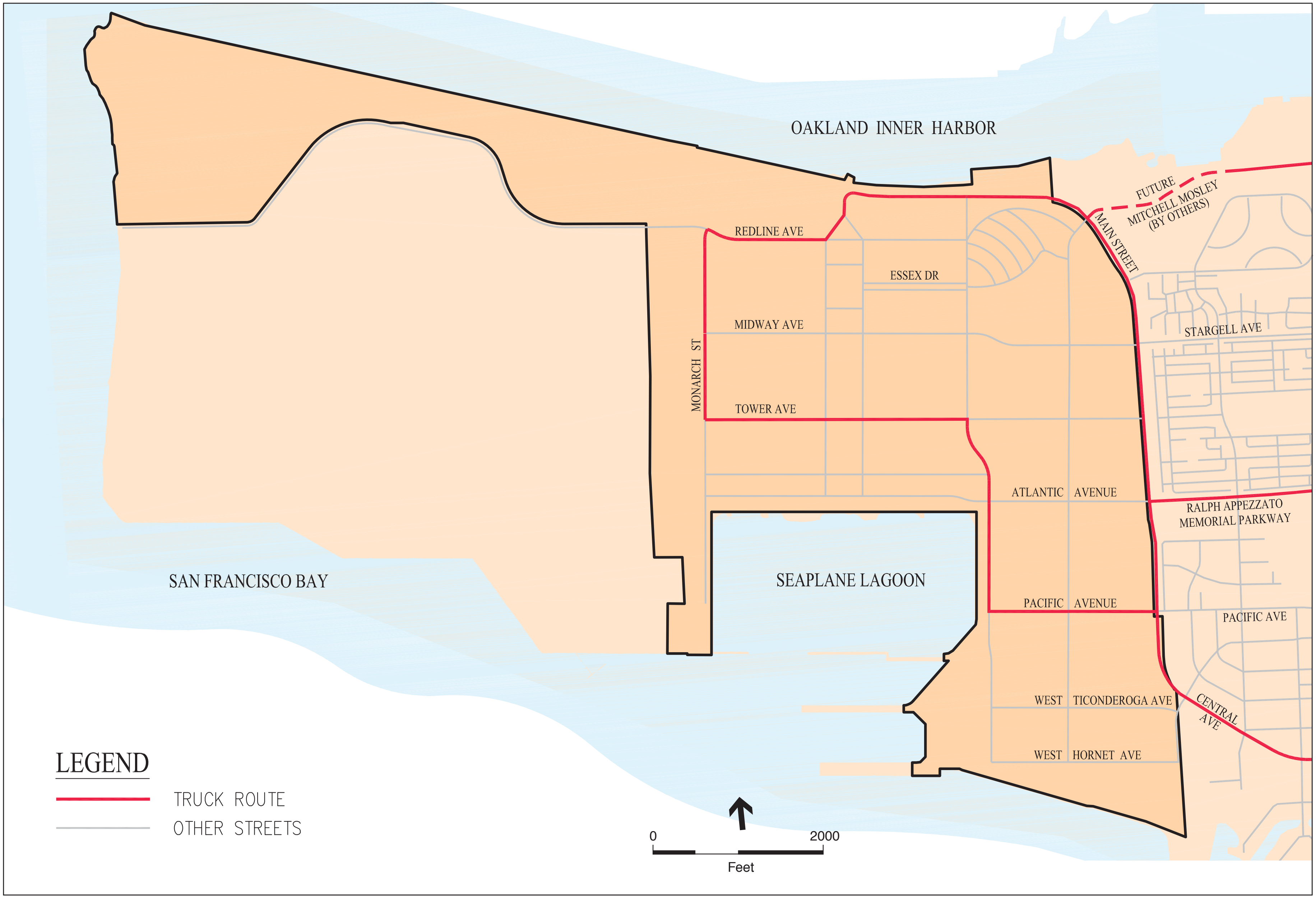
Figure 4.C-3
Proposed Bike Facilities



SOURCE: Carlson, Barbee, & Gibson, Inc., 2013

Alameda Point Project . 130025

Figure 4.C-4
Proposed Truck Route

Under 2035 cumulative conditions, the countywide traffic model predicts some redistribution of peak-hour project traffic to routes other than the Webster and Posey Tubes (i.e., to the bridges at Park Street/29th Avenue, Tilden Way/Fruitvale Avenue, and High Street), because travel times through the tunnels are anticipated to lengthen due to increasing congestion from other development in and around downtown Oakland and Alameda. Because of this, and because other growth would increase volumes at Chinatown intersections, the project contribution to 2035 traffic volumes would be substantially less than under Existing plus Project conditions, and no additional significant effects to pedestrians at Chinatown intersections would be anticipated.

It is noted that this analysis does not account for potential future improvements as part of the Broadway-Jackson Interchange project. The latest ACTC Broadway-Jackson Interchange Project Fact Sheet (June 2013) depicts a proposed connection from Harrison Street to Sixth Street with a connection from Sixth Street at Martin Luther King, Jr. Way to I-880. This would reduce through traffic to and from Alameda from the Chinatown core, but could result in higher volumes at peripheral locations, such as Sixth Street and Broadway.

> **Mitigation Measure 4.C-9 (Chinatown Pedestrians):** The City of Alameda shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and 4.C-2b) and shall continue to work with the City of Oakland, the ACTC, and Caltrans, to evaluate and implement measures to reduce or divert the volume of traffic that travels through Oakland Chinatown to and from Alameda Point and other City of Alameda destinations.

Reduction in vehicle travel through implementation of a TDM Program would be a means of minimizing project impacts on pedestrian safety in Chinatown that Alameda could implement at its own discretion.

Mitigation Measure 4.C-9 could potentially reduce the number of collisions involving pedestrians. However, because the effectiveness of TDM at reducing project vehicle trips cannot be quantified, and because the potential access improvements are uncertain, it cannot be stated with certainty that the impact would be reduced to a less-than-significant level.

Significance after Mitigation: Because the City of Alameda has no jurisdiction over mitigation other than implementation of the project TDM Program and Monitoring, the impact at four intersections in Oakland Chinatown is conservatively considered to be **significant and unavoidable**.

Consistency with Adopted Policies, Plans or Programs Supporting Alternative Transportation

Impact 4.C-10: Development facilitated by the proposed project could potentially be inconsistent with adopted polices, plans, and programs supporting alternative transportation. (Less than Significant)

The City of Alameda's multi-modal approach to transportation analysis, presented throughout this analysis of transportation impacts, ensures that the City's priorities with respect to modes other than cars, including pedestrians, bicycles, and transit, are adequately supported. Moreover, as noted above, the Master Infrastructure Plan proposes a "complete streets" transportation network for the project site, including bicycle and pedestrian circulation and transit. The proposed project would be consistent with the General Plan Transportation Element, including Policy 4.2.4.a, which states, "Encourage development patterns and land uses that promote the use of alternate modes and reduce the rate of growth in region-wide vehicle miles traveled"; Policy 4.2.4.b, which states "Integrate planning for Environmentally Friendly Modes, including transit, bicycling and walking, into the City's development review process"; and Policy 4.2.4.c, which states, "Encourage mixed use development that utilizes non-single occupancy vehicle transportation modes." Additionally, the City will develop and implement a comprehensive Transportation Demand Management Program for the project site (see Mitigation Measure 4.C-2a, p. 37). Accordingly, the proposed project would have a less-than-significant impact with respect to polices, plans, and programs supporting alternative transportation.

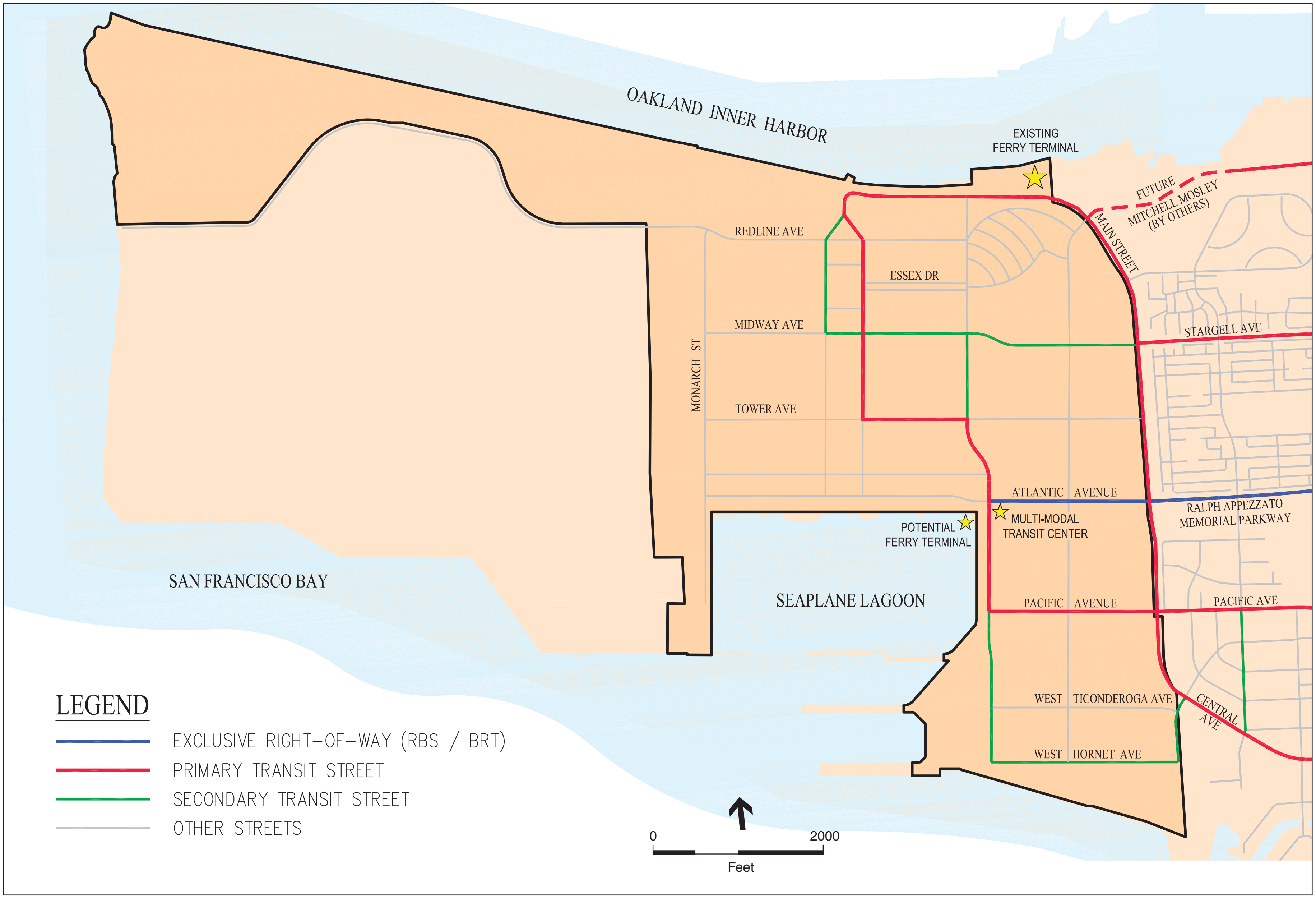
The proposed onsite transit network is shown in **Figure 4.C-5**.

Mitigation: None required.

C.5 Congestion Management Program Analysis

The proposed project would require a General Plan Amendment and would generate more than 100 p.m. peak hour trips (see Table 4.C 3, page 4.C-23). Pursuant to the request of the ACTC in a letter dated January 23, 2013, in response to the Notice of Preparation (NOP), a CMP analysis was conducted for this project. The impacts of the project on the regional transportation system were assessed using the most current version of the ACTC Countywide Travel Demand Model (ACTC Model), dated August 2011, which uses Association of Bay Area Government's (ABAG) *Projections 2009* socio-economic forecasts. For the roadway analysis, the 2020 No Project and 2035 No Project forecasts were obtained from the ACTC Model. The "with-project" forecasts at the roadway segments were obtained by manually adding the increment of p.m. peak hour trips between the proposed project and the "no project" forecasts from the impact analyses using an updated ACTC Model that provided a more detailed traffic analysis zone system in the City of Alameda (see Travel Demand Modeling Approach, page 4.C-22).

The land use for the project was added into the more detailed model developed for the City of Alameda in the form of socio-demographic data for 2035 forecasts for the purpose of analyzing transit impacts for AC Transit and BART. For the transit analysis, the "with project" forecasts were compared to the baseline "no project" forecasts for transit to determine impacts. The traffic impact analysis elsewhere in this section (and the traffic analysis commonly undertaken for most any project in satisfaction of CEQA) evaluates impacts at intersections, because that is where "conflicts" between traffic streams occur. Intersections, therefore, typically serve as the limiting locations on traffic flow. However, the emphasis in the CMP analysis is on the operation of the roadway segments in the Metropolitan Transportation System (MTS) roadways as designated by



SOURCE: Carlson, Barbee, & Gibson, Inc., 2013

Alameda Point Project . 130025

Figure 4.C-5
Proposed Transit Systems

the Metropolitan Transportation Commission. The ACTC-designated Congestion Management Program network is a subset of the MTS network. This impact analysis, therefore, includes all MTS roadways and CMP-designated roadways, plus several local MTS roadways and transit corridors in the project vicinity. Consistent with the modeling undertaken by the ACTC and the direction from the ACTC with respect to the required CMP analysis, the analysis is presented for an interim year (2020), as well as the horizon year under the current CMP model, which is 2035. Because, as noted above, the CMP analysis is for roadway segments and not intersections, it typically reveals lesser impacts, because, any two individual roadway segments have greater capacity than the intersection at which those same two roadways meet. For this reason, and because the ACTC does not require it, no analysis of existing-plus-project conditions is undertaken for the MTS roadway network. Given the greater capacity of roadway segments, such an analysis would necessarily be less conservative than the existing-plus project intersection analysis presented in this section, and therefore would provide no useful additional information. The CMP transit analysis uses the same years for consistency. Detailed tables are provided in Appendix G for review and include all data for 2020 and 2035 forecast years.

Significance Criteria

Roadway Segments

As described above, level of service is a qualitative measure of the traffic flow under different traffic conditions. The roadway impacts of the project were considered significant if the addition of project-related traffic would result in a service level worse than LOS E, except where the roadway link was already at LOS F under no project conditions. For those locations where this no-project condition is LOS F, the impacts of the project were considered significant if the contribution of project-related traffic is three percent or more of the total traffic. This criterion has been included to address impacts along roadway segments currently operating under unacceptable levels and was developed based on professional judgment using a “reasonableness test” of daily fluctuations of traffic. Also a change of **volume-to-capacity (V/C) ratio of 0.03** has been found to be the threshold for which a perceived change in congestion is observed. The V/C ratio is calculated by comparing the peak-hour link volume to the peak-hour capacity of the road link. That change is equivalent to about one-half of the change from one level of service to the next.

Transit Segments

Transit frequency-of-service standards for the CMP are **15- to 30-minute** headways for bus service and **3.75- to 15-minute** headways for BART during peak hours. The transit impacts of the project were considered significant if the addition of project-related trips would result in a ridership worse than capacity of the transit system, except where the transit system was already operating at capacity under no project conditions. For those locations where this no-project condition is at capacity, the impacts of the project were considered significant if the contribution of project-related trips is three percent or more of the total pm peak hour transit trips. Capacity of the transit system is measured by the load factor for the transit segments in the study area. This criterion has been included to address impacts along transit segments currently operating under unacceptable levels and was developed based on professional judgment using a “reasonableness test” of daily fluctuations of transit ridership.

Congestion Management Program Land Use Analysis

The traffic forecasts were based on the more detailed model developed for the City of Alameda with Projections 2009 for the 2035 baseline year. As described above, the project increment of trips was then added to the baseline volumes from the ACTC model for 2020 and 2035 baseline years. A conservative assumption was made that 100 percent of the project would be developed by 2020.

Highway impacts were summarized for the designated link locations based on the ACTC’s comments on the Notice of Preparation for the project. The roadway links include selected segments of I-880, Main Street, Central Avenue, Encinal Avenue, Atlantic Avenue, Webster Street, Webster Street Tube, Harrison Street, Posey Tube, and westbound and southbound connectors to SR 260/ I-880, and eastbound and northbound connectors from SR 260/ I-880.

Transit impacts were addressed for AC Transit bus routes servicing the project study area and Bay Area Rapid Transit (BART) at the West Oakland, Lake Merritt, 12th Street and Fruitvale BART stations.

CMP and MTS Highway Segments

The LOS for the designated links were analyzed in a spreadsheet using the Florida Department of Transportation LOS methodology, which provides a planning level analysis based on the 2000 *Highway Capacity Manual* methods. As a planning level analysis, the level of service is based on forecasts of traffic and assumptions for roadway and signalization control conditions, such as facility type (freeway, expressway, and arterial classification), speeds, capacity and number of lanes. The assumption for the number of lanes at each link location was extracted from the ACTC Model, and also confirmed through aerial and field observations.

The traffic baseline forecasts for 2020 and 2035 were extracted at the required CMP and MTS highway segments from the ACTC Model for the p.m. peak hour. The “With Project” forecasts at the roadway segments for the proposed project were obtained by manually adding the proposed project trips to the “No Project” forecasts. Due to the size and type of development proposed for Alameda Point as part of this project, this approach would reflect not only the additional traffic generated by the proposed project, but also the shift in traffic patterns due to increased employment as well as the diversion of non-project traffic to alternative routes due to congestion and capacity constraint along some of the key roadways serving the project site.

The peak hour operations were evaluated in compliance with ACTC requirements. The tables (see **Appendix G**) compare the no-project results to the with-project results for each model horizon year. The peak hour volumes, V/C ratios and the level of service for with and without project conditions are provided for each direction of flow.

2020 Baseline Plus Project Conditions

Impact 4.C-11: The addition of project-generated traffic would increase traffic volumes on many CMP and MTC roadways above levels identified under 2020 Baseline Conditions. (Less than Significant)

With the addition of the project, most of the MTS roadways would experience increases in volume from 2020 baseline conditions, but no change in the level of service (see tables in **Appendix G**). The addition of project-related traffic at following MTS roadway would result in LOS F conditions:

- At the SR-260 Webster and Posey Street Tubes, the p.m. peak-hour service level in northbound and southbound directions would be LOS F under 2020 Baseline No-Project conditions. With the addition of project traffic, this location would remain at LOS F, but the project-generated increase in traffic V/C ratio would be 2.5 percent in the northbound direction and 1.2 percent in the southbound direction. Therefore, the impact at this location would be considered a less than significant impact.

Mitigation: None required.

2035 Cumulative Plus Project Conditions

Impact 4.C-12: The addition of project-generated traffic would increase traffic volumes on many CMP and MTC roadways above levels identified under 2035 Baseline Conditions. (Less than Significant)

With the addition of the project, most of the MTS roadways would experience increases in volume from 2035 baseline conditions, but no change in the level of service (see tables in **Appendix G**). The addition of project-related traffic at the following MTS roadways would result in LOS F conditions:

- At I-880, south of Oak Street, the p.m. peak-hour service level in the northbound direction would be LOS F under 2035 Cumulative No-Project conditions. With the addition of project traffic, this location would remain at LOS F, but the project-generated increase in traffic V/C ratio would be 1.3 percent in the northbound direction. Therefore, the impact at this location would be considered a less than significant impact.

- At the SR-260 Webster and Posey Street Tubes, the p.m. peak-hour service level in northbound and southbound directions would be LOS F under 2035 Cumulative No-Project conditions. With the addition of project traffic, this location would remain at LOS F, but the project-generated increase in traffic V/C ratio would be 2.5 percent in the northbound direction and 1.2 percent in the southbound direction. Therefore, the impact at this location would be considered a less than significant impact.

Mitigation: None required.

MTS Transit Corridors

The proposed project is located within the service area of the AC Transit and the Bay Area Rapid Transit (BART) systems. The impact of the proposed project on these transit systems was assessed using the latest version of the ACTC Model, which predicts transit ridership for all transit operators. The transit ridership for AC Transit is summarized in tables in **Appendix G**.

Transit Ridership on AC Transit Buses

Future growth and development within the project area would increase ridership on AC Transit buses. The impact of the project on the AC Transit bus system was assessed based on the ridership derived from the ACTC Model. AC Transit Routes 31, 51, O and W were analyzed as they directly or (indirectly via transfers) serve the project area. Some project residents would be expected to use the transit system to travel to work. The model was used to quantify the change in transit trips associated with the project on the AC Transit routes, and impacts are assessed based on an assumed seated capacity of 25 passengers per bus for all AC transit routes. The peak load factor also assumes standing passengers, so the maximum load factor is assumed to be reached at 40 passengers per bus. The model was used to develop project ridership by routes, however, due to the all or nothing path algorithm of the transit assignments, there is more confidence in the aggregate change in transit ridership than in the assignment on individual routes. Therefore, the impact analysis is based on the aggregate change between the no-project and the with-project trips. In addition, maximum existing load factors for the above routes are not reached on the segments between Alameda and downtown Oakland or accessing adjacent BART stations from Alameda, but for the purposes of this analysis, it was conservatively assumed these routes are at maximum load.

2020 Baseline Plus Project Conditions

Impact 4.C-13: The addition of project-generated traffic would increase ridership on AC Transit buses above that under 2020 Baseline conditions. (Less than Significant)

With the addition of the project-generated passengers on the AC transit buses in the study area, no bus route would operate over capacity. The project generates a total of 313 new daily riders in 2020, corresponding to approximately 78 p.m. peak hour riders. Given the current service frequencies of 10 to 15 minutes for Routes 51 and O, 20 minutes for Route W, and 30 minutes for Route 31 during the p.m. peak, this corresponds to approximately 20 peak hour buses serving both directions in the p.m. peak hour. This equates to approximately 4 new riders per bus. As a result, with the high frequency of service and estimated ridership increase, the project would not impact peak-hour bus service and meets the 15-30 minute headway standard. Therefore, the impact of additional bus passengers from the project would be considered less than significant.

Mitigation: None required.

2035 Cumulative Base Plus Project Conditions

Impact 4.C-14: The addition of project-generated traffic would increase ridership on AC Transit buses above that under 2035 Cumulative Baseline conditions. (Less than Significant)

With the addition of the project-generated passengers on the AC transit buses in the study area, no bus route would operate over capacity. The project generates a total of 313 new daily riders in 2035, corresponding to approximately 78 p.m. peak hour riders. Given the current service frequencies of 10 to 15 minutes for Routes 51 and O, 20 minutes for Route W, and 30 minutes for Route 31 during the p.m. peak, this corresponds to approximately 20 peak hour buses serving both directions in the p.m. peak hour. This equates to approximately 4 new riders per bus. As a result, with the high frequency of service and the estimated ridership increase, the project would not impact the peak-hour bus service and meets the 15-30 minute headway standard. Therefore, the impact of additional bus passengers from the project would be considered less than significant.

Mitigation: None required.

Transit Ridership on BART

Future growth and development within the project area would increase ridership on BART trains. The impacts of the project on the BART system were assessed based on the ridership derived from the ACTC Model. The project site is served by BART from four possible stations, West Oakland, Lake Merritt, 12th Street and Fruitvale BART stations, which can be accessed by driving (park and ride and kiss and ride) or AC Transit bus lines. BART has three lines that stop at the Fruitvale and Lake Merritt stations (Fremont-to-San Francisco, Fremont-to-Richmond and Dublin/Pleasanton-to–San Francisco), three lines that stop at the 12th Street station (Richmond-to–San Francisco, Fremont-to–Richmond and Bay Point-to-San Francisco), and four lines that stop at West Oakland ((Fremont-to–San Francisco, Richmond-to-San Francisco, Pittsburg/Bay Point-to-San Francisco and Dublin/Pleasanton-to–San Francisco). The ACTC Model was used to quantify the change in transit trips associated with the project on these BART routes at these stations, and impacts are assessed based on an assumed existing load factor of 100 percent occupied seats (see table in **Appendix G**).

2020 Baseline Plus Project Conditions

Impact 4.C-15: The addition of project-generated passengers would increase ridership on BART above that under 2020 Baseline conditions. (Less than Significant)

Under 2020 Baseline Plus Project conditions, the project has the potential to generate an increase in overall daily BART ridership at all stations. The existing BART frequency of 15 minutes on the three lines and 5 minutes on the Pittsburg/Bay Point line equates to between 24 to 36 trains per hour (both directions). Given this amount of service provided at the four adjacent BART stations, the project-generated increase of 2,120 new daily riders, or approximately 530 new p.m. peak hour riders (p.m. peak ridership is conservatively assumed as 25 percent of daily riders), would average to about 14 new riders per train. Conservatively assuming a 100 percent load factor on all BART routes servicing the project area, the maximum of 1.4 percent increase in p.m. peak trips per train would be within normal fluctuations in ridership on BART. As a result, the project impact assuming the current peak-hour BART train service which meets the 3.75- to 15minute headway standard, would be dispersed among several stations and trains. Therefore, this impact is considered to be less than significant.

Mitigation: None required.

2035 Cumulative Plus Project Conditions

Impact 4.C-16: The addition of project-generated passengers would increase ridership on BART above that under 2035 Cumulative Baseline conditions. (Less than Significant)

Under 2035 Cumulative Plus Project conditions, the project has the potential to generate an increase in overall daily BART ridership at all stations. The existing BART frequency of 15 minutes on the three lines and 5 minutes on the Pittsburg/Bay Point line equates to between 24 to 36 trains per hour (both directions); Given this amount of service provided at the four adjacent BART stations, the project-generated increase of 2,120 new daily riders, or approximately 530 new p.m. peak hour riders (p.m. peak ridership is conservatively assumed as 25 percent of daily riders), would average to about 14 new riders per train. Conservatively assuming a 100 percent load factor on all BART routes servicing the project area, the maximum of 1.4 percent increase in p.m. peak trips per train would be within normal fluctuations in ridership on BART. As a result, the project impact, assuming the current peak-hour BART train service which meets the 3.75- to 15-minute headway standard, would be dispersed among several stations and trains. Therefore, this impact is considered to be less than significant.

Mitigation: None required.

C.6 References – Transportation and Circulation

Alameda County Congestion Management Agency (ACCMA), 2011. *2011 Congestion Management Program*, adopted December 2011.

AC Transit, Maps and Schedules, 2013. www2.actransit.org/maps, accessed August 2, 2013.

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D. Cultural and Paleontological Resources

D.1 Introduction

This section discusses the potential for the proposed project to impact previously identified and unanticipated cultural and paleontological resources on the Alameda Point project site. Cultural resources include architectural resources, archaeological resources, and human remains. Paleontological resources include fossilized remains of vertebrate and invertebrate organisms, fossil tracks, and plant fossils. Research for this section includes a review of previous evaluations of buildings on the project site and archival research at the California Historical Resources Information System's Northwest Information Center (NWIC) completed on April 17, 2013 (File No. 12-12-1212). Potential impacts are discussed and evaluated, and appropriate mitigation measures are identified, as necessary.

The CEQA Guidelines define a historical resource as: (1) a resource in the CRHR; (2) a resource included in a local register of historical resources, as defined in PRC Section 5020.1(k) or identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g); or (3) any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource is considered by a lead agency to be "historically significant" if the resource meets the criteria for listing on the California Register of Historical Resources (CRHR) (Public Resources Code [PRC] 5024.1).

If a lead agency determines that an archaeological site is a historical resource, the provisions of PRC Section 21084.1 and CEQA Guidelines Section 15064.5 would apply. If an archaeological site does not meet the CEQA Guidelines criteria for a historical resource, then the site may meet the threshold of PRC Section 21083 regarding unique archaeological resources. A unique archaeological resource is "an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it:

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

The CEQA Guidelines states that if a resource is neither a unique archaeological resource nor a historical resource, the effects of the project on that resource shall not be considered a significant effect on the environment (CEQA Guidelines Section 15064[c][4]).

D.2 Environmental Setting

Paleontological Resources

Paleontological resources are the fossilized remains of plants and animals, including vertebrates (animals with backbones), invertebrates (e.g., starfish, clams, ammonites, and coral marine), and fossils of microscopic plants and animals (microfossils). Paleontological resources are distinct from archeological resources in that they are records of past plant and animal life, and not human history. Fossil discoveries provide paleontologists with valuable evidence to help them reconstruct biological and geological histories. In order for an organism to be preserved, it must be buried and mineralized, which requires a specific set of favorable geologic conditions and a significant amount of time. When fossils are discovered at the earth's surface, it is because the material in which the organism was fossilized has been eroded away by natural processes or exhumed by humans.

On a regional scale, fossilized plants, animals and microorganisms are prevalent throughout the East Bay. Many of the hills in the East Bay are made up of sedimentary bedrock that is known to contain a wide range of fossils, including radiolarians, mollusks, diatoms, foraminifers and non-marine vertebrates. In addition, Pleistocene-age (1.8 million to 10,000 years ago) alluvial fan and fluvial deposits have been known to yield fresh water mollusks and extinct late Pleistocene vertebrate fossils (Graymer, 2000). Thus, the East Bay as a whole is rich in potentially fossil-yielding rock formations.

However, the proposed project overlies geologic units that have low paleontological potential.[1] As discussed in Section 4.H, *Geology and Seismicity*, the project site is underlain by a combination of dune sands, estuarine mud, and overlying artificial fills. The estuarine mud – also referred to as Bay Mud – is a silty clay that is rich in organic materials and is known to be soft and compressible. In many places, humans have placed poorly engineered fills over the Bay Mud in order to create buildable areas or dispose of materials excavated from elsewhere. At the turn of the twentieth century, engineers expanded Oakland's natural estuary by excavating a tidal canal inland of the Oakland Harbor, creating Alameda Island from the peninsula. A geologic map compiled by the USGS (Graymer, 2000) shows that the northern portion of the project area comprises artificial fill material overlying the Bay Mud. It is estimated that the thickness of fill that rings Alameda Island ranges from 5 to 25 feet (CGS, 2003). The southern portion of the project area is underlain by dune sands. It is commonly referred to as the Merritt Sand—a loose, well-sorted, fine- to medium-grained sand. The Merritt Sand makes up the core of Alameda Island and is likely to be underlain by Bay Mud at variable depths.

All of these geologic units represent either historic (in the last 200 years) or Holocene-age (last 10,000 years) geologic units. Such recent deposits are unlikely to preserve the remains of organisms due to the lack of time and burial needed for the organisms to be fossilized. In addition, artificial fills are manmade, and have been mixed and reworked from native geologic materials, and therefore are not fossil-yielding.

1 Paleontological potential refers to the likelihood a particular rock unit or formation would yield significant fossils, based on its geologic history and records of previous fossil discoveries within the same unit.

The University of California Museum of Paleontology (UCMP) maintains the world's largest database of fossil discoveries and collections, with thousands of records for the East Bay. A search of the database by both sediment age and location revealed few invertebrate fossils and no vertebrate fossils in similar geologic environments in Alameda County. Fourteen marine invertebrate fossils of Quaternary age (within the last 1.8 million years) were found in Oakland, three of which were found in or around Lake Merritt, which has similar geologic conditions as the project area (UCMP, 2013). However, recent marine invertebrate fossils are not considered significant fossil resources because they are typically abundant in similar geologic deposits and do not represent unique specimens that contribute substantially to scientific knowledge. Overall, there is a very low, if any, potential to encounter fossil resources at the project area.

Prehistoric and Ethnographic Overview

Archaeologists have developed individual cultural chronological sequences tailored to the archaeology and material culture of each subregion of California. Each of these sequences is based principally on the presence of distinctive cultural traits and stratigraphic separation of deposits. Milliken et al. (2007) suggest a framework for the interpretation of the San Francisco Bay Area. That research divides human history in California into three broad periods: the Early Period, the Middle Period, and the Late Period. Economic patterns, stylistic aspects, and regional phases further subdivide cultural patterns into shorter phases. This scheme uses economic and technological types, socio-politics, trade networks, population density, and variations of artifact types to differentiate between cultural periods.

Based on a compilation of ethnographic, historic, and archaeological data, Milliken (1995) describes a group known as the Ohlone, who once occupied the general vicinity of the project area. While traditional anthropological literature portrayed the Ohlone peoples as having a static culture, today it is better understood that many variations of culture and ideology existed within and between villages. While these "static" descriptions of separations between native cultures of California make it an easier task for ethnographers to describe past behaviors, this masks Native adaptability and self-identity. California's Native Americans never saw themselves as members of larger "cultural groups," as described by anthropologists. Instead, they saw themselves as members of specific villages, perhaps related to others by marriage or kinship ties, but viewing the village as the primary identifier of their origins.

Levy (1978) describes the language group spoken by the Ohlone, known as "Costanoan." This term is originally derived from a Spanish word designating the coastal peoples of Central California. Today Costanoan is used as a linguistic term that references to a larger language family spoken by distinct sociopolitical groups that spoke at least eight languages (as different as Spanish is from French) of the same Penutian language group. The Ohlone once occupied a large territory from San Francisco Bay in the north to the Big Sur and Salinas Rivers in the south. The area of Alameda is in the greater *Chochenyo* tribal area (Levy, 1978).

Economically, Ohlone engaged in hunting and gathering. Their territory encompassed both coastal and open valley environments that contained a wide variety of resources, including grass seeds, acorns, bulbs and tubers, bear, deer, elk, antelope, a variety of bird species, and rabbit and other small mammals. The Ohlone acknowledged private ownership of goods and songs, and village ownership of rights to land and/or natural resources; they appear to have aggressively protected their village territories, requiring monetary payment for access rights in the form of clamshell beads, and even shooting trespassers if caught. After European contact, Ohlone society was severely disrupted by missionization, disease, and displacement. Today, the Ohlone still have a strong presence in the San Francisco Bay Area, and are highly interested in their historic and prehistoric past.

Prehistoric Archaeological Resources

ESA conducted a records search at the Northwest Information Center of the California Historical Resources Information System at Sonoma State University on April 17, 2013 (File No. 12-12-1212). The records were accessed by utilizing the Oakland East, California, U.S. Geological Survey 7.5-minute quadrangle base maps. The records search, which encompassed a 0.5-mile radius around the project area, was conducted to: (1) determine whether known cultural resources had been recorded within or adjacent to the project area; (2) assess the likelihood of unrecorded cultural resources based on historical references and the distribution of nearby sites; and (3) develop a context for the identification and preliminary evaluation of cultural resources.

The records search reviewed the *Historic Properties Directory Listing* (OHP, 2012), which includes listings of the National Register of Historic Places (NRHP) and the CRHR, and the most recent listings of California Historical Landmarks and California Points of Historical Interest. Historic maps, including Thompson and West (1878) and Sanborn Insurance Company maps (1897, 1948) were reviewed to assess historic-era archaeological potential.

No prehistoric archaeological sites have been recorded in the western part of Alameda or within a half-mile radius of the project area. The nearest prehistoric sites are approximately two miles to the east and consist of extensive shell middens with numerous burials on land that was historically bordering the Oakland marshland.

The project site is primarily paved and/or built upon artificial fill therefore no comprehensive archaeological surface survey was completed. The project area is highly disturbed due to the extensive activities associated with both the construction of the tidal canal and the Naval Air Station Alameda. In conclusion the project site has a low potential for containing prehistoric archaeological resources.

Historic Overview

Brief History of Alameda

European settlement began in the late 1700s with the arrival of the Spanish, initiating a period of land appropriation and subdivision which ultimately displaced Alameda’s earliest inhabitants. By the late 1800s, settlement existed at three disparate locations on the peninsula which formed today’s Alameda Island, with a main road (now Central Avenue) and a railroad line linking the settlements. The area known today as the City of Alameda (a Spanish name chosen by popular vote in 1853, meaning "grove of poplar trees") is part of a former Spanish land grant stretching from San Leandro to Berkeley, and given to Luis Peralta in 1818, by the Governor of California. Subsequently, Peralta gave this land to his son, Antonio Peralta. The first American settlers to arrive in Alameda were W.W. Chipman and Gideon Aughinbaugh. They established a large peach orchard signaling the beginning of the area's agricultural development. Subsequently, Chipman and Aughinbaugh purchased the Alameda land (then a peninsula as described above) for $14,000 (City of Alameda, 2008).

In 1864, the San Francisco and Alameda Railroad connected Alameda to San Francisco and Oakland by a ferry service operating from its wharf at the western tip of what was then Alameda peninsula. The Central Pacific Railroad also briefly used this ferry connection to San Francisco as the terminus of the Transcontinental Railroad. As a result of the water and rail connections, the western end of Alameda became an industrial center: the Alameda Oil Works, which processed castor, coconut and linseed oils, was established in 1868 and the Pacific Oil Company began production of petroleum products in 1880. These refineries, located south of Pacific Avenue and west of Main Street, were later acquired by the Standard Oil Company, which continued to operate in Alameda until it built a refinery in Richmond in 1903. The western end of Alameda then reverted to agricultural use until acquired by the US Navy in the 1930s (see discussion below) (City of Alameda, 2002).

Beginning in the 1874, the US Army Corps of Engineers dredged the Tidal Canal that now separates Alameda from Oakland. This project, completed in 1902, joined the Oakland harbor with San Leandro Bay, creating the Alameda Island. As part of this project, the Corps of Engineers also built the Training Wall, a rubble masonry jetty, designed to "train" the tides to scour a navigational channel between Oakland and Alameda. The Training Wall is located at the edge of the Estuary and within the boundaries of Alameda Point (City of Alameda, 2002).[2]

The property north of Pacific Avenue and west of Main Street was developed beginning in the 1870s by the Pacific Coast Borax Works, which also took advantage of the local transportation infrastructure to bring in and process borax from Death Valley. This facility continued operation until the property was acquired with the adjacent land by the Navy. Neither the former borax plant nor the company's railroad wharf and ferry slip remains (City of Alameda, 2002).

The land occupied by Alameda Point consists almost entirely of fill installed on marshlands or shallow Bay waters. The first documented filling began in the 1890s for construction of a "mole," or bermed railroad track, by the Southern Pacific Railroad. Roads and shipyards were subsequently developed. By 1893, there was a large commercial warehouse on the site, with sailing ships docked alongside in the Estuary. By the late 1920s, the area included Alameda Airport, a City-owned facility, and Benton Field, an Army Air Corps facility. The US Navy acquired both air strips in 1936 (City of Alameda, 2002).

Provided below is a historical background of NAS Alameda which has been summarized from the *Combined Specific Buildings Survey and Evaluation Report / Cold War Era Historic Resources*

[2] In 1997, the US Navy concluded that 1,750 feet of the Training Wall are significant, retain integrity, and meet the criteria for listing in the NRHP. The Training Wall was placed on the City's Historical Building Study List in 2000.

Survey and Evaluation Report, prepared by JRP for the Navy in 2011 (JRP, 2011). The historical background is divided into three eras; the establishment of NAS Alameda (1917-1940), World War II (1941-1945), and the Cold War (1945-1989). Each of these eras is summarized below.

Naval Air Station Alameda

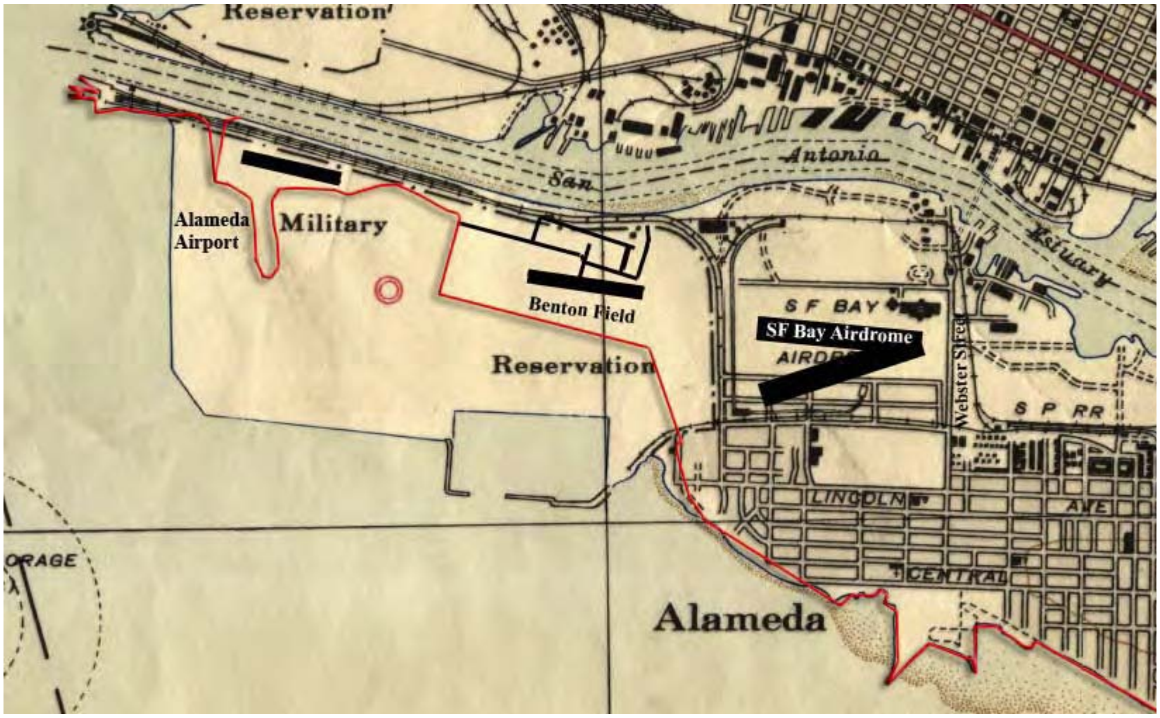
Establishment of NAS Alameda (1917-1940)

Experiments in Naval aviation began as early as 1910 when the first biplane took off from the deck of the cruiser USS Birmingham. Maneuvers in 1913 illustrated the first uses of Navy aircraft for observation, spotting, and reconnaissance. During this exercise off the coast of Cuba, the entire naval aviation contingent participated in scouting, spotting mines and submarines. The usefulness of naval aviation was further demonstrated through the use of seaplanes for anti-submarine patrols during World War I. In the 1920s the Navy reorganized into Atlantic and Pacific fleets, spurring the construction of naval facilities in California. California – and the San Francisco Bay Area in particular – offered a mild climate and undeveloped land, which was an excellent combination for naval operations and training. The Navy had long considered the area at the western end of Alameda an ideal location for naval operations. In addition, local businessman John J. Mulvany had been promoting Alameda as an attractive site for a military installation. He began pressing the Navy and Congress to establish such a facility at the low lying area west of the city called Alameda Point.

Despite local support and continued requests from the Navy, Congress did not approve construction of a naval base at Alameda for nearly two decades. In the interim, the City, private interests, and the Army developed parts of what became NAS Alameda. West of Webster Street in Alameda, the city allowed a private corporation to create 900 acres of filled land and construct an airport along the Southern Pacific Railroad Mole that jutted into the San Francisco Bay from the western tip of the island. This later became the northwest corner of the station. The Alameda Municipal Airport opened in March 1929. The airport attracted to its facility the Curtis-Wright Corporation. Later, Pan-American Airways flew seaplanes from the peninsula, including the famous “China Clipper” in 1935 that inaugurated commercial trans- Pacific air service.[3] Less than two weeks after the completion of the Alameda Municipal Airport, a private venture began construction of the San Francisco Bay Aerodrome on leased acreage in the area bound by Webster Street to the east, present day Atlantic Avenue to the south, and Main Street to the west. The Aerodrome was dedicated in August 1930.

During that same year, the Army began building its own airfield, Benton Field, on 128 acres of what had been partially submerged lands between the San Francisco Bay Aerodrome to the east and the Alameda Municipal Airport to the west. The Army dredged and infilled 100 acres in the area that became the northeast corner of the air station (see **Figure 4.D-1** showing areas of fill). With the assistance of the Works Progress Administration in 1935, the Army constructed roads,

[3] The site of the aircraft’s departure is commemorated by California Historical Landmark #968, located near the base flagpole in front of Building 1, although the actual site of the airport bay was to the west near the intersection of Runway 7-25 and the taxiway that connects it to Runway 13-31.



SOURCE: JRP, 2011.

Alameda Point Project . 130025

Figure 4.D-1
Circa 1938 data overlaid on 1942 USGS Map. Data added to map: location of shoreline (red), Alameda Airport, Benton Field, and San Francisco Bay Airdrome.

railroad spurs, utilities, a small runway, and well in the area now occupied by the administrative core of NAS Alameda. None of the facilities associated with these early aviation activities remain on the project site.

The Navy acquired the Alameda Municipal Airport in June 1936 and obtained the unfinished Benton Field from the Army in October 1936. In 1937, Congress appropriated $15 million for the construction of a facility at Alameda to support naval aviation, and in 1938, the Secretary of the Navy recommended NAS Alameda for construction as one of six major naval air stations in the US to support the naval fleet.

The construction of the Alameda air station began in February 1938 under the supervision of Commander E.C. Seibert of the Civil Engineer Corps. Seibert administered contracts to 25 companies for demolition of extant buildings and structures on site, dredging submerged land, and construction of the new facility. Fill was obtained through dredging the future sites of the ship channel, turning basin, and Seaplane Lagoon. Before dredging took place, a stone riprap seawall was constructed in order to contain the fill and help convert submerged and partially submerged lands. A suction dredge then drew silt from the three sites and deposited the material on tidal flats and marshes located within the seawall. More than 15 million cubic feet of fill was ultimately used to build the station. Once crews completed filling and grading, underground utility installation and building construction began. Building 1, the Administration Building, was completed in November 1938.

The beginning of hostilities in Western Europe in September 1939 stimulated the Navy to quicken the pace of construction on NAS Alameda. In July 1940, a month after Germany invaded France, Belgium, and the Netherlands, Congress approved an additional $17 million for work on NAS Alameda. Johnson, Drake & Piper Construction Company was awarded the major contract to hasten the station's completion.

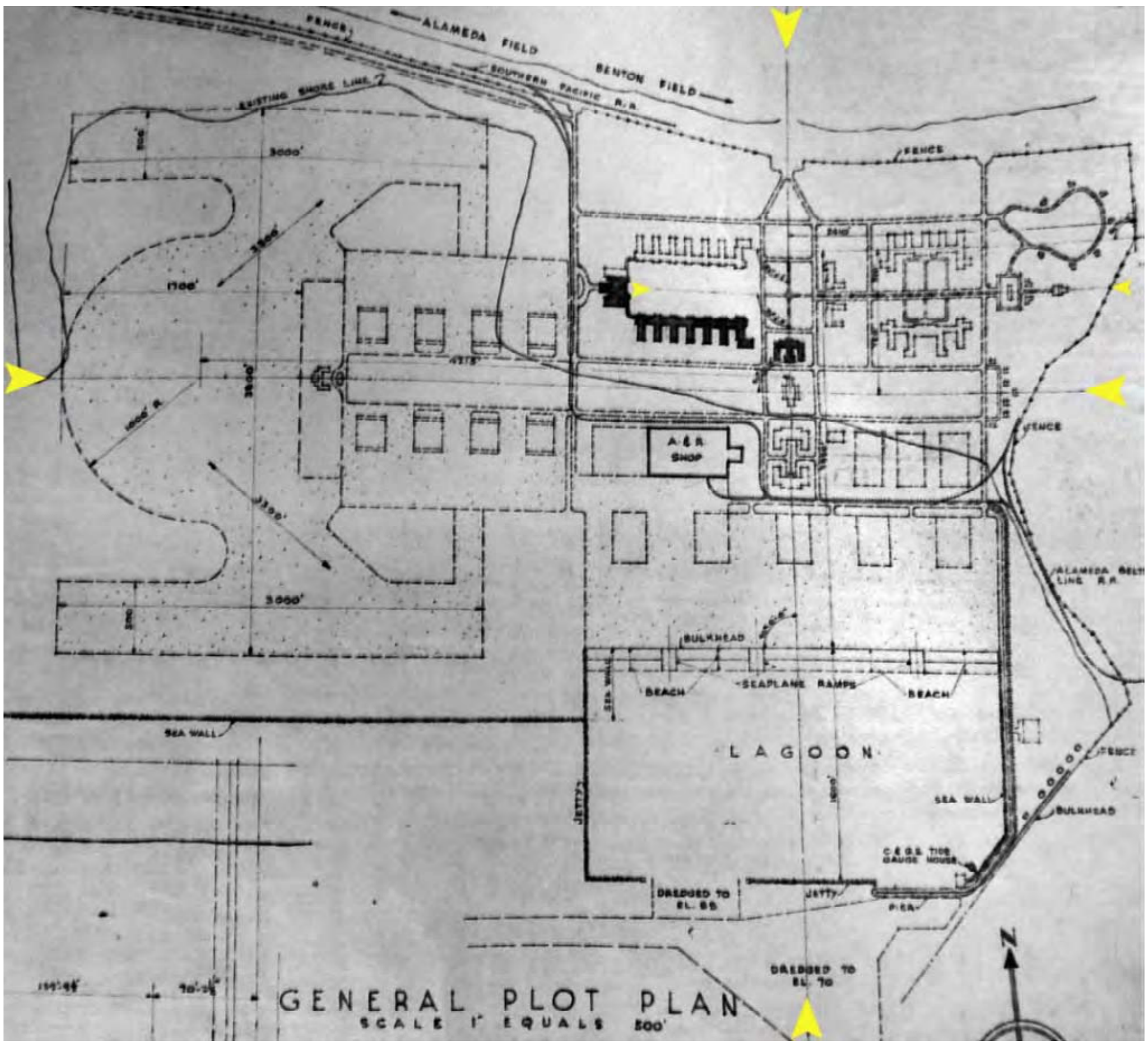
On November 1, 1940, although still incomplete, NAS Alameda was commissioned and placed under the command of Captain Frank R. McCrary, with Rear Admiral A.J. Hepburn in attendance at the opening ceremony. The new base was expected to boost the local economy, but few expected the station to become as large as it did as a consequence of World War II. In February 1941, three months after the base opened, the author of an article appearing in the Alameda Times-Star speculated that nearly 800 local residents would work on NAS Alameda. The initial plans for a 1,000 personnel facility evolved during the war to 18,000 Navy personnel and 9,000 civilians working on the station.

Base Layout Design

The Navy's Bureau of Yards and Docks, Department of Planning and Design, designed the station in 1939 with civilian architects, engineers, and planners under the direction of Captain Thomas Trexel. In general, plans for the station's design followed hierarchal and organizational planning doctrines used for military bases and naval air facilities of the period and that had evolved during the early twentieth century. Plans for NAS Alameda – drafted during peacetime – envisioned a 1,000-personnel facility that would house 200 aircraft and serve as home port for two aircraft carriers. Because early military aircraft were shipped in parts for onsite assembly, the station's original plans featured an assembly and repair (A&R) Department. The layout and construction of NAS Alameda was under a master planning process that has been referred to as a "total base design."

The Navy developed an approach for NAS Alameda that placed activities and functions in relation to each other, with organization of, and circulation between, station activities and functions receiving highest priority. Following the planning principles of the period planners located piers, seaplane functions, landplane services, industrial facilities, storage, administration, and personnel activities, in an orderly fashion so that work could flow smoothly. For example, the landing areas for both land and seaplanes were placed at the edges of the base. Hangars, both seaplane and landplane, adjoin the landing areas. The A&R facilities were located within easy access of both types of hangars. On the opposite side of A&R from the hangars were the storage and materials areas. Administrative functions were placed at the center of the station, between the operational areas and residential areas. Enlisted quarters were located closest to the work areas so that enlisted personnel could easily access their assigned duty. Officers' and family quarters were placed further from the operational activities of the stations. Enlisted and officers each had their own recreational areas. For safety, hazardous materials and ordnance were furthest from the residences, some of which were on the landing fields. Important to the master planning was consideration of future expansion, which led some areas to be left undefined in initial plans for station, such as the area east of the Seaplane Lagoon on the seaplane ramps where additional hangars could be constructed.

Early plans from 1939 for NAS Alameda show a station arranged along intersecting axes and divided into functional areas. In the early plans from 1939, the north-south axis ran from the main gate bisecting the mall and the Administration Building (Building 1) with an east-west axis dividing the administrative / residential area on the north side of the station with the industrial and operations on the south side. This east-west axis was an open area that was to align with the middle of the airfield on the west end of the station, with landplane hangars flanking this axis. There was also another east-west axis in the original plan that bisected the Bachelor Enlisted Quarters (BEQ) area (Buildings 2, 3, and 4) and crossing the north-south axis in the middle of the mall in front of Building 1 and along the median of what is now West Essex Drive. Officers' family housing was the only non-axial portion of the station, planed as an irregular loop in the northeast corner (see **Figure 4.D-2**).

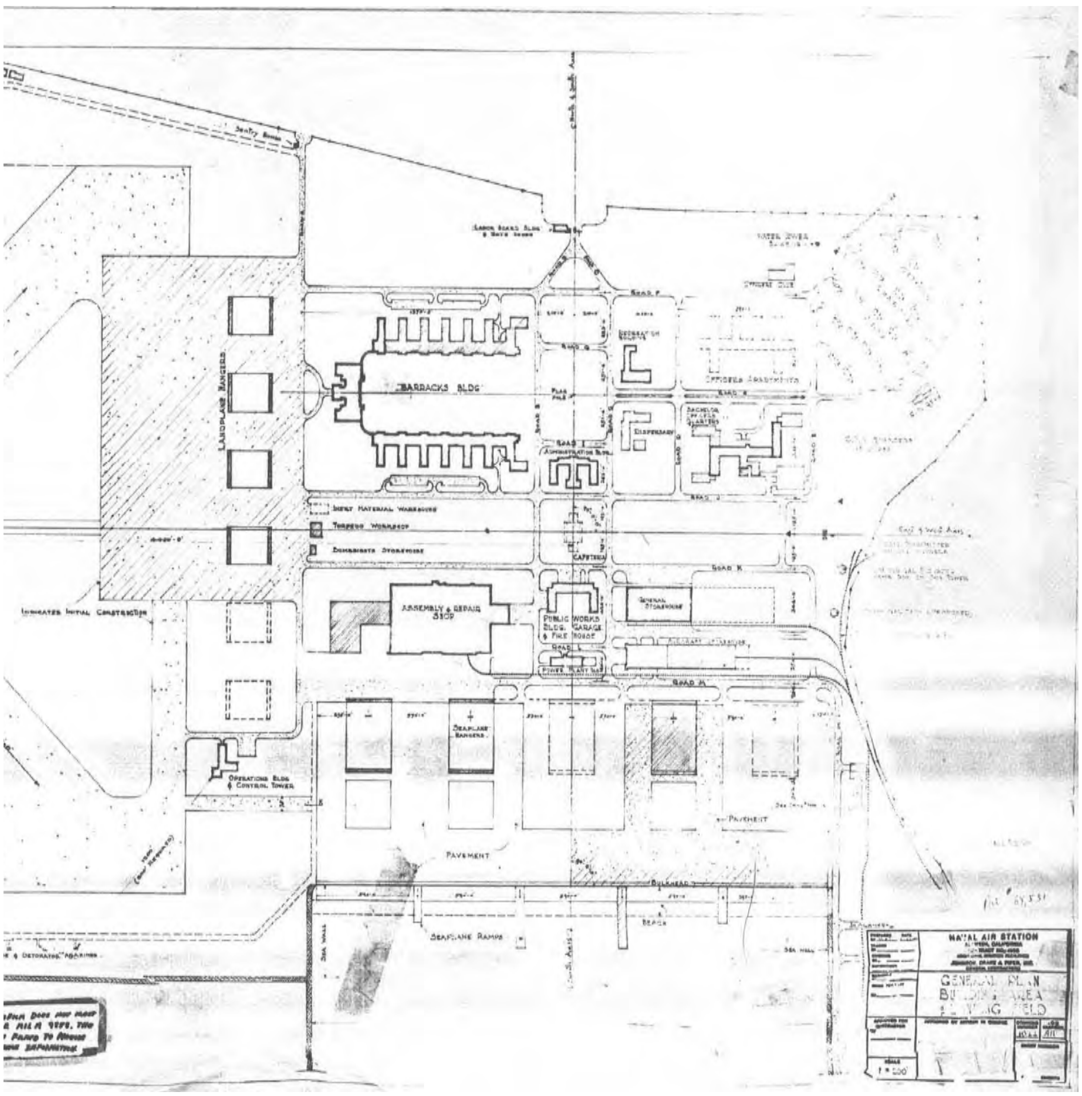


SOURCE: JRP, 2011.

Alameda Point Project . 130025

Figure 4.D-2
1939 Station Plan. Primary axes highlighted with large arrows; secondary axis highlighted with small arrows.

Functional and departmental requirements led to specific siting of some facilities and changes in the station's design and plans during the planned phased construction of the new station. For example, the landplane hangars were repositioned parallel to the airfield and aligned with a secondary axis, and later the open space along the original east-west axis was filled with additional buildings. Despite these changes, the evolution of the station's layout during both the initial years of construction prior to US entry into World War II and during the war left intact much of the station's original planning and its important principles of organization, functionality, efficiency, and hierarchy, adapting well to the enormous demands of war. The 1940 Station Plan shows areas for the planned southerly expansion of hangars into taxiways consistent with the historic Base Layout Design which were never fulfilled (see **Figure 4.D-3**). As described above, the initial plans for a 1,000 personnel facility evolved during the war to 18,000 Navy personnel and 9,000 civilians working on the station.



SOURCE: Page & Turnbull, 2005.

Alameda Point Project . 130025

Figure 4.D-3
1940 Station Plan, showing areas for potential southerly expansion of hangars into taxiways

Architectural Design

In addition to the careful master planning for the station following principles of organization, functionality, hierarchy, and efficiency, the Navy also designed prominent buildings on the station in a manner that corresponded with the efforts to create a modern and organized facility. This was achieved by adhering the station's plan to a Beaux Arts formal spatial layout and by designing most of its prominent buildings in the Moderne style, which blended neo-classical proportion, symmetry, and order with modern design concepts of the time. The architectural design of many buildings at NAS Alameda expressed modernity by using curving wall surfaces and columns with highlighted simplified geometric ornamentation such as the wall panel striations (speed lines – see **Figure 4.D-4**) and stylized Pegasus and eagle figures in the BEQ area (Buildings 2, 3, and 4 – see **Figures 4.D-5** and **4.D-6**). The planning and architecture on NAS Alameda demonstrate trends which Navy designers drew upon related to campus planning, modernistic design, and the continued traditional architectural expressions of federal buildings during this period.

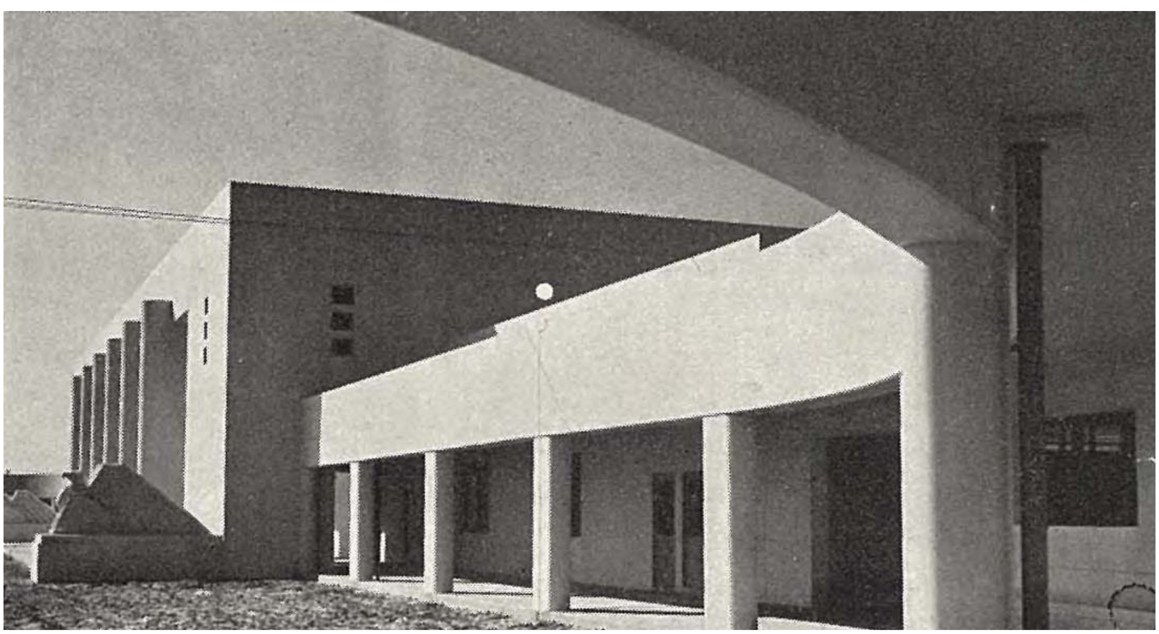
SOURCE: JRP, 2011.

Alameda Point Project . 130025

Figure 4.D-4
Building 16, photo dated 1945

SOURCE: JRP, 2011.

Alameda Point Project . 130025
Figure 4.D-5
Building 2, photo dated 1945



SOURCE: JRP, 2011.

Alameda Point Project. 130025
Figure 4.D-6
Building 3, photo dated 1940

Landscape Design

The Navy also planned and developed much of the landscape of the station. Initial plans for NAS Alameda did not include a designed planting plan; however, the need to vegetate the newly created land quickly became apparent to those living and working on the station. Because this end of Alameda was largely marshland and the station had been built on fill, it was susceptible to soil movement and erosion. Blowing winds created dust-storms that were abrasive to machinery, and also made it difficult to maintain acceptable standards of cleanliness for a military installation. To alleviate the situation, in 1940, Johnson, Drake, and Piper contracted Emery A. LaVallee, to design a planting plan for NAS Alameda that would cover the open areas of the station with vegetation. In 1941, the Navy contracted with the Golden Gate International Exposition, then on Treasure Island, to relocate vegetation, including ice plant, grasses, trees, and shrubbery, from the fair when it ended. The Navy also obtained plants from the California State Forestry Division. The Navy planted trees and shrubs along the mall between the Main Gate and Building 1, in the BEQ quadrangle, as well as elsewhere on the station as needed.

World War II (1941-1945)

After the US was drawn into World War II following the attack on Pearl Harbor on December 7, 1941, the demands on naval aviation during the war transformed NAS Alameda dramatically, resulting in additions to and alterations of the station's original design, particularly in the intentionally unplanned, secondary spaces. Although adjustments to the original plan were necessary to accommodate wartime mobilization, the primary elements of the plan – axial layout, spatial relationships, land use, circulation pattern, and sightlines – remained generally unaltered from the original execution of the plan during the initial phase of construction.

In the course of the war the station became the homeport to 23 ships, 22 air squadrons, and 1,500 aircraft. Air traffic on NAS Alameda increased, resulting in creation of auxiliary and outlying fields elsewhere in northern California and in Nevada to handle excess air traffic. NAS Alameda had a three-fold mission: assembly and repair of aircraft; supply; and aircraft operation and training.

NAS Alameda's contributions to the war effort were not limited to support activities, with many operations in the Pacific theater originating from the station. In March 1942, the famed mission led by USAAF Lt. Col. James "Jimmy" Doolittle against Japan departed for combat from Alameda. No facilities on NAS Alameda were built specifically in support of this well-known mission, but sixteen Army Air Corps B-25 Mitchell bombers were loaded aboard the carrier USS Hornet (CV-8) under strict secrecy at the naval station's Pier 1 or 2, and on April 2 departed for the Sea of Japan. A little over two weeks later, on April 18, 1942, Doolittle's Raiders attacked Tokyo, Nagoya, Osaka, and Kobe, scoring a symbolic, psychological, and by some interpretations, a strategic victory against the Japanese early in the war. This event is commemorated with a Native Sons of the Golden West plaque placed at the foot of Pier 3 (constructed in 1945, after the raid).

Over the four years of American involvement in the war, department personnel assembled, modified, overhauled, and shipped more than 24,000 aircraft, an average of approximately seventeen per day. A&R's work included not only aircraft assembly and repair, but also life raft and parachute repair, and custom manufacturing of parts. Naval personnel and station employees tested new materials and processes, including welding Plexiglas, and pioneered new techniques, such as aircraft preservation.

The war dramatically changed the character of not only NAS Alameda's built environment, but also its workforce. During the war the station's workforce expanded to 18,000 military personnel and 9,000 civilian workers. Civilians and enlisted men comprised the bulk of the station's pre-war personnel, but as more civilian men were drafted into service and stationed elsewhere, women took on an important portion of the industrial work at Alameda.

Women also made their way into the Navy as WAVES. Created by Congress in 1942 following the creation of the Women's Army Auxiliary Corps (WAAC), WAVES initially worked in support roles as chauffeurs, nurses, clerks, and cooks and custodians, and later worked in training and technical roles. They were stationed at naval installations throughout the continental United States and, eventually, overseas. The first WAVES arrived at Alameda in 1943, and were given their own barracks: Building 78 (last used for applied instruction) and Buildings 79 through 82 (the latter of which have been demolished).

The Navy continued construction to increase the operational capacity of the station throughout the war. The A&R Department experienced the most growth of any station department during the war. Its central facility was Building 5, which was enlarged by a factor of five between 1941 and 1945; by war's end, it was more than a million square feet. Pier 2, the aircraft carrier pier, was constructed of reinforced concrete on cast concrete pilings in 1941. Pier 3, a second, larger carrier pier, was added in 1945 to accommodate the Navy's ever larger ships. In 1945 the Navy hired the Basalt Rock Company of Napa to build another mile-and-a-quarter breakwater south of the piers, to protect them from storm damage and reduce silting in the channel and turning basin.

After transferring trees and plants from the Golden Gate International Exposition in Spring 1941, the Navy began executing the planting plan Johnson, Drake, and Piper subcontracted Emery LaVallee to design. By January 1942, one month after the U.S. entered World War II, many of the trees called for in the plan had been planted on the station. By the end of the war, portions of the plan had been implemented throughout the station, particularly in the administrative core, residential, recreation, and shops areas.

By the end of the war, the station had grown to accommodate 158 buildings with remarkably little interruption to the original 1939 station plan. The operational units remained intact and the Navy had built core portions of the original layout.

Throughout the war years, NAS Alameda served a valuable role in naval operations and demonstrated the critical role aviation had within Navy strategy and operations. Thousands of Navy and civilian personnel carried on activities aimed at providing support services to the striking arm of the fleet. Its training facilities prepared service personnel for duties in forward areas, and air crews in flight operations. Its shops and repair facilities assembled aircraft and returned battle-damaged aircraft to the fight. It provided a homeport for combat ships, and a resupply and service location for their crews and equipment. Like the many naval facilities around San Francisco Bay, along the Pacific Coast, and along the Atlantic seaboard, NAS Alameda helped to secure the US victory during World War II.

Cold War Era (1946-1989)

NAS Alameda, like many other military installations in the immediate aftermath of World War II, experienced a rapid reduction in force. By August 1946, a year following the Japanese surrender, the station's force had been reduced from 18,000 military personnel to 187 officers and less than 1,800 enlisted personnel. Although greatly reduced in size, aircraft maintenance, repair, and overhaul remained a major mission at NAS Alameda.

NAS Alameda completed little permanent construction during the immediate post-war period. The Navy completed two hangar-like facilities (Buildings 166 and 167) at the southern end of the base in 1947 for aircraft preservation activities, and altered to the seaplane ramps at the Seaplane Lagoon to service different types of aircraft, and converted the temporary World War II barracks formerly referred to as East Barracks into married enlisted housing. Elements of the landscape that had taken shape during initial construction and wartime – station layout, circulation patterns, land use areas, sightlines and view sheds, and implementation of the planting plan – remained intact during this period of NAS Alameda's development. The planting plan, the most transient of landscape elements, matured during this period, and elements of the original planting design were modified.

The outbreak of the Korean War in 1950 prompted the Navy to expand operations on NAS Alameda. NAS Alameda-based Carrier Division 3 launched the first air strikes against North Korean troops. The Navy brought back into service nearly 270 mothballed aircraft, re-commissioned previously decommissioned ships, and called in reservists. A thousand additional civilians were hired to meet expected wartime demands for aircraft repair and support. By the fall of 1951, NAS Alameda was the largest Naval Air Station in the county with 15,000 military and civilian personnel in eight departments. As during World War II, NAS Alameda teemed with activity as an industrial facility, airfield, and small city.

The station struggled to meet the demands of the newly assigned aircraft. The increased size of aircraft following World War II, and the introduction of jet aircraft, made the original runways obsolete. Requests to lengthen the runways were first made in 1945 and appeals continued until 1951 when Congress appropriated funds for a Navy runway expansion program. The runway improvements were part of a $270 million project to update runways at 32 Naval Air Stations and Marine Corps Air Stations. The Bureau of Yards and Docks allocated $2,886,000 to NAS Alameda to update its runway system. This project strengthened and lengthened the northern most east-west runway, creating the new Runway 7-25. Construction of Runway 13-31, a new southeast-northwest runway, required additional fill between the Seaplane Lagoon and western edge of the runway. About the same time, the Navy's construction contractors also filled the bay at the southwestern corner of the station near the piers. The new runways rendered the former southeast-northwest and north-south runways obsolete.

Throughout the Vietnam War era (1965 – 1973), NAS Alameda continued its mission of operational support and aircraft overhaul and repair. The five attack carriers that had NAS Alameda as their home port – Hancock, Midway, Ranger, Coral Sea, and Enterprise – were all deployed to the Vietnam theater. As in previous conflicts, NAS Alameda was instrumental in aircraft overhaul. The addition of the USS Enterprise, the world's first nuclear powered aircraft carrier, to NAS Alameda required additions to its facilities for ship support. It was larger than any other aircraft carrier previously assigned to the station. Dockside utilities were increased and additional morale, welfare and recreational facilities added for the crew.

In the post-Vietnam period of the 1970s, military and civilian personnel levels declined to about half of what they had been during the height of the Vietnam conflict. NAS Alameda, once home to as many as six aircraft carriers, only served USS Coral Sea and USS Enterprise.

Increased defense spending in the 1980s during the Regan administration resulted in continued operations on NAS Alameda. Beginning in 1983 the Navy home ported a series of new nuclear powered ships at the station. The USS Enterprise received an overhaul and was joined by the new Nimitz class USS Carl Vinson. To accommodate the size of these ships, additional improvements to the piers were made, including additional dredging and electrical work. At the same time, flight operations declined on NAS Alameda, and concerns over noise and safety largely limited operations to Runway 13-31.

With the fall of the Berlin Wall and shifts in power in Eastern Europe in 1989, Congress again cut military spending, and contracts for ships, submarines and aircraft were cancelled. During this period, Congress initiated a process known as Base Realignment and Closure (BRAC) to reduce the number of military installations to sustainable levels. In 1990, Secretary of Defense Richard Cheney proposed closing all Navy facilities in the San Francisco Bay Area. Despite his recommendation, and with local support, NAS Alameda avoided the initial rounds of BRAC closures. However, in March 1993, there were renewed calls for the closure of NAS Alameda and other San Francisco-area naval facilities, and in September, Congress accepted the BRAC commission's recommendation to close NAS Alameda. Fifty-seven years after its commissioning, NAS Alameda was closed in 1997.

Summary of Previous Studies, Federal Consultations, and Local Listings

Previous Studies

Previous studies of historic resources on NAS Alameda identified the "NAS Alameda Historic District" as eligible for listing in the NRHP. The overall district is considered a historic property for purposes of Navy compliance with NHPA Section 106 and for CEQA purposes. The historic district includes contributing buildings plus contributing landscapes, streetscapes, and viewsheds. Previous studies subdivided the historic district into functional areas: Administrative Core, Shops Area, Hangars Area, and Residential Area. None of the buildings in the district were identified as individually eligible for listing in the NRHP.

The following five previous investigations focused on identifying and documenting the NAS Alameda historic district:

- Sally Woodbridge, "Historic Architectural Resources Inventory for Naval Air Station, Alameda," 1992;
- Stephen Mikesell (JRP Historical Consulting Services), "Guide to Preserving the Character of the Naval Air Station Alameda Historic District," 1997;
- JRP Historical Consulting Services, "California Historic Military Buildings and Structures Inventory," 2000;

- Page & Turnbull, "NAS Alameda Historic District, Historic District Assessment and Historic Preservation Strategy and Alameda Point Preliminary Development Concept," 2005;
- Jones & Stokes, "Pre-Final National Register of Historic Places Nomination for the NAS Alameda Historic District," 2008.

The Navy determined that the NAS Alameda Historic District was eligible for listing in the NRHP in 1992 based on the "Historic Architectural Resources Inventory for Naval Air Station, Alameda," prepared by architectural historian Sally Woodbridge. The State Historic Preservation Officer (SHPO) concurred with the Navy's conclusion in September 1992. The Woodbridge report provided the initial inventory and evaluation of the historic district, which included 85 resources, and concluded the district was eligible for the NRHP under Criteria A and C. Through the Navy's subsequent consultation with SHPO, and following a fire in one building, the NAS Alameda Historic District included 86 contributing resources. The Woodbridge report concluded the NAS Alameda Historic District was eligible under Criterion A for its significance as a World War II-era naval air station (1938-1945) under the contextual theme of the development of U.S. Navy bases in the San Francisco Bay Area in World War II. The Woodbridge report further stated that the historic district's significance under Criterion C rests upon its master planning and architecture in the Moderne style. The Woodbridge report did not, however, evaluate all of the buildings and structures located inside the proposed historic district boundary, and the report did not consider potential Cold War-era eligibility for the buildings and structures on NAS Alameda. Thus, none of the buildings and structures on the station built before 1946 has previously been evaluated for Cold War-era use, and none of the buildings and structures on station built after 1945 was previously evaluated.

The Navy had the "Guide to Preserving the Character of the Naval Air Station Alameda Historic District" prepared to expand on the Woodbridge study in several ways. The report provided context regarding the Moderne architectural style and its use on the station. The report also identified the character-defining elements of the historic district with attention to the four main functional areas. General character-defining elements of each functional area were identified, along with character-defining elements of individual buildings. Lastly, the report identified the significant vistas / viewsheds, open spaces, streetscapes, and some landscape elements that contribute to the historic district's eligibility under Criterion C. The report was intended to help guide treatment of the NRHP identified historic district on the then-closed station.

Following the decision to close NAS Alameda in 1993, the Navy consulted with the Advisory Council on Historic Preservation (ACHP) and the California SHPO regarding the undertaking to transfer the facility out of federal ownership. In 1999, these parties were signatories to a Memorandum of Agreement (MOA) regarding the layaway, caretaker maintenance, leasing, and disposal of historic properties on former NAS Alameda. The MOA noted that the historic district, as defined by Woodbridge's 1992 report, is eligible for inclusion in the NRHP and is a historic property for Section 106 compliance. This MOA required the Navy to complete the following tasks related to historic preservation prior to transferring the base to City of Alameda / Alameda Reuse and Redevelopment Authority (ARRA): 1) prepare and submit a NRHP nomination for the Historic District; 2) donate or permanently loan the inventory of historic artifacts from NAS Alameda to museums in Alameda or the San Francisco Bay area; 3) follow the "Maintenance and Repair Guidelines for the Naval Air Station Alameda Historic District" extracted from the 1997 "Guide to Preserving the Character of the Naval Air Station Alameda Historic District" for long term preservation planning.

The 1999 MOA also required the City to add the Historic District to the City of Alameda Historical and Cultural Monument List (Local Monument), which would afford the Historic District all of the protections provided by the City's Historic Preservation Ordinance (Section 13-21 of the Alameda Municipal Code). In compliance with the MOA, the Alameda City Council adopted a resolution adding the Historic District as a Local Monument in that year. In addition, the City adopted the Guide to Preserving the Character of the Naval Air Station Alameda Historic District (Guide), which consists of design guidelines for alterations to historic properties at the former NAS Alameda produced by the Navy.

As part of the Section 106 compliance efforts, the Navy had prepared the "Final Historic Properties Inspection Report" (HPIR), listed above. This document was intended to further assist the Navy with the appropriate management of the historic district. The report concluded that the historic district overall was in good condition and still conveyed a strong sense of a World War II-era naval air station. The document noted that although some buildings and structures suffered from varying degrees of deferred maintenance since being evaluated in 1992, the contributors to the historic district were largely unaltered and the prominent buildings still represented Moderne style architecture. The inspection found that the vast majority of character-defining features identified in 1997 remained in place. In addition, the HPIR identified no substantial modern intrusions in the historic district, and that the open spaces, vistas, and viewsheds from the original 1992 inventory were still intact. Furthermore, the HPIR identified no major structural issues with the contributing buildings and structures in the historic district.

The Navy took additional steps to comply with stipulations of the 1999 MOA by having a NRHP nomination prepared. The resulting "Pre-Final National Register of Historic Places Nomination for the NAS Alameda Historic District" relied on the Woodbridge evaluation and provided the basic framework for the NRHP nomination scoped at the time. Interested parties in the process raised concerns regarding the limitations of the Woodbridge study (and thus the pre-final NRHP nomination). These concerns included: the number of unevaluated buildings inside the proposed historic district boundary; the lack of a survey and evaluation in the context of the Cold War period; and the need for a Cultural Landscape Report. Because of the limitations of the Woodbridge report and the outcome of Navy consultation with interested parties, the pre-final NRHP Nomination was not finalized and was not submitted to the Keeper of the National Register of Historic Places.

These concerns were addressed with the preparation of three additional reports by JRP Historical Consulting, LLC. The findings of each of these reports are summarized below:

- JRP Historical Consulting, LLC, "Final National Register of Historic Places Nomination for the NAS Alameda Historic District," March 2012;

- JRP Historical Consulting, LLC and PGAdesign Inc., "Cultural Landscape Report for Naval Air Station Alameda," prepared for Naval Facilities Engineering Southwest, April 2012, and;
- JRP Historical Consulting, LLC, "Combined Specific Buildings Survey and Evaluation Report / Cold War Era Historic Resources Survey and Evaluation Report," 2011.

National Register of Historic Places Nomination for the NAS Alameda Historic District

The Final National Register of Historic Places Nomination for the NAS Alameda Historic District, completed by JRP in 2012, found that, similar to the 1992 Woodbridge report, the NAS Alameda Historic District is historically significant at the statewide level under NRHP Criterion A (events) because of its important association with the strategic development of naval air stations in the 1930s, development of naval facilities in California during World War II, and its important associations with the Navy's role in Pacific theater naval operations during World War II.

The nomination also found that the NAS Alameda Historic District is a historically significant under NRHP Criterion C (architecture) as a distinguishable entity whose components lack individual distinction, but which comprise an important concentration and continuity of buildings, structures, objects, and landscape features that are united historically and aesthetically by overall plan and physical development. The NAS Alameda Historic District is significant at the statewide level for its distinctive characteristics of type, period, and method of construction in its design and planning that embody the strategic development for naval air stations in the 1930s and for the important role the station's design had in support of naval air power during World War II. The NAS Alameda Historic District (including the historic designed landscape) is significant under historical themes of military, landscape architecture, and community planning and development.

The NAS Alameda Historic District is also significant for the use and refined execution of the Moderne style of architecture which is important within the context of California military facilities and is a central component of the historic significance of the NAS Alameda Historic District.

The NAS Alameda Historic District covers approximately 406.5-acres and contains 100 contributors including 99 contributing buildings and structures, and one contributing site: a historic designed landscape. The NAS Alameda Historic District has 58 non-contributing buildings, structures, and objects (see **Table 4.D-1** below and **Figure 4.D-7**). The NAS Alameda Historic District encompasses the buildings and landscape that adheres to the original master plan and architectural design of an Interwar-era designed Naval station. The layout and construction of NAS Alameda was conducted under a master planning process that has been referred to as a "total base design." In addition to the careful master planning for the station following principles of organization, functionality, hierarchy, and efficiency, the Navy also designed prominent buildings on the station in a manner that corresponded with the efforts to create a modern and organized facility. This was achieved by adhering the station's plan to a Beaux Arts formal spatial layout and by designing most of its prominent buildings in the Moderne style, which blended neoclassical proportion, symmetry, and order with modern design concepts of the time. The planning and architecture on NAS Alameda demonstrate trends that the U.S. Navy's Bureau of Yards and Docks designers drew upon related to campus planning, modernistic design, and the continued traditional architectural expressions of federal buildings during the late 1930s.

**TABLE 4.D-1
LIST OF CONTRIBUTING AND NON-CONTRIBUTING BUILDINGS, STRUCTURES, OBJECTS, AND SITES WITHIN THE NAS ALAMEDA HISTORIC DISTRICT**

Building No.	Facility Name	Date Built	NRHP Status	Type
001	Administration Building	1940	Contributing	Building
002	Enlisted Men's Barracks	1940	Contributing	Building
003	Mess Hall - Galley	1940	Contributing	Building
004	Enlisted Men's Barracks	1940	Contributing	Building
005	Overhaul - Repair Shops	1940	Contributing	Building
006	Public Works Transportation Shop Garage	1940	Contributing	Building
007	Material Engineering Lab	1985	Non-Contributing	Building
008	General Store House	1940	Contributing	Building
009	Aircraft Store House	1940	Contributing	Building
010	Power Plant Building	1940	Contributing	Building
011	Aircraft Maintenance Shop	1941	Non-Contributing	Building
012	Aircraft Maintenance Shop	1941	Non-Contributing	Building
015	Boat House	1940	Contributing	Building
016	Dispensary	1942	Contributing	Building
017	Bachelors Officers Quarters	1941	Contributing	Building
018	Theater / Post Office	1941	Contributing	Building
019	Control Tower	1941	Contributing	Building
019-1	Crash & Rescue Garage	1962	Non-Contributing	Building
020	Landplane Hangar	1941	Contributing	Building
021	Landplane Hangar	1941	Contributing	Building
022	Landplane Hangar	1941	Contributing	Building
023	Landplane Hangar	1941	Contributing	Building
024	Industrial Waste Treatment Hangar	1990	Non-Contributing	Building
024A	Industrial Waste Treatment Facility	1977	Non-Contributing	Building
030	Gate House / Main Gate	1941	Contributing	Building
031	Sentry House / Main Gate	1941	Contributing	Building
032	Metal Treatment Shop	1990	Non-Contributing	Building
034	Transformer Pad Behind 10	1941	Non-Contributing	Structure
035	Radio Transmitter Building	1940	Contributing	Building
036A	Radio Towers	1940	Non-Contributing	Structure
039	Maintenance Hangar	1944	Contributing	Building
040	Maintenance Hangar	1941	Contributing	Building
041	Aircraft Inter Maintenance Shop	1945	Contributing	Building
042	Aviation Technical Services Engineering Facility	1941	Contributing	Building
043	Weapons Shop	1941	Contributing	Building
044	Engineering Office Facility	1941	Contributing	Building
060	Officers Recreation Building	1941	Contributing	Building
062	Administrative Office Facility	1942	Non-Contributing	Building
063	Galley	1942	Contributing	Building
064	Ship Intermediate Maintenance Activity Diving Locker	1941	Contributing	Building
075	Officers Bath House	1942	Contributing	Building

TABLE 4.D-1 (Continued)
LIST OF CONTRIBUTING AND NON-CONTRIBUTING BUILDINGS, STRUCTURES, OBJECTS, AND SITES WITHIN THE NAS ALAMEDA HISTORIC DISTRICT

Building No.	Facility Name	Date Built	NRHP Status	Type
077	Air Terminal Building	1942	Contributing	Building
089	Garage / Marine Barracks	1938	Non-Contributing	Building
091	Packing - Shipping Store House	1942	Contributing	Building
092	Packing - Shipping Department	1942	Contributing	Building
094	Chapel	1943	Contributing	Building
095	Water Storage Tank / Non-Potable	1943	Non-Contributing	Structure
102	Ordnance Office Building	1943	Contributing	Building
114	Public Works Office-Maintenance Shop	1944	Contributing	Building
115	Ambulance Garage	1943	Contributing	Building
116	Rehab Center	1943	Contributing	Building
130	Low Pressure Chamber	1944	Contributing	Building
135	Community Facilities Bldg	1944	Contributing	Building
137	Recreation Storage	1945	Contributing	Building
176	Water Pumping Station	1943	Non-Contributing	Structure
177	Transformer House	1941	Non-Contributing	Building
178	Transformer House	1941	Non-Contributing	Building
191	Storage Racks	1944	Non-Contributing	Building
193	Commissary Office	1944	Contributing	Building
194	600 Storage	1945	Non-Contributing	Building
196	Storage /Flammable	1943	Non-Contributing	Building
554	Electrical Substation #7	1973	Non-Contributing	Structure
559	Electrical Substation #9	1973	Non-Contributing	Structure
585	Chief Petty Officer Mess Open	1976	Non-Contributing	Building
607	Craft Hobby Shop	1980	Non-Contributing	Building
614	Hazardous Material Store House	1982	Non-Contributing	Building
615	Hazardous Material Store House	1982	Non-Contributing	Building
200648	Bulkhead	1939	Contributing	Structure
200650	Jetty	1939	Contributing	Structure
200687	Seaplane Ramp 4	1940	Contributing	Structure
201187	Historical Railroad Marker	1952	Non-Contributing	Object
FH-0001	101 Corpus Christi Road	1941	Contributing	Building
FH-0002	103 Corpus Christi Road	1941	Contributing	Building
FH-0003	105 Corpus Christi Road	1941	Contributing	Building
FH-0004	107 Corpus Christi Road	1941	Contributing	Building
FH-0005	109 Corpus Christi Road	1941	Contributing	Building
FH-0006	111 Corpus Christi Road	1941	Contributing	Building
FH-0007	111 Pensacola Road	1941	Contributing	Building
FH-0008	110 Pensacola Road	1941	Contributing	Building
FH-0009	108 Pensacola Road	1941	Contributing	Building
FH-0010	106 Pensacola Road	1941	Contributing	Building
FH-0011	104 Pensacola Road	1941	Contributing	Building

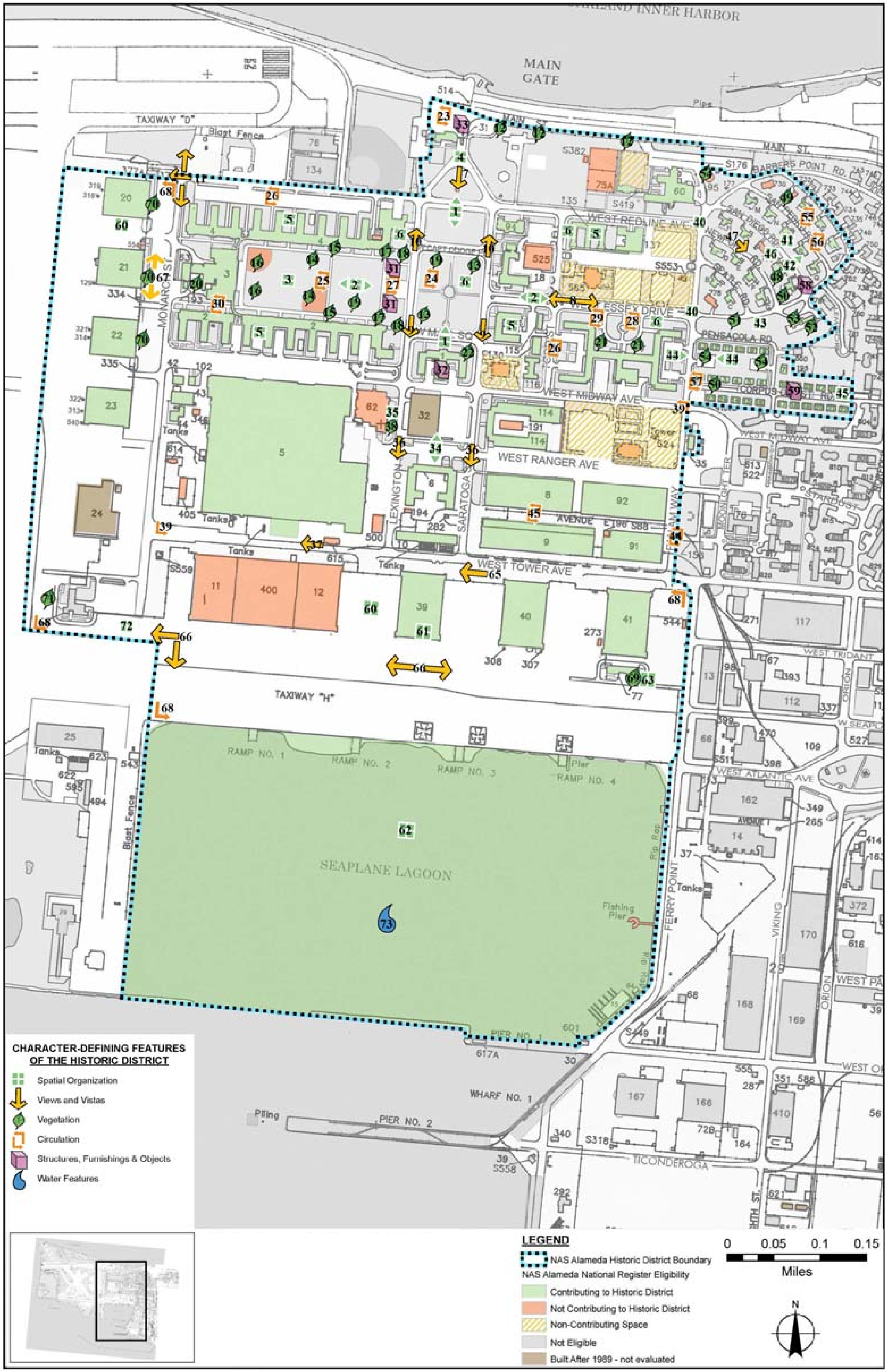
TABLE 4.D-1 (Continued)
LIST OF CONTRIBUTING AND NON-CONTRIBUTING BUILDINGS, STRUCTURES, OBJECTS, AND SITES WITHIN THE NAS ALAMEDA HISTORIC DISTRICT

Building No.	Facility Name	Date Built	NRHP Status	Type
FH-0012	102 Pensacola Road	1941	Contributing	Building
FH-0013	100 Pensacola Road	1941	Contributing	Building
FH-0014	106 Corpus Christi Road	1941	Contributing	Building
FH-0015	108Corpus Christi Road	1942	Contributing	Building
FH-0016	110 Corpus Christi Road	1942	Contributing	Building
FH-0017	112 Corpus Christi Road	1942	Contributing	Building
FH-0018	114 Corpus Christi Road	1942	Contributing	Building
FH-0019	116 Corpus Christi Road	1942	Contributing	Building
FH-0020	118 Corpus Christi Road	1942	Contributing	Building
FH-0021	120 Corpus Christi Road	1942	Contributing	Building
FH-0022	122 Corpus Christi Road	1942	Contributing	Building
273	Liquid Oxygen Facility	1943	Non-Contributing	Building
307	Ammunition Locker	1942	Non-Contributing	Building
308	Ammunition Locker	1942	Non-Contributing	Building
313	Ammunition Locker	1942	Non-Contributing	Building
314	Ammunition Locker	1942	Non-Contributing	Building
315	Ammunition Locker	1942	Non-Contributing	Building
316	Ammunition Locker	1942	Non-Contributing	Building
319	Ammunition Locker	1942	Non-Contributing	Building
321	Ammunition Locker	1942	Non-Contributing	Building
322	Ammunition Locker	1942	Non-Contributing	Building
346	Maintenance Shop	1949	Non-Contributing	Building
347	Paint Storage - Mixing Room	1946	Non-Contributing	Building
380	Saluting Battery	1954	Non-Contributing	Object
382	Squash Court	1945	Non-Contributing	Structure
384	Flagpole	1941	Non-Contributing	Structure
391	Gap Site Storage Shelter	1950	Non-Contributing	Building
400	Avionics Building	1957	Non-Contributing	Building
405	A/C Ground Support Equipment Repair Facility	1957	Non-Contributing	Building
419	Officers Club Barbecue	1956	Non-Contributing	Building
423	Tennis Courts	1941	Non-Contributing	Structure
424	Softball Diamond	1942	Non-Contributing	Structure
425	Softball Diamond	1942	Non-Contributing	Structure
469	Sewage Pumping Station	1962	Non-Contributing	Structure
491	Emergency Generator Bldg	1961	Non-Contributing	Building
500	Receiving Shelter	1964	Non-Contributing	Building
501	A/C Sanitary Facility	1964	Non-Contributing	Structure
521	Mounted A-4 Aircraft	1968	Non-Contributing	Object
525	Bowling Lanes	1970	Non-Contributing	Building
540	Line Shack	1975	Non-Contributing	Building
544	Liquid Oxygen / Nitrogen Facility	1974	Non-Contributing	Building

**TABLE 4.D-1 (Continued)
LIST OF CONTRIBUTING AND NON-CONTRIBUTING BUILDINGS, STRUCTURES, OBJECTS, AND SITES WITHIN THE NAS ALAMEDA HISTORIC DISTRICT**

Building No.	Facility Name	Date Built	NRHP Status	Type
553	Electrical Substation #6	1973	Non-Contributing	Structure
FH-0023 102	Corpus Christi Road	1942	Contributing	Building
FH-0024 104	Corpus Christi Road	1942	Contributing	Building
FH-0025 123	Corpus Christi Road	1942	Contributing	Building
FH-0026 121	Corpus Christi Road	1942	Contributing	Building
FH-0027 119	Corpus Christi Road	1942	Contributing	Building
FH-0028 117	Corpus Christi Road	1942	Contributing	Building
FH-0029 115	Corpus Christi Road	1942	Contributing	Building
FH-0030 113	Corpus Christi Road	1942	Contributing	Building
FH-A	100 Alameda Road	1941	Contributing	Building
FH-B	100 Seattle Road	1941	Contributing	Building
FH-C	102 Seattle Road	1941	Contributing	Building
FH-D	100 Newport Road	1941	Contributing	Building
FH-E	102 Newport Road	1941	Contributing	Building
FH-F	104 Newport Road	1941	Contributing	Building
FH-G	106 Newport Road	1941	Contributing	Building
FH-H	100 San Diego Road	1941	Contributing	Building
FH-I	102 San Diego Road	1941	Contributing	Building
FH-K	106 San Diego Road	1941	Contributing	Building
FH-L	108 San Diego Road	1941	Contributing	Building
FH-M	100 San Pedro Road	1941	Contributing	Building
FH-N	102 San Pedro Road	1941	Contributing	Building
FH-O	104 San Pedro Road	1941	Contributing	Building
FH-P	106 San Pedro Road	1941	Contributing	Building
FH-Q	108 San Pedro Road	1941	Contributing	Building
FH-S	102 Pearl Harbor Road	1941	Contributing	Building
FH-T	104 Pearl Harbor Road	1941	Contributing	Building
FH-U	106 Pearl Harbor Road	1941	Contributing	Building
DOCK3	Dock 3	1941	Non-Contributing	Structure
DOCK4	Dock 4	1952	Non-Contributing	Structure
RAMP1	Seaplane Ramp #1	1940	Contributing	Structure
RAMP2	Seaplane Ramp #2	1940	Contributing	Structure
RAMP3	Seaplane Ramp #3	1941	Contributing	Structure
N/A	Seaplane Lagoon	1940	Contributing	Structure
N/A	Historic Designed Landscape	1941	Contributing	Site

SOURCE: National Register of Historic Places Nomination Form for Naval Air Station Alameda, 2013



SOURCE: The Department of the Interior

Alameda Point Project . 130025

Figure 4.D-7
NAS Alameda Historic District

This total base design is reflected in the historic district's four distinct functional areas: the Administrative Core, Shops Area, Residential Area, and Operations Area. The 99 contributing buildings and one structure are distributed in the district as follows: 19 in the Administrative Core, 13 in the Shops area, 49 in the Residential Area, and 18 in the Operations Area. The historic designed landscape, counted as a site, spans the historic district and includes character-defining features that are related to spatial organization; views and vistas; topography; vegetation; circulation; water features; and structures / furnishings / objects (discussion below and **Table 4.D-2**). The contributing elements of the NAS Alameda Historic District retain integrity of location, design, setting, materials, workmanship, feeling, and association to its period of significance (1938-1945). Given their use / reuse over time, the building interiors, in general, have been heavily modified.

TABLE 4.D-2
CHARACTER-DEFINING FEATURES OF THE HISTORIC DESIGNED LANDSCAPE

Administrative Core	
Spatial Organization	Bi-laterally symmetrical entry mall with north-south axis between Buildings 1 and 31
	East- west axis at the center line of West Essex Drive and the BEQ quad
	Bi-laterally symmetrical BEQ quad
	Bi-laterally symmetrical entry drive at north end of entry mall
	Landscaped courtyards enclosed by buildings on three sides
	Deep setback of buildings planted with lawn and shallow foundation shrub beds
	Orthogonal layout of roads, buildings, and paths
	Integration of architecture and landscape
Views and Vistas	Views south at the entry mall
	Views along east-west axis of BEQ quad and West Essex Drive
	Views south along Lexington and Saratoga streets from entry mall to Seaplane Lagoon
	Views of Oakland north along Lexington and Saratoga streets
	Panoramic views from corner of Red Line Avenue and Monarch Street
Topography	Flat, with gentle slope at steps connecting entry mall and BEQ quadrangle
Vegetation	Monterey cypress east of Main Gate and along north border
	Specimen Monterey cypress at corners of entry mall
	Rows of Chinese elms at BEQ quad
	Pairs of Brush Cherries at Building 2 & 4 entries of BEQ quad
	Two groups of Monterey pines at west end of BEQ quad
	Paired Yews at the west end of the BEQ quad
	Black pines flanking path approaching east end of Building 2 and on south side of path approaching east end of Building 4
	Expanse of low ground cover with trees and few or no shrubs at entry mall and BEQ quad
	Three multi-trunk trees - myoporum and mayten – west of Building 3
	Pair of Rusty leaf fig trees north of BOQ (Building 17)
	Lawn and foundation shrubs in deep setback of buildings
Circulation	Main Gate parking and waiting area
	Prominent paths across the entry mall
	Paths in the BEQ quad
	Orthogonal path alignment west of Pam Am Way
	Symmetrical, wide plaza, and shallow steps that connect the entry mall and the BEQ quad
	Central path with circle of planting at Building 17

**TABLE 4.D-2 (Continued)
CHARACTER-DEFINING FEATURES OF THE HISTORIC DESIGNED LANDSCAPE**

Administrative Core (cont.)	
Circulation (cont.)	Main Gate parking and waiting area Symmetrical, curved drives at Building 17 Matched wide paths approaching each wing of Buildings 2 & 4
Water Features	None
Structures, Furnishings & Objects	Planters flanking entry mall and BEQ quad Paired, free-standing pots used throughout area Light poles in parking area outside Main Gate Integration of architecture and landscape
Shops Area	
Spatial Organization	Continuing north-south axis through Building 1, Building 39, and Seaplane Lagoon Deep setback of buildings with lawn and foundation shrubs Orthogonal layout of roads, buildings, and paths Integration of architecture and landscape
Views and Vistas	Views south along Lexington and Saratoga Streets from entry mall to Seaplane Lagoon View along West Tower Avenue
Topography	Flat
Vegetation	Lawn and foundation shrubs in deep setback of buildings at Buildings 6,8, 62 and 114 and at Monarch and Midway Avenues (Buildings 42, 43, 44, 102)
Circulation	Vast paved areas without curbs and few obstructions
Water Features	None
Structures, Furnishings & Objects	Integration of architecture and landscape
Residential / MWR Area	
Spatial Organization	Offset alignment (from orthogonal layout) on West Redline Avenue and West Essex Drive at Pan Am Way Egg-shaped layout of the Officers' Housing with curved roads Orientation of "Big Whites" Officers' Housing facing Northeast Park and the open space south of West Essex Drive separates the Officers' Housing from the Chief Petty Officers Housing Axial alignment of CPO Housing, parking and open space surrounding Building 178 aligned with Building 17 Consistent setback of CPO Housing on Pensacola and Corpus Christi roads Setback without property line fences and minimal use of hedges in the Officers ' Housing area Orthogonal layout of roads, buildings and paths Integration of architecture and landscape
Views and Vistas	Limited Internal Views
Topography	Flat
Vegetation	Lawns planted throughout and minimal use of hedges, vines, or ground cover Officers' houses surrounded by generous areas of lawn Planted parking strip between the curb and sidewalk at front yards in Officer's and CPO Housing Park improvements limited to lawn and trees Mixed grove of trees behind Quarters A

TABLE 4.D-2 (Continued)
CHARACTER-DEFINING FEATURES OF THE HISTORIC DESIGNED LANDSCAPE

Residential / MWR Area (cont.)	
Vegetation (cont.)	Yew tree on north side of Quarters A Australian tea trees at parking lots on east and west sides of CPO Housing and around Building 95
Circulation	Parking in attached single car garages and driveways for "Big Whites" Narrow road widths in Officers' and CPO Housing Planted parking strip between the curb and sidewalk at front yards Secondary paths are narrower in CPO Housing than in Officers' Housing area
Water Features	None
Structures, Furnishings & Objects	Curbed planting bed at front yards; curb slopes up towards the house Shallow foundation planting beds on Corpus Christi Drive
Operations Area	
Spatial Organization	Generally spaces between buildings are paved without sidewalks, curbs or pedestrian paths Building 39 is on the north-south axis from the Administrative Core Seaplane Lagoon is bi-laterally symmetrical and on the north-south axis of the Administrative Core Deep setback of buildings planted with lawn at Building 77 and Landplane Hangar Buildings 20, 21, and 22 Orthogonal layout of roads, buildings, and paths Integration of architecture and landscape Deep setback of buildings planted with lawn and foundation shrubs at Building 19
Views and Vistas	Views along West Tower Avenue Views along the row of Seaplane Hangars Panoramic views south across Seaplane Lagoon and west across the Airfield from the Seaplane Hangars Views along row of Landplane Hangars
Topography	Flat
Vegetation	Lawn surrounding Building 77 Orthogonal layout of roads, buildings, and paths Deep setback planted with lawn and foundation shrubs at Building 19
Circulation	Vast paved areas without curbs and few if any obstructions. Spaces dominated by vehicular circulation; few if any pedestrian sidewalks or paths
Water Features	Seaplane Lagoon
Structures, Furnishings & Objects	None

Cultural Landscape Report

The Cultural Landscape Report, completed by JRP and PGAdesign in 2012, found that like the buildings and structures that are contributing elements of the NAS Alameda Historic District, the historic designed landscape on NAS Alameda is significant at the state level under NRHP Criteria A and C (and under CRHR Criteria 1 and 3) and it retains sufficient historic integrity to the district's period of significance from when construction of the station began in 1938 to the end of World War II in 1945. The historic designed landscape is significant for its association with naval air station development in the 1930s, development of naval facilities in the San Francisco Bay Area during World War II, and the station's role in supporting the Navy's operations in the Pacific Theater during World War II. The historic designed landscape includes character-defining features that are related to spatial organization; views and vistas; topography; vegetation; circulation; water features; and structures / furnishings / objects. These contributory landscape features are shown on Figure 4.D-7.

Cold War Survey and Evaluation Report

The Cold War survey and evaluation report, completed by JRP in 2011, found none of the 442 buildings and structures evaluated for significance within the Cold War context meet the criteria for individual listing in the NRHP or CRHR. Neither the NAS Alameda Historic District nor its contributors are significant for associations with the Cold War. That report did not identify any other historic district associated with the Cold War.

SHPO Consultations and Local Listings

The Navy consulted with the State Historic Preservation Officer (SHPO), Advisory Council of Historic Preservation, the City of Alameda, and numerous other interested organizations and members of the public on the Cold War survey report and the cultural landscape report. The Navy and the City received SHPO concurrence of the findings of these reports on January 7, 2011 (supplemented May 31, 2011) and on March 19, 2012, respectively.

On December 4, 2012, the Navy submitted the NRHP nomination package to the Keeper of the National Register at the National Park Service. The District was listed in the NRHP on January 23, 2013.

On February 5, 2013, the Alameda City Council held a public hearing and approved an amendment to the Alameda Historical Monument Designation of the Naval Air Station Alameda Historic District consistent with the NRHP nomination and approve an amendment to the *Guide to Preserving the Character of the Naval Air Station Alameda Historic District* to include design guidelines for the historic landscape.

The amendment to the Local Monument listing added the following additional structures, features, and landscapes to the Historic District to be consistent with the Navy's NRHP nomination:

- Seaplane Lagoon, which also expands the boundaries of the Historic District;
- Seaplane Lagoon Boathouses;
- Building 5;
- Specific interior features in Buildings 1, 2, 4, 17, 18; and
- Certain landscape and cultural features, such as the Seaplane Lagoon water area, and specific trees and view corridors.

On the same date, the Alameda City Council adopted Resolution 14771 which included revisions to the City's Historical Monument designation consistent with the Navy's nomination of the NAS

Alameda Historic District for listing on the NRHP, as well as the District map (Figure 4.D-7) and list of contributing and non-contributing buildings (Table 4.D-1) (City of Alameda, 2013).

As the Naval Air Station Alameda Historic District is listed in the NRHP (and therefore automatically listed in the CRHR) and is a Designated Alameda Historical Monument, it is a historic resource for CEQA as defined by Section 15064.5. All contributing buildings, structures, and landscape features to the District are also considered historic resources for CEQA purposes. In addition, the USS Hornet and the Alameda Marina plaque both constitute historical resources by virtue of their listing as California Landmarks and, as a result, in the CRHR.[4] Finally, the Training Wall in the northwest portion of the project site was determined eligible for listing in the NRHP, and as such, is a historic resource for CEQA purposes.

Historic-era Archaeological Resources

Archaeology undertaken for various projects in an urban environment (Meyer, 2002; Praetzellis, 2001, 2004) has demonstrated that historic-era archaeological features often survive within two feet of the modern ground surface. According to National Park Service guidelines, archaeological sites in urban areas “are likely to be more or less invisible, buried under modern created land surfaces.” Here, “the reconnaissance consists of field checking predictions made on the basis of archival research” (National Park Service, 1990:36). These features include pits, privies, wells, and sheet refuse associated with buildings shown on early Sanborn and other maps. Urban archaeological experience has also shown that pits and privies are most often located near the back of house lots, while wells tend to be closer to the rear of the building and can sometimes be located within the footprint of the house itself, typically at a rear or side addition. The significance of these features has been illuminated in numerous urban historical archaeology projects in Oakland (Koenig, et al., 2001; Praetzellis, 2001), San Francisco (Byrd et al., 2010; Ziesing, 2000), San Jose (Allen et al., 1999; Allen et al., 2002), and Sacramento (Praetzellis and Praetzellis, 1988) over the past few decades.

No historic-era archaeological sites have been recorded within a 0.5-mile radius of the project area. Based on a review of available historical maps and additional research, it appears that the there is a low possibility for historic-era features to be located within the project area that predate the NAS Alameda construction and use.

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4 California State Landmark #968, Located near the flagpole in front of Building 1 at Alameda Point, consists of a plaque commemorating the flight of the Pan American World Airways’ China Clipper that departed from the “Alameda Marina” for Manila, Philippines on November 22, 1935. The Alameda Marina was located approximately in this area until Alameda Point was filled to create land for the base. Under the command of Captain Edwin C. Musick, the aircraft reached Manila via Honolulu, Midway, Wake, and Guam. This event was historically significant because it inaugurated ocean airmail service and commercial air flight across the Pacific Ocean. The plaque has been relocated to its present location for maximum visual exposure, and nothing remains of the historic site it commemorates. The other California Registered Historical Landmark at Alameda Point is the *USS Hornet*, a WWII aircraft carrier moored in the Marina area. The USS Hornet is owned and operated as a museum by the Aircraft Carrier Hornet Foundation.

D.3 Regulatory Framework

Federal Regulations

Section 106 of the National Historic Preservation Act (NHPA), 16 U.S.C. 470f, as amended, Pub. L. 89-515, and its implementing regulations, 36 C.F.R. Part 800, require federal agencies to consider the effects of their actions on properties listed, or eligible for listing, in the NRHP. It also requires that agencies provide the Advisory Council on Historic Preservation (ACHP) an opportunity to comment on actions that will directly affect properties included in or eligible for inclusion in the NRHP. The criteria for evaluating NRHP eligibility or significance of historic properties are found in 36 C.F.R. Section 60.4. In 1999, the US Navy completed and entered into an MOA with the Advisory Council on Historic Preservation and the SHPO, and has fulfilled all of the requirements of the MOA including listing the NAS Alameda Historic District in the NRHP. As such, the Navy has fulfilled its legal responsibility under Section 106.

State Regulations

The State of California implements the NHPA through its statewide comprehensive cultural resource surveys and preservation programs. The California Office of Historic Preservation (OHP), as an office of the California Department of Parks and Recreation, implements the policies of the NHPA on a statewide level. The OHP also maintains the California Historic Resources Inventory. The State Historic Preservation Officer is an appointed official who implements historic preservation programs within the state's jurisdictions.

California Register of Historical Resources

The CRHR is "an authoritative listing and guide to be used by state and local agencies, private groups, and citizens in identifying the existing historical resources of the state and to indicate which resources deserve to be protected, to the extent prudent and feasible, from substantial adverse change" (PRC Section 5024.1[a]). The criteria for eligibility to the CRHR are based on NRHP criteria (PRC Section 5024.1[b]). Certain resources are determined by the statute to be automatically included in the CRHR, including California properties formally eligible for or listed in the NRHP.

To be eligible for the CRHR as a historical resource, a prehistoric or historic-period resource must be significant at the local, state, and/or federal level under one or more of the following criteria:

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
2. Is associated with the lives of persons important in our past;
3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or,
4. Has yielded, or may be likely to yield, information important in prehistory or history [14 CCR Section 4852(b)].

For a resource to be eligible for the CRHR, it must also retain enough integrity to be recognizable as a historical resource and to convey its significance. A resource that does not retain sufficient integrity to meet the NRHP criteria may still be eligible for listing in the CRHR.

Local

City of Alameda Historic Preservation Ordinance and the Historical Advisory Board

The City has a long history and extensive experience in the area of regulating the treatment of historic resources. The City was one of the first cities in the State to adopt a Historic Preservation Element to its General Plan. The City Charter requires that the City maintain a Historical Advisory Board (HAB) to "encourage broad community participation in the history of Alameda, and preserve and protect structures sites and areas of historical significance in Alameda." Pursuant to the City Charter, the City of Alameda's HAS administers Chapter 13 of the Alameda Municipal Code (AMC) Section 13-21, *Preservation of Historical and Cultural Resources* (the Historic Preservation Ordinance), which establishes regulations, standards, and procedures for the identification, designation, maintenance, and protection of the historic properties in Alameda. The City is also a Certified Local Government (CLG) under the State of California SHPO CLG Program.[5]

Pursuant to the City Charter, AMC, the adopted *Guide to Preserving the Character of the Naval Air Station Alameda Historic District* (the Guide), and any subsequent revisions to the Guide, any proposal to modify or remove a contributor to a Historic District, such as a building, structure, or important landscape resource within the NAS Alameda Historic District, requires a Certificate of Approval from the HAB. Any action to approve or deny the Certificate of Approval requires a public hearing before the HAB. Pursuant to the AMC, to approve a certificate of approval the HAB must find that any modification to a landmark or contributor to a district is consistent with the Secretary of Interior Standards.

Alameda General Plan

The City Design Element and the Open Space, Conservation Element, and Alameda Point Element of the City of Alameda General Plan (1991) contain numerous goals and policies related to the protection and enhancement of Alameda's cultural resources. Goals and policies applicable to the proposed project are provided below.

City Design Element. Implementing Policies to Preserve Architectural Resources

Policy 3.3.a Continue to identify quality architecture of all periods in Alameda's history and participate in programs to increase owners' and buyers' awareness of the importance of preservation.

Policy 3.3.b Consider formation of Historic Districts within which alterations to existing structures would be regulated to maintain neighborhood scale and historic character.

5 Being a CLG allows the city to request technical resources through SHPO and the National Park Service, as well as apply for a portion of Federal funds set aside by each SHPO for CLGs.

Policy 3.3.c Maintain strong demolition control for historic properties.

Policy 3.3.d New construction, redevelopment and alterations should be compatible with historic resources in the immediate area.

Policy 3.3.e Develop detailed design guidelines to ensure protection of Alameda's historic, neighborhood, and small-town character. Encourage preservation of all buildings, structures, areas and other physical environment elements having architectural, historic or aesthetic merit, including restoration of such elements where they have been insensitively altered. Include special guidelines for older buildings of existing or potential architectural, historical or aesthetic merit which encourage retention of original architectural elements and restoration of any missing elements. The design guidelines include detailed design standards for commercial districts.

Policy 3.3.f Regulate development in neighborhood business districts to maintain a street-wall, with most structures built to the property lines, entrances directly facing the sidewalk, and parking at the rear.

Policy 3.3.k Require that any exterior changes to existing buildings receiving City rehabilitation assistance or related to Use Permits, Variances or Design Review, or other discretionary City approvals be consistent with the building's existing or original architectural design unless the City determines either (a) that the building has insufficient existing or original design merit of historical interest to justify application of this policy or (b) that application of this policy would cause undue economic or operational hardship to the applicant, owner or tenant.

Open Space and Conservation Element. Policies for the Protection of Historic and Archaeological Resources

Policy 5.6.a Protect historic sites and archaeologic resources for their aesthetic, scientific, educational, and cultural values.

Policy 5.6.b Working in conjunction with the California Archaeological Inventory, review proposed development projects to determine whether the site contains known prehistoric or historic cultural resources and/or to determine the potential for discovery of additional cultural resources.

Policy 5.6.c Require that areas found to contain significant historic or prehistoric archaeological artifacts be examined by a qualified consulting archaeologist or historian for appropriate protection and preservation.

CEQA requires evaluation of any archaeological resource on the site of a development project. Unique resources, as defined by State law, should be protected, either by physical measures or by locating development away from the site. A preferred preservation method involves covering a site with earth fill for potential future, leisurely excavation; immediate excavation by qualified archaeologists should be undertaken only if such protection is infeasible.

Alameda Point Element

The Alameda Point Element of the General Plan addresses redevelopment of the project site. Given the entirety of this General Plan Element is applicable to the project site, only guiding cultural policies are listed here. The entirety of the Element is available for review on the City's website: http://alamedaca.gov/city-hall/general-plan:

- Create a series of neighborhoods, each with a central focus of mixed-use development, including local serving commercial and recreational uses and a mixture of housing types and densities serving all income levels. *(Policy 9.2.a)*

Civic Core

- Develop the Civic Core as a major new center of the City, and a focus of the Alameda Point district. *(Policy 9.3.a)*

Inner Harbor

- Foster cohesion between development of this new mixed-use area and existing surrounding neighborhoods and the City of Alameda. *(Policy 9.3.f*

West Neighborhood

- Guide further development of this primarily residential area to improve quality of life for residents, accessibility for pedestrians, and supporting uses to promote a balanced neighborhood. *(Policy 9.3.s)*
- Preserve the Big Whites for their historical significance, and encourage surrounding development that is complementary (Policy 9.3.x).

D.4 Impacts and Mitigation Measures

Significance Criteria

A cultural resource impact would be considered significant if the project would result in any of the following:

- Cause a substantial adverse change in the significance of a historical resource, as defined in Section 15064.5;
- Cause a substantial adverse change in the significance of a unique archaeological resource, pursuant to Section 15064.5;
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature; or
- Disturb any human remains, including those interred outside of formal cemeteries.

CEQA Section 21084.1 states that “a project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment.” A “substantial adverse change” is defined in Section 15064.5(b)(1) of the CEQA Guidelines as “physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired.” The significance of a historical resource is “materially impaired,” according to Guidelines Section 15064(b)(2), when a project demolishes or materially alters, in an adverse manner, those physical characteristics of the resource that:

- convey its historic significance and that justify its inclusion in, or eligibility for inclusion in, the CRHR (including a determination by the lead agency that the resource is eligible for inclusion in the CRHR);

- account for its inclusion in a local register of historical resources adopted by local agency ordinance or resolution (in accordance with PRC Section 5020.1(k)); or
- account for its identification in a historical resources survey that meets the requirement of PRC Section 5024.1(g), including, among other things, that "the resource is evaluated and determined by the [State Office of Historic Preservation] to have a significance rating of Category 1 to 5 on DPR Form 523," unless the lead agency "establishes by a preponderance of evidence that the resource is not historically or culturally significant."

The state CEQA Guidelines indicate that projects that are consistent with the *Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings* generally "shall be considered as mitigated to a level of less than a significant impact on the historical resource" (Section 15064.5(b)(3)).

When a project would adversely affect an archaeological site, a lead agency shall first determine whether the site is a historical resource, as defined above. If it is determined that the archaeological site is a historical resource, the provisions of Public Resources Code Section 21084.1 (Historical Resources) apply. If an archaeological site does not meet the criteria, but does meet the definition of a "unique archaeological resource" in Public Resources Code Section 21083.2 (Archaeological Resources), the site must be treated in accordance with the provisions of Section 21083.2. Public Resources Code section 21083.2, subdivision (g), states that "unique archaeological resource" means an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

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

Impact Analysis

This following impact analysis focuses on potential impacts of the proposed project related to cultural and paleontological resources.

Historic Architectural Resources

Impact 4.D-1: Development facilitated by the proposed project could potentially have a significant, adverse impact on Historic Resources within the Alameda Historic District. (Significant)

New development, infrastructure improvements, flood control measures and other actions that may occur under buildout of the proposed project could cause the demolition or substantial alteration of buildings, structures, and landscape elements which contribute to the NAS Alameda Historic

District; may introduce new structures which are considered visually or architecturally incompatible with the Historic District, thereby affecting the overall character of the Historic District, or adversely impact a contributor to the district.

While the proposed project emphasizes retention and rehabilitation of the NAS Alameda Historic District and its many contributory buildings and landscape features, and includes policies which encourage compatible new construction, and the adoption of design guidelines to protect its historic character, the proposed project (redevelopment and reuse of Alameda Point) could have a significant impact on the NAS Alameda Historic District contributors and individual resources because substantial alteration, modification, and/or demolition of certain buildings, facilities, spaces, or landscapes may be necessary to feasibly meet reuse objectives and/or current code requirements. Many structures have been vacant and vandalized over the past 16 years since the Navy's departure in 1997, and, in some cases, adaptive reuse may not be financially feasible.

Potential impacts to contributors or resources could include, but not be limited to:

- The proposed project includes development of new buildings in close proximity to the NAS Alameda Historic District or within the district which could materially affect in an adverse manner the physical characteristics of the resource (Historic District) that convey its historic significance and that justify its inclusion in the CRHR. For example, new residential development of the Chief Petty Officer's (CPOs) housing area could change the character of the district and/or require the removal of these or other contributing structures or features.
- The project includes a ferry terminal, ferry services, and other new maritime uses and facilities such as floating docks, piers and other improvements to support commercial, public, and recreational use of the Seaplane Lagoon. Additionally, improvements are necessary to the Seaplane Lagoon to protect the site from flood hazards and sea-level rise. These improvements could change the character of the Seaplane Lagoon, which is a contributing feature to the Historic District.
- The project includes new uses, buildings, roads, and parks on the 33 acres of taxiways between the Seaplane Hangars and the Seaplane Lagoon. These improvements could substantially change the character of this area, which is currently characterized by flat uninterrupted concrete taxiways with no roads, buildings, or landscaping. The new buildings, streets, and trees could alter east-west views along this currently open area. New development on the taxiways could also change southerly vistas of the Bay along Lexington and Saratoga Avenues. Because these open vistas are character-defining features of the historic landscape, obstruction by new construction could have a significant adverse effect on the integrity of the NAS Alameda Historic District.
- The project proposes a broad range of land uses that create employment and residential opportunities and support reinvestment in the existing buildings within the NAS Alameda Historic District. The emphasis would be on reuse of existing buildings, particularly those that are contributory to the NAS Alameda Historic District. In instances in which existing buildings are not adaptable to new uses or financially feasible to achieve building code standards or market investment criteria, some historic buildings could be demolished during the lifetime of the project, resulting in an adverse impact on the NAS Alameda Historic District.
- The draft MIP sets forth the requirements and standards necessary to ensure the replacement and/or rehabilitation of all existing utility systems, streets, and open spaces

and protection from flood hazards at the project site. Rehabilitation of open spaces and streets if not completed in a compatible manner, may also affect contributors to the historic landscape. A new street grid contemplated in the area adjacent to the CPO housing, could result in the demolition or alteration of these historic resources, which would have an adverse impact under CEQA.

Mitigation Measure 4.D-1a: The City shall implement the requirements of the Historic Preservation Ordinance, which requires a certificate of approval by the HAB for modifications to contributors and resources within the Historic District. As part of the certificate of approval process, project sponsors shall provide:

a. An analysis of the proposal's conformity with the *Guide to Preserving the Character of the Naval Air Station Alameda Historic District* as adopted and amended by the City Council;

b. An analysis of the proposal's conformity with general management and design guidelines contained within the NAS Alameda Cultural Landscape Report (JRP, 2012), including application of the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes*. These include special treatments organized by functional area for such topics as spatial organization, topography, vegetation, views and vistas, circulation, as well as structures, furnishings and objects; and

c. An analysis of impacts to the integrity of the Historic District, as a whole, and an analysis of alternatives to avoid potential impacts on the District as a whole, on an individual resource.

Mitigation Measure 4.D-1b: Prior to approval of new buildings within the Historic District the City shall complete and adopt Guidelines for New Infill Development within the Historic District. All new building will be reviewed for conformance with the guidelines.

Mitigation Measure 4.D-1c: As a condition of approval for demolition or removal of a contributor to the Historic District, the City shall require that the project applicant:

1) Document any Historic District contributor contemplated for demolition under the proposed project in accordance with the Historic American Building Survey (HABS) Level II documentation standards of the National Park Service[6] including the following:

    1. *Photographs*. Large-format (4 x 5-inch negatives or greater), black and white photographs will be taken of all elevations of the building(s), plus limited context and detail shots. A limited number of historical photos of buildings, where available, should also be photographically reproduced. All photographs should be printed on acid-free archival bond paper on 8 x 10 enlargements. Digital photography may be substituted for large-format photographs where necessary.

[6] It shall be noted that pursuant to CEQA Guidelines Section 15126(b)(2), "In some circumstances, documentation of an historical resource, by way of historic narrative, photographs or architectural drawings, as mitigation for the effects of demolition of the resource will not mitigate the effects to a point where clearly no significant effect on the environment would occur."

2. *Written History*. Prepare a written history of the resource using the HABS standard outline format. Building-specific historical and architectural information from the National Register Nominations and prior inventories and technical reports can be utilized for this effort. If available, reproduce original building drawings on mylar or through photographic means.

4. *Archiving*. The completed HABS documentation package (photos, report, and drawings) shall be archived at the City of Alameda, the City of Alameda Public Library, the Alameda Naval Air Station Museum, and the Northwest Information Center of Sonoma State University.

2) Prepare and implement a public interpretation plan to describe and convey the historic significance of the NAS Alameda Historic District or resource to the general public. The plan will contain recommendations for the location and design of interpretive elements, such as plaques, markers, exhibits, expansion of the existing Alameda Point self-guided tour,[7] and other methods for interpreting the history of the former NAS Alameda. Information generated from the HABS documentation effort, described above, as well as historical information from the National Register Nomination and other technical background reports may be utilized. The interpretive plan will be designed by a professional architectural historian meeting the qualifications of the Secretary of the Interior's Standards.

3) Prepare and implement an architectural salvage plan for any District contributor contemplated for demolition under the proposed project. The plan will identify architectural components that are worthy of salvage and reuse either as part of the design of the replacement structures, or elsewhere on the project site. The salvage plan will be prepared by a professional architectural historian meeting the qualifications of the Secretary of the Interior's Standards.

These mitigation strategies would reduce, but not eliminate, potential significant adverse impacts to the NAS Alameda Historic District and historic resources. Therefore, even with implementation of the Mitigation Measure 4.D-1, demolition and/or substantial alteration of NAs Alameda Historic District contributors and could result in significant and unavoidable impacts.

Significance after Mitigation: Significant and Unavoidable.

Archaeological Resources

Impact 4.D-2: Development facilitated by the proposed project could potentially result in the inadvertent discovery of unique archaeological resources. (Significant)

No archaeological resources have been recorded in the project area. Based on the geologic conditions and site history, the project area has a low potential to contain buried prehistoric or historic-era sites. However the possibility of encountering archaeological resources cannot be entirely discounted. To facilitate compliance with legal requirements, project personnel should be alerted to the possibility of encountering cultural materials during project implementation, and apprised of the proper procedures to follow in the event that such materials are found.

7 http://www.alameda-point.com/resources/pdf/self-guided-tour-map.pdf

Implementation of the following mitigation measure would reduce potential impacts to a less-than-significant level.

Mitigation Measure 4.D-2: If cultural resources are encountered, all activity within 100 feet of the find shall halt until it can be evaluated by a qualified archaeologist and a Native American representative. Prehistoric archaeological materials might include obsidian and chert flaked-stone tools (e.g., projectile points, knives, scrapers) or toolmaking debris; culturally darkened soil ("midden") containing heat-affected rocks, artifacts, or shellfish remains; and stone milling equipment (e.g., mortars, pestles, handstones, or milling slabs); and battered stone tools, such as hammerstones and pitted stones. Historic-era materials might include stone, concrete, or adobe footings and walls; filled wells or privies; and deposits of metal, glass, and/or ceramic refuse. If the archaeologist and Native American representative determine that the resources may be significant, they shall notify the City of Alameda and shall develop an appropriate treatment plan for the resources. The archaeologist shall consult with Native American monitors or other appropriate Native American representatives in determining appropriate treatment for unearthed cultural resources if the resources are prehistoric or Native American in nature.

In considering any suggested measures proposed by the archaeologist and Native American representative in order to mitigate impacts to cultural resources, the project applicant shall determine whether avoidance is necessary and feasible in light of factors such as the nature of the find, project design, costs, and other considerations. If avoidance is infeasible, other appropriate measures (e.g., data recovery) shall be instituted. Work may proceed on other parts of the project area while mitigation for cultural resources is being carried out.

Pursuant to CEQA Guidelines Section 15126(b), *Mitigation Measures Related to Impacts on Historical Resources*, the City of Alameda will, whenever feasible, seek to avoid damaging effects on any historical resource of an archaeological nature. The following factors shall be considered for a project involving an archaeological site:

A. Preservation in place is the preferred manner of mitigating impacts to archaeological sites. Preservation in place maintains the relationship between artifacts and the archaeological context. Preservation may also avoid conflict with religious or cultural values of groups associated with the site.

B. Preservation in place may be accomplished by, but is not limited to, the following:

   1. Planning construction to avoid archaeological sites;
   2. Incorporation of sites within parks, greenspace, or other open space;
   3. Covering the archaeological sites with a layer of chemically stable soil before building tennis courts, parking lots, or similar facilities on the site.
   4. Deeding the site into a permanent conservation easement.

C. When data recovery through excavation is the only feasible mitigation, a data recovery plan, which makes provisions for adequately recovering the scientifically consequential information from and about the historical resource, shall be prepared and adopted prior to any excavation being undertaken. Such studies shall be deposited with the California Historical Resources Regional Information Center. Archeological sites known to contain human remains shall be treated in accordance with the provisions of Section 7050.5 Health and Safety Code. If an artifact must be removed during project excavation or testing, curation may be an appropriate mitigation.

D. Data recovery shall not be required for an historical resource if the lead agency determines that testing or studies already completed have adequately recovered the scientifically consequential information from and about the archaeological or historical resource, provided that the determination is documented in the EIR and that the studies are deposited with the California Historical Resources Regional Information Center.

Significance after Mitigation: Less than Significant.

Paleontological Resources

Impact 4.D-3: Development facilitated by the proposed project could potentially result in the discovery of unidentified unique paleontological resources. (Significant)

As discussed in the *Setting* portion of this section, there are no known fossil sites in the project area, and the underlying geologic units have a low potential to yield significant paleontological resources. Due to the imported fill and Bay Mud deposits which comprise the site, there are no unique geological features at Alameda Point that could be affected by the proposed project. Ground disturbance for the project would excavate or otherwise disturb previous fills, relict dune sands, and Bay Mud deposits – all of which are unlikely to yield fossil resources. However, because it has not been proven that fossil resources do not occur within the subsurface geology of the site, disturbance or destruction of a paleontological resource is a potentially significant impact of the proposed project. Implementation of the following mitigation measure would avoid disturbance or destruction of accidentally discovered fossil resources by halting work and salvaging the find, if appropriate.

> **Mitigation Measure 4.D-3:** If paleontological resources, such as fossilized bone, teeth, shell, tracks, trails, casts, molds, or impressions are discovered during ground-disturbing construction activities, all such activities within 100 feet of the find shall be halted until a qualified paleontologist can assess the significance of the find and, if necessary, develop appropriate salvage measures in consultation with the City of Alameda and in conformance with Society of Vertebrate Paleontology Guidelines (SVP, 1995; SVP, 1996).

Significance after Mitigation: Less than Significant.

Human Remains

Impact 4.D-4: Development facilitated by the proposed project could potentially result in the inadvertent discovery of human remains. (Significant)

There is no indication that the project site or area has been used for burial purposes in the recent or distant past. It is unlikely that human remains would be encountered in the project area or on the project site. However, in the event of the discovery of any human remains during project construction activities, work would be halted. Damage to human remains would be a significant impact. Implementation of the following mitigation measure would reduce potential impacts to a less-than-significant level.

> **Mitigation Measure 4.D-4:** In the event of discovery or recognition of any human remains during construction activities, such activities within 100 feet of the find shall cease. The Alameda County Coroner shall be contacted immediately. If the remains are determined to be Native American, and no investigation of the cause of death is required, the Native American Heritage Commission (NAHC) will be contacted within 24 hours. The NAHC will identify and contact the person or persons it believes to be the "most likely descendant (MLD)" of the deceased Native American, who in turn would make recommendations for the appropriate means of treating the human remains and any grave goods.

Significance after Mitigation: Less than Significant.

Cumulative Impacts

Impact 4.D-5: Development facilitated by the proposed project, in conjunction with, past, present, and future development, could potentially adversely affect historic architectural resources in the project vicinity. (Significant)

Impacts to cultural resources from other past, present, and reasonably foreseeable projects in the vicinity could combine with those of the proposed project to form a cumulatively considerable impact. Such projects include the WETA Ferry Operations and Maintenance Project, the Veterans Affairs' Clinic and Columbarium, and numerous residential or mixed-used projects throughout the City of Alameda, the Boatworks residential project, Marina Cove II residential project, Alameda Landing mixed-use project, and the Alameda Rail Station retail project. All of these projects have undergone, or are currently undergoing, environmental review under CEQA. A review of the findings of these draft and final CEQA documents indicate that with the exception of the Boatworks residential project, none of the other reasonably foreseeable projects in the vicinity would have a significant, unavoidable impact on historic architectural resources. Construction of the proposed Boatworks residential project, however, would have a significant, adverse impact on historic resources through demolition of the circa 1910 Steel Fabrication Shop/Warehouse and Compressor Room/Storage Building located on that project site (City of Alameda, 2008). Demolition of these historic buildings on the Boatworks site, in combination with the potential demolition of contributors to the NAS Alameda Historic District over the lifetime of the proposed project, could have a significant cumulative impact on historic resources under CEQA. While implementation of Mitigation Measure 4.D-1 described above, in addition to Mitigation Measure 4.E-1 (HABS documentation and interpretation) from the Boatworks Residential Project DEIR would reduce impacts to historic architectural resources, they would not reduce them to a less-than-significant level. Therefore, it is conservatively assumed that the proposed project would have a significant and unavoidable cumulative impact on historic architectural resources.

> **Mitigation Measure 4.D-5:** Implement Mitigation Measure 4.D-1.

Significance after Mitigation: Significant and Unavoidable.

Impact 4.D-6: Development facilitated by the proposed project, in conjunction with cumulative development, would have a less-than-significant impact on unique archaeological and paleontological resources, as well as human remains, in the project vicinity. (Significant)

No impacts to known or recorded prehistoric or historic-period archaeological resources, paleontological resources, or human remains have been identified in any of the cumulative projects described above. Similar to the proposed project, impacts to unknown or unrecorded archaeological or paleontological resources, including human remains, are potentially significant, but can be reduced to a less-than-significant level by the application of standard accidental discovery mitigation measures, which are identified in each of the CEQA documents prepared for all cumulative projects. Implementation of Mitigation Measure 4.D-2 through -4 would also reduce potentially significant cumulative impacts to archaeological and paleontological resources, as well as human remains.

Mitigation Measure 4.D-6: Implement Mitigation Measures 4.D-2, -3, and -4.

Significance after Mitigation: Less than Significant.

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E. Biological Resources

E.1 Introduction

This section identifies the existing biological resources at the Alameda Point Project site (the "project site"); identifies the federal, state, and local regulations pertaining to biological resources within the region; and describes project impacts on those biological resources as well as mitigation measures to reduce project-related potentially significant impacts. Information used in the preparation of this section was obtained from a number of sources, including, but not limited to:

- California Department of Fish and Game[1] (CDFG) "Special Animals" list, January 2011
- California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDB) species occurrences for the *Oakland West*, *Oakland East*, *Richmond*, and *San Leandro* U.S. Geographical Survey (USGS) 7.5-minute topographic quadrangles, Commercial Version, May 2013
- California Native Plant Society (CNPS), Inventory of Rare and Endangered Plants (online edition, v7-06a), data request for *Oakland East*, *Oakland West*, *Richmond*, and *San Leandro* USGS 7.5-minute quadrangles, May 2013
- United States Fish and Wildlife Service (USFWS), Federally Endangered and Threatened Species List for the *Oakland West*, *Oakland East*, *Richmond*, and *San Leandro* USGS 7.5-minute topographic quadrangles, May 2013
- USFWS, *Biological Opinion on the Proposed Naval Air Station Alameda Disposal and Reuse Project in the City of Alameda, Alameda County, California*, August 2012
- Department of Veteran's Affairs and Department of the Army, *Transfer of Excess Property and Development of an Outpatient Clinic, Offices, and National Cemetary at the Former Naval Air Station Alameda, California Draft Environmental Assessment*, January 2013
- Department of Veteran's Affairs, *Wetland Delineation and Preliminary Jurisdictional Determination VA Outpatient Clinic and National Cemetary Project at the Former Naval Air Station Alameda*, prepared by AECOM for the Department of Veteran's Affairs, September 2012
- San Francisco Bay Area Water Emergency Transportation Authority (WETA), *Initial Study/Mitigated Negative Declaration for the San Francisco Bay Area Water Emergency Transportation Authority Central Bay Operations and Maintenance Facility*, prepared by ICF International for WETA, March 2011
- City of Alameda, *Alameda Point General Plan Amendment Draft EIR*, prepared by LSA for the City of Alameda, December 2002

1 In January 2013, the California Department of Fish and Game officially changed its name to the California Department of Fish and Wildlife, and is hereinafter referred to in this EIR as the California Department of Fish and Wildlife or "CDFW." However, citations to documents prepared by the agency prior to January 2013 will show the author as the California Department of Fish and Game or "CDFG."

E.2 Environmental Setting

Regional Setting

The project site is located in the Bay Area-Delta Bioregion, as defined by the State's Natural Communities Conservation Program. This bioregion consists of a variety of natural communities that range from the open waters of the Bay and Delta, to salt and brackish marshes, to chaparral and oak woodlands. The temperate climate is Mediterranean in nature, with relatively mild, generally wet winters and warm, dry summers. The high diversity of vegetation and wildlife found in Alameda County, which reflects that of the region as a whole, is a result of soils, topography, and micro-climate diversity that combine to promote relatively high levels of endemism.[2] This, in combination with the rapid pace of development in the region, has resulted in a relatively high degree of endangerment for local flora and fauna.

The project area is located on the western end of Alameda Island, and includes waters of the Oakland-Alameda Estuary, which is part of the larger San Francisco Bay Estuary. The San Francisco Estuary is designated as a Western Hemisphere Shorebird Reserve Network of international importance, with more than one million shorebirds using regional wetlands each winter. Between 300,000 and 900,000 shorebirds pass through San Francisco Bay during spring and fall migration periods, more than 50 percent of the diving ducks in the Pacific Flyway winter in the shallow wetlands of the Bay, and several species breed in regional wetlands during the summer (Goals Project, 1999).

Alameda Island

The area encompassed by modern-day Alameda Island was historically a combination of shallow bay waters, tidal marshes, and upland habitats (SFEI 2001). The first documented filling of marshes and bay waters began during the 1890s. By 1927, the northern part of what later became Naval Air Station (NAS) Alameda had been filled, chiefly with dredge materials from U.S. Army Corps of Engineers (Corps) projects associated with the Oakland Harbor and other harbors throughout the East Bay. The filled land was partially occupied by the Alameda Airport (a City-owned facility) and Benton Field, a minor U.S. Army Air Corps facility (City of Alameda 1999). After World War II, filling of San Francisco Bay waters and marshes over time increased the dry land acreage to current levels. Construction activities continued intermittently until the decision was made to close NAS Alameda (Alameda Reuse and Redevelopment Authority 1999).

Project Setting

As noted in Chapter 3, *Project Description*, the project site is approximately 878 acres of uplands and 1,229 acres of submerged lands (total of 2,107 acres) of the former Naval Air Station (NAS) Alameda located west of Main Street at the western end of Alameda. The project site, as shown in Figure 3-2, is bounded by the Oakland-Alameda Estuary on the north, Main Street and primarily residential development on the east, and includes parts of San Francisco Bay adjacent to the south and west. Parts of the project site are also bounded on the south and west by a 624-acre area of

2 *Endemism* refers to the degree to which organisms or taxa are restricted to a geographical region or locality and are thus individually characterized as endemic to that area.

former runways and wetlands that is separately proposed for transfer by the Navy to the Department of Veterans Affairs (VA), and is therefore not a part of the project site. This adjacent property supports a seasonal breeding colony of the California least tern, which are listed as endangered under the federal and State Endangered Species Acts.

In general, the terrestrial portions of the project site are relatively flat with sparse vegetation and is occupied by structures and other remnants of the military activities that took place at NAS Alameda during its operations, which ceased in 1997. The terrestrial portions of the site lie just above sea level. Although residential and light industrial/commercial uses exist on the site, many of the existing buildings are vacant. The project site also includes adjacent submerged lands comprising San Francisco Bay and Oakland-Alameda Estuary waters.

For the purposes of this EIR, the biological resources study area includes the terrestrial and marine portions of the project site, as just described, as well as the adjacent Federal Property. The Federal Property was included because some components of the proposed project have the potential to affect biological resources there.

Vegetation Communities and Habitat Types

Vegetation communities and habitat types found within the project area are illustrated in **Figure 4.E-1**. The map is based on the mapping done for the proposed VA project to be located on the Federal Property and the results of ESA's 2013 site visit. Descriptions of the various habitat types are also based in part on previous environmental documentation produced for the project site and adjacent areas and in part on observations made during ESA's 2013 site visit. This EIR identifies eight different vegetation communities and habitat types, which are described below.

Grassland

Nonnative grassland is generally found in open areas in valleys and foothills throughout coastal and interior California. Nonnative grasses and weedy annual and perennial forbs, primarily of Eurasian or Mediterranean origin, dominate this vegetation type. Scattered native grass and wildflower species, representing remnants of the original vegetation, may also sometimes be common. Since the project site is entirely on fill, it is not surprising that onsite grasslands are overwhelmingly dominated by nonnatives. The only native plants present are opportunistic species adaptable to a variety of conditions.

Grasslands within the study area are located in the Northwest Territories and on the Federal Property, occurring as a mosaic of perennial and annual grasses that intergrades with ruderal habitat, seasonal wetlands, and salt marsh (see Figure 4.E-1). Annual and perennial nonnative grasses found in grasslands on site include tall fescue (*Festuca arundinacea*), velvet grass (*Holcus lanatus*), Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), wild oats (*Avena fatua*), ripgut brome (*Bromus diandrus*), Bermuda grass (*Cynodon dactylon*), ryegrass (*Festuca perenne*), soft chess (*Bromus hordeaceus*), pampas grass (*Cortaderia selloana*), and annual bluegrass (*Poa annua*). Common nonnative forbs documented include cranesbill (*Geranium dissectum*), red-stemmed filaree (*Erodium cicutarium*), spring vetch (*Vicia sativa*), cut-leaf plantain (*Plantago coronopus*), English plantain (*Plantago lanceolata*), iceplant (*Carpobrotus edulis*),

SOURCE: ESRI, 2013; Department of Veteran's Affairs, 2013

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Figure 4.E-1

Vegetation and Wildlife Habitat within the Biological Resources Study Area curly dock (*Rumex crispus*), and field bindweed (*Convolvulus arvensis*). Although this habitat is dominated by nonnative grasses, native coyote brush (*Baccharis pilularis*), saltgrass (*Distichlis spicata*), pickleweed (*Salicornia pacifica*), and alkali heath (*Frankenia salina*) are also present in some areas.

Grassland habitats, both native and nonnative, support reptiles and amphibians such as alligator lizard (*Gerrhonotus* spp.), western fence lizard (*Sceloporus occidentalis*), and Pacific slender salamander (*Batrachoseps attenuatus*), which feed on invertebrates found in this vegetation community, as well as gopher snake (*Pituophis catenifer*) and garter snake (*Thamnophis* spp.). Western fence lizard is the only reptile recorded on site (DVA, 2013) and was observed during ESA's 2013 site visit. Grasslands also attract seed-eating and insect-eating birds.

Lesser goldfinch (*Spinus psaltria*), mourning dove (*Zenaida macroura*), and western meadowlark (*Sturnella neglecta*) are a few granivores that typically nest and forage in grasslands. Insectivores such as barn swallow (*Hirundo rustica*), and black phoebe (*Sayornis nigricans*) also forage over grasslands and were observed in the Northwest Territories during ESA's 2103 site visit. Small grassland rodents attract raptors such as great-horned owl (*Bubo virginianus*), which hunt at night, as well as day-hunting raptors such as red-tailed hawk (*Buteo jamaicensis*), northern harrier (*Circus cyaneus*), and white-tailed kite (*Elanus leucurus*), which have all been observed on site.

Mammals recorded in the Federal Property include striped skunk (*Mephitis mephitis*), Norway rat (*Rattus norvegicus*), Virginia opossum (*Didelphis virginiana*), gray fox (*Urocyon cinereoargenteus*), red fox (*Vulpes vulpes*), raccoon (*Procyon lotor*), California ground squirrel (*Spermophilus beecheyi*), black-tailed jackrabbit (*Lepus californicus*), feral dog (*Canis lupus familiaris*), feral cat (*Felis silvestris catus*), and a colony of domestic rabbits (*Oryctolagus cuniculus*) (DVA, 2013). These species are also expected to occur in the Northwest Territories, the rest of the Federal Property, and to a lesser extent, throughout the more developed parts of the project area. Other mammals expected to occur throughout the project area include California vole (*Microtus californicus*), house mouse (*Mus musculus*), and Botta's pocket gopher (*Thomomys bottae*). Grasslands can also be important foraging grounds for bats such as myotis (*Myotis* spp.).

Ruderal

As noted earlier, the entire western end of Alameda Island lies on fill that has been severely disturbed in the past by cut-and-fill operations, grading, paving, and development. Ruderal habitat is typical of land where native vegetation has been removed by grading, disking, cultivation, or other ground disturbances. Disturbed areas, when left undeveloped, may be colonized by both nonnative and native vegetation, usually comprised of weedy, opportunistic, and adaptable plants that are capable of surviving in less than optimal conditions.

Ruderal habitat occurs throughout the study area and varies in character depending on the location (see Figure 4.E-1). Where this habitat type occurs between light industrial uses in the proposed Enterprise Sub-Area it is made up of a mix of nonnative annual grasses, such as wild oats, ripgut brome, rattail sixweeks grass (*Festuca myuros*), and soft chess. These areas also support numerous nonnative forbs, including prickly lettuce (*Lactuca serriola*), sourclover (*Melilotus indicus*), California burclover (*Medicago polymorpha*), redstem filaree, prickly ox-tongue (*Helminthotheca echioides*), and bull mallow (*Malva nicaeensis*).

Ruderal habitat in the Northwest Territories and Federal Property is variable, often occurring on degrading tarmac, and consequently generally sparse and low growing. Some areas support primarily nonnative grasses and forbs, including English plantain, Italian thistle (*Carduus pycnocephalus*), stinkwort (*Dittrichia graveolens*), fennel (*Foeniculum vulgare*), tocalote (*Centaurea melitensis*), and coyote brush. Other areas are characterized by large expanses of nearly solid iceplant or large patches of iceplant interspersed with bare ground, with rosy iceplant (*Drosanthemum floribundum*) and woolly sunflower (*Eriophyllum* sp.) also occurring. In still other areas, patches of iceplant are interspersed with ruderal grasses and forbs as described above.

Wildlife species generally associated with ruderal habitat are similar to those that use grasslands and include raccoon, opossum, European starling (*Sturnus vulgaris*), and mourning dove. Killdeer (*Charadrius vociferus*) are also often associated with open disturbed substrates supporting sparse or no vegetation. Wildlife species that feed on seeds or other vegetative parts, including finches, goldfinches, sparrows, and a variety of rodents, may occur in this habitat type. Insects present in ruderal habitat provide food for species such as Brewer's blackbird (*Euphagus cyanocephalus*), horned lark (*Eremophila alpestris*), and western fence lizard. Depending on the prey base ruderal habitat can support a variety of predators, including snakes, various raptors, and red fox.

Developed

Much of the project site is developed and the entire site occurs in a highly urbanized context. As discussed above, the project site is bordered on the east by development; the busy Port of Oakland is located across the Oakland-Alameda Estuary to the north of the project site. Abandoned airfields lie to the west and south, and residential neighborhoods lie to the east. The developed areas of Alameda Point, dominated by runways, roads, structures, concrete, and asphalt, provide little wildlife habitat and essentially no habitat for plants other than opportunistic weedy species adapted to harsh conditions or the horticultural plants used in landscaped areas.

Wildlife species utilizing urban areas must be able to tolerate the presence of humans and their activities and are typically generalists, capable of utilizing the limited food sources available, such as garbage and horticultural plants and their fruit. Urban wildlife species found in the Alameda area include common raven (*Corvus corax*), northern mockingbird (*Mimus polyglottos*), raccoon, Norway rat, Virginia opossum, and feral cats. Several exceptions to the generalist rule are red-tailed hawk, which prey on rodents, and Cooper's hawk (*Accipiter cooperii*) and peregrine falcon (*Falco peregrinus anatum*), which prey almost exclusively on small to medium sized birds. Bats may colonize abandoned buildings located throughout Alameda Point.

The project area's proximity to the waters of San Francisco Bay, combined with lack of regular human activity, has made certain areas of developed paved habitat on the Federal Property suitable habitat for nesting shorebirds, such as California least tern (*Sternula antillarum browni*) and Caspian tern (*Sterna caspia*), which more typically nest on gravel or sandy substrates.

Developed/Landscaped

The vegetation in the landscaped/developed areas of Alameda Point is characterized by turfgrass, ornamental trees and shrubs and other nonnative species in landscaped lawns, mowed grasslands, and existing parks. These areas are primarily in the proposed Adaptive Reuse and Main Street Neighborhood subareas (see Figure 4.E-1). There are numerous mature trees in these areas, including blue gum eucalyptus (*Eucalyptus globulus*), Monterey cypress (*Hesperocyparis macrocarpa*), London planetree (*Platanus* x *acerifolia*), blackwood acacia (*Acacia melanoxylon*), coast redwood (*Sequoia sempervirens*), Italian stone pine (*Pinus pinea*), Monterey pine (*Pinus radiata*), and poplar (*Populus* sp.).

Landscaped areas around buildings, residences, and parks are used primarily by typical urban wildlife as described above. Species that are commonly found in landscaped areas include Anna's hummingbird (*Calypte anna*), western scrub-jay (*Aphelocoma californica*), house sparrow (*Passer domesticus*), house finch (*Carpodacus mexicanus*), American robin (*Turdus migratorius*), raven, raccoon, and opossum. Raptors, such as Cooper's hawk may use these areas for foraging and may nest in mature trees. Feral cats are also often found in these areas.

Seasonal Wetland

Seasonal wetlands are inundated during the wet season and support annual and perennial native and nonnative wetland indicator species, many of which can be found in both seasonal wetland and upland communities. This plant association may not resemble a wetland community during the dry season when some wetland indicator species are dormant and true upland annual grasses and forbs may take their place as the soils dry.

Within the Northwest Territories and the adjacent Federal Property, seasonal wetlands occur where water ponds and soils remain saturated for all or part of the growing season. Seasonal wetlands are found mainly in the tarmac area between the runways of the former airfield in the Northwest Territories and the Federal Property as well as in the southeast corner (near the Runway Wetland) and southwest corner (near the West Wetland) of the Federal Property (see Figure 4.E-1). Both the Runway and West Wetland are located outside of the project site, but the proposed seasonal Bay Trail around the perimeter of the Federal Property, which will be developed and maintained by the City of Alameda, will skirt both.

Plant species found in the seasonal wetlands onsite include nonnatives such as tall fescue, velvet grass, Bermuda grass, Mediterranean barley, curly dock, annual bluegrass, ryegrass, bird's-foot trefoil (*Lotus corniculatus*), parentucellia (*Parentucellia viscosa*), scarlet pimpernel (*Anagallis arvensis*), field madder (*Sherardia arvensis*) and loosestrife (*Lythrum hyssopifolia*). Native species present include common nut-sedge (*Cyperus eragrostis*), Baltic rush (*Juncus balticus*), toad rush (*Juncus bufonius*), bracted popcorn-flower (*Plagiobothrys bracteatus*), Monterey centaury (*Zeltnera muehlenbergii*), wooly marbles (*Psilocarphus* sp.), saltgrass, and arroyo willow (*Salix lasiolepis*).

Though seasonal wetlands found within the project area are of low to moderate quality they nonetheless offer water, food, and cover for a variety of wildlife. Amphibians such as Sierran treefrog (*Pseudacris sierra*) often occur in seasonal wetlands. Numerous bird species use seasonal wetlands for foraging and nesting; Canada geese (*Branta canadensis*), American avocet (*Recurvirostra americana*), and mallard (*Anas platyrhynchos*) were observed in the Northwest Territories seasonal wetlands during ESA's 2013 site visit. Mammals commonly present in this habitat include California vole, raccoon, striped skunk, and gray fox (*Urocyon cinereoargenteus*). Seasonal wetlands may also provide foraging opportunities for aerial and ground feeding insectivorous bats.

Northern Coastal Salt Marsh

Northern coastal salt marsh consists of highly productive, generally low growing herbaceous perennials. Usually found along sheltered margins of bays, lagoons, and estuaries, this plant community develops a moderate to dense cover. Subject to continuously fluctuating salinity and water levels, northern coastal salt marsh is typically dominated by a low diversity of plants tolerant of saline conditions and regular inundation.

Northern coastal salt marsh is located in a thin, discontinuous strip on the northern edge of the Northwest Territories along the Oakland-Alameda Estuary, the Runway and West Wetlands area (see Figure 4.E-1), and several other smaller areas within the northern part of the Federal Property.

Salt marsh habitat on site is dominated by pickleweed and saltgrass, with alkali heath and gumplant (*Grindelia* sp.) also occurring. Characteristic nonnative species within salt marsh at Alameda Point include cranesbill, red-stemmed filaree, Mediterranean barley, bird's-foot trefoil, red sandspurry (*Spergularia rubra*), and bull thistle (*Cirsium vulgare*), among others.

Both migratory and resident bird species use salt marsh habitat. Resident species like the American avocet and black necked stilt (*Himantopus mexicanus*) use northern coastal salt marsh for nesting and breeding, while western sandpiper (*Calidris mauri*), marbled godwit (*Limosa fedoa*), and long-billed dowitcher (*Limnodromus scolopaceus*) are migratory shorebirds that use salt marsh habitat for resting and feeding. The savannah sparrow (*Passerculus sandwichensis*) nests in pickleweed and other halophytes in upper marsh and upland transitional zones south of San Leandro and the salt marsh common yellowthroat (*Geothylpis trichas sinuosa)* nests in tidal and nontidal brackish and freshwater marshes and, although neither of these California Species of Special Concern has been recorded nesting in Alameda (Richmond et al, 2011), potentially suitable nesting habitat for both species occurs in the Northwest Territories and on the Federal Property.

Non-breeding birds, including larger shorebirds, swallows, blackbirds, and other species roost in large numbers in salt marsh, while several species of ducks, and in a few locations, herons and egrets, also nest in salt marshes. The California vole occurs here as well, and is often the most common small mammal. Salt marshes may also be used by fishes for breeding, rearing, and foraging.

Open Water, Aquatic, and Subtidal Habitat

Open water is found in the perennial ponds of the Runway Wetland and West Wetland illustrated in Figure 4.E-1, as well as seasonally in the larger seasonal wetlands throughout the Northwest Territories and the Federal Property. At the Runway Wetland there are two perennial open water areas associated with the salt marsh and that are connected during high water and the ponds are also hydrologically connected to San Francisco Bay. Within the West Wetland, the canal-shaped pond was created by removing dredged materials to cover the landfill or disposal area. The northernmost pond is connected to the Bay by a culvert and both ponds are connected when inundated during higher tides (DVA, 2013).

The open waters of the Oakland-Alameda Estuary constitute the northern boundary of the project site and the open waters of San Francisco Bay, including Seaplane Lagoon, are adjacent to the western and southern portions of the project site. The Oakland-Alameda Estuary was originally a tidal slough, but was dredged in the mid- to late 1800s to create a viable port and shipping channel. The estuary is influenced by both freshwater and marine water. It receives freshwater inflow from a combination of natural creeks, human-made stormwater drainage facilities, and direct surface runoff. The estuary is also influenced by the marine waters of the Bay and is subject to tidal currents. Sediment from Oakland's shoreline and creeks is carried by the tidal current to shoals and sandbars, causing siltation of the nearby shipping channels.

The San Francisco Bay-Delta is the second largest estuary in the United States and supports numerous aquatic habitats and biological communities. The Bay's fish and wildlife populations have changed dramatically in the past 150 years, with loss of native species due to over-harvest, habitat loss and degradation, introduced species, pollutants, and the modification of freshwater flows. It encompasses 479 square miles, including shallow mudflats. San Francisco Bay is divided into four main basins: South Bay, Central Bay, San Pablo or North Bay, and Suisun Bay (Goals Project 1999). The project area is located in the Central Bay, which lies between San Pablo Strait and the Richmond-San Rafael Bridge to the north and the San Bruno shoal to the south. The Central Bay connects to the Pacific Ocean through the Golden Gate. The open waters adjacent to the study area are typical of San Francisco Bay waters in general and have primarily silty mud and sand substrates that are naturally no more than 25 feet deep, although dredging operations for shipping operations in the Oakland-Alameda Estuary may increase water depth to more than 50 feet (DVA, 2013).

Subtidal plants and submerged aquatic vegetation occur throughout the Bay on both soft and hard substrate. Aquatic vegetation in the project area may include green algae (*Ulva/Enteromorpha*, *Gracillaria verrucosa*, *Ruppia maritima,* and *Potamogeton pectinatus*)*,* which are common in subtidal habitats. Eelgrass beds (see further discussion in the Special Status Natural Communities discussion below) are found in the Oakland-Alameda Estuary adjacent to the northern edge of Alameda Point, along the western edge of the project area, and in small patches near the southeastern terminus of the breakwater (Subtidal Goals Project 2010a). Benthic, or bottom-dwelling, fauna in the open waters of San Francisco Bay include a large variety of invertebrates, such as polychaetes (i.e., marine worms), crustaceans (e.g., crabs, amphipods, and isopods), mollusks such as clams and mussels, echinoderms, and fishes such as halibut and sole. Pelagic organisms also are widely observed and include planktonic organisms (e.g., phytoplankton, copepods, and larval animals), crustaceans (e.g., shrimps and mysiids), and many bony fish and shark species. These lower taxa provide a prey base for the higher taxa, such as marine mammals and birds, which also are commonly present in this environment (DVA, 2013).

San Francisco Bay and the Oakland-Alameda Estuary, support a wide variety of fishes, including special-status species such as steelhead (*Oncorhynchus mykiss irideus)*, Chinook salmon (*Oncorhynchus tshawytscha*), and green sturgeon (*Acipenser medirostris*). Three species of pelagic fish account for 99 percent of the total abundance of fish regularly sampled in both the deep water and shallow areas of the Central Bay. Northern anchovy (*Engraulis mordax*) is the overwhelming dominant species, accounting for up to 94 percent of those fish inhabiting the water column. Pacific herring (*Clupea pallasii*) and jacksmelt (*Atherinopsis californiensis*) are the second and third most common fish taxa in Central Bay waters, together accounting for an additional five percent of the fish sampled on an annual basis. The remaining 30 species collectively account for less than one percent of the fish species present annually. Although it is not federally or State listed, the San Francisco Bay Pacific herring fishery is one of the last remaining fisheries in the San Francisco Bay, and is currently suffering significant declines. Because of its commercial importance, the fishery is regulated by the California Department of Fish and Wildlife (CDFW), and the Pacific herring population and spawning success within the San Francisco Bay are closely monitored. Marine vegetation, such as eelgrass and algae, are the preferred substrate for herring spawning. However, pier pilings, riprap, and other rigid, smooth structures within Bay waters also serve as spawning substrate (Goals Project, 2000).

Unvegetated waters within the project area, including seasonal and perennial ponds, as well as the open waters of San Francisco Bay and the Oakland-Alameda Estuary provide refuge and foraging habitat for a variety of resident and migratory birds. The San Francisco Bay-Delta is an important wintering and stop-over site for the Pacific Flyway. More than 300,000 wintering waterfowl use the Bay and associated salt ponds. Bird guilds that use the open waters of the Bay include the diving birds, which feed in deeper water on benthic invertebrates; dabblers, which feed in the upper water column of shallow subtidal areas; piscivores, which feed on fish; and opportunistic predators. Typical marine birds regularly inhabiting or found in the project area include cormorants (*Phalacrocorax* spp.), western gull (*Larus occidentails*), California gull (*L. californicus*), western grebe (*Aechmophorus occidentalis*), and California brown pelican (*Pelecanus occidentalis californicus*). Among the diving benthivores guild, canvasback (*Aythya valisineria*), greater scaup (*A. marila*), lesser scaup (*A. affinis*), and surf scoter (*Melanitta perspicillata*) are common in Bay waters.

In general, the presence of marine mammals in San Francisco Bay is related to distribution and presence of prey species and foraging habitat. Additionally, harbor seals (*Phoca vitulina*) and California sea lions (*Zalophus californianus*) use various intertidal substrates that are exposed at low to medium tide levels for resting and breeding. Marine mammals known to occur in San Francisco Bay that may be found in the project vicinity include California sea lion and harbor seal. Although sea lions are rarely documented in the area, harbor seals are known to haul out on Breakwater Island regularly (see further discussion of harbor seals in the section on Riprap and Breakwaters below). Other marine mammals less commonly observed in the San Francisco Bay (and not expected to occur in the waters off Alameda Point) include gray whale (*Eschrichtius robustus*), humpback whale (*Megaptera noveangliae*), harbor porpoise (*Phocoena phocoena*), northern elephant seal (*Mirounga angustirostris*), Steller sea lion (*Eumetopius jubatus*), and northern fur seal (*Callorhinus ursinus*).

Intertidal Habitat—Riprap and Breakwaters

Intertidal habitat in San Francisco Bay consists of mudflats, sandy beaches, rocky shores, and riprap that are inundated twice daily. Consisting of fine-grained silts and clays, mudflats support an extensive community of diatoms, worms, and shellfish, as well as algal flora including green algae, red algae, and sea lettuce. Eelgrass can also be a component of mudflats. During high tides, tidal flats are inundated and provide foraging habitat for a variety of fishes. During low tides, tidal flats are the major feeding areas for many shorebirds. There is little mudflat habitat at Alameda Point because the surrounding waters are generally too deep for bay sediments to be exposed. The mudflats that do occur are small and fragmented and therefore do not provide significant foraging habitat. Sandy beach habitat is also in short supply at Alameda Point but a small beach does occur in the southwest corner of the study area.

Riprap is a man-made permanent cover of rock, concrete, or other material, placed for shoreline protection. Riprap absorbs and deflects wave energy and the gaps in between the riprap help slow water flow, thus reducing shoreline erosion. Riprap is typically unvegetated above the high tide line but may support algae in the intertidal zone. Riprap can provide some, but not all, of the habitat values and functions that naturally occurring rocky shore habitat would provide, including a substrate for marine plant and sessile intertidal organisms such as mussels (*Mytilus* sp.) and barnacles. Rocky shore habitat also provides cover for invertebrates such as rock crabs (*Cancer antennarius* and *C. productus*) and for fish such as plainfin midshipmen (*Porichthys notatus*), which are known to seek cover and to spawn under concrete slabs. Subtidal riprap may be used as a refuge and grazing substrate for fishes and other aquatic animals. The marine plants, clams, mussels, barnacles, annelids, and crustaceans inhabiting rocky shore habitat are food sources for larger marine invertebrates, fishes, birds, and marine mammals. Riprap may also be used by terrestrial based invertebrates and smaller mammals and birds for cover and foraging. Larger birds—such as California brown pelican and double-crested cormorant (*Phalacrocorax auritus*)—may utilize the rock riprap for roosting.

Harbor seals use the tip of Breakwater Island as a haul-out site and forage extensively in the Breakwater Gap area (WETA, 2012). Although it is not considered a primary haul-out site for San Francisco Bay, Breakwater Island is reportedly the only haul-out site in the central Bay that is accessible to seals throughout the full tidal range. Aerial surveys of seal haul-outs conducted in the mid-1980s to the late 1990s typically counted fewer than 10 seals present at any one time. In the late 1990s harbor seals numbers at Breakwater Island apparently increased and it may have become more important as a winter haul-out for some reason, with seventy-three seals counted on in January 1997 and 20 observed hauled-out in April 1998. A small pup was observed in May 1997; however, site characteristics are not considered ideal for the island to be a major pupping area (USFWS 1998).

Breakwater Island supports a large nesting colony of western gulls in central and northern California. In June 1990, 239 western gull nests were counted on Breakwater Island, and a breeding population of 502 western gulls was estimated for the entire NAS Alameda (USFWS 1998). Breakwater Island also is a roosting site for three cormorant species, at least six gull species, at least eight shorebird species, and at least two species of egrets and herons (USFWS

1998). A large number of California brown pelicans roost on Breakwater Island during late summer through fall. The colony is the largest roost and the only known night roost in the San Francisco Bay Area (WETA 2012). At least 25 species of waterbirds have been documented foraging around the gap between the breakwaters, particularly in its tidal eddies. These species include Forster's tern (*Sterna forsteri*), Caspian tern, five species of grebe, at least seven duck species, at least two loon species, three cormorant species, the mew gull (*Larus canus*), western gull, and the American coot (*Fulica americana*) (City of Alameda 2002).

There is likely some bird use of Long Breakwater; however this area is accessible from mainland and is more likely to experience human-related disturbance so it is less likely to be used for nesting. Similarly, it is less likely to be used as a seal haul out than Breakwater Island (WETA 2012).

Special-Status Species and Natural Communities

A number of species known to occur in the project vicinity are protected pursuant to federal and/or State of California endangered species laws, or have been designated Species of Special Concern by CDFW. In addition, Section 15380(b) of the California Environmental Quality Act (CEQA) Guidelines provides a definition of rare, endangered, or threatened species that are not included in any listing, provided they meet certain criteria (e.g., it can be shown that the species' survival in the wild is in jeopardy or the species is at risk of becoming endangered in the near future).[3] Species recognized under these terms are collectively referred to as "special-status species." For the purposes of this EIR, special-status species include:

- Plant and wildlife species listed as rare, threatened or endangered under the federal or state endangered species acts.
- Species that are candidates for listing under either federal or state law.
- Species designated by CDFW as Species of Special Concern.
- Raptors (birds of prey), which are specifically protected by California Fish & Game Code Section 3503.5, which prohibits the take, possession, or killing of raptors and owls, their nests, and their eggs;[4] and
- Species that may be considered rare or endangered pursuant to Section 15380(b) of the CEQA Guidelines (such as those listed as "Special Animals" by CDFW, which include species on CDFW's watchlist, USFWS Birds of Conservation Concern, and colonial nesting birds).

[3] These criteria have been modeled after the definition in the FESA and the section of the California Fish and Game Code dealing with rare or endangered plants or animals. This section was included in the CEQA Guidelines primarily to deal with situations in which a public agency is reviewing a project that may have a significant effect on, for example, a "species of concern" that has not yet been listed by either the USFWS or CDFW. For example, vascular plants listed as rare or endangered or as California Rare Plant Ranks 1 or 2 by the California Native Plant Society (CNPS) and CDFW are considered subject to Section 15380(b).

[4] The inclusion of birds protected by Fish & Game Code Section 3503.5 is in recognition of the fact that these birds are substantially less common in California than most other birds, having lost much of their habitat to development, and the recognition that the populations of these species are therefore substantially more vulnerable to further loss of habitat and to interference with nesting and breeding than are most other birds. It is noted that a number of raptors and owls are already specifically listed as threatened or endangered by state and federal wildlife authorities.

Appendix H of this document provides comprehensive lists of special-status species that have been documented within, or have potential to occur in suitable habitat within, the vicinity of the project. These lists include occurrences documented by the California Natural Diversity Database (CNDDB) (CDFW, 2013), California Native Plant Society Electronic Inventory (CNPS, 2013), and the U.S. Fish and Wildlife Service (USFWS, 2013). Several species not included on the lists are also included based on information on their presence in the project area presented in prior reports or environmental documentation. Table H-1 in Appendix H, which includes all 101 species considered, was compiled from these lists and presents the species, their status, their habitat requirements, and the potential for each species to occur within the project area or adjacent habitat. Based on review of the biological literature of the region, information presented in previous environmental documentation, and an evaluation of the habitat conditions of the project area, a species was designated as "absent" if: (1) the species' specific habitat requirements (e.g., serpentine grasslands, as opposed to grasslands occurring on other soils) are not present, or (2) the species is presumed, based on the best scientific information available, to be extirpated from the project area or region. A species was designated as having a "low potential" for occurrence if: (1) its known current distribution or range is outside of the project area or (2) only limited or marginally suitable habitat is present within the project area. A species was designated as having a "moderate potential" for occurrence if: (1) there is low to moderate quality habitat present within the project area or immediately adjacent areas or (2) the project area is within the known range of the species, even though the species was not observed during biological surveys. A species was designated as having a "high potential" for occurrence if: (1) moderate to high quality habitat is present within the project area, and (2) the project area is within the known range of the species. Many of the species listed in Table H-1 of Appendix H have only a low potential for occurrence or are absent from the project site and were eliminated from further evaluation, primarily because the project area does not provide suitable habitat for them. Of the 101 special-status plants and animals presented in Table H-1 of Appendix H only the following 34 wildlife species, which have been observed, or were determined to have a moderate to high potential to occur, within the project area, were further considered in the impact analysis:

- Green sturgeon
- Central California coast coho salmon
- Central California coastal steelhead
- Central Valley steelhead
- Sacramento River winter-run Chinook salmon
- Central Valley spring-run Chinook salmon
- Longfin smelt
- Pacific herring
- Central Valley fall/late fall-run Chinook salmon
- California least tern
- Western snowy plover
- White-tailed kite
- Burrowing owl
- Great horned owl
- Red-tailed hawk
- Red-shouldered hawk
- Northern harrier
- Snowy egret
- California horned lark
- American kestrel
- Caspian tern
- Loggerhead shrike
- California gull
- Alameda song sparrow

- Peregrine falcon
- California brown pelican
- Monarch butterfly
- Cooper's hawk
- Great egret
- Great blue heron
- Osprey
- Double-crested cormorant
- Townsend's big-eared bat
- Pacific harbor seal
- California sea lion

Each of these species and their potential for occurrence is described in detail below. No special-status plants are expected to occur within, or in the vicinity of, the project area. The project area is located completely on fill, primarily developed with concrete and asphalt, and supports little in the way of intact natural communities. Natural communities that do occur (the Northwest Territories grasslands or seasonal wetlands for example) are generally disturbed, greatly simplified in terms of plant diversity, and dominated by non-native species. In addition, these communities are isolated from special-status plant source populations. Finally, no special-status plants have been observed at Alameda Point and nearby documented occurrences are almost exclusively historical in nature. The general locations of sensitive biological resources in the project are presented in **Figure 4.E-2**.

Green sturgeon (*Accipinser medirostris*). The southern Distinct Population Segment (DPS) of green sturgeon is a federal threatened species and a California Species of Special Concern. This anadromous fish is the most widely distributed member of the sturgeon family and the most marine-oriented of the sturgeon species. Green sturgeons range in the nearshore waters from Mexico to the Bering Sea and are common occupants of bays and estuaries along the western coast of the United States (Moyle et al., 1995). Adults in the San Joaquin Delta are reported to feed on benthic invertebrates including shrimp, amphipods and occasionally small fish (Moyle et al., 1995) while juveniles have been reported to feed on opossum shrimp and amphipods. Adult green sturgeons migrate into freshwater beginning in late February with spawning occurring in March through July, with peak activity in April and June. After spawning, juveniles remain in fresh and estuarine waters for 1-4 years and then begin to migrate out to the sea (Moyle et al., 1995). The upper Sacramento River has been identified as the only known spawning habitat for green sturgeon in the southern DPS. However, the entire San Francisco Bay has been designated as critical habitat for the species and there is some potential for green sturgeon to occur in project area waters.

Central California coast coho salmon (*Oncorhynchus kisutch*). The Central California coast coho salmon is a federally listed threatened and state-listed endangered ESU. Adult coho migrate through San Francisco Bay after heavy late fall or winter rains to spawn in the Sacramento/San Joaquin Delta. Juvenile coho potentially occur in San Francisco Bay in the spring, summer, and fall and may be present in project waters in low numbers.

The project site is outside of designated critical habitat for Central California Coast coho salmon, which includes the waters of San Francisco Bay north of the Bay Bridge.

SOURCE: ESRI, USDA, USGS, Subtidal Goals Project, City of Alameda

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Figure 4.E-2
Sensitive Biological Resources in the Project Vicinity

Central Valley and Central California coastal steelhead (*Oncorhynchus mykiss*). Steelhead populations in the Central California Coast Evolutionarily Significant Unit (ESU) are listed as threatened under the federal Endangered Species Act (FESA) and Central Valley Distinct Population Segments (DPS) are listed as threatened under FESA and the California Endangered Species Act (CESA). Steelhead possess the ability to spawn repeatedly, maintaining the mechanisms to return to the Pacific Ocean after spawning in freshwater. Juvenile steelhead may spend up to four years residing in fresh water prior to migrating to the ocean as smolts. Central Valley steelhead migrate through Central Bay waters between freshwater spawning and rearing areas in the Central Valley and the Pacific Ocean, and may occasionally occur seasonally in the waters of the project area during migration. The project site is outside of critical habitat for Central Valley steelhead, which includes the waters of San Francisco Bay north of the Bay Bridge. Central California coastal steelhead have small spawning runs in south Bay creeks, Alameda Creek, and, possibly San Leandro Creek (Goals Project 2000). Fish migrating to and from these spawning grounds may also occur in project area waters.

Critical habitat for Central California coastal steelhead includes all river reaches and estuarine areas accessible to steelhead in coastal river basins, from the Russian River to Aptos Creek (inclusive), and the drainages of San Francisco and San Pablo Bays. Also included are adjacent riparian zones, all waters of San Pablo Bay west of the Carquinez Bridge, and all waters of San Francisco Bay to the Golden Gate. Therefore, critical habitat for this DPS includes the waters adjacent to the project area.

Longfin Smelt (*Spirinchus thaleichthys*). The longfin smelt is a state-listed endangered species and a candidate being considered for listing as endangered or threatened by the USFWS (USFWS 2012). The longfin smelt is a pelagic (living in open water) schooling fish known to inhabit the San Francisco Bay-Delta, including all of the waters of the Central Bay including the waters adjacent to Alameda Point (Robinson and Greenfield 2011). Although observed in Central San Francisco Bay waters throughout the year, longfin smelt migrate to the fresher water of the Delta to spawn in the winter, returning to bay waters in late spring. No critical habitat has been designated for this species.

Sacramento River winter-run, Central Valley spring-run, and Central Valley fall/late fall-run Chinook Salmon (*Oncorhynchus tshawytscha*). The population of Chinook salmon in San Francisco Bay is comprised of three distinct races: winter-run, spring-run, and fall/late fall-run. These races are distinguished by the seasonal differences in adult upstream migration, spawning, and juvenile downstream migration. Chinook salmon are anadromous fish, spending three to five years at sea before returning to fresh water to spawn.

These fish pass through San Francisco Bay waters to reach their upstream spawning grounds. In addition, juvenile salmon migrate through the Bay en route to the Pacific Ocean.

Sacramento River winter-run Chinook salmon, listed as both state and federally endangered, migrate through San Francisco Bay from December through July with a peak in March (Moyle, 2002). Spawning is confined to the mainstem Sacramento River and occurs from mid-April through August (Moyle, 2002). Juveniles emerge between July and October, and are resident in their natal stream 5-10 months followed by an indeterminate residency period in estuarine habitats (Moyle, 2002). Adult winter-run Chinook salmon can be found in San Francisco Bay beginning November through December.

The State and federal-listed threatened Central Valley spring-run Chinook salmon migrate to the Sacramento River from March to September with a peak spawning period between late August and October (Moyle, 2002). Juvenile salmon emerge between November and March, and are resident in streams for a period of 3 to 15 months before migrating to downstream habitats (Moyle, 2002). Adults are found in San Francisco Bay during the migratory period in the spring, and juveniles have the potential to inhabit the Bay in the fall, winter, and spring. Spring-run chinook may occur in project area waters in low numbers.

The Central Valley fall/late fall-run Chinook salmon is a California Species of Special Concern. These salmon enter the Sacramento and San Joaquin Rivers from June through December and spawn from October through December, with a peak in November.

Adult and juvenile (smolts) winter-run, spring-run, and fall-run Chinook salmon may occasionally occur in waters adjacent to the project area during migrations between the Pacific Ocean and upstream freshwater spawning habitat.

Critical habitat for winter-run and spring-run chinook includes all waters of San Francisco Bay north of the Bay Bridge. Therefore, the project area is outside designated critical habitat for these taxa.

Pacific herring (*Clupea pallasi*) is neither a protected species under the FESA or CESA nor a managed fish species under the Magnuson-Stevens Act. Pacific herring does, however, represent a species of special concern for San Francisco Bay since it is an important member of the San Francisco Bay marine ecosystem; provides an important food source for marine mammals, sea birds, and fish; and constitutes a state fishery that is entirely conducted within an urban estuary, making it particularly susceptible to anthropogenic impacts. As a state fishery it is regulated under Sections 8550-8559 of the California Fish and Game Code.

The species is both a popular sport fish and a commercially important species. The Pacific herring is a small schooling marine fish that enters estuaries and bays to spawn. This species is known to spawn along the Oakland and San Francisco waterfronts and attach its egg masses to eelgrass, seaweed, and hard substrates such as pilings, breakwater rubble, and other “hard surfaces”. An individual can spawn only once during the season, and the spent female returns to the ocean immediately after spawning. Spawning usually takes place between October and March with a peak between December and February. After hatching, juvenile herring typically congregate in San Francisco Bay during the summer and move into deeper waters in the fall. Pacific herring may be present in project area waters and may spawn there in some years.

California least tern (*Sternula antillarum browni*). California least tern is federally and State-listed as endangered and is also a state Fully Protected species. The California least tern is the smallest tern in North America and it forages over open water or protected bays, skimming low over the water or diving for small fish. The California least tern breeds on sandy beaches along the coast of California south to Mexico, and winters in Mexico, Central America, and south to South America. The majority of current nesting colonies and the population are found in southern California, with smaller populations in the San Francisco Bay Area and in Baja California (DVA, 2013). The California least tern was first documented nesting at the former NAS Alameda in 1976, while the air station and its runways were still active. Since that time and the closure of NAS Alameda, the colony has grown to be the largest in the San Francisco Bay Area (DVA, 2013). The majority of least terns typically arrive at Alameda by late April. Least terns nest almost entirely within the fenced tern colony on the Federal Property with the exception of occasional instances of terns attempting to nest outside of the fenced area. Terns also fledge to and roost outside of the fenced colony. Least terns use the adjacent open waters of San Francisco Bay, nearby Seaplane Lagoon, and the Oakland-Alameda Estuary for foraging. Tern foraging primarily occurs in the waters south and west of the colony (DVA, 2013). The colony at Alameda is the largest in the Bay, with the second largest occurring at Hayward Regional Shoreline, about 14 miles southeast of the project area (Reinsche et al., 2012).

Western snowy plover (*Charadrius alexandrinus nivosus*). The western snowy plover, a federally listed threatened species and a California Species of Special Concern, breeds primarily on coastal beaches from southern Washington to southern Baja California. The species breeds above the high tide line on coastal beaches, sand spits, dune-backed beaches, sparsely-vegetated dunes, beaches at creek and river mouths, and salt pans at lagoons and estuaries. Less common nesting habitat includes bluff-backed beaches, dredged material disposal sites, salt pond levees, dry salt ponds, and river bars. Snowy plover use areas with wide, sandy, dune-backed beaches for roosting and foraging during the nonbreeding season. This species forages above and below the mean high waterline, typically gathering food from the surface of the sand, wrack line, or low foredune vegetation. Snowy plover have been observed in past years on Bay Farm Island near the Oakland Airport (CDFW 2013); the last recorded observation was in 1979. In the project study area, western snowy plovers were observed nesting within the California least tern colony during at least 2 years in the early 1980s (DVA, 2013). Since then, western snowy plovers have been observed occasionally within the Federal Property during bird count surveys (DVA, 2013). Suitable nesting habitat is located within the California least tern colony and other tarmac areas, and suitable foraging habitat occurs in the intertidal mudflats of the Runway Wetland and the West Beach Landfill Wetland. Given the occurrences within the Federal Property and presence of suitable habitat, the western snowy plover is likely to continue to use the Federal Property as an occasional stopover site during migration, and potentially, as a nesting location (DVA, 2013).

White-tailed kite (*Elanus caeruleus*). The white-tailed kite is a California Species of Special Concern. This species forages in wetlands and open brushlands, usually near water and streams. Oak woodlands, valley oak or live oak, or trees along marsh edges are used for nesting sites. The nest made by this species is a frail platform of sticks, leaves, weed stalks, and similar materials located in tree or bush. A combination of habitats is essential, including open grasslands, meadows or marshes for foraging, and isolated dense topped trees for perching and nesting. The destruction of wetlands is a primary threat to this species. The Alameda County Breeding Bird Atlas shows few breeding locations for this species near San Francisco Bay. However, white-tailed kites have successfully nested in a light industrial neighborhood near Arrowhead Marsh in Oakland (M. Lowe, pers. obs.) and they could nest in mature trees within the project area.

Peregrine falcon (*Falco peregrinus*). Listed as Fully Protected[5] under the California Fish and Game Code, the peregrine falcon was removed from the federal list of threatened and endangered species in 1999 and the State list of threatened and endangered species in 2008 due to recovery. Peregrines are known throughout California and is a year-around resident along the Pacific coast. The peregrine is a specialist, preying primarily on mid-sized birds, such as pigeons and doves, in flight. Occasionally these birds will take insects and bats. Although typical nesting sites for the species are tall cliffs, preferably over or near water, peregrines are also known to use urban sites, including the Bay Bridge and tall buildings in San Francisco and San Jose, and throughout the Bay Area. Peregrine falcons nest annually on the Fruitvale Bridge between Oakland and Alameda and in other urban sites throughout the Bay Area. Peregrines are also known to use structures at the Port of Oakland for roosting (but are not known to nest there) and are observed regularly within the project area. In recent years, peregrines have been one of the top predators at the California least tern colony during the breeding season (DVA, 2013).

California brown pelican (*Pelecanus occidentalis californicus*). A state Fully Protected species, which was removed from the federal and State lists of threatened and endangered species in 2009 due to recovery, are found in estuarine, marine subtidal, and marine pelagic waters throughout coastal California (Zeiner et al., 1990). Important habitat for pelicans during the nonbreeding season includes roosting and resting areas, such as offshore rocks, islands, sandbars, breakwaters, and pilings. Suitable areas need to be free of disturbance. This species rests temporarily on the water or isolated rocks, but roosting requires a dry location near food and a buffer from predators and humans.

In 1998 a large number of California brown pelican was known to roost on Breakwater Island during late summer through fall. This was the largest roost, and the only known night roost, in the San Francisco Bay Area at that time (USFWS 1998). More recently, the California brown pelican was described as using Breakwater Island as a winter roosting area (DVA, 2013). Pelicans forage for small surface-schooling fish, primarily anchovy, in the adjacent Bay waters.

Monarch butterfly (*Danaus plexippus*). These orange and black butterflies make massive migrations from August-October, flying thousands of miles south to winter along the California coast and in central Mexico. Along the way, monarchs stop to feed on flower nectar and to roost together at night and can be found in many open habitats including fields, meadows, weedy areas, marshes, and roadsides. Every fall, the monarch flies to the same overwintering sites and frequently to the same trees. At wintering sites, these butterflies roost in trees and form huge aggregations that may have thousands to millions of individuals. In California, these sites are primarily eucalyptus (*Eucalyptus* sp.) or Monterey pine (*Pinus radiata*) groves and the butterfly winters at such sites from about October through February.

5 A California fully protected species cannot be taken at any time, except, under certain circumstances, in association with a species recovery plan.

Two other types of migration sites are also important to the monarch butterfly: autumnal roost sites and nectaring bivouacs. Autumnal roost sites generally host smaller populations of the monarch, and may be used for only a few weeks or a couple of months in the fall and early winter as the butterfly passes through an area. Nectaring bivouacs often support a consistent flow of the monarch as the butterfly moves to and from cluster sites located elsewhere (City of Alameda 2002).

According to the 2002 DEIR for Alameda Point, there is a grove of trees in the northern main street neighborhood subarea where monarch butterflies have been observed in fairly dense concentrations in the fall. The grove of trees is a mixture of Monterey pine, stone pine, and eucalyptus. The grove is in a park-like area between houses. The trees are kept trimmed up to the canopy and the understory consists of manicured lawn. The butterfly was thought to be using these trees as autumnal roost sites, rather than overwintering sites, because they were not observed in high densities during the winter months (City of Alameda 2002). The CNDDB has no record of the species occurring at Alameda Point and there has been no recent documentation of the butterfly at this location. However, their continued presence cannot be ruled out. The nearest CNDDB documented roost site is at Chuck Corica Golf Complex on Bay Farm Island.

Cooper's hawk (*Accipiter cooperi*). Cooper's hawks range over most of North America and may be seen throughout California, most commonly as a winter migrant. Nesting pairs have declined throughout the lower-elevation, more populated parts of the state. Cooper's hawk generally forage in open woodlands and wooded margins and nests in tall trees, often in riparian areas. Cooper's hawk is known to nest locally in Bay Area urban neighborhoods and five occupied nests were documented in the April 2013 in Alameda (City of Alameda 2013a and b). The nearest nest was a little over 0.5 mile to the east of the project area. This species likely forages for avian prey in and around the project area and may nest in mature trees in the project area as well, particularly in the Main Street Neighborhood Sub-Area. Cooper's hawks are on the CDFW Watchlist and are protected under Section 3503.5 of the California Fish and Game Code.

Great egret (*Ardea alba*). The great egret is a common permanent resident throughout California, except for high mountains and deserts. The species feeds and rests in fresh and saline emergent wetlands, along the margins of estuaries, lakes, and slow-moving streams, on mudflats and salt ponds, and in irrigated croplands and pastures. Great egrets require groves of trees suitable for nesting and roosting, relatively isolated from human activities, near aquatic foraging areas. Great egret is a state designated special animal due to declining availability of breeding areas and its rookeries are protected. The nearest known rookery is at Lake Merritt in Oakland, about 2.5 miles from the project area. There is another egret rookery at Bay Farm Island, about 3.5 miles from the project area. The species is known to forage in the project area but there are no rookeries documented there.

Great blue heron (*Ardea herodias*). Great blue heron is a state designated special animal due to declining availability of breeding areas and its rookeries are protected. Great blue heron is a year round resident throughout California, in and around reservoirs, streams, and lakes with trees for nesting. The species is typically a colonial nester. This species forages in slow moving streams with adjacent wetlands, shallow bay waters, and grasslands, feeding on small fish, amphibians, invertebrates, small mammals, and young birds. Great heron rookeries, made up of anywhere from a few to hundreds of nests, are considered a resource of conservation concern by the CDFW due to their general rarity and susceptibility to disturbance. The species has been documented nesting in cypress trees at the Runway Wetland in the southeastern corner of the Federal Property (Alameda Point Environmental Report 2013) but, although the Alameda County Breeding Bird Atlas confirms a nest site in central northern Alameda Island, there is no significant rookery present within the project area (only two nests were documented). Nonetheless, the species is protected while nesting under Section 3503 of the California Fish and Game Code.

Burrowing owl (*Athene cunicularia*). The burrowing owl is a California Species of Special Concern and is a small, semi-fossorial bird of prairie and grassland habitats. Burrowing owls in the western United States rarely dig their own burrows, but take over burrows dug by ground squirrels. Burrowing owls are generally found in open country including annual and perennial grasslands, open agricultural areas, deserts, and vacant lots. Burrowing owls are able to adapt to some human altered landscapes, including the perimeters of agricultural fields, irrigation ditches, fallow agricultural fields, open fields prepared for development, airports, golf courses, military bases, and parks. These owls can be found adjacent to San Francisco Bay on levees next to salt ponds, open unmanicured grasslands, or manicured fields near the Bay's edge where ground squirrel numbers and foraging area are adequate. These birds are primarily terrestrial predators and in these locations focus on mice and insects, although burrowing owl have also been documented as a predator of the California least tern at Alameda Point. Burrowing owls were said to have been seen nesting in the grasslands adjacent to the West Beach Landfill wetlands in the early 1990's (Feeney 1994) and have also been observed on the Federal Property during the winter months as recently as 2012 (APER 2012). As of 2008, however, the Alameda County Breeding Bird Atlas was unable to confirm nesting burrowing owls north of Arrowhead Marsh in Oakland (Richmond et al. 2011).

Great horned owl (*Bubo virginianus*). This species, like other raptors and birds in general, is protected under California Fish and Game Code Sections 3503 and 3503.5. Great horned owls occur throughout North America and are found in a variety of wooded habitats. These large raptors prey on small to medium-sized mammals such as voles, rabbits, skunks, and squirrels. Great horned owls can often be seen and heard at dusk, perched in large trees. They roost and nest in large trees such as pines or eucalyptus. They often use the abandoned nests of crows, ravens, or sometimes squirrels (Ehrlich et al., 1988; Sibley, 2000). Great horned owls may use large trees in the Main Street Neighborhood Sub-Area for roosting or nesting and may forage over grassland and ruderal habitat in the project area for voles and other small mammals.

Red-tailed hawk (*Buteo jamaicensis*). Red-tailed hawks are commonly found in woodlands and open country with scattered trees. These large hawks feed primarily on small mammals, but will also prey on other small vertebrates, such as snakes and lizards, as well as on small birds and invertebrates. Red-tailed hawks nest in a variety of trees in urban, woodland, and agricultural habitats and are the most common hawk observed in the urban Bay Area. Although the Alameda County Breeding Bird Atlas does not confirm nesting by this species on Alameda Island, and the species was not documented as nesting there in 2013 (City of Alameda 2013) the open grasslands and ruderal areas support a relatively high prey base of small mammals and there are numerous mature trees that provide potential raptor nesting habitat. Two red-tailed hawks were observed roosting in a willow wetland habitat on the southern border of the Northwest Territories during ESA's 2013 reconnaissance survey. Red-tailed hawks are protected under Section 3503.5 of the California Fish and Game Code.

Red-shouldered hawk (*Buteo lineatus*). Red-shouldered hawks are another common raptor species, typically found in a variety of woodlands with nearby open areas for foraging. This species has a highly varied diet of small mammals, snakes, lizards, amphibians, small or young birds, and large insects. Red-shouldered hawks build large stick nests in mature trees, including riparian woodland trees and large eucalyptus groves. Breeding for this species has not been confirmed along the East Bay shoreline (Richmond et al. 2011) nor during City-wide raptor monitoring in 2013 (City of Alameda 2013a and b). However, large trees within Alameda Point may support breeding, and red-shouldered hawks could forage for small mammals over open space within the greater project area. Red-shouldered hawk is protected under Section 3503.5 of the California Fish and Game Code.

Northern harrier (*Circus cyaneus*). Northern harrier nest and forage along wet meadows, sloughs, savanna, prairie, and marshes, feeding on small mammals such as California vole and mice. Destruction of marsh habitat is the primary reason for the decline of this species. Northern harrier may use wetlands and grasslands in the project site for foraging and nesting (City of Alameda 2002).

Snowy egret (*Egretta thula*). Snowy egret feed on small fish, crustaceans, and large insects, in shallow water or along shores of wetlands or aquatic habitats. San Francisco Bay colonies nest at ground level on *Grindelia humilis*, pickleweed (*Salicornia pacifica*), and most commonly on coyote brush (*Baccharis pilularis*). Nesting colonies of both species are named resources on the California Special Animals List. The nearest known rookery is at Lake Merritt in Oakland, about 2.5 miles from the project area. There is another egret rookery at Bay Farm Island, about 3.5 miles from the project area. The species is known to forage in the project area but there are no rookeries documented there.

California horned lark (*Eremophila alpestris actia*). California horned lark was, until recently, listed by the State of California as a Species of Special Concern but is currently on the CDFW watchlist due to a perceived reduction in threat to the species. However, this passerine is still protected under California Fish and Game Code Section 3503, which prohibits the taking or destroying of nests or eggs of nearly all birds. This species is a permanent resident in most of California except the Sierra during winter. It is usually found in open habitat, such as grassland and agricultural areas, where trees and shrubs are absent. This species has been observed from sea level to above treeline in grasslands, deserts and alpine dwarf-scrub habitat. Horned lark uses grasses, shrubs, forbs, rocks, litter, clods of soil, and other surface irregularities for cover from predators. The California horned lark typically nests in dry grasslands and rangelands that provide low, sparse cover (e.g., grazed, mowed, or barren areas without trees and shrubs) between March and July. Foraging habitat includes open grasslands where insects and seeds are abundant. The species has been documented as nesting in the Northwest Territories and/or the adjacent Federal Property (City of Alameda 2002).

American kestrel (*Falco sparverius*). The American kestrel is a relatively small member of the falcon family that preys on small birds and on mammals, lizards, and insects. The kestrel is most common in open habitats, such as grasslands or pastures. American kestrels nest in cavities, primarily in trees, but may also use buildings for nesting. The species has been confirmed nesting on Alameda Island (Richmond et al. 2011) and may nest in mature trees or buildings at Alameda Point. American kestrels are protected under Section 3503.5 of the California Fish and Game Code.

Loggerhead shrike (*Lanius ludovicianus*). Loggerhead shrike is found throughout California in open habitats, such as grasslands or, occasionally, agricultural fields, using shrubs, trees, posts, fences, and utility lines for perching. Habitats with little to no human disturbance are preferred and edges of denser habitats are sometimes used. Insecticides and habitat loss have caused population decreases for this species. Loggerhead shrike is documented as breeding at "the former Alameda Naval Air Station" (Richmond et al. 2011) and is likely to occur in the Northwest Territories, as well as the Federal Property.

California gull (*Larus californicus*). The California gull, formerly a State Species of Special Concern due to declining numbers in their historical breeding population at Mono Lake, is currently on the CDFW watchlist. Nesting colonies in California are still considered to be of conservation concern by CDFW, even though the species has established large breeding colonies in the San Francisco Bay area, primarily located in the South Bay (Ackerman et al. 2006). The California gull is a medium-sized gull with a yellow bill with a black ring, and yellow legs. The species breeds primarily at lakes and marshes in interior western North America from Canada south to eastern California and Colorado (Sibley 2000). Birds that breed inland are migratory, most moving to the Pacific coast in winter. More recently, the species has been breeding in large numbers at the salt ponds of south San Francisco Bay. They nest in colonies, sometimes with other bird species. The nest is a shallow depression on the ground lined with vegetation and feathers. The female usually lays 2 or 3 eggs and both parents feed the young birds. California gulls forage in flight or pick up objects while swimming, walking or wading and the primarily eat insects, fish, and eggs. They also scavenge at garbage dumps or docks. California gulls may have negative effects on other ground-nesting birds and have been found to be significant predators on American avocet, black-necked stilt and western snowy plover eggs and chicks (*ibid.*). California gull have been observed nesting in the Federal Property (WETA 2010) and may also nest in the Northwest Territories.

Alameda song sparrow (*Melospiza melodia pusillula*). The Alameda song sparrow is one of three morphologically distinct song sparrow subspecies that occur in tidal marshes of the San Francisco Bay region. This particular subspecies is endemic to the marshes bordering the Central Bay and is a state species of concern. Intermixed stands of bulrush (*Scirpus* spp.), cattail (*Typha* spp.), and other emergent vegetation provide suitable habitat in brackish marshes. Alameda song sparrows nest in tall tules with local pickleweed. They also frequent tall vegetation along the edges of tidal marshes and forage on mudflats and channel beds exposed at low tide. Alameda song sparrow may use salt marsh habitat in the Northwest Territories and the Federal Property for nesting and foraging.

Osprey (*Pandion haliaetus*). The osprey is a former California Species of Special Concern and nesting osprey are currently on the CDFW Watchlist. Osprey are also protected under Section 3503.5 of the California Fish and Game Code. These large fish-eating raptors can be found around nearly any water body, including salt marshes, rivers, ponds, reservoirs, estuaries, and oceans. Historically, ospreys nested throughout much of California but by the 1960's much of the osprey population declined in central and southern California area. This decline was attributed to human persecution, habitat alteration, and DDT use. The osprey prefers to nest within sight of permanent water and readily builds its nest on manmade structures, such as telephone poles, channel markers, duck blinds, and nest platforms designed especially for it. A nesting pair has bred successfully within the project area at the end of Breakwater Island and, more recently, on one of the MARAD ships moored in Seaplane Lagoon (City of Alameda 2013a and b). The nest failed in 2013 (City of Alameda 2013b)

Double-crested cormorant (*Phalacrocorax auritus*). The double-crested cormorant is a former Species of Special Concern in California and its nesting colonies are still considered a resource of conservation concern by the CDFW. A yearlong resident along the entire coast of California, the species is fairly common to locally very common along the coast and in estuaries and salt ponds. The species forages mainly on fish, crustaceans, and amphibians. It sometimes feeds cooperatively in flocks of up to 600, often with pelicans, and nests in colonies of a few to hundreds of pairs (Zeiner et al., 1990). There are known breeding colonies within the Bay on Yerba Buena and Alcatraz Islands, as well as the Richmond-San Rafael and Bay Bridges. The species forages and roosts within the project area but is not known to nest there.

Caspian tern (*Sterna caspia*). These terns, whose nesting colonies are listed as a sensitive resource on the California Special Animals List, are common to very common along the California coast and at scattered locations inland, from April through early August. They nest in colonies on sandy estuarine shores, on levees in salt ponds, and on islands in alkali and freshwater lakes. Breeding adults often fly substantial distances to forage in lacustrine, riverine, and fresh and saline emergent wetland habitats. Caspian terns nest in the vicinity of the West Wetland and forage in the surrounding waters of the project area.

Townsend's big-eared bat (*Corynorhinus townsendii*). Townsend's big-eared bat is distributed along the Pacific coast British Columbia south to central Mexico and east into the Great Plains, with isolated populations occurring in the central and eastern United States. It has been reported in a wide variety of habitat types ranging from sea level to over 7,000 feet elevation. Habitat associations include coniferous forests, mixed mesophytic forests, deserts, native prairies, riparian communities, active agricultural areas, and coastal habitat types. While its distribution is strongly correlated with the availability of caves and cave-like roosting habitat, including abandoned mines, the species has also been reported to utilize buildings, bridges, rock crevices and hollow trees as roost sites. Over 90% of the species' diet consists of moths. The species has been reported from the northern Alameda Island shoreline roosting in buildings (City of Alameda 2010) and may occur in the project area, most likely only on a transient basis.

Harbor seal (*Phoca vitulina richardii*). The harbor seal is a year-round resident in San Francisco Bay and is routinely seen in Bay waters. Harbor seals are protected under the Marine Mammal Protection Act (described below in the Regulatory Framework). They have been observed as far upstream in the Delta and Sacramento River as the City of Sacramento, though their use of the habitat north of Suisun Bay is irregular (Goals Project, 2000).

Harbor seals feed in the deepest waters of the bay, with the region from the Golden Gate to Treasure Island and south to the San Mateo Bridge being the principal feeding site (Kopec and Harvey 1995). Harbor seals feed on a variety of fish, such as perch, gobies, herring, and sculpin. As noted above in the discussion of riprap habitat, harbor seals use Breakwater Island as a haul-out but the site is not expected to be used for pupping. These seals move through, and may also forage in, adjacent waters.

California sea lion (*Zalophus californianus*). Like the harbor seal, the California sea lion is a permanent resident in the San Francisco Bay-Delta and protected by the Marine Mammal Protection Act. A common, abundant marine mammal, they are found throughout the West Coast, generally within 10 miles of shore. They breed in Southern California and the Channel Islands, after which they migrate up the Pacific coast to the bay. They haul out on offshore rocks, sandy beaches, and onto floating docks, wharfs, vessels, and other man-made structures in the bay and coastal waters of the state. California sea lions feed on a wide variety of seafood, mainly squid and fish and sometimes clams. California sea lions may occasionally forage in the waters of the project area.

Other breeding and migratory birds. Alameda Island and surrounding Bay waters provide habitat for over a diversity of birds, with some species as year-round residents, other species as winter residents, and still others passing through along the Pacific Flyway during spring and fall migrations. Avian diversity in urbanized areas is highest where relatively large sized, diverse patches of habitat remain. Trees, shrubs, grasslands, seasonal and tidal wetlands, and buildings within the project area provide foraging and nesting habitat for a variety of birds as well as patches of habitat for potential use by migrants as stop-over sites. As discussed further below in the Regulatory Framework, most migratory birds are protected from harm by the federal Migratory Bird Treaty Act and nearly all breeding birds in California are protected under the California Fish and Game Code (Section 3503).

Special-Status Natural Communities

Special-status natural communities are designated by various resource agencies, such as the CDFW, or in local policies and regulations, and are generally considered to have important functions or values for wildlife and/or are recognized as declining in extent or distribution, and are considered threatened enough to warrant some sort of protection. For example, many local agencies in California consider protection of oak woodlands important, and federal, State, and most local agencies also consider wetlands and riparian habitat as sensitive communities. CDFW tracks communities it believes to be of conservation concern through its *List of California Terrestrial Communities* (CDFG, 2010) and the California Natural Diversity Database (CNDDB), and these communities are typically considered special-status for the purposes of CEQA analysis (CDFG, 2009).

Special-status natural communities listed by CNDDB as occurring within the project vicinity include northern coastal salt marsh, northern maritime chaparral, serpentine bunchgrass grassland, and valley needlegrass grassland. Of these, only northern coastal salt marsh occurs within the project area, along the northern perimeter of the project area and on the Federal Property to the south and west of the project area. Seasonal wetlands, considered sensitive as wetland habitat by the Army Corps of Engineers (Corps), the CDFW, and the San Francisco Bay Regional Water Quality Control Board (RWQCB), occur within the Northwest Territories and on the Federal Property. Additionally, certain waters of the U.S. are considered “special aquatic sites” because they are generally recognized as having unique ecological value. Such sites include sanctuaries and refuges, mudflats, wetlands, vegetated shallows, eelgrass beds, and coral reefs. Special aquatic sites are defined by the U.S. EPA and may be afforded additional consideration in the permit process for a project requiring federal agency approvals or covered under federal regulations. Within San Francisco Bay, two sensitive natural communities that are routinely afforded special attention are submerged aquatic vegetation beds, such as eelgrass beds, and native oyster beds. Eelgrass beds are known to occur off the western and northern shores of Alameda Island and in several small patches within Seaplane Lagoon (see Figure 4.E-2). A long term monitoring site for native oysters is located at the Encinal Boat ramp in the southeast corner of the project site.

Critical Habitat and Essential Fish Habitat

The USFWS and National Marine Fisheries Service (NMFS) designate critical habitat for species that they have listed as threatened or endangered. “Critical habitat” is defined in Section 3(5)(A) of the Federal Endangered Species Act as those lands (or waters) within a listed species’ current range that contain the physical or biological features that are considered essential to the species’ conservation, as well as areas outside the species’ current range that are determined to be essential to its conservation. Critical habitat for green sturgeon and Central California coast steelhead is designated in San Francisco Bay and includes the waters within and adjacent to the project area.

Additionally, essential fish habitat (EFH) (see Regulatory Framework section below for further discussion on EFH) is present in the study area for Pacific groundfish, coastal pelagics, and Pacific Coast salmon. As noted above, several threatened and endangered salmonids have potential to occur in project area waters. Pacific groundfish species include species of rockfishes, flatfishes, sharks, and others. Coastal pelagic species include Pacific herring, northern anchovy, Pacific sardine, and jack mackerel (WETA 2011). Eelgrass in particular is designated as EFH for various federally-managed fish species within the Pacific Coast Groundfish and Pacific Coast Salmon Fisheries Management Plans (FMP). Eelgrass is also considered a habitat area of particular concern (HAPC) for various species within the Pacific Coast Groundfish FMP. An HAPC is a subset of EFH; these areas are rare, particularly susceptible to human-induced degradation, especially ecologically important, and/or located in an environmentally stressed area.

Jurisdictional Waters

San Francisco Bay and Oakland-Alameda Estuary

San Francisco Bay and the Oakland-Alameda Estuary are considered navigable Waters of the United States; therefore, they are “jurisdictional” waters regulated by the Corps under Section 10 of the Rivers and Harbors Act up to mean high water and Section 404 of the Clean Water Act (CWA) up to the mean high tide line (see Regulatory Framework below). These waters are also regulated by the RWQCB as Waters of the State and by the San Francisco Bay Conservation and Development Commission (BCDC), which has jurisdiction over all areas of San Francisco Bay that are subject to tidal action, as well as a 100-foot shoreline band (see Section 4.A, *Land Use*, describing the jurisdiction of BCDC). See Figure 4.E-1 for locations of northern coastal salt marsh and seasonal wetlands within the project study area.

Seasonal Wetlands

Seasonal wetlands are located in the Northwest Territories within the project area and on the Federal Property to the south and west of the project area and are likely considered jurisdictional by the Corps and the RWQCB. Within the project area seasonal wetlands occur where water ponds and soils remain saturated during the growing season. Most if not all are hydrologically connected to San Francisco Bay through storm drains (DVA, 2013). Additionally their adjacency to the Bay could be considered to provide significant nexus, therefore these wetlands are all likely subject to Corps jurisdiction under Section 404 of the CWA. Only one seasonal wetland was observed by ESA outside the Northwest Territories: a small wetland located in the bottom of a vegetated swale in the Enterprise Sub-Area. No culverts or storm drains were observed but the swale was too well vegetated to determine if storm drain is present. The swale itself is obviously a ditch constructed in upland and would not be considered jurisdictional by the Corps. However, it may be considered jurisdictional by the RWQCB. In addition, seasonal wetlands discussed here that do not meet all three federal wetland criteria or prove to have a significant nexus to a jurisdictional water could still be considered Waters of the State by the RWQCB (see Regulatory Framework below for a discussion of federal and State wetland definitions). Based on the results of AECOM's 2012 wetland delineation conducted for the proposed VA project on the Federal Property, there are approximately 18 acres of seasonal wetlands located on City property in the Northwest Territories (DVA, 2013). The seasonal wetland in the Enterprise sub-area is conservatively estimated through aerial interpretation to be 0.035 acre in size but may in fact be much smaller. See Figure 4.E-1 for locations of seasonal wetlands and northern coastal salt marsh within the project study area.

Northern Coastal Salt Marsh

Northern coastal salt marsh occurs in a narrow band along the northern perimeter of the Northwest Territories and in the Federal Property to the south and west of the project area. The narrow band of northern coastal salt marsh along the northern shoreline of the Northwest Territories is discontinuous and too narrow to show in the habitat map presented in Figure 4.E-1. It lies behind a breakwater and ranges from about 10 to 35 feet in width. The recreational trail proposed to circle the entire western end of Alameda Island will run adjacent to the Runway Wetland and the West Wetland (see Figure 4.E-1 for wetland locations), so discussion of these features is included in this DEIR.

The Runway Wetland lies in the southeast corner of the study area and consists of a large perennial pond surrounded by salt marsh, ruderal areas dominated by iceplant, and grasslands. The pond is hydrologically connected to San Francisco Bay through three openings in the southern rock seawall including via a deep channel-like feature that runs approximately 50 feet from the westernmost opening in the seawall to the edge of the pond. The southeastern edge of the pond is connected to the Bay via a culvert and gate valve in the seawall that has fallen into disrepair. A third smaller opening in the seawall is located about 300 feet west of the culvert (DVA, 2013).

The West Wetland lies in the southwestern corner of the study area and is bordered on the north and east by runways. The West Wetland consists of two perennial ponds with surrounding northern coastal salt marsh and several seasonal wetlands. The northernmost pond is connected to the Bay by a culvert and both ponds are connected when inundated during high tides. A strip of land ranging from 100 to 150 feet wide lies adjacent to the seawall, and otherwise separates the ponds from the Bay (DVA, 2013).

The Runway Wetland and West Wetland ponds are subject to Corps jurisdiction under Section 10 of the Rivers and Harbors Act up to the mean high tide line and in their entirety under Section 404 of the CWA as a traditional navigable water (TNW) subject to tidal influence (DVA 2013). The salt marshes surrounding the Runway Wetland and West Wetland are tidally influenced and are subject to Corps jurisdiction in their entirety under Section 10 of the Rivers and Harbors Act and under Section 404 of the CWA as wetlands adjacent to a TNW. These features would also be considered jurisdictional by the RWQCB.

Based on the results of AECOM's 2012 wetland delineation conducted for the proposed VA project on the Federal Property (DVA, 2013) and ESA's observations during their 2013 reconnaissance-level survey, there is approximately 1.5 acre of northern coastal salt marsh located within the project area along the northern edge of the Northwest Territories. About 0.6 acre of this total has not yet been delineated as it lies outside the study area for the VA delineation. Northern coastal salt marsh was not observed by ESA elsewhere in the project area. Additional acreage of northern coastal salt marsh in the Runway Wetland and West Wetland lies in proximity to the proposed Bay Trail alignment around the western perimeter of Alameda Island. The Corps has made a Preliminary Jurisdictional Determination[6] (Corps, 2013) verifying the extent of potential wetlands delineated in 2012 that covers all of the wetlands shown in Figure 4.E-1 except the West Wetland. However, wetland acreage throughout the project area may be subject to change as the Navy conducts ongoing remediation of the various Superfund sites located on the former Naval Air Station. In addition, because the VA delineation does not cover all wetlands within the Alameda Point project area, a new or revised wetland delineation will be necessary to delineate any other potentially jurisdictional wetlands on City property (including any that may only be considered jurisdictional by the State permitting agencies) and update existing conditions prior to development taking place.

6 A Preliminary Jurisdictional Determination (PJD) is a non-binding Corps opinion that there may be jurisdictional waters of the United States on a particular site. It is neither definitive nor authoritative. A PJD is, therefore, advisory and not appealable. The recipient of a Preliminary JD can later request an Approved JD, which is an official Corps determination that jurisdictional 'waters of the United States,' or 'navigable waters of the United States,' or both, are either present or absent on a particular site.

Regulatory Framework

This subsection briefly describes federal, state, and local regulations, permits, and policies pertaining to biological resources and wetlands as they apply to the proposed project.

Special-Status Species

Federal Endangered Species Act

The USFWS, which has jurisdiction over plants, wildlife, and most freshwater fish, and the National Marine Fisheries Service (NMFS), which has jurisdiction over anadromous fish, marine fish, and mammals, oversee implementation of the Federal Endangered Species Act (FESA). Section 7 of the FESA mandates that all federal agencies consult with the USFWS and NMFS to ensure that their actions do not jeopardize the continued existence of a listed species or destroy or adversely modify critical habitat for listed species. A federal agency is required to consult with USFWS and NMFS if it determines that the construction or operation of the proposed project "may affect" federally listed species or designated critical habitat. The FESA prohibits the "take"[7] of any fish or wildlife species listed as threatened or endangered, including the destruction of habitat that could hinder species recovery.

Under Section 9 of the FESA, the take prohibition applies only to wildlife and fish species. However, Section 9 does prohibit the removal, possession, damage, or destruction of any endangered plant from federal land. Section 9 also prohibits acts to remove, cut, dig up, damage, or destroy an endangered plant species in non-federal areas in knowing violation of any state law or in the course of criminal trespass. Candidate species and species that are proposed or under petition for listing receive no protection under Section 9 of the FESA.

Section 10 of the FESA requires the issuance of an "incidental take" permit before any public or private action may be taken that would potentially harm, harass, injure, kill, capture, collect, or otherwise hurt (i.e., take) any individual of an endangered or threatened species. To offset the take of individuals that may occur incidental to implementation of the project, the permit requires preparation and implementation of a habitat conservation plan that provides for the overall preservation of the affected species through specific mitigation measures.

USFWS 2012 Biological Opinion and Navy Declaration of Restrictions. As discussed in Section 3, *Project Description*, the USFWS issued a Biological Opinion in 1999 (1999 BO) related to the NAS Alameda Community Reuse Plan's potential impacts on the least tern colony, which contained terms and conditions for reuse (T&Cs) that included lighting, landscaping and use restrictions for the project site. In 2012, a new Biological Opinion was issued by USFWS (2012 BO), that superseded the 1999 BO consistent with the VA's plans for a columbarium

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7 "Take," as defined in Section 9 of the FESA, is broadly defined to include intentional or accidental "harassment" or "harm" to wildlife. "Harass" is further defined by the U.S. Fish and Wildlife Service as an intentional or negligent act or omission that creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns that include, but are not limited to, breeding, feeding, and sheltering. "Harm" is defined as an act that actually kills or injures wildlife. This may include significant habitat modification or degradation that actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering.

and outpatient clinic facilities on the northern portion of the Federal Property and the transfer of submerged lands to the City (see Figure 4-1). The intent of the 2012 BO is to protect the endangered California least tern nesting colony while at the same time allowing for development of surrounding areas. The 2012 BO establishes T&Cs and avoidance and minimization measures (AMMs) limiting the lighting, landscaping, uses, and development in certain areas of the project site as well.

The T&Cs and AMMs established by the 2012 BO have been made enforceable upon the project site by a Declaration of Restrictions ("Declaration") recorded on the entire project site by the Navy in June 2013. The Declaration identified 22 sub-areas based on proximity to the least tern colony and the resources available within each sub-area of the project site. Each sub-area is governed by a set of restrictions (T&Cs and AMMS) that must be adhered to by new uses and development at Alameda Point consistent with the 2012 BO. These restrictions are intended to avoid and minimize impacts on least terns by controlling, to some degree, the amount and nature of development in the project area. The Declaration's biological sub-areas are presented in **Figure 3-3**. See **Appendix D** for the full 2012 BO and Declaration.

Biological Opinion Avoidance Measures Incorporated into the Declaration of Restrictions. The following is a list of all of the 2012 BO AMMs and T&Cs applicable to the project site along with an indication of which sub-area(s) each measure applies to (see **Figure 3-3,** which shows the location of each area). These AMMs and T&Cs were recorded by the Navy as Declaration of Restrictions in June 2013, which means that the obligations run with the land, thus becoming the responsibility of future owners.

BO-AMM-5 (1) no development (e.g. marinas or piers) is allowed within the parcel, and (2) City shall not issue permits for any coordinated water-based activities, such as regattas or other activities that may concentrate boating activity within the parcel, during the least tern breeding season (April 1 through August 15). Notwithstanding these prohibitions and restrictions, the City shall be permitted adequate ingress and egress for the purpose of access to and use of the City's property, and dredging shall not be prohibited. (Applies to Areas L through P, R, and T)

BO-AMM-6a The First Grantee shall notify existing Occupants of the Restrictions and thereafter these Restrictions shall be incorporated by reference in all deeds and leases of any portion of the Property. (Applies to Areas A through K, U, and V)

BO-AMM-6b and 6c The City has developed a Predator Management Plan relating to the management and use of Property to be conveyed to the City, which the Service has approved on December 10, 2012. The City shall be responsible for implementing the Predator Management Plan. Such predator management, as described in the Predator Management Plan, shall continue in perpetuity. (Applies to Areas A through K, U, and V)

BO-AMM-6d Feral cat feeding stations and colonies, and the feeding of any native and non-native wildlife species that are potential predators of least terns, is prohibited in perpetuity. (Applies to Areas A through K, U, and V)

BO-AMM-7 Lighting shall be allowed as long as the cumulative increase in ambient nighttime light levels within 750 feet of the least tern colony, from VA and City sources, do not increase by more than 10 percent of pre-conveyance levels, as set forth in the Alameda Point California Least Tern Colony Existing Lighting Study, attached hereto as Exhibit 5, with full development of the Northwest Territories ("NWT"), Civic Core, and Marina areas, including VA development. The City shall perform a design review for all proposed development within the NWT to ensure that the cumulative increase in ambient nighttime light levels from VA and City sources will not violate this condition, and shall provide lighting requirements to all project applicants. (Applies to Areas A through K)

BO-AMM-8a As detailed stormwater management and monitoring plans for the NWT are developed, such plans shall be developed in coordination with the Service and implemented to protect open water foraging areas for least terns. The plans shall be reviewed and approved by the Service contemporaneously with the City environmental review process and prior to development of the project in this area. (Applies to Areas A and B)

BO-AMM-8b Prior to any construction within the Regional Park, a Service-approved park management agency will be selected by the City. (Applies to Area A)

BO-AMM-8c No artificial features greater than 20 feet in height shall be constructed with the exception of 25 feet in the Veteran's memorial plaza area. (Applies to Area A)

BO-AMM-8c The cumulative square footage of buildings associated with the Regional Park in the NWT shall not exceed 4,500. (Applies to Area A)

BO-AMM-8c No tree species capable of growing to greater than 20 feet in height shall be planted in the Regional Park area. Tree and shrub density shall not exceed one tree or shrub per 10,000 square feet. The City shall prepare a palette of shrub and herbaceous vegetation species proposed for planting throughout the Regional Park area. The palette shall be reviewed and approved by the Service prior to the planting of any vegetation in this area. (Applies to Area A)

BO-AMM-8c From April 1 through August 15, nighttime lighting in the Regional Park area shall be limited to the minimum necessary for public safety. (Applies to Area A)

BO-AMM-8c The final Regional Park design/configuration, herbicide/pesticide drift control plan, and landscaping and management plans shall be developed in coordination with the Service. The plans shall be reviewed and approved by the Service prior to any new development in this area. (Applies to Area A)

BO-AMM-8d The Sports Complex fields shall not be lighted for nighttime play from April 1 through August 15, unless proposed lighting in these areas can be designed to ensure that light levels within 750 feet of the least tern colony, from VA and City sources, do not increase by more than 10 percent of pre-conveyance levels. (Applies to Area B)

BO-AMM-8f No artificial features greater than 20 feet in height shall be constructed. (Applies to Area B)

BO-AMM-8f The cumulative square footage of buildings associated with the Sports Complex shall not exceed 7,500 square feet or be greater than 20 feet in height. All buildings associated with the Sports Complex area shall be located greater than 200 feet from the southern boundary of the east-west runway. (Applies to Area B)

BO-AMM-9a No new buildings, light posts, vegetation greater than 4 feet in height, landscape turf, or other structures greater than 4 feet in height shall be constructed in this area without prior approval from the Service. The Service shall review all proposed plans to ensure compliance with the 2012 BO. (Applies to Area D)

BO-AMM-9b Any new buildings constructed or extensions of existing[8] buildings shall not exceed the height of the existing buildings. (Applies to Areas E and F)

BO-AMM-9b No palm trees shall be allowed in this zone. Within line-of-sight of the existing least tern colony, landscaping shall be restricted to vegetation less than 4 feet in height. In areas outside of the line-of-sight of the existing least tern colony, no tree species capable of growing to greater than 20 feet in height shall be planted and shrubs shall be managed as to not exceed 6 feet in height. The density of trees and shrubs in this area shall not exceed one tree or shrub per 550 square feet. The City shall prepare a palette of tree and shrub species proposed for planting in this area. The palette shall be reviewed and approved by the Service prior to the planting of any trees or shrubs in this area. (Applies to Areas E and F)

BO-AMM-9b Light posts in this area 20 feet or greater in height shall contain anti-perching devices, which will be maintained in perpetuity. (Applies to Areas E and F)

BO-AMM-9c If Building 19 or the fire house is replaced with a new building, the new building shall not exceed 20 feet in height, not extend farther west and east than the western and eastern most point of the existing building, and not exceed the existing width of the building as measured from north to south. (Applies to Area G)

BO-AMM-9c A new building, not to exceed 20 feet in height, may be constructed just east of Building 19 or may be added on to the fire house provided that the new building/extension is not in direct line-of-sight of any portion of the existing least tern colony. (Applies to Area G)

BO-AMM-9c New buildings may have an additional 5 feet of height to accommodate heating/conditioning/ventilation units as long as these units are not within the line of sight of the least tern colony or the units are placed as far back and away from the side of the building facing the tern colony as possible and avian predator perch deterrents are installed and maintained on these units in perpetuity. (Applies to Area G)

BO-AMM-9d Sporting fields within the Civic Core Area shall not be lighted for nighttime play from April 1 through August 15, unless proposed lighting in these areas can be designed to ensure the cumulative increase in ambient nighttime light levels within 750 feet of the least tern colony, from VA and City sources, do not increase by more than 10 percent of pre-conveyance levels. (Applies to Areas C through G)

BO-AMM-9d The City shall ensure that all anti-perching devices on light posts proposed for the sporting fields are maintained in perpetuity. (Applies to Areas C through G)

BO-AMM-10a No new buildings, light posts, vegetation greater than 4 feet in height, landscape turf, or other structures greater than 4 feet in height shall be constructed. The Service shall review all proposed plans to ensure compliance with the 2012 Biological Opinion. (Applies to Area I)

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8 Any reference to "existing" refers to the date that the 2012 Biological Opinion was issued – August 29, 2012.

BO-AMM-10b Building 25 may be reconstructed within the footprint of this zone, but any new building in this zone cannot exceed the height of the existing building (55 feet). (Applies to Area J)

BO-AMM-10b Landscaping shall be restricted to vegetation less than 4 feet in height (no palm trees) within the current line-of-sight portion of the northeast comer of this zone. Within line-of-sight of the existing least tern colony, landscaping shall be restricted to vegetation less than 4 feet in height. In areas outside of the line-of-sight of the existing least tern colony, no tree species capable of growing to greater than 20 feet in height shall be planted and shrubs shall be managed as to no exceed 6 feet in height. The density of trees and shrubs in this area shall not exceed one tree or shrub per 550 square feet. The City shall prepare a palette of tree and shrub species proposed for planting in this area. The palette shall be reviewed and approved by the Service prior to the planting of any trees or shrubs in this area. (Applies to Area J)

BO-AMM-10b Newly constructed buildings and any artificial structures 20 feet or greater in height shall contain anti-perching devices which will be maintained in perpetuity. (Applies to Area J)

BO-AMM-10c No new buildings greater than 20 feet in height shall be constructed in this zone. (Applies to Area K)

BO-AMM-10c New buildings may have an additional 5 feet of height to accommodate heating/conditioning/ventilation units as long as these units are not within the line of sight of the least tern colony or the units are placed as far back and away from the side of the building facing the tern colony as possible and avian predator perch deterrents are installed and maintained on these units in perpetuity. (Applies to Area K)

BO-AMM-10c No palm trees shall be allowed in this area. Within line-of-sight of the existing least tern colony landscaping shall be managed as to not exceed 4 feet in height. In areas outside of the line-of-sight of the existing least tern colony no tree species capable of growing to greater than 20 feet in height shall be planted and shrubs shall be managed as to no exceed 6 feet in height. The density of trees and shrubs in this area shall not exceed one tree or shrub per 550 square feet. The City shall prepare a palette of tree and shrub species proposed for planting in this area. The palette shall be reviewed and approved by the Service prior to the planting of any trees or shrubs in this area. (Applies to Area K)

BO-AMM-10c Newly constructed buildings and any artificial structures 20 feet or greater in height shall contain anti-perching devices which will be maintained in perpetuity. (Applies to Area K)

BO-AMM-10d As detailed stormwater management and monitoring plans for the Marina are developed by the City, they shall be developed in coordination with the Service and implemented in perpetuity to protect open water foraging areas for the least tern. The plans shall be reviewed and approved by the Service contemporaneously with the City environmental review process and prior to development of the project in this area. (Applies to Areas H through K)

BO-AMM-10e Watercraft exclusion zones will be established and clearly demarcated on submerged lands south of the VA Fed Transfer Parcel and within 300 feet of the breakwater. The only exception to this exclusion zone is the use of a gap in the breakwater by Water Emergency Transportation Authority ferries, which will restrict crossings through this gap to six per day (three ingress and three egresses). The City will place floating signs/buoys along the established boundary with warnings prohibiting boaters from entering the area at any time. The City will also require that signage and educational materials be provided in any marina that is developed within the Seaplane Lagoon to discourage boaters from entering the watercraft exclusion zone. Contracts or leases for boat owners using the Marina Area shall include notification of these restrictions. The contracts shall include conditions that provide for revocation of the contracts or leases if these restrictions are violated. The language within these contracts or leases shall be reviewed and approved by the Service prior to granting any leases or signing any contracts. (Applies to Areas H, M, O, Q through T)

BO-AMM-10f A no-wake zone during the least tern breeding season (1 April to 15 August) will be established and clearly demarcated on all submerged lands south of former NAS Alameda that are transferred to the City. The City will place floating signs or buoys identifying the no wake zone to boaters traversing this area. (Applies to Areas H and P)

BO-AMM-10g No dredging activities shall occur during the period from March 15 through August 15 each year to minimize open water turbidity just prior to and during the least tern breeding season. (Applies to Areas H, L through T)

BO-AMM-54 There is a “no-fly zone” established within 0.75 mile of the least tern colony (as depicted in Exhibit 1), at any altitude, between April 1 and August 15. (Applies to Areas A through V)

BO-AMM-55 Fireworks displays will not be authorized from April 1 to August 15. (Applies to Areas A through V)

BO-AMM-56 The portion of the potential future Bay Trail that surrounds the western, southern, and eastern sides of the VA Fed Transfer Parcel will be closed from April 1 to August 15, and no public access to those areas will be allowed during that time. Such public access will be restricted by a secure fence, at least 8 feet in height. Signage shall be placed at Bay Trail entrances describing the purpose of the annual trail closure. Enforcement of the potential future Bay Trail annual closure restrictions and access to the VA Undeveloped Area will be conducted by East Bay Regional Park District or other Service-approved entity. (Applies to Areas A through L, U, and V)

BO-TC-1C Within line of sight of the VA Undeveloped Area:

a. The number of new lights shall be limited to the minimum number required for building security.

b. All lights shall be directed away and/or screened from the VA Undeveloped Area.

c. Tinting of windows, with non-reflective tinting material, within the line of sight of the VA Undeveloped Area shall be required. (Applies to Areas A through K, U, and V)

City of Alameda Predator Management Plan. As discussed above in the section on the USFWS 2012 BO and Navy Declaration of Restrictions, following consultation with the Navy pursuant to Section 7 of the Federal Endangered Species Act, the USFWS issued an updated Biological Opinion (BO) for the Alameda Point conveyance and reuse that contains conditions related to long-term management of the California least tern colony on the Federal Property. Although the tern colony is located on land transferred to the VA, and the VA will be responsible for management of the tern colony itself, AMM 6-b and 6-c of the 2012 BO required the City to develop and implement a Predator Management Plan (PMP) for lands to be conveyed from the Navy to the City. The PMP must be funded by the City in perpetuity, and is required to be integrated with current predator management activities that occur on Alameda Point. The City's PMP, as well as a funding mechanism for the plan in the form of a Memorandum of Understanding (MOU) with USFWS, were submitted to, and approved by, USFWS in 2013. In February 2013 the City entered into a Cooperative Service Agreement (CSA) with the U.S. Department of Agriculture's Wildlife Services to perform predator management activities on City lands for the next three years. Allowable under the MOU is the transfer of PMP implementation and funding to a third party contingent upon USFWS approval.

Under the City's approved PMP predator management focuses on avian predators because mammalian predators have been inhibited from entering the least tern colony by fencing the area. Nonetheless the PMP includes measures to control mammalian predators as well. The PMP allows for predator control through a number of means including monitoring, removal or modification of perching substrate (e.g., trees, structures), hazing, trapping and relocation, and lethal removal. Trapping and relocation and lethal removal would only be utilized as a last resort for those individuals that are not deterred by other means. Predator control under the City's PMP is a continuation of the existing program funded and implemented by the Navy since the first Bo was issued in 1999. The Navy continued to fund and implement predator management until the June 2013 transfer of portions of the former NAS Alameda to the City. The only change is that the City, rather than the Navy, is now funding predator management activities that occur on City property.

The USFWS BO also requires the City to implement certain restrictions within the conveyed lands, such as a prohibition of cat feeding stations and restrictions on lighting and structure design. See, for example, BO-AMM-6d, BO-AMM-7, BO-AMM-8c, BO-AMM-8d, and BO-AMM-9a. Although those measures are also related to predator management, the PMP focuses only on active predator management.

City of Alameda/Department of Veterans Affairs (VA) Memorandum of Agreement—Lighting. In order to implement BO-AMM-7, which requires that, with full development of the Civic Core, Marina, and Northwest Territories—including VA development, the cumulative increase in ambient night time light levels does not exceed 10 percent of pre-conveyance levels with 750 feet of the least tern colony the City and VA entered into a Memorandum of Agreement on lighting at Alameda Point in 2013. BO-AMM-7a and TC-1.b also required the City and VA to conduct studies to determine the pre-conveyance ambient night time light levels at and within 750 feet of the least tern colony. This baseline lighting study has been completed and is included as Exhibit B of the Memorandum of Agreement (MOA) (see Appendix D for the MOA and attachments).

The MOA with the VA outlines an agreement between the VA and City to implement the applicable AMMs and T&Cs. The two major provisions of the MOA include coordinating to monitor nighttime lighting levels on an annual basis and take any corrective actions necessary to reduce nighttime lighting levels; and implementing lighting mitigation measures for new improvements and development at the former NAS Alameda as applicable. The MOA lighting mitigation measures will be required of most new improvements and development occurring at the former NAS Alameda with the exception of development in the eastern-most areas. Measures include, but are not limited to: limitations on lighting illumination; use of cutoff optics; lighting height limits; and specification of lighting types (see Exhibit C of the MOA in Appendix D for full details of each mitigation measure).

Federal Migratory Bird Treaty Act

The federal Migratory Bird Treaty Act (16 USC, Section 703, Supplement I, 1989) prohibits killing, possessing, or trading in migratory birds, except in accordance with regulations prescribed by the Secretary of the Interior. This act encompasses whole birds, parts of birds, and bird nests and egg. As authorized by the Migratory Bird Treaty Act, the USFWS may issue permits to qualified applicants for the following types of activities: falconry, raptor propagation, scientific collecting, special purposes (rehabilitation, educational, migratory game bird propagation, and salvage), take of depredating birds, taxidermy, and waterfowl sale and disposal.

Federal Marine Mammal Protection Act

The Marine Mammal Protection Act (MMPA) is the principal Federal legislation that guides marine mammal species protection and conservation policy. The MMPA delegates authority for oceanic marine mammals to the Secretary of Commerce, the parent agency of the National Oceanic and Atmospheric Administration (NOAA). Species of the order Cetacea (whales and dolphins) and species, other than walrus, of the order Carnivora, suborder Pinnipedia (seals and sea lions), are the responsibility of NOAA Fisheries (or NMFS). The Department of the Interior's Fish and Wildlife Service is responsible for the sea otter. Marine mammals that are already managed under international agreements are exempt as long as the agreements further the purposes of the MMPA.

The MMPA prohibits, with certain exceptions, the take of marine mammals in U.S. waters and by U.S. citizens on the high seas, and the importation of marine mammals and marine mammal products into the U.S.

Magnuson-Stevens Fishery Conservation and Management Act and Federal Essential Fish Habitat

The Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA) of 1976 applies to fisheries resources and fishing activities in federal waters, which extend to 200 miles offshore. Conservation and management of U.S. fisheries, development of domestic fisheries, and phasing out of foreign fishing activities are the main objectives of the legislation. When the MSFCMA was amended in 1996 to include habitat conservation issues, the designation of "Essential Fish Habitat" (EFH) was created. EFH is broadly defined by the MSFCMA as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity."

The Sustainable Fisheries Act of 1996 (Public Law 104-297) amended the MSFCMA to establish new requirements for Essential Fish Habitat (EFH) descriptions in federal Fisheries Management Plans (FMPs), and to require federal agencies to consult with the National Marine Fisheries Service (NMFS) on activities that may adversely affect EFH. The Magnuson-Stevens Act requires all fishery management councils to amend their FMPs to describe and identify EFH for each managed fishery. The Act also requires consultation for all federal agency actions that may adversely affect EFH, including direct and indirect effects. It does not distinguish between actions in EFH and actions outside EFH. Any reasonable attempt to encourage the conservation of EFH must take into account actions that occur outside of EFH, such as upstream and upslope activities that may have an adverse effect on EFH. Therefore, EFH consultation with NMFS is required by federal agencies undertaking, permitting, or funding activities that may adversely affect EFH, regardless of the activity's location. Under section 305(b)(4) of the MSFCMA, NMFS is required to provide EFH conservation and enhancement recommendations to federal and state agencies for actions that adversely affect EFH. However, state agencies and private parties are not required to consult with NMFS unless state or private actions require a federal permit or receive federal funding. Although the concept of EFH is similar to that of critical habitat under the FESA, measures recommended to protect EFH by NMFS are advisory, not proscriptive.

Long Term Management Strategy Management Plan for Dredging in San Francisco Bay

The Long Term Management Strategy (LTMS) Management Plan for maintenance dredging of navigation channels in San Francisco Bay, as established in 2001, provides for a cooperative approach to sediment management in the San Francisco Bay-Delta. It represents a cooperative program among the U.S. EPA, Corps, RWQCB, BCDC, and regional stakeholders, including NMFS, CDFW, area environmental organizations, and water-related industries. The LTMS facilitates the economical and environmentally responsible maintenance of critical and needed navigation channels in the Bay-Delta and the environmentally responsible disposal of dredged material. It maximizes the use of dredged material as a beneficial resource, and establishes a cooperative permitting framework for dredging, dredged material disposal, and development of beneficial reuse site for dredge material. A key component of the LTMS is the establishment of construction work windows that include time periods when construction activities that have the potential to affect aquatic and terrestrial wildlife habitat and migration activity are allowed, restricted, or prohibited. Different restrictions and requirements are enforced depending on the affected species and time of year. If a project proponent wishes to construct during restricted periods, they must formally submit for consultation with the appropriate resource agencies (NMFS, USFWS, and CDFW). Through formal consultation specific measures must be implemented to avoid or reduce potential impacts.

Table 4.E-1 presents LTMS established dredging work windows for the San Francisco Bay-Delta.

TABLE 4.E-1
ENVIRONMENTAL WORK WINDOWS FOR MAINTENANCE DREDGING ACTIVITIES ESTABLISHED IN THE LONG TERM MANAGEMENT STRATEGY FOR SAN FRANCISCO BAY

Species	Applicable Bay Region/Location	Authorized Work Windows
Steelhead trout	Central San Francisco Bay, Bay Bridge to Sherman Island	June 1 to November 30
Chinook salmon	Bay Bridge to Sherman Island (juveniles); Pinole Shoal, Suisun Bay Channel (adults)	June 1 to November 30
Coho salmon	Marin County waters from the Golden Gate to Richmond-San Rafael Bridge	June 1 to October 31
Pacific herring	Central San Francisco Bay, Richardson Bay, North and South Bay	March 1 to November 30
Longfin smelt	Delta to South San Francisco Bay	June1 to October 31
California least tern	Berkeley Marina to San Lorenzo Creek within 1 mile of the coastline	August 1-March 15
California brown pelican	Within 300 feet of known roost site	October 1 to June 30

SOURCE: LTMS 2004; Robinson and Greenfield 2011.

Typical LTMS best management practices (BMPs) often required of in-water work in San Francisco Bay include, but are not limited to:

- the use of impermeable silt curtains to contain sediments within a limited area until it resettles;
- the use of gunderbooms;[9]
- operational controls for mechanical and hydraulic dredges to limit the amount of sediment released while dredging.

California Endangered Species Act

Under the California Endangered Species Act (CESA), CDFW has the responsibility for maintaining a list of threatened and endangered species (California Fish and Game Code Section 2070). CDFW also maintains a list of "candidate species," which are species formally noticed as being under review for addition to either the list of endangered species or the list of threatened species. In addition, CDFW maintains lists of "species of special concern," which serve as "watch lists." Pursuant to the requirements of the CESA, an agency reviewing a proposed project within its jurisdiction must determine whether any state-listed endangered or threatened species could be present on the project site and determine whether the proposed project could have a potentially significant impact on such species. In addition, CDFW encourages informal consultation on any proposed project that may affect a candidate species.

California Native Plant Protection Act

State listing of plant species began in 1977 with the passage of the California Native Plant Protection Act (NPPA), which directed CDFG to carry out the legislature's intent to "preserve, protect, and enhance endangered plants in this state." The NPPA gave the California Fish and

[9] A gunderboom is similar to a silt curtain but is made of permeable material that allows water to flow through but traps sediment within the curtain.

Game Commission the power to designate native plants as endangered or rare and to require permits for collecting, transporting, or selling such plants. The California Endangered Species Act expanded upon the original NPPA and enhanced legal protection for plants. The CESA established threatened and endangered species categories, and grandfathered all rare animals—but not rare plants—into the act as threatened species. Thus, there are three listing categories for plants in California: rare, threatened, and endangered.

California Fish and Game Code

Under Section 3503 of the California Fish and Game Code, it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto. Section 3503.5 of the California Fish and Game Code prohibits take, possession, or destruction of any birds in the orders Falconiformes (hawks) or Strigiformes (owls), or of their nests and eggs.

The State Fish and Game Code Section 4150 states that all non-game mammals or parts thereof may not be taken or possessed except as otherwise provided in the code or in accordance with regulations adopted by the commission. This Section applies to all bat species.

The California Fish and Game Code (Sections 3511-birds, 4700-mammals, 5050-reptiles and amphibians, and 5515-fish) also allows the designation of a species as Fully Protected. This designation provides a greater level of protection than is afforded by the California Endangered Species Act, since it means the designated species cannot be taken at any time.

Special-Status Natural Communities

Sensitive natural communities are designated as such by various resource agencies, such as the CDFW, or in local policies and regulations, and are generally considered to have important functions or values for wildlife and/or are recognized as declining in extent or distribution, and are considered threatened enough to warrant some sort of protection. For example, many local agencies in California consider protection of oak woodlands important, and federal, state, and most local agencies also consider wetlands and riparian habitat as sensitive communities. CDFW tracks communities it believes to be of conservation concern through its List of California Terrestrial Communities and the California Natural Diversity Database (CNDDB), and these communities are typically considered special-status for the purposes of CEQA analysis. Due to the developed nature of the project site and as described above, there are no terrestrial sensitive or special-status natural communities on the project site.

Jurisdictional Waters (Including Wetlands)

Rivers and Harbors Act. The objective of the Rivers and Harbors Act of 1899 is to prevent interferences with navigation, by barring unpermitted discharges of refuse into navigable waters.

Section 10 of the Rivers and Harbors Act appoints the Army Corps of Engineers (Corps) to regulate the construction of structures in, over, or under, excavation of material from, or deposition of material into "navigable waters." In tidal areas, the limit of navigable water is the mean high tide line; in non-tidal waters it is the ordinary high water mark (OHWM). Larger streams, rivers, lakes, bays, and oceans are examples of navigable waters regulated under Section 10 of the Rivers and Harbors Act.

Federal Clean Water Act. The objective of the Clean Water Act (CWA) (33 U.S.C. §§ 1251 et seq) is to restore and maintain the chemical, physical, and biological integrity of the nation's waters.

Section 404 of the CWA regulates activities that involve a discharge of dredged or fill material into waters of the United States. The Corps is responsible for issuing permits for discharges covered by Section 404, including most notably the filling of wetlands. The Corps emphasizes avoiding and minimizing impacts to wetlands where feasible. When impacts to wetlands cannot be avoided, compensatory mitigation is generally required as part of the Section 404 permit process to ensure there is no net loss of wetlands values and functions.

Section 401 of the CWA is administered by the State Water Resources Control Board (SWRCB) and the nine Regional Water Quality Control Boards. Under Section 401, an applicant for a federal permit, such as a Section 404 permit to discharge dredged or fill material into waters of the United States, must obtain a "water quality certification" from the appropriate state agency stating that the permitted activity is consistent with the state's water quality standards. The San Francisco Bay Regional Water Quality Control Board (RWQCB) is the appointed authority for Section 401 compliance in the Bay Area.

The CWA defines wetlands as, "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions". Wetlands under the CWA must therefore meet a three parameter test, which includes the presence of wetland hydrology, hydrophytic[10] vegetation, and hydric soils.

State Policies and Regulations

State regulation of activities in waters and wetlands resides primarily with CDFW and the State Water Resources Control Board (SWRCB). CDFW provides comments on Corps permit actions under the Fish and Wildlife Coordination Act. CDFW is also authorized under the California Fish and Game Code, Sections 1600-1616, to enter into a Streambed Alteration Agreement with applicants and to develop mitigation measures when a proposed project would obstruct the flow or alter the bed, channel, or bank of a river or stream in which there is a fish or wildlife resource, including intermittent and ephemeral streams. The SWRCB, acting through the nine Regional Water Quality Control Boards, must certify that a Corps permit action meets state water quality objectives (Section 401, Clean Water Act) and also regulates Water of the State by authority of the Porter-Cologne Water Quality Control Act.

California agencies have adopted the Cowardin classification system to define wetlands. While the federal definition of wetlands requires three wetland identification parameters to be met, the

[10] A *hydrophyte* is, literally, a water-loving plant, i.e., one that is adapted to growing in conditions where the soil lacks oxygen, at least periodically during the year, due to saturation with water.

Cowardin definition can be satisfied under some circumstances with the presence of only one parameter. Thus, identification of wetlands by State agencies may include areas that are permanently or periodically inundated or saturated and without wetland vegetation or soils, such as rocky shores, or areas that presume wetland hydrology based on the presence of at least one of the following: a) a seasonal or perennial dominance by hydrophytes *or* b) the presence of hydric soils.

Bay Conservation and Development Commission and San Francisco Bay Plan

The Bay Conservation and Development Commission (BCDC) is authorized by the McAteer Petris Act of 1965 to analyze, plan, and regulate San Francisco Bay and its shoreline. BCDC implements the San Francisco Bay Plan and regulates filling and dredging in the bay, its sloughs and marshes, and certain creeks and their tributaries. BCDC jurisdiction includes the waters of San Francisco Bay as well as a shoreline band that extends inland 100 feet from the high tide line. Any fill, excavation of material, or substantial change in use within BCDC jurisdiction requires a permit from BCDC. Portions of the project area lie within the jurisdiction of BCDC, as discussed in more detail in Section 4.A, Land Use. BCDC Permit eligibility and conditions of permit issuance are largely governed by the San Francisco Bay Plan (Bay Plan), completed and adopted by BCDC in 1968 and amended regularly since then. The Bay Plan contains findings and policies related to fish and wildlife, water quality, fill, recreation, public access, and the appearance and design of shorelines, as well as procedures for BCDC control of filling, dredging, and shoreline development. In addition to compliance and coordination with other federal and state regulations and policies discussed in this section, Bay Plan policies are also aligned with USACE's Long Term Management Strategy (LTMS) and are focused "to assure the benefits of fish, other aquatic organisms and wildlife for future generations, to the greatest extent feasible, the Bay's tidal marshes, tidal flats, and subtidal habitat should be conserved, restored and increased."

Local Plans and Policies

City of Alameda General Plan

The City of Alameda General Plan identifies several Guiding Policies, as well as several implementing policies, that pertain to Open Space for the preservation of natural resources. In relation to the proposed project, it is important to consider the following policies:

Policy 5.1.a Preserve and enhance all wetlands and water-related habitat.

Policy 5.1.e Continue to preserve and maintain all lagoons as habitat as well as visual and compatible-use recreational resources.

Policy 5.2.a Protect and preserve Bay waters and vegetation as nurseries and spawning grounds for fish and other aquatic species, both as part of habitat preservation and to encourage continued use of the Bay for commercial fishing production.

Implementing Policies

Policy 5.1.bb Require a biological assessment of any proposed project site where species or the habitat of species defined as sensitive or special status by the California

Department of Fish and Game or the U.S. Fish and Wildlife Service might be present.

Policy 5.1.dd Develop and implement planting and herbicide, pesticide, and fertilizer application plans, including a pesticide drift control plan, for the golf course and public open space areas.

Guiding and implementing policies from the Alameda Point element of the General Plan that pertain to the proposed project include:

Implementing Policies

Policy 9.3.e Ensure that development is consistent with the recommendations developed to implement the Wildlife Refuge Impact Area. (The Wildlife Refuge Impact Area is land that is in proximity to the Alameda National Wildlife Refuge and therefore subject to additional policies and regulations. See Implementing Policies 9.3.rr to 9.3.uu.).

Policy 9.3.kk Help maintain a Wildlife Refuge that balances natural conservation with public access, education, and ship navigation.

Policy 9.3.ll Support implementation of the U.S. Fish and Wildlife Service's Comprehensive Conservation Plan for Alameda National Wildlife Refuge (1998).

Policy 9.3.nn Support education facilities and programs, similar to other conservation areas such as the Elsie D. Roemer Bird Sanctuary, in conjunction with either Point Alameda Park or the Wildlife Refuge.

Policy 9.3rr Prepare and adopt development regulations that implement the Biological Opinion (1999) prepared by the U.S. Fish and Wildlife Service to guide development within the Wildlife Refuge Impact Area. Ensure that the regulations contain specific requirements regarding, but not limited to:

- Building size, height, design and location
- Appropriate uses adjacent to the Refuge
- Predator management
- Parking restrictions
- Lighting provisions
- Landscaping restrictions, and
- Stormwater management

Ensure that development in all areas adjoining the Wildlife Refuge adheres to the Wildlife Refuge Management Plan's guidelines regarding pets, predator control and landscaping.

Policy 9.3.ss Encourage funding and implementation of the Comprehensive Conservation Plan by the U.S. Fish and Wildlife Service.

Policy 9.3.tt Work with the U.S. Fish and Wildlife Service and the U.S. Department of Agriculture Wildlife Services, to develop informational materials and an educational program for occupants in Alameda Point and marina users or tenants describing the importance of animal control for protection of the least tern colony

Policy 9.3.uu Develop detailed stormwater management and monitoring plans for the Northwest Territories in coordination with the U.S. Fish and Wildlife Service to protect open-water foraging areas for least terns and brown pelicans. Ensure that the plans are reviewed and approved by the Service contemporaneously with the City environmental review process and prior to development within this area.

Policy 9.5.f Pursue an aggressive tree-planting program at Alameda Point to bring it up to par with Alameda-wide forestation levels/standards.

City of Alameda Master Street Tree Plan

The City of Alameda Master Street Tree Plan protects palm trees within the public right-of-way on Burbank Street and Portola Avenue, any street tree on Thompson and Central Avenues, and any coast live oak greater than 10 inches diameter at breast height (DBH). In addition, Chapter 23-3.2 of the City's municipal code applies to street trees in general and requires that the Public Works Director permit any planting, removal, trimming, pruning, or cutting of street trees. City tree permits may specify the number, kind, and spacing for planting trees and shrubs and may limit the number of trees or shrubs to be removed or pruned and prescribe the methods to be used in any street tree or shrub removal.

Baylands Ecosystem Habitat Goals Project

The Baylands Ecosystem Habitat Goals Project (Goals Project) was established in June 1995 to establish a long-term vision for a healthy and sustainable baylands ecosystem. The final report, published in 1999 (Goals Project, 1999) enumerated a series of recommendations for habitat protection and restoration. Recommendations specific to Alameda Island include:

- Enhance and expand tidal and diked habitats at all potential areas throughout the segment, for example, on Alameda Island, on Bay Farm Island, and in the vicinity of the Oakland Airport.
- Protect and enhance the eelgrass bed near Bay Farm Island.
- Enhance and protect suitable habitat (e.g., barren or sparsely vegetated areas protected from predators) for snowy plover and least tern at Alameda Naval Air Station, Oakland Airport, Bay Farm Island, and other locations.
- Restore beach dune and marsh in the sanctuary on the southern end of Alameda Island.
- Increase habitat in and around San Leandro Bay for harbor seals and develop extensive and connected segments of tidal marsh for small mammals.
- Restore pockets of low-lying sand beaches in sheltered sites to support reintroduced colonies of California sea-blite.

Report recommendations are not binding but are generally consistent with the basic policies outlined in the City of Alameda General Plan and the specific terms and conditions of the project Biological Opinion (USFWS 2012). The Goals Project was recommended by the Governor's "California Wetlands Conservation Policy" and by the Comprehensive Conservation and Management Plan (CCMP) of the U.S. Environmental Protection Agency's San Francisco Estuary Project. It is also supported by most of the agencies and non-governmental groups with major planning, operational, or regulatory interests in Bay Area wetlands.

San Francisco Bay Subtidal Habitat Goals Project

Continuing with the Goals Project described above, in 2010 BCDC, the California Ocean Protection Council/California State Coastal Conservancy, the National Oceanographic and Atmospheric Administration (NOAA), and the San Francisco Estuary Partnership, in collaboration with each other and the broader scientific community, managers, restoration practitioners, and stakeholders, published a report containing restoration planning goals and guidelines for the subtidal areas and habitats of the San Francisco Bay-Delta (Subtidal Goals Project, 2010b). The San Francisco Bay Subtidal Habitat Goals Project takes a Baywide approach in setting science-based goals for maintaining a healthy, productive, and resilient ecosystem. Where possible, these subtidal goals are designed to connect with intertidal habitats and with goals developed by other projects, including goals for Baylands and uplands habitats. The goals and recommendations contained within the Subtidal Habitat Goals Project are not binding by regulation but rather are intended to serve as guidance to local, state, and federal agencies when evaluating projects and their potential ecological effects, and when issuing permits. Though currently neither a policy nor regulatory document, this report offers guidance on opportunities or subtidal restoration and protection. Implementation will occur through a number of avenues such as local governments may incorporate these recommendations into their planning processes and documents and regulatory agencies may use this report to evaluate, revise, or implement their policies.

Subtidal habitat consists of all the submerged area beneath the Bay water's surface and includes mud, shell, sand, rocks, artificial structures, shellfish beds, submerged aquatic vegetation, macroalgal beds, and the water column above the bay bottom. Submerged habitats are important for threatened species such as green sturgeon and Chinook salmon, commercial species like Dungeness crab and Pacific herring, and a host of other fish, shrimp, crabs, migratory waterfowl, and marine mammals.

The principal habitat conservation goals included in the Subtidal Habitat Goals Report that apply to the proposed project include:

Soft Substrate

- Promote no net increase to disturbance to San Francisco Bay soft bottom habitat
- Promote no net loss to San Francisco Bay subtidal and intertidal sand habitats

Rock Habitats

- Promote no net loss of natural intertidal and subtidal rock habitats in San Francisco Bay

Artificial Structures

- Enhance and protect habitat function and the historical value of artificial structures in San Francisco Bay
- Improve San Francisco Bay subtidal habitats by minimizing placement of artificial structures that are detrimental to subtidal habitat function

Shellfish Beds

- Protect San Francisco Bay native shellfish habitats (particularly the native oyster Ostrea lurida) through no net loss to existing habitats

Submerged Aquatic Vegetation

- Protect existing eelgrass habitat in San Francisco Bay through no net loss to existing beds

E.3 Impacts and Mitigation Measures

Significance Criteria

For the purposes of this analysis, this EIR uses the criteria presented in Appendix G of the CEQA Guidelines to determine impact significance. Significant impacts would occur if the proposed project would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service;
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service;
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act or on Waters of the State through direct removal, filling, hydrological interruption, or other means;
- Interfere with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance;
- Conflict with any adopted local, regional, or State Habitat Conservation Plan.

CEQA Section 15380 further provides that a plant or animal species may be treated as “rare or endangered” even if not on one of the official lists if, for example, it is likely to become endangered in the foreseeable future.

Impact Analysis

Project components were evaluated using the above significance criteria. For purposes of this EIR, three principal components of the guidelines outlined above were considered:

- Magnitude of the impact (e.g., substantial/not substantial),
- Uniqueness of the affected resource (rarity), and
- Susceptibility of the affected resource to perturbation (sensitivity).

The evaluation of significance must consider the interrelationship of these three components. For example, a relatively small magnitude impact to a state or federally listed species would be considered significant because the species is very rare and is believed to be very susceptible to disturbance. Conversely, a plant community such as California annual grassland is not necessarily rare or sensitive to disturbance. Therefore, a much larger magnitude of impact would be required to result in a significant impact. Impacts are generally considered less than significant if the habitats and species affected are common and widespread in the region and the state. Impacts are considered beneficial if the action causes no detrimental impacts and results in an increase of habitat quantity and quality.

Impact 4.E-1: Development facilitated by the proposed project would have a substantial adverse effect, either directly or through habitat modifications, on species identified as candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the United States Fish and Wildlife Service. (Significant)

Species considered special-status and analyzed in this EIR that have a moderate or high potential to occur *and* to be exposed to project impacts are as follows (see Table H-1 in Appendix H for the full list of species considered):

State- or Federally Threatened or Endangered and State Fully Protected Species

- Green sturgeon
- Central California coast coho salmon
- Central California coastal steelhead
- Central Valley steelhead
- Longfin smelt
- Sacramento River winter-run chinook salmon
- Western snowy plover
- White-tailed kite
- Peregrine falcon
- California brown pelican
- California least tern
- Central Valley spring-run

Other Special-Status Species

- Monarch butterfly
- Central Valley fall/late fall run chinook salmon, Pacific herring, and fish protected under the Magnuson-Stevens Act
- Raptors: Cooper's hawk, burrowing owl, great horned owl, red-shouldered hawk, red-tailed hawk, northern harrier, American kestrel, and osprey
- Great egret, great blue heron, snowy egret, Caspian tern, double-crested cormorant, California gull
- California horned lark, loggerhead shrike, Alameda song sparrow

- Nesting birds covered by the Migratory Bird Treaty Act and the California Fish and Game Code
- Townsend's big-eared bat
- Marine mammals: Pacific harbor seal and California sea lion

Impact Overview

The impact discussion below addresses special-status wildlife species potentially exposed to impacts in their general use of areas for feeding, roosting, and resting. Because breeding and nesting activities for some of these species could also be impacted, and because in water construction and boat traffic could alter some species' local movement patterns in San Francisco Bay and Oakland-Alameda Estuary waters, discussion of and mitigation for these impacts is discussed under Impact 4.E-4, which addresses movement of native wildlife and native wildlife nursery sites.

Impacts on Special-Status Fish and Marine Mammals

The Bay waters surrounding Alameda Point are identified as critical habitat for steelhead trout and green sturgeon. The State threatened longfin smelt can also be found in these waters, most commonly in the winter months (Robinson and Greenfield 2011). These areas are also listed as essential fish habitat for Fishery Management Plan-managed fish taxa and contain spawning and foraging habitat for Pacific herring. Pacific harbor seals are found year-round in the project area's Bay waters, and California sea lions may occasionally occur in project area waters through most of the year. As noted in Chapter 3, *Project Description*, there are several project components that would occur in Bay and Estuary waters. These include construction of a marina in Seaplane Lagoon, remediation of offshore contaminants (when and if responsibility is conveyed to the City), improvements along the armored shoreline, including raising and stabilizing the shoreline through levee and sea wall construction and enhancement of existing protective structures, and consolidating and upgrading stormwater outfalls; onshore demolition and construction; and construction of a new marina and possible ferry terminal. In-water construction is estimated to be approximately 17 to 20 acres in extent (Alameda Reuse and Redevelopment Authority 1996). The potential effects of construction activities on marine biota would range from short-term to permanent, depending on the extent and degree of disturbance, and would be expected to result in possible mortality, physical injury, or physiological stress, resulting from habitat loss, increased sedimentation and turbidity, increased exposure to organic and inorganic contaminants in stormwater runoff, and construction and operational noise. Marina and/or ferry terminal operations would have the potential for impacts on marine resources associated mainly with possible initial and maintenance dredging, periodic in-water repairs, and proper management of boat-related fuels and wastes. In addition, these facilities would result in localized shading of Bay waters. Any associated impacts on water quality and marine habitats would have the potential to affect special status species present in the project area.

Buildout of the proposed project would result in a larger human population at Alameda Point and improved public access to areas that are currently restricted, resulting in higher levels of human interaction with sensitive marine intertidal habitat and with protected and special-status fish and mammal species inhabiting nearshore subtidal areas surrounding Alameda Point. A marina and ferry terminal in Seaplane Lagoon would also increase boat traffic in project area waters.

Habitat Loss. In-water construction would result in temporary and permanent losses of essential fish habitat/critical habitat for special-status fish and associated benthic infaunal community, which would result in a loss of foraging opportunities for protected fish and marine mammals. Altering benthic habitat and associated faunal communities can result in the loss or reduction of habitat suitable for fish foraging, especially for special-status species including salmon, steelhead, green sturgeon, and groundfish. Following dredging, the deposition of new sediments should begin almost immediately, and the benthic community inhabiting those sediments would be expected to recover to pre-dredging composition and abundances within a few months to under two years, depending on when dredging occurs and other ecological factors affecting recolonization (Newell et al. 1998). The amount of dredging required in association with the proposed marina and ferry terminal development is unknown at this time but the marina itself is estimated at 17 acres in size (Alameda Reuse and Redevelopment Authority 1996). Assuming that limited dredging would be required and that LTMS work windows would be employed for both dredging and pile driving, and acknowledging that dredged habitat would be recolonized over time and that abundant foraging habitat would still be available outside the project area, loss of foraging habitat for special-status species as a result of project enabled activities is expected to be less than significant.

Exposure to Contaminated Sediments. The release of organic or inorganic contaminants in Bay sediments at concentrations high enough to result in detectable increased loading of contaminants to Bay waters and therefore pose a threat to marine biota may potentially occur from dredging activities or placement/removal of pilings and mooring anchors. In general, the level of contamination in Bay sediments offshore from Alameda Point are unknown, although areas such as the Skeet Range, the Oakland Inner Harbor, and the Seaplane Lagoon have been subject to sampling and analysis by the Navy as part of the base closure activities. Section 4.J, *Hazardous Materials*, describes the Navy's environmental remediation efforts at NAS Alameda. Seaplane Lagoon contains two areas that required remediation—the lagoon itself and the Piers 1 and 2 sediments. The Navy has remediated both of these areas and conducted confirmation sampling, with Federal and State oversight. As part of the permitting process for dredging sediments (see Section 4.I, *Hydrology and Water Quality* for a detailed discussion of the dredging permitting process), representative samples would still be required to be collected for physical, chemical, toxicity, and bioaccumulation to assess the quality of sediment and determine the suitability for each disposal option permitted. Under the proposed project, dredged sediments would not be disposed in the Bay but either at an approved offshore disposal site or a beneficial reuse site depending on the suitability of the material. If analytical analysis shows that either organic or inorganic chemicals are exhibited in sediments at unacceptable concentrations for any aquatic or beneficial reuse site, adherence to the LTMS-required best management practices (BMPs) for dredging and disposal procedures (e.g., use of silt curtains, upland disposal) would ensure that any potential impact from the resuspension or dissolution of organic or inorganic contaminants from dredging would result in less-than-significant impacts.

Turbidity from Resuspended Sediments. Turbidity resulting from resuspension of sediments during dredging would be expected to be short-term, occurring during those days dredging is occurring. Some resuspension of sediments would also occur during pile removal and placement and removal of mooring anchors. All in-water construction activities would comply with Corps, USEPA, RWQCB, and BCDC regulations and provisions in issued permits including best management practices for avoiding or reducing potential impacts related to resuspended sediments. The wind waves and tidal currents can generally be expected to quickly dissipate any turbidity plumes generated from dredging operations and to thus minimize any effect on marine habitats, such as eelgrass beds (see also discussion of eelgrass impacts in Impact 4E-2 below), and biota. Potentially increased turbidity from construction activities is not expected to have a substantial effect on plankton productivity, since the shallow Bay waters within the project area are naturally turbid with light penetrating less than a few feet from the surface. The use of clamshell dredging, with a clamshell bucket ≤ 10 cubic yards, would be consistent with routine maintenance and new channel/harbor dredging methodologies currently employed throughout the Bay annually and evaluated in the development of the LTMS for dredging in San Francisco Bay. Strict adherence to best management practices for avoiding or reducing suspended sediments would ensure that the impact from resuspension of sediments would be less than significant (LTMS 1998).

Marine Wildlife Entrainment. Dredging of Bay sediments by either hydraulic suction or clamshell dredging equipment has the potential to entrain fish and benthic invertebrates (Reine and Clarke 1998). Of these three, clamshell dredging has the lowest occurrence of fish and mobile invertebrate entrainment, since these animals are generally capable of sensing the pressure wave that precedes the clamshell bucket traveling through the water column, can actively avoid the bucket, and generally avoid the active dredging site because of increased seafloor turbidity and noise (*ibid*.). The LTMS for the *Placement of Dredged Materials in San Francisco Bay Region* evaluated the potential entrainment of special-status and sensitive fish and invertebrate species by in-Bay dredging activities. To prevent and minimize entrainment of fish and invertebrates, the LTMS BMPs for Bay-Delta dredging include environmental work windows, restricted in-Bay disposal, and limits on overflow dredging and lowering hydraulic dredge heads when priming (LTMS 1998). Any dredging in support of the proposed project would be conducted in accordance with LTMS and permitting requirements, including use of a clamshell dredge, employment of offshore disposal, and restrictions on overflow dredging, and would be conducted within the species-specific environmental work windows shown in Table 4.E-1 in accordance with the LTMS.

LTMS environmental assessment and guidelines were established prior to the green sturgeon being listed as a FESA-protected species on April 7, 2006. Although all of San Francisco Bay is listed as critical habitat for green sturgeon, their actual distribution and use of habitats throughout the Bay is poorly understood There is limited evidence of sturgeon entrainment during dredging (Hoover et al. 2005) and no known sturgeon entrainment incidents within San Francisco Bay. With the employment of mechanical clamshell dredging equipment, which has been documented to be less a threat to fish entrainment than hydraulic dredging (Reine and Clark 1998), for dredging activities, the potential risk of green sturgeon entrainment would be less than significant.

Construction Noise Impacts on Fish and Marine Mammals. It is assumed that pilings would be required for construction of the marina and the proposed ferry terminal. Concrete, wood, and steel piles that are driven within the water column can produce high-intensity noise and result in damage to soft tissues, such as gas bladders or eyes (barotraumas), and/or harassment of fish and marine mammals such that they alter swimming, sleeping, or foraging behavior or temporarily abandon forage habitat. Protected and managed fish species, including salmon, steelhead, Pacific herring, anchovies, mackerel, sardine, soles, sanddab, green sturgeon, and other bottom fish, as well as harbor seals and, occasionally, California sea lions use, or may use, the project area waters for foraging and/or as a transit corridor and would be potentially affected by the noise from pile driving.

The striking of a pile by a pile-driving hammer creates a pulse of sound that propagates through the pile, radiating out through the water column, seafloor, and air. Sound pressure pulses, as a function of time are referred to as a waveform. Peak waveform pressure underwater is typically expressed in decibels (dB) referenced to 1 microPascal (µPa). Sound levels are generally reported as peak levels (peak) and sound exposure levels (SEL). In addition to the pressure pulse of the waveform, the frequency of the sound, expressed in Hertz (Hz) is also important to evaluating the potential for sound impacts. Low frequency sounds are typically capable of traveling over greater distances with less reduction in the pressure waveform than high frequency sounds. Pile driving hammers driving concrete and steel piles in water typically generate sound waves ranging between 185-220 dB (peak) and 160-195 dB (SEL) (CalTrans 2009).

Vibratory pile drivers work on a different principle than pile-driving hammers and produce a different sound profile. A vibratory driver works by inducting particle motion to the substrate immediately below and around the pile causing liquefaction of the immediately adjacent sediment, allowing the pile to sink downward or removed. Vibratory pile driving is only suitable where soft substrate is present. The noise produced by vibratory drivers driving concrete and steel piles in water range between 165-195 dB (Peak) and 150-180 dB (SEL) (*ibid.*). These levels are typically 10-20 dB lower in intensity relative to the higher, pulse-type noise produced by an impact hammer (*ibid*.).

Potential noise calculations prepared for the Pier 36/Brannan Street Wharf project on the San Francisco waterfront estimated that vibratory pile driving activities for that project, which included 24- and 36-inch steel pilings, would generate peak underwater noise ranging between 170 and 180 dB (URS 2011) and it is assumed that noise levels from pile driving associated with the proposed project would be similar. These levels are below the thresholds shown in **Table 4.E-2** of 183 dB for potential impacts on fish less than 2 grams and 187 dB for fish greater than 2 grams.

Scientific investigations on the potential effect of noise on fish indicate that sound levels below 187 dB do not appear to result in any acute physical damage or mortality to fish (barotraumas) (Dalen and Knutsen 1986). Table 4.E-2 provides a summary of known acute and sub-lethal effects of noise on fish and marine mammals. Noise levels that result in startle responses in steelhead trout and salmon have been documented to occur at sound levels as low as 140 dB at a frequency of 100 Hz and between 180 and 186 dB in Pacific herring (San Luis and Delta Mendota Water Authority and Hanson 1996). Any disturbance to FESA-listed fish species that results in altered swimming, foraging, movement along a migration corridor, or any other altered normal behavior is considered harassment.

TABLE 4.E-2
POTENTIAL EFFECTS OF VARYING NOISE LEVELS ON FISH AND MARINE MAMMALS

Taxa	Sound Level (dB)	Effect	Reference
Fish			
All fish > 2 grams in size	206 peak 187 (SEL)	Acute Barotraumas	Fisheries Hydroacoustic Working Group, 2008
All fish < 2grams	183 (SEL)	Acute Barotraumas	Fisheries Hydroacoustic Working Group, 2008
Pacific herring	180-186	Avoidance behavior	Dalen and Knutsen, 1986
Salmon, steelhead	166	Avoidance behavior	Loeffelman et al. 1991
Salmon, Steelhead	140-160	Startle response	San Luis and Delta Mendota Water Authority and C.H. Hanson. 1996
Marine Mammals			
Marine Mammals	180-190	Level A[a] harassment out to 65 feet from sound source	NMFS, 2011
Harbor seals	180 at 12 kHz	Discomfort zone out to 4 miles	Kastelein *et al.* 2006
Harbor seals	166-195	Can be detected at distances up to 2.9 miles	Terhung *et a*l. 2002
Marine Mammals	160 from impact hammer	Level B[b] harassment out 328 feet from sound source	NMFS, 2011
Marine Mammals	120 from vibratory hammer	Level B[a] harassment out to 1.2 miles	NMFS, 2011
Harbor seals	>155	Avoidance behavior	Terhung *et a*l. 2002
Harbor seals	107 at 12 kHz	Discomfort zone out 20-meters from the sound source	Kastelein *et a*l. 2006
Harbor seals	>75	Threshold level of detection	Kastak and Schusterman, 1998

NOTES:
a Level A harassment is defined as any act of pursuit, torment, or annoyance with has the potential to injure a marine mammal or marine mammal stock in the wild.
b Level B harassment is defined as any act of pursuit, torment, or annoyance with has the potential to disturb a marine mammal or marine mammal stock in the wild.

The use of vibratory hammers to install the 18- and 24-inch piles is expected to generate 187 dB or lower sound levels for a short period of time within a zone extending out approximately 154 feet from the piling (NMFS 2011). During pile driving activities, fish are not expected to be present within this zone, since the movement of the steel pipe through the shallow water and initial contact with the Bay floor should result in any fish that are present quickly leaving the immediate area. Any salmon, steelhead, green sturgeon, Pacific herring, or MSA-managed fish species swimming near pile driving activities are therefore not expected to experience any acute effects or barotraumas from vibratory pile driving.

However, were an impact hammer to be used, sound levels could exceed 187 dB and pose risk to small fish such as herring, sardines, and anchovies as well as cause salmon, steelhead and sturgeon to modify their foraging and/or normal swimming behaviors (Table 4.E-2). The use of NMFS approved BMPs such as bubble curtains and cushion blocks can be expected to reduce transmitted sounds levels and the distance over which potentially deleterious sounds levels will travel. Additionally, restricting piling installation to the months of June 1 through November 30th would minimize or reduce the time periods when these species would be present in the project area.

Corroborating this determination, the NMFS 2007 programmatic consultation for essential fish habitat pursuant to MSA (NMFS 2007a) and FESA (NMFS 2007b) listed species and marine mammals covered by the MMPA, established activity-specific criteria to avoid or minimize adverse effects to individuals and cumulative instances of specific routine permitted activities. These activities include bridge repair, bank stabilization, culvert replacement, navigational dredging, boat dock construction and maintenance, piling installation, pipeline repairs, and levee maintenance. As part of a project's consultation with NMFS, pursuant to FESA, MMPA, and MSA, if the proposed activity included one of the above routine permitted activities and conformed to normal and routine type operations, the activity would be allowed pursuant to specific requirements. Specific to piling installation, this programmatic consultation established that for any size of steel, wood, or concrete piling installation employing a vibratory hammer, that installation could occur year-round with no meaningful impact to fish. Specific elements of the proposed project that involve in-water work, such as construction of a marina or ferry terminal, shoreline protection work, and potentially, installation and demolition of storm water outfalls, will require consultation with NMFS as the City (or project proponent) applies for Section 404 and/or Section 10 permits, and possibly with the CDFW. In summary, the potential for noise effects on salmon, steelhead, green sturgeon, Pacific herring, longfin smelt, and MSA- managed fish species from installation of piles by vibratory hammers would be minimal and result in less-than-significant impacts to sensitive fish species.

Use of an impact hammer for pile installation could result in acute barotraumas (sound levels greater than 187 dB) to special-status or otherwise managed fish if underwater sound levels are not reduced through implementation of BMPs. Additionally, normal foraging, swimming, or resting behaviors of both listed and MSA-managed fish species could occur if impact hammer noise levels are not reduced to levels less than 183 dB and ideally less than 160 dB. However, noise impacts to sensitive fish species would be reduced to less than significant by implementation of **Mitigation Measure 4.E-1a** by limiting impact hammer pile driving to time periods when most sensitive fish species are not present and by employing BMPs demonstrated to reduce noise levels to safe levels for fish.

Similar noise studies on pinnipeds (seals and sea lions) indicate that harbor seals can detect sounds in water as low as 65 dB at frequencies of 75 Hz and higher, and that avoidance behaviors are regularly exhibited at sound levels of 80 dB above hearing thresholds, or approximately 160 to 165 dB (Kastak and Schusterman 1998) (see Table 4.E-2). Of particular significance are the investigations of Kastelein et al. (2006) which reported that 12 kHz sounds produced a discomfort threshold for harbor seals at 107 dB and that 180 dB sounds at the same frequency maintained a discomfort zone extending out 4 miles. Sounds at 12 kHz are extremely low frequency sounds and as such can travel long distances with little decrease in sound intensity. Part of the programmatic consultation between the Army Corps of Engineers and the National Marine Fisheries Service for routine harbor and port maintenance activities further established that when marine mammals are potentially present, a species-specific work window would apply, the project may be required to have on-site monitors, and Incidental Harassment Authorization (IHA) may be needed (NMFS 2007). The programmatic consultation further stated that a project seeking coverage under the BO would be required to:

- Maintain root mean square (RMS) underwater sound pressures below levels that can injure (180 dB re 1 micropascal) or affect the behavior (160 dB re 1 micropascal) of marine mammals
- Maintain a 1,600-foot (500-meter) safety zone around sound sources in the event the sound level is unknown or cannot be adequately predicted
- Maintain sound levels below 90 dBA in air when pinnipeds (seals and sea lions) are present
- Halt work activities when a marine mammal enters the 1,600-foot (500-meter) safety zone
- Bring loud mechanical equipment on-line slowly
- Vessel operations should reduce speed when marine mammals are in the project area.

In their recent issuance of an IHA for the pier improvements at the Exploratorium in San Francisco (Piers 15-17) in which 72-inch steel pilings were to be installed using vibratory and impact hammers, NMFS determined that through the implementation of the measures outlined in the programmatic consultation, that Level A harassment (acute barotraumas) could occur to marine mammals in San Francisco Bay within 65-feet of the sound source (see Table 4.E-2). They further determined that Level B harassment could occur from vibratory hammer installation of steel pilings out to 1.3 miles and from impact hammers out to 354 feet from the sound source. Consultation with NMFS regarding the potential for incidental harassment of marine mammals and need for an IHA is required under Mitigation Measure 4.E-1b.

The Bay waters adjacent to the Seaplane Lagoon are used by harbor seals for foraging and Breakwater Island is used as a haul-out location. Thus, there would be a potential for noise from proposed pile driving activities to affect these marine mammals, a potentially significant impact. The implementation of noise reduction measures to protect fish and marine mammals in **Mitigation Measures 4.E-1a**, **4.E-1b**, and **4.E-1c**, which are consistent with NMFS current programmatic review for pile driving activities in San Francisco Bay (NMFS 2007a and b), would reduce the potential for noise effects on marine mammals to a less than significant level.

Operational Impacts. The installation of marina and ferry terminal docks would shade subtidal habitat. Overwater structures can alter the physical ecological conditions present under them, including increasing the deposition of sediments and thereby reducing water depth and the grain size composition of seafloor sediments and therein the composition of benthic infaunal communities, and reducing the penetration of ambient light into Bay waters (TRAC 2001). Decreased light penetration into Bay waters can have an effect on phytoplankton production and the presence and growth of marine algae, including eelgrass. Shade cast from docks, piers, and pilings has been shown to reduce the amount of ambient light within the marine environment, affect invertebrate and vertebrate community composition, and create behavioral barriers that can deflect or delay fish migration, reduce fish prey forage, and alter predator-prey relationships over normal open-water conditions (*ibid*.). However, as discussed above, Bay waters are typically relatively turbid, which naturally limits ambient light penetration and phytoplankton production. In addition, although it is known that birds forage in the Seaplane Lagoon, the composition of the marine community there and its productivity and importance to foraging birds are unknown. With the abundance of similar or better habitat available in adjacent waters, the potential effects of shading associated the proposed marina and ferry terminal on sensitive species are expected to be less than significant.

Increased artificial illumination of Bay waters at night can alter normal swimming and foraging behavior of fish, marine mammals, and seabirds. Many pelagic schooling fish, such as sardines and herring, are attracted to illumination cast by boats and offshore structures and are frequently subject to increased predation from other fish species as well as marine birds and occasional marine mammals (*ibid*.). Measures that are often used to minimize impacts of artificial night lighting on birds, fish, and marine mammals include installation of dock lighting that is low to the dock surface; uses low-voltage, sodium, or non yellow-red spectrum lights; and is well shielded to restrict the transmittance of artificial light over the water. The potential for impacts on special-status species from artificial night lighting on marina and ferry terminal docks would be potentially significant, but with the implementation of **Mitigation Measure 4.E-1d**, which would minimize direct artificial lighting of Bay waters by using shielded, low-mounted, and low light-intensity fixtures and bulbs, these impacts would be reduced to a less-than-significant level.

Increases in recreational boating and the addition of ferry services would increase ambient noise levels in Bay waters and could disturb foraging and resting behavior of special-status wildlife species, which could lead to decreased fitness and reproductive success. Noise due to vessel traffic could disturb wildlife use of adjacent shoreline areas if traffic were to approach too close to areas utilized by wildlife. As noted previously, Breakwater Island is used as a haul-out site for seals. Vessel traffic close to Breakwater Island could cause seals to flush and could disturb foraging and resting. Given the importance of the isolated Breakwater Island to harbor seals, increased vessel traffic would result in a potentially significant impact. However, the proposed project includes measures from the USFWS Biological Opinion and the Navy’s Declaration of Restrictions, which will avoid or minimize impacts on wildlife using Seaplane Lagoon, Breakwater Island, and the submerged lands south of Alameda Point, which include the areas most likely to be impacted by increased boat traffic. These measures include BO-AMM-10e, which establishes 300 foot watercraft exclusion zones protective of the breakwater and the waters immediately south of the least tern nesting colony (Applies to Areas H, M, O, Q through T) and BO-AMM-10f, which establishes a no wake zone during the least tern breeding season (Applies to Areas H and P).

In addition, as discussed in more detail under Impact 4.E-4, and proposed in the EIR, **Mitigation Measure 4.E-4a** limits the corridor and speed of marine craft inside of Breakwater Island. Implementation of these measures would reduce the potential impacts on fish and marine mammals resulting from increased vessel traffic to less-than-significant levels.

Mitigation Measure 4.E-1a: Prior to the start of marina or ferry terminal construction, the City shall require a NMFS-approved sound attenuation monitoring plan to protect fish and marine mammals, if pile driving is planned for the Seaplane Lagoon. This plan shall provide detail on the sound attenuation system, detail methods used to monitor and verify sound levels during pile driving activities, and describe management practices to be taken to reduce impact hammer pile-driving sound in the marine environment to an intensity level of less than 183 dB. The sound monitoring results shall be made available to the NMFS. The plan shall incorporate, but not be limited, to the following best management practices (BMPs):

- To the extent feasible, all pilings shall be installed and removed with vibratory pile drivers only. Vibratory pile driving will be conducted following the Corps' "*Proposed Procedures for Permitting Projects that will Not Adversely Affect Selected Listed Species in California*". USFWS and NOAA completed Section 7 consultation on this document, which establishes general procedures for minimizing impacts to natural resources associated with projects in or adjacent to jurisdictional waters.
- An impact pile driver may only be used where necessary to complete installation of larger steel pilings in accordance with seismic safety or other engineering criteria
- The hammer shall be cushioned using a 12-inch thick wood cushion block during all impact hammer pile driving operations
- All piling installation using impact hammers shall be conducted between June 1 and November 30, when the likelihood of sensitive fish species being present in the work area is minimal
- If pile installation using impact hammers must occur at times other than the approved work window, the project applicant shall obtain incidental take authorization from NMFS and CDFW, as necessary, to address potential impacts on steelhead trout, chinook salmon, and Pacific herring and implement all requested actions to avoid impacts
- The project applicant shall monitor and verify sound levels during pile driving activities. The sound monitoring results will be made available to NMFS and the City
- In the event that exceedance of noise thresholds established and approved by NMFS occurs, a contingency plan involving the use of bubble curtains or air barrier shall be implemented to attenuate sound levels to below thresholds

Mitigation Measure 4.E-1b: During the project permitting phase, the City will ensure that any projects requiring in-water work include consultation with NMFS to determine if the work can be covered under one of the programmatic consultations for federally listed species described above or if a project-level BO would be required and whether an Incidental Harassment Authorization for marine mammals would be needed for dredging or pile driving activities. The project applicant shall also consult with CDFW regarding State special-status fish and the potential need for an incidental take permit (ITP). The project applicant shall submit to the City copies of any IHA and/or ITP received or, alternatively, copies of correspondence confirming that an IHA and/or ITP is not required for the project in question.

Mitigation Measure 4.E-1c: As part of the NMFS-approved sound attenuation monitoring plan required for pile driving in the Seaplane Lagoon in Mitigation Measure 4.E-1a, the City shall ensure that the project applicant implements the following actions in addition to those listed in Mitigation Measure 4.E-1a to reduce the effect of underwater noise transmission on marine mammals. These actions shall include at a minimum:

- Establishment of a 1,600-foot (500-meter) safety zone that shall be maintained around the sound source, for the protection of marine mammals in the event that sound levels are unknown or cannot be adequately predicted
- Work activities shall be halted when a marine mammal enters the 1,600-feet (500-meter) safety zone and resume only after the animal has been gone from the area for a minimum of 15 minutes
- A "soft start" technique shall be employed in all pile driving to marine mammals an opportunity to vacate the area
- Maintain sound levels below 90 dBA in air when pinnipeds (seals and sea lions) are present
- A NMFS-approved biological monitor will conduct daily surveys before and during impact hammer pile driving to inspect the work zone and adjacent Bay waters for marine mammals. The monitor will be present as specified by NMFS during the impact pile-driving phases of construction

Mitigation Measure 4.E-1d: Prior to occupancy, the City shall ensure that the project applicant installs dock lighting on all floating docks that minimizes artificial lighting of Bay waters by using shielded, low-mounted, and low light-intensity fixtures and bulbs.

Impacts on Special-Status Birds

Fish-eating Birds. California least tern, California brown pelican, osprey, three species of cormorant, several gull species, grebes, and multiple duck species forage in the waters off Alameda Point, including within Seaplane Lagoon and in and around the breakwaters. According to studies conducted in the late 1980s to early 1990s, California least terns forage primarily in the waters directly to the south and west of the nesting colony, only 5 to 10 percent of their foraging is in Seaplane Lagoon, and only occasionally do they forage in the waters between the breakwaters and Seaplane Lagoon (DVA, 2013). Because this species is considered extremely sensitive to disturbance, especially during the breeding season, and because successful nesting and foraging are believed to be critical to the least tern's recovery, dredging that causes significant turbidity could result in decreased foraging and reproductive success for the species (USFWS 2006). Similarly, pile driving would also result in temporary increases in turbidity, which could affect the abundance of least tern prey as fish avoid the area due to in-water disturbance and could interfere with the species' ability to locate prey in Seaplane Lagoon, resulting in the same types of impacts as described above for dredging. In addition, the in-air noise and activity associated with pile driving could cause least terns and other birds to abandon foraging in Seaplane Lagoon. Because least terns are considered so sensitive to disturbance, the species is considered an indicator species for potential impacts to other fish-eating birds for the purposes of this EIR. According to the 2001 *Long-Term Management Strategy for the Placement of Dredged Material in the San Francisco Bay Region Management Plan*, California least tern foraging may be affected by turbidity from dredging in coastal waters and sloughs within 1 mile of the coastline from Berkeley Marina south through San Lorenzo Creek (Corps 2001). As shown in Table 4.E-1, the LTMS specifies that dredging activities within this potential impact area should not occur during the period in which (and just prior to which) least terns might be nesting in the San Francisco Bay area (March 16–July 31). Because the proposed marina and ferry terminal are located within this area where potential foraging effects may occur, the project applicant would be required by Section 10 and/or Section 404 permitting conditions (see discussion under Impact 4.E-3) to limit dredging to occur outside of this sensitive period. Furthermore, the proposed project includes measure BO-AMM-10g from the USFWS BO and the Navy's Declaration of Restrictions, which specifies that no dredging will occur in project area waters from March 15 through August 15 each year, which expands the LTMS protective window. With respect to pile driving activities, **Mitigation Measure 4.E-1a** would minimize potential pile driving impacts on fish and, consequently, the foraging birds that depend on them. Finally, because the waters of Seaplane Lagoon are not a primary foraging area for least tern, temporary loss of these waters due to in-air noise and increased activity associated with pile driving is considered less-than-significant.

Therefore, potential foraging impacts to California least tern and other fish eating birds related to dredging and pile driving activities would be less than significant. For a discussion of potential disturbance to breeding areas for these taxa, see Impact 4.E-4.

Numerous birds roost on Breakwater Island, including the State fully protected California brown pelican, cormorants, and gulls. This is the largest roost and only known night roost for California brown pelican within the Bay. An increase in boat traffic over existing conditions, as would be facilitated with the construction of a marina and ferry terminal in the Seaplane Lagoon, has the potential to disturb roosting and foraging birds. In particular, vessel traffic close to Breakwater Island could cause birds to flush and could disturb foraging, and resting. Increases in recreational boating and the addition of ferry services would increase ambient noise levels in Bay waters and could disturb foraging and resting behavior of least tern and other special-status birds, which could lead to decreased fitness and reproductive success. Noise due to vessel traffic could disturb bird use of adjacent shoreline areas as well, if traffic were to approach too close to areas utilized by birds. Given the importance of the isolated Breakwater Island to a number of bird species protected by the Migratory Bird Treaty Act and the California Fish and Game Code, increased vessel traffic would result in a potentially significant impact. The abandonment of this important roosting site by brown pelicans or other special-status birds would also be potentially significant because there are few other local sites with the same characteristics available to these species. However, as noted above in the discussion of potential impacts on marine mammals, the proposed project incorporates measures from the USFWS Biological Opinion, as embodied in the Navy's Declaration of Restrictions, which will serve to help avoid and minimize impacts on wildlife using Breakwater Island. These measures include BO-AMM-10e, which establishes 300 foot watercraft exclusion zones protective of the breakwaters and the waters immediately south of the least tern nesting colony and BO-AMM-10f, which establishes a no wake zone during the least tern breeding season. In addition, **Mitigation Measure 4.E-4a** further limits the watercraft zone and place a speed restriction on watercraft. Implementation of these measures would reduce the potential impacts on birds using Breakwater Island and the southern Alameda Point shoreline resulting from increased vessel traffic to less-than-significant levels.

Raptors and Other Land-based Birds. As noted in the biological resources Environmental Setting, mature trees at Alameda Point offer nesting and roosting habitat for raptors and other birds, as do existing piers, buildings, and other structures, many of which would be demolished or rehabilitated in association with development facilitated by the proposed project. Grasslands and ruderal habitat, particularly in the Northwest Territories and the Federal Property, provide foraging opportunities for raptors, burrowing owl, Alameda song sparrow, and a number of other special-status and common species. The proposed Sports Complex in the Northwest Territories would result in the conversion of 44 acres of existing runways and open space and would introduce a source of night lighting, as well as increased human activity, into the area. The open space to be converted currently supports primarily ruderal habitat that is subject to substantial amounts of existing light from the Port of Oakland directly to the north, thus providing relatively low quality habitat for foraging and roosting birds. In addition, significant amounts of open space will remain in the Northwest Territories and on the Federal Property for foraging birds. Finally, measure BO-AMM-7 generally restricts increases in light from all VA and City sources combined over existing ambient levels at the least tern colony and measure BO-AMM-8d of the USFWS BO and the Navy's Declaration of Restrictions states that the Sports Complex shall not employ night lighting between April 1 and August 15 unless it can be demonstrated that the cumulative lighting from City and VA developments would not increase light levels within 750 feet of the least tern colony by more than 10 percent over pre-conveyance levels. The Memorandum of Agreement (MOA) beyween the City and VA that implements the BO lighting measures details further restrictions on lighting for development in the western parts of Alameda Point that are protective of nesting least tern as well as other birds. Therefore, the reduction of open space and lighting impacts on terrestrial birds associated with the proposed Sports Complex are considered less than significant.

The development of the Northwest Territories as a regional park and construction of recreational trails also would enable an increase in the number of people using this area, which is currently unavailable for daily public use, although managed events such as emergency preparedness training and the Alameda Point Antiques Faire are held on the northern runways on a regular basis. Increases in human activity in the Northwest Territories, as well as along the perimeter Bay Trail to be constructed on the south and western bayside perimeter of the Federal Property, could result in increased disturbance and harassment of special-status or otherwise protected wildlife by people and their dogs when compared to existing conditions where these areas are not open for public use. Measure BO-AMM-56 of the USFWS BO and the Navy's Declaration of Restrictions restricts public access to the portion of the future Bay Trail proposed to run along the southern and western perimeters of the Federal Property between April 1 and August 15 in order to protect the least tern nesting colony from disturbance. This seasonal restriction would also serve to protect other species from disturbance during this sensitive time of year. In addition, implementation of **Mitigation Measure 4.E-1e** would further serve to minimize disturbance to terrestrial birds roosting and foraging in this area.

As discussed in the Regulatory Framework section of this chapter, the USFWS 2012 BO for the proposed project contains avoidance and minimization measures and terms and conditions to be implemented to avoid and minimize impacts to least tern. These measures were incorporated into a "Declaration of Restrictions" by the Navy prior to transfer of the land to the City, some of which are specific to a number of planning sub-areas identified in the BO, and will govern development facilitated by the proposed projects. Several terms and conditions, although beneficial for the least tern, could have direct and indirect effects on other special-status species, particularly those that may be predators of least terns, including raptors, burrowing owl, and peregrine falcon. Specifically, the BO contains a number of avoidance and minimization measures directly or indirectly related to predation of least terns, such as restrictions on vegetation that may be used as cover or nesting sites by predators, restrictions on height of structures that may serve as nesting sites or hunting perches by predators, and restrictions on increases in night lighting, which could facilitate predation by nocturnal predators. See for example, BO-AMM-9a, BO-AMM-9b, BO-AMM-9d, BO-AMM-10b, BO-AMM-10c. These measures could result in reduction of foraging opportunities and/or roosting and perching substrate for avian predators of least tern, some of which are special-status species themselves. Restrictions on vegetation and structure height primarily apply to areas within close proximity and/or line-of-sight of the least tern nesting colony and thus perching and roosting substrate would remain unconstrained in other parts of the project area. In addition, substantial areas of protected open space along the East Bay shoreline (e.g. Emeryville Crescent, Arrowhead Marsh, Oyster Bay Regional Park) would remain to provide similar foraging and roosting opportunities for terrestrial avian species. Therefore, this is considered a less than significant impact. For a discussion of potential disturbance to nesting birds please see Impact 4.E-4.

Mitigation Measure 4.E-1e: Prior to opening the proposed regional park in the Northwest Territories and the proposed Bay Trail in the Northwest Territories and on the Federal Property, the City shall ensure that measures are taken to identify sensitive resources in these areas and to restrict access of humans and dogs to those resources. Measures to be implemented could include, but are not limited to, the following:

- Surveys conducted by a qualified biologist to identify sensitive resources locations throughout the City's portion of the Northwest Territories and on the Federal Property along the proposed Bay trail alignment
- Additional seasonal access restrictions, as appropriate
- Educational signage and brochures regarding sensitive resources and the need to avoid them
- Fencing trails where they run proximate to sensitive biological resources (e.g. wetlands, known breeding grounds)
- On-leash restrictions on dogs throughout or prohibition of dogs altogether in certain areas based on the results of the sensitive resources surveys (e.g., on the Bay Trail in the Federal Property)

Impacts on Bats

Bats have the potential to roost in existing vacant or underutilized buildings, other man-made structures, and trees within or near the project site. Bats and other non-game mammals are protected in California under the State Fish and Game Code (described above under *Regulatory Framework*).

Maternity roosts are those that are occupied by pregnant females or females with non-flying young. Non-breeding roosts are day roosts without pregnant females or non-flying young. Destruction of an occupied, non-breeding bat roost, resulting in the death of bats; disturbance that causes the loss of a maternity colony of bats (resulting in the death of young); or destruction of hibernacula[11] are prohibited under the Fish and Game Code and would be considered a significant impact (although hibernacula are generally not formed by bat species in the Bay Area due to sufficiently high temperatures year round). This may occur due to direct or indirect disturbances. Direct disturbance includes tree removal, building removal, or roost destruction by any other means. Indirect disturbance to bat species could result in behavioral alterations due to construction-associated noise or vibration, or increased human activity in area. The proposed project would involve tree removal and building removal through demolition of existing structures and site grading prior to construction. Prior to the issuance of grading or construction permits the City shall ensure the project applicant for development facilitated under the proposed project implements the following measures protective of protected bats:

Mitigation Measure 4.E-1f: Potential direct and indirect disturbances to bats shall be identified by locating colonies, and instituting protective measures prior to construction. No more than two weeks in advance of tree removal, demolition of buildings onsite, or initiation of construction within 100 feet of trees or structures providing potential bat roosting sites, a qualified bat biologist (e.g., a biologist holding a CDFW collection permit and a Memorandum of Understanding with CDFW allowing the biologist to handle and collect bats) shall conduct pre-construction surveys for bat roosts. No activities that could disturb active roosts shall proceed prior to the completed surveys.

Mitigation Measure 4.E-1g: If a maternity colony is located within the project site during pre-construction surveys, the project shall be redesigned to avoid impacts if feasible, and a no-disturbance buffer acceptable in size to the CDFW shall be created around the roost. Bat roosts (maternity or otherwise) initiated during construction are generally presumed to be unaffected by increased noise, vibration, or human activity, and no buffer is necessary as long as roost sites are not directly altered or destroyed. However, the “take” of individuals is still prohibited at any time.

- If there is a maternity colony present and the project cannot be redesigned to avoid removal of the tree or structure inhabited by the bats, demolition of that tree or structure shall not commence until after young are flying (i.e., after July 31, confirmed by a qualified bat biologist) or before maternity colonies form the following year (i.e. prior to March 1).
- If a non-maternity roost must be removed as part of the project, the non-maternity roost shall be evicted prior to building/tree removal by a qualified biologist, using methods such as making holes in the roost to alter the air-flow or creating one-way funnel exits for the bats.
- If significant (e.g., maternity roosts or large non-maternity roost sites) bat roosting habitat is destroyed during building/tree removal, artificial bat roosts shall be constructed in an undisturbed area in the project site vicinity away from human activity and at least 200 feet from project demolition/construction activities. The design and location of the artificial bat roost(s) shall be determined by a qualified bat biologist.

[11] Hibernaculum refers to the winter quarters of a hibernating animal.

Impacts on Monarch Butterfly

As noted in the Environmental Setting, fairly dense concentrations of monarch butterflies have been observed in the fall using a grove of Monterey pine, stone pine, and eucalyptus located in a park-like area between houses in the northeastern part of the Main Street Neighborhood Sub-Area. As of 2002 the butterfly was thought to be using these trees as autumnal roost sites. However, they were not observed in large densities during the winter months so these were not considered overwintering sites (City of Alameda 2002). Although the butterfly has not been documented at Alameda Point since that time, the species is known to have high fidelity to such sites but numbers vary from year to year and in some years they may not appear at all (Arnold 2013). Monarch butterfly surveys were not conducted for this EIR; therefore, it is assumed the autumnal roost site may still be in use by monarch butterflies.

Vegetation clearing, including tree removal, could destroy or impact autumnal roosts or overwintering sites in this area. The loss of an active autumnal roost or overwintering site would be a significant impact under CEQA because such sites are becoming increasingly rare throughout the state and are therefore considered a sensitive resource by CDFW. However, implementation of **Mitigation Measure 4.E-1h** would reduce potential impacts on this species to a less-than-significant level by requiring the project proponent to protect active roost sites from destruction, conduct construction activities outside of the migratory and overwintering season, perform preconstruction surveys, and implement avoidance measures if active overwintering sites are located.

Mitigation Measure 4.E-1h: The City shall ensure that the project applicant for development facilitated by the proposed project protects active autumnal/overwintering roost sites used by monarch butterflies by conducting construction activities in and around identified butterfly autumnal roost/overwintering sites outside of the autumnal migratory/overwintering season (October to March), to the greatest extent feasible, to avoid potential impacts on monarch butterfly.

- The project applicant shall retain a biologist familiar with monarch butterfly life history and habitat requirements to conduct surveys for active monarch butterfly roost sites anywhere groves (greater than 3 trees planted together) of mature conifers (e.g. Italian stone pine, Monterey cypress) and/or eucalyptus occur in the Main Street Neighborhood Sub-area and in open space to the south of Main Street as it skirts the northern edge of the project area between November and January and prior to start of construction.
- All active roost sites encountered during the survey shall be identified and mapped for future reference. The previously active roost site identified in 2002 shall be considered active until proven otherwise. Active sites shall be monitored annually to inform future development. Once identified, such sites shall be considered active until such time as monarchs have not returned to the site for a period of ten years. Once ten years have passed with no significant butterfly use (as determined by the qualified biologist) of a site the restrictions below would no longer apply.
- No tree removal shall be conducted at any time in or around active roost sites to the extent that such removal would: a) result in the loss of an active roost tree; b) result in changes to the amount of wind affecting an active roost; or c) result in changes of the thermal environment surrounding an active roost tree.

If active roost sites are identified and it is not feasible to avoid the overwintering season and construction activities take place during this time (October through March), the following measures shall apply:

- Mapped autumnal roost/overwintering roosts within 100 feet of construction areas shall be surveyed not more than two weeks prior to construction to determine whether they are actively being used by butterflies.
- If a mapped autumnal roost/overwintering site is supporting butterflies, work activities shall be delayed within 100 feet of the site location until avoidance measures have been implemented. Appropriate avoidance measures shall include the following measures (which may be modified as a result of consultation with CDFW to provide equally effective measures):
  - If the qualified wildlife biologist determines that construction activities shall not affect an active autumnal roost/overwintering site, activities may proceed without restriction.
  - A no-disturbance buffer may be established around the autumnal roost/overwintering site to avoid disturbance or destruction until butterflies resume their migration.
  - The extent of the no-disturbance buffers is typically 100 feet but shall be determined by a qualified wildlife biologist in consultation with the CDFW.

Impact Summary

The proposed project would potentially affect sensitive marine species in their general use of project area waters for foraging and resting. Noise from pile driving activities during construction could result in noise levels that could cause potentially significant impacts on fish and marine mammals if they exceeded known impact thresholds (see Table 4.E-2). Implementation of **Mitigation Measures 4.E-1a**, **4.E-1b**, and **4.E-1c** would reduce these construction impacts to less than significant by ensuring that noise levels would not exceed the noise level thresholds presented in Table 4.E-2.

Installed dock lighting would cause increased nighttime illumination of Bay waters that may alter normal fish behavior and would be a potentially significant impact. Implementation of **Mitigation Measure 4.E-1d** would reduce this impact to less than significant.

The proposed project could potentially impact foraging and roosting birds through loss or degradation of foraging and roosting habitat due to dredging, increases in human activity throughout Alameda Point and development of the Northwest Territories as open space. Implementation of **Mitigation Measure 4.E-1e** would reduce these impacts to less-than-significant levels.

The proposed project could have potential impacts on roosting or breeding bats through mortality resulting from tree removal, building removal, or roost destruction by any other means. Increases in noise or increased human activity could cause bats to alter behavior, potentially resulting in lost fitness or impaired reproductive success. Implementation of **Mitigation Measures 4.E-1f** and **4.E-1g** would reduce these impacts to less-than-significant levels.

The proposed project could have potential impacts on the Monarch butterfly through tree removal that could destroy or impact autumnal roosts or overwintering sites, potentially resulting in butterfly mortality and/or loss of seasonal habitat. Implementation of **Mitigation Measure 4.E-1h** would reduce potential impacts on this species to a less-than-significant level.

Significance after Mitigation: Less than Significant.

Impact 4.E-2: Development facilitated by the proposed project would have a substantial adverse effect on riparian habitat or other sensitive natural communities identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service. (Significant)

There is no riparian habitat located within the project area. Sensitive natural communities occurring within or in waters adjacent to the project area include seasonal wetlands and northern coastal salt marsh, which are discussed below under Impact 4.E-3, and eelgrass and native oyster beds, which are discussed here. Although eelgrass and native oyster beds are considered ‘special aquatic sites’ by the U.S. Army Corps of Engineers and they would therefore be considered as part of the wetland permitting process, they are also considered a sensitive natural community by NMFS and are thus discussed under this criterion. As described in the Environmental Setting and shown in Figure 4.E-2, above, eelgrass beds are present along the northern and western shores of Alameda Island and several small patches are located within Seaplane Lagoon.

Critical habitat for green sturgeon and Central California coast steelhead is designated in San Francisco Bay and the Oakland-Alameda Estuary and includes the waters adjacent to the project area. Additionally, essential fish habitat (EFH) is present in study area waters for Pacific groundfish, coastal pelagics, and Pacific Coast salmon. Eelgrass beds in particular are designated as EFH for various federally-managed fish species within the Pacific Coast Groundfish and Pacific Coast Salmon Fisheries Management Plans (FMP). Eelgrass is also considered a habitat area of particular concern (HAPC) for various species within the Pacific Coast Groundfish FMP. An HAPC is a subset of EFH; these areas are rare, particularly susceptible to human-induced degradation, especially ecologically important, and/or located in an environmentally stressed area.

As discussed in the Environmental Setting, the waters off Alameda Island support multiple submerged aquatic vegetation beds including eelgrass beds as well as green, red, and brown marine algae attached to pier pilings, intertidal and shallow subtidal natural and artificial hard substrates (rock and concrete), and mud shoals. These marine aquatic vegetation beds provide essential fish habitat for Pacific herring and other fish species and act as important habitat and nursery areas for invertebrates such as shrimp and crabs (Merkel and Associates 2010).

In addition, the native Olympia oyster can be found in the rocky intertidal and shallow subtidal zones of the Bay shorelines, as well as attached to pilings and other hard substrates. This species is making a significant recovery in the San Francisco Bay-Delta after being considered extinct following over-harvesting in the 1800s, predation by the non-native oyster drill, and pollution

(Couch and Hassler, 1989). Native oysters are known to occur at the Encinal boat ramp, and may occur elsewhere within the project area, although their presence is not confirmed.

Dredging and pile removal associated with renovation or demolition of existing piers could potentially affect submerged aquatic vegetation on the Bay floor or attached to pier pilings, as well as native oysters. An increase in the number of recreational boats could also affect eelgrass beds or native oyster beds when anchoring in Bay waters off the shores of Alameda Point. Potential effects from dredging as well as pile driving could range from short-term to permanent, depending on the extent and degree of disturbance, and would be expected to result in possible mortality, physical injury, or physiological stress resulting from reduction in habitat suitability, and physical disturbance/removal. Dredging and pile removal and installation could result in direct mortality of native oysters and eelgrass. Figure 4.E-2 illustrates the location of known eelgrass and oyster beds in the waters off Alameda Point. Any such impacts resulting in significant damage to eelgrass beds or native oyster beds would be potentially significant because eelgrass beds are considered to be of critical importance to Bay marine life and native oysters are still generally quite rare throughout the Bay. This potentially significant impact would be reduced to less-than-significant levels through implementation of **Mitigation Measure 4.E-2a**.

Potential removal of existing shoreline stabilization or pier pilings may remove some artificial habitat used to support submerged aquatic vegetation and native oysters, but their replacement by new pilings and structures, which could be recolonized, would render this potential impact less than significant.

The greatest potential threat to the sensitive aquatic communities off Alameda Point could be from boaters unfamiliar with San Francisco Bay's sensitive habitats, their locations, and the importance of protecting these habitats. In addition, in-water work and increases in recreational boaters could result in the introduction and/or spread of invasive marine species. These potentially significant impacts on eelgrass and oyster beds by in-water work and recreational boaters would be reduced to less than significant through the implementation of **Mitigation Measures 4.E-2b** and **4.E-2c**.

Mitigation Measure 4.E-2a: Prior to marina or ferry terminal construction, the City shall ensure that the project applicant conducts a pre-construction survey to determine if native oysters and eelgrass are present in Seaplane Lagoon.

- The eelgrass survey shall be conducted according to the methods contained in the California Draft Eelgrass Mitigation Policy (CDEMP) (NMFS 2011).
- If found within or immediately adjacent to the construction footprint, the project applicant shall request guidance from the National Marine Fisheries Service (or other applicable agency) as to the need and/or feasibility to move affected beds. Any translocation of eelgrass beds shall be conducted consistent with the methods described in the CDEMP and/or those described in Eelgrass Conservation in San Francisco Bay: Opportunities and Constraints (Boyer and Wyllie-Echeverria, 2010). Translocation of oyster beds shall be consistent with methods and recommendations presented in Shellfish Conservation and Restoration in San Francisco Bay: Opportunities and Constraints (Zabin et al., 2010)

- If it is not possible to translocate oyster or eelgrass beds then the City shall ensure that the project applicant provides compensatory mitigation consistent with the CDEMP for eelgrass (a ratio of 3.01:1 [transplant area to impact area]) and a minimum 1:1 ratio for oyster beds.

Mitigation Measure 4.E-2b: Prior to occupancy the City shall ensure that the marina project applicant prepares educational information regarding sensitive biological resources at Alameda Point, the adjacent Federal Property, and within Bay waters. This information shall be disseminated to all boaters using the marina and shall include, but not be limited to, information educating boat owner/operators about sensitive habitats and species in the Bay and actions they are required to implement to avoid impacts to marine resources.

The educational information will be disseminated to visiting boaters through multiple methods including, but not limited to, brochures or pamphlets; marina and/or City websites; boating, cruising, and newspaper periodicals; and social media. The information shall be prepared soliciting input from, and in cooperation with, the National Marine Fisheries Service (NMFS), United States Coast Guard (USCG), California State Lands Commission, National Park Service (NPS), California Department of Parks and Recreation (CDPR), Bay Conservation and Development Commission (BCDC), and local organizations active in protecting Bay marine resources, as appropriate.

Educational information shall clearly address in multiple languages, but not be limited to, the following topics:

- Information on the location of eelgrass beds in the vicinity of Alameda Island, as well as the greater central Bay and the importance of protecting and avoiding these sensitive habitats (e.g., by not anchoring in or boating through them)
- Marinas and safe anchoring locations in the Bay where boaters may dock or anchor their vessels
- Common sources of pollution from boats and marinas and outline relevant regulations and clean boating policies
- Information on proper and legal waste handling in the Bay and facilities for onshore disposal
- Information on invasive species and their impact on Bay marine ecosystems and preventative steps that boaters should take to prevent the introduction or spread of invasive species into the Bay
- Federal and state regulations prohibiting the harassment of marine mammals
- Information on the watercraft exclusion zones and no wake zones in effect for the waters off Alameda Island and any other buffer zones established in other Bay locations to protect sensitive biological resources (e.g., Breakwater Island, other bird nesting sites, harbor seal haul outs)
- Information about onsite and nearby environmental services that support clean boating practices (such as the locations of sewage pumpouts, oil change facilities, used oil recycling centers, bilge pumpouts, absorbent pad distribution and spent pad collection, and boat-to-boat environmental services)

- Information regarding the importance of keeping plastic and other trash out of Bay waters
- Signage regarding locations of waste collection containers posted at the marina

Mitigation Measure 4.E-2c: The City shall require that the project applicant develop and implement a Marine Invasive Species Control Plan prior to commencement of any in-water work including, but not limited to, construction of piers and seawalls, dredging, pile driving, and construction of new stormwater outfalls. The plan shall be prepared in consultation with the United States Coast Guard (USCG), RWQCB, and other relevant state agencies. Provisions of the plan shall include but not be limited to the following:

- Environmental training of construction personnel involved in in-water work
- Actions to be taken to prevent the release and spread of marine invasive species, especially algal species such as *Undaria* and *Sargasso*
- Procedures for the safe removal and disposal of any invasive taxa observed on the removed structures prior to disposal or reuse of pilings, docks, wave attenuators, and other features
- The onsite presence of qualified marine biologists to assist the contractor in the identification and proper handling of any invasive species on removed Port equipment or materials
- A post-construction report identifying which, if any, invasive species were discovered attached to equipment and materials following removal from the water, and describing the treatment/handling of identified invasive species. Reports shall be submitted to the City, as well as the USCG and the RWQCB if requested by the agencies.

Significance after Mitigation: Less than Significant.

Impact 4.E-3: Development facilitated by the proposed project would have a substantial adverse effect on federally protected wetlands, ‘other waters’, and navigable waters as defined by Sections 404 and 10 of the Clean Water Act and waters of the State through direct removal, filling, hydrological interruption, or other means. (Significant)

The Oakland-Alameda Estuary and San Francisco Bay are “navigable waters” that are regulated by the U.S. Army Corps of Engineers (Corps) under Section 10 of the Rivers and Harbors Act (RHA) and Section 404 of the Clean Water Act and the San Francisco Regional Water Quality Control Board (RWQCB) under Section 401 of the CWA. As noted in the biological resources Environmental Setting, seasonal wetlands and tidal marshes within the Northwest Territories and the Federal Property are also regulated under Section 404 of the CWA. Waters of the State within the project area are regulated by the RWQCB under the Porter-Cologne Act and the waters of San Francisco Bay also are regulated by the Bay Conservation and Development Commission (BCDC) under the McAteer-Petris Act. Waters of the State include all Waters of the United States and, in some cases, wetlands and other features (e.g. vegetated swales) that do not meet the federal criteria (see discussion of Jurisdictional Waters in the biological resources Regulatory Framework).

As described in the biological resources Environmental Setting, there are approximately 18 acres of seasonal wetlands located on City property in the Northwest Territories and 1.5 acres of northern coastal salt marsh located along the northern edge of the Northwest Territories. About 0.6 acre of this total has not yet been delineated. Additional acreage of northern coastal salt marsh in the Runway Wetlands and West Wetlands lies in proximity to the proposed Bay Trail alignment around the southern and western perimeter of the Federal Property.

A number of activities, including remediation by the Navy, construction of open space and recreational components, and other development facilitated under the proposed project could result in substantial adverse effects on wetlands and waters of the United States, waters of the State,[12] and waters and land under BCDC jurisdiction**.** Permanent fill or temporary disturbance of jurisdictional waters, degradation of water quality and aquatic habitat, degradation of tidal marsh habitat, and accidental discharge of sediment or toxic materials into jurisdictional waters would be considered potentially significant impacts.

Wetland Permitting Requirements

Fill and excavation within jurisdictional wetlands and waters require permitting and authorization from the appropriate regulatory agencies. Failure to proceed without permits or approvals would be in violation of these regulations. A wetland delineation and jurisdictional determination are required prior to the submittal of regulatory permit applications.

As noted in the environmental setting, the Corps has made a Preliminary Jurisdictional Determination (Corps, 2013) verifying the extent of potential wetlands delineated in 2012 that covers all of the wetlands shown in Figure 4.E-1 except the West Wetland. However, wetland acreage throughout the project area may be subject to change as the Navy conducts ongoing remediation of the various Superfund sites located on the former Naval Air Station. In addition, since the VA delineation covers most but not all wetlands within the Alameda Point project area[13], a new or revised wetland delineation will be necessary to delineate any other potentially jurisdictional wetlands on City property (including any that may only be considered jurisdictional by the State permitting agencies) and update existing conditions prior to development taking place. Wetland delineations are only considered valid for permitting purposes for five years. Due to the extended time frame for buildout under the proposed project, this process may need to be performed during the permitting process for site-specific development within the Project site depending on the age of the prior delineations. Similarly, other required permit approvals from the RWQCB, BCDC, and any other agencies with permitting responsibilities for construction activities within jurisdictional waters would need to be kept current in order to maintain compliance. Permit approvals and certifications generally include the following:

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12 Waters and wetlands under the jurisdiction of California Department of Fish and Wildlife and/or the San Francisco Bay Regional Water Quality Control Board.

13 As described in the Environmental Setting, there is a narrow strip of northern coastal salt marsh along the northern edge of the Northwest Territories within City property. Part of this was included in the VA delineation but the eastern portion of the wetland lies outside that project's study area. There is also a vegetated swale with a small wetland area in the Enterprise sub-area. These features will need to be delineated prior to any work in their vicinity.

Section 404/Section 10 Permits. Pursuant to Section 404 of the federal Clean Water Act, permit approval from the Corps must be obtained for the placement of dredge or fill material in waters of the United States, including, for example, the placement of rip-rap or other fill along the Seaplane Lagoon shoreline or the fill of seasonal wetlands in the Northwest Territories. Construction below mean high water elevation in Seaplane Lagoon or elsewhere along the Alameda Point waterfront would require a Section 10 permit. Preparation of the Section 404/Section 10 permit applications would require a Pre-construction Notification (PCN) and supporting documentation. A PCN outlines project activities, areas of impact, construction techniques, and methods for avoiding and reducing impacts on jurisdictional features.

Section 401 Water Quality Certification/Waste Discharge Requirements. Approval of Water Quality Certification (WQC) and/or Waste Discharge Requirements (WDRs) must be obtained from the RWQCB for work within jurisdictional waters. Preparation of the Section 401 Water Quality Certification permit applications requires a permit application and supporting materials including construction techniques, areas of impact, and project schedule.

BCDC Permit. Permit approval from BCDC is required for placing solid material including pilings, boat docks, or other fill and/or dredging or other extraction of material from or into jurisdictional waters and within the 100-foot shoreline band inland from the mean high tide line along the Alameda Point shoreline. BCDC permit conditions typically include requirements to construct, guarantee, and maintain public access to the Bay; use of specified construction methods to assure safety or to protect water quality; and mitigation requirements to reduce the adverse environmental impacts of the project.

Permitting Requirements. Compliance with state and federal regulations including the Clean Water Act, Fish and Game Code, and BCDC Bay Plan and policies and requirements will occur through the permitting process for development facilitated by the project. At a minimum, the responsible agencies will require the following during the permitting process and as conditions of approval. The permitting agencies will require that any sensitive natural communities, including navigable waters, wetlands, and tidally inundated areas within the 100-foot shoreline band, be mapped as part of their respective permitting processes. In keeping with “no net loss” policies, the agencies will require avoidance of jurisdictional features and mitigation for loss of sensitive natural communities and wetlands at a minimum ratio of 1:1 on-site or possibly at a higher ratio if off-site mitigation is necessary. The agencies will also typically require the project applicant to implement standard BMPs (see Mitigation Measure 4.E-3b) to avoid and minimize impacts to jurisdictional features.

As discussed under Impact 4.E-2, there are eelgrass beds and native oyster beds in the waters offshore from Alameda Point that could be affected by in-water work facilitated by the proposed project. These eelgrass and oyster beds, which are “Special Aquatic Sites,” and are regulated under Section 404 of the Clean Water Act, could be subject to potentially significant impacts as discussed above. However, these potential impacts on eelgrass beds would be reduced to less than significant through compliance with regulatory requirements, the implementation of **Mitigation Measures 4.E-2a and 4.E-2b** as discussed above, and the implementation of **Mitigation**

Measures 4.E-3a, 4.E-3b, and 4.E-3c which would avoid and minimize disturbance of local eelgrass and oyster beds and provide compensatory mitigation where avoidance is not feasible.

Compliance with wetland permitting requirements and implementation of **Mitigation Measures 4.E-3a**, **4.E-3b**, and **4.E-3c,** all of which are designed to avoid and minimize adverse impacts on jurisdictional waters would reduce potential impacts on jurisdictional waters by minimizing potential temporary construction impacts and ensuring that there is no net loss of function or extent of jurisdictional waters within or adjacent to the project area.

Mitigation Measure 4.E-3a: Prior to issuance of final grading or building permits that include work within or in the vicinity of jurisdictional waters, the City shall confirm that the project applicant has obtained all necessary wetland permits and shall further ensure that the project applicant implements measures to avoid or minimize adverse effects on jurisdictional waters and sensitive natural communities. Specifically:

- The existing wetlands in the Northwest Territories shall be preserved and incorporated into compatible open space uses to the maximum extent feasible.
- Wetlands to be avoided shall be protected by setbacks throughout project construction. Based on recommendations in the *Baylands Ecosystem Habitat Goals* (Goals Project, 1999) a minimum 300-foot wetland buffer shall be incorporated into project design wherever possible to protect water quality and the wildlife that use the wetlands. Where existing uses preclude the establishment of a 300 foot or larger buffer-, the largest buffer possible shall be established. Buffer width should be determined by considering the quality of the wetlands, actual or potential wildlife use, existing and proposed future uses, amount and type of vegetation within the buffer, and angle and direction of slope in proximity to the wetland (McElfish et al. 2008). Open space uses shall incorporate these buffers in the siting of recreational trails and development of facilities to ensure the wetlands and the wildlife that use them are adequately buffered from recreational uses.
- During project construction, areas to be avoided and provided with setbacks pursuant to the provisions described above shall be further protected by best management practices (BMPs), as described in Mitigation Measure 4.E-3b, below. Such measures shall include the installation of silt fencing, straw wattles, or other appropriate erosion and sediment control methods or devices along roads and at the 100-foot setback limits. To minimize impacts on wetlands and other waters, equipment such as backhoes and cranes used for installation of rip-rap or other shore stabilization measures along the Bay shoreline shall operate from dry land where possible. Any construction operations within Bay waters shall be barge-mounted or use other water-based equipment such as scows, derrick barges, and tugs.

Mitigation Measure 4.E-3b: Standard BMPs shall be employed to avoid degradation of aquatic habitat and wetlands by maintaining water quality and controlling erosion and sedimentation during construction as required by compliance with the National Pollutant Discharge Elimination System (NPDES) General Permit for Construction Activities (see also Section 4.H, *Hydrology and Water Quality*, of this EIR, which addresses impacts on water quality).

BMPs shall include, but not be limited to, the following: (1) installing silt fencing between wetlands and aquatic habitat and construction-related activities, (2) locating fueling stations away from potentially jurisdictional features, and (3) otherwise isolating construction work areas from any identified jurisdictional features. In addition, BMPs to avoid impacts on water quality resulting from dredging or other activities within open waters that are identified in the *Long-term Management Strategy for the Placement of Dredged Material in the San Francisco Bay Region* (LTMS) (Corps, 2001) shall be implemented. These BMPs include silt fencing and gunderbooms or other appropriate methods for keeping dredged materials or other sediments from leaving a project site.

Mitigation Measure 4.E-3c: Where disturbance to jurisdictional waters cannot be avoided, compensation shall be provided at a minimum 1:1 ratio for temporary impacts and permanent loss. Actual compensatory mitigation ratios will be specified in project permits issued by the Corps, RWQCB, and BCDC. Where applicable, compensation shall be detailed on a project-specific basis and shall include development of an onsite wetland mitigation and monitoring plan, which shall be developed prior to the start of the first phase of development or in coordination with permit applications and/or conditions. Alternatively, off-site mitigation may be pursued through an approved mitigation bank, although this option may result in a higher mitigation ratio. At a minimum, such plans shall include:

- Baseline information, including a summary of findings for the most recent wetland delineation applicable to the project site;
- Anticipated habitat enhancements to be achieved through compensatory actions, including mitigation site location (onsite enhancement or offsite habitat creation) and hydrology;
- Performance and success criteria for wetland creation or enhancement including, but not limited to, the following[14]:
    - At least 70 percent survival of installed plants for each of the first three years following planting.
    - Performance criteria for vegetation percent cover in Years 1-4 as follows: at least 10 percent cover of installed plants in Year 1; at least 20 percent cover in Year 2; at least 30 percent cover in Year 3; at least 40 percent cover in Year 4.
    - Performance criteria for hydrology in Years 1-5 as follows: Fourteen or more consecutive days of flooding, ponding, or a water table 12 inches or less below the soil surface during the growing season at a minimum frequency of three of the five monitoring years; OR establishment of a prevalence of wetland obligate plant species.
    - Invasive plant species that threaten the success of created or enhanced wetlands should not contribute relative cover greater than 35 percent in Year 1, 20 percent in Years 2 and 3, 15 percent in Year 4, and 10 percent in Year 5.
    - If necessary, supplemental water shall be provided by a water truck for the first two years following installation. Any supplemental water must be removed or turned off for a minimum of two consecutive years prior to the end of the monitoring period, and the wetland must meet all other criteria during this period. At the end of the five-year monitoring period, the wetland must be self-sufficient and capable of persistence without supplemental water.

[14] Vegetation-related criteria listed here apply only mitigation required for impacts to vegetated wetlands and would not be required for mitigation required for impacts to unvegetated wetlands.

- At least 75 percent cover by hydrophytic vegetation at the end of the five-year monitoring period. In addition, wetland hydrology and hydric soils must be present and defined as follows:
  - *Hydrophytic vegetation* – A plant community occurring in areas where the frequency and duration of inundation or soil saturation produce permanently or periodically saturated soils of sufficient duration to exert a controlling influence on the plant species present.
  - *Wetland hydrology* – Identified by indicators such as sediment deposits, water stains on vegetation, and oxidized rhizospheres along living roots in the upper 12 inches of the soil, or satisfaction of the hydrology performance criteria listed above.
  - *Hydric soils* – Soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions, which are often characterized by features such as redox concentrations, which form by the reduction, translocation, and/or oxidation of iron and manganese oxides. Hydric soils may lack hydric indicators for a number of reasons. In such cases, the same standard used to determine wetland hydrology when indicators are lacking can be used.
- Five years after any wetland creation, a wetland delineation shall be performed to determine whether created wetlands are developing according to the success criteria outlined in the project permits. If they are not, remedial measures such as re-planting and or re-design and construction of the created wetland shall be taken to ensure that the Project's mitigation obligations are met.

- If permanent and temporary impacts on jurisdictional waters cannot be compensated onsite through the restoration or enhancement of wetland features incorporated within proposed open space areas, the specific project applicant shall provide additional compensatory mitigation for these habitat losses. Potential options include the creation of additional wetland acreage onsite or the purchase of offsite mitigation. Offsite compensatory mitigation would be required to fulfill the performance standards described above.

Significance after Mitigation: Less than Significant.

Impact 4.E-4: Development facilitated by the proposed project would interfere with the movement of native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. (Significant)

Movement of Fish, Marine Mammals, and Rafting Waterbirds

Increased boat traffic resulting from construction of a new marina and potential ferry terminal in the Seaplane Lagoon could have a negative effect on "rafting" (i.e., aggregating on water) bird species. As discussed in Impact 4.E-1, the open waters of the Oakland-Alameda Estuary and San Francisco Bay are foraging habitats for many species of resident and migratory birds, and important nesting colonies for California least tern and western and California gulls are located at Alameda Point. Many waterfowl species are declining along the West Coast, and human impacts from the heavily urbanized San Francisco Bay Area are often detrimental to them. Rafting or foraging birds look, swim, dive, or fly away as watercraft approach them and become distracted from their normal activities (Huffman 1999). Increased vigilance and escape behavior reduces their limited energy supply and induces stress. Different species have varying distance tolerances before becoming disturbed, but if disturbed they can be flushed from foraging or resting areas. Diving ducks such as scaup and scoter are especially sensitive to maritime traffic. Long-term effects could be site abandonment, reduced migration, and reduced reproductive success (Belanger and Bedard 1990; Knapton et al. 2000; Mori et al. 2001).

In addition to migratory and resident waterbirds, construction and operation of the proposed marina and ferry terminal in Seaplane Lagoon, as well as in-water construction in association with shoreline stabilization, have the potential to interfere with the movement or migratory corridors of, or impede the use of nursery sites by, the following species: harbor seals, Chinook salmon, Coho salmon, Steelhead trout, green sturgeon, Pacific herring, and a number of Fishery Management Plan-managed fish species.

Broadly speaking, the Central Bay is the thoroughfare for all migrating fish and other marine species transiting through the Bay to and from spawning habitat, nursery areas, or other forage areas within the Bay-Delta and out through the Golden Gate and open ocean. Due to Alameda Point's location on the eastern edge of the Central Bay, project activities would potentially expose special-status and sensitive fish and marine mammals moving through the Golden Gate to and from the Central Bay and South Bay to the following types of impacts:

- Increased noise from in-water pile driving, and increased vessel traffic
- Increased resuspension of sediments from dredging, pile removal, anchor placement and removal
- Increased potential for collisions and harassment of marine mammals through increased vessel traffic locally

Construction Noise and Other Harassment. Potential noise impacts from in-water construction, particularly from pile-driving operations on fish and marine mammals moving through the project area are potentially significant, but would be reduced to be less than significant for acute and chronic effects on fish and marine mammals by the implementation of **Mitigation Measures 4.E-1a** and **4.E-1b, and 4.E-1c**, which require consultation with NMFS regarding potential project effects and measures to reduce the effects of pile driving on fish and marine mammals.

In addition, the project applicant will enter into formal consultation with NMFS under the Marine Mammal Protection Act, the Magnuson-Stevens Act, and the federal Endangered Species Act regarding potential project effects on marine mammals, essential fish habitat and federally listed threatened and endangered species respectively, as well as with CDFW regarding state-listed species. These consultations, which would support the subsequent regulatory actions of various federal and state approvals (e.g. wetland permitting) required for in-water work, would identify measures to reduce potentially significant impacts on marine mammals and federal and state protected fish species. Therefore, with the implementation of **4.E-1a** and **4.E-1b, and 4.E-1c**, and compliance with the requirements of the NMFS and CDFW consultations, the potential impacts of in-water work on movement or migration of marine mammals and special-status fish species would be less than significant.

Boat Noise. Installation of a 530 slip marina and a ferry terminal in Seaplane Lagoon would be expected to result in a local increase in operational boat noise over existing conditions due to increased vessel traffic. However, the San Francisco Bay-Delta is the largest estuary on the West Coast of the United States, has a very large and active recreational and commercial boating community, and the busy Port of Oakland is located directly to the north of Alameda Point. Therefore, the overall ambient noise levels within Bay and Estuary waters are already relatively high and the marine species using Bay waters are habituated to noise levels above those that would occur in less traveled waters. Measure BO-AMM-10e of the USFWS BO and the Navy's Declaration of Restrictions requires watercraft exclusion zones to be established by the City and clearly demarcated on submerged lands south of the Federal Property and within 300 feet of the breakwater. Measure BO-AMM-10f requires a no-wake zone be established and clearly demarcated on all submerged lands conveyed to the City south of Alameda Point during the least tern breeding season (April 1 through August 15). These measures are designed to reduce boat noise and other disturbances associated with vessel traffic and apply to areas most likely to experience concentrated increases in traffic and associated noise, including the Seaplane Lagoon and its access route. Although these measures are specific to protection of least tern foraging opportunities during the breeding season they would also serve to protect other species, including other seabirds, fish and marine mammals, from undue vessel associated noise. While Measure BO-AMM-10e would remain in effect year-round, Measure BO-AMM-10f only applies during the least tern breeding season. Therefore, while impacts to least tern foraging would be avoided, potentially significant impacts, as described above, to other species could occur at other times of the year due to noise from vessels moving at faster speeds. Implementation of **Mitigation Measure 4.E-4a** would reduce any such impacts to less-than-significant levels by limiting the corridor and speed of marine craft year-round.

> **Mitigation Measure 4.E-4a:** The City shall deploy buoys between Breakwater Island and the shoreline to create a 500-foot access corridor for all marine craft, including pleasure crafts and ferries, under non-emergency situation, in order to minimize disturbance to biological habitat on the shoreline and on the breakwater. Signs shall be posted that include a speed limit of 10 mph on the harbor side of Breakwater Island.

Resuspended Sediments. The potential impact from increased turbidity resulting from dredging, pile removal, and vessel anchoring caused resuspended sediment plumes is expected to be less than significant, as discussed above in Impact 4.E-1, because the plumes created by these activities would be localized and short in duration, and would occur in a generally high-energy environment that can be expected to rapidly disperse them. In addition, these activities would be conducted in compliance with the best management practices typically applied for in-water construction. See Section 4.I, *Hydrology and Water Quality*, for additional information on project impacts to water quality and how they will be avoided and minimized, primarily through regulatory compliance.

Marine Mammal Collisions and Harassment by Vessel Traffic. Marina-related increases in boating activity would result in an increase in the potential for collisions and/or harassment between marine mammals, most notably Pacific harbor seals moving to and from their haul-out site on Breakwater Island, and boats. The potential risk to California sea lions, the only other marine mammal with potential to occur in project area waters, can be assumed to be low because they are primarily in the Bay during the winter and are not known to frequent the area. The exposure risk to Pacific harbor seals, which are year-round residents and swim throughout Central Bay in search of food, is potentially higher. As a result of local increases in vessel traffic, the potential for marine mammal strikes or other harm or harassment to occur would be potentially significant. However, implementation of Declaration of Restrictions Measures BO-AMM-10e and BO-AMM-10f as well as **Mitigation Measure 4.E-4a**, which provide for protective watercraft exclusion zones and speed limit restriction, and implementation of **Mitigation Measure 4.E-2b**, which would educate marina users regarding possible collisions with and harassment of marine mammals, would reduce the potential for such collisions to a less- than-significant level.

Avian Collisions with Buildings and Night Lighting

The project site is located within the Pacific Flyway along the eastern shoreline of San Francisco Bay. While exact migratory corridors through the area are unknown and vary by species, birds typically follow coastlines, rivers, and mountain ranges in their migratory passages from wintering to breeding grounds and back again. Alameda Point provides foraging and roosting habitat for numerous migratory species.

It is estimated that, in North America alone, millions of songbirds are killed due to collisions with buildings and other structures each year (Lochhead, 2008). Collisions are currently recognized as one of the leading causes of bird population declines worldwide (Brown et al., 2007). Daytime collisions occur most often when birds fail to recognize window glass as a barrier. Regardless of overall height, the ground floor and first few stories of buildings present the greatest hazards to most birds; reflections of attractive ground-level features like vegetation draw birds toward glass surfaces and often result in collisions. Recent increases in glass surfaces used to provide more natural light to building interiors can be considered a “biologically significant” issue, potentially affecting the viability of local and regional bird populations (New York Audubon Society, 2007). Transparent features – especially buildings where birds can see through two glass surfaces to vegetation on the other side – also attract birds and cause collisions.

The migratory flights of different types of birds occur at different altitudes. Soaring migrants, such as hawks, usually take advantage of thermal drafts and typically migrate at 3,000 feet or less. Flight altitudes for migrating waterfowl use a wide range of altitudes, from as low as 300 feet to as high as 10,500 feet. Most passerine species migrate at night and, over land, they typically fly 1,500 feet to 2,400 feet in altitude but can also fly much lower, depending on conditions. Over water, migration takes place at a much higher altitude, from 6,000 to 12,000 feet. Weather conditions often affect the migratory altitude, since birds may fly higher or lower to avoid or take advantage of prevailing winds or to avoid a cloud deck (Cornell Lab of Ornithology, 2007).

Vegetated areas and waterbodies, like the wetlands and grasslands in the Northwest Territories and Federal Property, as well as the waters of the Bay and Estuary, provide valuable stopover habitat for migratory birds. Open space areas in proximity to the proposed reuse and development areas create potential bird habitat in the vicinity of proposed new buildings, which may increase the risk of bird collisions over that posed by existing structures. This would be a significant impact because migratory birds are protected under the Migratory Bird Treaty Act and native resident nongame birds are protected from take under the California Fish and Game Code.

Many collisions are induced by artificial night lighting, particularly from large buildings, which can be especially problematic for migrating songbirds since many are nocturnal migrants (Ogden, 1996). The tendency of birds to move towards lights at night when migrating, and their reluctance to leave the sphere of light influence for hours or days once encountered (Graber 1968), has been well documented (Ogden 1996). It has been suggested that structures located at key points along migratory routes may present a greater hazard than those at other locations (Ogden 2002). Other research suggests that fatal bird collisions increase as light emissions increase, that weather often plays an important part in increasing the risk of collisions (Verheijen 1981), and that nights with heavy cloud cover and/or precipitation present the conditions most likely to result in high numbers of collisions (Ogden, 2002). The type of light used may affect its influence on the birds: for example, studies have indicated that blinking lights or strobe lights affect birds significantly less than non-blinking lights (Gauthreaux and Belser 2006, Evans et al. 2007).

Collisions with lighted buildings and other structures are not the only danger that nighttime lighting has for migratory birds. Even if collisions are avoided, birds are still at risk of death or injury. Birds can become “trapped” by a light source and, disoriented, continue to fly around the source until they become exhausted and drop to the ground, where they may be killed by predators (Ogden, 1996) or die from stress or exhaustion (Reed et al., 1985). Light attraction in birds is positively related to light intensity, and studies have shown that reduction in lighting intensity and changing fixed lighting to a flashing or intermittent light system can dramatically reduce avian mortality at lighted structures (Jones and Francis 2003). At least one controlled experiment has shown avian mortality can be dramatically reduced through shielding upward radiance of lighting fixtures. In an experiment with fledgling seabirds in Hawaii, shielding the upward radiation of lights resulted in a 40 percent reduction in attraction to lights as the fledglings made their way from their nesting colonies to the sea (Reed et al. 1985). Furthermore, during the study the sides of large buildings and the grounds remained fully lit by the shielded lights, suggesting that birds are not attracted to lighted areas per se but, rather to point-sources of light, which may be related to the use of stars and the moon as navigational aids (*ibid*.). Although the project site is located within the Pacific Flyway and in close proximity to the East Bay shoreline, specific migratory corridors in the vicinity of the project site are unknown. It can be assumed, however, that numerous birds pass overhead or in the project vicinity during spring and fall migrations.

Direct effects on migratory as well as resident birds moving through an area include death or injury as the birds collide with lighted structures and other birds that are attracted to the light, as well as collisions with glass during the daytime, while indirect effects for migratory birds include delayed arrival at breeding or wintering grounds, and reduced energy stores necessary for migration, winter survival, or subsequent reproduction (Gauthreaux and Belser, 2006).

Alameda Point currently contains street lights, parking lot lights, and building lights and is located in a generally urban setting, surrounded by other light sources, including the brightly lit Port of Oakland directly to the North. Existing lighting sources already provide a significant source of illumination that affects nearby unlit natural areas by raising ambient light levels. Development facilitated under the proposed project is expected to increase the amount of light and glare generated at Alameda Point (see Section 4.K, *Aesthetics*).

Given the typical altitude at which migrating birds fly, restrictions on building heights (to a 100 foot maximum with the exception of a potential signature building(s), see Section 4.K, *Aesthetics*), the fact that proposed lighting would be shielded, and studies that suggest night-flying birds are attracted to point-sources of light, rather than larger illuminated areas, it is unlikely that the lighting associated with the proposed project would interfere with a migratory corridor or provide a hazard for migratory birds through the phenomenon of light "entrapment." Nonetheless, the project is located in proximity to San Francisco Bay, known as a migratory stopover site, and therefore development facilitated by the proposed project has the potential to result in a significant new source of light that may act as an attractant for nocturnal migrating birds, resulting in collisions and avian mortality. For these reasons this is considered a potentially significant impact with respect to nocturnal migratory birds. Measures to reduce the risk of avian collisions should be incorporated in the construction and operations of new buildings, particularly when they are to be located in areas where the risk of collision may be heightened due to a number of risk factors, including location along a known migratory route, proximity to migratory stopover locations, proximity to open space and areas of natural habitat, and areas where low cloud ceilings are frequent (Brown et al., 2007).

The project includes a number of measures that are required pursuant to the 2012 BO and the Navy's Declaration of Restrictions and apply to all surplus Federal property conveyed to the City, or other non-Federal entity in the Northwest Territories and Civic Core and Marina areas, to limit the effects of additional lighting and glare on least terns during the nesting season. These measures were described earlier in the Regulatory Framework and with respect to lighting include the following: BO-AMM-7, BO-AMM-8c, BO-AMM-8d, BO-AMM-9a, BO-AMM-9d, BO-AMM-10a, and BO-TC-1C.

Although they were formulated by USFWS to protect the least tern colony on the Federal Property from significant increases in ambient night lighting during the tern breeding season, these measures would also serve to protect other wildlife using open space surrounding the developed areas of Alameda Point, as well as birds moving in and out of the area during this time frame. In addition, the Memorandum of Agreement (MOA) between the City and the VA discussed in the Regulatory Framework section implements the BO AMMs by providing specific requirements for lighting types, heights, fixture types, etc. applicable to the various City planning sub-areas as well as to the proposed VA development (see the full MOA and Exhibit C of the MOA in Appendix D for the specific requirements applicable to each planning sub-area).

Implementation of **Mitigation Measure 4.E-4b** would further avoid and minimize potential impacts of night lighting and increased avian collisions on resident and migratory birds by requiring design features such as patterned or fritted glass and decreasing reflectivity of surfaces would make buildings appear less transparent. The measure also calls for limiting night lighting, which would reduce the potential for disorientation. With implementation of the measures in the project BO and **Mitigation Measure 4.E-4b**, the impact would be less than significant.

> **Mitigation Measure 4.E-4b:** Prior to the issuance of the first building permit for each new building, or for any exterior renovation that would increase the surface area of glazing by 50 percent or more or that would replace 50 percent or more of existing glazing, the City shall require that the project applicant retain a qualified biologist experienced with bird strike issues to review and approve the design of the building to ensure that it sufficiently minimizes the potential for bird strikes. The City may also consult with resource agencies such as the California Department of Fish and Wildlife, U.S. Fish and Wildlife Service, or others, as it determines to be appropriate during this review.
>
> The project applicant shall provide to the City a written description of the measures and features of the building design that are intended to address potential impacts on birds. The design shall include some of the following measures or measures that are equivalent to, but not necessarily identical to, those listed below, as new, more effective technology for addressing bird strikes may become available in the future:
>
> - Employ design techniques that create “visual noise” via cladding or other design features that make it easy for birds to identify buildings as such and not mistake buildings for open sky or trees;
> - Decrease continuity of reflective surfaces using “visual marker” design techniques, which techniques may include:
>   - Patterned or fritted glass, with patterns at most 28 centimeters apart,
>   - One-way films installed on glass, with any picture or pattern or arrangement that can be seen from the outside by birds but appear transparent from the inside,
>   - Geometric fenestration patterns that effectively divide a window into smaller panes of at most 28 centimeters, and/or
>   - Decals with patterned or abstract designs, with the maximum clear spaces at most 28 centimeters square.
> - Up to 60 feet high on building facades facing the shoreline, decrease reflectivity of glass, using design techniques such as plastic or metal screens, light-colored blinds or curtains, frosting of glass, angling glass towards the ground, UV-A glass, or awnings and overhangs;
> - Eliminate the use of clear glass on opposing or immediately adjacent faces of the building without intervening interior obstacles such that a bird could perceive its flight path through the glass to be unobstructed;
> - Mute reflections in glass using strategies such as angled glass, shades, internal screens, and overhangs; and

- Place new vegetation sufficiently away from glazed building facades so that no reflection occurs. Alternatively, if planting of landscapes near a glazed building façade is desirable, situate trees and shrubs immediately adjacent to the exterior glass walls, at a distance of less than 3 feet from the glass. Such close proximity will obscure habitat reflections and will minimize fatal collisions by reducing birds' flight momentum.

Lighting. In addition to implementation of the City/VA Lighting MOA, the project applicant shall similarly ensure that the design and specifications for buildings implement design elements to reduce lighting usage, change light direction, and contain light. These include, but are not limited to, the following general considerations that should be applied wherever feasible throughout Alameda Point to reduce night lighting impacts on species other than least terns:

- Avoid installation of lighting in areas where not required for public safety
- Examine and adopt alternatives to bright, all-night, floor-wide lighting when interior lights would be visible from the exterior or exterior lights must be left on at night, including:
    - Installing motion-sensitive lighting
    - Installing task lighting
    - Installing programmable timers
    - Installing fixtures that use lower-wattage, sodium, and yellow-red spectrum lighting.
- Install strobe or flashing lights in place of continuously burning lights for any obstruction lighting.
- Where exterior lights are to be left on at night, install fully shielded lights to contain and direct light away from the sky.

Antennae, Monopole Structures, and Rooftop Elements. The City shall ensure, as a condition of approval for every building permit, that buildings minimize the number of and co-locate rooftop-antennas and other rooftop equipment, and that monopole structures or antennas on buildings, in open areas, and at sports and playing fields and facilities do not include guy wires.

Educating Residents and Occupants. The City shall ensure, as a condition of approval for every building permit, that the project applicant agrees to provide educational materials to building tenants and occupants, hotel guests, and residents encouraging them to minimize light transmission from windows, especially during peak spring and fall migratory periods, by turning off unnecessary lighting and/or closing window coverings at night. The City shall review and approve the educational materials prior to building occupancy.

Documentation. The project applicant and/or City shall document undertaking the activities described in this mitigation measure and maintain records that include, among others, the written descriptions provided by the building developer of the measures and features of the design for each building that are intended to address potential impacts on birds, and the recommendations and memoranda prepared by the qualified biologist experienced with bird strikes who reviews and approves the design of any proposed projects to ensure that they sufficiently minimize the potential for bird strikes.

Nesting Birds

A number of bird species are known to nest at Alameda Point, including the California least tern, western gull, California gull, Caspian tern, California horned lark, osprey, and others. Potential and known nesting habitat present within the project area includes the runways, wetlands, and grasslands of the Northwest Territories and the Federal Property, Breakwater Island, as well as trees, shrubs, and buildings and other structures located throughout Alameda Point. As discussed in the biological resources Environmental Setting, there is a California least tern nesting colony on the runway on the Federal Property, there are Caspian tern and western gull nesting colonies in the West Wetland, also on the Federal Property, and western gull are also known to nest on Breakwater Island. Burrowing owl have not been documented as currently nesting at Alameda Point, therefore this analysis conservatively assumes that they may, as they have been documented as nesting in the Federal Property and/or the Northwest Territories in the past (City of Alameda 2002). A number of species have been documented as nesting at Alameda Point (Feeney 1994). While some species, such as least tern and northern harrier, require relatively undisturbed habitats for nesting, other species, such as red-tailed hawk, Cooper's hawk, and California towhee, are more adaptable and are increasingly found inhabiting and reproducing in urban areas. Construction disturbance during the breeding season could result in the direct loss of nests, fertile eggs, or nestlings as a result of grading, vegetation removal, or building demolition and rehabilitation, or otherwise lead to nest abandonment through indirect disturbance such as construction noise. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered a "take" by the CDFW and would be considered a significant impact. Increases in night lighting as a result of buildout under the proposed project could potentially affect avian reproductive success, as well as associated increases in ambient noise. Additionally, significant impacts on nesting birds could occur were the project to result in conditions that favored predators, which could increase predation of least terns as well as other nesting species. Direct impacts on breeding birds would be avoided and minimized by implementation of **Mitigation Measure 4.E-4c** and direct impacts specifically on burrowing owl would be avoided and minimized by implementation of **Mitigation Measure 4.E-4d**.

Mitigation Measure 4.E-4c: The City shall require project applicants to conduct pre-construction breeding bird surveys for projects proposed in areas containing, or likely to contain, habitat for nesting birds as a condition of approval for any development-related permit. Specific measures to avoid and minimize impacts on nesting birds include, but are not limited to, those described below.

- To avoid and minimize potential impacts on nesting raptors and other birds, preconstruction surveys shall be performed not more than two weeks prior to initiating vegetation removal and/or construction activities during the breeding season (i.e., February 1 through August 31)
- To avoid and minimize potential impacts on nesting raptors and other birds, a no-disturbance buffer zone shall be established around active nests during the breeding season until the young have fledged and are self-sufficient, when no further mitigation would be required
- Typically, the size of individual buffers ranges from a minimum of 250 feet for raptors to a minimum of 50 feet for other birds but can be adjusted based on an evaluation of the site by a qualified biologist in cooperation with the USFWS and/or CDFW

- Birds that establish nests after construction starts are assumed to be habituated to and tolerant of the indirect impacts resulting from construction noise and human activity. However, direct take of nests, eggs, and nestlings is still prohibited and a buffer must be established to avoid nest destruction.

- If construction ceases for a period of more than two weeks, or vegetation removal is required after a period of more than two weeks has elapsed from the preconstruction surveys, then new nesting bird surveys must be conducted.

Mitigation Measure 4.E-4d: The City shall ensure that any project applicant for work on City property in the Northwest Territories or on Bay Trail construction through the Federal Property implements the following measures to avoid and minimize impacts on burrowing owl:

a) Prior to the issuance of grading or building permits, protocol surveys for burrowing owl shall be conducted by a qualified biologist. The survey methodology shall be consistent with the methods outlined in the California Department of Fish and Wildlife (CDFW) *Staff Report on Burrowing Owl Mitigation* (CDFG March 2012) and shall consist of walking parallel transects 7 to 20 meters apart, adjusting for vegetation height and density as needed, and noting any potential burrows with fresh burrowing owl sign or presence of burrowing owls. A copy of the survey results shall be submitted to the City and CDFW.

b) In areas positive for burrowing owl presence the Lead Biologist or biological monitor shall be onsite during all construction activities in potential burrowing owl habitat.

c) A qualified wildlife biologist (i.e., a wildlife biologist with previous burrowing owl survey experience) shall conduct pre-construction surveys of the permanent and temporary impact areas to locate active breeding or wintering burrowing owl burrows not more than 14 days prior to construction and/or prior to exclusion fencing installation. The survey methodology shall be consistent with the methods outlined in the *Staff Report*.

d) If no burrowing owls are detected, no further mitigation is necessary. If burrowing owls are detected, no ground-disturbing activities, such as road construction or installation of solar arrays or ancillary facilities, shall be permitted within the distances specified in **Table 4.E-3** from an active burrow during the nesting and fledging seasons (April 1 to August 15 and August 16 to October 15, respectively), unless otherwise authorized by CDFW. The specified buffer distance ranges from 656 feet to 1,640 feet, according to the time of year and the level of disturbance. Buffers shall be established in accordance with Table 4.E-3 and occupied burrows shall not be disturbed during the nesting season unless a qualified biologist approved by CDFW, verifies through noninvasive methods that either: (1) the birds have not begun egg-laying and incubation; or (2) juveniles from the occupied burrows are foraging independently and are capable of independent survival. Burrowing owls shall not be moved or excluded from burrows during the breeding season (April 1 to October 15).

e) During the nonbreeding (winter) season (October 16 to March 31), consistent with Table 4.E-3, ground-disturbing work shall maintain a distance ranging from 164 feet to 1,640 feet from any active burrows depending on the level of disturbance. If active winter burrows are found that would be directly affected by ground-disturbing activities, owls can be displaced from winter burrows according to recommendations made in the *Staff Report*. If active winter burrows are found that would not be

TABLE 4.E-3
BURROWING OWL BURROW BUFFERS

Location	Time of Year	Level of Disturbance		
		Low	Medium	High
Nesting sites	April 1–Aug 15	656 ft	1640 ft	1640 ft
Nesting sites	Aug 16–Oct 15	656 ft	656 ft	1640 ft
Any occupied burrow	Oct 16–Mar 31	164 ft	328 ft	1640 ft

SOURCE: CDFG Staff Report 2012

directly affected and it is not possible to establish a buffer in accordance with Table 4.E-3 then owls shall not be evicted and the largest buffer possible shall be established in consultation with CDFW.

f) Burrowing owls should not be excluded from burrows unless or until a Burrowing Owl Exclusion Plan is developed by the project applicant approved by CDFW, and submitted to the City. The plan shall include, at a minimum:

i. Confirmation by site surveillance that the burrow(s) is empty of burrowing owls and other species preceding burrow scoping;

ii. Type of scope to be used and appropriate timing of scoping to avoid impacts;

iii. Occupancy factors to look for and what shall guide determination of vacancy and excavation timing (e.g., one-way doors should be left in place 48 hours to ensure burrowing owls have left the burrow before excavation, visited twice daily and monitored for evidence that owls are inside and can't escape).

iv. Methods for burrow excavation. Excavation using hand tools with refilling to prevent reoccupation is preferable whenever possible (may include using piping to stabilize the burrow to prevent collapsing until the entire burrow has been excavated and it can be determined that no owls reside inside it);

v. Removal of other potential owl burrow surrogates or refugia onsite;

vi. Photographing the excavation and closure of the burrow to demonstrate success and sufficiency;

vii. Monitoring of the site to evaluate success and, if needed, to implement remedial measures to prevent subsequent owl use and to avoid take;

viii. Methods to ensure the impacted site shall continually be made inhospitable to burrowing owls and fossorial mammals (e.g., by allowing vegetation to grow tall, heavy disking, or immediate and continuous grading) until development is complete.

g) Site monitoring shall be conducted prior to, during, and after exclusion of burrowing owls from their burrows sufficient to ensure take is avoided. Daily monitoring shall be conducted for one week to confirm young of the year have fledged if the exclusion occurs immediately after the end of the breeding season.

h) In accordance with the Burrowing Owl Exclusion Plan a qualified wildlife biologist shall excavate burrows using hand tools. Sections of flexible plastic pipe or burlap bag shall be inserted into the tunnels during excavation to maintain an escape route for any animals inside the burrow. One-way doors shall be installed at the entrance to the active burrow and other potentially active burrows within 160 feet of the active burrow. Forty-eight hours after the installation of the one-way doors, the doors can be removed, and ground-disturbing activities can proceed. Alternatively, burrows can be filled to prevent reoccupation. Excluded burrowing owls shall be documented if observed using artificial or natural burrows on an adjoining mitigation site (if able to confirm by band re-sight).

i) During construction activities, monthly and final compliance reports shall be provided to CDFW, and the City documenting the effectiveness of mitigation measures and the level of burrowing owl take associated with the proposed project.

j) Should burrowing owls be found onsite, compensatory mitigation for lost breeding and/or wintering habitat shall be implemented on-site or off-site in accordance with burrowing owl *Staff Report* guidance and in consultation with CDFW. The project applicant or its contractor shall prepare a Burrowing Owl Habitat Mitigation Plan and, at a minimum, the following recommendations shall be implemented:

   i. Temporarily disturbed habitat shall be restored, if feasible, to pre-project conditions, including decompacting soil and revegetation.

   ii. Permanent impacts to nesting, occupied and satellite burrows and/or burrowing owl habitat shall be mitigated such that the habitat acreage, number of burrows and burrowing owl impacted are replaced based on a site-specific analysis and shall include:

      a. Permanent conservation of similar grassland habitat to provide for burrowing owl nesting, foraging, wintering, and dispersal (i.e., during breeding and non-breeding seasons) comparable to or better than that of the impact area, and with sufficiently large acreage, and presence of fossorial mammals.

         1. Mitigation lands should be on, adjacent or proximate to the impact site where possible and where habitat is sufficient to support the number of burrowing owls present.

         2. The CDFW shall be consulted when determining off-site mitigation acreages.

      b. Permanent protection of mitigation land through a conservation easement deeded to a nonprofit conservation organization or public agency with a conservation mission. If the project is located within the service area of a CDFW approved burrowing owl conservation bank, burrowing owl conservation bank credits may be purchased.

      c. Development and implementation of a mitigation land management plan in accordance with burrowing owl *Staff Report* guidelines to address long-term ecological sustainability and maintenance of the site for burrowing owls.

      d. Funding the maintenance and management of mitigation land through the establishment of a long-term funding mechanism such as an endowment.

k) Habitat shall not be altered or destroyed, and burrowing owls shall not be excluded from burrows, until mitigation lands have been secured, are managed for the benefit of burrowing owls according to CDFW-approved management, monitoring and reporting plans, and the endowment or other long-term funding mechanism is in place or security is provided until these measures are completed.

l) Copies of all completed survey reports and plans shall be submitted to the City and the CDFW.

Increases in Night Lighting. Nighttime lighting along roads has been shown to disrupt breeding behavior in birds (Molenaar et al. 2006). Molenaar et al. also cite numerous other effects on birds that could have potential impacts on reproductive success, such as disruption of circadian and circannual rhythms. Numerous studies have shown that artificially increasing day length induces hormonal, physiological, morphological, and behavioral changes related to reproduction. For example, Lofts and Merton (1968) found that wild bird species could be brought into premature breeding condition by experimental exposure to artificially short nights in winter. Artificial lighting may extend foraging time, a beneficial effect that could increase reproductive fitness, but at the same time may increase the risk of intraspecific competition, individual predation, and increased predation on eggs and nestlings (Molenaar et al. 2006).

As noted above, development facilitated by the proposed project is expected to increase lighting levels at Alameda Point. However, the site is already subject to large amounts of light generated by the Port of Oakland to the north, the Cities of Oakland and Alameda to the north and east, and from existing lighting throughout Alameda Point. Existing light should be greatest in the northern and eastern portions of the project area and would have less effect in southwestern Alameda Point where Bay waters are adjacent. While even small increases in ambient light can have negative consequences for avian reproduction, the studies cited above were located in natural areas with low ambient light levels to begin with. Arguably, that threshold has already been surpassed throughout Alameda Point. For example, birds that might be deterred from breeding by higher ambient light levels are likely not currently breeding at Alameda Point and ambient light levels are likely already high enough to have resulted in higher predation rates. It is unknown whether further increases in lighting would exacerbate the existing condition.

Increases in ambient light associated with future development would be greatest where there is currently little nesting substrate for birds (e.g. the Adaptive Reuse, Waterfront Town Center, and Enterprise sub-areas). As mentioned above, the USFWS BO and the Navy's Declaration of Restrictions place several controls on lighting to protect nesting least terns, including limits on increases in ambient lighting and seasonal restrictions on outdoor lighting. The City/VA MOA on lighting further refines these restrictions and in combination these would serve to also protect other birds nesting during the same time period, which generally corresponds with the peak avian breeding season in northern California. As described above, **Mitigation Measure 4.E-4b** would also contribute to avoiding and minimizing increases in ambient night lighting. With these controls in place, ambient lighting would not be expected to increase substantially in the Main Street Neighborhood, Northwest Territories, or on the Federal Property as a result of future development facilitated by the proposed project, which are the areas that likely support the greatest number of breeding birds at Alameda Point. Therefore, potential impacts on breeding birds from increases in night lighting resulting from future development under the project would be less than significant.

Increases in Noise. Noise pollution can be detrimental to wildlife, and bird populations are particularly susceptible because they rely on acoustic signals for mating, predator evasion, and communication between adults and offspring, among other behaviors. Reijnen and Foppen (1995) showed that male willow warblers (*Phylloscopus trochilus*) experience difficulties in mate attraction near highways, as a result of noise pollution. Ellis (1981) describes studies that show "noticeably alarmed" responses in raptors to sounds within the 82–114 A-weighted decibel (dBA) range. Jehl and Cooper (1980) found that seabirds flushed off their nests at 72–89 dBA, and Stewart (1982) found that seabirds were absent for as long as 10 minutes at 115 dBA. More recent research has found certain types of unnatural noise to be disruptive to bird life at a much lower level; Delaney et al. (1999) found that spotted owl flush rates in response to chain saws were apparent at levels above 46 dBA. Finally, West et al. (2007) found that chronic intense noise (e.g., oil field compressor station) of 92 dBA or more may induce physiological stress in some bird species, if they cannot avoid exposure. None of these studies were able to conclude that nest failure resulted from higher noise levels. Nevertheless, a single stimulus event clearly had an effect on bird behavior, and the studies suggest that short-term loud noises can affect foraging and roosting birds by temporarily disturbing these behaviors, and may deter bird use of an area (including nesting) if such noises persist over the long term.

With regard to the effects of continuous noise on bird communities one source reports, "An increase of 10 dBA above background noise is probably acceptable in most situations" (Nicholoff, 2003). On the other hand, a 10 dBA increase in noise level is perceived by the human ear as a doubling in loudness, potentially causing an adverse response. Wildlife perception of noise appears to be generally more sensitive than that of humans; therefore, it is assumed for the purposes of this analysis that a 10 dBA increase in noise (a doubling of loudness) over the existing maximum levels should be considered to be material for birds, as well as other wild animals. On the other hand, Dooling and Popper (2007) report that several studies show that birds adapt quite well, and even sometimes prefer, noisy environments with high levels of traffic noise. Furthermore, humans have more sensitive hearing than birds. For example, distant traffic noises in a natural setting that are barely audible to humans, are certainly inaudible to birds and would have no effect on any aspect of their acoustic behavior (*ibid*.). In addition, birds are much more resistant to hearing loss and auditory damage from acoustic over-exposure than are humans and other mammals (*ibid*.).

Birds in the study area are accustomed to varying levels of ambient noise emanating from existing human activities in the area. For example, noise from the Port of Oakland activities is relatively constant and affects ambient noise levels in the Northwest Territories. Overall noise levels associated with day to day human activities will increase within the developed areas of Alameda Point. However, this is not expected to pose a problem for birds nesting in these areas as the noise will be ongoing throughout the year and birds that choose to nest there would be those that are habituated to generally high levels of ambient noise. This part of Alameda Point is already likely to support a relatively low avian breeding population due to the sparse distribution of vegetative nesting substrate everywhere but in the Main Street Neighborhood area. A general rise in ambient noise levels in the existing developed areas is not expected to affect breeding birds in the undeveloped areas of Alameda Point due to the fact that these areas are buffered, in part, from noise emanating from the developed areas by existing large buildings as well as the distance to nesting habitat afforded by the undeveloped existing runways, since noise attenuates substantially over distance (see Section 4.G, *Noise*, for details on noise attenuation). Therefore, general increases in ambient noise levels due to buildout under the proposed project are expected to have a less than significant effect on breeding birds.

Construction activities have the potential to generate noise levels that could substantially exceed ambient noise levels at Alameda Point. As noted above, the majority of breeding birds are expected to occur in the western part of the project area where human access has been limited for a number of years. Birds that nest in the Northwest Territories are generally expected to be habituated to higher levels of ambient noise emanating from the Port of Oakland, the ongoing remediation efforts being conducted by the Navy, and the other activities (such as the Alameda Point Antiques Faire) that occur there on a regular basis. Birds that nest within the developed eastern portion of the project site are also expected to be habituated to higher levels of ambient noise and human activity associated with current uses. As discussed in detail in Section 4.G, *Noise*, noise monitoring was conducted at several Alameda Point sites to obtain information on the existing noise environment. The hourly average noise exposure for long term monitoring at two sites located near the eastern and northern boundaries of the project site ranged from a minimum of 45 dBA to a maximum of 71 dBA (see Table 4.G-1). Maximum project-related noise is expected to come from pre-construction soil compaction, asphalt and building demolition, construction excavation, grading, finishing, and pile driving. Noise levels generated by these activities can range from 74 to 101 dBA as measured 50 feet from the source (see Tables 4.G-4 and 4.G-5 in Section 4.G, *Noise*).

Because there is no generally accepted threshold of significance for noise impacts on birds, and different bird species in different environments can tolerate different noise levels, three metrics were used to assess potentially significant noise impacts on birds:

> *Metric 1 – are the Alameda Municipal Code noise standards met for residential and commercial areas* (discussed in Section 4.G, *Noise*)? Because birds are more tolerant of loud noise than humans, any noise standards enforced to protect humans from loud noise (such as those established by the Alameda Municipal Code, which are discussed in Section 4.G, *Noise*), are reasonably assumed to be adequate to protect birds as well.
>
> *Metric 2 – will project construction result in noise levels of 10 dBA or more above existing background noise*? This is a noise level guideline suggested by Nicholoff (2003) as being an acceptable increase over ambient noise conditions with respect to birds.
>
> *Metric 3 – will project construction result in noise levels of 60 dBA or higher*? Masking of communication signals and other biologically relevant sounds can adversely affect birds, and Dooling and Popper's research of masking studies led them to suggest an overall noise level guideline of around 60 dBA for *continuous* noise (2007).

With implementation of **Mitigation Measure 4.G-1a-d** (see Section 4.G, *Noise*) the Alameda Municipal Code noise standards would not be exceeded (Metric 1) when construction occurs within the hours specified in the mitigation measure. The noise standards do not actually apply to construction work as long as it occurs during weekdays. Nonetheless, Mitigation Measure 4.G-1 requires measures to reduce noise impacts on sensitive receptors even during daytime hours. This would be protective of nesting birds. However, certain construction activities may need to occur outside of the allowable hours specified in Mitigation Measure 4.G-1. Such work would require City approval. For example, some project components, such as levee construction, may require a continuous concrete pour that could span an entire work day into the off hours. Since such activities may occur during project construction and could result in substantial noise in the more sensitive evening and nighttime hours when ambient noise levels are typically lower, some construction noise would be considered significant with respect to impacts on nesting birds.

Maximum noise levels generated during construction and demolition could exceed existing maximum ambient noise levels found within the project area by 10 dBA or more (Metric 2) and most noise levels generated during construction and demolition would exceed 60 dBA at 50 feet from the source (Metric 3). However, as described in more detail in Section 4.G, *Noise*, noise is expected to attenuate by 6 dBA for each doubling of distance. At the low end of anticipated construction noise levels, 74 dBA at 50 feet from the source would attenuate to 68 dBA at 100 feet from the source, 62 dBA at 200 feet from the source, and so on as distance increased. Therefore, at 100 feet from the source, these lower noise levels would be reduced to less than existing maximum ambient hourly average levels (71 dBA), which would be considered a less than significant increase. On the other hand, pile driving using an impact hammer could potentially produce maximum noise levels of 101 dBA at 50 feet from the source. These higher noise levels would not be reduced to less than significant levels (less than 71 dBA) by simple attenuation until a distance of between 400 and 800 feet from the source was reached. With the exception of relatively minor construction (e.g., trail and regional park amenities) in the Northwest Territories, most construction and demolition will occur at distances greater than 400 feet from significant avian breeding areas (e.g., the least tern colony, the West Wetland and surrounding grasslands). In addition, noise levels of this kind would be temporary and intermittent, not continuous. Furthermore, **Mitigation Measure 4.E-1a** recommends use of a vibratory pile driver whenever possible. Vibratory pile drivers produce substantially less airborne noise than impact hammers, with noise levels resulting from this method ranging from 77 to 80 dBA (WDOT 2010). Therefore, in most circumstances, maximum noise resulting from construction and demolition is not expected to exceed the significance thresholds for Metric 2 or Metric 3.

In cases where these significance thresholds would be exceeded (e.g., where nesting birds are not at sufficient distance from the source for noise to be attenuated by distance alone or when night time construction is approved), implementation of **Mitigation Measure 4.E-4c and 4.E-4d**, above, **Mitigation Measure 4.E-4e** below, and **Mitigation Measure 4.G-1** would reduce potential effects to less-than-significant levels.

> **Mitigation Measure 4.E-4e:** The City shall ensure that project construction activities on City property that would result in noise levels exceeding existing maximum ambient noise levels in the Northwest Territories or as measured on the Federal Property by more than 10 dBA and/or generally exceeding 60 dBA will avoid and minimize adverse effects on California least tern and other breeding bird reproductive success through one or more of the following measures:

a) Demolition and construction on City owned property in the Northwest Territories directly adjacent to the Federal Property, and construction of the Bay Trail on Federal Property shall take place in September-January, outside the general bird breeding season of February through August, to the extent feasible. When such work is unavoidable, solid plywood fences shall be constructed between the project site and sensitive wildlife habitat prior to initiation of construction to serve as noise attenuation barriers. The fencing shall be a minimum of 8 feet in height. The fences shall shield the breeding birds from major noise generating phases of demolition and;

b) In all other areas, major noise generating phases of demolition and construction that would exceed ambient noise levels as measured in the Federal Property by more than 10 dBA shall take place in September-January, outside the general bird breeding season of February through August; OR solid plywood fences shall be constructed as described above.

Predation Impacts on Migratory and Breeding Birds

The proposed project could create conditions (e.g., increased perches and food trash) that would attract predators such as corvids (i.e., ravens, crows, and jays), raptors, raccoons, and Virginia opossums to the study area. These predators may prey on eggs and young of birds, including the endangered California least tern. The USFWS BO and the Navy's Declaration of Restrictions incorporates several measures from the USFWS Biological Opinion that are aimed at reducing predation of least terns, their eggs, and nestlings. As described in the biological resources Regulatory Framework section, these measures apply to all planning sub-areas that are adjacent to the Federal Property (see Figure 3.3 in Chapter 3, Project Description). Required measures include the preparation and implementation of a predator management plan by the City, installation of anti-perching devices on outdoor lighting and buildings, and restrictions on vegetation and building heights. Although these measures were formulated with protection of least tern in mind, they will serve to protect other breeding birds, as well as migratory birds, from predators as well.

In order to further minimize the potential for increased predation on migratory and breeding birds, open refuse containers would be prohibited throughout the project area through implementation of Mitigation Measure 4.E-4f. In combination, implementation of these measures would reduce potential predation impacts on migratory and breeding birds to less-than-significant levels.

Mitigation Measure 4.E-4f: The City shall prohibit open refuse containers that contain food waste throughout the project area. This prohibition shall be incorporated into the terms and conditions of all City approvals for future development at Alameda Point.

Impact Summary

Development facilitated by the proposed project has the potential to interfere with the movement or migratory corridors of waterbirds and marine wildlife species due to increased noise from dredging, pile driving and increased Bay vessel traffic; increased resuspension of sediments; and potential for collisions and harassment of mobile marine mammals by vessels. Implementation of **Mitigation Measures 4.E-1a, 4.E-1b, and 4.E-1c** would reduce impacts from pile driving and dredging to less than significant. Implementation of **Mitigation Measure 4.E-2b** would educate boaters on the sensitive resources present in Bay waters and reduce the potential for collisions with and harassment of waterbirds and marine mammals by boaters to less than significant. Potential increases in noise and marine mammal collisions from vessel traffic would be minimized by implementation of **Mitigation Measure 4.E-4a,** which imposes a year-round wake exclusion zone, forcing vessels to operate at slow speeds, which generally produce less noise.

Development facilitated by the proposed project has the potential to impact migratory and resident birds through new building construction and increases in night lighting, which could lead to increases in bird strikes and potential disorientation of night migrating birds. In addition to the USFWS BO measures regarding lighting incorporated into the project and implementation of the City/VA MOA on lighting, implementation of **Mitigation Measure 4.E-4b** would serve to further reduce any such impacts to less-than-significant levels.

Development facilitated by the proposed project has the potential to impact breeding birds through increases in noise levels due to construction, increases night lighting, and predator management efforts that could result in take of nests, eggs, and nestlings of avian predators on least terns. Direct impacts on breeding birds would be avoided and minimized through the implementation of **Mitigation Measure 4.E-4c**, which requires pre-construction nesting bird surveys. In addition, **Mitigation Measure 4.E-4d** requires protocol surveys for burrowing owl, which would determine whether burrowing owls were nesting as well as wintering at Alameda Point and would require appropriate construction buffers and compensatory mitigation for take of occupied burrowing owl habitat. Indirect impacts on breeding birds resulting from increases in ambient noise would be minimized to less than significant through implementation of **Mitigation Measure 4.G-1**, which prohibits night construction work, **Mitigation Measure 4.E-1a**, which recommends use of a vibratory pile driver whenever possible, **Mitigation Measures 4.E-4c and 4.E-4d**, which require establishment of appropriate construction buffers around active bird nests, and **Mitigation Measure 4.E-4e**, which requires seasonal construction to avoid the breeding bird season and/or installation of noise attenuation barriers between construction sites and sensitive wildlife habitat supporting breeding birds.

Potential increases in predators of nesting birds, their eggs, and their young due to increased development and human activities would be minimized to less than significant through the installation of anti perching devices on buildings and light poles as required by the USFWS BO and incorporated in the project, and implementation of **Mitigation Measure 4.E-4f**, which would prohibit open refuse containers throughout the project area.

Significance after Mitigation: Less than Significant.

Impact 4.E-5: Development facilitated by the proposed project would conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. (Significant)

As discussed in the biological resources Regulatory Framework the City of Alameda Municipal Code contains protections for street trees throughout the City. Chapter 23-3.2 of the City's municipal code applies to street trees in general and requires that the Public Works Director permit any planting, removal, trimming, pruning, or cutting of street trees. As discussed in Section 4.K, *Aesthetics*, given the largely developed character of the project site, trees at Alameda Point are primarily located within public right-of-ways, including streets, sidewalks and other public areas, and along the perimeter of private properties. While it is likely that some street trees may be removed as a result of development projects facilitated by the proposed project, replacement of any such trees would be required under the City Code. Such removal would require permitting from the Director of Public Works and would likely require replacement of trees removed. As long as tree removal was consistent with all permitting conditions such removal would not conflict with local ordinances or policies.

As described in the Regulatory Framework, the City of Alameda General Plan contains general policies protective of biological resources, as well as policies pertaining specifically to biological resources at Alameda Point, most specifically, the California least tern. The proposed project would concentrate development in already developed areas and leave most existing open space undeveloped. In addition, the proposed project would be generally consistent with the NAS Alameda Community Reuse Plan (Alameda Reuse and Redevelopment Authority1999) since the project includes zoning and General Plan amendments to bring planning at Alameda Point into consistency with the Reuse Plan.

The BCDC's San Francisco Bay Plan contains findings and policies related to fish and wildlife, water quality, fill, recreation, public access, and the appearance and design of shorelines, as well as procedures for BCDC control of filling, dredging, and shoreline development. The proposed project would facilitate in-water development of a marina and ferry terminal, which would both provide public access to water-related uses consistent with the Bay Plan. The proposed project would also conserve and/or restore and enhance wetland and aquatic habitat. The potential impacts discussed above would be mitigated to less than significant levels through implementation of the measures required by the Navy's Declaration of Restrictions and the mitigation measures proposed in this Draft EIR. In addition, BCDC permitting for project elements within Bay waters or within the 100 foot shoreline band would require measures to ensure that development facilitated by the project would be protective of the Bay's biological resources. Thus, the proposed project would generally be consistent with the Bay Plan.

The San Francisco Baylands Habitat Goals and Subtidal Habitat Goals Reports, as discussed in the Regulatory Framework, provide a scientific foundation and approach for the conservation and enhancement of the baylands and submerged areas of San Francisco Bay. These reports contain recommended conservation goals for Bay habitats potentially affected by project activities that can be used by permitting agencies when evaluating proposed projects within their jurisdiction. They are supported by most of the agencies and non-governmental groups with major planning, operational, or regulatory interests in Bay Area wetlands. Although the Goals Project has no regulatory authority, any adverse effects on wetlands, shorelines, and subtidal habitats would also have potential negative effects on special-status species, critical habitat for federal listed species, managed fish species Essential Fish Habitat, or habitat for protected marine mammals.

As discussed above for Impacts 4.E-1 through 4.E.4, development facilitated by the proposed project could result in potentially significant impacts on biological resources, which could conflict with applicable local policies or ordinances protecting biological resources. However, with implementation of the USFWS Biological Opinion for Alameda Point, as embodied in the Navy's Declaration of Restrictions, which place restrictions on Alameda Point development protective of biological resources in general and California least tern specifically, as well as implementation of **Mitigation Measures 4.E-1a through 4.E-1h** (avoid and minimize impacts on special-status wildlife), **Mitigation Measures 4.E-2a through 4.E-2c** (avoid and minimize impacts to sensitive natural communities), **Mitigation Measures 4.E-3a through 4.E-3c** (avoid and minimize impacts to jurisdictional waters), and **Mitigation Measures 4.E-4a through 4.E-4f** (avoid and minimize impacts to migratory and breeding wildlife), development facilitated by the proposed project would be implemented in a manner intended to:

- Maintain and improve the quality of the bay, ocean, and shoreline areas;
- Promote the use and development of shoreline areas consistent with the City of Alameda General Plan and the San Francisco Bay Plan;
- Cooperate with and otherwise support regulatory programs of existing regional, state, and federal agencies concerned with San Francisco Bay Area biological resources; and
- Protect rare and endangered species as well as the habitats of known plant and animal species that require a relatively natural environment.

Therefore, with implementation of the measures described above, the potential for the project to conflict with applicable local policies or ordinances protecting biological resources at Alameda Point is low and would represent a less-than-significant impact.

Significance after Mitigation: Less than Significant.

Impact 4.E-6: Development facilitated by the proposed project would conflict with an adopted local, regional, or State Habitat Conservation Plan. (Significant)

The San Francisco Estuary Project (SFEP) is a federal-state-local partnership established under the Clean Water Act's National Estuary Program. It is a cooperative effort working to promote effective management of the Bay-Delta Estuary, and to restore and maintain its water quality and natural resources while maintaining the region's economic vitality. The SFEP oversees and tracks implementation of its Comprehensive Conservation and Management Plan (CCMP) goals, objectives and actions to protect and restore the Estuary. The CCMP serves as a roadmap for restoring the Estuary's chemical, physical, and biological health and was adopted in 1993, with an updated CCMP adopted in 2007.

As discussed in the Regulatory Framework, the San Francisco Baylands Habitat Goals and Subtidal Habitat Goals Reports, provide a scientific foundation and approach for the conservation and enhancement of the baylands and submerged areas of San Francisco Bay. The Baylands Habitat Goals establish a long-term vision for a healthy and sustainable baylands ecosystem. The Goals

Project was recommended by the Governor's "California Wetlands Conservation Policy" and by the Comprehensive Conservation and Management Plan (CCMP) of the U.S. Environmental Protection Agency's San Francisco Estuary Project. The Subtidal Habitat Goals were prepared as a collaboration among BCDC, California Ocean Protection Council/California State Coastal Conservancy, NOAA, and the San Francisco Estuary Partnership (Goals Project 2010). These reports contain recommended conservation goals for Bay habitats potentially affected by project activities that can be used by permitting agencies when evaluating proposed projects within their jurisdiction. Although the Comprehensive Conservation Plan and Goals Project are not regulatory documents they are supported by most of the agencies and non-governmental groups with major planning, operational, or regulatory interests in Bay Area wetlands and, as the analysis above shows, any adverse effects on wetlands, shorelines, and subtidal habitats would also have potential negative effects on special-status species, critical habitat for federal listed species, managed fish species Essential Fish Habitat, or habitat for protected marine mammals.

As discussed above for Impacts 4.E-1 through 4.E.4, development facilitated by the proposed project could result in potentially significant impacts on biological resources, which could conflict with applicable policies of the CCMP and the Goals Project. However, with implementation of the USFWS Biological Opinion for Alameda Point, as embodied in the Navy's Declaration of Restrictions, which place restrictions on Alameda Point development protective of biological resources in general and California least tern specifically, as well as implementation of **Mitigation Measures 4.E-1a through 4.E-1h** (avoid and minimize impacts on special-status wildlife), **Mitigation Measures 4.E-2a through 4.E-2c** (avoid and minimize impacts to sensitive natural communities), **Mitigation Measures 4.E-3a through 4.E-3c** (avoid and minimize impacts to jurisdictional waters), and **Mitigation Measures 4.E-4a through 4.E-4f** (avoid and minimize impacts to migratory and breeding wildlife), development facilitated by the proposed project would be implemented in a manner intended to maintain consistency with the CCMP. Therefore, the potential for the project to conflict with the SFEP CCMP is low and would represent a less-than-significant impact.

Significance after Mitigation: Less than Significant.

Cumulative Impacts

This analysis evaluates whether the impacts of the proposed project, including development facilitated by the project, together with the impacts of cumulative development, would result in a cumulatively significant impact on special-status species, wetlands and other waters of the U.S., or other biological resources protected by federal, state, or local regulations or policies (based on the significance criteria and thresholds presented earlier). This analysis then considers whether the incremental contribution of the proposed project to this cumulative impact would be considerable. Both conditions must apply in order for a project's cumulative effects to rise to the level of significance.

Impact 4.E-7: The proposed project, in conjunction with other past, current, or foreseeable development in Alameda, could result in cumulative impacts on special-status species, habitats, wetlands and other waters of the U.S. (Significant)

The geographic scope of potential cumulative impacts on biological resources encompasses the sensitive natural communities, species occurrences, and habitats within the Alameda Point project area as well as biologically linked areas sharing Central San Francisco Bay and its waters. Past projects within this context, including the development of civic facilities, residences, commercial and industrial areas, and infrastructure, have already caused substantial adverse cumulative changes to biological resources in the project area. For example, Alameda Point sits on fill of what were once tidal mudflats and marshes, with a nearly complete loss of the original habitat types and many of the species that once occurred there. For this reason, natural communities on Alameda Island are rare—even where open space persists. Areas on the island that were landscaped or have revegetated naturally over time provide a “new normal” in terms of habitat that is often simplified in terms of diversity, and supporting a different suite of species than once existed there. Overall, this is true of many areas surrounding the Bay. Therefore, due to past projects, there has already been an adverse significant cumulative effect on biological resources. With the addition of current and other proposed projects, there is an existing significant cumulative impact *without* the project.

The majority of projects considered for cumulative impacts listed Chapter 6 of this EIR, including the Alameda Landing Mixed-Use Development, the Alameda Station Retail Development, and development of the North Park Street Area, involve the land-based redevelopment of previously developed areas on Alameda Island. The development of the Veteran’s Administration (VA) facilities combined with development of a sports complex and open space facilities in the Northwest Territories would result in the cumulative local loss of primarily ruderal and developed habitat and, potentially, seasonal wetlands. Other cumulative projects are located along Alameda’s waterfront but will generally not involve in-water work. These include Neptune Beach, Encinal Terminals, Marina Cove II, and the Boatworks projects. All of these areas have limited habitat value for wildlife as they are already primarily or fully developed. However, the proximity of some projects to the waters of San Francisco Bay and the Oakland-Alameda Estuary could lead to potential cumulatively significant impacts on waterbirds and marine life and demolition of existing buildings or removal of existing vegetation could lead to significant cumulative impacts on nesting or roosting bats and birds. Other foreseeable projects that could result in cumulative impacts on biological resources in combination with the proposed project because they include in-water work are the proposed San Francisco Bay Area Water Emergency Transportation Authority Central Bay Operations and Maintenance Facility, redevelopment of Treasure Island and Hunter’s Point, the completion of the new eastern span of the Bay Bridge, and Port of Oakland maintenance dredging. These projects would include many of the same activities as would occur under the proposed project (e.g., dredging, pile driving, pier improvements, increased boat traffic) and can be assumed to have similar effects on marine biological resources, resulting in a potentially significant cumulative impact.

Beyond the project area, there could be cumulative impacts on sensitive biological resources located throughout the Bay. For example, the proposed project might affect birds that use not only the project area’s foraging and nesting habitats but also other habitats quite distant from the project area; these birds could therefore be affected by other projects. Cumulative impact assessment at this scale is speculative, and offsetting these impacts are large-scale habitat improvement projects such as the tidal marsh restoration efforts at the San Leandro Shoreline Marshlands and Hayward Regional Shoreline and the South Bay Salt Pond Restoration Projects, which are intended to provide a net benefit to biological resources.

Environmentally protective laws and regulations have been applied with increasing rigor since the early 1970s. These include the California Endangered Species Act, federal Endangered Species Act, and the Clean Water Act, as described in the biological resources Regulatory Framework, above. The project and other likely future projects within the vicinity of the project area are required to comply with local, State, and federal laws and policies, and all applicable permitting requirements of the regulatory and oversight agencies intended to address potential impacts on biological resources. Additionally, future projects would be required to demonstrate that they would not have significant effects on these biological resources, although it is possible that some projects may be approved even though they would have significant, unavoidable impacts on biological resources. These regulatory requirements should serve, in many cases, to reduce future contributions to cumulative impacts on biological resources in the project area.

As described above, the proposed project includes all of the applicable measures from the U.S. Fish and Wildlife Service's (USFWS) Biological Opinion (BO), as embodied in the Navy's Declaration of Restrictions, that were developed to ensure that the cumulative development of land now owned by the VA and the City would not result in impacts on the California least tern (see the Regulatory Framework section above for details on each measure). The measures are to be applied variously to different parcels at Alameda Point depending on the existing conditions and proximity to the least tern nesting colony (see the Regulatory Framework section and Figure 3-3 in Chapter 3, *Project Description*). These measures include, among others, restrictions on building and vegetation heights, seasonal timing for dredging, outdoor sports lighting, and trail closures, and development and implementation of a Predator Management Plan. The EIR impacts analysis above evaluates the impacts of the project on biological resources and presents mitigation measures that would support a conclusion of "less than significant with mitigation" for all impacts on biological resources. Specifically, this EIR found no substantial adverse effect on special-status species, sensitive natural communities, federally and State protected waters and wetlands, native movement wildlife corridors, or native wildlife nursery sites with the application of the mitigation measures prescribed herein. It also found less-than-significant conflicts with applicable local policies or ordinances or the provisions of an adopted habitat conservation plan.

With the implementation of **Mitigation Measures 4.E-1a through 4.E-1h** (avoid and minimize impacts on special-status wildlife), **Mitigation Measures 4.E-2a through 4.E-2c** (avoid and minimize impacts to sensitive natural communities), **Mitigation Measures 4.E-3a through 4.E-3c** (avoid and minimize impacts to jurisdictional waters), and **Mitigation Measures 4.E-4a through 4.E-4f** (avoid and minimize impacts to migratory and breeding wildlife),the current impact analysis has shown that the project, would result in less-than-significant impacts on biological resources within and in the vicinity of the project site. When considered within the existing condition of biological resources in the project area and Central Bay in the context of past, present and reasonably foreseeable similar projects, the project would add only a minor, incremental contribution to habitat loss, degradation, and direct and indirect impacts to special-status species. The project's contribution would not be considered cumulatively considerable; therefore, in combination with past, present, and reasonably foreseeable future projects, the proposed project's cumulative effects on biological resources would be less than significant.

Significance after Mitigation: Less than Significant.

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F. Air Quality and Greenhouse Gases

F.1 Introduction

This section addresses the impacts of the proposed Alameda Point Project on ambient air quality and the exposure of people, especially sensitive individuals, to unhealthful pollutant concentrations, including the type and quantity of emissions that would be generated by construction and operation of the project. The analysis of emissions focuses on whether the proposed project would cause an exceedance of a State or national ambient air quality standard, a health based standard for exposure to toxic air contaminants, or a CEQA threshold recommended by the Bay Area Air Quality Management District (BAAQMD) and whether it would conflict with regulatory goals associated with greenhouse gas emissions that contribute to climate change.

F.2 Air Quality Environmental Setting

Physical Setting

Climate and Meteorology

Air quality is affected by the rate, amount, and location of pollutant emissions and the associated meteorological conditions that influence pollutant movement and dispersal. Atmospheric conditions, including wind speed, wind direction, and air temperature, in combination with local surface topography (i.e., geographic features such as mountains, valleys, and San Francisco Bay), determine the effect of air pollutant emissions on local air quality.

The project site is located in the City of Alameda and is within the boundaries of the San Francisco Bay Area Air Basin (SFBAAB). The SFBAAB encompasses the nine-county region, which is all of Alameda, Contra Costa, Santa Clara, San Francisco, San Mateo, Marin and Napa counties, and the southern portions of Solano and Sonoma counties. The climate of the SFBAAB is determined largely by a high-pressure system that is almost always present over the eastern Pacific Ocean off the West Coast of North America. During winter, the Pacific high-pressure system shifts southward, allowing more storms to pass through the region. During summer and early fall, when few storms pass through the region, emissions generated within the Bay Area can combine with abundant sunshine under the restraining influences of topography and subsidence inversions to create conditions that are conducive to the formation of photochemical pollutants, such as ozone, and secondary particulates, such as nitrates and sulfates.

The project site is within the Northern Alameda/Western Contra Costa County climatological subregion of the SFBAAB, with specific topographic and climatological conditions described in the BAAQMD *California Environmental Quality Act Air Quality Guidelines* (BAAQMD, 2012a). This climatological subregion stretches from Richmond to San Leandro. Its western boundary defined by the San Francisco Bay and its eastern boundary by the Oakland-Berkeley Hills. The Oakland-Berkeley Hills have a ridge line height of approximately 1,500 feet, a significant barrier to air flow. In this area, marine air traveling through the Golden Gate, as well as across San Francisco and through the San Bruno Gap, is a dominant weather factor. The

Oakland-Berkeley Hills cause the westerly flow of air to split off to the north and south of Oakland, which causes diminished wind speeds. The air pollution potential is lowest for the parts of the subregion that are closest to San Francisco Bay, due largely to good ventilation and less influx of pollutants from upwind sources. The occurrence of light winds in the evenings and early mornings occasionally causes elevated pollutant levels.

Wind measurements taken at the Naval Air Station Alameda indicate that the predominant wind flow is from the west and northwest. Northwest winds occur approximately 40 percent of the time. Average wind speeds vary from season to season with the strongest average winds occurring during summer and the lightest average winds during winter. Average wind speeds are 10.8 miles per hour (mph) during summer and 7.3 mph during winter. Temperatures in Alameda/Oakland average 58^{o} Fahrenheit (F) annually, ranging from an average of 40^{o} F on winter mornings to an average of mid-70s in the late summer afternoons. Daily and seasonal oscillations of temperature are small because of the moderating effects of the nearby ocean. In contrast to the steady temperature regime, rainfall is highly variable and confined almost exclusively to the "rainy" period from early November to mid-April. Alameda/Oakland averages 18 inches of precipitation annually, but because much of the area's rainfall is derived from the fringes of mid-latitude storms, a shift in the annual storm track of a few hundred miles can mean the difference between a very wet year and near drought conditions.

Existing Air Quality

Criteria Air Pollutants

As required by the federal Clean Air Act (CAA) passed in 1970, the U.S. EPA has identified six criteria air pollutants that are pervasive in urban environments, and for which state and national health-based ambient air quality standards have been established. The U.S. EPA calls these pollutants "criteria air pollutants" because the agency has regulated them by developing specific public health- and welfare-based criteria as the basis for setting permissible levels. Ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter, and lead are the six criteria air pollutants. Notably, particulate matter is measured in two size ranges: PM10 for particles less than 10 microns in diameter, and PM2.5 for particles less than 2.5 microns in diameter.

BAAQMD and the California Air Resources Board (CARB) operate a regional air quality monitoring network that measures the ambient concentrations of the six criteria air pollutants. Data from these stations record existing air pollutant levels. Probable future levels of air quality in the project area can generally be inferred from ambient air quality measurements conducted at the nearest monitoring stations by examining trends over time. The closest monitoring stations are in Oakland on 21st Street and International Boulevard. The nearest station that monitors PM10 is the 6th Street station in Berkeley. **Table 4.F-1** shows a five-year (2007 through 2011) summary of monitoring data for ozone, CO, PM10, and PM2.5 recorded at the nearest stations.

TABLE 4.F-1
SUMMARY OF AIR QUALITY MONITORING DATA (2007–2011)

Pollutant	Applicable Standard	Number of Days Standards Were Exceeded and Maximum Concentrations Measured[a]				
		2007	**2008**	**2009**	**2010**	**2011**
Ozone						
Oakland – West Station						
- Days 1-hour State Std. Exceeded	>0.09 ppm[b]	ND	ND	ND	0	0
- Max. 1-hour Conc. (ppm)		ND	ND	ND	0.040	0.057
- Days 8-hour National Std. Exceeded	>0.075 ppm[c]	ND	ND	ND	0	0
- Days 8-hour State Std. Exceeded	>0.07 ppm[b]	ND	ND	ND	0	0
- Max. 8-hour Conc. (ppm)		ND	ND	ND	0.035	0.048
Oakland – International Blvd Station						
- Days 1-hour Std. Exceeded	>0.09 ppm[b]	0	0	0	1	0
- Max. 1-hour Conc. (ppm)		0.040	0.086	0.092	**0.097**	0.09
- Days 8-hour Std. Exceeded	>0.075 ppm[c]	0	0	0	0	0
- Days 8-hour Std. Exceeded	>0.07 ppm[b]	0	0	0	0	0
- Max. 8-hour Conc. (ppm)		0.037	0.064	0.063	0.058	0.052
Carbon Monoxide (CO)						
Oakland – West Station						
- Days 8-hour Std. Exceeded	>9 ppm[b]	ND	ND	0	0	0
- Max. 8-hour Conc. (ppm)		ND	ND	2.0	1.7	2.7
Oakland – International Blvd Station						
- Days 8-hour Std. Exceeded	>9 ppm[b]	0	0	0	0	0
- Max. 8-hour Conc. (ppm)		1.4	1.6	2.0	1.6	1.5
Suspended Particulates (PM10)						
Berkeley – 6th Street Station						
- Estimated Days Over 24-hour National Std.[d]	>150 μg/m^3 [c]	0	0	0	0	ND
- Estimated Days Over 24-hour State Std.[d]	>50 μg/m^3 [b]	0	0	0	0	ND
- Max. 24-hour Conc. (μg/m^3)		35.8	43.5	33.5	42.8	ND
- Annual Average (μg/m^3)	>20 μg/m^3 [b]	ND	**22.4**	18.3	ND	ND
Suspended Particulates (PM2.5)						
Oakland – International Blvd Station						
- Estimated Days Over 24-hour National Std.[d]	>35 μg/m^3 [c]	0	0	3	0	3
- Max. 24-hour Conc. (μg/m^3)		22.8	30.1	**36.3**	25.2	**49.3**
- Annual Average (μg/m^3)	>12 μg/m^3 [b]	ND	9.4	9.2	7.7	10.1

NOTES:
Bold values are in excess of applicable standard. “NA” indicates that data is not available.
conc. = concentration; ppm = parts per million; ppb=parts per billion;
μg/m3 = micrograms per cubic meter
ND = No data or insufficient data.

[a] Number of days exceeded is for all days in a given year, except for particulate matter. PM10 and PM2.5 are monitored every six days. Notably, the Oakland-West station started monitoring ozone in December 2010.
[b] State standard, not to be exceeded.
[c] Federal standard, not to be exceeded.
[d] Particulate matter sampling schedule of one out of every six days, for a total of approximately 60 samples per year. Estimated days exceeded mathematically estimates how many days concentrations would have been greater than the level of the standard had each day been monitored.

SOURCE: CARB, 2013

While the data gathered at these monitoring stations may not necessarily reflect the unique meteorological environment of the project site nor the proximity of site-specific stationary and street sources, they do present the nearest available benchmark and provide the reader with a reference point to what the pollutants of greatest concern are in the region and the degree to which the area is out of attainment with specific air quality standards.

Ozone

Ozone is a secondary air pollutant produced in the atmosphere through a complex series of photochemical reactions involving reactive organic gases (ROG, also sometimes referred to as volatile organic compounds or VOC by some regulating agencies) and nitrogen oxides (NOx). The main sources of ROG and NOx, often referred to as ozone precursors, are combustion processes (including motor vehicle engines) and the evaporation of solvents, paints, and fuels. In the Bay Area, automobiles are the single largest source of ozone precursors. Ozone is referred to as a regional air pollutant because its precursors are transported and diffused by wind concurrently with ozone production through the photochemical reaction process. Ozone causes eye irritation, airway constriction, and shortness of breath and can aggravate existing respiratory diseases such as asthma, bronchitis, and emphysema. Table 4.F-1 shows that, according to published data, the 1-hour State standard of 0.09 ppm for ozone was exceeded once between 2007 and 2011.

Carbon Monoxide

CO is an odorless, colorless gas usually formed as the result of the incomplete combustion of fuels. The single largest source of CO is motor vehicles; the highest emissions occur during low travel speeds, stop-and-go driving, cold starts, and hard acceleration. Exposure to high concentrations of CO reduces the oxygen-carrying capacity of the blood and can cause headaches, nausea, dizziness, and fatigue, impair central nervous system function, and induce angina (chest pain) in persons with serious heart disease. Very high levels of CO can be fatal. As shown in Table 4.F-1, the State and national 8-hour CO standards were not exceeded between 2007 and 2011.

Particulate Matter (PM10 and PM2.5)

PM10 and PM2.5 are also termed respirable particulate matter and fine particulate matter, respectively, and are a class of air pollutants that consists of heterogeneous solid and liquid airborne particles from manmade and natural sources. In the Bay Area, motor vehicles generate about one-half of the air basin’s particulates, through tailpipe emissions as well as brake pad and tire wear. Wood burning in fireplaces and stoves, industrial facilities, and ground-disturbing activities such as construction are other sources of such particulates. These particulates are small enough to be inhaled into the deepest parts of the human lung and can cause adverse health effects. Among the criteria pollutants that are regulated, particulates represent a serious ongoing health hazard. As long ago as 1999, BAAQMD was reporting, in its CEQA Guidelines, that studies had shown that elevated particulate levels contribute to the death of approximately 200 to 500 people per year in the Bay Area. Compelling evidence suggests that PM2.5 is by far the most harmful air pollutant in the Bay Area Air in terms of the associated impact on public health. A large body of scientific evidence indicates that both long-term and short-term exposure to PM2.5 can cause a wide range of health effects (e.g., aggravating asthma and bronchitis, causing visits to the hospital for respiratory and cardiovascular symptoms, and contributing to heart attacks and deaths) (BAAQMD, 2012a).

Table 4.F-1 shows that the State annual standard of 20 micrograms per cubic meter ("$\mu g/m^3$") was exceeded once between 2007 and 2011 at the nearest monitoring station in Berkeley.

Nitrogen Dioxide (NO_2)

NO_2 is a reddish brown gas that is a byproduct of combustion processes. Automobiles and industrial operations are the main sources of NO_2. Aside from its contribution to ozone formation, NO_2 can increase the risk of acute and chronic respiratory disease and reduce visibility. NO_2 may be visible as a coloring component on high pollution days, especially in conjunction with high ozone levels. No NO_2 monitoring was conducted in the project vicinity. However, the entire air basin, including the project area, is in attainment for the state and federal NO_2 standards.

Sulfur Dioxide (SO_2)

SO_2 is a colorless acidic gas with a strong odor. It is produced by the combustion of sulfur-containing fuels such as oil, coal, and diesel. SO_2 has the potential to damage materials and can cause health effects at high concentrations. It can irritate lung tissue and increase the risk of acute and chronic respiratory disease (BAAQMD, 2012a). No SO_2 monitoring was conducted in the project vicinity. However, the entire air basin, including the project area, is in attainment for the state and federal SO_2 standards.

Lead

Leaded gasoline (phased out in the United States beginning in 1973), lead based paint (on older houses, cars), smelters (metal refineries), and manufacture of lead storage batteries have been the primary sources of lead released into the atmosphere. Lead has a range of adverse neurotoxic health effects, which puts children at special risk. Some lead-containing chemicals cause cancer in animals. Lead levels in the air have decreased substantially since leaded gasoline was eliminated. Ambient lead concentrations are only monitored on an as-warranted, site-specific basis in California.

Toxic Air Contaminants

Toxic air contaminants (TACs) are air pollutants that may lead to serious illness or increased mortality, even when present in relatively low concentrations. Potential human health effects of TACs include birth defects, neurological damage, cancer, and death. There are hundreds of different types of TACs with varying degrees of toxicity. Individual TACs vary greatly in the health risk they present. At a given level of exposure, one TAC may pose a hazard that is many times greater than another.

TACs do not have ambient air quality standards, but are regulated by the BAAQMD using a risk-based approach. This approach uses a health risk assessment to determine what sources and pollutants to control as well as the degree of control. A health risk assessment is an analysis in

TABLE 4.F-2
STATE AND FEDERAL AMBIENT AIR QUALITY STANDARDS AND ATTAINMENT STATUS

Pollutant	Averaging Time	State SAAQS[a]		(Federal) NAAQS[b]	
		Standard	Attainment Status	Standard	Attainment Status
Ozone	1 hour	0.09 ppm	N	NA	NA[c]
	8 hour	0.07 ppm	N[d]	0.075 ppm	N/Marginal
Carbon Monoxide (CO)	1 hour	20 ppm	A	35 ppm	A
	8 hour	9 ppm	A	9 ppm	A
Nitrogen Dioxide (NO_2)	1 hour	0.18 ppm	A	0.100 ppm	U
	Annual	0.030 ppm	NA	0.053 ppm	A
Sulfur Dioxide (SO_2)	1 hour	0.25 ppm	A	0.075	A
	24 hour	0.04 ppm	A	0.14	A
	Annual	NA	NA	0.03 ppm	A
Particulate Matter (PM10)	24 hour	50 µg/m^3	N	150 µg/m^3	U
	Annual	20 µg/m^3	N[f]	NA	NA
Fine Particulate Matter (PM2.5)	24 hour	NA	NA	35 µg/m^3	N[g]
	Annual	12 µg/m^3	N[f]	15 µg/m^3	A
Sulfates	24 hour	25 µg/m^3	A	NA	NA
Lead	30 day	1.5 µg/m^3	A	NA	NA
	Cal. Quarter	NA	NA	1.5 µg/m^3	A
Hydrogen Sulfide	1 hour	0.03 ppm	U	NA	NA
Visibility-Reducing Particles	8 hour	See Note h	U	NA	NA

NOTES:

A = Attainment; N = Nonattainment; U = Unclassified; NA = Not Applicable, no applicable standard; ppm = parts per million; µg/m^3 = micrograms per cubic meter.

[a] SAAQs = state ambient air quality standards (California). SAAQS for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1-hour and 24-hour), nitrogen dioxide, particulate matter, and visibility-reducing particles are values that are not to be exceeded. All other state standards shown are values not to be equaled or exceeded.

[b] NAAQs = national ambient air quality standards. NAAQS, other than ozone and particulates, and those based on annual averages or annual arithmetic means, are not to be exceeded more than once a year. The 8-hour ozone standard is attained when the three-year average of the fourth highest daily concentration is 0.08 ppm or less. The 24-hour PM10 standard is attained when the three-year average of the 99th percentile of monitored concentrations is less than the standard. The 24-hour PM2.5 standard is attained when the three-year average of the 98th percentile is less than the standard.

[c] The U.S. EPA revoked the national 1-hour ozone standard on June 15, 2005.

[d] This state 8-hour ozone standard was approved in April 2005 and became effective in May 2006.

[e] State standard = annual geometric mean; national standard = annual arithmetic mean.

[f] In June 2002, The California Air Resources Board (CARB) established new annual standards for PM2.5 and PM10.

[g] U.S EPA lowered the 24-hour PM2.5 standard from 65 µg/m3 to 35 µg/m3 in 2006. EPA designated the Bay Area as nonattainment of the PM2.5 standard on October 8, 2009. The effective date of the designation is December 14, 2009 and the Air District has three years to develop a plan, called a State Implementation Plan (SIP), that demonstrates the Bay Area will achieve the revised standard by December 14, 2014. The SIP for the new PM2.5 standard must be submitted to the US EPA by December 14, 2012.

[h] Statewide visibility reducing particle standard (except Lake Tahoe Air Basin): Particles in sufficient amount to produce an extinction coefficient of 0.23 per kilometer when the relative humidity is less than 70 percent. This standard is intended to limit the frequency and severity of visibility impairment due to regional haze and is equivalent to a 10-mile nominal visual range.

SOURCE: BAAQMD, 2013a; U.S. EPA, 2012

which human health exposure to toxic substances is estimated and considered together with information regarding the toxic potency of the substances, to provide quantitative estimates of health risks.[1]

In addition to monitoring criteria pollutants, both BAAQMD and the CARB operate TAC monitoring networks in the Bay Area. Regionally, ambient concentrations of TACs are similar throughout the urbanized areas of the Bay Area Air Basin. The BAAQMD provides two public source inventories of TAC emissions sources within its jurisdiction. The first is its TAC Annual Report, the latest of which was published in 2009. The most recent source is BAAQMD's May 2012 Google Earth-based inventory of stationary source risks and hazards. This latter source indicates four permitted TAC sources within the project site and five sources within 1,000 feet of the project site boundary. These sources and their BAAQMD-identified cancer risks are presented in **Table 4.F-3**. The Port of Oakland is north of the project site, across the Oakland Inner Harbor. Although the Port is a source of substantial TACs, it was not included in this analysis because it is located outside the BAAQMD's screening distance (1,000 feet) and it is located downwind of Alameda.

TABLE 4.F-3
STATIONARY SOURCES OF TACS WITHIN 1,000 FEET OF THE PROJECT SITE

Name of Source		Address	Cancer Risk (in one million)	Chronic Health Index[a] (Unit less ratio value)	PM2.5 Concentration (micrograms/ cubic meter)
Sources off the Project Site					
1	Bay Ship & Yacht Co	2900 Main St, Suite 2100	0	0	69.7
2	Alameda Cremations	2900 Main St, Suite 1161	15.3	0.644	0.026
3	Northern California Power Agency	2900 Main St, Suite 1	0.4	0.003	0.728
Sources on the Project Site					
4	American Bus Repairs	2301 Monarch St, Bldg 24	0	0.006	0
5	US Navy Co Shaw Group	Orion Ave & W Pacific Ave B397	0.04	0	0
6	Olympic Tug and Barge Co	321 A Avenue	ND	ND	ND
7	Navigator Systems Inc	1800 Ferry Point, Bldg 14	0	0.003	0
8	Delphi Productions Inc	950 W Tower Ave	1.88	0.001	0
9	EBMUD	1001 W Red Line Ave	25.56	0.009	0.006

NOTE:
[a] Chronic non-cancer risk is determined by dividing the estimated annual average concentration of a pollutant by the Reference exposure level assigned to that pollutant by the California Office of Environmental Health Hazard Assessment. For one pollutant this ratio is referred to as the Hazard Quotient (HQ). HQs for pollutants targeting the same organ system are added to determine the total Hazard Index (HI).

[1] In general, a health risk assessment is required if BAAQMD concludes that projected emissions of a specific air toxic compound from a proposed new or modified source suggest a potential public health risk, then the applicant is subject to a health risk assessment for the source in question. Such an assessment generally evaluates chronic, long-term effects, calculating the increased risk of cancer as a result of exposure to one or more TACs.

Diesel Particulate Matter

The CARB identified diesel particulate matter (DPM) as a toxic air contaminant in 1998, primarily based on evidence demonstrating cancer effects in humans. The exhaust from diesel engines includes hundreds of different gaseous and particulate components, many of which are toxic. Mobile sources such as trucks and buses are among the primary sources of diesel emissions, and concentrations of DPM are higher near heavily traveled highways and rail lines with diesel locomotive operations. The estimated lifetime cancer risk from exposure to diesel exhaust is much higher than the risk associated with any other toxic air pollutant routinely measured in the region. The risk from diesel particulate matter as determined by the CARB declined from 750 in one million in 1990 to 570 in one million in 1995; by 2000, the CARB estimated the average statewide cancer risk from DPM at 540 in one million (CARB, 2009). This calculated cancer risk values from ambient air exposure in the Bay Area can be compared against the lifetime probability of being diagnosed with cancer in the United States, from all causes, which is more than 40 percent (based on a sampling of 17 regions nationwide), or greater than 400,000 in one million, according to the National Cancer Institute (National Cancer Institute, 2012).

Asbestos

Asbestos is also a TAC of concern due to the demolition of buildings and structures as part of the project. Asbestos is a fibrous mineral, which is both naturally occurring in ultramafic rock (a rock type commonly found in California) and used as a processed component of building materials. Because asbestos has been proven to cause serious adverse health effects, including asbestosis and lung cancer, it is strictly regulated based on its natural widespread occurrence and its use as a building material.

Odor Emissions

As described by the BAAQMD in its revised *CEQA Air Quality Guidelines* (BAAQMD, 2012a), odors are generally regarded as an annoyance rather than a health hazard. Manifestations of a person’s reaction to odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting and headache). The ability to detect odors varies considerably among the population and overall is quite subjective. People may have different reactions to the same odor. An odor that is offensive to one person may be perfectly acceptable to another (e.g., coffee roaster). An unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. Known as odor fatigue, a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity. The occurrence and severity of odor impacts depend on the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of receptors. Odor impacts should be considered for any proposed new odor sources located near existing receptors, as well as any new sensitive receptors located near existing odor sources. Generally, increasing the distance between the receptor and the odor source will mitigate odor impacts.

BAAQMD was contacted to review the odor complaint history of the facilities listed in Table 4.F-3 above in the project vicinity. According to BAAQMD records, these facilities have received no odor complaints within the last three years (BAAQMD, 2013b).

Sensitive Receptors

Air quality does not affect every individual in the population in the same way, and some groups are more sensitive to adverse health effects than others. Population subgroups sensitive to the health effects of air pollutants include the elderly and the young, those with higher rates of respiratory disease such as asthma and chronic obstructive pulmonary disease, and with other environmental or occupational health exposures (e.g., indoor air quality) that affect cardiovascular or respiratory diseases. Land uses such as schools, children's day care centers, hospitals, and nursing and convalescent homes are considered to be more sensitive than the general public to poor air quality because the population groups associated with these uses have increased susceptibility to respiratory distress. Parks and playgrounds are considered moderately sensitive to poor air quality because persons engaged in strenuous work or exercise also have increased sensitivity to poor air quality; however, exposure times are generally far shorter in parks and playgrounds than in residential locations and schools, which typically reduces overall exposure to pollutants. Residential areas are considered more sensitive to air quality conditions compared to commercial and industrial areas because people generally spend longer periods of time at their residences, with associated greater exposure to ambient air quality conditions.[2]

BAAQMD defines sensitive receptors as children, adults, and seniors occupying or residing in residential dwellings, schools, colleges and universities, daycares, hospitals, and senior-care facilities. Workers are not considered sensitive receptors because all employers must follow regulations set forth by the Occupation Safety and Health Administration (OSHA) to ensure the health and well-being of their employees (BAAQMD, 2012b).

Sensitive land uses surrounding the project include residences and several schools and are shown in **Figure 4.F-1**. The nearest onsite existing residences to the project development area are located in the northeastern corner of the project site, across Pearl Harbor Road and West Essex Drive, approximately 50 feet from potential development, including 200 units of Supportive Housing. The nearest offsite residences are across Main Street, approximately 70 feet from the project site. However, due to local meteorology, the maximally exposed receptors would be directly east of the project site, approximately 165 feet across Main Street, rather than the existing residences north of construction, because these receptors would be downwind from the most intensive construction activity, including grading involved with raising the base elevation of the site's Development Area—Enterprise Sub-Area, the Waterfront Town Center Sub-Area, and the southern portion of the Main Street Neighborhood Sub-Area—which abuts Main Street to the east. By contrast, existing residential receptors on the project site are immediately downwind from the Adaptive Reuse Sub-Area, where much of the construction activity would be expected to consist of renovation of existing structures, with a corresponding substantially lower volume of diesel construction equipment than would be involved in major grading and filling operations and new construction in the Development Area. The nearest school is the Encinal High School, located 300 feet east of the project site.

2 The factors responsible for variation in exposure are also often similar to factors associated with greater susceptibility to air quality health effects. For example, poorer residents may be more likely to live in crowded substandard housing and be more likely to live near industrial or roadway sources of air pollution.

Existing Sensitive Receptor

SOURCE: ESA, 2013

Alameda Point Project . 130025

Figure 4.F-1
Sensitive Receptor Locations

F.3 Air Quality Regulatory Framework

Development within the project site boundaries must comply with federal, state, regional, and local regulations. This section discusses these requirements to the extent that they will affect the way development occurs with the proposed project.

Federal

Criteria Pollutants

The 1970 CAA (last amended in 1990) required that regional planning and air pollution control agencies prepare a regional air quality plan to outline the measures by which both stationary and mobile sources of pollutants will be controlled in order to achieve all standards by the deadlines specified in the CAA. These ambient air quality standards are intended to protect the public health and welfare, and they specify the concentration of pollutants (with an adequate margin of safety) to which the public can be exposed without adverse health effects. They are designed to protect those segments of the public most susceptible to respiratory distress, including asthmatics, the very young, the elderly, people weak from other illness or disease, or persons engaged in strenuous work or exercise. Healthy adults can tolerate occasional exposure to air pollution levels that are somewhat above ambient air quality standards before adverse health effects are observed.

The current attainment status for the SFBAAB, with respect to federal standards, is summarized in **Table 4.F-2**. In general, the SFBAAB experiences low concentrations of most pollutants when compared to federal standards, except for ozone and particulate matter, for which standards are exceeded periodically.

The U.S. EPA lowered the national 8-hour ozone standard from 0.080 to 0.075 parts per million (ppm) effective May 27, 2008. In April 2012, the U.S. EPA designated the Bay Area as a marginal nonattainment area[3] for the 2008 0.75 ppm ozone standard (U.S. EPA, 2012). In addition, the U.S EPA lowered the 24-hour PM2.5 standard from 65 $\mu g/m^3$ to 35 $\mu g/m^3$ in 2006. EPA designated the Bay Area as nonattainment of the PM2.5 standard on October 8, 2009. The effective date of the designation is December 14, 2009 and the BAAQMD has three years to develop a plan, called a State Implementation Plan (SIP), which demonstrates that the Bay Area will achieve the revised standard by December 14, 2014. The SFBAAB is designated "attainment" or "unclassified" for the other federal criteria pollutants. "Unclassified" is defined by the CAA Amendments as any area that cannot be classified, on the basis of available information, as meeting or not meeting the national primary or secondary ambient air quality standard for the pollutant.

3 "Marginal nonattainment area" means an area designated marginal nonattainment for the one (1) hour national ambient air quality standard for ozone.

Toxic Air Contaminants

TACs are regulated under both state and federal laws. Federal laws use the term “Hazardous Air Pollutants” (HAPs) to refer to the same types of compounds that are referred to as TACs under State law. Both terms encompass essentially the same compounds. The 1977 Clean Air Act Amendments (CAAA) required the U.S. EPA to identify National Emission Standards for Hazardous Air Pollutants (NESHAPs) to protect public health and welfare. These substances include certain volatile organic chemicals, pesticides, herbicides, and radionuclides that present a tangible hazard, based on scientific studies of exposure to humans and other mammals. Under the 1990 CAAA, 189 substances are regulated as HAPs.

State

Criteria Pollutants

Although the CAA established national ambient air quality standards, individual states retained the option to adopt more stringent standards and to include other pollution sources. California had already established its own air quality standards when federal standards were established, and because of the unique meteorology in California, there is considerable diversity between the state and national ambient air quality standards, as shown in Table 4.F-2. California ambient standards tend to be at least as protective as national ambient standards and are often more stringent.

In 1988, California passed the California Clean Air Act (CCAA) (California Health and Safety Code Sections 39600 et seq.), which, like its federal counterpart, called for the designation of areas as attainment or nonattainment, but based on state ambient air quality standards rather than the federal standards. As indicated in Table 4.F-2, the SFBAAB is designated as “nonattainment” for state ozone, PM10, and PM2.5 standards. The Bay Area Air Basin is designated as “attainment” or “unclassified” for all other pollutants listed in the table.

The CCAA requires each air district in which state air quality standards are exceeded to prepare a plan that documents reasonable progress towards attainment. A 3-year update is required. In the Bay Area, this planning process is incorporated into its Clean Air Plan.

Toxic Air Contaminants

The Health and Safety Code defines TACs as air pollutants which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health. The State Air Toxics Program was established in 1983 under Assembly Bill (AB) 1807 (Tanner). A total of 243 substances have been designated TACs under California law; they include the 189 (federal) HAPs adopted in accordance with AB 2728. The Air Toxics “Hot Spots” Information and Assessment Act of 1987 (AB 2588) seeks to identify and evaluate risk from air toxics sources; however, AB 2588 does not regulate air toxics emissions. Toxic air contaminant emissions from individual facilities are quantified and prioritized. “High-priority” facilities are required to perform a health risk assessment and, if specific thresholds are violated, are required to communicate the results to the public in the form of notices and public meetings.

In 2000, the CARB approved a comprehensive Diesel Risk Reduction Plan to reduce diesel emissions from both new and existing diesel-fueled vehicles and engines. The regulation is anticipated to result in an 80 percent decrease in statewide diesel health risk in 2020 as compared with the diesel risk in 2000. Additional regulations apply to new trucks and diesel fuel. Subsequent regulations of diesel emission by the CARB include the On-Road Heavy Duty Diesel Vehicle (In-Use) Regulation, the On-Road Heavy Duty (New) Vehicle Program, the In-Use Offroad Diesel Vehicle Regulation, and the New Offroad Compression Ignition Diesel Engines and Equipment Program. All of these regulations and programs have timetables by which manufacturers must comply and existing operators must upgrade their diesel powered equipment.

Despite these reduction efforts, the CARB recommends that proximity to sources of DPM emissions be considered in the siting of new sensitive land uses. In April 2005, the CARB published *Air Quality and Land Use Handbook: a Community Health Perspective*. This handbook is intended to give guidance to local governments in the siting of sensitive land uses near sources of air pollution. Recent studies have shown that public exposure to air pollution can be substantially elevated near freeways and certain other facilities such as ports, rail yards and distribution centers. Specifically, the document focuses on risks from emissions of DPM, a known carcinogen, and establishes recommended siting distances of sensitive receptors. With respect to Port facilities, the recommendations of the report are: "Avoid siting new sensitive land uses immediately downwind of ports in the most heavily impacted zones." With respect to freeways, the recommendations of the report are: "Avoid siting new sensitive land uses within 500 feet of a freeway, urban roads with more than 100,000 vehicles per day or rural roads with 50,000 vehicles/day". The CARB notes that these recommendations are advisory and should not be interpreted as defined "buffer zones," and that local agencies must balance other considerations, including transportation needs, the benefits of urban infill, community economic development priorities, and other quality of life issues. With careful evaluation of exposure, health risks, and affirmative steps to reduce risk where necessary the CARB's position is that infill development, mixed use, higher density, transit-oriented development, and other concepts that benefit regional air quality can be compatible with protecting the health of individuals at the neighborhood level (CARB, 2005).

Regional

BAAQMD is the regional agency responsible for air quality regulation within the SFBAAB. BAAQMD regulates air quality through its planning and review activities. BAAQMD has permit authority over most types of stationary emission sources and can require stationary sources to obtain permits, and can impose emission limits, set fuel or material specifications, or establish operational limits to reduce air emissions. BAAQMD regulates new or expanding stationary sources of toxic air contaminants.

For state air quality planning purposes, the Bay Area is classified as a serious non-attainment area for ozone. The "serious" classification triggers various plan submittal requirements and transportation performance standards. One such requirement is that the Bay Area update the *Clean Air Plan* every three years to reflect progress in meeting the air quality standards and to incorporate new information regarding the feasibility of control measures and new emission inventory data. The Bay Area's record of progress in implementing previous measures must also be reviewed. On September 15, 2010, BAAQMD adopted the most recent revision to the Clean Air Plan (BAAQMD, 2010a). The three primary goals of the 2010 Clean Air Plan are to:

- Attain air quality standards;
- Reduce population exposure and protect public health in the Bay Area; and
- Reduce greenhouse gas emissions and protect the climate.

In furtherance of these goals, the Clean Air Plan is designed to update the Bay Area 2005 Ozone Strategy in accordance with the requirements of the CCAA to implement "all feasible measures" to reduce ozone; consider the impacts of ozone control measures on PM10 and PM2.5, TACs, 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 2009−2012 timeframe.

Local

City of Alameda General Plan

The City of Alameda General Plan (City of Alameda, 1991) is the principal policy document for guiding future conservation and development within the City. It represents the framework on which the City must base decisions regarding growth, public services and facilities, and protection and enhancement of the community).

Relevant General Plan Policies

The Alameda General Plan includes policies relating to several CEQA topics. Each section of Chapter 4 includes a Regulatory Setting that describes General Plan policies applicable to that resource topic. The applicable policies relating to air quality and climate change are listed below.

Guiding Policies:

- Strive to meet all Federal and State standards for ambient air quality. *(Policy 5.5.a)*
- Support continued monitoring efforts by the Bay Area Air Quality Management District. *(Policy 5.5.b)*

Implementing Policies:

- Encourage use of public transit for all types of trips. *(Policy 5.5.c)*
- Encourage development and implementation of Transportation System Management (TSM) programs. *(Policy 5.5.d)*
- Minimize commuting by balancing jobs and nearby housing opportunities. *(Policy 5.5.e)*

F.4 Climate Change Environmental Setting

“Global warming” and “global climate change” are the terms used to describe the increase in the average temperature of the earth’s near-surface air and oceans since the mid-20th century and its projected continuation. Warming of the climate system is now considered to be unequivocal (IPCC, 2007), with global surface temperature increasing approximately 1.33 degrees Fahrenheit (°F) over the last 100 years. Continued warming is projected to increase global average temperature between 2 and 11°F over the next 100 years.

Natural processes and human actions have been identified as the causes of this warming. The International Panel on Climate Change (IPCC) concludes that variations in natural phenomena such as solar radiation and volcanoes produced most of the warming from pre-industrial times to 1950 and had a small cooling effect afterward. After 1950, however, increasing greenhouse gas (GHG) concentrations resulting from human activity such as fossil fuel burning and deforestation have been responsible for most of the observed temperature increase. These basic conclusions have been endorsed by more than 45 scientific societies and academies of science, including all of the national academies of science of the major industrialized countries. Since 2007, no scientific body of national or international standing has maintained a dissenting opinion.

Increases in GHG concentrations in the earth’s atmosphere are thought to be the main cause of human-induced climate change. GHGs naturally trap heat by impeding the exit of solar radiation that has hit the earth and is reflected back into space. Some GHGs occur naturally and are necessary for keeping the earth’s surface inhabitable. However, increases in the concentrations of these gases in the atmosphere during the last 100 years have decreased the amount of solar radiation that is reflected back into space, intensifying the natural greenhouse effect and resulting in the increase of global average temperature.

Carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6) are the principal GHGs. When concentrations of these gases exceed natural concentrations in the atmosphere, the greenhouse effect may be enhanced. CO_2, CH_4, and N_2O occur naturally, and are also generated through human activity. Emissions of CO_2 are largely by-products of fossil fuel combustion, whereas CH_4 results from off-gassing[4] associated with agricultural practices and landfills. Other human-generated GHGs include fluorinated gases such as SFCs, PFCs, and SF_6, which have much higher heat-absorption potential than CO_2, and are byproducts of certain industrial processes.

CO_2 is the reference gas for climate change because it is the predominant GHG emitted. The effect that each of the aforementioned gases can have on global warming is a combination of the mass of their emissions and their global warming potential (GWP). GWP indicates, on a pound-for-pound basis, how much a gas is predicted to contribute to global warming relative to how much warming would be predicted to be caused by the same mass of CO_2. CH_4 and N_2O are substantially more potent GHGs than CO_2, with GWPs of 21 and 310 times that of CO_2, respectively.

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4 Off-gassing is defined as the release of chemicals under normal conditions of temperature and pressure.

In emissions inventories, GHG emissions are typically reported in terms of pounds or metric tons of CO_2 equivalents (CO_2e). CO_2e are calculated as the product of the mass emitted of a given GHG and its specific GWP. While CH_4 and N_2O have much higher GWPs than CO_2, CO_2 is emitted in such vastly higher quantities that it accounts for the majority of GHG emissions in CO_2e, both from residential developments and human activity in general.

Potential Effects of Human Activity on GHG Emissions

Fossil fuel combustion, especially for the generation of electricity and powering of motor vehicles, has led to substantial increases in CO_2 emissions (and thus substantial increases in atmospheric concentrations). In 1994, atmospheric CO_2 concentrations were found to have increased by nearly 30 percent above pre-industrial (c. 1860) concentrations.

There is international scientific consensus that human-caused increases in GHGs have contributed and will continue to contribute to global warming. Potential global warming impacts in California may include, but are not limited to, loss in snow pack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years. Secondary effects are likely to include the displacement of thousands of coastal businesses and residences, impacts on agriculture, changes in disease vectors, and changes in habitat and biodiversity. As the CARB *Climate Change Scoping Plan* noted, the legislature in enacting Assembly Bill (AB) 32 found that global warming would cause detrimental effects to some of the state's largest industries, including agriculture, winemaking, tourism, skiing, commercial and recreational fishing, forestry, and the adequacy of electrical power generation. The *Climate Change Scoping Plan* states as follows (CARB, 2008): "The impacts of global warming are already being felt in California. The Sierra snowpack, an important source of water supply for the state, has shrunk 10 percent in the last 100 years. It is expected to continue to decrease by as much as 25 percent by 2050. World-wide changes are causing sea levels to rise – about 8 inches of increase has been recorded at the Golden Gate Bridge over the past 100 years – threatening low coastal areas with inundation and serious damage from storms."

Impacts of Climate Change

Ecosystem and Biodiversity Impacts

Climate change is expected to have effects on diverse types of ecosystems, from alpine to deep-sea habitat (U.S. EPA, 2008a). As temperatures and precipitation change, seasonal shifts in vegetation would occur; this could affect the distribution of associated flora and fauna species. As the range of species shifts, habitat fragmentation could occur, with acute impacts on the distribution of certain sensitive species. The IPCC states that "20 percent to 30 percent of species assessed may be at risk of extinction from climate change impacts within this century if global mean temperatures exceed 2 to 3°C (3.6 to 5.4°F) relative to pre-industrial levels" (IPCC, 2007). Shifts in existing biomes could also make ecosystems vulnerable to encroachment by invasive species. Wildfires, which are an important control mechanism in many ecosystems, may become more severe and more frequent, making it difficult for native plant species to repeatedly re-germinate. In general terms, climate change is expected to put a number of stressors on ecosystems, with potentially catastrophic effects on biodiversity.

Human Health Impacts

Climate change may increase the risk of vector-borne infectious diseases, particularly those found in tropical areas and spread by insects such as malaria, dengue fever, yellow fever, and encephalitis (U.S. EPA, 2008b). Cholera, which is associated with algal blooms, could also increase. While these health impacts would largely affect tropical areas in other parts of the world, effects would also be felt in California. Warming of the atmosphere would be expected to increase smog and particulate pollution, which could adversely affect individuals with heart and respiratory problems, such as asthma. Extreme heat events would also be expected to occur with more frequency and could adversely affect the elderly, children, and the homeless. Finally, the water supply impacts and seasonal temperature variations expected as a result of climate change could affect the viability of existing agricultural operations, making the food supply more vulnerable.

Greenhouse Gas Emissions Estimates

Global Emissions

Worldwide emissions of GHGs in 2004 were 30 billion tons of CO_2e per year (UNFCCC, 2012). This includes both ongoing emissions from industrial and agricultural sources, but excludes emissions from land use changes.

U.S. Emissions

In 2009, the United States emitted about 6.7 billion tons of CO_2e or about 21 tons per year per person. Of the four major sectors nationwide — residential, commercial, industrial, and transportation — transportation accounts for the highest fraction of GHG emissions (approximately 33 percent); these emissions are entirely generated from direct fossil fuel combustion (U.S. EPA, 2011).

State of California Emissions

In California, the transportation sector is the largest emitter of GHGs, followed by electricity generation (CARB, 2013b). Emissions of CO_2 are byproducts of fossil fuel combustion. Methane, a highly potent GHG, results from off-gassing (the release of chemicals from nonmetallic substances under ambient or greater pressure conditions) and is largely associated with agricultural practices and landfills. Nitrous oxide is also largely attributable to agricultural practices and soil management. Carbon dioxide sinks, or reservoirs, include vegetation and the ocean, which absorb CO_2 through sequestration and dissolution, respectively, two of the most common processes of CO_2 sequestration. California produced approximately 452 million gross metric tons of CO_2e in 2010 (CARB, 2013b). Combustion of fossil fuel in the transportation sector was the single largest source of California's GHG emissions in 2010, accounting for 38 percent of total GHG emissions in the state. This sector was followed by the electric power sector (including both in-state and out-of-state sources) (21 percent) and the industrial sector (19 percent) (CARB, 2013b).

Bay Area Emissions

In the Bay Area, the transportation sector and industrial/commercial sector represent the largest sources of GHG emissions, accounting for 36.4 percent each of the Bay Area's 95.8 million tons of CO_2e in 2007. Electricity/co-generation sources account for about 15.9 percent of the Bay Area's GHG emissions, followed by residential fuel usage at about 7.1 percent. Off-road equipment and agricultural/farming sources currently account for approximately three percent and 1.2 percent of the total Bay Area GHG emissions, respectively (BAAQMD, 2010b).

City of Alameda GHG Emissions and Local Action Plan for Climate Protection

On February 5, 2008, the City of Alameda's City Council adopted the City of Alameda's Local Action Plan for Climate Protection (LAPCP) (City of Alameda, 2008). Important findings of the Plan include the following:

- The City of Alameda's greenhouse gas emissions baseline inventory reveals that Alameda generated approximately 303,097 tons of CO_2e in 2005;
- The City of Alameda is expected to increase its annual GHG emissions to 329,867 tons of CO_2e by 2020 based on a 0.65 percent annual population growth rate;
- Transportation based GHG emissions account for 54 percent of the City's GHG emissions, while 29 percent is from energy and heating demands of residential uses and 17 percent from commercial uses.

F.5 Climate Change Regulatory Framework

Federal

U.S. Environmental Protection Agency "Endangerment" and "Cause or Contribute" Findings

The U.S. Supreme Court held that the United States Environmental Protection Agency (U.S. EPA) must consider regulation of motor vehicle GHG emissions. In *Massachusetts v. Environmental Protection Agency* et al., 12 states and cities, including California, together with several environmental organizations, sued to require the U.S. EPA to regulate GHGs as pollutants under the CAA (127 S. Ct. 1438 (2007)). The Supreme Court ruled that GHGs fit within the CAA's definition of a pollutant and the U.S. EPA had the authority to regulate GHGs.

On December 7, 2009, the U.S. EPA Administrator signed two distinct findings regarding GHGs under Section 202(a) of the CAA:

- ***Endangerment Finding:*** The current and projected concentrations of the six key GHGs—CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6—in the atmosphere threaten the public health and welfare of current and future generations.

- ***Cause or Contribute Finding:*** The combined emissions of these GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution that threatens public health and welfare.

Mandatory Greenhouse Gas Reporting Rule

On September 22, 2009, the U.S. EPA released its final Greenhouse Gas Reporting Rule (Reporting Rule). The Reporting Rule is a response to the fiscal year (FY) 2008 Consolidated Appropriations Act (H.R. 2764; Public Law 110-161), that required the U.S. EPA to develop "…mandatory reporting of GHGs above appropriate thresholds in all sectors of the economy…." The Reporting Rule will apply to most entities that emit 25,000 metric tons of CO_2e or more per year. Starting in 2010, facility owners are required to submit an annual GHG emissions report with detailed calculations of facility GHG emissions. The Reporting Rule also mandates recordkeeping and administrative requirements in order for the U.S. EPA to verify annual GHG emissions reports.

State

The legal framework for GHG emission reduction has come about through Executive Orders, legislation, and regulation. The major components of California's climate change initiative are reviewed below.

California Environmental Quality Act and Senate Bill 97

CEQA requires lead agencies to consider the reasonably foreseeable adverse environmental effects of projects they are considering for approval. GHG emissions have the potential to adversely affect the environment because they contribute to global climate change. In turn, global climate change has the potential to raise sea levels, affect rainfall and snowfall, and affect habitat.

Senate Bill 97

Senate Bill (SB) 97, signed in August 2007, acknowledges that climate change is a prominent environmental issue requiring analysis under CEQA. This bill directed the Governor's Office of Planning and Research (OPR) to prepare, develop, and transmit to the California Natural Resources Agency guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions, as required by CEQA, no later than July 1, 2009. The California Natural Resources Agency was required to certify or adopt those guidelines by January 1, 2010. On December 30, 2009, the Natural Resources Agency adopted the state CEQA Guidelines amendments, as required by SB 97. These state CEQA Guidelines amendments provide guidance to public agencies regarding the analysis and mitigation of the effects of GHG emissions in draft CEQA documents. The amendments became effective March 18, 2010.

CEQA Guidelines

CEQA *Guidelines,* Section 15064.4 specifically addresses the significance of GHG emissions. Section 15064.4 calls for a lead agency to make a "good-faith effort" to "describe, calculate or estimate" GHG emissions in CEQA environmental documents. Section 15064.4 further states that the analysis of GHG impacts should include consideration of (1) the extent to which the project may increase or reduce GHG emissions, (2) whether the project emissions would exceed a locally applicable threshold of significance, and (3) the extent to which the project would comply with "regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions." The guidelines also state that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project will comply with the requirements in a previously approved plan or mitigation program (including plans or regulations for the reduction of greenhouse gas emissions) that provides specific requirements that will avoid or substantially lessen the cumulative problem within the geographic area in which the project is located (CEQA Guidelines Section 15064(h)(3).) The CEQA *Guidelines* revisions do not, however, set a numerical threshold of significance for GHG emissions.

The revisions also include the following guidance on measures to mitigate GHG emissions, when such emissions are found to be significant:

> Consistent with Section 15126.4(a), lead agencies shall consider feasible means, supported by substantial evidence and subject to monitoring or reporting, of mitigating the significant effects of greenhouse gas emissions. Measures to mitigate the significant effects of greenhouse gas emissions may include, among others:
>
> (1) Measures in an existing plan or mitigation program for the reduction of emissions that are required as part of the lead agency's decision;
>
> (2) Reductions in emissions resulting from a project through implementation of project features, project design, or other measures;
>
> (3) Off-site measures, including offsets that are not otherwise required, to mitigate a project's emissions;
>
> (4) Measures that sequester greenhouse gases; and
>
> (5) In the case of the adoption of a plan, such as a general plan, long range development plan, or plans for the reduction of greenhouse gas emissions, mitigation may include the identification of specific measures that may be implemented on a project-by-project basis. Mitigation may also include the incorporation of specific measures or policies found in an adopted ordinance or regulation that reduces the cumulative effect of emissions.
>
> (CEQA Guidelines Section 15126.4(a).)

Assembly Bill 1493

In 2002, then-Governor Gray Davis signed Assembly Bill (AB) 1493, which required CARB to develop and adopt, by January 1, 2005, regulations that achieve "the maximum feasible reduction of GHGs emitted by passenger vehicles and light-duty trucks and other vehicles determined by CARB to be vehicles whose primary use is noncommercial personal transportation in the state."

To meet the requirements of AB 1493, CARB approved amendments to the California Code of Regulations (CCR) in 2004, adding GHG emissions standards to California's existing standards for motor vehicle emissions. Amendments to CCR Title 13, Sections 1900 and 1961 (13 CCR 1900, 1961), and adoption of Section 1961.1 (13 CCR 1961.1), require automobile manufacturers to meet fleet-average GHG emissions limits for all passenger cars, light-duty trucks within various weight criteria, and medium-duty passenger vehicle weight classes (i.e., any medium-duty vehicle with a gross vehicle weight [GVW] rating of less than 10,000 pounds and that is designed primarily for the transportation of persons), beginning with model year 2009. For passenger cars and light-duty trucks with a loaded vehicle weight (LVW) of 3,750 pounds or less, the GHG emission limits for model year 2016 are approximately 37 percent lower than the limits for the first year of the regulations, model year 2009. For light-duty trucks with an LVW of 3,751 pounds to a GVW of 8,500 pounds, as well as for medium-duty passenger vehicles, GHG emissions will be reduced approximately 24 percent between 2009 and 2016.

Because the Pavley standards (named for the bill's author, state Senator Fran Pavley) would impose stricter standards than those under the CAA, California applied to the U.S. EPA for a waiver under the CAA; this waiver was initially denied in 2008. In 2009, however, the U.S. EPA granted the waiver.

Executive Order S-3-05

In 2005, in recognition of California's vulnerability to the effects of climate change, then-Governor Arnold Schwarzenegger established Executive Order S-3-05, which sets forth the following target dates by which statewide GHG emissions would be progressively reduced: 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.

Assembly Bill 32 and the California Climate Change Scoping Plan

Assembly Bill 32 Requirements

In 2006, the California legislature passed Assembly Bill 32 (California Health and Safety Code Division 25.5, Sections 38500, et seq., or AB 32), also known as the Global Warming Solutions Act. AB 32 requires the CARB to design and implement feasible and cost-effective emissions limits, regulations, and other measures, such that statewide GHG emissions are reduced to 1990 levels by 2020 (representing a 25-percent reduction in emissions). AB 32 anticipates that the GHG reduction goals will be met, in part, through local government actions. The CARB has identified a GHG reduction target of 15 percent from current levels for local governments (municipal and community-wide) and notes that successful implementation of the plan relies on local governments' land use planning and urban growth decisions because local governments have primary authority to plan, zone, approve, and permit land development to accommodate population growth and the changing needs of their jurisdictions.

Scoping Plan Provisions

Pursuant to AB 32, the CARB adopted a *Climate Change Scoping Plan* in December 2008 (re-approved by the CARB on August 24, 2011 [CARB, 2008]) outlining measures to meet the 2020 GHG reduction goals. In order to meet these goals, California must reduce its GHG emissions by

30 percent below projected 2020 business-as-usual emissions levels or about 15 percent from today's levels. The Scoping Plan recommends measures that are worth studying further, and that the State of California may implement, such as new fuel regulations. It estimates that a reduction of 174 million metric tons of CO_2e (about 191 million U.S. tons) from the transportation, energy, agriculture, forestry, and other sources could be achieved should the state implement all of the measures in the Scoping Plan. The Scoping Plan relies on the requirements of Senate Bill (SB) 375 (discussed below) to implement the carbon emission reductions anticipated from land use decisions.

Cap-and-Trade Program

The Scoping Plan identifies cap-and-trade as a key strategy for helping California reduce its GHG emissions (CARB, 2008). A cap-and-trade program sets the total amount of greenhouse gas emissions allowable for facilities under the cap and allows covered sources, including producers and consumers of energy, to determine the least expensive strategies to comply. AB 32 required the CARB to adopt the cap-and-trade regulation by January 1, 2011, and the program itself began in November 2012.

Carbon offset credits are created through the development of projects, such as renewable energy generation or carbon sequestration projects, that achieve the reduction of emissions from activities not otherwise regulated, covered under an emissions cap, or resulting from government incentives. Offsets are verified reductions of emissions whose ownership can be transferred to others. As required by AB 32, any reduction of GHG emissions used for compliance purposes must be real, permanent, quantifiable, verifiable, enforceable, and additional. Offsets used to meet regulatory requirements must be quantified according to CARB-adopted methodologies, and the CARB must adopt a regulation to verify and enforce the reductions. The criteria developed will ensure that the reductions are quantified accurately and are not double-counted within the system (CARB, 2008).

Executive Order S-1-07

Executive Order S-1-07, signed by then-Governor Arnold Schwarzenegger in 2007, proclaimed that the transportation sector is the main source of GHG emissions in California, at over 40 percent of statewide emissions. The order established a goal of reducing the carbon intensity of transportation fuels sold in California by a minimum of 10 percent by 2020. It also directed the CARB to determine whether this Low Carbon Fuel Standard could be adopted as a discrete, early-action measure after meeting the mandates in AB 32. The CARB adopted the Low Carbon Fuel Standard on April 23, 2009.

Senate Bills 1078 and 107 and Executive Orders S-14-08 and S-21-09

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.

In November 2008, then-Governor Schwarzenegger signed Executive Order S-14-08, which expands the state's Renewable Portfolio Standard to 33 percent renewable power by 2020. In September 2009, then-Governor Schwarzenegger continued California's commitment to the Renewable Portfolio Standard by signing Executive Order S-21-09, which directs the CARB under its AB 32 authority to enact regulations to help the state meet its Renewable Portfolio Standard goal of 33 percent renewable energy by 2020.

The 33-percent-by-2020 goal was codified in April 2011 with Senate Bill X1-2, which was signed by Governor Edmund G. Brown, Jr. This new Renewable Portfolio Standard preempts the CARB 33 percent Renewable Electricity Standard and applies to all electricity retailers in the state, including publicly owned utilities (POUs), investor-owned utilities, electricity service providers, and community choice aggregators. All of these entities must adopt the new Renewable Portfolio Standard goals of 20 percent of retail sales from renewables by the end of 2013 and 25 percent by the end of 2016, with the 33 percent requirement being met by the end of 2020.

Senate Bill 1368

SB 1368 is the companion bill of AB 32 and was signed by then-Governor Schwarzenegger in September 2006. SB 1368 requires the California Public Utilities Commission (CPUC) to establish a GHG emission performance standard for baseload generation from investor-owned utilities by February 1, 2007. The California Energy Commission (CEC) was also required to establish a similar standard for local publicly owned utilities by June 30, 2007. These standards cannot exceed the GHG emission rate from a baseload combined-cycle natural gas-fired plant. The legislation further requires that all electricity provided to California, including imported electricity, must be generated from plants that meet the standards set by the CPUC and CEC.

Senate Bill 375

In addition to policy directly guided by AB 32, the legislature in 2008 passed SB 375, which provides for regional coordination in land use and transportation planning and funding to help meet the AB 32 GHG reduction goals. SB 375 aligns regional transportation planning efforts, regional GHG emissions reduction targets, and land use and housing allocations. SB 375 requires Regional Transportation Plans (RTPs) developed by the state's 18 metropolitan planning organizations (MPOs) to incorporate a "sustainable communities strategy" (SCS) that will achieve GHG emission reduction targets set by the CARB. SB 375 also includes provisions for streamlined CEQA review for some infill projects, such as transit-oriented development. SB 375 would be implemented over the next several years. Plan Bay Area, San Francisco Bay Area's SCS, was adopted in July 2013.

Green Building Standards Code

In January 2010, the State of California adopted the California Green Building Standards Code (CALGreen) per CCR Title 24, Part 11, which establishes mandatory green building standards for all buildings in California. The code covers five categories: planning and design, energy efficiency, water efficiency and conservation, material conservation and resource efficiency, and indoor environmental quality. These standards include a mandatory set of minimum guidelines, as well as more rigorous voluntary measures, for new construction projects to achieve specific green building performance levels. This Code went into effect as part of local jurisdictions' building codes on January 1, 2011.

Local

Local Action Plan for Climate Protection

The LAPCP (City of Alameda, 2008) outlined multiple initiatives that would help Alameda achieve its overall goal of reducing community-wide emissions by 25% below 2005 levels by 2020. The Plan identified the following initiatives that may apply to the proposed project:

> ***Transportation Initiative 1*****:** Require that all new major developments' short and long-term transportation emissions are reduced by 10 percent. Examples of strategies to achieve this reduction include transportation demand management strategies and implementation of a Bike Plan, or bicycle facilities.
>
> ***Energy Initiative 4:*** Amend the Alameda Municipal Code to include sustainable design and green building standards for all new, substantially expanded and remodeled buildings. Although this Initiative directs the City to adopt green building standards, it provides examples of recent projects of varying sizes which have achieved a Leadership in Energy and Environmental Design (LEED) rating of silver or higher.
>
> ***Energy Initiative 6*****:** Develop a wood-burning prohibition ordinance to reduce air pollution for new residential construction. Again, while this Initiative directs the City to adopt an ordinance, its intent is to discourage new development from installing wood-burning fireplaces.
>
> ***Waste and Recycling Initiative 1*****:** Adopt "Zero Waste Strategy" Programs and Ordinances. This Initiative identifies increased sorting and recycling of construction and demolition materials as an element of GHG reduction.

Alameda Municipal Code

The City of Alameda Municipal Code includes several sections that address GHGs and climate change:

> ***Section 13-19: Green Building Requirements for City Building Projects, Capital Improvement Projects, and Public-Private Partnerships.*** Requires the integration of green building practices (including specified LEED certification or GreenPoint rating) in City and public-private partnership buildings and landscapes.
>
> ***Section 30-58: Water Conservation Landscaping.*** Requires landscape design requirements of the Water Conservation Act (AB 1881) and standards for sustainable landscape practices in accord with the current version of the StopWaste.Org Bay Friendly Landscape protocols.

F.6 Impacts and Mitigation Measures

This analysis evaluates the proposed project's impacts related to air quality and GHGs. The evaluation considered project plans, current Appendix G significance conditions at the project site, and applicable regulations and guidelines.

Significance Criteria

In accordance with Appendix G of the state CEQA Guidelines, the impact of the proposed project on air quality or climate change would be considered significant if it 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 non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);
- Expose sensitive receptors to substantial pollutant concentrations;
- Create objectionable odors affecting a substantial number of people;
- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or
- Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

Impact Assessment Methodology

The BAAQMD *CEQA Air Quality Guidelines* were prepared to assist in the evaluation of air quality impacts of projects and plans proposed within the Bay Area. The guidelines provide recommended procedures for evaluating potential air impacts during the environmental review process, consistent with CEQA requirements, and include recommended thresholds of significance, mitigation measures, and background air quality information. They also include recommended assessment methodologies for air toxics, odors, and greenhouse gas emissions. In June 2010, the BAAQMD's Board of Directors adopted CEQA thresholds of significance and an update of the *CEQA Guidelines*. In May 2011, the updated BAAQMD *CEQA Air Quality Guidelines* were amended to include a risk and hazards threshold for new receptors and modified procedures for assessing impacts related to risk and hazard impacts.

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 of significance in the BAAQMD *CEQA Air Quality Guidelines*. The court did not determine whether the thresholds of significance were valid on their 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 complied with CEQA. In May of 2012, the BAAQMD filed an appeal of the court's decision, the results of which are pending as of July 2013.

In view of the court's order, the BAAQMD is no longer recommending that the thresholds of significance from the 2011 *CEQA Air Quality Guidelines* be used as a generally applicable measure of a project's significant air quality impacts. Following the court's order, the BAAQMD released revised *CEOA Air Quality Guidelines* in May of 2012 that include guidance on calculating air pollution emissions, obtaining information regarding the health impacts of air pollutants, and identifying potential mitigation measures, and which set aside the significance thresholds. The BAAQMD recognizes that lead agencies may rely on the previously recommended Thresholds of Significance contained in its *CEQA Guidelines* adopted in 1999.

The court's invalidation of BAAQMD's thresholds presents uncertainty for current project applicants and local agencies regarding proper evaluation of air quality and GHG emissions in CEQA documents. Although reliance on the 2011 thresholds is no longer required, local agencies still have a duty to evaluate impacts related to air quality and GHG emissions. In addition, CEQA grants local agencies broad discretion to develop their own thresholds of significance, or to rely on thresholds previously adopted or recommended by other public agencies or experts so long as they are supported by substantial evidence. Accordingly, the City of Alameda is using the BAAQMD's 2011 thresholds to evaluate project impacts in order to protectively evaluate the potential effects of the project on air quality.

The City also notes that the Alameda County Superior Court, in ordering BAAQMD to set aside the thresholds, did not address the merits of the science or evidence supporting the thresholds. The City finds that, despite the court ruling, the science and reasoning contained in the BAAQMD 2011 *CEQA Air Quality Guidelines* provide the latest state-of-the-art guidance available. For that reason, substantial evidence supports continued use of the BAAQMD 2011 *CEQA Air Quality Guidelines*.

On August 13, 2013, the First District Court of Appeal ordered the trial court to reverse the judgment and upheld the BAAQMD's *CEQA Guidelines*. *California Building Industry Ass'n v. Bay Area Air Quality Mgmt. Dist.*, Case No. A135335 & A136212 (Court of Appeal, First District, August 13, 2013). In addition to the City's independent determination that use of the BAAQMD's *CEQA Guidelines* is supported by substantial evidence, they have been found to be valid guidelines for use in the CEQA environmental review process.

Criteria Pollutants

Project-related air quality impacts fall into two categories: short-term impacts due to construction, and long-term impacts due to project operation. First, during project construction (short-term), the project would affect local particulate concentrations primarily due to fugitive dust sources and diesel exhaust. Under operations (long-term), the project would result in an increase in emissions primarily due to motor vehicle trips and on-site stationary sources such as boilers for natural gas combustion for space and water heating. Other sources include minor area sources such as landscaping and use of consumer products.

Construction emissions were estimated using the California Emissions Estimator Model (CalEEMod) version 2013.2. This model was also used to calculate the effectiveness of proposed mitigation measures. Construction of the project is expected to begin in 2014 and would occur through buildout in year 2035. Operational phase emissions were also estimated using CalEEMod and incorporate the trip generation figures developed by Kittelson Associates, Inc. for the proposed project.

Health Risks and Hazards

A health risk assessment (HRA)[5] was conducted to evaluate the cancer risks and non-cancer related health effects associated with exposure to TACs emitted as a result of the project, and is included in Appendix I. Cancer risks[6] are evaluated based on 70-year exposure, pursuant to BAAQMD's *Recommended Methods for Screening and Modeling Local Risks and Hazards* (BAAQMD, 2012b). Non-cancer health risks[7] include adverse health effects from both acute (highest 1-hour) and chronic (average annual) exposure. BAAQMD also requires the analysis of PM2.5 concentrations.[8] The HRA methods are designed to estimate the highest possible, or "upper bound" risks to the most sensitive members of the population (i.e., children, elderly, infirm), as well as those that are potentially exposed to TACs on a routine and prolonged basis (i.e., residents). Air toxics associated with the various project components include diesel particulate matter (DPM) emissions from construction and operations of the project. The results of the HRA are used in the analysis of TAC impacts.

The HRA was conducted in accordance with technical guidelines developed by federal, state, and regional agencies, including California Environmental Protection Agency (CalEPA), California Office of Environmental Health Hazard Assessment (OEHHA) *Air Toxics Hot Spots Program Guidance* (OEHHA, 2003), and the BAAQMD *Recommended Methods for Screening and Modeling Local Risks and Hazards* (BAAQMD, 2012b).

As discussed above, CalEEMod was used to estimate construction particulate exhaust emissions from diesel equipment and trucks. Actual exposures are not measured, but rather are modeled using sophisticated software that uses local meteorology and topography to predict the dispersion of TACs from their source and the resulting concentrations at receptors in accordance with

[5] An analysis designed to predict the generation and dispersion of air toxics in the outdoor environment, evaluate the potential for exposure of human populations, and to assess and quantify both the individual and population-wide health risks associated with those levels of exposure.

[6] Cancer risk is defined as the lifetime probability of developing cancer from exposure to carcinogenic substances. Cancer risks are expressed as the chances in one million of contracting cancer, for example, 10 cancer cases among one million people exposed.

[7] Non-cancer adverse health risks are measured against a hazard index, which is defined as the ratio of the predicted incremental exposure concentrations of the various non-carcinogens from the Project to published reference exposure levels (RELs) that can cause adverse health effects.

[8] The BAAQMD guidance stipulates inclusion of PM2.5 exhaust emissions only in this analysis (i.e., fugitive dust emissions are addressed through employing BAAQMD's *Best Management Practices* found under the discussion of Impact 4.F-1.

guidelines established by the California Office of Environmental Health Hazards Assessment (OEHHA) to assess cancer risk and non-cancer health hazards at the Maximum Exposed Individual (MEI)[9]. The models tend to be conservative, both in terms of the estimated exposure, and the toxic effects of the substances to which people are exposed; thus, the models tend to overestimate the adverse health effect.

For operations, the Alameda County Surface Street Screening Tables (BAAQMD, 2011) were used to determine the incremental cancer risk and PM2.5 concentrations at the nearest sensitive receptor along the streets with the greatest increase in traffic from project development. Finally, the health risk of sensitive residential receptors proposed as part of the project was analyzed with respect to existing TAC sources.

According to CalEPA, a HRA should not be interpreted as actual expected rates of cancer or other potential health effects, but rather as estimates of potential risk or likelihood of adverse effects based on current knowledge, under a number of highly conservative assumptions and the best assessment tools currently available.

Greenhouse Gases

This analysis uses both a quantitative and a qualitative approach. The quantitative approach is used to address the first significance criterion: Would the project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment? This analysis considers that, because the quantifiable thresholds developed by BAAQMD in its 2009 Justification Report were formulated based on AB 32 and California Climate Change Scoping Plan reduction targets for which its set of strategies were developed to reduce GHG emissions statewide, a project cannot exceed a numeric BAAQMD threshold without also conflicting with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs (the state Climate Change Scoping Plan). Therefore, if a project exceeds a numeric threshold and results in a significant cumulative impact, it would also result in a significant cumulative impact with respect to plan, policy, or regulation consistency, even though the project may incorporate measures and have features that would reduce its contribution to cumulative GHG emissions.

GHG emissions resulting from the project were estimated using CalEEMod version 2013.2, with model data and assumptions included in Appendix I. Construction emissions were estimated for equipment and truck exhaust and construction worker vehicles. In regards to operations, vehicle trips assumed default trip lengths for urban land uses, which are embedded in CalEEMod. The model makes adjustments for implementation of Pavley vehicle standards and Low Carbon Fuel Standards. Area and indirect sources associated with project operations would primarily result from electrical usage, water and wastewater transport (the energy used to pump water and wastewater to and from the project) and solid waste generation. GHG emissions from electrical usage are generated when energy consumed on the site is generated by fuel combustion. GHG emissions from water and wastewater transport are also indirect emissions resulting from the

9 Maximally Exposed Individual is the person with the highest exposure in a given population

energy required to transport water from its source, and the energy required to treat wastewater and transport it to its treated discharge point. Solid waste emissions are generated when the increased waste generated by the project are taken to a landfill to decompose.

Significance Thresholds Applied in the Analysis

Construction Impacts (Criteria Pollutants and TACs)

- *Construction-related emissions of fugitive dust, including PM10, that would not be controlled through Best Management Practices would be considered to be a significant criteria pollutant impact.*

BAAQMD's recommended approach to addressing localized construction dust-related air quality impacts (fugitive PM10 dust emissions) is to use specific Best Management Practices (BMP). This approach is identified both in the 1999 BAAQMD CEQA Guidelines, as well as in the 2009 Justification Report. If BAAQMD-recommended BMPs, which are tiered based on the size of the construction site (less than or greater than four acres), are incorporated into the project, then localized fugitive dust would be less-than-significant during construction.

- *Construction-related emissions of 54 pounds per day of ROG, NOx, or PM2.5 and 82 pounds per day of PM10 would be considered to be a significant criteria pollutant impact.*

Project-related construction emissions would be considered to result in a considerable net increase of a criteria pollutant and have a significant air quality impact if average daily construction-related emissions would exceed 54 pounds of ROG, NOx, or PM2.5 (non-inclusive of fugitive dust[10]) or exceed 82 pounds of PM10 (exclusive of fugitive dust[11]). The thresholds for PM10 and PM2.5 are inclusive only of construction exhaust emissions. BAAQMD guidance regarding construction-related emission of fugitive dust identifies implementation of BMPs as its threshold of significance (as discussed above).

- *Construction activities that would increase cancer risk exposure by 10 in one million, contribute hazard indices by a ratio of 1.0 or increase local concentrations of PM2.5 by 0.3 micrograms per cubic meter would be considered to result in a significant construction-related impact with regard to risks and hazards.*

The BAAQMD thresholds state that a project would have a significant air quality impact if construction activities would result in an incremental increase in localized annual average concentrations of PM2.5 exceeding 0.3 micrograms per cubic meter ($\mu g/m^3$) within a 1,000-foot radius from the property line of the construction area or a receptor. A project would also have a significant air quality impact if it would expose persons to substantial levels of TACs (including DPM), such that the probability of contracting cancer for the MEI exceeds 10 in one million or if it would expose persons to TACs such that a non-cancer Hazard Index of 1.0 would be exceeded.

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10 Fugitive dust consists of very small liquid and solid particulate matter that is suspended in the air by the wind and human activities. Fugitive dust originates primarily from the soil.
11 Fugitive dust is PM suspended in the air by the wind and human activities. It originates primarily from the soil and is not emitted from exhaust pipes, vents, or stacks.

A Hazard Index is a summation of the non-cancer hazard quotients for all chemicals to which an individual is exposed.

Operational Impacts (Criteria Pollutants and TACs)

- *Operational emissions of 54 pounds per day of ROG, NOx, or PM2.5 and 82 pounds per day of PM10 would be considered to be a significant criteria pollutant impact.*

For project-level impact operational analyses, the BAAQMD 2009 Justification Report identifies various thresholds and tests of significance. For ROG, NOx and PM2.5, a net increase equal to or greater than 10 tons per year (maximum annual) or 54 pounds average daily emissions is considered significant, while for PM10 a net increase equal to or greater than 15 tons per year (maximum annual) or 82 pounds average daily emissions is considered significant.

In regards to CO, a project would result in a less-than-significant impact to localized CO concentrations if the following screening criteria are met:

1. 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.
2. The project traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour.
3. 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).

- *A project that would increase an existing receptor or expose a new receptor to a cancer risk exposure by 10 in one million, contribute hazard indices by a ratio of 1.0 or increase local concentrations of PM2.5 by 0.3 micrograms per cubic meter would be considered to result in a significant impact with regard to risks and hazards.*

Under the thresholds identified in the BAAQMD Justification Report, a project would also be considered to have a significant air quality impact if it would result in an incremental increase in localized annual average concentrations of PM2.5 exceeding 0.3 micrograms per cubic meter from project operations. A project would also be considered to have a significant air quality impact if project operations would expose persons to substantial levels of TACs, such that the probability of contracting cancer for the MEI exceeds 10 in one million or if would expose persons to TACs such that a non-cancer Hazard Index of 1.0 would be exceeded.

Cumulative Impacts (Criteria Pollutants, TACs, and GHGs)

The BAAQMD Justification Report states that if the individual emissions of a project results in an increase in ROG, NOx, PM2.5, or PM10 exceeding the project-level significance criteria, then it would also be considered to contribute considerably to a significant cumulative effect.

With regard to cumulative impacts from PM2.5, a significant cumulative air quality impact would be considered to occur if localized annual average concentrations of PM2.5 would exceed

0.8 micrograms per cubic meter at any receptor from project operations in addition to existing emission sources and cumulative emissions sources within a 1,000-foot radius of the property line of the source or receptor.

With regard to cumulative impacts from TACs, a significant cumulative air quality impact would be considered to occur if the probability of contracting cancer for the MEI would exceed 100 in one million or if the project would expose persons to TACs such that a non-cancer chronic Hazard Index of 10.0 would be exceeded at any receptor as a result of project operations, in addition to existing emission sources and cumulative emissions sources within a 1,000 foot radius of the project site. However, a project's construction or operational impacts would be considered to result in a considerable contribution to an identified cumulative health risk impact if the project's construction or operation activities would exceed the project-level health risk significance thresholds identified above.

With regard to impacts from GHGs, both BAAQMD and the California Air Pollution Control Officers Association (CAPCOA) consider GHG impacts to be exclusively cumulative impacts (BAAQMD, 2012; CAPCOA, 2008); therefore, assessment of significance is based on a determination of whether the GHG emissions from a project represent a cumulatively considerable contribution to the global atmosphere. Separate thresholds of significance are established for operational emissions from stationary sources (such as generators, furnaces, and boilers) and non-stationary sources (such as on-road vehicles). As no threshold has been established for construction-related emissions, the operational emissions thresholds apply. The threshold for stationary sources is 10,000 metric tons of CO_2e per year (i.e., emissions above this level may be considered significant). For non-stationary sources, three separate thresholds have been established:

- Compliance with a Qualified Greenhouse Gas Reduction Strategy (i.e., if a project is found to be out of compliance with a Qualified Greenhouse Gas Reduction Strategy, its GHG emissions may be considered significant); or
- 1,100 metric tons of CO_2e per year (i.e., emissions above this level may be considered significant); or
- 4.6 metric tons of CO_2e per service population per year (i.e., emissions above this level may be considered significant). (Service population is the sum of residents plus employees expected for a development project.)

The quantitative efficiency threshold of 4.6 metric tons of CO_2e per service population annually proposed by BAAQMD in its 2009 Justification Report is applied to this analysis. If the project construction and operational GHG emissions would exceed this threshold then, consistent with BAAQMD Guidelines, it would be considered to have a cumulatively considerable contribution of GHG emissions and a cumulatively significant impact on climate change.

Impact Analysis

Impact 4.F-1: Development facilitated by proposed project could potentially result in air quality impacts due to construction activities. (Significant)

Fugitive Dust

As described in Chapter 3, *Project Description*, the proposed project includes demolition of numerous structures in preparation for construction of the new structures. Project related demolition, soil transport, remediation, grading and other construction activities at the project site may cause wind-blown dust that could generate particulate matter into the atmosphere. Fugitive dust includes not only PM10 and PM2.5 but also larger particles as well that can represent a nuisance impact. Demolition, excavation and other construction activities can cause wind-blown dust to add to particulate matter in the local atmosphere. Although there are federal standards for air pollutants and state and regional air quality control plans, air pollutants continue to have impacts on human health throughout the country. California EPA has found that particulate matter exposure can cause health effects at levels lower than national standards. The current health burden of particulate matter demands that, where possible, public agencies take feasible available actions to reduce sources of particulate matter exposure.

For mitigation of fugitive dust emissions, the BAAQMD recommends using specific best management practices, which has been a practical and effective approach to control fugitive dust emissions. The guidelines note that individual measures have been shown to reduce fugitive dust by anywhere from 30 percent to more than 90 percent and conclude that projects that implement construction best management practices will reduce fugitive dust emissions to a less than significant level. To insure implementation of BMP's they are identified herein as a mitigation measure.

Construction Emissions

Project-related construction would generate air emissions through the use of heavy-duty construction equipment, from vehicle trips hauling materials, and from construction workers traveling to and from the project site. Mobile source emissions, primarily NO_X, would be generated from the use of construction equipment such as excavators, bulldozers, wheeled loaders, and cranes. During the finishing phase, paving operations and the application of asphalt, architectural coatings (i.e., paints) and other building materials would release ROG. The assessment of construction air quality impacts considers each of these sources, and recognizes that construction emissions can vary substantially from day to day, depending on the level of activity, the specific type of operation, and for dust, the prevailing weather conditions.

For purposes of this analysis, project construction was assumed to commence in 2014 and the buildout of the project was assumed to be completed in 2035. The timing and sequence of development would depend upon numerous factors, including future market conditions, public investment, and private initiative and investment. For the construction modeling, a reasonable conservative development scenario was developed that assumed development of approximately 205,000 square feet of general industrial and commercial building uses and 150 dwelling units on an annual basis; the year 2014 was used for conservative purposes, as emissions factors for most vehicles will decline over time. In addition, it was assumed that approximately 80,000 cubic yards of soil would be imported and 225,000 square feet of existing buildings would be demolished per year. Notably, unmitigated demolition activities could result in airborne entrainment of asbestos, a TAC, particularly where structures built prior to 1980 would be demolished. However, these materials would be removed in accordance with regulatory requirements prior to demolition (as described below in Mitigation Measure 4.F-2b); therefore, with mitigation, asbestos would not be emitted to any substantial degree during demolition.

The CalEEMod model was used to quantify construction emissions associated with off-road equipment, paving, architectural coatings, haul trucks associated with demolition and soils import, on-road worker vehicle emissions and vendor delivery trips. Unmitigated and mitigated construction-related emissions for the project are presented in **Table 4.F-4**. The estimated emissions consider the following basic construction phases: demolition; excavation/grading; building construction; asphalt paving; and application of architectural coatings.

TABLE 4.F-4
AVERAGE ANNUAL DAILY CONSTRUCTION-RELATED POLLUTANT EMISSIONS (pounds/day)[a]

Scenario	ROG	NOx	Exhaust PM10[b]	Exhaust PM2.5[b]
Unmitigated Emissions – Year 2014	29	63	3	3
BAAQMD Construction Threshold	54	54	82	54
Significant Impact?	No	**Yes**	No	No
Mitigated Emissions – Year 2014	29	53	1	1
BAAQMD Construction Threshold	54	54	82	54
Significant Impact?	No	No	No	No

NOTES:
a Emissions include results modeled with CalEEMod. Additional data and assumptions are described in Appendix I.
b BAAQMD's construction-related significance thresholds for PM10 and PM2.5 apply to exhaust emissions only and not to fugitive dust.
c Mitigation measures were incorporated into the CalEEMod model to reflect the BAAQMD Exhaust Control Measures included in Mitigation Measure 4.F-2a.

As shown in Table 4.F-4, maximum average daily regional emissions would exceed the BAAQMD daily significance threshold for NOx during construction. For NOx, the predominant construction activity associated with the significant emissions would be off road diesel equipment and on-road haul trucks during demolition, and grading and vendor trucks during building construction. The project would have a significant impact in relation to regional construction impacts.

Toxic Air Contaminants and PM2.5

Project construction activities would produce DPM and PM2.5 emissions due to combustion equipment such as loaders, backhoes, and cranes, as well as haul truck trips. These emissions could result in elevated concentrations of DPM and PM2.5 at nearby receptors (both existing residences and future new residences on and near the project site). These elevated concentrations could lead to an increase in the risk of cancer or other health impacts. Consequently, a health risk assessment was performed to determine the extent of increased cancer risks and hazard indices at the maximally exposed receptors. The health risk assessment was based on recommended methodology of OEHHA and adopted by BAAQMD. The cancer risk to residential receptors assumes exposure would occur 8-hours per day for 262 days per year, to account for the active construction duration. Additionally, cancer risk estimates also incorporate new age sensitivity factors and daily breathing rates recommended by OEHHA (2012). This approach provides updated calculation procedures of the BAAQMD that factor in the increased susceptibility of infants and children to carcinogens as compared to adults.

Due to local meteorology, the maximally exposed receptors would be directly east of the project site, across Main Street, rather than the existing residences north of construction, because these receptors would be downwind from the most intensive construction activity, including grading involved with raising the base elevation of the site's Development Area—Enterprise Sub-Area, the Waterfront Town Center Sub-Area, and the southern portion of the Main Street Neighborhood Sub-Area—which abuts Main Street to the east. By contrast, existing residential receptors on the project site are immediately downwind from the Adaptive Reuse Sub-Area, where much of the construction activity would be expected to consist of renovation of existing structures, with a corresponding substantially lower volume of diesel construction equipment than would be involved in major grading and filling operations and new construction in the Development Area. Thus, any development upwind (west) of existing residential receptors on the project site, including those potentially relocated during construction, would be exposed to no greater and likely less risk than described below.

In order to provide a conservative risk assessment, it was assumed that the reasonable conservative development construction scenario would occur directly opposite the residences across Main Street (i.e., along the eastern edge of the project site). Furthermore, five additional years of maximum development were assumed to occur in adjacent sites to quantify ongoing risk of project construction at the MEI. This assessment would apply to new residences proposed under the project as well, which could occur near the assumed development as it progresses. The ISCST3 model was used to estimate maximum downwind concentrations and potential health risk at sensitive receptors resulting from construction activities, which are shown in **Table 4.F-5** below.

TABLE 4.F-5
CONSTRUCTION-RELATED HEALTH IMPACTS[a]

Residential MEI	Cancer Risk (persons per million)	Chronic Impact	PM2.5 Concentration (µg/m3)
Unmitigated Construction	26	0.008	<0.19
BAAQMD Significance Criteria	10	1	0.3
Significant Impact?	Yes	No	No
Mitigated Construction	4	0.001	<0.03
BAAQMD Significance Criteria	10	1	0.3
Significant Impact?	No	No	No

NOTE:
a Detailed assumptions and methodology of the HRA are included in Appendix I.

As shown in Table 4F-5, the incremental cancer risk at the maximum exposed residential receptor of 26 in one million would exceed the BAAQMD threshold of 10 in a million without mitigation. With incorporation of mitigation, the project would result in incremental cancer risk of 4 in one million. The unmitigated and mitigated chronic HI would be 0.008 and 0.001 at the MEI, respectively, which would be below the BAAQMD threshold of 1. Finally, the maximum annual PM2.5 unmitigated and mitigated concentrations would be less than 0.19 $\mu g/m^3$ and 0.03 $\mu g/m^3$ for the MEI, respectively, which is below the BAAQMD threshold of 0.3 $\mu g/m^3$.

Mitigation Measure 4.F-1a: Fugitive Dust. The following BAAQMD Best Management Practices for fugitive dust control will be required for all construction activities within the project area. These measures will reduce fugitive dust emissions primarily during soil movement, grading and demolition activities, but also during vehicle and equipment movement on unpaved project sites:

Basic Controls that Apply to All Construction Sites

1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
3. 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.
4. All vehicle speeds on unpaved roads shall be limited to 15 mph.
5. All streets, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
6. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of CCR). Clear signage shall be provided for construction workers at all access points.
7. 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.
8. A publicly visible sign shall be posted with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.

Mitigation Measure 4.F-1.b: Construction Exhaust. The following control measures for construction emissions will be required for all construction activities within the project area:

- 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.

- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to two minutes. Clear signage shall be provided for construction workers at all access points.
- The Project shall develop a plan demonstrating that the off-road equipment (more than 50 horsepower) to be used in the construction project (i.e., owned, leased, and subcontractor vehicles) would achieve a project wide fleet-average 20 percent NOx reduction and 45 percent PM reduction compared to the most recent CARB fleet average. Acceptable options for reducing emissions include the use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, add-on devices such as particulate filters, and/or other options as such become available. (The Level 3 Verified Diesel Emissions Control [VDEC] required under Mitigation Measure 4.F-1d would also comply with this measure.)
- Require that all construction equipment, diesel trucks, and generators be equipped with Best Available Control Technology for emission reductions of NOx and PM.
- Require all contractors to use equipment that meets CARB's most recent certification standard for off-road heavy duty diesel engines.

Mitigation Measure 4.F-1c: Demolition Controls. Demolition and disposal of any asbestos containing building material shall be conducted in accordance with the procedures specified by Regulation 11, Rule 2 (Asbestos Demolition, Renovation and Manufacturing) of BAAQMD's regulations.

Mitigation Measure 4.F-1d: Toxic Air Contaminants and PM2.5. The project sponsors shall ensure that construction contract specifications include a requirement that all off-road construction equipment used for project improvements be equipped with a Level 3 Verified Diesel Emissions Control (VDEC), which would reduce diesel particulate emissions by at least 85 percent.

Mitigation Measure 4.F-1.e: Delayed Occupancy. Health risks from construction-related emissions to new residences proposed under the project shall be minimized by delaying issuance of occupancy permits for new residential until after the completion of construction activities at adjacent buildings upwind in prevailing west and northwest winds during individual development phases of the project.

Significance after Mitigation: Although estimated construction emissions of regional ozone precursors (ROG and NOx) would be reduced below the BAAQMD thresholds for the reasonable conservative development scenario, because construction schedule and phasing have not been determined and development may overlap, there is the potential for project construction emissions to exceed the BAAQMD thresholds. This impact would be considered **significant and unavoidable**. However, unlike regional ozone, localized emissions of fugitive dust and TACs would be considered less than significant with mitigation based on the substantial emission reductions due to applied controls, even if additional development overlap were to occur.

Impact 4.F-2: Development facilitated by the proposed project could potentially generate operational emissions that would result in a considerable net increase of criteria pollutants and precursors for which the air basin is in nonattainment under an applicable federal or state ambient air quality standard. (Significant)

Project site development would result in an increase in criteria air pollutant and precursor emissions, including ROG, NOx, PM10, and PM2.5 from a variety of emissions sources, including onsite area and energy sources (e.g., natural gas combustion for space and water heating, landscape maintenance, use of consumer products such as hairsprays, deodorants, cleaning products, etc.) and mobile on-road sources. Exhaust emissions from on-road vehicle traffic associated with the existing land uses on the project site as well as the proposed project development were calculated using the latest version of the CalEEMod program, which includes the updated EMFAC2011 emission factors for on-road vehicles.

As provided by Kittelson Associates, Inc., the increase in estimated daily traffic generated by the proposed project would be 33,429 daily trips. Notably, a Transportation Demand Management (TDM) program would be developed and implemented for the proposed project to reduce use of single-occupant vehicles and to increase the use of rideshare, transit, bicycle and pedestrian modes for trips to and from, as well as within the project site. Due to uncertainty pertaining to quantifying the effectiveness of implementing TDM strategies, the travel demand analysis used as a basis for calculating vehicle emissions does not assume vehicle trip reduction due to specific TDM strategies.

Table 4.F-6 summarizes the average daily mobile, energy, and area emissions of criteria pollutants that will be generated by project development in 2035 assuming buildout vehicle trip generation and compares them with BAAQMD thresholds. **Table 4.F-7** summarizes the annual emissions from project operations. As indicated in Tables 4.F-6 and 4.F-7, project-related net operational emissions of ROG, PM10, and PM2.5 would exceed the BAAQMD thresholds without mitigation.

TABLE 4.F-6
AVERAGE DAILY OPERATIONAL-RELATED POLLUTANT EMISSIONS (pounds/day)[a]

Scenario	ROG	NOx	PM10	PM2.5
Project Unmitigated Emissions – Year 2035	475	48	191	56
BAAQMD Operational Threshold	54	54	82	54
Significant Impact?	**Yes**	No	**Yes**	**Yes**
Project Mitigated Emissions – Year 2035	460	41	187	52
BAAQMD Operational Threshold	54	54	82	54
Significant Impact?	**Yes**	No	**Yes**	No

NOTES:
[a] Emissions include results modeled with CalEEMod for project operations. Additional data and assumptions are in Appendix I.
[b] Project Mitigated Emissions are based on incorporation of Mitigation Measure 4.F-4 into the CalEEMod model.

TABLE 4.F-7
ANNUAL OPERATIONAL-RELATED POLLUTANT EMISSIONS (tons/year)[a]

Scenario	ROG	NOx	PM10	PM2.5
Project Unmitigated Emissions – Year 2035	87	9	35	10
BAAQMD Operational Threshold	10	10	15	10
Significant Impact?	**Yes**	No	**Yes**	**Yes**
Project Mitigated Emissions – Year 2035	84	8	34	9
BAAQMD Operational Threshold	10	10	15	10
Significant Impact?	**Yes**	No	**Yes**	No

NOTES:
[a] Emissions include results modeled with CalEEMod for project operations. Additional data and assumptions are in Appendix I.
[b] Project Mitigated Emissions are based on incorporation of Mitigation Measure 4.F-4 (for area and energy sources) into the CalEEMod model, where available.

Mitigation Measure 4.F-2: The following measures shall be incorporated into the project design for properties within the project area:

- Implement a Transportation Demand Management (TDM) program, as described in detail in Mitigation Measure 4.C.1a in Section 4.C, Transportation.
- Require only natural gas hearths in residential units as a condition of final building permit;
- Require smart meters and programmable thermostats;
- Meet Green Building Code standards in all new construction;
- Install solar water heaters for all uses as feasible;
- Use recycled water when available;
- Install low-flow fixtures (faucets, toilets, showers);
- Use water efficient irrigation systems; and
- Institute recycling and composting services.

Trip generation estimates for development of the proposed project used in this analysis included adjustments for development scale, density, diversity of uses, transit accessibility, as well as alternative transportation forecasts (pedestrian, bike, and transit). Therefore, many key elements of alternative mode strategies have been incorporated into the trip generation assumptions. Although the project-specific TDM plan has not been incorporated into this emissions analysis, based on the substantial size of the project it would not be expected to reduce the overall net operational emissions to a less than significant level. Consequently, implementation of the project would still result in significant environmental effects on air quality and contribute substantially to an existing air quality violation (ozone precursors and particulate matter). Therefore, even with implementation of Mitigation Measure 4.F-4, this impact would remain significant and unavoidable for emissions of ROG and PM10, and potentially for PM2.5.

Significance after Mitigation: Significant and Unavoidable.

Impact 4.F-3: Operation of the development facilitated by the proposed project could potentially expose sensitive receptors to substantial concentrations of toxic air contaminants or respirable particulate matter (PM2.5). (Less than Significant)

Operation of proposed project site development would produce DPM and PM2.5 emissions due to motor vehicle traffic including employees, customers, deliveries, and new residences. These emissions could result in elevated concentrations of DPM and PM2.5. These concentrations could lead to an increase in the lifetime risk of cancer or other health impacts. For operations, the Alameda County Surface Street Screening Tables (BAAQMD, 2011) were used to determine the incremental cancer risk and PM2.5 concentrations at the nearest sensitive receptors along the streets in the project vicinity with the greatest increase in traffic from project development. These would be residences north of Atlantic and east of Main Street. Using the BAAQMD Surface Street Screening Tables for Alameda County and streets volumes on Atlantic Avenue and Main Street for the project buildout scenario (year 2035), the maximum increased lifetime cancer risk for the maximally exposed individual would be 2.55 in one million. Maximum incremental annual PM2.5 concentrations would be 0.1 $\mu g/m^3$ for these residences. Thus, the incremental cancer risk and PM2.5 concentrations would be below the BAAQMD thresholds of 10 in one million and 0.3 $\mu g/m^3$, respectively, and would be less than significant without mitigation. Other existing sensitive receptors, such as residences on the project site (including the existing supportive housing units) and off-site residences farther from the site, would be subject to lesser increases in project-generated traffic and thus would be exposed to lower concentrations of TACs and lower risk from project operations.

Project traffic would also increase DPM and PM2.5 emissions near residences in Oakland Chinatown, although the volumes added, and therefore the increased cancer risk and PM2.5 concentrations, would be less than for the locations discussed above, which are adjacent to the project site. Conservatively assuming that receptors are as close as 10 feet from the edge of the curb, Chinatown receptors along Seventh, Eighth, Jackson, Harrison, and Webster Streets would be subject to a project-generated increase in cancer risk of up to 0.3 in one million and an increased PM2.5 concentration of up to 0.1 $\mu g/m^3$. Each of these would be well below the significance criteria of 10 in one million and 0.3 $\mu g/m^3$, respectively, and would also be less than significant. Chinatown receptors are close to I-880, and thus subject to both DPM and PM2.5 emissions from freeway traffic. Residential receptors on Seventh Street, for example (at a distance of about 300 feet from the freeway), are exposed to lifetime cancer risk of approximately 22 in one million and PM2.5 concentration of 0.13 $\mu g/m^3$ from freeway emissions, based on BAAQMD's Google Earth-based screening tool. Vehicular emissions from cumulative traffic, including project traffic, would add a lifetime incremental cancer risk of approximately 14 in one million and a PM2.5 concentration of 0.5 $\mu g/m^3$ to the existing baseline, for a total incremental cumulative cancer risk from traffic of up to about 36 in one million and total cumulative PM2.5 concentration of up to 0.63 $\mu g/m^3$. Both of these totals would be below the BAAQMD cumulative thresholds of 100 in one million cancer risk and 0.8 $\mu g/m^3$, respectively. Moreover, the project's incremental contribution of 0.3 in one million incremental lifetime cancer risk and PM2.5 concentration of 0.1 $\mu g/m^3$ would not be considered substantial. Therefore, the impact would be less than significant.

Mitigation: None required.

Impact 4.F-4: Development facilitated by the proposed project could potentially expose persons (new receptors) to substantial levels of TACs, which may lead to adverse health. (Significant)

BAAQMD has developed a geo-referenced database of permitted emissions sources throughout San Francisco Bay Area, and has developed the Stationary Source Risk & Hazard Analysis Tool (dated May 2012) for estimating health risks to new sensitive receptors (in this case, primarily residences and also potentially schools and child care facilities) from existing permitted sources. As shown in **Table 4.F-8**, nine permitted sources are located within 1,000 feet of the project, which is the radius that BAAQMD recommends be evaluated for sources of TACs. All of these sources are listed below; although it is possible some on-site sources will be removed through project re-development. The facilities with the greatest risk and particulate concentration were analyzed further. The BAAQMD Risk and Hazards Emissions Screening Calculator (version 1.3 beta, created July 11, 2012) was applied to the Bay Ship and Yacht Co., Northern California Power Agency, and the EBMUD facility, with the distance multiplier applied to the EBMUD diesel generator and the particulates associated with the Bay Ship and Yacht Co and Northern California Power Agency. For Alameda Cremations, the SCREEN3 model and BAAQMD recommended age factors were used to estimate conservative health risk from the plant (human crematory with integral afterburner point sources).

BAAQMD *CEQA Air Quality Guidelines* also recommend the inclusion of surface streets with annual average daily traffic (AADT) of 10,000 or greater within 1,000 feet of a given project (BAAQMD, 2012b). Upon review, the streets within 1,000 feet of sensitive receptors proposed under the project that would have 10,000 or greater AADT at project buildout would be Main Street (16,800 AADT north of W. Midway Avenue, nearest proposed receptor assumed to be 100 feet), Atlantic Avenue (15,400 AADT east of Main Street, nearest proposed receptor assumed to be 200 feet), and Willie Stargell Avenue (14,800 AADT east of Main Street, nearest proposed receptor assumed to be 200 feet). Cancer risk and PM2.5 concentrations were estimated for these streets using the BAAQMD Surface Street Screening Tables for Alameda County.

A summary of the health risk impacts for the new sensitive receptors (i.e., residences) is found in Table 4.F-8 with calculations included in Appendix I.

Notably, for individual projects/new receptors, the threshold of significance is based on the individual source with the highest cancer risk, PM2.5 concentration, or hazard in comparison to other sources within the 1,000 foot radius of the receptor (BAAQMD, 2012b). (Analysis of the cumulative impact of all sources on proposed new receptors is addressed in Impact 4.F-9.)

TABLE 4.F-8
HEALTH IMPACTS FROM STATIONARY,
CONSTRUCTION AND STREET SOURCES FOR NEW RECEPTORS

Site #	Facility	Address	Cancer Risk (chances per million)	Chronic Hazard Impact	PM2.5 Concentration (µg/m3)
9684	Bay Ship & Yacht Co	2900 Main St, Suite 2100	0	0	0.002[a]
19321	Alameda Cremations[b]	2900 Main St, Suite 1161	0.005	0	0
1500	Northern California Power Agency	2900 Main St, Suite 1	0.4	0.003	0.02[a]
18797	American Bus Repairs	2301 Monarch St, Bldg 24	0	0.006	0
13268	US Navy Co Shaw Group	Orion Ave & W Pacific Ave B397	0.04	0	0
20093	Olympic Tug & Barge Co	321 A Avenue	ND	ND	ND
11428	Navigator Systems Inc	1800 Ferry Point, Bldg 14	0	0.003	0
11767	Delphi Productions Inc	950 W Tower Ave	1.88	0.001	0
14238	EBMUD[a]	1001 W Red Line Ave	0.225	0.0002	0.0004
		Street Sources			
		Main Street	3.0	ND	0.15
		Atlantic Avenue	2.1	ND	0.07
		Willie Stargell Avenue	2.1	ND	0.07
		Unmitigated Project Construction[c]	26	0.008	0.19
		Mitigated Project Construction[c]	4	0.001	0.03
		Unmitigated Scenario - Highest Single Source Impact	26	0.008	0.15
		BAAQMD Significance Criteria (new receptor)	10	1	0.3
		Significant Impact?	Yes	No	No
		Mitigated Scenario - Highest Single Source Impact	4	0.006	0.15
		BAAQMD Significance Criteria (new receptor)	10	1	0.3
		Significant Impact?	No	No	No

NOTES:

a Health impacts estimated using the BAAQMD Risk and Hazards Emissions Screening Calculator.
b Health impacts estimated using SCREEN3 to determine conservative pollutant concentrations at the nearest receptor, OEHHA cancer potency slope factors and chronic hazard RELs, and the OEHHA recommended age sensitivity factors and daily breathing rates (OEHHA, 2003; OEHHA, 2012).
c Health impacts estimated using ISCST3 to determine conservative project construction impacts, as discussed above in Impact 4.F-1.

Please see Appendix I for additional data and assumptions.

As shown in Table 4.F-8, the highest cancer risk from any of the nearby sources would be 26 in one million (due to project unmitigated construction). The construction health risk calculation in Impact 4.F-1 above is conservatively included here in the operational analysis because construction would be ongoing over a 20-year period and could expose new receptors to TACs. As noted above, with mitigation, the construction cancer risk for new receptors would be below the BAAQMD threshold of 10 per million and would be less than significant. These measures are also identified below.

The highest hazard index from nearby sources would be 0.008, which is well below the significance threshold of 1.0, and the impact of the proposed residences within the project area would be less than significant. The highest annual PM2.5 concentrations would be 0.15 μg/m^3 at new residences, which would be below the significance threshold of 0.3 $\mu g/m^3$ and hence is considered less than significant.

Mitigation Measure 4.F-4: Implement Mitigation Measures 4.F-1a, 4.F-1b, and 4.F-1e.

Significance after Mitigation: Less than Significant.

Impact 4.F-5: Development facilitated by the proposed project could potentially expose sensitive receptors to substantial carbon monoxide concentrations. (Less than Significant)

According to the BAAQMD 2011 *CEQA Air Quality Guidelines*, a project would result in a less-than-significant impact due to localized CO concentrations if the following screening criteria are met:

1. The 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.
2. The project traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour.
3. 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).

The project would not exceed the standards established by the Alameda County Congestion Management Agency (ACCMA) and therefore would be consistent with ACCMA standards. In regards to the second and third criteria, intersection traffic volumes (including project traffic) would be substantially less than 44,000 and 24,000 vehicles per hour, respectively.

Based on the BAAQMD’s criteria, project-related traffic would exceed CO standards and therefore, no further analysis was conducted for CO impacts. This impact would be considered less than significant on a project-level and cumulative basis.

Mitigation: None required.

Impact 4.F-6: Development facilitated by the proposed project could potentially create objectionable odors affecting a substantial number of people. (Less than Significant)

BAAQMD has identified typical sources of odor in the BAAQMD 2011 *CEQA Air Quality Guidelines*, a few examples of which include manufacturing plants, rendering plants, coffee roasters, wastewater treatment plants, sanitary landfills, and solid waste transfer stations. While sources that generate objectionable odors must comply with air quality regulations, the public's sensitivity to locally produced odors often exceeds regulatory thresholds. The project would not include uses that have been identified by BAAQMD as potential sources of objectionable odors. In addition, the project would not locate new sensitive receptors in close proximity to substantial odor generating sources. BAAQMD considers more than five confirmed complaints per year averaged over the past three years as the indication of an odor impact. BAAQMD was contacted to identify the odor complaint history of facilities with TAC-emitting stationary sources in the project vicinity (Table 4.F-3), and no records of complaints have been received for the past three years (BAAQMD, 2013b). No other odor generating facilities were identified. This impact would be less than significant without mitigation.

Mitigation: None required.

Impact 4.F-7: Development facilitated by the proposed project could potentially conflict with or obstruct implementation of the applicable air quality plan. (Significant)

The most recently adopted air quality plan in the SFBAAB is the *2010 Clean Air Plan*. The *2010 Clean Air Plan* is a roadmap showing how San Francisco Bay Area will achieve compliance with the state 1-hour ozone standard as expeditiously as practicable, and how the region will reduce transport of ozone and ozone precursors to neighboring air basins. The control strategy includes stationary-source control measures to be implemented through BAAQMD regulations; mobile-source control measures to be implemented through incentive programs and other activities; and transportation control measures to be implemented through transportation programs in cooperation with the MTC, local governments, transit agencies, and others. The *2010 Clean Air Plan* also represents the Bay Area's most recent triennial assessment of the region's strategy to attain the state 1-hour ozone standard. In this, the *2010 Clean Air Plan* replaces the *2005 Ozone Strategy*. Under BAAQMD's updated 2012 methodology, a determination of consistency with the most recently adopted Clean Air Plan, currently the 2010 Clean Air Plan, must demonstrate that a plan or project supports the primary goals of the Clean Air Plan, includes applicable control measures of the Clean Air Plan, and would not disrupt or hinder implementation of any control measures of the Clean Air Plan.

Criterion 1: Project Support of the Primary Goals of the 2010 Clean Air Plan

As noted in the Regulatory Setting, the three primary goals of the Clean Air Plan are to (1) attain air quality standards; (2) reduce population exposure and protect public health in the Bay Area; and (3) reduce greenhouse gas emissions and protect the climate. BAAQMD guidance indicates that any project (i.e., project or plan) that does not support the three primary goals of the Clean Air Plan would not be considered consistent with the Clean Air Plan. Specifically, if approval of a project would not result in significant and unavoidable air quality impacts, after application of all feasible mitigation, the project may be considered consistent with the Clean Air Plan. As discussed in Impact 4.F-2, the project would result in significant and unavoidable emissions of criteria pollutants during operations. It does not necessarily follow that project development would not support the primary goals of the Clean Air Plan, because any project as large in scale and scope as the proposed project will, simply by virtue of its trip generation volume, exceed numerical thresholds for significance with respect to criteria pollutants. By this reasoning, population and/or employment growth beyond a certain scale would necessarily be considered non-supportive of the Clean Air Plan's goals. Because regional projections anticipate substantial population and employment growth, more important with respect to attainment of air quality standards (first goal) is whether a project accommodates population and employment growth in a manner that would result in relatively less than average increases in emissions region-wide. Assuming implementation of the proposed project's aggressive Transportation Demand Management program and long-term monitoring of the program (see Mitigation Measure 4.C.1a in Section 4.C, *Transportation and Circulation*), the proposed project would be anticipated to result in a substantial reduction in vehicle trip generation and, therefore, in criteria pollutant emissions. This measure, along with site-wide emissions reductions that would occur with implementation of Mitigation Measure 4.F-4, above, would likewise result in a reduction in greenhouse gas (GHG) emissions (third goal), compared to "business as usual" development. Moreover, as described in Impact 4.F-10, below, project emissions of GHGs would be less than significant. With respect to reduction of population exposure to hazardous emissions (second goal), the project would result in a less-than-significant impact with respect to exposure to TACs.

Criterion 2: Plan Consistency with Control Measures Contained in the Clean Air Plan

Air pollutant emissions are a function of human activity. The 1988 California Clean Air Act, Section 40919(d) requires regions to implement "transportation control measures to substantially reduce the rate of increase in passenger vehicle trips and miles traveled."

The *Bay Area 2010 Clean Air Plan* contains 59 control measures aimed at reducing air pollution in the Bay Area. Many (18) of these measures address stationary sources and will be implemented by BAAQMD using its permit authority and are therefore not suited to implementation through local planning efforts. Sixteen other measures are a draft list of measures for further study and are not yet identified as feasible for implementation under the 2010 Clean Air Plan. The remaining 25 measures are identified in **Table 4.F-9**. This table identifies each Control Strategy and correlates it to specific elements of each Project scenario or explains why the Strategy does or does not apply to project development. This table shows that the proposed project would be consistent with the Control Strategies contained in the 2010 Clean Air Plan for the SFBAAB.

Criterion 3: Disruption or Hindrance of Applicable Control Measures

Table 4.F-9 shows that the project would not disrupt or hinder implementation of any Clean Air Plan control measures with the exception of not addressing Mobile Source Control Measures A-1 and A-2 which are identified to be added to project development as mitigation.

BAAQMD has identified examples of how a plan may cause the disruption or delay of control measures, such as a project that may preclude an extension of a transit line or bike path or proposes excessive parking beyond parking requirements. The project would include accommodation of new and improved bus and transit service and an intermodal transit station. Development of the Project

TABLE 4.F-9
CONTROL STRATEGIES OF THE 2010 CLEAN AIR PLAN

2010 Clean Air Plan Control Strategy	Elements of the Project Consistent with the Strategy or Explanation of Non-applicability
Transportation Control Measures	
TCM A: Improve Transit Services	The proposed project would support transit services including accommodation of bus transit service and increasing access to the WETA Ferry Terminal.
TCM B: Improve System Efficiency	Not Applicable: This measure addresses infrastructure improvements to increase operational efficiencies on freeways and transit service (such as common fare payment systems) and are geared toward regional transit agencies and CALTRANS not local government.
TCM C: Encourage Sustainable Travel Behavior (i.e., voluntary employer-based trip reduction program)	The proposed project would require all new developments to adhere to a Transportation Demand Management (TDM) program. See Transportation Mitigation Measure 4.C.1a.
TCM D: Support Focused Growth (Bicycle and Pedestrian friendliness)	Alternative transportation mode facilities are included as part of the proposed project infrastructure. These sections include such elements as bicycle and pedestrian facilities for onsite streets which connect to the established a bicycle and pedestrian network in the City.
TCM E: Implement Pricing Strategies	Parking pricing strategies will be included as a strategy in the TDM program.
Mobile Source Control Measures	
MSM A-1: Promote Clean Fuel Efficient Vehicles	Not part of the Project. Mitigation Measure 4.F-7 added to address by identifying, as a TDM, preferential parking for alternative fueled vehicles as one potential element of a TDM program.
MSM A-2: Zero Emission Vehicles	Not part of the project. Mitigation Measure 4.7 added to address by identifying, as a TDM strategy an electric vehicle programs to reduce the need to have a car or second car vehicles as one potential element of a TDM program that would be required of all new developments.
MSM A-3: Green Fleets	Not Applicable: Development of the project site would generally be retail, commercial or residential in nature and unlikely to accommodate a land use requiring a fleet of vehicles. However, the City operates City Hall West onsite, and is committed to a green fleet under the Local Action Plan for Climate Protection.
MSM A-4: Replacement or Repair of High-emitting Vehicles	Not Applicable: This Strategy addresses vehicle buy-back programs implemented by BAAQMD.
MSM B-1: Fleet Modernization for Medium and Heavy-Duty Trucks	Not Applicable: This Strategy addresses incentive programs for truck modernization which are implemented by BAAQMD or CARB.
MSM B-2: Low NOx retrofits in Heavy-Duty Trucks	Not Applicable: This Strategy addresses cash incentives for retrofits which are implemented by BAAQMD or CARB.
MSM B-3: Efficient Drive Trains	Not Applicable: This Strategy addresses development and demonstration programs in partnership with CARB and the California Energy Commission.
MSM C-1: Construction and Farming Equipment	Not Applicable: This Strategy addresses cash incentives for retrofits which are implemented by BAAQMD or CARB.
MSM C-2: Lawn & Garden Equipment	Not Applicable: This Strategy addresses voluntary exchange programs implemented by BAAQMD.
MSM C-3: Recreational Vessels	Not Applicable: This Strategy addresses voluntary exchange programs implemented by BAAQMD.
Land Use & Local Impact Measures	
LUM 1: Goods Movement	The proposed project reuses warehousing and industrial uses onsite, and identifies truck routes to avoid congested or sensitive areas.
LUM 2: Indirect Source Review Rule	Not Applicable: This Strategy addresses implementation of an indirect source Rule by BAAQMD.

TABLE 4.F-9 (Continued)
CONTROL STRATEGIES OF THE 2010 CLEAN AIR PLAN

2010 Clean Air Plan Control Strategy	Elements of the Project Consistent with the Strategy or Explanation of Non-applicability
Land Use & Local Impact Measures (cont.)	
LUM 3: Updated CEQA Guidelines	This Strategy addresses updating of the CEQA Guidelines by BAAQMD. These Guidelines were most recently updated in May of 2012, removing any recommendation of significance thresholds.
LUM 4: Land Use Guidance	This Strategy addresses updating land use planning documents such as the proposed development scenarios and demonstrating consistency with air quality protection guidance such as the new BAAQMD CEQA Guidelines that are applied in this analysis.
LUM 5: Reduce Health Risk in Impacted Communities	The most “impacted community” identified in Figure 5-1 of the BAAQMD CEQA Guidelines would be single-family homes east of the project site, located approximately 50 meters from the assumed reasonable conservative development scenario. As indicated in Impacts 4.F-1 and 4.F-2, health risk impacts of the project would be significant and unavoidable.
LUM 6: Enhanced Air Quality Monitoring	Not Applicable: This Strategy addresses air quality monitoring that is the purview of BAAQMD and/or CARB.
Energy & Climate Measures	
ECM 1: Energy Efficiency	The proposed project includes green building strategies to be incorporated into future development, such as, storm water and wastewater management, landscaping, lighting and green building materials. The project will comply with CALGreen standards, as well as the Alameda Municipal Code, including the Green Building Requirements for City Building Projects, Capital Improvement Projects, and Public-Private Partnerships (Section 13-19) and Water Conservation Landscaping (Section 30-58).
ECM 2: Renewable Energy	See measure ECM-1 above.
ECM 3: Urban Heat Island Mitigation	The proposed project includes a network of parks, landscaped easements, and windrows which would give visual continuity to the site and contribute to the image of a green Alameda Point characterized by trees, parks, and greenways.
ECM 4: Shade Tree Planting	The proposed project includes substantial tree planting recommends throughout the project site in developed and open areas in order to enhance the area’s visual quality and identity, visually buffer new development, and provide environmental benefits such as micro-climate control.

SOURCE: BAAQMD, 2010a; and ESA, 2013

site would also include improved pedestrian and bicycle facilities, and would also accommodate transit extensions. These elements of project development demonstrate that control measure disruption or delay would not occur.

Trip generation estimates for development of the proposed project used in this analysis included adjustments for development scale, density, diversity of uses, transit accessibility, as well as alternative transportation forecasts (walk, bike, and transit). Therefore, many key elements of alternative mode strategies have been incorporated into the trip generation assumptions.

Mitigation Measure 4.F-7a: Implement Mitigation Measure 4.F-2.

Mitigation Measure 4.F-7b: The City shall include of clean fuel-efficient through preferential parking, installation of charging stations, and low emission electric vehicle carsharing programs to reduce the need to have a car or second car vehicles in the TDM Program.

Given the foregoing, the proposed project would not substantially conflict with or obstruct implementation of the 2010 Clean Air Plan, and the impact would be less than significant with mitigation.

Significance after Mitigation: Less than Significant.

Cumulative Impacts

Impact 4.F-8: Development facilitated by the proposed, when combined with past, present and other reasonably foreseeable development in the vicinity, could potentially result in cumulative criteria air pollutant air quality impacts. (Significant)

According to the BAAQMD, no single project is sufficient in size, by itself, to result in nonattainment of ambient air quality standards for regional criteria pollutants. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. There are many projects throughout San Francisco Bay area that have been identified as having significant and unavoidable operational and construction-related regional pollutant impacts. Consequently, for assessment of cumulative regional pollutant impacts, BAAQMD has developed a methodology of assessing whether a project would have a cumulatively considerable contribution. According to the BAAQMD *Justification Report*, if a project exceeds the identified significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions (BAAQMD, 2009).

As described in Impact 4.F-2, project operational emissions of ROG and PM10, and potentially PM2.5, would exceed the significance thresholds even with mitigation. Project impacts would therefore be significant. Because operational emissions from project emissions would be significant and unavoidable, project emissions would make a cumulatively considerable contribution to emissions from other projects, which would result in cumulatively significant air quality operational impacts.

Mitigation Measure 4.F-8: Implement Mitigation Measures 4.F-2 and 4.F-7b.

Significance after Mitigation: Significant and Unavoidable.

Impact 4.F-9: Development facilitated by the proposed project could cumulatively expose persons to substantial levels of TACs, which may lead to adverse health effects. (Less than Significant)

Unlike ozone and other regional pollutants, TACs are a localized pollution problem. TACs produced at distant locations do not readily combine to create concentrations at any single location that would cause health risks. The BAAQMD method for determining health risk requires the review of health risk from permitted sources and major streets in the vicinity of a project site (i.e., within 1,000 feet of the existing and proposed new sensitive residential receptors on the project site), then adding the project operational impacts to determine whether the cumulative health risk thresholds are exceeded. Unlike for a project level assessment, for the cumulative assessment the risks from all sources within 1,000 feet of project sensitive receptors are summed and compared to a cumulative significance threshold. (No onsite sources are assumed, other than project-generated traffic.) A summary of the cumulative health impacts for existing emissions sources is found in **Table 4.F-10**. Based on the large area covered by the proposed project, the sources listed in Table 4.F-10 would not all expose the same sensitive receptors to the maximum concentrations used in the health risk determination for individual sources shown in Table 4.F-10. Many of these sources are a considerable distance apart and would have a negligible cumulative contribution at a given receptor. However, in order to develop the most conservative analysis, it was assumed that all of the sources within 1,000 feet of project sensitive receptors would contribute equally to the cumulative health risk (i.e., the risk is assumed to be uniform across the entire project site). Even with this conservative assumption, as demonstrated in Table 4.F-10, health impacts from project development (both construction and operations) plus other existing sources (permitted sources and streets) in the area would have a cumulative impact below the BAAQMD thresholds for cancer risk, chronic health hazards, and PM2.5 concentrations.

Because toxic air contaminant impacts dissipate with increasing distance from an emissions source pursuant to BAAQMD methodology, only cumulative projects that are within 1,000 feet of the project site would contribute to cumulative TAC impacts. Two projects (the San Francisco Bay Area Water Emergency Transportation Authority Central Bay Operations and Maintenance Facility and the U.S. Navy Department of Veterans Affairs Alameda Transfer, Clinic, and Cemetery) listed in Section 6, *Other Statutory Sections*, are within 1,000 feet of the project boundary. Because these projects would be located more than 1,000 feet from existing and proposed on-site sensitive residential receptors, however any potential TACs from these projects would not contribute to the cumulative health risk shown in Table 4.F-10 below.[12] The nine sources listed in Table 4.F-10 are within 1,000 feet of existing and potential future onsite sensitive residential receptors, cumulative impacts are analyzed before.

[12] This table presents each of the nearby sources of TAC emissions that are indicated in Table 4.F-8, but in this Table 4.F-10, consistent with BAAQMD guidance, the risk and concentration is summed for all sources cumulatively, whereas Table 4.F-8 identifies the single highest-risk and highest-concentration source. As noted in the text, neither the VA project nor the WETA project would contribute considerably to health risks for residential receptors at the project site, and so these sources are not included in Table 4.F-10.

TABLE 4.F-10
EXISTING PLUS PROJECT CUMULATIVE HEALTH IMPACTS[a]

Site #	Facility	Address	Cancer Risk (persons per million)	Chronic Hazard Impact	PM2.5 Concentration (µg/m3)
9684	Bay Ship & Yacht Co	2900 Main St, Suite 2100	0	0	0.002
19321	Alameda Cremations	2900 Main St, Suite 1161	0.005	0	0
1500	Northern California Power Agency	2900 Main St, Suite 1	0.4	0.003	0.02
18797	American Bus Repairs	2301 Monarch St, Bldg 24	0	0.006	0
13268	US Navy Co Shaw Group	Orion Ave & W Pacific Ave B397	0.04	0	0
20093	Olympic Tug & Barge Co	321 A Avenue	ND	ND	ND
11428	Navigator Systems Inc	1800 Ferry Point, Bldg 14	0	0.003	0
11767	Delphi Productions Inc	950 W Tower Ave	1.88	0.001	0
14238	EBMUD	1001 W Red Line Ave	0.225	0.0002	0.0004
		Permitted Sources Total	2.55	0.0132	0.0224
		Street Sources			
		Main Street	3.0	ND	0.15
		Atlantic Avenue	2.1	ND	0.07
		Willie Stargell Avenue	2.1	ND	0.07
		Roadway Total	7.2	0	0.29
		Unmitigated Project Construction	26	0.008	0.19
		Grand Total	35.75	0.0212	0.5024
		BAAQMD Significance Criteria (new receptor)	100	10	0.8
		Significant Impact?	No	No	No

NOTE:
[a] Detailed assumptions and methodology of the HRA are included in Appendix I.

As shown in Table 4.F-10, the cumulative cancer risk from all sources within 1,000 feet of sensitive receptors would be approximately 36 in one million, which would be below the BAAQMD cumulative threshold of 100 in one million and would be less than significant. The cumulative hazard index from all such sources would be approximately 0.02, which is well below the significance threshold of 10 and would be less than significant. The cumulative PM2.5 concentration would be approximately 0.5 $\mu g/m^3$, which would be below the significance threshold of 0.8 $\mu g/m^3$ and hence is considered less than significant. In addition, as described in Impact 4.F-1, implementation of mitigation measures during construction would substantially reduce TAC exposure and health risk, as well as PM2.5 concentrations.

Mitigation: None required.

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Impact 4.F-10: Development facilitated by the proposed project could potentially generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment. (Less than Significant)

Application of BAAQMD's project-specific GHG emissions thresholds is to include both direct emissions from a project's vehicle trip generation and onsite water and space heating and other stationary sources, as well as indirect emissions from offsite electrical generation, solid waste generation, and water conveyance and treatment. The following activities associated with the proposed project could contribute to the generation of GHG emissions:

- ***Construction Activities.*** Construction equipment typically uses fossil-based fuels to operate. The combustion of fossil-based fuels creates GHGs such as CO_2, methane, and N_2O. Methane is also emitted during the fueling of heavy equipment.

- ***Solid Waste Disposal Emissions.*** Resulting emissions associated with waste generation and disposal in landfills are indirect. Landfills emit anthropogenic methane from the anaerobic breakdown of material.

- ***Gas, Electricity, and Water Use.*** Natural gas use results in the emissions of two GHGs: methane (the major component of natural gas) and CO_2 from the combustion of natural gas. Methane is released prior to initiation of combustion of the natural gas (as before a flame on a stove is sparked), and from the small amount of methane that is uncombusted in a natural gas flame. Electricity use can result in GHG production if the electricity is generated by combustion of fossil fuel. The local utility provider, Alameda Municipal Power (AMP), calculates CO_2 emission factors for electricity annually based on the mix of renewable and non-renewable sources used to generate electricity. GHG emissions associated with treatment and transport of water is also included in the analysis below.

- ***Motor Vehicle Use.*** Transportation associated with the project would result in GHG emissions from the combustion of fossil fuels in daily automobile and truck trips. However, not all of these emissions would be "new" to the region or state since drivers would likely have relocated from another area. To be conservative, however, all vehicle trips predicted to be generated by the project scenarios in the Transportation analysis were assumed to be new trips in this analysis.

- ***Stationary Sources.*** The project does not include any new or expanded stationary sources that would exceed BAAQMD's industrial threshold of 10,000 metric tons per year (MT/yr) of CO_2e. 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.

Impacts of Construction-Related GHG Emissions

For the purposes of this analysis, project construction was assumed to commence in 2014 and the buildout of the project was assumed to be completed in 2035. The timing and sequence of development would depend upon numerous factors, including future market conditions, public investment, and private initiative and investment. For the construction modeling, a reasonable conservative development scenario was developed that assumed development of 194,550 square feet of general industrial uses, 150 dwelling units, and 10,000 square feet of commercial buildings within the year 2014. In addition, it was assumed that 78,410 cubic yards of soil would be imported and 225,000 square feet of existing buildings would be demolished per year. The

CalEEMod model was used to quantify construction emissions associated with off-road equipment, haul trucks associated with demolition and soils import, on-road worker vehicle emissions, and vendor delivery trips.

Construction emissions over the full buildout duration were annualized assuming a 30-year development life after completion of construction (which is likely low), and added to overall project emissions for comparison to significance thresholds. Amortized GHG emissions associated with project construction would result in annualized generation of 738 metric tons of CO_2e.

Impacts of GHG Emissions from Project Operations

The CalEEMod model, version 2013.2, was used to estimate GHG emissions increases in motor vehicle trips, grid electricity usage, solid waste, and other sources (including area sources, natural gas combustion, and water/wastewater conveyance). **Table 4.F-11** presents a gross estimate of the proposed project's unmitigated operational CO_2e emissions in a buildout horizon year of 2035 resulting from these sources.

TABLE 4.F-11
ESTIMATED EMISSIONS OF GREENHOUSE GASES (2035) FROM OPERATION OF THE PROJECT

Source[a]	**Emissions (metric tons of CO_2e per year)**
Construction (Amortized)	814
Area	121
Energy	15,396
Motor Vehicle Trips	49,726
Solid Waste	4,066
Water	2,465
Total Project GHG Emissions (Construction + Operations)	72,588
Total Net Unmitigated GHG Emissions (Project – Existing)	47,532
Operational GHG Emissions per Increase in Service Population (7,900 jobs + 2,779 population = 10,679)[b]	4.5
BAAQMD Efficiency Threshold	*4.6*
Significant (Yes or No)?	***No***

NOTES:
a GHG emissions were calculated using the CalEEMod model for the project site development, for the Existing scenario and for 2035 buildout. Additional assumptions and data are included in Appendix I,
b The net service population represents the incremental increase in jobs and population within the project site due to project development. The value does not include jobs and population associated with the Existing scenario.

Table 4.F-11 indicates that the net GHG emissions associated with the project would be below BAAQMD's "efficiency threshold" of 4.6 metric tons of CO_2e per service population per year. This would represent a cumulatively less-than-significant GHG impact. Although not included in the above analysis, implementation of Mitigation Measures 4.F-2a, 4.F- 4, and 4.F-9b would further reduce GHG emissions associated with construction and operations of the project.

Mitigation: None required.

Impact 4.F-11: Development facilitated by the proposed project could potentially conflict with an applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases. (Less than Significant)

The proposed project would be consistent with the GHG reduction initiatives included in the 2008 LAPCP, which parallel several measures discussed in Table 4.F-9 above. In addition, as indicated in Table 4.F-11, GHG emissions generated by construction and operation of the project would be less than the BAAQMD "efficiency threshold" of 4.6 metric tons of CO_2e per service population per year. GHG efficiency metrics were developed for the emissions rates at the State level for the land use sector that would accommodate projected growth (as indicated by population and employment growth) under trend forecast conditions, and the emission rates needed to accommodate growth while allowing for consistency with the goals of AB 32 (i.e., 1990 GHG emissions levels by 2020) (BAAQMD, 2009). As a result, the project would not impair attainment of GHG reduction goals established pursuant to AB 32 in the *Climate Change Scoping Plan*, because these goals were used in the development of BAAQMD thresholds. Further, the proposed project was included as a priority development area in Plan Bay Area, which pursuant to SB 375, seeks to reduce GHG emissions at the regional level by promoting infill and transit oriented development. The project would have a less-than-significant impact with regard to GHG reduction planning efforts, because emissions per service population would be below thresholds developed based on attainment of AB 32 goals.

Mitigation: None required.

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G. Noise

G.1 Introduction

This section provides an overview of the existing noise environment at the proposed project site and surrounding area, the regulatory framework, an analysis of potential noise impacts that would result from implementation of the proposed project, and mitigation measures where appropriate.

G.2 Environmental Setting

Technical Background

Noise can be generally defined as unwanted sound. Sound, traveling in the form of waves from a source, exerts a sound pressure level (referred to as sound level) which is measured in decibels (dB), with zero dB corresponding roughly to the threshold of human hearing and 120 to 140 dB corresponding to the threshold of pain.

Sound pressure fluctuations can be measured in units of hertz (Hz), which correspond to the frequency of a particular sound. Typically, sound does not consist of a single frequency, but rather a broad band of frequencies varying in levels of magnitude (sound power). The sound pressure level, therefore, constitutes the additive force exerted by a sound corresponding to the frequency/sound power level spectrum.

The typical human ear is not equally sensitive to all frequencies of the audible sound spectrum. As a consequence, when assessing potential noise impacts, sound is measured using an electronic filter that de-emphasizes the frequencies below 1,000 Hz and above 5,000 Hz in a manner corresponding to the human ear’s decreased sensitivity to low and extremely high frequencies instead of the frequency mid-range. This method of frequency weighting is referred to as A-weighting and is expressed in units of A-weighted decibels (dBA). Frequency A-weighting follows an international standard methodology of frequency de-emphasis and is typically applied to community noise measurements. Some representative noise sources and their corresponding A-weighted noise levels are shown in **Figure 4.G-1**.

Noise Exposure and Community Noise

Noise exposure is a measure of noise over a period of time. A noise level is a measure of noise at a given instant in time. Community noise varies continuously over a period of time with respect to the contributing sound sources of the community noise environment. Community noise is primarily the product of many distant noise sources, which constitute a relatively stable background noise exposure, with the individual contributors unidentifiable. The background noise level changes throughout a typical day, but does so gradually, corresponding with the addition and subtraction of distant noise sources such as traffic and atmospheric conditions. What makes community noise constantly variable throughout a day, besides the slowly changing background noise, is the addition of short duration single event noise sources (e.g., aircraft flyovers, motor vehicles, sirens), which are readily identifiable to the individual receptor.

COMMON OUTDOOR ACTIVITIES	NOISE LEVEL (dBA)	COMMON INDOOR ACTIVITIES
	110	Rock band
Jet flyover at 1,000 feet		
	100	
Gas lawnmower at 3 feet		
	90	
Diesel truck at 50 feet at 50 mph		Food blender at 3 feet
	80	
Noisy urban area, daytime		
Gas lawnmower at 100 feet	70	Garbage disposal at 3 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	60	
		Large business office
Quiet urban daytime	50	Dishwasher in next room
Quiet urban nighttime	40	Theater, large conference room (background)
Quiet suburban nighttime		
	30	Library
Quiet rural nighttime		Bedroom at night, concert hall (background)
	20	
		Broadcast/recording studio
	10	
	0	

SOURCE: Caltrans, 2009

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Figure 4.G-1

Typical Noise Levels

These successive additions of sound to the community noise environment vary the community noise level from instant to instant, requiring the measurement of noise exposure over a period of time to legitimately characterize a community noise environment and evaluate cumulative noise impacts. This time-varying characteristic of environmental noise is described using statistical noise descriptors. The most frequently used noise descriptors are summarized below:

Leq: the energy-equivalent sound level is used to describe noise over a specified period of time, typically one hour, in terms of a single numerical value. The Leq is the constant sound level which would contain the same acoustic energy as the varying sound level, during the same time period (i.e., the average noise exposure level for the given time period).

Lmax: the instantaneous maximum noise level for a specified period of time.

L_{50}: the noise level that is equaled or exceeded 50 percent of the specified time period. The L_{50} represents the median sound level.

L_{90}: the noise level that is equaled or exceeded 90 percent of the specific time period. This is considered the background noise level during a given time period.

DNL: Also abbreviated Ldn, it is a 24-hour day and night A-weighted noise exposure level which accounts for the greater sensitivity of most people to nighttime noise by weighting noise levels at night (“penalizing” nighttime noises). Noise between 10:00 p.m. and 7:00 a.m. is weighted (penalized) by adding 10 dBA to take into account the greater annoyance of nighttime noises.

CNEL: similar to DNL, the Community Noise Equivalent Level (CNEL) adds a 5-dBA “penalty” for the evening hours between 7:00 p.m. and 10:00 p.m. in addition to a 10-dBA penalty between the hours of 10:00 p.m. and 7:00 a.m.

As a general rule, in areas where the noise environment is dominated by traffic, the Leq during the peak-hour is generally within one to two decibels of the Ldn at that location.

Effects of Noise on People

When a new noise is introduced to an environment, human reaction can be predicted by comparing the new noise to the existing “ambient noise” level. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will be judged by those hearing it. With regard to increases in A-weighted noise level, the following relationships occur:

- except in carefully controlled laboratory experiments, a change of 1-dBA cannot be perceived;
- outside of the laboratory, a 3-dBA change is considered a just-perceivable difference;
- a change in level of at least 5-dBA is required before any noticeable change in human response would be expected; and
- a 10-dBA change is subjectively heard as approximately a doubling in loudness, and can cause adverse response.

These relationships occur in part because of the logarithmic nature of sound and the decibel system. The human ear perceives sound in a non-linear fashion, hence the decibel scale was developed. Because the decibel scale is based on logarithms, two noise sources do not combine in a simple additive fashion, rather logarithmically. For example, if two identical noise sources produce noise levels of 50 dBA, the combined sound level would be 53 dBA, not 100 dBA.

Noise Attenuation

Stationary point sources of noise, including stationary mobile sources such as idling vehicles, attenuate (lessen) at a rate between 6 dBA for hard sites and 7.5 dBA for soft sites for each doubling of distance from the reference measurement. Hard sites are those with a reflective surface between the source and the receiver such as parking lots or smooth bodies of water. No excess ground attenuation is assumed for hard sites and the changes in noise levels with distance (drop-off rate) is simply the geometric spreading of the noise from the source. Soft sites have an absorptive ground surface such as soft dirt, grass or scattered bushes and trees. In addition to geometric spreading, an excess ground attenuation value of 1.5 dBA (per doubling distance) is normally assumed for soft sites. Line sources (such at traffic noise from vehicles) attenuate at a rate between 3 dBA for hard sites and 4.5 dBA for soft sites for each doubling of distance from the reference measurement (Caltrans, 2009).

Fundamentals of Vibration

As described in the Federal Transit Administration's (FTA) Transit Noise and Vibration Impact Assessment (FTA, 2006), ground-borne vibration can be a serious concern for nearby neighbors, causing buildings to shake and rumbling sounds to be heard. In contrast to airborne noise, ground-borne vibration is not a common environmental problem. It is unusual for vibration from sources such as buses and trucks to be perceptible, even in locations close to major roads. Some common sources of ground-borne vibration are trains, buses on rough roads, and construction activities such as blasting, sheet pile-driving and operating heavy earth-moving equipment.

There are several different methods that are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe vibration impacts to buildings. The root mean square (RMS) amplitude is most frequently used to describe the affect of vibration on the human body. The RMS amplitude is defined as the average of the squared amplitude of the signal. Decibel notation (Vdb) is commonly used to measure RMS. The decibel notation acts to compress the range of numbers required to describe vibration. Typically, ground-borne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration. Sensitive receptors for vibration include structures (especially older masonry structures), people (especially residents, students, the elderly and sick), and vibration sensitive equipment.

The effects of ground-borne vibration include movement of the building floors, rattling of windows, shaking of items on shelves or hanging on walls, and rumbling sounds. In extreme cases, the vibration can cause damage to buildings. Building damage is not a factor for most projects, with the occasional exception of blasting and sheet pile-driving during construction. Annoyance from vibration often occurs when the vibration exceeds the threshold of perception by only a small margin. A vibration level that causes annoyance will be well below the damage threshold for normal buildings. The FTA measure of the threshold of architectural damage for conventional sensitive structures is 0.2 in/sec PPV and the FTA threshold of human annoyance to ground-borne vibration is 80 Vdb (FTA, 2006).

Existing Noise Setting

The noise environment surrounding the site is influenced primarily by truck and automobile traffic on local streets. In addition, Port of Oakland noise (i.e., loading equipment, cargo ships, etc) can be heard in the northern area of the project site. To quantify the existing noise environment, four short-term (ST) 5-minute and two long-term (LT) noise level measurements were taken around the site. The location of the noise measurements are shown in **Figure 4.G-2**. Results of the noise measurements are presented in **Table 4.G-1**. Of note, Port of Oakland activities result in similar noise levels to ambient noise in other areas of the project site, as shown by comparing the measurements (LT-2 and ST-4) in close proximity to the Port of Oakland to the other LT and ST measurements below.

TABLE 4.G-1
EXISTING NOISE ENVIRONMENT IN THE PROJECT VICINITY

Location	Time Period	Noise Level (dBA)	Noise Sources
LT-1: Eastern boundary of project site, 230' from Main St CL and 160' from Atlantic Ave CL	24– hour CNEL measurements were: Sunday Apr. 21: 57 dBA Monday Apr. 22: 62 dBA Tuesday Apr. 23: 64 dBA	Hourly Average Leq range: Apr. 21: 45 – 61 Apr. 22: 45 – 67 Apr. 23: 49 – 71	Unattended noise measurements do not specifically identify noise sources.
LT-2: Northern boundary of project site near old tennis courts, 105' from Main St centerline	24– hour CNEL measurements were: Sunday Apr. 21: 59 dBA Monday Apr. 22: 63 dBA Tuesday Apr. 23: 64 dBA	Hourly Average Leq range: Apr. 21: 46 – 67 Apr. 22: 49 – 63 Apr. 23: 48 – 62	Unattended noise measurements do not specifically identify noise sources.
ST-1: At LT-1 location	5 Minutes (Friday April 19, 2013 at 2:54 pm)	Leq: 50 Lmax: 61	• Multiple airplane flyovers • Traffic on Main and Atlantic • Wind through trees • FedEx truck at nearby facility • Backup beepers in distance
ST-2: Parking lot, 50' from Viking St CL and 50 ' from W. Hornet Ave CL	5 Minutes (Friday April 19, 2013 at 3:09 pm)	Leq: 51 Lmax: 58	• Airplane in distance • Several cars on Viking and Hornet • Wind • Kids in park across Hornet • Horn honking • Big rig truck in distance • Canadian geese honking in park
ST-3: Parking lot, 50' from Ave F CL and 50' from Saratoga St CL	5 Minutes (Friday April 19, 2013 at 3:24 pm)	Leq: 53 Lmax: 64	• Several vehicles on Ave F • Wind • Truck idling and backup beepers in distance • Airplane flyover
ST-4: At LT-2 location	5 Minutes (Friday April 19, 2013 at 3:51 pm)	Leq: 52 Lmax: 59	• Crane, backup beepers, clanging metal at port – loading cargo ship • Wind through trees • Seagulls • Traffic on Main St • Airplane flyover • Cargo ship moving in channel

NOTES: CL = centerline; LT = long-term; ST = short-term

SOURCE: ESA, 2013

LT Long-Term Measurement

ST Short-Term Measurement

SOURCE: ESA, 2013

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Figure 4.G-2
Noise Monitoring Locations

Sensitive Receptors

Some land uses are considered more sensitive to ambient noise levels than others, due to the amount of noise exposure (in terms of both exposure duration and insulation from noise) and the types of activities typically involved. Residences, motels and hotels, schools, libraries, churches, hospitals, nursing homes, auditoriums, and parks and other outdoor recreation areas generally are more sensitive to noise than are commercial (other than lodging facilities) and industrial land uses. Sensitive land uses surrounding the project include residences and several schools. The on-site existing residences are located in the northeastern corner of the project area, across Pearl Harbor Road and West Essex Drive. The nearest off-site residences are across Main Street, approximately 70 feet from the project area. The nearest school is the Encinal High School, located 300 feet east of the project area. The following parks and recreational facilities are within the project site: Alameda Point Gym, Alameda Point Multi-Purpose Field, City View Skatepark, Encinal Boat Ramp, Main St. Dog Park and Main St. Soccer Field. In addition, Crown Memorial Beach is the closest East Bay Regional Park District facility to the project site. Finally, an existing church is located near the north gate, but it is not in active use. Notably, schools, churches, parks, and recreational land uses are not considered as sensitive to noise as residential uses.

G.3 Regulatory Framework

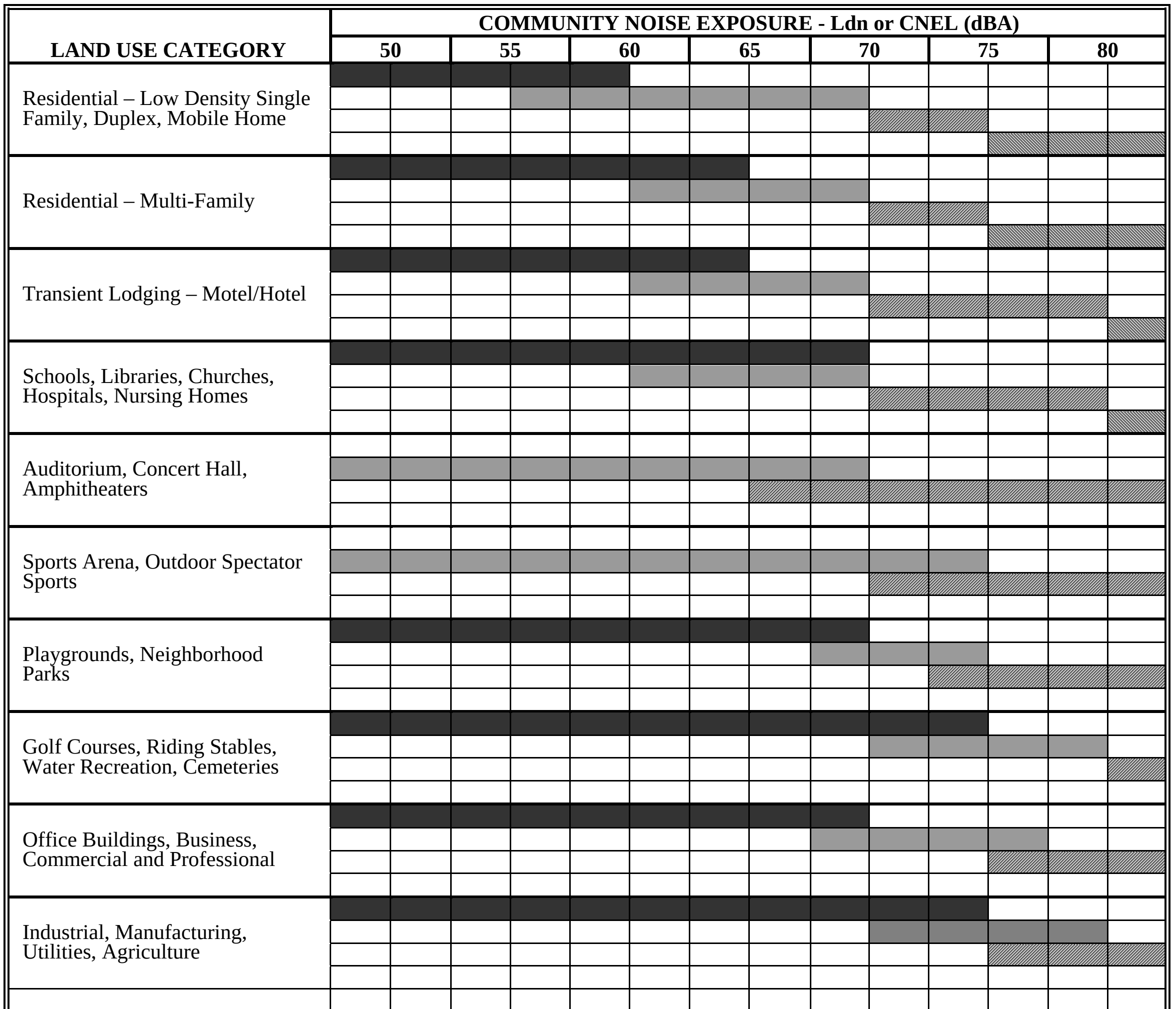
Federal

Federal regulations establish noise limits for medium and heavy trucks (more than 4.5 tons, gross vehicle weight rating) under 40 Code of Federal Regulations (CFR), Part 205, Subpart B. The federal truck pass-by noise standard is 80 dBA at 15 meters from the vehicle pathway centerline. These controls are implemented through regulatory controls on truck manufacturers.

State

The California Code of Regulations has guidelines for evaluating the compatibility of various land uses as a function of community noise exposure, as shown in **Figure 4.G-3**. The State of California also establishes noise limits for vehicles licensed to operate on public roads. For heavy trucks, the State pass-by standard is consistent with the federal limit of 80 dB. The State pass-by standard for light trucks and passenger cars (less than 4.5 tons, gross vehicle rating) is also 80 dBA at 15 meters from the centerline. These standards are implemented through controls on vehicle manufacturers and by legal sanction of vehicle operators by state and local law enforcement officials.

The State has also established noise insulation standards for new multi-family residential units, hotels, and motels that would be subject to relatively high levels of transportation-related noise. These requirements are collectively known as the California Noise Insulation Standards (Title 24, California Code of Regulations). The noise insulation standards set forth an interior standard of DNL 45 dBA in any habitable room. They require an acoustical analysis demonstrating how dwelling units have been designed to meet this interior standard where such units are proposed in areas subject to noise levels greater than DNL 60 dBA. Title 24 standards are typically enforced by local jurisdictions through the building permit application process.



	Normally Acceptable	Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.
	Conditionally Acceptable	New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features are included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.
	Normally Unacceptable	New construction or development should be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirement must be made and needed noise insulation features included in the design.
	Clearly Unacceptable	New construction or development generally should not be undertaken.

SOURCE: State of California, Governor's Office of Planning and Research, 2003. *General Plan Guidelines*. October 2003.

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Figure 4.G-3
Land Use Compatibility for Community Noise Environment

Local

City of Alameda General Plan

The City of Alameda General Plan (City of Alameda, 1991) is the principal policy document for guiding future conservation and development within the City. It represents the framework on which the City must base decisions regarding growth, public services and facilities, and protection and enhancement of the community).

Relevant General Plan Policies

The Alameda General Plan includes policies relating to several CEQA topics. The Health and Safety Element includes the following policies that would be applicable to the project:

Guiding Policies

Policy 8.7.a Minimize vehicular and stationary noise sources, and noise emanating from temporary activities.

Policy 8.7.b Require site and building design to achieve noise compatibility to the extent feasible.

Policy 8.7.c Recognize that residential, school, hospital, church, or public library properties in commercial areas and commercial development in industrial areas will be subject to noise levels associated with noisier permitted uses.

Policy 8.7.d Maintain efforts to mitigate impacts of aircraft noise while pursuing actions to reduce aircraft noise or avoid noise increases.

Implementing Policies

Policy 8.7.e Require acoustical analysis for new or replacement dwellings, hotels, motels, and schools within the projected 60 dB contour. Single-family dwellings not constructed as part of a subdivision requiring a final map require acoustical analysis only within the projected 65 dB contour.

Policy 8.7.f Require new or replacement dwellings, hotels, motels, and schools within the noise impact areas described in Policy 8.7.e, above, to limit intruding noise to 45 dB CNEL in all habitable rooms. In new dwellings subject to a noise easement, noise is not to exceed 40 dB CNEL **in** habitable rooms. If this requirement is met by inoperable or closed windows, a mechanical ventilation system meeting Uniform Building Code requirements must be provided.[1]

Policy 8.7.g Minimize the impact of aircraft, railroad, and truck noise by requiring that noise levels caused by single events be controlled to 50 dB in bedrooms and 55 dB in living areas within the 60 dB contour.

Policy 8.7.h In making a determination of impact under the California Environmental Quality Act (CEQA), consider the following impacts to be "significant":

---

[1] As described in the City General Plan Health and Safety Element (1991), an average house with no special noise control provisions reduces noise by 15 to 20 dBA with the windows partially open. Sealed windows, weatherstripping, and solid core doors can add 15 dBA reduction. Therefore, 45 dB interior CNEL can be achieved at up to 75 dB exterior CNEL. However, single events such as aircraft flyovers could require greater reductions at some locations to comply with Policy 8.7.f.

- An increase in noise exposure of 4 or more dB if the resulting noise level would exceed that described as normally acceptable for the affected land use, as indicated in Table 8-1 (Table 4.G-3 above).
- Any increase of 6 dB or more, due to the potential for adverse community response.
- When evaluating noise impacts associated with new residential development, exposure to traffic noise in outdoor yard spaces shall not be considered a significant impact.

Policy 8.7.i Continue to enforce the Community Noise Ordinance.

Policy 8.7.l Maintain day and nighttime truck routes that minimize the number of residents exposed to truck noise.

City of Alameda Municipal Code

The following sections of the City of Alameda Municipal Code are relevant to the project.

Section 4.10-4(c) In the event the measured ambient noise level exceeds the applicable noise level standard in any category listed in Municipal Code Tables 1 and 2, which is reproduced in **Table 4.G-2**, below, the applicable standards shall be adjusted so as to equal said ambient noise level.

Section 4.10-4(d) Each of the noise level standards specified in Table 4.G-2 shall be reduced by five (5) dB(A) for simple tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises.

Section 4.10-4(e) If the intruding noise source is continuous and cannot reasonably be discontinued or stopped for a time period whereby the ambient noise level can be measured, the noise level measured while the source is in operation shall be compared directly to the applicable noise level standards in Table 4.G-2 (Ord. No. 2177 N.S.).

Section 4-10.5(b)10 Construction noise is exempted from the noise standards provided it is limited to between the hours of 7:00 am and 7:00 pm Monday through Friday and 8:00 am to 5:00 pm on Saturdays.

G.4 Impacts and Mitigation Measures

Approach to Analysis

Construction Noise Levels

Noise impacts are assessed based on a comparative analysis of the noise levels resulting from construction and the noise levels of existing conditions. Analysis of temporary construction noise effects is based on typical construction phases and equipment noise levels and attenuation of those noise levels due to distances between the construction activity and the sensitive receptors in the site vicinity. Construction noise levels for the proposed project were estimated using published noise data for typical outdoor construction activities and individual pieces of equipment from the United States Environmental Protection Agency (EPA) and the FTA, respectively. The estimated construction noise levels resulting from the proposed project at the nearby off-site sensitive

TABLE 4.G-2
EXTERIOR NOISE STANDARDS

Location	Cumulative Number of Minutes in Any One Hour Time Period	7:00 am to 10:00 pm (dBA)	10:00 pm to 7:00 am (dBA)
Single or Multiple Family Residential, School, Hospital, Church, or Public Library Properties	30	55	50
	15	60	55
	5	65	60
	1	70	65
	0	75	70
Commercial Properties	30	65	60
	15	70	65
	5	75	70
	1	80	75
	0	85	80

SOURCE: City of Alameda, 2012

receptors were then compared to the construction noise standards established in the City's municipal code to determine whether an exceedance of allowable noise levels would occur across any adjacent property boundaries.

Street Noise Levels

Street noise levels were calculated for selected study street segments near the project site based on information provided in the traffic study for the proposed project. The street segments selected for analysis are expected to be most directly impacted by project-related traffic, which, for the purpose of this analysis, are the streets that are nearest to the project site that also experience the highest traffic volumes. These streets would experience the greatest percentage increase in traffic generated by the proposed project. The noise levels were calculated using the Federal Highway Administration's (FHWA) Traffic Noise Prediction Model (FHWA-RD-77-108) and traffic volumes from the project's traffic study (see **Appendix G**).

Groundborne Vibration Levels

Groundborne vibration levels resulting from construction activities at the project site were estimated using data published by the FTA in its *Transit Noise and Vibration Impact Assessment* (2006) document. Potential vibration levels resulting from project construction are identified for off-site locations that are sensitive to vibration, including existing residences located nearby, based on their distance from construction activities.

To determine the potential for building damage at off-site land uses resulting from vibration generated from the project's construction activities, the following vibration propagation equation is used:

$$PPV_{equip} = PPV_{ref} \text{ x } (25/D)^{1.5}$$

Where PPV (equip) is the peak particle velocity in in/sec of the equipment adjusted for distance, PPV (ref) is the reference vibration level in in/sec at 25 feet, and D is the distance from the equipment to the receiver. The peak particle velocity (PPV) is defined as the maximum instantaneous positive or negative peak of the vibration and is often used in monitoring of vibration because it is related to the stresses experienced by structures.

In order to determine the potential for human annoyance from exposure to the project's construction-related vibration levels, the following calculation was performed:

$$L_v(D) = L_v(25 \text{ ft}) - 30\log(D/25)$$

$L_v(D)$ represents the vibration level of the equipment in decibels (VdB), $L_v(25 \text{ ft})$ represents the reference vibration level at 25 feet for the construction equipment, and D is the distance from the equipment to the receiver.

Significance Criteria

Based on the *CEQA Guidelines*, a project would have a significant effect on the environment with respect to noise and/or ground-borne vibration if it would result in:

- Exposure of persons to, or generation of, noise levels in excess of standards established in the local general plan, noise ordinance, or applicable standards of other agencies;
  - An increase in noise exposure of 4 or more dB if the resulting noise level would exceed that described as normally acceptable for the affected land use, as indicated in Table 8-1 (Table 4.G-3 above).
  - Any increase of 6 dB or more, due to the potential for adverse community response.
  - When evaluating noise impacts associated with new residential development, exposure to traffic noise in outdoor yard spaces shall not be considered a significant impact. *(Policy 8.7.h)*
- Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels;
- A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;
- A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project;
- Exposure of people residing or working in the area around the project site to excessive noise levels (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); or
- Exposure of people residing or working in the area around the project site to excessive noise levels (for a project within the vicinity of a private airstrip).

The proposed project site is approximately four miles northwest of the Oakland International Airport and 10 miles north of the San Francisco International Airport. Alameda Point is not within the County Airport Policy Plan. Because there are no public airports or private airstrips within two miles of the project, aircraft related noise would not be a significant impact for land uses to be developed under the proposed project, and these significance criteria are not discussed further.

For the purpose of this analysis, the proposed project is considered to result in significant impacts on the environment if it would generate noise or vibration levels in excess of the following thresholds:

Construction Noise. The project would result in a significant construction impact if construction activity would occur outside of the allowable daytime hours specified by the City noise ordinance.

Vibration. Since the City does not have any regulations pertaining to vibration, the FTA thresholds are applied to the project. The project would result in a significant vibration impact if buildings would be exposed to vibration levels that exceed the FTA vibration threshold level of 0.2 PPV for building damage, or if sensitive receptors would be exposed to vibration levels that exceed the FTA vibration threshold level of 80 VdB for human annoyance outside of the allowable daytime hours specified by the City noise ordinance.

Stationary Noise. The City of Alameda noise standards for stationary sources described in Table 4.G-2 have been applied to non-transportation sources associated with project operations. For the nearest sensitive receptors, a resulting offsite exterior noise level from stationary non-transportation sources that exceeds 55 dBA Leq during the hours 7:00 a.m. to 10:00 p.m., or 50 dBA Leq during the hours 10:00 pm to 7:00 a.m. at the receiving land use would be considered significant.

Traffic Noise. The significance of project-related traffic noise impacts can be determined by comparing estimated traffic noise levels with the project to existing noise levels without the project. Per policy 8.7.h of the City of Alameda General Plan Health and Safety Element (1991), the significance criteria for changes in noise from project operational traffic are as follows:

1. A 4 dBA CNEL increase in noise as a result of project operations if the resulting noise level would exceed that described as normally acceptable for the affected land use (60 dBA DNL or less for residential uses, per Figure 4.G-3).
2. Any increase of 6 dBA or more CNEL, due to the potential for adverse community response.

With regard to cumulative traffic noise, a similar methodology as is used by the City of Oakland was applied to this analysis, which assumes that the project would result in cumulatively considerable noise if the cumulative noise increase including the project results in a 5 dBA permanent increase in ambient noise levels along analyzed streets (i.e., the cumulative condition including the project compared to the existing scenario) and a 3 dBA permanent increase is attributable to the project (i.e., the cumulative condition including the project compared to the cumulative no project scenario).

Impact Analysis

Impact 4.G-1: Construction facilitated by the proposed project could potentially expose persons to or generate noise levels in excess of the City noise standards. (Significant)

Construction activity noise levels at and near construction areas within the project site would fluctuate depending on the particular types, number, and duration of usage of various pieces of construction equipment. Construction-related material haul trips would raise ambient noise levels along haul routes, and the amount of increase would depend on the number of haul trips made and types of vehicles used. **Table 4.G-3** shows typical noise levels during different construction stages. The noise levels shown in Table 4.G-3 represent composite noise levels associated with typical construction activities, which take into account both the number of pieces and spacing of heavy construction equipment that are typically used during each phase of construction. **Table 4.G-4** shows typical noise levels produced by various types of construction equipment. Pile driving would be required for some development on the project site.

Noise from construction activities generally attenuates at a rate of 6 to 7.5 dBA per doubling of distance. Based on the project site layout and terrain, an attenuation of 6 dBA is assumed. The closest receptors would be about 50 feet (onsite) and 70 feet (offsite) from anticipated locations of project construction. If pile driving is necessary, it is anticipated to be used for shoreline improvements along the northern shoreline and or around the Seaplane Lagoon, or it may be necessary for construction of larger non-residential buildings within the Enterprise Sub-Area. It is not anticipated that pile driving will be necessary for residential construction in the Main Street Neighborhood Sub-Area in proximity to the existing residents. If pile-driving activities occur within the development areas nearest these onsite and offsite sensitive receptors, they would experience maximum noise levels at about 101 dBA and 98 dBA from impact pile-driving, respectively. As an alternative, sonic pile-drivers would expose these onsite and offsite receptors to 96 dBA and 93 dBA, respectively. Drilling is an alternate method of pile installation in which a hole is drilled into the ground up to the required elevations and concrete is then cast into it. Pre-drilling of holes for driven piles, where feasible based on soil conditions, can also reduce pile driving noise. Pile drilling generally produces noise levels approximately 10-15 dBA lower than pile driving. Overall, construction noise at these levels would be substantially greater than existing noise levels at nearby sensitive receptor locations. However, construction at any particular area of the project site would be short-term and the noise levels would attenuate as development moved further from the sensitive receptors. Moreover, noise from pile driving is not constant, but intermittent (occurring only when the driver strikes the pile), and there is an interval between the completion of driving one pile and commencement of driving another while equipment is repositioned. In addition, buildings to be constructed under the project could reduce noise exposure if they block the line of sight from construction activities to sensitive receptors. Overall, increases in ambient noise levels would be significant unless mitigated.

> **Mitigation Measure 4.G-1a:** The City will require construction contractors to limit standard construction activities hours to be in compliance with the Noise Ordinance. Pile driving activities greater than 90 dBA limited to between 8:00 a.m. and 4:00 p.m. Monday through Friday. No pile driving shall be allowed on weekends and National holidays.

TABLE 4.G-3
TYPICAL CONSTRUCTION NOISE LEVELS

Construction Phase	Noise Level (dBA, Leq)[a]
Ground Clearing	84
Excavation	89
Foundations	78
Erection	85
Finishing	89

NOTE:
[a] Average noise levels correspond to a distance of 50 feet from the noisiest piece of equipment associated with a given phase of construction and 200 feet from the rest of the equipment associated with that phase.

SOURCE: U.S. Environmental Protection Agency, 1971.

TABLE 4.G-4
TYPICAL NOISE LEVELS FROM DEMOLITION/ CONSTRUCTION EQUIPMENT OPERATIONS

Construction Equipment	Noise Exposure Level, dBA @ 50 Feet
Air Compressor	81
Backhoe	80
Ballast Equalizer	82
Ballast Tamper	83
Compactor	82
Concrete Mixer (Truck)	85
Concrete Pump (Truck)	82
Concrete Vibrator	76
Crane-Derrick	88
Crane-Mobile	83
Dozer	85
Generator	81
Grader	85
Impact Wrench	85
Jack Hammer	88
Loader	85
Paver	89
Pile-driver (Impact)	101
Pile-driver (Sonic)	96
Pneumatic Tool	85
Pump	76
Roller	74
Saw	76
Scarifier	83
Scraper	89
Shovel	82
Spike Driver	77
Tie Cutter	84
Tie Handler	80
Tie Inserter	85
Heavy Diesel Truck	88

SOURCES: Federal Transit Administration, 2006.

Mitigation Measure 4.G-1b: To reduce daytime noise impacts due to construction, the City will require construction contractors to implement the following measures:

- Equipment and trucks used for project construction will utilize the best available noise control techniques, such as improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures and acoustically-attenuating shields or shrouds, wherever feasible.
- Impact tools (i.e., jack hammers, pavement breakers, and rock drills) used for project construction shall be hydraulically or electrically powered wherever possible to avoid noise associated with compressed air exhaust from pneumatically powered tools. However, where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust will be used; this muffler can lower noise levels from the exhaust by up to about 10 dBA. External jackets on the tools themselves will be used where feasible, and this could achieve a reduction of 5 dBA. Quieter procedures will be used, such as drills rather than impact equipment, whenever feasible.
- Stationary noise sources will be located as far from adjacent receptors as possible, and they shall be muffled and enclosed within temporary sheds, incorporate insulation barriers, or other measures to the extent feasible.
- Haul routes that affect the fewest number of people will be selected.

Mitigation Measure 4.G-1c: Pile driving activities within 300 feet of sensitive receptors will require additional noise attenuation measures. Prior to commencing construction, a plan for such measures will be submitted for review and approval by the City to ensure that maximum feasible noise attenuation will be achieved. These attenuation measures will include as many of the following control strategies as feasible:

- Erect temporary plywood noise barriers if they would block the line of sight between sensitive receptors and construction activities, particularly for existing residences in the northern area of the project site and for residences across Main Street;
- Implement “quiet” pile driving technology (such as pre-drilling of piles or use of sonic pile drivers), where feasible, in consideration of geotechnical and structural requirements and conditions; and
- Utilize noise control blankets on the building structure as the building is erected to reduce noise emission from the site.

Mitigation Measure 4.G-1d: Prior to the issuance of each building permit, along with the submission of construction documents, the project applicant will submit to the City a list of measures to respond to and track complaints pertaining to construction noise. These measures will include:

- Signs will be posted at the construction site that include permitted construction days and hours, a day and evening contact number for the job site, and a contact number with the City of Alameda in the event of noise complaints. The project applicant will designate an onsite complaint and enforcement manager to track and respond to noise complaints; and
- Notification of neighbors within 300 feet of the project construction area at least 30 days in advance of pile-driving activities about the estimated duration of the activity.

Implementation of the above mitigation measures would ensure that construction of the proposed project would comply with the City of Alameda Noise Ordinance and would reduce the construction noise levels from the project to the extent feasible. However, certain construction activities may need to occur outside of the allowable hours described above, such as for infrastructure projects. Some components, such as levees, may require continuous concrete pour that could span an entire work day into the off hours. Since such activities may occur during project construction and could result in substantial noise in the more sensitive evening and nighttime hours, construction noise would be considered significant and unavoidable.

Significance after Mitigation: Significant and Unavoidable.

Impact 4.G-2: Construction facilitated by the proposed project could potentially result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels. (Significant)

Ground-borne vibration from pile driving activities at the proposed project could produce substantial vibration at nearby sensitive receptors. Typical reference vibration levels for various pieces of equipment, including alternative pile construction options, are listed below in **Table 4.G-5**. At 50 feet from the nearest receptor onsite, impact pile drivers would result in significant building vibration (exceeding 0.2 PPV) and human annoyance (exceeding 80 Vdb) at the nearest receptors. This would be a significant impact. Implementation of sonic pile drivers and/or pre-drilling would substantially reduce vibration levels.

TABLE 4.G-5
VIBRATION VELOCITIES FOR CONSTRUCTION EQUIPMENT

Equipment/Activity	PPV at 25 ft (inches/second)[a]	PPV at nearest receptor to the Project (50 feet)	RMS at 25 ft (Vdb)[b]	RMS at nearest receptor to the Project (50 feet)
Large Bulldozer	0.089	0.03	87	78
Loaded Trucks	0.076	0.03	86	77
Pile Driver (Impact)	0.644	0.23	104	95
Pile Driver (Sonic)	0.170	0.06	93	84
Caisson Drilling	0.089	0.03	87	78

NOTES:
a Buildings can be exposed to ground-borne vibration levels of 0.2 PPV without experiencing structural damage.
b The human annoyance response level is 80 Vdb.

SOURCE: ESA, 2013; Federal Transit Administration, 2006.

In general, no substantial damage to existing historic buildings at the project would be anticipated to result from pile driving because most of the historic structures are constructed of reinforced concrete, as opposed to unreinforced masonry (e.g., brick) structures, which are typically most susceptible to vibration-induced damage.

Mitigation Measure 4.G-2: Implement Mitigation Measures 4.G-1a through 4.G-1d.

Implementation of the above mitigation measures to reduce noise would also reduce ground-borne vibration and human annoyance by requiring "quiet pile driving" techniques (pre-drilling and/or sonic pile drivers), limiting the hours of construction, and notifying nearby sensitive receptors of pile driving activity and duration. These measures would reduce construction vibration levels to the extent feasible and thus result in less than significant vibration impacts.

Significance after Mitigation: Less than Significant.

Impact 4.G-3: Transportation-related operations facilitated by the proposed project could potentially result in a substantial permanent increase in ambient noise levels in the vicinity or above levels existing without the project. (Significant)

Most of the noise generated by the development facilitated by the proposed project would be traffic-generated noise. As described in Section 4.C. *Transportation and Circulation*, the estimated daily number of vehicle trips generated by the proposed project would be 33,429. These additional vehicle trips would be distributed across, and result in higher noise levels along, the street network. Noise projections were made using the FHWA Noise Prediction Model for those road segments that would experience the greatest increase in traffic volume and that would pass through residential areas. The model is based on the Calveno reference noise factors for automobiles, medium trucks and heavy trucks, with consideration given to vehicle volume, speed, street configuration, distance to the receiver, and the acoustical characteristics of the site. The segments analyzed and results of the modeling are shown in **Table 4.G-6**.

The results of the modeling effort (see **Appendix J**) are shown in Table 4.G-6 for Existing Conditions, Existing plus Project, Cumulative 2035, and Cumulative 2035 plus Project development conditions. (Cumulative impacts are discussed further under Impact 4.G-7). The street segments with the greatest increase in traffic volume would occur within the City of Alameda. As shown in Table 4.G-6, the streets in Oakland with the greatest increase in future traffic volumes—Harrison Street, Eighth Street, and Jackson Street—would not be adversely affected by project traffic noise (project traffic noise would not be significant or would not make a considerable contribution to cumulative impacts).

As indicated in Table 4.G-6, noise increases associated with project traffic along street segments of Main Street, Atlantic Avenue, and Willie Stargell Avenue (specifically segments 1, 2, 3, 8, 9, 11, 12, 13, and 15) would exceed the significance criteria (4 dBA or greater increase) without mitigation. The impact at all other streets would be less than significant.

> **Mitigation Measure 4.G-3:** To reduce automobile trips and associated automobile noise impacts, implement Mitigation Measure 4.C2a (TDM Program).

However, due to the uncertainty pertaining to quantifying the effectiveness of implementing TDM strategies, the travel demand analysis used as a basis for calculating traffic noise does not assume

TABLE 4.G-6
EXISTING AND PROJECTED PEAK-HOUR TRAFFIC NOISE LEVELS ALONG STREETS IN THE PROJECT VICINITY

Street Segment	Peak-Hour Noise Level, dBA, Leq[1]									
	Existing [A]	Existing Plus Project [B]	Incremental Increase [B-A]	Significant? (Yes or No)[2]	Cumulative 2035 [C]	Cumulative 2035 Plus Project [D]	Incremental Increase vs Existing [D-A]	Cumulatively Significant? (Yes or No)[3]	Incremental Increase vs Cum. 2035 [D-C]	Cumulatively Considerable? (Yes or No)[3]
1. Main St east of Navy Way	61.9	67.5	5.6	Yes	63.2	67.6	5.7	Yes	4.4	Yes
2. Main St north of Ferry Terminal	62.8	68.1	5.3	Yes	63.9	68.3	5.5	Yes	4.4	Yes
3. Main St south of Ferry Terminal	64.7	68.7	4.0	Yes	64.6	68.5	3.8	No	3.9	No
4. Main St north of Singleton Ave	65.2	68.9	3.7	No	67.2	69.7	4.5	No	2.5	No
5. Main St south of Singleton Ave	66.3	69.3	3.0	No	70.8	72.0	5.7	Yes	1.2	No
6. Singleton Ave east of Main St	56.2	56.2	0.0	No	64.8	64.8	8.6	Yes	0.0	No
7. Main St north of W Midway Ave	66.2	69.3	3.1	No	70.8	72.0	5.8	Yes	1.2	No
8. Main St south of W Midway Ave	65.1	69.6	4.5	Yes	68.1	70.9	5.8	Yes	2.8	No
9. Willie Stargell Ave east of Main St	58.7	62.8	4.1	Yes	61.7	63.8	5.1	Yes	2.1	No
10. Main St north of Atlantic Ave	62.2	65.4	3.2	No	65.1	67.2	5.0	Yes	2.1	No
11. Main St south of Atlantic Ave	62.9	66.9	4.0	Yes	64.3	67.0	4.1	No	2.7	No
12. Atlantic Ave east of Main St	58.8	63.4	4.6	Yes	61.0	64.5	5.7	Yes	3.5	Yes
13. Atlantic Ave west of Main St	59.1	63.1	4.0	Yes	59.2	63.2	4.1	No	4.0	No
14. Main St north of Pacific Ave	63.2	66.9	3.7	No	64.5	67.1	3.9	No	2.6	No
15. Main St south of Pacific Ave	65.9	70.0	4.1	Yes	67.2	70.1	4.2	No	2.9	No
16. Clement Ave west of Park St	64.9	65.4	0.5	No	69.2	69.3	4.4	No	0.1	No
17. High St south of Otis Dr	60.7	61.3	0.6	No	64.0	65.0	4.3	No	1.0	No
18. Atlantic Ave west of Constitution	57.8	60.3	2.8	No	62.1	63.4	5.6	Yes	1.3	No
19. Willie Stargell Ave west of 5th St	60.0	63.3	3.3	No	62.7	64.4	4.4	No	1.7	No
20. Seventh St west of Jackson St (O)	70.0	70.5	0.5	No	72.1	72.2	2.2	No	0.1	No
21. Eighth Street west of Harrison (O)	65.3	67.1	1.8	No	70.5	70.7	5.4	Yes	0.2	No

NOTES:

O – Intersection located in Oakland

1 Noise levels were determined using FHWA Traffic Noise Prediction Model (FHWA RD-77-108). As a general rule, in areas where the noise environment is dominated by traffic, the Leq during the peak-hour is generally equivalent to the CNEL at that location. Notably, a 4 dBA reduction was assumed for Willie Stargell Ave to account for existing rubberized asphalt and a 6 dBA reduction was assumed for Atlantic to account for existing noise walls around nearest homes.

2 Traffic noise is considered significant if the incremental increase in noise is 4 dBA or more if the resulting noise level would exceed that described as normally acceptable for the affected land use (60 dBA DNL or less for residential uses) or if the noise level increased by 6 dBA in any noise environment.

3 Road noise is assumed to be cumulatively significant if the Cumulative + Project minus the Existing scenario is 5 dBA or greater, and the project would result in a cumulatively considerable contribution to the cumulatively significant impact if the Cumulative + Project minus the Cumulative scenario is 3 dBA or greater.

additional trip reduction due to specific TDM strategies at this time. Therefore, as a practical matter, increases in noise caused by project traffic would be significant and unavoidable.

Significance after Mitigation: Significant and Unavoidable.

Impact 4.G-4: Non-transportation-related operations facilitated by the proposed project could potentially result in a substantial permanent increase in ambient noise levels in the vicinity. (Significant)

Non-transportation noise associated with the proposed project operations would include stationary sources (such as HVAC units), loading docks, and park/sports recreational uses.

Heating, Ventilation, and Air-Conditioning Systems

The HVAC systems for maintaining comfortable temperatures within commercial or other workplace buildings would consist of packaged air conditioning systems. Such HVAC units typically generate noise levels of approximately 55 dB at a reference distance of 100 feet from the operating units during maximum heating or air conditioning operations (Bolt, Baranek, and Newman, 1971). The HVAC units could possibly be as close as 75 feet from the nearest existing on-site and off-site residential receptors. At this distance, the nearest residences would be exposed to levels of 58dBA, which would exceed the City day (55 dBA) and nighttime (50 dBA) noise standards. This impact would be significant without mitigation.

Loading Docks

Noise associated with commercial or other workplace land uses is variable, depending on the type of facility, the size, layout, and operational activities. If loading docks are included, truck deliveries may also be a source of elevated noise levels at nearby sensitive receptors. Reference noise levels of 80 dB Lmax and 60 dB Leq at a distance of 50 feet could be generated. These data include noise generated by truck arrivals and departures from the unloading area, trucks backing into the docks (including backup beepers), air brakes, and other related truck unloading noise. Loading dock activities occurring during the more noise-sensitive early morning and nighttime hours may result in increased levels of annoyance and sleep disruption for occupants of nearby residential dwellings. As a result, increased noise levels would be potentially significant.

Parks and Sports Complex

Noise generating activities occurring at neighborhood parks and outdoor athletic fields at the expanded sports complex would be controlled by the recreation and park districts. Daytime noise associated with neighborhood parks typically includes intermittent noise such as voices (crowd and player noises), opening and closing of vehicle doors in parking lots, and use of landscape maintenance equipment. Maintenance activities associated with project-related parking and landscaped areas could include the use of mowers and leaf blowers.

The sports complex would generate noise extending into the evening and nighttime hours during competitive sporting events (e.g., soccer games, basketball games, etc). Noise sources commonly associated with these types of events include elevated voices from crowds and exterior public address systems. However, the sports complex is a substantial distance (about 1,750 feet) from existing and proposed on-site residences and would not result in significant noise impacts.

Mitigation Measure 4.G-4: During individual project phase design preparation, the City will require a project applicant to comply with the Noise Ordinance and General Plan standards. These measures implement noise control measures to ensure that all non-transportation source operations comply with City standards and will include, but not be limited to, the following:

- The proposed land uses will be designed so that on-site mechanical equipment (e.g., HVAC units, compressors, generators) and area-source operations (e.g., loading docks, parking lots, and recreational-use areas) are located as far as possible and/or shielded from nearby noise sensitive land uses to meet City noise standards.
- On-site landscape maintenance equipment will be equipped with properly operating exhaust mufflers and engine shrouds, in accordance with manufacturers' specifications.
- The following activities will be limited to the hours of 7:00 a.m. to 10:00 p.m. unless site-specific analysis confirms that noise impacts to sensitive receptors would be less-than-significant:
  - Truck deliveries;
  - Operations of motor powered landscape maintenance equipment; and
  - Outdoor use of amplified sound systems.

This mitigation measure would ensure that project-related non-transportation sources of noise would comply with the City of Alameda Noise Ordinance and General Plan standards.

Significance after Mitigation: Less than Significant.

Impact 4.G-5: Development facilitated by the proposed project could potentially place noise-sensitive residential uses in a noise environment that would exceed the City's goal for exterior/interior noise exposure. (Significant)

As Table 4.G-1 shows, the areas in which new residential uses are proposed at the project site (LT-1 and LT-2) have an existing ambient noise environment greater than 60 dBA CNEL. Furthermore, the addition of project traffic on adjacent streets (specifically Main Street) would result in greater noise exposure in the future. An exterior noise exposure of 60 dBA or greater would result in potentially incompatible interior noise for new sensitive receptors. Residences to be developed as part of the project would be subject to Title 24 of the California Code of Regulations, which requires an interior noise standard of 45 dBA CNEL in any habitable room and requires an acoustical analysis demonstrating how dwelling units have been designed to meet this interior standard. To allow the project to meet the City and State interior noise requirement of

45 dBA CNEL, in habitable rooms of residential dwellings, sound-rated assemblies would be required at the exterior facades of project buildings.

> **Mitigation Measure 4.G-5:** The City will require project sponsors for residential development to submit a detailed noise study, prepared by a qualified noise consultant, to determine design measures necessary to achieve acceptable interior noise levels at the proposed new residences. The study will be submitted to the City for review and approval. Design measures such as the following could be required, depending on the specific findings of the noise study: double-paned glass windows facing noise sources; solid-core doors; increased sound insulation of exterior walls (such as through staggered-or double-studs, multiple layers of gypsum board, and incorporation of resilient channels); weather-tight seals for doors and windows; or mechanical ventilation such as an air conditioning system.

This mitigation measure would satisfy the requirements of Policy 8.7e of the City of Alameda General Plan. As stated in Policy 8.7f of the General Plan, an interior CNEL standard of 45 dBA can be achieved with the identified construction measures for noise environments of up to 75 CNEL. Traffic noise would be the main contributor to the noise environment in the area, and even at full 2035 buildout, no modeled streets would exceed 72 dBA CNEL (as depicted in Table 4.G-6).

Significance after Mitigation: Less than Significant.

Cumulative Impact

Impact 4.G-6: Increases in traffic from development facilitated by the proposed project in combination with other development could potentially result in cumulatively considerable noise increases. (Significant)

Cumulative impacts can result from individually minor but collectively significant impacts, meaning that the project's incremental effects must be viewed in connection with the effects of past, current, and probable future projects. Noise is a localized occurrence and attenuates with distance. Therefore, only future cumulative development projects in the direct vicinity of the project site would have the potential to add to anticipated noise, thus resulting in cumulative noise impacts.

As described above, the major source of noise associated with project development would be from traffic on the street network, which would result in cumulative noise increases created by the proposed project together with existing traffic and traffic from the development of other projects in the area through the year 2035. Development facilitated by the proposed project would result in cumulatively considerable noise if the cumulative noise increase with the project results in a 5 dBA permanent increase in ambient noise levels along analyzed streets (i.e., the cumulative condition including the project compared to the existing scenario) and a 3 dBA permanent increase is attributable to the project (i.e., the cumulative condition including the project compared to the cumulative no project scenario).

As shown in Table 4.G-6, although cumulative traffic growth in Oakland along with project traffic is projected to result in an increase in traffic noise on Eighth Street west of Harrison Street (5.4 dBA) by 2035, the project itself would result in only a 1.8 dBA increase, compared to existing conditions, and would contribute 0.2 dBA to Cumulative with Project conditions. Inasmuch as this contribution would not be perceptible, it would not be cumulatively considerable. Accordingly, the project would have a less-than-significant cumulative impact with respect to traffic noise in Oakland.

In Alameda, as described in Table 4.G-6, impacts associated with long-term operational traffic would be cumulatively significant (shown in the column labeled “D-A”) for the majority of streets modeled (segments 1, 2, 5 through 10, 12, and 18). However, the proposed project would not result in cumulatively considerable noise impacts except for those streets identified in the column labeled “D-C” of Table 4.G-6 (segments 1, 2, and 12), which means that the proposed project would contribute 3 dBA or more of a cumulative noise level increase of 5 dBA or more. Implementation of Mitigation Measure 4.G-3 would reduce the project’s cumulatively considerable impact, but not to a less-than-significant level.

Mitigation Measure 4.G-6: Implement Mitigation Measures 4.G-3 and 4.G-5.

Significance after Mitigation: Significant and Unavoidable.

G.5 References – Noise

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Sacramento County Department of Environmental Review and Assessment and Bollard & Brennen, 1999. *Report on the Status of Rubberized Asphalt Traffic Noise Reduction in Sacramento County*.

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H. Geology, Soils, and Seismicity

H.1 Introduction

This section describes the geologic and seismic conditions in the project site, their associated hazards, and assesses the proposed project in terms of whether it would (1) place additional people or structures at risk to existing geologic or seismic hazards, (2) create a new or worsen an existing hazard, or (3) cause the loss of a geologic resource. Both short term and long term project effects are analyzed in the context of applicable laws and regulations to determine their significance under CEQA. When project impacts are determined to be significant or potentially significant, mitigation measures to avoid or reduce those impacts are identified.

H.2 Environmental Setting

Regional Physiography

The project site is located in a geologic region known as the Coast Range Geomorphic Province[1] (Coast Range), characterized by northwest-southeast-trending mountain ridges and intervening valleys that have formed over millions of years due to movements along major regional faults. The bedrock of the Coast Ranges is primarily composed of ancient seafloor sediments and volcanic rocks. In most areas, these rocks have been significantly hardened, mineralized, folded and fractured by heat and pressure deep within the earth. This bedrock – broadly known as the Franciscan Complex and Great Valley Sequence - forms most of the hills and mountains of the Bay Area.

The valleys, plains, estuaries, and bay floors of the region are filled by loose, geologically young deposits of mud, silt, sand and gravel. The character of these deposits varies significantly depending on their origin. For example, the Sacramento and San Joaquin Rivers deliver significant volumes of fine sediments (mud and silt), which slowly accumulate on the floors of the San Pablo and San Francisco Bays where currents are gentle. In contrast, peak winter flows from local creeks and streams often convey pulses of relatively coarse sediment (sand and gravel) to the region's valleys and plains, occasionally reaching estuarine sloughs. Over geologic time scales and with fluctuating sea levels, dominant geologic processes in any one place are always competing, overlapping or changing. Thus, the character of flatland deposits changes significantly over short distances and depths, and such deposits often produce heterogeneous geologic conditions.

Geology, Soils and Geologic Hazards

The following discussion describes the general geology of the project site and identifies potential risks associated with such conditions. The primary sources of information for this section consist of publically available maps and reports prepared by United States Geological Survey (USGS), the California Geological Survey (CGS) (formerly the California Division of Mines and Geology),

1 A geomorphic province is an area that possesses similar bedrock, structure, history, and age. California has 11 geomorphic provinces.

and the Natural Resource Conservation Service (NRCS). Maps of topography, bedrock, soil and mineral resources provide the basic setting of the project site, and this information is used to describe the geologic hazards most likely to affect the project.

Site Topography

Elevations of Alameda Point range from approximately 1.0 feet above mean sea level on the northern entrance to the project site at the Main Gate to elevated areas of the southeast portion of the site which are approximately 7 feet above mean sea level. In general the project site has a flat topography with slight slopes emanating from the ridge in the central portion near Midway Avenue to the north or the south portions of the site.

Local Geology

The project site is generally underlain by unconsolidated sedimentary deposits that include: artificial fill; estuarine deposits known as Bay Mud (BSU); the Posey/Merritt/San Antonio Formation; Yerba Buena Mud; and the Alameda Formation.

The artificial fill is the uppermost unit that underlies many areas of the site and can range in thickness from 1 foot to as much as 15 feet. Bay Mud, a soft compressible deposit, underlies the artificial fill material and reaches thicknesses of up 130 feet. Merritt Sand and the San Antonio formation sand exist directly beneath the fill in the southeastern portion of the site, approximately 60 to 70 feet in thickness, and dipping beneath the Young Bay Mud to the north and the west. Yerba Buena Mud, also commonly called Old Bay Mud, lies beneath the San Antonio formation.

Soils

Because the project site is located almost entirely on artificial fill, the ground surface is nearly devoid of natural soils. The United States Department of Agriculture Natural Resource Conservation Service (NRCS) has characterized soils beneath the project site as “Urban Land” soils (NRCS, 2013). Urban land refers to areas that are so altered or obstructed by urbanization—such as buildings, pavement, and cut and fill operations—that identification of the native soils is not feasible. The physical properties of the site’s underlying geology are crucial factors in assessing the site’s susceptibility to geologic and seismic hazards, discussed below.

Mineral Resources

The California Division of Mines and Geology (CDMG) has classified lands within the San Francisco-Monterey Bay Region into Mineral Resource Zones (MRZs). The classification of MRZs is based on guidelines adopted by the California State Mining and Geology Board, as mandated by the Surface Mining and Reclamation Act (SMARA) of 1974 (Stinson et al., 1982). The project site is MRZ-1 which indicates that there is adequate geologic information to indicate that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence. This zone is applied where well developed lines of reasoning, based on economic-geologic principles and adequate data, indicate that the likelihood for occurrence of significant mineral deposits is nil or slight (Stinson, et al, 1982).

Geologic Hazards

The artificial fills and natural geology underlying the project site present potential hazards related to soil erosion, settlement, expansive soil materials, and slope stability. Although the site is nearly flat, the historical dredging of the shipping channel in the Oakland Inner Harbor has resulted in the northern shoreline having a steep slope below the water surface down to the bottom of the channel. These hazards are discussed briefly below and provide the initial context for further evaluation in the impact analysis.

Expansive Soils

Expansive soils possess a "shrink-swell" behavior. Shrink-swell is the cyclic change in volume (expansion and contraction) that occurs in fine-grained clay sediments from the process of wetting and drying. Structural damage may occur over a long period of time, usually as a result of inadequate soil and foundation engineering or the placement of structures directly on expansive soils. Normally, soils that are expansive contain a significant clay fraction, and thus the Merritt Sand is not likely to exhibit shrink-swell behavior due to its primarily sandy composition. Typically fills have a low expansive potential due to their predominantly coarse-grained composition. However, the Bay Mud that underlies the majority of the site could potentially be subject to shrink-swell behavior.

Soil Erosion

Erosion is the wearing away of soil and rock by processes, such as mechanical or chemical weathering, mass wasting, and the action of waves, wind and underground water. Excessive soil erosion can eventually lead to damage of building foundations and roadways. At the project site, areas that are most likely susceptible to erosion are those that would be exposed during the construction phase as well as any shoreline areas that could be subject to wave action. Typically, the soil erosion potential is reduced once the soil is graded and covered with concrete, structures, asphalt, or slope protection. The site is generally flat, and thus, accelerated erosion due to runoff is less likely than would be for locations with more topographical relief.

Settlement

Settlement can occur from immediate settlement, consolidation, or shrinkage of expansive soil. Immediate settlement occurs when a load from a structure or placement of new fill material is applied, causing distortion in the underlying materials. This settlement occurs quickly and is typically complete after placement of the final load. Consolidation settlement occurs in saturated clay from the volume change caused by squeezing out water from the pore spaces. Consolidation occurs over a period of time and is followed by secondary compression, which is a continued change in void ratio under the continued application of the load. Rapid settlement can occur if soil is liquefied during an earthquake, an effect which is addressed later in the discussion of Seismic Hazards.

Soils tend to settle at different rates and by varying amounts depending on the load weight or changes in properties over an area, which is referred to as differential settlement. The project site contains many areas underlain by artificial fill, which varies in thickness and is known to experience consolidation settlement and secondary compression. In addition, historic bay sloughs, old foundations, and former marsh areas may have been buried by fill material, suggesting the site is subject to variable conditions and is likely to be susceptible to some degree of differential settlement.

Slope Failure

Slope failures, also known as landslides, include many phenomena that involve the downslope displacement and movement of material, either triggered by static (i.e., gravity) or dynamic (i.e., earthquake) forces. A slope failure is a mass of rock, soil, and debris including submerged sediments that are displaced downslope by sliding, flowing, or falling. Slope failures may occur on slopes of 15 percent or less; however, the probability is greater on steeper slopes. The rate of slope failure can vary from a slow creep over many years to a sudden mass movement. Slope stability can depend on a number of complex variables. The geology, structure, and amount of water affect slope failure potential, as do external processes (i.e., climate, topography, slope geometry, and human activity such as dredging activities). The factors that contribute to slope movements include those that decrease the resistance in the slope materials and those that increase the stresses on the slope (e.g., placement of new structures or other new loading upslope). Slope failure under static forces occurs when those forces initiating failure overcome the forces resisting slope movement without any seismic contribution. Earthquake motions can induce significant horizontal and vertical dynamic stresses in slopes that can trigger failure. Earthquake-induced slope failures can occur in areas with steep slopes that are susceptible to strong ground motion during an earthquake.

The upland portion of the project site is generally very flat with the exception of the northern shoreline adjacent to a portion of the Port of Oakland's shipping channel that is dredged to allow for ship passage. The historical dredging of the shipping channel has resulted in the northern shoreline having a steep slope below the water surface, down to the bottom of the channel. In 2009, the Port of Oakland completed a project deepening and widening the Inner and Outer Harbor shipping channels. This project included deepening of the shipping channel along the northern shoreline of project site. The static slope stability and seismic performance of the northern shoreline was evaluated through the permitting process of the Port's recent project. As concluded in the MIP, the slope was found to be stable during static conditions but would likely experience failure under seismic conditions.

Regional Faulting and Seismic Hazards

This section characterizes the region's existing faults, describes historic earthquakes, estimates the likelihood of future earthquakes, and describes probable ground-shaking effects. The primary sources of information for this section are publications prepared by United States Geological Survey (USGS), the California Geological Survey (CGS), and hazard mapping tools provided by the Association of Bay Area Governments (ABAG).

Earthquake Terminology and Concepts

Earthquake Mechanisms and Fault Activity

Faults are planar features within the earth's crust that have formed to release stresses caused by the dynamic movements of the earth's major tectonic plates. An earthquake on a fault is produced when these stresses overcome the inherent strength of the earth's crust, and the rock ruptures. The rupture causes seismic waves to propagate through the earth's crust, producing the ground-shaking effect known as an earthquake. The rupture also causes variable amounts of slip along the fault, which may or may not be visible at the earth's surface. It is important to note that faults are pervasive features in rocks, and occur even in areas of little-to-no earthquake activity. This is because over geologic time scales, the areas where tectonic stresses build up are always changing; thus, faults are more often evidence of past tectonic activity than indicators of a current earthquake hazard.

Geologists commonly use the age of offset rocks as evidence of fault activity—the younger the displaced rocks, the more recently earthquakes have occurred. To evaluate the likelihood that a fault will produce an earthquake, geologists examine the magnitude and frequency of recorded earthquakes and evidence of past displacement along a fault. An *active* fault is defined by the State of California as a fault that has had surface displacement within Holocene time (last 11,000 years). A *potentially active* fault is defined as a fault that has shown evidence of surface displacement during the Quaternary Period (last 1.6 million years) (Hart, 2007). *Blind* faults do not show surface evidence of past earthquakes, even if they occurred in the recent past. Faults that show no evidence of having generated earthquakes in the last 1.6 million years (Quaternary) are considered incapable of generating an earthquake.

Earthquake Magnitude

When an earthquake occurs along a fault, a characteristic way to measure its size is to measure the energy released during the event. When an earthquake occurs, a network of seismographs records the amplitude and frequency of the seismic waves it generates. The Richter Magnitude (M) for an earthquake represents the highest amplitude measured by the seismograph at a distance of 100 kilometers from the epicenter. Richter magnitudes vary logarithmically with each whole number step representing a ten-fold increase in the amplitude of the recorded seismic waves. While Richter Magnitude was historically the primary measure of earthquake magnitude, seismologists now use Moment Magnitude as the preferred way to measure earthquakes. The Moment Magnitude scale (Mw) is related to the physical characteristics of a fault, including the rigidity of the rock, the size of fault rupture, and the style of movement or displacement across the fault. Although the formulae of the scales are different, they both contain a similar continuum of magnitude values, except that Mw can reliably measure larger earthquakes and do so from greater distances.

Peak Ground Acceleration

A common measure of ground motion during an earthquake is the peak ground acceleration (PGA). The PGA for a given component of motion is the largest value of horizontal acceleration obtained from a seismograph. PGA is expressed as the percentage of the acceleration due to gravity (g), which is approximately 980 centimeters per second squared. In terms of automobile accelerations, one "g" of acceleration is equivalent to the motion of a car traveling 328 feet from rest in 4.5 seconds. For comparison purposes, the maximum peak acceleration value recorded during the Loma Prieta earthquake was in the vicinity of the epicenter, near Santa Cruz, at 0.64g (ABAG, 2013b). Unlike measures of magnitude, which provide a single measure of earthquake energy, PGA varies from place to place, and is dependent on the distance from the epicenter and the character of the underlying geology (e.g. hard bedrock, soft sediments or artificial fills).

The Modified Mercalli Intensity Scale

The Modified Mercalli Intensity Scale, presented in **Table 4.H-1**, assigns an intensity value based on the observed effects of ground-shaking produced by an earthquake. Unlike measures of earthquake magnitude and PGA, the Modified Mercalli (MM) intensity scale is qualitative in nature (i.e. it is based on actual observed effects rather than measured values). Similar to PGA, MM intensity values for an earthquake at any one place can vary depending on its magnitude, the distance from its epicenter, the focus its energy, and the type of geologic material. The MM values for intensity range from I (earthquake not felt) to XII (damage nearly total), and intensities ranging from IV to X could cause moderate to significant structural damage. Because the MM is a measure of ground-shaking effects, intensity values can be related to a range of PGA values, also shown in Table 4.H-1.

TABLE 4.H-1
MODIFIED MERCALLI INTENSITY SCALE

Intensity Value	Intensity Description	Average Peak Ground Acceleration[a]
I	Not felt except by a very few persons under especially favorable circumstances.	< 0.0017 g
II	Felt only by a few persons at rest, especially on upper floors on buildings. Delicately suspended objects may swing.	0.0017-0.014 g
III	Felt noticeably indoors, especially on upper floors of buildings, but many people do not recognize it as an earthquake. Standing motor cars may rock slightly, vibration similar to a passing truck. Duration estimated.	0.0017-0.014 g
IV	During the day felt indoors by many, outdoors by few. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably.	0.014–0.039g
V	Felt by nearly everyone, many awakened. Some dishes and windows broken; a few instances of cracked plaster; unstable objects overturned. Disturbances of trees, poles may be noticed. Pendulum clocks may stop.	0.035 – 0.092 g
VI	Felt by all, many frightened and run outdoors. Some heavy furniture moved; and fallen plaster or damaged chimneys. Damage slight.	0.092 – 0.18 g
VII	Everybody runs outdoors. Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable in poorly built or badly designed structures; some chimneys broken. Noticed by persons driving motor cars.	0.18 – 0.34 g
VIII	Damage slight in specially designed structures; considerable in ordinary substantial buildings, with partial collapse; great in poorly built structures. Panel walls thrown out of frame structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned. Sand and mud ejected in small amounts. Changes in well water. Persons driving motor cars disturbed.	0.34 – 0.65 g
IX	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb; great in substantial buildings, with partial collapse. Buildings shifted off foundations. Ground cracked conspicuously. Underground pipes broken.	0.65 – 1.24 g
X	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations; ground badly cracked. Rails bent. Landslides considerable from riverbanks and steep slopes. Shifted sand and mud. Water splashed (slopped) over banks.	> 1.24 g
XI	Few, if any, (masonry) structures remain standing. Bridges destroyed. Broad fissures in ground. Underground pipelines completely out of service. Earth slumps and land slips in soft ground. Rails bent greatly.	> 1.24 g
XII	Damage total. Practically all works of construction are damaged greatly or destroyed. Waves seen on ground surface. Lines of sight and level are distorted. Objects are thrown upward into the air.	> 1.24 g

NOTE:
[a] Value is expressed as a fraction of the acceleration due to gravity (g). Gravity (g) is 9.8 meters per second squared. 1.0 g of acceleration is a rate of increase in speed equivalent to a car traveling 328 feet from rest in 4.5 seconds.

SOURCE: ABAG, 2013a

Seismic Context

The proposed project lies within a region of California that contains many active and potentially active faults and is considered an area of high seismic activity, as illustrated in **Figure 4.H-1**. The USGS along with the California Geological Survey and the Southern California Earthquake Center formed the 2007 Working Group on California Earthquake Probabilities to summarize the probability of one or more earthquakes of magnitude 6.7 or higher occurring in the state of California over the next 30 years. Accounting for the wide range of possible earthquake sources, it is estimated that the Bay Area has a 63 percent chance of experiencing such an earthquake (Working Group on California Earthquake Probabilities, 2008). According to the working group, the individual faults posing the greatest threat to the Bay Area are the Hayward, the San Andreas, and the Calaveras faults. Other principal faults capable of producing significant earthquakes in the Bay Area include the Concord–Green Valley, Marsh Creek–Greenville, San Gregorio and Rodgers Creek faults (see Figure 4.H-1).

Table 4.H-2 lists the above mentioned faults, their distance and directions from the project site, and their maximum credible earthquake magnitude. Each of these faults is briefly described below.

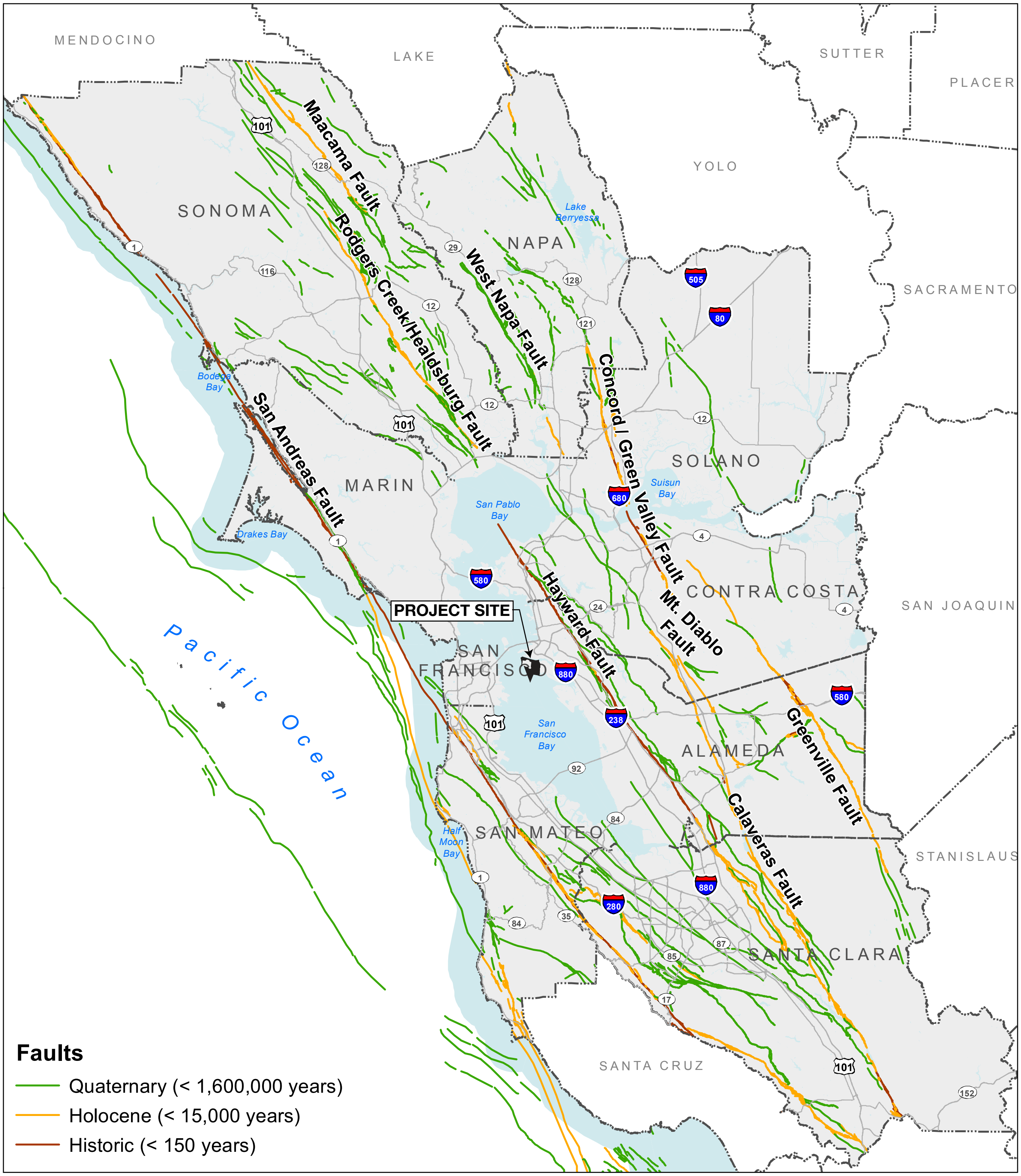
TABLE 4.H-2
ACTIVE FAULTS IN THE PROJECT SITE VICINITY

Fault	Distance and Direction from Project	Recency of Movement[a]	Future Earthquake Probability[b]	Historical Seismicity	Maximum Moment Magnitude Earthquake (Mw)[c]
Hayward (Northern Section)	4.9 miles northeast	Historic	31% (combined with Rodgers Creek Fault)	M 6.8 in 1868 Many <M 4.5	7.1
Rodgers Creek	28 miles north	Historic		M 6.7 in 1898 M 5.6 and 5.7 in 1969	7.0
San Andreas (Peninsula Section)	13.9 miles southwest	Historic	21%	M 7.1 in 1989 M 7.8 in 1906 M 7.0 in 1838 Many <M 6	7.9
Calaveras (Northern Section)	16.5 miles east	Historic	7%	M 5.6–M 6.4 in 1861 M 6.2, 1911 in 1984	6.8
San Gregorio	22 miles southwest	Holocene	6%	n/a	7.3
Concord–Green Valley (Avon Section)	19 miles northeast	Historic	3%	Historic active creep	6.7
Marsh Creek–Greenville	28 miles East	Historic	3%	M 5.6 in 1980	6.9

NOTES:

[a] From Jenning (2004), historic refers to the post-colonial era (after 1775), the Holocene is from 11,000 years ago to present.
[b] Probability of one or more earthquakes of magnitude 6.7 or greater in the next 30 years from the Working Group on California Earthquake Probabilities (2008). The Working Group estimates the probability of a “background” earthquake not from one of the seven major faults studied to be 9%.
[c] The Maximum Moment Magnitude Earthquake is derived from the joint CDMG/USGS Probabilistic Seismic Hazard Assessment for the State of California (Peterson et al., 1996)

SOURCES: Hart, 2007; Jennings, 1994; Working Group on California Earthquake Probabilities (2008); Peterson et al., 1996.



SOURCE: ESRI, 2012; Street base data and county base data, Tele Atlas North America, Inc., 2008.
USGS, 2010

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Figure 4.H-1
Regional Fault Map

Hayward Fault

The Hayward Fault Zone, located 4.9 miles northeast of the project site, extends for 60 miles from San Pablo Bay in Richmond south to the San Jose area. The Hayward fault has historically generated one sizable earthquake, in 1868, when a Richter magnitude 7 earthquake on its southern segment ruptured the ground for a distance of about 30 miles (Bryant, 2013). Lateral ground surface displacement during this event was at least 3 feet.

A characteristic feature of the Hayward fault is its well-expressed and relatively consistent fault creep. Although large earthquakes on the Hayward fault have been rare since 1868, slow fault creep has continued to occur and has caused measurable offset. Fault creep on the East Bay segment of the Hayward fault is estimated at 9 millimeters per year (mm/yr) (Peterson, et al., 1996). However, a large earthquake could occur on the Hayward fault with an estimated moment magnitude (Mw) of about Mw 7.1 (Table 4.H-2). The USGS Working Group on California Earthquake Probabilities (2008) identifies the Hayward–Rodgers Creek Fault Systems as having a 31 percent chance of generating one or more earthquakes of magnitude 6.7 or greater in the next 30 years.

San Andreas Fault

The San Andreas Fault Zone, located about 13.9 miles southwest of the project site, is a major structural feature that forms at the boundary between the North American and Pacific tectonic plates. It is a strike-slip[2] fault, extending from the Salton Sea in Southern California near the border with Mexico to north of Point Arena, where the fault trace continues out into the Pacific Ocean. The main trace of the San Andreas Fault through the Bay Area trends northwest from the Santa Cruz Mountains to the eastern side of the San Francisco Peninsula.

In the San Francisco Bay Area, the San Andreas Fault Zone was the source of the two major earthquakes in recent history that affected the San Francisco Bay region. The 1906 San Francisco earthquake was estimated at M 7.8 and resulted in approximately 290 miles of surface fault rupture, the longest of any known continental strike slip fault. Horizontal displacement along the fault approached 17 feet near the epicenter (Bryant, 2013). The 1989 Loma Prieta earthquake, with a magnitude of Mw 6.9, was centered in the Santa Cruz Mountains and resulted in widespread damage throughout the Bay Area. The USGS Working Group on California Earthquake Probabilities (2008) identifies the San Andreas Fault as having a 21 percent chance of generating one or more earthquakes of magnitude 6.7 or greater in the next 30 years.

Calaveras Fault

The Calaveras fault, located 16.5 miles east of the project site, is a major right-lateral strike-slip fault that has been active during the last 11,000 years. The Calaveras fault is located in the eastern San Francisco Bay region and generally trends from north to south along the eastern side of the Oakland Hills into the western Diablo Range, eventually joining the San Andreas Fault Zone south of Hollister. The northern extent of the fault zone is somewhat speculative and could be linked with the Concord fault.

2 Refers to relative motion on either side of a fault which is primarily horizontal (as opposed to vertical).

There is a distinct change in slip rate and fault behavior north and south of the vicinity of Calaveras Reservoir. North of Calaveras Reservoir, the fault is characterized by a relatively low slip rate of 5-6 mm/yr and sparse seismicity (Bryant, 2005). South of Calaveras Reservoir, the fault zone is characterized by a higher rate of surface fault creep that has been evidenced in historic times. The Calaveras fault has been the source of several moderate magnitude earthquakes, and the probability of a large earthquake (greater than M 6.7) is much lower than on the San Andreas or Hayward faults. The USGS Working Group on California Earthquake Probabilities (2008) identifies the Calaveras fault as having a 7 percent chance of generating one or more earthquakes of magnitude 6.7 or greater in the next 30 years.

Rodgers Creek Fault

The Rodgers Creek Fault Zone (RCFZ), located 28 miles north of the project site, is considered to be the northern extension of the Hayward Fault Zone. The most recent significant earthquakes on the RCFZ both occurred on October 1, 1969. On this date, two earthquakes of Richter magnitude 5.6 and 5.7 occurred within an 83-minute period. Buildings in Santa Rosa sustained serious damage during these quakes. Prior to these events, the last major earthquake (estimated Richter magnitude 6.7) was generated in 1898 with an epicenter near Mare Island at the north margin of San Pablo Bay. The combined Hayward–Rodgers Creek Fault System has a 31 percent chance of generating one or more earthquake of magnitude 6.7 or greater in the next 30 years (USGS Working Group on California Earthquake Probabilities, 2008).

Concord - Green Valley Fault

The Concord-Green Valley fault, located 19 miles northeast of the project site, extends from Walnut Creek north to Wooden Valley (east of Napa Valley). Historical record indicates that no large earthquakes have occurred on the Concord or Green Valley faults (Bryant, 2005). However, a moderate earthquake of magnitude M 5.4 occurred on the Concord fault segment in 1955. The Concord and Green Valley faults exhibit active fault creep and are considered to have a small probability of causing a significant earthquake. The USGS Working Group on California Earthquake Probabilities (2008) identifies the Concord-Green Valley fault as having a 3 percent chance of generating one or more earthquakes of magnitude 6.7 or greater in the next 30 years.

The San Gregorio Fault

The San Gregorio fault, located 22 miles southwest of the project site, is an active, structurally complex fault zone as much as 5 km wide. The fault zone is mainly located offshore, west of San Francisco Bay and Monterey Bay, with onshore locations at promontories, such as Moss Beach, Pillar Point, Pescadero Point, and Point Año Nuevo. While there is no record of historic seismicity, the most recent earthquake along the San Gregorio Fault Zone is thought to have occurred after 1270 AD to 1400 AD, but prior to the arrival of Spanish missionaries in 1775 AD (Bryant, 2005). The USGS Working Group on California Earthquake Probabilities (2008) identifies the San Gregorio fault as having a 6 percent chance of generating one or more earthquakes of magnitude 6.7 or greater in the next 30 years.

Seismic Hazards

The following discussion identifies the seismic hazards for the project site vicinity and provides the initial context for further evaluation in the impact analysis.

Surface Fault Rupture

Seismically-induced ground rupture is defined as the physical displacement of surface deposits in response to an earthquake's seismic waves. The magnitude, sense, and nature of fault rupture can vary for different faults or even along different strands of the same fault. Ground rupture is considered more likely along active faults, which are referenced in Figure 4.H-1 and Table 4.H-2. Because the site is not within an Alquist-Priolo Fault Rupture Hazard Zone, as designated by the Alquist-Priolo Earthquake Fault Zoning Act, and no active or potentially active faults are known to pass through the project site, the risk of ground rupture at the site is low.

Ground Shaking

As discussed above, a major earthquake is likely to affect the project site vicinity within the next 30 years, and would produce strong ground-shaking effects throughout the region. Earthquakes on active or potentially active faults, depending on magnitude and distance from the project site, could produce a range of ground-shaking intensities at the project site. Historically, earthquakes have caused strong ground-shaking and damage in the San Francisco Bay Area, the most recent being the Mw 6.9 Loma Prieta earthquake in October 1989. The epicenter was approximately 45 miles south of the project site, but this earthquake is estimated to have caused moderate (VI) to strong (VII) shaking intensities at the project site (ABAG, 2013b). The largest earthquake in Bay Area history was the San Francisco Earthquake of 1906, with an estimated moment magnitude of M 7.8. This produced very strong (VIII) to violent (IX) shaking intensities at the project site (ABAG, 2013c).

A future worst-case scenario would be a large earthquake on the nearby Hayward fault, which could produce far more severe ground-shaking at the site than was observed during the Loma Prieta earthquake. It is estimated that a characteristic[3] earthquake along the entire Hayward Fault (both north and south segments) would produce ground-shaking at the project site of violent (IX) intensity (ABAG, 2013d). These intensities can be expected to destroy some well built wood-frame structures, cause considerable ground deformation, and induce landslides. It is important to note that rupture along the entire fault is an extremely low probability event.

One useful tool that seismologists use to describe ground-shaking hazard is a probabilistic seismic hazard assessment (PSHA). The PSHA for the State of California takes into consideration the range of possible earthquake sources (including such worse-case scenarios as described above) and estimates their characteristic magnitudes to generate a probability map for ground-shaking. The PSHA maps depict values of peak ground acceleration (PGA) that have a 10 percent probability of being exceeded in 50 years. This probability level allows engineers to design buildings for ground motions that have a 90 percent chance of NOT occurring in the next

3 The concept of "characteristic" earthquakes means that we can anticipate, with reasonable certainty, the actual damaging earthquakes that will occur on a fault segment (Peterson et al., 1996)

50 years, making buildings safer than if they were simply designed for the most likely events. The PSHA indicates that at the project site, there is a 10 percent chance of exceeding PGA values of 0.655g over the next 50 years (Peterson et al., 1996). As indicated in Table 4.H-1, these PGAs could result in considerable damage even in specially designed structures, causing partial collapse of some buildings and damaging underground utilities. The potential hazards related to ground-shaking are discussed further in the Impacts and Mitigation Measures section of this chapter.

Liquefaction

Liquefaction is a transformation of soil from a solid to a liquefied state, during which saturated soil temporarily loses strength resulting from the buildup of excess pore water pressure, especially during earthquake-induced cyclic loading. Soil susceptible to liquefaction includes loose- to medium-density sand and gravel, low-plasticity silt, and some low-plasticity clay deposits. Four kinds of ground failure commonly result from liquefaction: lateral spread, flow failure, ground oscillation, and loss of bearing strength. *Lateral spreading* is the horizontal displacement of surficial blocks of sediments resulting from liquefaction in a subsurface layer that occurs on slopes ranging between 0.3 and 3 percent and commonly displaces the surface by several meters to tens of meters. *Flow failures* occur on slopes greater than 3 degrees and are primarily liquefied soil or blocks of intact material riding on a liquefied subsurface zone. *Ground oscillation* occurs on gentle slopes when liquefaction occurs at depth and no lateral displacement takes place. Soil units that are not liquefied may pull apart from each other and oscillate on the liquefied zone. The *loss of bearing pressure* can occur beneath a structure when the underlying soil loses strength and liquefies. When this occurs, the structure can settle, tip, or even become buoyant and “float” upwards. Liquefaction and associated failures could damage foundations, roads, underground cables and pipelines, and disrupt utility service.

Of particular relevance to the project site is the fact that liquefaction can occur in unconsolidated or artificial fill sediments and other reclaimed areas along the margin of San Francisco Bay. The depth to groundwater influences the potential for liquefaction, in that sediments need to be saturated to have a potential for liquefaction. As a site immediately adjacent to a tidal canal, groundwater is shallow at all times. The California Geological Survey (2003) places the entire project site within a liquefaction hazard zone in accordance with the Seismic Hazards Mapping Act. The implications of this designation are discussed under the regulatory setting and impact analysis below.

Earthquake-Induced Settlement

Settlement of the ground surface can be accelerated and accentuated by earthquakes. During an earthquake, settlement can occur as a result of the relatively rapid compaction and settling of subsurface materials (particularly loose, uncompacted, and variable sandy sediments above the water table) due to the rearrangement of soil particles during prolonged ground-shaking. Settlement can occur both uniformly and differentially (i.e., where adjoining areas settle at different amounts). Areas underlain by artificial fill would be susceptible to this type of settlement. Given the geologic setting of the project site vicinity, this area could be subjected to earthquake-induced settlement, discussed further in the impact analysis to follow.

H.3 Regulatory Framework

Federal

Earthquake Hazards Reduction Act

The Earthquake Hazards Reduction Act was enacted in 1997 to "*reduce the risks to life and property from future earthquakes in the United States through the establishment and maintenance of an effective earthquake hazards and reduction program*." To accomplish this, the Act established the National Earthquake Hazards Reduction Program (NEHRP). This program was significantly amended in November 1990 by NEHRP, which refined the description of agency responsibilities, program goals, and objectives.

NEHRP's mission includes improved understanding, characterization, and prediction of hazards and vulnerabilities; improvement of building codes and land use practices; risk reduction through post-earthquake investigations and education; development and improvement of design and construction techniques; improvement of mitigation capacity; and accelerated application of research results. The NEHRP designates the Federal Emergency Management Agency (FEMA) as the lead agency of the program and assigns it several planning, coordinating, and reporting responsibilities. Programs under NEHRP help inform and guide planning and building code requirements such as emergency evacuation responsibilities and seismic code standards such as those to which the proposed project would be required to adhere.

State

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act of 1990 was developed to protect the public from the effects of strong ground-shaking, liquefaction, landslides, or other ground failure, and from other hazards caused by earthquakes. This act requires the State Geologist to delineate various seismic hazard zones and requires cities, counties, and other local permitting agencies to regulate certain development projects within these zones. Before a development permit may be granted for a site within a Seismic Hazard Zone, a geotechnical investigation of the site must be conducted and appropriate mitigation measures incorporated into the project design. The entire project site is located within a Seismic Hazard Zone for liquefaction, as designated by the California Geological Survey (CGS). Therefore, evaluation and mitigation of potential liquefaction hazards must be conducted in accordance with the CGS, Special Publication 117A, adopted March 13, 1997 and revised in 2008 by the CGS pursuant to the Seismic Hazards Mapping Act, as discussed in the Impacts and Mitigations chapter below.

California Building Code

The California Building Code (CBC) has been codified in the California Code of Regulations (CCR) as Title 24, Part 2. Title 24 is administered by the California Building Standards Commission, which, by law, is responsible for coordinating all building standards. Under state law, all building standards must be centralized in Title 24 or they are not enforceable. The purpose of the CBC is to establish minimum standards to safeguard the public health, safety, and general welfare through structural strength, means of egress facilities, and general stability by regulating and controlling the design, construction, quality of materials, use and occupancy, location, and maintenance of all building and structures within its jurisdiction. The 2010 CBC is based on the 2009 International Building Code (IBC) published by the International Code Conference. In addition, the CBC contains necessary California amendments, which are based on reference standards obtained from various technical committees and organizations such as the American Society of Civil Engineers (ASCE), the American Institute of Steel Construction (AISC), and the American Concrete Institute (ACI). ASCE Minimum Design Standards 7-05 provides requirements for general structural design and includes means for determining earthquake loads as well as other loads (flood, snow, wind, etc.) for inclusion into building codes. The provisions of the CBC apply to the construction, alteration, movement, replacement, and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures throughout California.

The earthquake design requirements take into account the occupancy category of the structure, site class, soil classifications, and various seismic coefficients which are used to determine a Seismic Design Category (SDC) for a project as described in Chapter 16 of the CBC. The SDC is a classification system that combines the occupancy categories with the level of expected ground motions at the site and ranges from SDC A (very small seismic vulnerability) to SDC E (very high seismic vulnerability and near a major fault). Design specifications are then determined according to the SDC in accordance with Chapter 16 of the CBC. Chapter 16, Section 1613 provides earthquake loading specifications for every structure, and portion thereof, including nonstructural components that are permanently attached to structures and their supports and attachments, which shall be designed and constructed to resist the effects of earthquake motions in accordance with ASCE 7-05. Chapter 18 of the CBC covers the requirements of geotechnical investigations (Section 1803), excavation, grading, and fills (Section 1804), load-bearing of soils (1805), as well as foundations (Section 1808), shallow foundations (Section 1809), and deep foundations (Section 1810). Chapter 18 also describes analysis of expansive soils and the determination of the depth to groundwater table. For Seismic Design Categories D, E, and F, Chapter 18 requires analysis of slope instability, liquefaction, and surface rupture attributable to faulting or lateral spreading, plus an evaluation of lateral pressures on basement and retaining walls, liquefaction and soil strength loss, and lateral movement or reduction in foundation soil-bearing capacity. It also addresses mitigation measures to be considered in structural design, which may include ground stabilization, selecting appropriate foundation type and depths, selecting appropriate structural systems to accommodate anticipated displacements, or any combination of these measures. The potential for liquefaction and soil strength loss must be evaluated for site-specific peak ground acceleration magnitudes and source characteristics consistent with the design earthquake ground motions.

CCR Title 24 also includes the California Residential Code and the California Green Building Code, which have been adopted as separate documents (CCR Title 24, Part 2.5 and 11, respectively). The California Residential Code includes structural design standards for residential one- and two-family dwellings and covers all structural requirements for conventional construction. This part incorporates by adoption the 2009 International Residential Code of the International Code

Council with necessary California amendments for seismic design. All other structures including multi-family residential projects are found in the other parts of the CBC as discussed above.

The Alameda City Council adopted the CBC, with certain local amendments as permitted, by ordinance in April 2011.

Local

Several City of Alameda policy documents contain general, citywide policies that apply to the project (see Section IV.A, *Land Use, Plans and Policies*). This section summarizes relevant policies contained within the General Plan (1991). This section also discusses applicable city ordinances.

City of Alameda General Plan

Health and Safety Element

Relevant Guiding Policies

Policy 8.1.a A soils and geologic report will be submitted as required by the Director of Public Works prior to the issue of all grading and building permits and submission of final maps, in accordance with the Subdivision Ordinance, to evaluate the potential for lateral spreading, liquefaction, differential settlement, and other types of ground failures.

Parts of Bay Farm Island, the Oakland Airport, and the NAS were subjected to liquefaction and sand boils during the Loma Prieta earthquake.

Policy 8.1.b Require design of new buildings to resist the lateral effects and other potential forces of a large earthquake on any of the nearby faults, as required by the Uniform Building Code. The San Andreas, Hayward, Calaveras and San Gregorio faults are of primary concern in the evaluation of seismic activity that affects the San Francisco Bay Area and Alameda. Any of these four faults are capable of producing large, destructive earthquakes that could affect the entire region.

Policy 8.1.c Require building design to incorporate recommendations contained in the soils and geologic report.

Policy 8.1.d Require all structures of three or more stories to be supported on pile foundations that penetrate Bay Mud deposits to firm, non-compressible materials, unless geotechnical findings indicate a more appropriate design.

Policy 8.1.e Design underground utilities to minimize the effect of differential ground displacements.

Relevant Implementing Policies

Policy 8.1.g Design building entrances, exits, and other vital features to accommodate expected settlement.

Buildings should be sited so entrances, exits, and other vital structures continue to be accessible as settling occurs.

Policy 8.1.h Require owners of shoreline properties to inspect, maintain, and repair the perimeter slopes according to City standards as settlement occurs due to the consolidation of underlying Bay Mud and wave erosion.

Bay Mud (a silty clay rich in organic materials) and Merritt Sand (a loose, well-sorted fine-to-medium grained sand with silt) are the two base soils underlying Alameda. Development along the edges of the Main Island [Alameda Island] and on all of Bay Farm Island rests on fill overlying Bay Mud. Bay Mud is prone to consolidation, leading to surface settlement, and potentially increasing perimeter erosion.

Projects such as the proposed Ballena Isle Hotel could increase island erosion, and should be mitigated according to City specifications/standards.

Policy 8.1.j Amend the local Uniform Building Code, as frequently as may be prudent, to incorporate standards for new and modified construction pertaining to development on areas of fill or underlain by Bay Mud or Merritt Sand.

City of Alameda Municipal Code

The Alameda Municipal Code Section 13.2-1 adopts the California Building Code (discussed above), with minor revisions. Section 13-2.3 recognizes the following:

“a. The City of Alameda is an island community with access dependent upon bridges and underwater tubes and, in the event of a disaster, could be completely isolated from outside assistance.

b. The City of Alameda is adjacent to several earthquake faults, which make buildings and structures susceptible to structural ruptures and fires.

c. The entire municipal water supply for the City of Alameda is transported via three aqueducts, which are vulnerable to earthquake and tidal flooding.

d. Alameda is a low-lying island community with soil and groundwater conditions, which are corrosive to metals.

e. Alameda has very fine, sandy soil conditions.”

The City of Alameda Department of Public Works Engineering Department is responsible for reviewing and issuing grading permits for construction projects. The purpose of the grading permit is to ensure land stability and control erosion. The permit covers the removal, placement and movement of soil on private property.

H.4 Impacts and Mitigation Measures

Significance Criteria

The criteria used to determine the significance of an impact are based on Appendix G of the *CEQA Guidelines*. For this analysis, implementation of the proposed project could result in redevelopment in the project site that may result in significant impacts if it would:

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

    a) 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;

    b) Strong seismic ground-shaking;

    c) Seismic-related ground failure, including liquefaction; and/or

    d) Landslides.

2. Result in substantial soil erosion or the loss of topsoil.

3. 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 landslide, lateral spreading, subsidence, liquefaction or collapse.

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

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

Impact Analysis

This following impact analysis focuses on potential impacts of the proposed project related to seismicity and other geologic hazards. The following Appendix G criteria are not considered relevant to the project based upon the proposed project plans and data research; therefore, they will not be evaluated further in this EIR:

Rupture of a known earthquake fault**:** Ground rupture is considered most likely to occur along active faults, which are referenced in Table 4.H-2. As indicated previously, the project site is not within an Alquist-Priolo Fault Rupture Hazard Zone, and no mapped active faults are known to pass through the project site vicinity (Hart, 2007; Jennings, 1994). Therefore, the project would not expose persons or structures to risk of ground rupture along a fault line.

Substantial Erosion or Loss of Topsoil**:** While soil may be exposed and potentially eroded by wind or water during the construction phases of the proposed project, the site is level, and thus substantial and accelerated erosion due to storm runoff is not anticipated. In addition, natural topsoil does not exist on most portions of the site, which is primarily artificial fill, and thus any minor loss of onsite soils would not represent loss of a natural resource. Finally, the Storm Water Pollution and Prevention Plan (SWPPP) that would be required during the construction phases of this project (see Section 4.I, *Hydrology and Water Quality*) would control the minor soil erosion that could occur during storm events. Thus, substantial erosion and loss of topsoil would not occur.

Inadequate Support for Septic Tanks or Alternative Wastewater Disposal Systems**:** As proposed, the project would not use septic tanks or alternative wastewater disposal systems, but would be served by the City of Alameda sanitary sewer collection system. Therefore, this issue is not applicable to the proposed project.

***Substantial alteration to topography or unique geologic feature*:** The topography of the site would not be substantially altered from its current state (flat) due to the proposed project. In addition, there are no unique geologic features on the site or known mineral deposits. Therefore this CEQA significance criterion is not applicable to the proposed project.

Impact 4.H-1: In the event of a major earthquake in the region, seismic ground-shaking could potentially injure people and cause collapse of or structural damage to structures and/or retaining walls developed under the proposed project. (Significant)

The project site will likely experience at least one major earthquake (Richter magnitude 6.7 or higher) within the next 30 years. The intensity of such an event would depend on the causative fault and the distance to the epicenter, the moment magnitude, and the duration of shaking. As discussed in the setting section above, in an unlikely event (10 percent probability), ground-shaking could reach PGA values of 0.655g in the next 50 years. This degree of ground-shaking corresponds to a Modified Mercalli intensity of IX (violent), and would be expected to cause considerable damage, even in modern, well designed structures. Substantial cracks could appear in the ground, and the shaking could cause other secondary damaging effects, such as the failure of underground pipes. This level of ground-shaking would likely also induce soil liquefaction and rapid settlement, which is addressed under Impact 4.H-2.

Due to the location of the project site in an area of high seismic risk, people could be harmed and structures may be damaged from strong ground-shaking; thus, Impact 4.H-1 is considered potentially significant. Several laws and policies exist that impose stringent seismic safety requirements on the design and construction of new structures. As stated under “Regulatory Framework,” on page 4.H-15, all buildings in California are subject to the standards in the California Building Code, which contains specific design requirements for areas with very high seismic risk (Seismic Design Category E/F). A project applicant would be required to submit a geotechnical report pursuant to the Seismic Hazards Mapping Act of 1990 (discussed further under Impact 4.H-2) and Policies 8.1a and 8.1b of the City of Alameda General Plan (City of Alameda, 1991). Pursuant to Policy 8.1d, the City requires that pile foundations penetrate through Bay Mud deposits to firm, non-compressible materials, unless geotechnical findings indicate a more appropriate design.

Compliance with these laws and policies would greatly reduce the potential risk to people and structures caused by the project. However, because the site could experience violent ground-shaking in the next 50 years, is located on unfavorable materials that amplify ground-shaking, and is likely to experience a variety of secondary effects, Mitigation Measures 4.H-1 is identified to ensure proper compliance with laws and policies, and minimize harm to people and structures.

Mitigation Measure 4.H-1: Prior to approval of a building permit, a site specific, design-level geotechnical investigation shall be prepared for all proposed development on the project site. The investigation shall include detailed characterization of the distribution and compositions of subsurface materials and an assessment of their potential behavior during violent seismic ground-shaking. The analysis shall recommend site preparation and design parameters that would be necessary to avoid or substantially reduce structural damage under anticipated peak ground accelerations in accordance with seismic design requirements within the most current version of the California Building Code and Alameda Municipal Code. The investigation and recommendations shall be in conformance with all applicable city ordinances and policies and consistent with the design requirements of the calculated Seismic Design Category for each site in accordance with the California Building Code. The geotechnical report shall be prepared by a California-registered geotechnical engineer and approved by the City, and all recommendations contained in the report shall be included in the final design of the project.

Mitigation Measure 4.H-1 would ensure that the proposed project would be designed to withstand strong seismic ground-shaking, and that the occupants of the proposed development are informed of safety procedures to follow in the event of an earthquake.

Significance after Mitigation: Less than Significant.

Impact 4.H-2: In the event of a major earthquake in the region, people and property at the project site could potentially be exposed to seismically-induced ground failure, including liquefaction, lateral spreading and earthquake-induced settlement. (Significant)

The CGS has designated the project site and the entirety of Alameda Island as a Seismic Hazard Zone for liquefaction due to historic occurrences, the presence of unfavorable soils and shallow groundwater (CGS, 2003). Liquefaction at the site could result in loss of bearing pressure, lateral spreading, sand boils (liquefied soil exiting at the ground surface), and earthquake-induced settlement. During the Loma Prieta earthquake, for example, parts of Bay Farm Island, the Oakland Airport, and the project site were subjected to liquefaction and sand boils (City of Alameda, 1991). Future earthquakes could potentially produce similar effects at the project site, if proposed improvements are not adequately designed.

Due to the location of the project site in an area of high liquefaction potential, people could be harmed and structures may be damaged from earthquake-induced liquefaction, rapid settlement or other earthquake-induced ground failures; thus, Impact 4.H-2 is considered potentially significant. Because the site is in a liquefaction hazard zone, pursuant to the Seismic Hazards Mapping Act of 1990, a geotechnical report must be prepared that evaluates and provides mitigation for potential liquefaction hazards. The investigation and mitigation recommendations must be made in accordance with the California Geological Survey, Special Publication 117A, *Guidelines for Evaluating and Mitigating Seismic Hazards.* Mitigation Measure 4.H-2 is identified to ensure that seismically-induced ground failure is a less than significant impact to the project.

Mitigation Measure 4.H-2: Prior to issuance of a building permit, earthwork, foundation and structural design for proposed development under the project shall be conducted in accordance with all recommendations contained in the required geotechnical investigation (Mitigation Measure 4.H-1a). The investigation must include an assessment of all potentially foreseeable seismically-induced ground failures, including liquefaction, sand boils, lateral spreading and rapid settlement. Mitigation strategies must be designed for the site-specific conditions of the project and must be reviewed for compliance with the guidelines of CGS Special Publication 117A prior to incorporation into the project. Examples of possible strategies include edge containment structures (berms, diked sea walls, retaining structures, compacted soil zones), removal or treatment of liquefiable soils, soil modification, modification of site geometry, lowering the groundwater table, in-situ ground densification, deep foundations, reinforced shallow foundations, and structural design that can accommodate predicted displacements.

Significance after Mitigation: Less than Significant.

Impact 4.H-3: In the event of a major earthquake in the region, development facilitated by the proposed project could potentially be subject to adverse effects resulting from seismically induced landslides. (Significant)

The project site is relatively level with very little topographical relief. However, the north shoreline sediments within the Oakland Inner Harbor have an incline as a result of dredging activities within the channel. Any new loads from fill placement or buildings within 50 feet of the northern shoreline would likely have an adverse effect on static slope stability. As part of the dredging permit, the Port of Oakland conducted both static slope stability and seismic performance of the northern shoreline. The results of this analysis concluded that the slope was stable under static conditions but could fail under seismic conditions. Additional analyses conducted to verify these result concluded that the existing slopes would likely fail under seismic conditions with displacement ranging from 6 inches up to 3 feet. According to the CGS guidelines presented in Special Publication 117A (SP117A), such deformation "may be sufficient to cause serious ground cracking or enough strength loss to result in continuing (post seismic) failure" (CGS, 2008). With implementation of Mitigation Measure 4.H-3, improvements along the north shoreline could be constructed within accepted factors of safety such that the potential for deformation would be less than significant.

Mitigation Measure 4.H-3: Prior to issuance of a building or grading permit for any building located within 50 feet of the northern shoreline, a slope stability plan shall be prepared by a California-licensed geotechnical engineer or engineering geologist and all recommendations implemented in accordance with City requirements. The required geotechnical stability report plan shall determine the stabilization measures (e.g., cement/soil mixing, construction of a bulkhead wall) necessary to obtain acceptable factors of safety in accordance with California Geological Surveys Special Publication 117A. All construction activities and design criteria shall comply with applicable codes and requirements of the most recent California Building Code, and applicable City construction and grading ordinances.

Significance after Mitigation: Less than Significant.

Impact 4.H-4: Development facilitated by the proposed project could potentially 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 landslide, lateral spreading, subsidence, liquefaction or collapse. (Significant)

The project site is relatively level with very little topographical relief and generally not susceptible to landslides with the exception of the northern shoreline which is addressed above in Impact 4.H-3.

The potential for lateral spreading and liquefaction is described above in Impact 4.H-2.

As described earlier, most of the project site is underlain by artificial fill and Bay Mud which is generally susceptible to subsidence or settlement. Younger Bay Mud is highly compressible and has low strength. The weight of the overlying materials (which could include placement of new fill and proposed structures) causes consolidation of these sediments over time. As the sediments consolidate at depth, the ground surface settles and structural damage can occur, if not designed appropriately. Subsidence related to consolidation of Bay Mud beneath fill and foundation settlement directly related to site-specific structural building loads could affect structures proposed as part of the project. Underground utilities could also experience differential settlement along their alignments, possibly resulting in rupture or leakage, which could cause disruption of service or safety hazards. Construction of new shallow foundations and/or placement of new fill at the site would begin a new cycle of consolidation settlement in the Bay Mud. The amount and rate of consolidation settlement would depend on:

- the weight of any new fill or structural loads (i.e., footings),
- the thickness and character of the existing fill,
- the thickness of the Bay Mud deposit beneath the existing fill and Merritt Sand,
- the potential presence of sand lenses within the Bay Mud deposit,
- the amount of consolidation/settlement that has already occurred due to previous site activities, and
- the presence of existing foundations or other obstructions, particularly pile foundations.

Buried foundations or foundation elements may also act as “hard points” beneath new roads or utilities, resulting in the potential for abrupt differential settlement.

The project site is generally underlain by artificial fill and estuarine deposits that are typically not susceptible to collapse. In addition, the geotechnical measures required under the California Building Code include site preparation requirements such that the potential for collapse is unlikely to occur.

Soil consolidation and differential settlement presents a *potentially significant* impact to the proposed project.

> **Mitigation Measure 4.H-4:** The required geotechnical report for each development project (Mitigation Measure 4.H-1a) shall determine the susceptibility of the project site to

settlement and prescribe appropriate engineering techniques for reducing its effects. Where settlement and/or differential settlement is predicted, mitigation measures—such as lightweight fill, geofoam, surcharging, wick drains, deep foundations, structural slabs, hinged slabs, flexible utility connections, and utility hangers—shall be used. These measures shall be evaluated and the most effective, feasible, and economical measures shall be recommended. Engineering recommendations shall be included in the project engineering and design plans, and be reviewed and approved by a registered geotechnical engineer. All construction activities and design criteria shall comply with applicable codes and requirements of the most recent California Building Code, and applicable City construction and grading ordinances.

Significance after Mitigation: Less than Significant.

Impact 4.H-5: Development facilitated by the proposed project could potentially be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code creating substantial risks to life or property. (Significant)

When soils that exhibit expansive properties are exposed to varying moisture content, they can cause damage to foundations, walls, or other improvements over time. Structures, including residential units, commercial buildings, and other improvements that would be constructed under the proposed project could be damaged as a result of expansive soils, if present. Most of the new development would primarily occur in areas of existing development that may have already been evaluated for expansive properties and remedied with engineered fill. However, undocumented fills placed before current building code practices were in effect could still potentially contain expansive properties. The presence of expansive soils would need to be determined on a site-specific basis and generally would be addressed largely through the integration of geotechnical information in the planning and design process for projects to determine the local soil suitability for specific projects in accordance with standard industry practices and state-provided requirements, such as the building code, used to minimize the risk associated with expansive soils. These measures are enforced through compliance with the City's building codes and ordinances, to avoid or reduce hazards relating to expansive soils. The use of imported fill must meet geotechnical engineering standards as required by the CBC which include minimizing the potential for expansion.

Therefore, the potential for expansive soils to adversely affect proposed development under the project with implementation of building code requirements included in Mitigation Measure 4.H-5 would reduce the potential impact from expansive soils to less than significant levels.

Mitigation Measure 4.H-5: Prior to issuance of a building permit, subsurface earthwork (e.g., placement of engineered fill), shall be conducted in accordance with all recommendations contained in the required geotechnical investigation (Mitigation Measure 4.H-1). The geotechnical report must include an assessment of all potentially expansive soils that could adversely affect proposed improvements. Geotechnical strategies must be designed for the site-specific conditions of the project and must be reviewed for compliance with the requirements of the most recent California Building Code as well as any additional City of Alameda requirements.

Significance after Mitigation: Less than Significant.

Cumulative Impacts

Impact 4.H-6: Development facilitated by the proposed project, combined with past, present, and reasonably foreseeable probable projects, could potentially result in substantial adverse cumulative impacts to geology, soils, or seismic hazards. (Less than Significant)

The geographic area considered for the cumulative geology, soils, of seismic hazards effects is the entire San Francisco Bay Area region. This region is considered seismically active and future development would expose additional people and structures to potentially adverse effects associated with earthquakes, including seismic ground shaking and seismic-related ground failure. However, site-specific geotechnical reports that future development projects would be required to prepare would determine how each development could be designed to minimize exposure of people to these effects. Future development would be constructed to standards similar to those that are required with the mitigation measures described above, which likely would exceed those of older structures within the region. The proposed project, as well as all other future projects, would be constructed in accordance with the most current version of the California Building Code seismic safety requirements and recommendations contained in each site-specific geotechnical report as required with the mitigations stated above. Therefore, impacts to area geology and soils resulting from future development of the proposed project, combined with other past, present, or probable future projects, would not result in a cumulatively significant impact. The cumulative impact would be less than significant given mandatory compliance with existing state and local building codes and regulations included with the required mitigations.

Mitigation: Implement Mitigation Measures 4.H-1a, -1b, and 4.H-2 through 4.H-5.

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I. Hydrology and Water Quality

This section describes existing hydrologic conditions in the project vicinity and presents applicable regulations that pertain to hydrology, surface water, flooding, and water quality. This section also discusses the changes in hydrology and water quality that could result from construction and operation of the project and identifies potential project impacts and appropriate mitigation measures when necessary.

I.1 Setting

Hydrology

Regional

The Alameda Point project site lies in the Central Basin within the San Francisco Bay Hydrologic Region. The site is located on the northern and southern shorelines of Alameda, which lies in between Oakland Inner Harbor and San Francisco Bay. San Francisco Bay marks a natural topographic separation between the northern and southern coastal mountain ranges. The San Francisco Bay estuarine system conveys the waters of the Sacramento and San Joaquin rivers into the Pacific Ocean. The rivers enter the bay through the delta at the eastern end of Suisun Bay (RWQCB, 2011). Within the San Francisco Bay Hydrologic Region, the project area is a part of the Central Bay region in Alameda County. This unit is divided into a number of small watersheds that are defined by the natural topographic features of the region. A series of linear drainage basins trending northeast to southwest extend from the ridges of the Oakland hills across the alluvial plain1 of the East Bay toward San Francisco Bay.

Precipitation patterns along portions of the California coast are strongly influenced by a number of factors with a marked tendency of high mean annual precipitation values in locations with higher elevations that are exposed to incoming storms, with the opposite effect in areas of low elevation. The topography of the project site is generally flat with the highest elevation of over eight feet in the southeast portion to less than a foot in the northern portions of the site (CBG, 2013a). The low elevations at the project site result in a mean annual precipitation of approximately 18 inches per year, which is lesser than in the neighboring city of Oakland where the rainfall is impacted by the East Bay Hills (CBG, 2013a).

Local

The project site has a flat topography slightly sloping from the ridge in the central portion near Midway Avenue to the north or the south portions of the site. The elevations of the southeast quadrant are elevated at an average of 7.0; this portion includes the existing piers at elevation of 9.0. The low lying areas include the northern entrance to the project site at the Main Gate at an

[1] Alluvial plain is an area formed by deposition of sediment by a stream.

elevation of approximately 1.0 with the areas in the northwest corner of the Seaplane Lagoon at elevations ranging in between 2.0 and 3.4 (CBG, 2013a).[2]

A majority of the project site is developed with existing buildings and paved or asphalt surfaces except for small portions of grassy surfaces (e.g., parks and playgrounds) in the southeast and the north-central portions of the site. Stormwater runoff at Alameda Point is currently conveyed directly to outfalls by a storm drain system that is partly owned and operated by the City of Alameda and by the U.S. Navy (CBG, 2013a). The storm drain system installed by the U.S. Navy over 70 years ago is currently operable; however it has capacity limitations with no treatment measures to address stormwater quality (CBG, 2013a).

The existing drainage patterns of the project site are consistent with the existing topography. Stormwater runoff from the northern half of the project site, generally north of West Midway Avenue, is collected and conveyed through the existing system and discharged to the Oakland / Alameda Estuary through multiple outfalls along the northern shoreline. The portion of Main Street adjacent to the northeastern portion of the project site lies at the lowest elevation of 0.5 (at the Main Street/Ferry Terminal parking lot intersection) and is drained by an existing storm drain pump station (CBG, 2013a). Stormwater runoff from the southeastern portion of the site is collected and conveyed by the existing system and discharged to San Francisco Bay through multiple outfalls along the southern shoreline. Stormwater runoff from the central portions of the project site is collected and conveyed to the Sea Plane Lagoon through multiple outfalls along the lagoon shoreline (CBG, 2013a).

Oakland Inner Harbor and San Francisco Bay

The project site is located in the westernmost portion of Alameda in between Oakland Inner Harbor and San Francisco Bay, Central Basin. The site lies adjacent to the Oakland Inner Harbor – a tidal canal, part of the Oakland Estuary – originally a tidal slough that originated in a vast marsh stretching from Lake Merritt to Brooklyn Basin. The Oakland Estuary is influenced by both freshwater and marine water. The Estuary receives freshwater inflow from a combination of natural creeks, human-made stormwater drainage facilities, and direct surface runoff. The Estuary is also influenced by the marine waters of San Francisco Bay and is subject to tidal currents. Sediment from Oakland’s shoreline and creeks is carried by the tidal current to shoals and sandbars, causing siltation of the shipping channels that periodically require dredging.

Water Quality

In addition to the mingling of fresh and marine water, past and present urban uses in the area have affected water quality of the Oakland Estuary from industrial waste discharges and urban stormwater runoff contaminants. Pollutant sources discharging into the estuary include both point and nonpoint discharges. A point source is any discernible, confined, and discrete conveyance (e.g., a pipe discharge) of pollutants to a water body from such sources as industrial facilities, stormwater conveyance infrastructure or wastewater treatment plants. Nonpoint source (NPS) pollution is the result of land runoff, rainfall, drainage or seepage from diffuse sources such as

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2 Elevations presented in City of Alameda Datum.

agricultural fields, urban streets, confined animal facilities, and streambank erosion. NPS pollution is one of the major impacts on the water quality of San Francisco Bay, its tributary streams, and the region's coastal waters.

Existing waterfront facilities at Alameda Point include the Oakland Inner Harbor channel (along the northeast site boundary); Piers 1, 2, and 3; and the Seaplane Lagoon. Historically, the entrances to the pier area and the basin have been dredged to 42 feet below mean lower low waterline (MLLW) plus two feet overdredge every two years. Piers 1, 2, and 3 were dredged to 50 feet below MLLW (plus 2 feet of overdredge). The Seaplane Lagoon was dredged to 15 feet below NGVD[3] in the 1940s. A portion of the lagoon was also dredged in 1981, when the U.S. Navy sought to increase the depth for the purposes of diver training (City of Alameda, 2002) and then as part of the its environmental remediation activities in 2011 (U.S. Navy, 2013). The portion of the Seaplane Lagoon ramp surveyed for radioactivity as part of the Finding of Suitability Testing indicated presence of background levels of radioactivity, with no measurements exceeding the release criteria (U.S. Navy, 2013). Refer to Section 4.J. *Hazards and Hazardous Materials*, for further details. The Port of Oakland conducts dredging of the Oakland Inner Harbor channel in cooperation with the U.S. Army Corps of Engineers to maintain the shipping channel. It is expected that the Port will continue to manage dredging activities in the Inner Harbor (City of Alameda, 2002).

Groundwater Resources

The project site lies in the East Bay Plain of the San Francisco Bay Hydrologic Region (Department of Water Resources [DWR] Groundwater Basin[4] No. 2-9.04), a northwest-trending alluvial plain bounded on the north by San Pablo Bay, on the east by the contact with Franciscan Basement rock, and on the south by the Niles Cone Groundwater Basin (DWR, 2004). The East Bay Plain extends from Richmond to Hayward. The alluvial materials that extend westward from the East Bay Hills to the edge of San Francisco Bay constitute the deep water-bearing strata for this groundwater basin, which is identified as a potential water source for municipal, industrial, and agricultural use (RWQCB, 2011). Since the early 1950s, historic groundwater levels in the deep aquifer in the basin have varied between 10 and 140 feet below mean sea level (DWR, 2004). Subsurface groundwater at the project site occurs at shallower depths consistent with the low existing ground elevations (CBG, 2013a).

Flooding

100-Year Flood Hazard Area

Flooding is inundation of normally dry land as a result of rise in the level of surface waters or rapid accumulation of stormwater runoff. The Federal Emergency Management Agency (FEMA), through its Flood Insurance Rate Mapping (FIRM) program, designates areas where urban flooding could

3 National Geodetic Vertical Datum.
4 A groundwater basin is defined as a hydrogeologic unit containing one large aquifer or several connected and interrelated aquifers (RWQCB, 1995).

occur during 100-year and 500-year flood events.[5] Presently, the project site is not included in a Flood Insurance Study or Flood Insurance Rate Map because it was a federal facility (CBG, 2013b).

The flood hazards that could affect portions of the project site include areas such as the perimeter shoreline subject to flooding in a 100-year tidal event and wave/wind run up (see **Figure 4.I-1**). The portion of Main Street adjacent to the northeastern portion of the project site is identified as located within Zone A, which is an area subject to flooding in a 100-year event (CBG, 2013a).

Since the project site abuts the tidal canal, the highest tide levels associated with storm surge events can be high enough to cause localized flooding of the lowest lying portions of the site under existing conditions (CBG, 2013a). The mean higher high water elevations are only slightly below the lowest ground elevations at the site. Therefore, localized flooding is a potential issue along much of the northern perimeter of the site whenever any significant rainfall coincides with the higher high tide peak, even without consideration of storm surge effects (CBG, 2013a).

With regard to wind/wave runup, the majority of the shoreline within the project site is well protected from wind generated waves and from swell. The northern shoreline along the Oakland-Alameda Estuary and the Seaplane Lagoon shoreline are sheltered from wind waves. Wave/wind run-up for these shorelines is estimated to be a maximum of 1 foot (CBG, 2013b). The shorelines along the southern edge of the project site, east of the Seaplane Lagoon are directly exposed to the wind generated waves. The 100-year wind wave heights estimated for these shorelines are approximately 4 feet (CBG, 2013b). As discussed in Chapter 3, Project Description, the perimeter coastal areas within Alameda Point will be designed to protect future development from wave/wind run up in coordination with an Adaptive Management Plan to incorporate flood protection measures.

Seiche and Tsunami

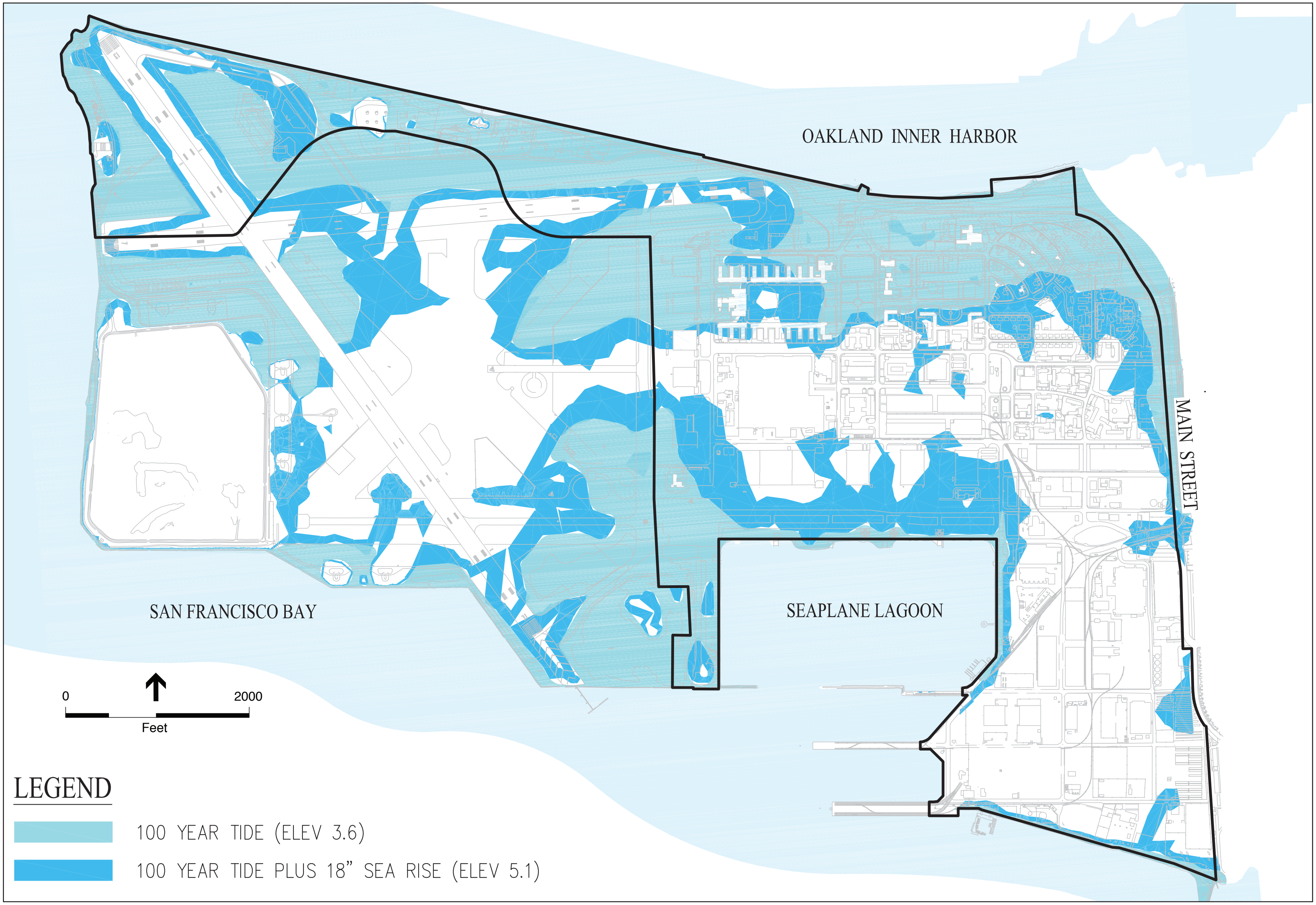
Seiches are waves in an enclosed or semi-enclosed body of water such as a lake or a reservoir. The tidal canal, with its connection to San Francisco Bay on either end, is not characterized as an enclosed or semi-enclosed body of water and therefore is not susceptible to seiches.

Tsunamis are waves caused by an underwater earthquake, landslide, or volcanic eruption. Flooding from tsunamis would generally affect low-lying areas along the Pacific coastline and San Francisco Bay. In a recent scientific report (Wood et. al., 2013), the U.S. Geologic Survey (USGS) evaluated the potential community exposure to tsunami hazards along the California coastline, including San Francisco Bay. The primary purpose of the study is to support preparedness and education efforts. The report indicates that in the event of a tsunami, the maximum onshore runup elevation in Alameda would be 16.73 feet from a distant source[6] and 4.26 feet from a local source[7]; the distance source instances would inundate a majority of the

5 A 100-year flood event has a one percent probability of occurring in a single year. Although infrequent, 100-year floods can occur in consecutive years or periodically throughout a decade. A 500-year flood event has a 0.2 percent probability of occurring in a single year.

6 Aleutians 3

7 Point Reyes thrust fault



In order to account for the increased mean sea level represented between the old and new tidal epochs, the 100-year tidal elevation of 3.4 is increased by 0.2 feet to elevation 3.6 (City Datum).

SOURCE: CBG, 2013b

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Figure 4.I-1

Approximate Areas of Inundation on Project Site project site. The report documents geographic variations in community exposure to tsunami hazards in California however the potential losses would only match reported inventories if all residents, employees, and visitors in tsunami-prone areas were unaware of tsunami risks, were unaware of what to do if warned of an imminent threat (either by natural cues or official announcements), and failed to take protective measures to evacuate. This assumption is unrealistic, given the current level of tsunami-awareness efforts in California. Because the tsunami-inundation zone identifies the maximum areas of inundation from various earthquake and landslide sources, it is not meant to imply that all delineated areas would be inundated by a single future tsunami. Finally, the tsunami-inundation zone does not provide any indicator of the probability of specific earthquake or landslide scenarios. The tsunami-inundation zone used in the study is a guide for emergency planning and is not a prediction for a future event (Wood et al., 2013).

The Alameda General Plan (1991) describes tsunamis and seiches as secondary seismic hazards associated with earthquakes (described in detail in Section 4.H, *Geology, Soils, and Seismicity*) and notes that the likelihood of these hazards occurring due to groundshaking is not as high as other hazards such as earthquakes and landslides, which are discussed further in Section 4.H, *Geology, Soils, and Seismicity*). (CBG, 2013a) The California Emergency Management Agency and California Geological Survey have coordinated preparedness efforts in the State and in understanding how communities vary in their exposure to tsunamis helps emergency managers, land-use planners, public works managers, and the maritime community understand potential tsunami impacts and to determine where to complement regional risk-reduction strategies with site-specific efforts that are tailored to local conditions and needs. The City of Alameda is the local agency that operates the disaster preparedness and emergency services in the project area.

The National Oceanic and Atmospheric Administration (NOAA) operates the Tsunami Warning System with centers located in Hawaii and Alaska. The Pacific Tsunami Warning System (PTWS) in the Pacific, comprised of 26 participating international Member States, monitors seismological and tidal stations throughout the Pacific Basin. The PTWS evaluates potentially tsunamigenic earthquakes and disseminates tsunami warning information. The PTWS is the operational center located in Honolulu, Hawaii, and provides tsunami warning information to national authorities in the Pacific Basin (City of Alameda, 2008). Warnings alert the public that widespread, dangerous coastal flooding accompanied by powerful currents is possible and may continue for several hours after arrival of the initial wave. Warnings also alert emergency management officials to take action for the entire tsunami hazard zone. Appropriate actions to be taken by local officials may include the evacuation of low-lying coastal areas, and the repositioning of ships to deep waters when there is time to safely do so. Warnings may be updated, adjusted geographically, downgraded, or canceled. To provide the earliest possible alert, initial warnings are normally based only on seismic information (NOAA, 2009). In Alameda, occupants would be notified of the advisory, watch, or warning via the City’s Alert and Warning Siren System. The City has developed a Comprehensive Emergency Management Plan (2008, discussed further in the Local Regulatory Setting below) to protect the safety and welfare of the residents, employees, and visitors in Alameda during flooding emergencies.

Dam Failure

Flooding can also occur due to dam failure. The California DWR, Division of Safety of Dams (DSOD) oversees the construction of dams that are more than 25 feet high and impound more than 15 acre-feet of water, or more than six feet high and impound more than 50 acre-feet of water. Due to DSOD regulatory oversight, monitoring, and design review, the potential is minimal for the catastrophic failure of a properly designed and constructed dam, whether caused by a seismic event, flood event, unstable slope conditions, or damage from corrosive or expansive soils. Although some areas in Oakland include dam failure inundation areas, there are no dams located within Alameda or immediately upstream.

Sea Level Rise

Global climate change will likely result in sea level rise and could expose shoreline areas to flooding as well as affect the timing and amount of precipitation. Climate change is expected to result in more extreme weather events; both heavier precipitation events that can lead to flooding as well as more extended drought periods. According to the Intergovernmental Panel on Climate Change (IPCC), the average global mean sea level has increased by approximately 5.9 inches during the past 100 years (IPCC, 2007) and the global mean sea level could increase by 7 to 23 inches by 2099. The Pacific Institute (2009) found that over the past century, sea level has risen nearly 8 inches along the California coast, and general circulation model scenarios suggest very substantial increases in sea level as a significant impact of climate change over the coming century. Based on a set of climate scenarios prepared for the California Energy Commission's Public Interest Energy Research (PIER) Climate Change Research Program, Cayan et al. (2009) project that, under medium to medium-high emissions scenarios, mean sea level along the California coast will rise from 1.0 to 1.4 meters (m) by the year 2100.[8] The 1.4-m rise in sea level along the California Coast could put large number of residents in Alameda County at risk, increasing the risk of inundation in a 100-year flood event (Pacific Institute, 2009).[9] With sea level rise, the project site would be exposed to storm event flooding necessitating adaptive measures to reduce the risk of flooding (BCDC, 2013).

Regulatory Setting

Federal

Clean Water Act

Under the Clean Water Act (CWA) of 1977, the U.S. Environmental Protection Agency (EPA) seeks to restore and maintain the chemical, physical, and biological integrity in the nation's waters. The statute employs a variety of regulatory and nonregulatory tools to reduce direct pollutant discharges into waterways, finance municipal wastewater treatment facilities, and manage polluted runoff. The CWA authorizes the EPA to implement water quality regulations. The National Pollutant Discharge

8 It is important to note that most climate models fail to include ice-melt contributions from the Greenland and Antarctic ice sheets, and as a result, the potential increase in mean sea level may be much Higher (Pacific Institute, 2009).

9 The trends and potential increases in sea level rise are typically reported in ranges due to the variation of the estimates between different research studies.

Elimination System (NPDES) permit program under section 402(p) of the CWA controls water pollution by regulating stormwater discharges into the waters of the U.S. California has an approved state NPDES program. The EPA has delegated authority for water permitting to the California State Water Resources Control Board (SWRCB), which has nine regional boards. The San Francisco Bay Regional Water Quality Control Board (RWQCB) regulates water quality in the project area.

Total Maximum Daily Load

Section 303(d) of the CWA requires that each state identify water bodies or segments of water bodies that are "impaired" (i.e., not meeting one or more of the water quality standards established by the state). These waters are identified in the Section 303(d) list as waters that are polluted and need further attention to support their beneficial uses. Once the water body or segment is listed, the state is required to establish Total Maximum Daily Load (TMDL) for the pollutant causing the conditions of impairment. TMDL is the maximum amount of a pollutant that a water body can receive and still meet water quality standards. Typically, TMDL is the sum of the allowable loads of a single pollutant from all contributing point and nonpoint sources. The intent of the 303(d) list is to identify water bodies that require future development of a TMDL to maintain water quality.

In accordance with Section 303(d), the San Francisco Bay RWQCB has identified impaired water bodies within its jurisdiction, and the pollutant or stressor responsible for impairing the water quality. Within the project site vicinity, the RWQCB has designated the Central Basin of the San Francisco Bay and the Oakland Inner Harbor as impaired water bodies (RWQCB, 2010). Pollutants that contribute to the impairment in this water bodies are chlordane, DDT, dieldrin, dioxin compounds, exotic species, furan compounds, mercury, polyaromatic hydrocarbons, polychlorinated biphenyls, and selenium. The potential sources of the pollutants listed are non-point sources, atmospheric deposition, ballast water, municipal and industrial point sources and resource extraction, point sources, urban runoff, agriculture, exotic species, and natural sources.

In addition to the impairments listed above, the Oakland Inner Harbor is listed for sediment toxicity at the Fruitvale site and copper, lead, and zinc at the Pacific Dry Dock Yard 1 Site (RWQCB, 2010), both of which are located east and northeast of the project site, respectively. The San Francisco Bay RWQCB is in the process of establishing TMDLs for these pollutants in order to gradually eliminate impairment of the waters and attain water quality standards (ACCWP, 2011). A future project applicant on the Alameda Point site would be required to ensure that their proposed project would not conflict with the current TMDLs and comply with specific water quality control measures under the National Pollutant Discharge Elimination System (NPDES) permit requirements (see below for details) to prevent project-related contaminants from entering into the Oakland Estuary and the Central Basin.

Waste Discharge Requirements

A future project applicant would be subject to Section 401 of the CWA and would be required to apply for a federal permit or license for project activities, which may result in a discharge of pollutants to the waters of the U.S. (including permits under Section 404 of the CWA, see Section 4.E, *Biological Resources*). The purpose of the permit application is to obtain certification that the proposed activity will comply with the State water quality standards. The proposed project would require Section 401 Water Quality Certification for in-water construction activities such as removal of debris or dredging and would be subject to Section 404 of the CWA (see Section 4.E, *Biological Resources*).

State

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act allows the SWRCB to adopt statewide water quality control plans or basin plans. The purpose of the plans is to establish water quality objectives for specific water bodies. The San Francisco Bay RWQCB has prepared the *San Francisco Bay Basin Plan* that establishes water quality objectives and implementation programs to meet the stated objectives and to protect the beneficial uses of the bay waters (see regional regulatory discussion below). The act also authorizes the National Pollutant Discharge Elimination System (NPDES) program under the CWA, which establishes effluent limitations and water quality requirements for discharges to waters of the state. Most of the implementation of SWRCB's responsibilities is delegated to the nine regional boards. Under the NPDES program, the San Francisco Bay RWQCB has established permit requirements for stormwater runoff for the project site vicinity (see Regional discussion below).

Regional

The San Francisco Bay RWQCB is responsible for the protection of beneficial uses and the water quality of water resources in the project area. The RWQCB administers the NPDES stormwater permitting program and regulates stormwater in the San Francisco Bay region, which includes the project site. The City of Alameda is a permittee under the NPDES permit for the Alameda Countywide Clean Water Program (see below for detailed discussion). The proposed project would be subject to CWA Section 404 permit from the U.S. Army Corps of Engineers (USACE) and thus require CWA Section 401 Water Quality Certification from the San Francisco Bay RWQCB (Refer to Section 4.E, *Biological Resources*, for further details).

Basin Plan

The San Francisco Bay RWQCB prepared the *San Francisco Bay Water Quality Control Plan* (Basin Plan) (2011), which contains descriptions of the legal, technical, and programmatic bases of water quality regulation in the region. The Basin Plan describes beneficial uses of major surface waters and their tributaries. The following beneficial uses have been listed for the Oakland Inner Harbor in the Central Basin of San Francisco Bay (2011):

- Estuarine Habitat
- Wildlife Habitat
- Navigation
- Water Contact Recreation
- Noncontact Recreation

The San Francisco Bay RWQCB is responsible for permitting construction and operational activities for development projects to ensure the protection of the above beneficial uses. The Basin Plan provides specific requirements for dredging activities that would be a part of the proposed project. In the San Francisco Bay region, the dredged material is disposed at designated ocean and in-Bay disposal sites. The overall policy of the RWQCB for dredged sediment and its disposal includes a reduction of in-Bay disposal volumes and an increased emphasis on beneficial reuse of the dredged material. The most likely beneficial reuse of dredged material is wetland restoration projects or for levee maintenance or repair (DMMO, 2001).

McAteer-Petris Act / San Francisco Bay Conservation and Development Commission (BCDC)

The McAteer-Petris Act is a provision under California law that preserves San Francisco Bay from indiscriminate filling. The act established the San Francisco Bay Conservation and Development Commission (BCDC) as the agency-in-charge with preparing a plan for the long-term use of the Bay and regulating development in and around the Bay while the plan was being prepared. The San Francisco Bay Plan, completed in January 1969, includes policies on 18 issues critical to the wise use of the Bay, ranging from ports and public access to design considerations and weather. The McAteer-Petris Act authorizes BCDC to incorporate the policies of the Bay Plan into state law. The Bay Plan has two features: policies to guide future uses of the Bay and shoreline, and maps that apply these policies to the bay and shoreline. BCDC conducts the regulatory process in accord with the Bay Plan policies and maps, which guide the protection and development of the bay and its tributary waterways, marshes, managed wetlands, salt ponds, and shoreline (BCDC, 2003).

BCDC has jurisdictional over areas within “a shoreline band that consists of all territory located between the shoreline of the Bay and a line 100 feet landward of and parallel with that line” (BCDC, 2007). The proposed redevelopment and activities on the project site within the 100-foot shoreline band would lie within BCDC jurisdiction and would be subject to BCDC requirements. Refer to Section 4.E. *Biological Resources*, for details on BCDC permitting and requirements for the proposed project.

Construction Permitting

Construction activities on one or more acres of land are regulated by the San Francisco Bay RWQCB and are subject to the requirements of the NPDES General Permit for Discharges of Stormwater Runoff Associated with Construction Activity (General Construction Permit). The proposed project would be required to comply with the requirements in the 2009 Construction General Permit Order 2009-0009-DWQ and adopted as amended in July 2012. The SWRCB established the General Construction Permit for the purpose of reducing impacts to surface waters that may occur due to construction activities. A future project applicant would be required to apply for the General Construction Permit that requires the preparation and implementation of a stormwater pollution prevention plan (SWPPP) prepared by a Qualified SWPPP Developer. The SWPPP is prepared before project construction begins and, in certain cases, before demolition begins and includes specifications for best management practices (BMPs) that would be implemented during construction. BMPs are measures undertaken to control degradation of surface water by preventing soil erosion or the discharge of pollutants from the construction area. Additionally, the SWPPP describes measures to prevent or control runoff after construction is complete, and it identifies procedures for inspecting and maintaining facilities or other project elements. Some of the required elements of a SWPPP include:

1. A site map(s) which shows the construction site perimeter, existing and proposed buildings, lots, roadways, storm water collection and discharge points, general topography both before and after construction, and drainage patterns across the project.
2. A list of Best Management Practices (BMPs) the discharger will use to protect storm water runoff and the placement of those BMPs. Additionally, the SWPPP
3. Description of a visual monitoring program; a chemical monitoring program for “non-visible” pollutants to be implemented if there is a failure of BMPs; and a sediment monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment.

Examples of typical construction BMPs include scheduling or limiting activities to certain times of the year; installing sediment barriers, such as silt fence and fiber rolls; maintaining equipment and vehicles used for construction; tracking controls, such as stabilizing entrances to the construction site; and developing and implementing a spill prevention and cleanup plan. Non-stormwater management includes installing specific discharge controls during activities, such as paving operations, vehicle and equipment washing and fueling.

Development at Alameda Point would also be subject to the City of Alameda’s NPDES permit to control stormwater discharges from the construction activities. The City’s NPDES permit is held under the Alameda County Clean Water Program (discussed under Alameda County discussion below).

Construction activities at the project site, such as excavation and trenching in areas with shallow groundwater, would require dewatering, which would be subject to the RWQCB construction dewatering permit requirements. Dewatering operations are regulated under State requirements for stormwater pollution prevention and control. Discharge of non-stormwater from a trench or excavation that contains sediments or other pollutants to sanitary sewer, storm drain systems, creek bed (even if dry), or receiving waters is prohibited. Discharge of uncontaminated groundwater from dewatering is a conditionally exempted discharge by the RWQCB. However, the extracted water could potentially be contaminated with chemicals released from construction equipment or sediments from excavation. Therefore, disposal of dewatering discharge would require permits from either the RWQCB for discharge to surface creeks and groundwater, or local agencies for discharge to storm or sanitary sewers. The RWQCB lists non-stormwater discharge controls specifically for dewatering operations, which would apply to the proposed project. Discharge of water into the Bay resulting from dewatering operations would require an NPDES permit, or a waiver (exemption) from the RWQCB, which would establish discharge limitations for specific chemicals (if they occur in the dewatering flows).

Dredging Permitting

The proposed project would include dredging during the construction of the proposed marina and a new boat launching area in the Seaplane Lagoon. A future project applicant for development in the Seaplane Lagoon would therefore be subject to regulatory requirements applicable to dredging activities.

A future project applicant would be required to apply for Section 404 permit from the USACE prior to dredging. (See also Section 4.E, *Biological Resources*, for additional discussion of Section 404 permit). As a part of the Section 404 permitting process, the project applicant would be required to obtain a water quality certification from the RWQCB under Section 401 of the CWA. Under the Porter Cologne Water Quality Control Act, the San Francisco Bay RWQCB may issue waste discharge requirements for the project in conjunction with the water quality certification. The dredged material is required to be disposed at ocean or in-bay disposal sites or reused for wetland restoration or dike maintenance. In the event an in-Bay disposal is proposed, the project applicant would be required to provide an adequate alternatives analysis showing that there are no practicable alternatives to in-bay disposal (USACE, 2001).

The Dredged Material Management Office (DMMO) regulates dredging and dredged material in the San Francisco Bay region. The DMMO consists of representatives from the USEPA-Region 9, U.S. Army Corps of Engineers-San Francisco, San Francisco Bay RWQCB, BCDC, and the State Lands Commission. The DMMO serves as the single point of entry for applicants to the dredging and disposal permitting process. The DMMO regulates two types of dredging projects, 1) small dredging projects defined by a project depth of less than -12 feet MLLW and generating less than 50,000 cubic yards per year on average, and 2) other dredging projects defined by project depth greater than -12 feet MLLW or average annual volumes greater than 50,000 cubic yards (USACE, 2001). The Impacts Analysis section below discusses the specific dredging regulatory compliance.

San Francisco Estuary Project

The San Francisco Estuary Project was established pursuant to CWA Section 320 to protect and improve the water quality and natural resources of San Francisco Bay-Delta Estuary. The San Francisco Estuary Project, through its *2007 Comprehensive Conservation and Management Plan*, recommends actions in the several areas, such as aquatic resources, water use, pollution prevention and reduction, dredging and waterway modification, and research and monitoring. The project site is located in the San Francisco Bay hydrologic region and drains eventually into San Francisco Bay, which is a part of the Bay-Delta Estuary. Therefore, the following recommended actions would apply to the project:

- **Action PO-2.4:** Improve the management and control of urban runoff from public and private sources.
- **Action LU-3.2:** Develop and implement guidelines for site planning and BMPs.

Alameda Countywide Clean Water Program

The City of Alameda is one of the 17 participating agencies in the Alameda Countywide Clean Water Program (ACCWP, 2010), which cooperatively complies with a municipal stormwater permit issued by the RWQCB. The permit contains requirements to prevent stormwater pollution and to protect and restore creek and wetland habitat. The member agencies have developed performance standards to clarify the requirements of the stormwater pollution prevention program, adopted stormwater management ordinances, conducted extensive education and training programs, and reduced stormwater pollutants from industrial areas and construction sites.

In the project site vicinity, the ACCWP administers the stormwater program to meet the CWA requirements by controlling pollution in the local storm drain sewer systems.

The ACCWP prepared the *Stormwater Quality Management Plan* in 2003 that was effective through June 2008 and continues to be in use until replaced. This plan describes the ACCWP's approach to reducing stormwater pollution. In conjunction with the stormwater discharge permit adopted by the RWQCB, the plan is designed to enable the ACCWP member agencies to meet CWA requirements. The plan provides a framework for protection and restoration of creeks and watersheds in Alameda County in part through effective and efficient implementation of appropriate control measures for pollutants. The plan addresses the following major program areas: regulatory compliance, focused watershed management, public information/participation, municipal maintenance activities, new development and construction controls, illicit discharge controls, industrial and commercial discharge controls, monitoring and special studies, control of specific pollutants of concern, and performance standards. New development and construction controls in the plan would apply to the project (ACCWP, 2003).

The *Stormwater Quality Management Plan* recommends tasks to implement source, site design, post-construction stormwater treatment and hydromodification[10] controls (ACCWP, 2003). The ACCWP C.3 Technical Guidance Manual (2013) describes site design measures as low impact development (LID) techniques employed in the design of a project site in order to reduce the project's impact on water quality and beneficial uses. Site design measures are categorized as measures that preserve sensitive areas and high quality open space and that reduce impervious surfaces for the project. The Manual emphasizes site design measures that reduce impervious surfaces, which can reduce the amount of stormwater runoff that will require treatment. This translates into smaller facilities to meet stormwater treatment requirements than would have been needed without the site design measures. Site design measures are also important in minimizing the size of any required hydromodification management measures for the site. For example, areas such as conserved natural spaces, landscaped areas (such as parks and lawns), and green roofs may function as self-treating areas if they are designed to store and infiltrate the rainfall runoff; or areas such as concave landscaped areas at a lower elevation than surrounding paved areas designed to accept runoff from impervious areas. In addition to such LID techniques, stormwater treatment measures such as biofiltration through soil or plant-based filtration devices aid in water quality protection by removing pollutants through a variety of physical, biological, and chemical treatment processes (ACCWP, 2013).

Construction activities associated with the proposed project would be subject to the NPDES permit requirements for stormwater management and discharges. The ACCWP NPDES permit also incorporates updated state and federal requirements related to the quantity and quality of post-construction stormwater discharges from new development and redevelopment projects.

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[10] Hydromodification is alteration of the natural flow of water through a landscape.

The most recent Municipal Regional Stormwater NPDES Permit[11] (No. CAS612008) that the San Francisco Bay RWQCB issued to ACCWP was adopted in October 2009 and revised in November 2011. The stormwater system at the project site would be regulated under the NPDES permit. In particular, Provision C.3 in the NPDES Permit governs storm drain systems and regulates post-construction stormwater runoff. The provision requires new development and redevelopment projects to incorporate treatment measures and other appropriate source control and site design features to reduce the pollutant load in stormwater discharges and to manage runoff flows. "Redevelopment" is defined as a project on a previously developed site that results in the addition or replacement of impervious surface. A redevelopment project that adds or replaces at least 10,000 square feet of impervious surface is required to adhere to the C.3 provisions. The proposed project would replace more than 5,000 square feet of impervious surface; therefore would be required to incorporate treatment measures and appropriate source control and site design measures under the NPDES permit.

City of Alameda City Code

Chapter XVIII, Sewer and Water, in the Alameda Municipal Code includes Article III, Stormwater Management and Discharge Control, including discharge regulations and requirements. The Municipal Code prohibits discharge of non-storm water discharges to the City storm sewer system and requires that discharges of material other than stormwater must be in compliance with a NPDES permit issued for the discharge.

Chapter XX, Floodplain Management in the Municipal Code applies to areas subject to special flood hazards as mapped in FIRMs in the city; thus would apply to the proposed project.

City of Alameda General Plan

The following Guiding Policies and Implementing Policies contained in the City of Alameda *General Plan* are relevant to the project:

Guiding Policies

Policy 5.1s Participate in the Non-Point Source Control Program (NPSC).

Although not fully designed, the NPSC Program is anticipated to include measures for prevention of contamination and source control of pollutants. Treatment of urban runoff, while potentially effective, is costly, and prevention and source control are the preferred methods of abatement. The main objective of the NPSC Program is to ensure that only storm water enters the storm drains, which will involve eliminating illegal connections and strict surveillance and enforcement of "no dumping" mandates. Educational as well as regulatory strategies are under consideration.

Policy 5.1t Consider adopting City standards in addition to those adopted by the County, to deal with non-point source water pollution problems such as sheet flow storm runoff and sedimentation affecting sensitive water habitats.

[11] A regional permit that applies to the cities and unincorporated areas in several Bay Area counties, including Alameda, Contra Costa, San Mateo, Santa Clara, and Solano Counties.

Policy 5.1w Require new marinas and encourage existing marinas to provide easily accessible waste disposal facilities for sewage and bilge and engine oil residues.

Implement Policy

Policy 5.1.x Prevent migration of runoff off-site or into wetland areas and water-related habitat by requiring that proposed projects include design features ensuring detention of sediment and contaminants.

Project design should specify techniques to be used to detain runoff. On-site inspection during construction may be necessary to ensure that designs are realized.

Guiding Policies

Policy 8.3.b Ensure that structures proposed for sites located on floodplains subject to the 100-year flood are provided adequate protection from floods.

Portions of Alameda identified to be at risk include areas along Main Street near the Gateway and near the Webster Street/Posey tubes.

Policy 8.3.c Monitor EPA reports on sea level rise in order to anticipate impacts if sea level rise accelerates; coordinate with BCDC to design an appropriate response.

Policy 8.3.e Support a multi-use concept of roadways, including, where appropriate, uses for flood control, open space, nature study, habitat, pedestrian circulation, and outdoor sports and recreation.

Implementing Policies

Policy 8.3.f Use all possible means of reducing the potential for flood damage in Alameda. These include the requirement of flood-proofing, flood forecast and warning or evacuation programs, and stringent groundwater management programs to prevent subsidence.

Relocation of existing structures has been identified as another method of reducing flood damage, but is considered generally economically infeasible and socially unacceptable.

Policy 8.3.i Reduce the effect of surface runoff by the use of extensive landscaping, minimizing impervious surface and drainage easements.

Policy 8.3j Require shoreline owners to maintain perimeter dikes to applicable standards.

Policy 8.3.k Leave adequate setbacks along waterfront areas for the expansion of seawalls and levees.

Policy 8.3l Regularly inspect and maintain seawalls around the City.

Guiding Policies

Policy 9.6a Integrate the management of Alameda Point's runoff management into the City's existing programs.

Policy 9.6b Support improvement programs that address water quality, urban runoff, and flooding.

Implementing Policies

Policy 9.6c Integrate Alameda Point into the City of Alameda's Stormwater Management and Discharge Control Program.

Policy 9.6d Require all proposed reuse activity in Alameda Point to be in compliance with the RWQCB stormwater recommendations.

Policy 9.6e Restrict the installation of water supply wells in the uppermost aquifer at Alameda Point to reduce the potential use, or migration of, groundwater affected by the release of hazardous materials.

Policy 9.6f Support development of a water-quality testing program for all existing water supply wells in Alameda Point to determine the safe uses or appropriate discharge of pumped water.

Policy 9.6g Support preparation of a Flood Insurance Study by FEMA to cover Alameda Point.

Policy 9.6h Coordinate incorporation of Alameda Point into the City of Alameda Urban Runoff Program to reduce potential water quality degradation related to urban runoff.

Policy 9.6i Identify and implement improvement programs to address periodic flooding at Alameda Point.

Policy 9.6j Establish an assessment mechanism to provide for capital costs for construction, maintenance, and operation of urban runoff Best Management Practices and costs associated with inspection, monitoring, and reporting that could be incurred by the City in incorporation of the Alameda Point into the Urban Runoff Program.

City of Alameda Emergency Services - Flood Risk

The City has developed a Comprehensive Emergency Management Plan (2008) to protect the safety and welfare of the residents, employees, and visitors in Alameda during emergencies such as earthquakes and floods including tsunamis. The Standardized Emergency Management System (SEMS) is a system required by Government Code §8607(a) for managing response to multi-agency and multi-jurisdiction emergencies in California. The City is responsible for coordination and direction of response and recovery operations in Alameda. SEMS may be activated and resources mobilized in anticipation of possible disasters. Such anticipatory actions may be taken when there are flood watches or earthquake advisories (City of Alameda, 2008).

The City of Alameda Fire Department coordinates the emergency management and disaster preparedness program for the city by working with the Fire and Police Departments, City staff, partner agencies, businesses, and citizens to minimize risk by actively seeking to mitigate hazards, to prepare for, respond to, and successfully recover from natural or manmade disasters when they strike. In its efforts to prepare and inform the community and its residents in case of disasters, the Fire Department offers various training programs, notification methods, and city planning and response information, which include the Alert and Warning Siren System, Code Red Notification System, and the Emergency Operation Plan, which is listed as part of the City of

Alameda's efforts for protection from a tsunami hazard at the project site, and would be implemented by the Fire Department.[12]

The City of Alameda Alert and Warning System is designed to provide a means to notify the community that a severe emergency event has occurred. The network of safety sirens and media links will warn and inform the community of what to do in an emergency or disaster, which include flooding from tsunamis and other public safety incidents (City of Alameda, 2008).

The Alert and Warning system is composed of two main systems: the siren alert system and emergency communications. Five siren towers can be activated simultaneously or separately to alert Alameda residents of an emergency taking place in their vicinity. The siren towers are strategically placed to provide complete audible coverage across town. Upon hearing a siren, residents should Shelter-Shut-Listen, then access one of several communication systems for emergency warnings and information. The ATTENTION or ALERT signal is a 3 to 5 minute steady tone on sirens, horns, or other devices. This signal is meant to transmit the message that an emergency exists and/or is imminent. Citizens are instructed to listen to local radio, area radio, or television stations for essential emergency information. Radio 1280 AM, Alameda Radio, transmits from a base station located at Franklin Park, providing a central point of broadcast. Emergency information will also be presented on Cable Channel 15, Alameda's government access television station and on the City's website (City of Alameda, 2008).Please refer to Section 4.L. *Public Services and Recreation*, for information related to medical emergency services.

I.2 Impacts and Mitigation Measures

Significance Criteria

A hydrology or water quality impact would be considered significant if the impact would result in any of the following, which are adapted from CEQA *Guidelines*, Appendix G CEQA Thresholds/Criteria of Significance Guidelines:

- Violate any water quality standards or waste discharge requirements or otherwise substantially degrade water quality;
- 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;
- Substantially alter the existing drainage pattern of a site or area through the alteration of the course of a stream or river, or by other means, in a manner that would result in substantial erosion or siltation on- or off-site or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site;
- Create or substantially contribute to runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;

[12] http://alamedaca.gov/fire/emergency-operation-plan

- Place housing or other improvements within a 100-year flood hazard zone as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard map or 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; or
- Expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow.

Impact Analysis

The following impact analysis focuses on potential impacts of the proposed project related to hydrology and water quality. The Appendix G criteria discussed below are not considered relevant to the project based upon the existing conditions and the proposed project plans; therefore, they will not be evaluated further in this EIR:

> ***Groundwater Supplies:*** The project site is currently almost entirely covered by impervious surfaces and receives little to no recharge from precipitation. With construction of the proposed project and introduction of landscaped areas, there would be a net increase in groundwater recharge. The proposed project would not require the extraction of any groundwater supplies other than potentially temporary dewatering of shallow groundwater during construction, which is discussed under Impact 4.I-2 below. Otherwise, there would be no impact to local groundwater supplies or groundwater recharge.

> ***Seiche, Mud Flows, Dam Failure:*** As discussed above in the setting section, the proposed project site is not located in an area susceptible to seiche, mud flows, or dam failure. There would be no impact related to these hazards. The impacts associated with inundation from a 100-year storm event, a tsunami, and sea level rise are discussed further below.

Construction Impacts

Impact 4.I-1: Project construction facilitated by the proposed project, on-land and in-water, would potentially involve activities that could violate water quality standards or waste discharge requirements or otherwise substantially degrade water quality. (Less than Significant)

The proposed project would involve construction associated with redevelopment and new construction as part of mixed retail; commercial recreation; commercial office, business park, industrial, institutional, maritime; and marina uses. Project construction would occur on land onsite and also in water for construction of the marina and related uses.

On-land Construction. The majority of construction associated with the proposed project would occur on land and would involve excavation, soil stockpiling, and other ground-disturbing activities associated with the proposed structures, the associated utilities including the new stormwater system. The construction activities would generate loose, erodible soils that, if not properly managed, could be washed into surface water by rain or by water used during construction activities. Soil erosion could cause excess sediment loads in waterways and affect the water quality of the tidal canal and eventually San Francisco Bay. However, required stormwater control measures, such as the installation of silt fences and hay bales, would be implemented to prevent uncontrolled stormwater runoff from being discharged off the site. Construction would involve the use of fuel and other chemicals that, if not managed properly, could also get washed off into the stormwater. These construction impacts, while temporary, would be potentially significant, particularly due to the close proximity of the project site to the tidal canal and San Francisco Bay. (CBG, 2013a) Adherence to the San Francisco Bay RWQCB requirements as part of the General Construction Permit would include preparation and execution of a SWPPP that would outline construction stormwater quality management practices likely based on the ACCWP *Stormwater Quality Management Plan.* The SWPPP would describe erosion control measures similar to those recommended by the ACCWP which are designed to reduce the potential for pollutants to contact stormwater and eliminate or reduce discharge of materials to stormwater. Implementation of the NPDES requirements would reduce soil erosion and release of hazardous materials into watercourses. Therefore, construction of the proposed project on land would not cause degradation of water quality in the tidal canal or other waterways or violate any water quality standards. The impact would be less than significant after regulatory compliance.

In-water Construction. In addition to construction on land, the proposed project would involve construction within nearby surface waters and by the shoreline such as constructing the proposed stormwater outfalls along the northern and southern shorelines, and a marina in the Seaplane Lagoon. In-water construction activities including removal and disposal of potentially contaminated sediment could result in turbidity and re-suspension of sediments. This could adversely affect the water quality of the Inner Harbor and the Bay.

Any construction work that would take place in the Inner Harbor, the Seaplane Lagoon, or the Bay would be required to adhere to Section 401 and 404 of the CWA with approvals from the U.S. Army Corps of Engineers and the RWQCB. Please refer to Section 4.E. *Biological Resources*, for a detailed description of related permits and impacts. A future project applicant would be required to obtain permits from the U.S. Army Corps of Engineers, RWQCB, BCDC, and the City which will include measures to protect water quality during construction. The project would incorporate rip-rap, geotextile fabrics, planting or combination of such measures to protect the site from erosion. The rock slope protection would be designed to maintain a stable configuration (CBG, 2013a) for erosion and sedimentation control.

The type of dredging and the equipment used for dredging would be strongly influenced by desired depths and the quality of material. Such activities could disturb mud or require removal and disposal of potentially contaminated sediment that could result in turbidity and re-suspension of sediment, which could adversely affect the water quality of the tidal canal and the Bay. The project would be subject to the DMMO requirements for dredging and dredged materials and as discussed in the Regulatory Setting section, would fall under the first category of projects permitted by the DMMO.

Should testing of the proposed sediments to be dredged be considered necessary, a future project applicant would prepare a sediment analysis plan (SAP) and obtain an approval of the SAP from the DMMO. A project applicant would conduct sampling and testing of the material. As part of the permit application, the project applicant would propose a disposal location[13] based on the results of the sediment testing and conducting an alternatives analysis for disposal of the dredged material. To minimize impacts on water quality, the project applicant would implement BMPs, such as turbidity monitoring, use of floating debris booms/silt curtains to contain turbidity and suspended sediments in shallow waters, and use of clamshell bucket types that minimize turbidity. Silt curtains and gunderbooms would be used as appropriate to minimize the area of increased suspended sediment, and mechanical or hydraulic dredge operational controls would be used to reduce the flow volume of fine materials and to allow removal of disturbed sediment with the hydraulic flow (USACE, 2001).

A future project applicant would be required to submit completed applications and any additional documentation necessary to DMMO for obtaining the required regulatory permits, including approval for dredging. Through compliance with the existing dredging requirements stipulated by the DMMO and permits from the San Francisco Bay RWQCB and BCDC; standard construction specifications incorporated as part of the project; and compliance with the local stormwater control requirements, the potential water quality impacts associated with project construction activities would be less than significant.

Mitigation: None required.

Impact 4.I-2: Development facilitated by the proposed project could potentially involve dewatering and shoring activities, which would potentially result in a discharge, which if contaminated would adversely affect the receiving water quality. (Significant)

Excavation and construction of structures with subsurface foundations or open trenches, such as building foundations or pipelines could intercept shallow groundwater and require dewatering (removal of groundwater by pumping) to lower groundwater levels and dry the area for construction. Depending on the nature of construction activities and given the shallow subsurface water levels, groundwater could flow into excavations that extend below the shallow groundwater table. Common practices employed to facilitate construction include either dewatering the excavation or shoring the sides of the excavation to reduce groundwater inflow. If dewatering is conducted, groundwater would be pumped out of the excavation to the surface and then discharged, typically to either the storm drain or sanitary sewer. Water extracted during dewatering could contain chemical contaminants from use of equipment or from pre-existing sources given the likely existing contamination underlying Alameda Point (see Section 4.J. *Hazards and Hazardous Materials,* for discussion of site contaminants), or could become sediment-laden from construction activities. To address this, a future project applicant would be required to identify such areas (mostly close to existing improvements) where dewatering would not be implemented. Instead a relatively impervious shoring system of tight interlocking sheet

[13] Given the small quantity of dredged material, disposal of the material is likely to occur at the in-Bay Alcatraz Disposal Site, the Montezuma Wetlands Project beneficial reuse site, or another out-of-Bay disposal location.

piles, or other impervious wall type, would be utilized to reduce infiltration during construction (CBG, 2013a). In areas where dewatering would be implemented, depending on the quality of the groundwater, the discharge could potentially contaminate the receiving waters, which would be a significant impact. Implementation of **Mitigation Measure 4.I-1** would minimize the water quality impact to the receiving waters to a less-than-significant level.

Mitigation Measure 4.I-1: The City shall ensure that project applicants for projects at Alameda Point implement the following measures as part associated with the extracted water during project construction:

- The RWQCB could require compliance with certain provisions in the permit such as treatment of the flows prior to discharge. The project applicant shall discharge the extracted water to the sanitary sewer or storm drain system with authorization of and required permits from the applicable regulatory agencies, in this case the City of Alameda.
- The project applicant shall comply with applicable permit conditions associated with the treatment of groundwater prior to discharge.
- If necessary a dewatering collection and disposal method shall be prepared and implemented for the project.

Significance after Mitigation: Less than Significant.

Operational Impacts

Impact 4.I-3: Development facilitated by the proposed project would potentially increase runoff and result in flooding on or offsite. (Less than Significant)

The project site is predominantly paved, with runoff flowing into storm drains onsite or directly into Oakland Inner Harbor and San Francisco Bay or seeping in the ground in portions of unpaved and green spaces. The proposed project would replace some of the existing uses with new residential, commercial, and open space areas and introduce improved pervious open spaces (parks and open space).

The project site currently has an impervious surface cover of 83 percent, with large blocks of land having nearly 100 percent impervious surface coverage. The proposed project would reduce the overall impervious area onsite with the introduction of new pervious areas as part of the Regional Sports Complex or open space areas within the Northwest Territories. The pervious surfaces would allow for stormwater infiltration and reduce the peak runoff compared to existing conditions. The storm runoff from the project site development (from impervious surfaces) would flow into the water bodies through the proposed storm drain system.

The projects developed at Alameda Point would be required to comply with the C.3 provision in the NPDES permit by including specific site design features, such as minimizing land features and impervious surfaces, including minimum impact site design standards, and adopting source control measures such as indoor mat/equipment wash racks for restaurants, sanitary drained outdoor covered wash areas for vehicles, equipment, and accessories. The ACCWP oversees the implementation of the NPDES Permit (discussed in the Regulatory Setting), which would apply to the project site. The permit outlines a number of regulatory goals and requirements for stormwater management for new development and redevelopment sites. The permit provisions require the implementation of Low Impact Development (LID) measures as outlined in Section C.3.c of the MRP. These measures include source control, site design, and treatment requirements to reduce the amount of stormwater runoff and improve the quality of the stormwater runoff. The permit identifies appropriate LID stormwater management measures such as rainwater harvesting and reuse, infiltration, evapotranspiration, and biotreatment while emphasizing that biotreatment systems are only to be used where it is practically infeasible to utilize the other three cited measures. Alameda Point has been identified as practically infeasible for large scale rainwater harvesting and infiltration by using the ACCWP's Infiltration / Harvesting and Use Feasibility Screening Worksheet. Accordingly, biotreatment would be the primary method of accomplishing stormwater treatment. The LID biotreatment measures that would be implemented throughout the project site include bioretention planters, street planters, bioswales, subgrade infiltration areas and any other treatment measures approved by the RWQCB (CBG, 2013a). Due to shallow groundwater table onsite, there could be limitations with the infiltration of storm runoff.

Linear, bioretention planters, bioswales, and street planters would be used within the landscape strips of the cross sections of the new backbone streets. The development parcels would incorporate biotreatment measures and rainwater harvesting, where feasible, to provide pre-treatment of stormwater runoff prior to discharging into the stormwater system (CBG, 2013a).[14] The proposed project would involve stormwater treatment close to the source with bioswales, biofiltration areas and other state of the art technologies to clean stormwater runoff prior to outfall to the Bay or the Inner Harbor. A future project applicant (i.e., a developer of a subsequent project on the project site) would be required to comply with stormwater management practices and regulations established by the ACCWP and implement LID principles for the management of street and development stormwater runoff.

In addition to implementing stormwater management measures onsite, a project applicant would also be required by the City to install a new stormwater system throughout the project site to collect and convey the stormwater flows through new outfall structures that would include tide valves to prevent tidal influences in the system. The new storm drain system would conform to City of Alameda and FEMA flooding design criteria. Stormwater would be discharged to the Oakland Inner Harbor and San Francisco Bay through new outfalls on the southern and northern shorelines permitted through the RWQCB, the USACE and BCDC. (See also Section 4.M, *Utilities and Service Systems* and Section 4.E, *Biological Resources*).

The new stormwater system would integrate new pipelines, pump stations, multi-purpose basins, and outfalls with water quality treatment features designed to meet current City of Alameda,

[14] The use of permeable surfaces (pavement and concrete) has not been successful in Alameda because of the shallow groundwater levels. Implementation of these types of surfaces is not allowed unless with approval from the Public Works Director (CBG, 2013a).

County of Alameda, and RWQCB design criteria, which include flooding criteria. Incorporating of LID and stormwater flow management measures at the project site and installing a storm system designed to reduce the risk of flooding onsite, the project would not cause substantial flooding. The stormwater management system would be designed to address the potential impacts of future sea level rise through forward planning of adaptation strategies and infrastructure. See Impacts 4.I-6 and 4.I-8 for further discussion related to tidal flooding and flooding from seal level rise). The impact would be less-than-significant.

Mitigation: None required.

Impact 4.I-4: Development facilitated by the proposed project would potentially result in increased use at the project site, including maintenance of new landscaping areas and open lawns, which would affect receiving water quality. (Significant)

The proposed project would involve mixed use spaces such as residential, commercial, retail, and recreational land and open space areas. Stormwater from the developed portions of the project site would be discharged through the proposed storm drain system into the Bay and the Inner Harbor while the stormwater from the pervious portions onsite would infiltrate into the ground. Stormwater from increased use onsite could get polluted with contaminants onsite and flow into the Bay through direct discharge or through infiltration. This could have a significant water quality impact.

As discussed in Impact 4.I-3, a project applicant would be required to implement various source control and monitoring measures for water quality control outlined in the NPDES permit and the *Stormwater Quality Management Plan*. The measures include hazardous materials storage requirements, elimination of illicit discharges, and others. As outlined in Section C.3.c of the NPDES Permit, the project design would incorporate LID measures such as site design, and treatment requirements to improve the quality of the stormwater runoff. As also discussed above, the LID biotreatment measures such as bioretention planters, street planters, bioswales, subgrade infiltration areas, permeable paving and any other state-of-the-art treatment measures approved by the RWQCB would also be implemented throughout the project site (CBG, 2013a).

The linear, bioretention planters, bioswales, and street planters along the streets and biotreatment measures and rainwater harvesting, where feasible would provide pre-treatment of stormwater runoff prior to discharging into the stormwater system (CBG, 2013a).[15] Selected post-construction stormwater BMPs would be installed such as grass swales, pervious pavements, and infiltration basins required as part of the C.3 NPDES requirements would be installed, where practicable, to treat runoff from impervious surface areas. Other administrative BMPs would include signage at inlets to prevent illicit discharge to storm drains, street sweeping, public education, household hazardous waste disposal programs, and spill prevention and control BMPs

15 As stated in footnote 14, the use of permeable surfaces is not permitted without approval from the Public Works Director.

for areas with higher boat use. Measures such as bioswales, biofiltration, and other state of the art technologies close to the source would treat the stormwater runoff prior to discharging through the proposed outfalls into the Bay.

Proposed development at the project site would also include new landscaping as part of the Regional Sports Complex or open space areas within the Northwest Territories and other open space areas in the southeast portion of the project site. The project would increase the amount of landscaped open space areas and reduce impervious surface areas compared to existing conditions, which would facilitate infiltration and reduce stormwater runoff. The water would infiltrate into the subsurface soils and eventually flow into the Inner Harbor and the Bay through groundwater seepage. Maintenance of the landscaped areas would involve use of fertilizers and pesticides, which if not properly handled could flow into storm drains and/or the waterways affecting the receiving water quality.

The ACCWP NPDES permit requires the City of Alameda as a permittee, to address pesticides, which have been found by the RWQCB to have a reasonable potential to cause or contribute to exceedances of water quality standards. This pesticide program includes a proactive Diazinon Pollutant Reduction Plan (or Pesticide Plan). The goals of the Pesticide Plan and of its resulting implementing actions are to reduce or substitute pesticide use (especially diazinon use) with less toxic alternatives. In addition application of such chemicals as pesticides and fertilizers would require a management approach outlined in **Mitigation Measure 4.I-2**, which reduce the impact to a less than significant level.

Compared to the existing stormwater system that has no water quality control measures, the proposed project would install a newly designed stormwater system, which incorporates water treatment measures throughout the project site, as discussed above. Compliance with the existing water quality protection requirements of the RWQCB and Alameda County, in addition to implementation of **Mitigation Measure 4.I-2** below, would effectively reduce surface water pollutants and the potential water quality impact to a less-than-significant level.

Mitigation Measure 4.I-2: The City shall ensure that future project applicants implement Integrated Pest Management measures to reduce fertilizer and pesticide contamination of receiving waters, as follows:

- Prepare and Implement an Integrated Pest Management Plan (IPM) for all common landscaped areas. The IPM shall be prepared by a qualified professional and shall recommend methods of pest prevention and turf grass management that use pesticides as a last resort in pest control. Types and rates of fertilizer and pesticide application shall be specified.
- The IPM shall specify methods of avoiding runoff of pesticides and nitrates into receiving storm drains and surface waters or leaching into the shallow groundwater table. Pesticides shall be used only in response to a persistent pest problem that cannot be resolved by non-pesticide measures. Preventative chemical use shall not be employed.
- The IPM shall fully integrate considerations for cultural and biological resources into the IPM with an emphasis toward reducing pesticide application.

Significance after Mitigation: Less than Significant.

Impact 4.I-5: Maintenance dredging to serve development facilitated by the proposed project would potentially affect water quality of the Bay. (Less than Significant)

A project applicant for development in the Seaplane Lagoon (a marina or other uses) would be required to conduct maintenance dredging at the Seaplane Lagoon to serve the proposed marina and boating uses at the project site. As discussed previously, dredging has occurred on the site in the past, including dredging by the Port of Oakland and the U.S. Army Corps of Engineers in the 1940s and then in 1981 along with more recent dredging as part of site remediation activities undertaken by the U.S. Navy as described above. The water quality impacts from dredging would be similar to those discussed under construction-related dredging under Impact 4.I-1 above.

Similar to the one-time construction-related dredging, maintenance dredging would be subject to the DMMO requirements. A project applicant would submit completed applications and any additional documentation necessary to DMMO for obtaining the required regulatory permits, including approval for dredging. Through compliance with the existing dredging requirements stipulated by the DMMO, the dredging activities would control and minimize water quality impacts to the Bay. The impact would be less than significant.

Mitigation: None required.

Impact 4.I-6: Development facilitated by the proposed project would potentially place housing and other structures in an area subject to 100-year flooding, however would not subject people or structures to a substantial risk of loss from a 100-year storm event. (Significant)

The flood hazards at the project site include areas subject to flooding in a 100-year tidal event and the perimeter shoreline that is subject to flooding in the 100-year tidal event and wave/wind run up (CBG, 2013a). The mean higher high water elevations are only slightly below the lowest ground elevations at the site, therefore the highest tide levels associated with storm surge events can be high enough to cause localized flooding of the lowest lying portions of the site under existing conditions (CBG, 2013a). Localized flooding could occur along much of the northern perimeter of the site whenever any significant rainfall event coincides with the higher high tide peak, even without consideration of storm surge effects. The level of risk from a 100-year flood event that the proposed development would be subject to would depend on the location and design of the site development and structures and the protection provided by the emergency response/preparedness planning for the public in the event of a flood.

As described in Chapter 3, Project Description, the project site would be developed in accordance with FEMA criteria and with additional consideration to sea level rise (see Impact 4.I-8). A majority of the Development Areas lie at an elevation above the 100-year flood protection elevation of 5.1.[2] Portions of the Development Areas that lie below the elevation of the 100-year flood protection would be elevated to 5.1 feet or above. Similarly, the shoreline areas within the Development Areas would be constructed to be at or above the 100-year tidal elevation, plus 18-inches of sea level rise and consideration for wave/wind run up, which ranges from 1 to 4 feet along the site shoreline. Accordingly, the elevations of the shoreline areas within the Development Areas would range between 6.1 and 9.1.[2]

The Bay Trail would be constructed along the shoreline. In some areas the alignment of the Bay Trail would extend inland to avoid existing wetlands or to avoid areas planned for constructed tidal wetlands. The minimum elevation of the Bay Trail in these areas would conform to BCDC's design guidelines for public use areas along the Bay shoreline. Generally, the Bay Trail would be constructed at or above the 100-year tidal elevation, plus accounting for wind / wave run. The proposed storm drain system for the project site would be designed for a 25-year storm event in accordance with City of Alameda requirements. The storm system design would also follow additional criteria to provide interior drainage protection for a 100-year storm event – in concert with exterior levees and floodwalls[16] – consistent with FEMA requirements and to contain and convey runoff from a 100-year event (including longer durations than 24 hours) to the Bay without causing flooding of structures. A project applicant at Alameda Point would be required to prepare and implement a detailed Operations and Maintenance Plan for the interior drainage system describing in detail in the associated infrastructure, maintenance plans and schedules, back-up facilities, and emergency protocols (See Section 4.M, *Utilities and Service Systems*). Where used, stormwater pump stations would include redundant pump systems, alarms, and emergency backup power supplies to reduce the risk of flooding by ensuring high levels of reliability (CBG, 2013a). Thus the design of the project site and the proposed development would incorporate flood protection measures and would not subject the structures to a substantial risk of loss from a 100-year storm event.

Flooding is one of the emergencies addressed in the City's Comprehensive Emergency Management Plan (2008), which establishes an emergency organization to direct and control operations during a period of emergency by assigning responsibilities to specific personnel. The plan includes the City's Alert and Warning Siren System, which would be initiated to alert the public and prevent significant losses. The Alert and Warning System is designed to provide a means to notify the community that a severe emergency event has occurred. This network of safety sirens and media links will warn and inform the community of what to do in an emergency or disaster such as floods. The advance warning system would allow for evacuation of people and would provide a high level of protection to public safety. Thus, the risk of loss that the people would be subject to is not considered substantial.

In the Adaptive Reuse areas, where the proposed storm drain system and flood protection measures would be incrementally installed over time, there may be existing structures within the 100-year tidal flood plain and that may require flood insurance, which could be a potentially

[16] With crest elevation that meets FEMA guidelines for levees including 100-year tidal elevation, plus wave / wind run up, 18-inches of sea level rise plus 1 foot of freeboard.

significant impact related to flood hazards. Implementation of Mitigation Measure 4.I-6 would reduce impacts related to exposure of people to risk from inundation by from a 100-year storm event to a less than significant.

> **Mitigation Measure 4.I-6:** The City will require that any new construction within the Adaptive Reuse areas, prior to the installation of the proposed storm drain system and flood protection measures, would be constructed at an elevation of 1 foot above the 100-year flood risk elevation.

Significance after Mitigation: Less than Significant.

Impact 4.I-7: Development facilitated by the proposed project could expose people or structures to risk of loss, injury, or death from inundation by a tsunami. (Less than Significant)

As discussed in Setting above, low-lying areas along San Francisco Bay are subject to flood hazard from a tsunami. A recent USGS report (Wood et. al., 2013) estimates a high community hazard from a tsunami in Alameda. The report indicates that in the event of a tsunami, the maximum onshore runup elevation in Alameda would be 16.73 feet (10.6 City Datum [CBG, 2013b]); both would cause inundation of a majority of the project site. Similar to the 100-year flood impact (see Impact 4.1-6 above), the level of risk from a tsunami that the proposed development would be subject to would depend on a) the magnitude of the inundation hazard, which is a function of the location and design of the structures and the emergency response/preparedness planning for the public in the event of a tsunami; and b) the likelihood of a tsunami in the project area.

In terms of structures, as described in Chapter 3, Project Description, one of the project objectives is to correct geotechnical hazards onsite. Corrective geotechnical measures would be implemented to provide seismic stability of the shoreline and underlying soils. For example, improvement measures at the north shoreline, such as a levee and flood protection system could be constructed in conjunction with the improvement area. An alternative to soil/cement mixing would be construction of a structure such as a bulkhead wall. Geotechnical measures would be implemented accounting for the local site considerations such as soil stability, liquefaction, and compressible soils and as also described in Chapter 3, Project Description and Section 4.H. *Geology, Soils, and Seismicity*, the development facilitated by the proposed project would be compliant with the seismic code and protective from geologic hazards.

In terms of public protection, in the event of an earthquake, which is capable of producing a tsunami that could affect Alameda, the National Warning System (PTWS; see Local Regulatory Setting section above for emergency services) would provide warning to the City. The City of Alameda Alert and Warning Siren System would be initiated, which would sound an alarm alerting the public to tune into local TV, cable TV, or radio stations, which would carry instructions for appropriate actions to be taken as part of the Emergency Alert System. Police would also canvas the neighborhoods sounding sirens and bullhorns, as well as knocking on doors as needed, to provide emergency instructions. Evacuation centers would be set up if required. The advance warning system would allow for evacuation of people prior to a tsunami and would provide high level of protection to public safety.

The report documents geographic variations in community exposure to tsunami hazards in California however the potential losses would only match reported inventories if all residents, employees, and visitors in tsunami-prone areas were unaware of tsunami risks, were unaware of what to do if warned of an imminent threat (either by natural cues or official announcements), and failed to take protective measures to evacuate. This assumption is unrealistic, given the current level of tsunami-awareness efforts in California. Because the tsunami-inundation zone identifies the maximum areas of inundation from various earthquake and landslide sources, it is not meant to imply that all delineated areas would be inundated by a single future tsunami. Finally, the tsunami-inundation zone does not provide any indicator of the probability of specific earthquake or landslide scenarios. The tsunami-inundation zone used in the study is a guide for emergency planning and is not a prediction for a future event (Wood et al., 2013).

As discussed in Section 4.H. *Geology, Soils, and Seismicity*, the project site would likely experience at least one major earthquake within the next 30 years. The intensity of such an event would depend on the causative fault and the distance to the epicenter, the moment magnitude, and the duration of shaking. As a secondary seismic hazard associated with earthquakes, the likelihood of a tsunami occurring due to groundshaking is not as high as other hazards such as earthquakes and landslides, which are discussed further in Section 4.H, *Geology, Soils and Seismicity*). Based on data from 1854 to date in a tidal guage in San Francisco Bay, approximately 50 creditable tsunamis have been recorded in the San Francisco Bay region; of these, only 5 produced run up that exceeded 1.6 ft. (-1.8 City Datum) within the Bay. The best documented tsunami events are the 1946, 1960 and 1964 tsunamis generated by distant earthquakes in Aleutian Islands, Southern Chile and Prince William Sound, Alaska respectively. The highest recorded wave height associated with a tsunami event at the Alameda tidal gauge was associated with the 1964 Alaskan tsunami event. During this event, the tidal gauge recorded a maximum wave height of approximately 2.3 ft. (-0.8 City Datum), which is less than the 100-year tidal elevation and therefore is below the elevation of the proposed flood protection measures at Alameda Point. Further, the Golden Gate limits the propagation of tsunamis through the San Francisco Bay providing sheltering of Alameda Point from the majority of potential tsunami damage (CBG, 2013b). Considering both the possibility of the tsunami occurring in the project area and the design and location of the structural development proposed at the site, the impact to the structures and the public is considered less than significant.

Mitigation: None required.

Impact 4.I-8: Development facilitated by proposed project would potentially be subjected to flooding as a result of sea level rise. (Significant)

As discussed in Impact 4.I-6, the proposed project would involve construction of levees and floodwalls along the perimeter of the project site. The project would also have 50- to 100-foot-wide corridors along the shorelines of the Development and Reuse Areas reserved for perimeter flood protection measures and adaptive measures to address climate change. The structures within the inland Development Areas would be located at or above the 100-year tidal elevation plus 18 inches for sea level rise considerations. The perimeter of the Development Areas would be designed to be at or above the 100-year tidal elevation with additional considerations for sea level rise (18 inches or 0.45 m) and wave/wind run-up. For the shoreline along the Oakland Inner Harbor, the flood protection measures at the perimeter would have a minimum elevation of 6.1 providing an additional 1-foot protection for wave/wind run up. For the shorelines along the southern perimeter of the project site, the western and eastern edges of Seaplane Lagoon would be designed to have a minimum elevation of 9.1 providing an additional 4-foot protection from wave/wind run up (CBG, 2013a).

The levees and floodwalls would be designed initially to accommodate 18 inches of sea level rise with capability to adapt to 55 inches (~1.4 m) of sea level rise. Future adaptive measures would involve expanding the levees or floodwalls within the proposed corridors along the shorelines. The corridor would accommodate further elevation of the initial construction levee or floodwall for increased protection from future sea level rise. The stormwater system and the flood protection structures for the proposed project would be designed and implemented to protect the project site from inundation based on the conservative scenario of a high tide during a 100-year stormwater event in combination with sea level rise. The proposed project, as discussed above, would incorporate structural design and adaptive measures over time for protection from flooding from sea level rise (in concert with a 100-year storm and high tide event), hence the impact is considered less than significant.

Mitigation Measure 4.I-8: The City shall implement the following steps prior to project implementation:

- Apply for membership in the National Flood Insurance Program (NFIP) Community Rating System (CRS), and as appropriate through revisions to the City Code, obtain reductions in flood insurance rates offered by the NFIP to community residents.
- Cooperate with FEMA in its efforts to comply with recent congressional mandates to incorporate predictions of sea level rise into its Flood Insurance Studies and FIRM.
- Implement climate adaptation strategies such as avoidance/planned retreat, enhance levees, setback levees to accommodate habitat transition zones, buffer zones and beaches, expanded tidal prisms for enhanced natural scouring of channel sediments, raising and flood-proofing structures, or provisions for additional floodwater pumping stations, and inland detention basins to reduce peak discharges.

Significance after Mitigation: Less than Significant.

Cumulative Impacts

Hydrology and Water Quality

Impact 4.I-9: Increased construction activity and new development facilitated by the proposed project, in conjunction with past, present, reasonably foreseeable future development in Alameda, could potentially impact hydrologic resources including water quality. (Less than Significant)

Implementation of the proposed project, together with past present and other reasonably foreseeable future projects in the vicinity could cumulatively increase stormwater runoff and pollutant loading to the Inner Harbor and the Bay. The proposed project and other future projects in the vicinity would be required to comply with drainage and grading requirements intended to control runoff and regulate water quality at each development site. Additionally, new projects would be required to demonstrate that stormwater volumes could be managed by stormwater conveyance facilities designed to control onsite stormwater flows. New development projects in Alameda also would be required to comply with Alameda County and City of Alameda ordinances regarding water quality including ACCWP NPDES permitting requirements. All construction work and dredging activities within the Oakland Inner Harbor would require permits from the U.S. Army Corps of Engineers and San Francisco Bay RWQCB which require all activities to minimize adverse effects to water quality. Therefore, the effect of the project on water quality and hydrology, in combination with other cumulative projects, would not be significant. Additionally, the proposed project itself would increase the net pervious surfaces on the project site, thereby decreasing runoff from the site.

Implementation of the proposed project, together with past present and other reasonably foreseeable future projects in the vicinity, could also expose people and/or property to flooding from a 100-year event and sea level rise. These effects could occur through increases in stormwater runoff volumes and during high tide in a 100-year storm event along with sea level rise in the Bay. The proposed project and other future projects in the vicinity would be required to comply with flood control requirements intended to provide flood protection. Additionally, new projects would be required to demonstrate that stormwater volumes could be managed by stormwater conveyance facilities designed to control onsite stormwater flows. New development projects in Alameda also would be required to comply with Alameda County and City of Alameda flood control requirements. As discussed above, the proposed project itself would involve structural measures designed to abate flooding from high tides in a 100-year storm event combined with sea level rise of up to 18 inches initially and a future increase of 55 inches. Therefore, the project, in combination with other cumulative projects, would not result in a significant cumulative impact to people and/or property from a 100-year event in combination with sea level rise. The project would have a less than cumulatively considerable impact, and cumulative effects, therefore, would be less than significant.

Mitigation: None required.

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J. Hazards and Hazardous Materials

J.1 Introduction

This section analyzes issues related to the existence of hazardous materials associated with the project site, project construction, and project operations. This section provides an overview of the regulatory setting that is applicable to human health and safety or to the environment regarding hazardous materials at the project site and potential project impacts and appropriate mitigation measures, as necessary. Much of the information regarding contamination associated with past industrial and naval base activities within the project area relies on information obtained from the most recent Finding of Suitability for Transfer (FOST) document prepared by Tetra Tech Incorporated for the United States Navy (Tetra Tech, 2013).

J.2 Environmental Setting

Definitions

Materials and waste may be considered hazardous if, for example, they are poisonous (toxicity), can be ignited by open flame (ignitability), corrode other materials (corrosivity), or react violently, explode or generate vapors when mixed with water (reactivity). The term “hazardous material” is defined in the State Health and Safety Code (Chapter 6.95, Section 25501[o]) as any material that, because of quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment.

A hazardous waste, for the purpose of this EIR, is any hazardous material that is abandoned, discarded, or recycled, as defined in the State Health and Safety Code (Chapter 6.95, Section 25125). The transportation, use, and disposal of hazardous materials, as well as the potential releases of hazardous materials to the environment, are closely regulated through many state and federal laws.

The term “hazardous materials,” as used in this EIR, includes hazardous wastes, hazardous substances, and contamination associated with past releases of hazardous materials to subsurface soils and groundwater.

Potential Receptors/Exposure

The sensitivity of potential receptors in the areas of known or potential hazardous materials contamination is dependent on several factors, the primary factor being the potential pathway for human exposure. Exposure pathways include external exposure, inhalation, and ingestion of contaminated soil, air, water, or food. The magnitude, frequency, and duration of human exposure can cause a variety of health effects, from short term acute symptoms to long-term chronic effects. Potential health risks from exposure can be evaluated in a health risk assessment. The principal elements of exposure assessments typically include:

- Evaluation of the fate and transport processes for hazardous materials at a given site;

- Identification of potential exposure pathways;
- Identification of potential exposure scenarios;
- Calculation of representative chemical concentrations; and
- Estimation of potential chemical uptake.

Hazardous Building Materials Associated with Demolition

Because of the age of many of the buildings and structures within the project site, the potential exists for the structures to contain hazardous building materials. Older buildings can contain building materials that consist of hazardous components such as lead-based paint (LBP), asbestos-containing materials (ACMs), mercury and polychlorinated biphenyls (PCBs). When these buildings or structures are demolished, these hazardous building materials may be dislodged and could expose workers and the public.

Prior to the U.S. Environmental Protection Agency (EPA) ban in 1978, LBP was commonly used on interior and exterior surfaces of buildings. Old peeling paint has been found to contaminate near surface soil, and exposure to residual lead has resulted in illness in children.

Asbestos is a naturally occurring fibrous material that was extensively used as a fireproofing and insulating agent in buildings constructed before such uses were banned by EPA in the 1970s. Inhalation of the tiny asbestos fibers can lead to lung disease.

Spent fluorescent light tubes commonly contain mercury vapors. In February 2004, regulations took effect in California that classified all fluorescent lamps and tubes as hazardous waste. When these lamps or tubes are broken, mercury is released to the environment. Mercury can be absorbed through the lungs into the bloodstream, and can be washed by rain water into waterways.

PCBs are organic oils that were formerly used primarily as insulators in many types of electrical equipment such as transformers and capacitors. After PCBs were determined to be carcinogenic in the mid-to-late 1970s, the USEPA banned PCB use in most new equipment and began a program to phase out certain existing PCB-containing equipment. Fluorescent lighting ballasts manufactured after January 1, 1978, do not contain PCBs and are required to have a label clearly stating that PCBs are not present in the unit. Additional information about these materials is provided in the Regulatory Setting Section below.

Project Site Historical Uses

The project site was historically submerged land, tideland, and dry land that was subject to infilling as early as the 1880s. The Pacific Coast Oil Works Company operated an oil refinery within the southeastern portion of the project site from 1879 to 1903. Other industrial uses at the site during turn of the 19th century included a borax plant. By 1927, the northern part of the site had been filled with dredged materials from the Bay and was occupied by a municipal airport and a minor U.S. Army Air Corps facility from 1930 to 1936.

The Navy acquired the site in 1936 and began building the naval air base, which involved filling in natural tidelands, marshes and sloughs. The Navy expanded the base with more land acquisition in 1941. After World War II, the base was one of the largest naval facilities on the West Coast and provided berthing for Pacific Fleet ships as well as being a major center of naval aviation. Over the course of the history of naval operations, construction activities continued intermittently until the decision to close the base was made in 1993. Some Navy operations continued at the site, including the Navy Public Works Center and Naval Aviation Depot Alameda, until all naval operations ceased in 1997. Since that time, a variety of private and commercial tenants have occupied portions of the site while environmental restoration and remediation efforts have been ongoing to address legacy contamination.

Remediation and Restoration

Background on Base Closure Remediation Requirements

Since the decision to close the Naval Base, the Navy has been undertaking necessary measures to meet the requirements and notifications for hazardous substances, petroleum products, and other regulated materials necessary for an environmentally suitable transfer of the site to the City of Alameda. The Navy has undertaken a thorough and lengthy process to identify, analyze, and clean up any releases of hazardous materials and wastes associated with past Navy operations. Certain environmental program activities have been completed and some are ongoing, including the Alameda Point Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Program, and Alameda Point Petroleum Program activities. These activities will continue after transfer until regulatory closure is received.

The most common method for the Navy to support transfer of a closed base is to first obtain site closure for individual parcels that is intended to be protective of human health and the environment for the proposed future uses of the site. The Navy then prepares a Finding of Suitability to Transfer (“FOST”) for each parcel it plans to transfer. The primary purpose of a FOST is to document that the property is environmentally suitable for transfer by deed under the Department of Defense (DoD) FOST guidance. This process is intended to determine whether a property is environmentally suitable for redevelopment and reuse to identify whether there are any restrictions on the use of the property, in which case institutional controls such as limits on land use or notification requirements prior to any subsurface disturbances must be put into place. Institutional controls are structural or legal mechanisms used to limit access to, or restrict the use of property. A FOST must demonstrate that either the property is uncontaminated, or that all necessary remediation has been completed or ongoing remediation is in place and operating properly and successfully. These demonstrations are necessary to support the deed covenant required by CERCLA that all remedial action necessary to protect human health and the environment has been taken. In addition, under CERCLA, a deed to transfer property by the United States must contain (1) notice of the type and quantity of hazardous substances stored or released, (2) notice of the time at which such hazardous substance storage, release, or disposal took place, and (3) a description of any remedial action taken.

A FOST for the project site was completed on February 13, 2013 which covers a large portion of the project site (511 acres of land and 870 acres of submerged area) but also addresses areas of the former base outside of the FOST area (see **Figure 4.J-1**).

Site Evaluation, Remediation, and Closure Procedures

Site closure is generally determined based on an overall assessment of the site characterization of contaminants of potential concern ("COPCs") and evaluation of potential risk to human health and the environment. To evaluate these potential risks, screening levels are published by State and Federal agencies, including the California Department of Toxic Substances Control ("DTSC") (the DTSC screening levels are identified as CHHSLs)[1], the San Francisco Regional Water Quality Control Board ("Water Board") ESLs[2], and the EPA RSLs[3]. It is generally accepted that detections of chemicals at concentrations below their applicable screening levels means that the chemicals pose no significant, long-term threat to human health or the environment. Thus, these screening levels are often used to evaluate the potential for risk at a site associated with the presence of COPCs in soil and/or groundwater.

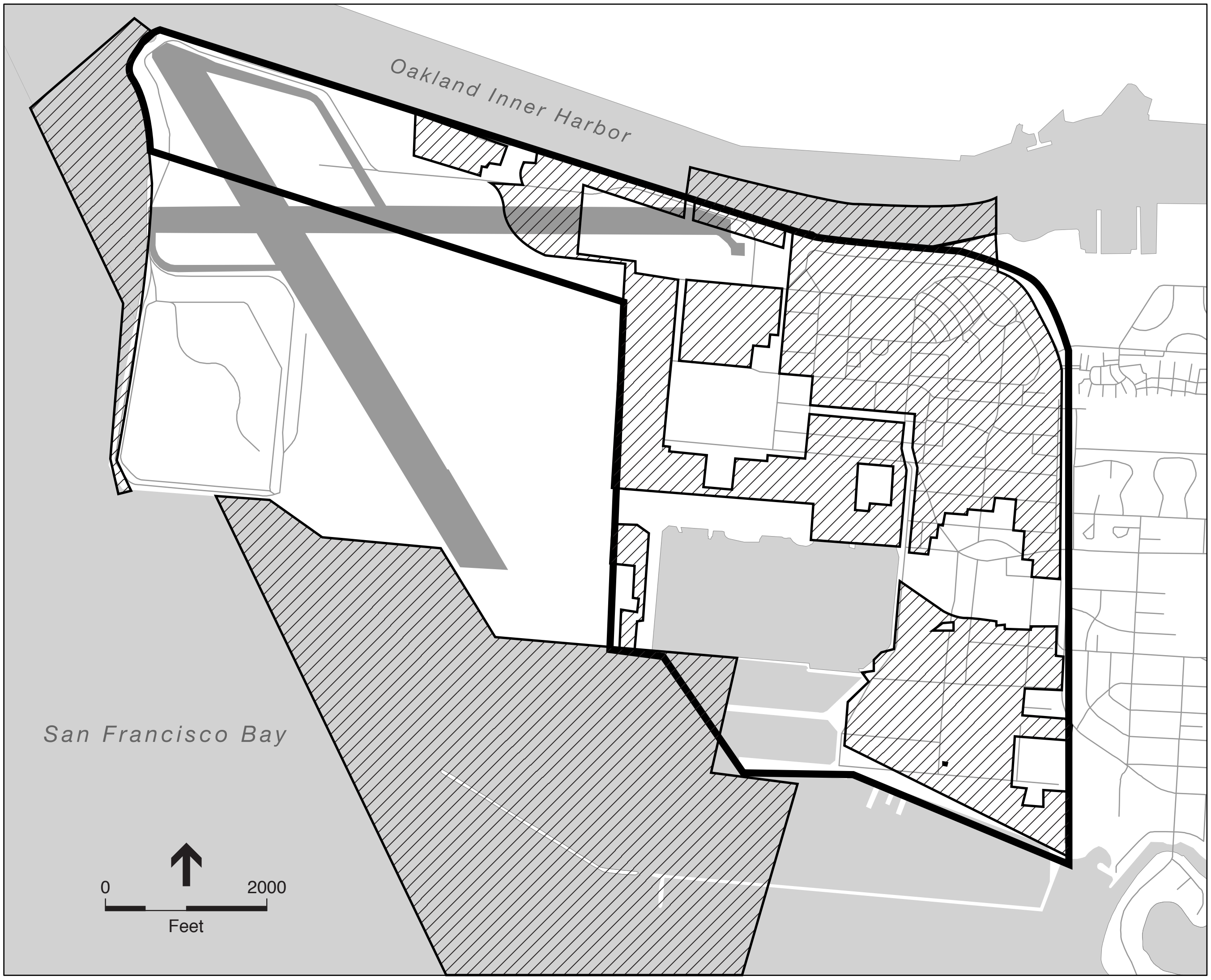
Such screening levels do not, however, constitute regulatory cleanup standards. The presence of contaminants at concentrations in excess of their designated screening levels does not necessarily indicate that harmful effects to human health or the environment are occurring; it simply indicates that potential risks may exist and that additional site-specific evaluation is warranted. Generally, when screening levels are exceeded, a Risk Assessment is performed using site specific exposure scenarios to evaluate whether harmful effects to human health or the environment could occur. Established risk assessment procedures use numerical risk values that are estimated for both carcinogenic and non-carcinogenic compounds. Often the threshold of concern is based on a one-in-a-million (1×10^{-6}) incremental cancer risk for a given land use.

The USEPA risk management range is between one-in-ten-thousand ($1x10^{-4}$) and one-in-one million (1×10^{-6}). A site's estimated incremental cancer risk is compared to this range, and a risk-management decision is usually determined on a case-by-case basis. Toxic or other harmful properties of contaminants can vary depending on the chemicals involved. Further, individuals' sensitivities to specific chemicals can vary. Whether the contaminant results in health effects to an individual varies greatly and depends on such factors as the type of contaminant, the amount

1 CHHSLs – California Human Health Screening Levels are concentrations of 54 hazardous chemicals in soil or soil gas that the DTSC considers to be thresholds of concern for risks to human health. The DTSC routinely uses the CHHSLs to guide their directives for site investigation and remediation, but they are based on standard exposure assumptions and do not account for site-specific characteristics.

2 ESLs – Environmental Screening Levels are routinely used by the Water Board to guide decisions regarding investigations and remedial activities for contamination sites. ESLs are based on conservative, generic risk coefficients for exposure of hazardous materials.

3 RSLs – Regional Screening Levels are risk-based concentrations derived from standardized equations combining exposure information assumptions with EPA toxicity data.. The Office of Human and Ecological Risk Assessment has in the past, used the U.S. EPA Region 9 PRGs, which included 'Cal-modified' PRGs, to facilitate Screening Level Human Health Risk Assessments. The EPA Region 9 PRG values have now been harmonized with risk-based PRGs from other EPA Regional Headquarters, and are called Regional Screening Levels (RSLs) which no longer contain the more protective 'Cal-modified' PRGs. RSLs are generally consistent with human health risk assessment guidance prepared by the DTSC.



Alameda Point (former NAS Alameda)

FOST Parcel

SOURCE: Tetra Tech

Alameda Point Project . 130025

Figure 4.J-1
FOST Parcels

of the contaminant (dose), characteristics of the individual (e.g., age, gender, height/weight, general health), length of time the individual is exposed to the contaminant, and how the contaminant enters the body (exposure pathway or route of exposure).

The following represents the general steps necessary for site closure according to the Navy’s established Base Realignment and Closure (BRAC) procedures and CERCLA requirements. Some individual sites at the project site have already completed some of the steps listed below, and not all cleanup sites would require completion of each step listed.

For example, petroleum sites follow the closure procedure established by the Water Board and may not be subject to all of the processes listed.

- Conduct Preliminary Assessments and Site Inspections to determine site conditions. For the former NAS Alameda, these preliminary assessments have all been completed.
- Prepare a Remedial Investigation (“RI”) work plan, including a Sampling and Analysis Plan, Health and Safety Plan, and a Quality Assurance Project Plan to address existing data gaps. Data gaps can include the vertical or horizontal extent of contamination and CPOCs not evaluated in previous investigations.
- Perform soil and/or groundwater sampling and analysis according to the plans stated above.
- Prepare an RI report that includes findings of each phase of investigation and a Human Health Risk as well as Ecological Risk Assessment. The Human Health Risk Assessment determines health-based remediation goals for a site based on calculated risk management factors according to established risk assessment protocols. For some sites, a site-specific risk assessment is not conducted, and the need for remediation is based on a comparison of investigations results to screening benchmarks, instead.
- Conduct a Feasibility Study (FS) in accordance with CERCLA or Petroleum Program requirements. The Feasibility Study evaluates remedial alternatives to reduce the levels of COPCs to levels that have acceptable levels of risk. The levels of risk, or health-based risks, which are deemed acceptable, are generally based on statistical calculations of incremental cancer risk (i.e., one-in-one-million increased cancer risk) considering the site specific conditions and potential pathways of exposure. For example, contamination that is found at depths beneath relatively impenetrable materials like concrete or very tight clays represents a much lower risk of direct-contact exposure than shallow contamination of relatively porous soils in open landscaped areas.
- Prepare a Record of Decision (ROD) in accordance with CERCLA or Petroleum Program requirements. The ROD includes an identification and description of the selected remedial alternative for cleanup and closure of the site in accordance with CERCLA requirements.
- Prepare and implement a Remedial Design/Remedial Action Work Plan in accordance with CERCLA or Petroleum Program requirements. The Remedial Design/Remedial Action Plan describes the remedial measures, including engineering and institutional controls, which will be used to make the site protective of human health and the environment.
- Implement, monitor and maintain remediation programs until remediation goals are achieved and/or regulatory closure is obtained.
- Prepare a Remediation Action Completion Report documenting successful completion of remedial activities in accordance with CERCLA or Petroleum Program requirements.

Installation Restoration Program

The Installation Restoration (IR) Program is a DoD initiative to identify, investigate, and clean up hazardous waste sites located on former military bases. The DoD established the IR Program in 1975. Depending upon the circumstances, IR sites are identified, investigated, and cleaned up in accordance with the Resource Conservation and Recovery Act (RCRA), CERCLA or in accordance with an integrated approach based on both laws. In addition, for sites that are associated primarily with petroleum contamination, the IR Program is conducted according to what is known as the Petroleum Program (discussed further in "Regulatory Framework"). RCRA was enacted in 1976, and is the principal Federal law in the United States governing the disposal of solid and hazardous waste.

A total of 35 IR Sites (**Table 4.J-1**) have been identified at the former Naval Base (see **Figure 4.J-2**). A comprehensive base closure strategy was developed as part of the 1997 BRAC Cleanup Plan (BCP) which consolidated the initial 23 IR sites into four Operable Units (OUs) (OUs-2 and -4 were later subdivided) as a management tool. IR Sites 24 through 29 were added later and consolidated into OUs-5 and -6. IR Site 18 (Storm Sewers) was reconfigured and the site was eliminated, and associated contamination in the storm sewers was investigated and remediated within the footprint of individual sites. Three IR sites (30, 31, and 32) were added to the CERCLA program in December 2002. An additional three new sites, IR Sites 33, 34, and 35, were then added after 2002 but not assigned to an OU.

Open and Closed IR Program Sites

The following presents a summary of the open and closed IR sites. The open sites are those that at the time of preparation of this EIR are lacking regulatory approval that investigation and any necessary remediation are complete. All the open IR sites discussed in this section will require further work prior to receiving site closure from EPA. The information presented here is largely obtained from the FOST report prepared by Tetra Tech in 2013 (Tetra Tech, 2013). Note that some of the IR sites have been grouped together and organized according to the Operable Unit for streamlining purposes.

IR Site 1 – 1943-1956 Disposal Area. The 36.8 acre site is located in the northwestern portion of former NAS Alameda that include approximately 15.5 acres of seasonal wetlands. IR Site 1 includes four buildings (111, 133, 339, and 576), part of former aircraft runways 7 and 13, a former pistol range, a former pistol and skeet range, a former baseball field, a former aircraft engine and part storage area, three closed above ground storage tanks (ASTs) (AST 466A, 466B, 467A) that stored diesel and hydraulic fluid, three catch basins, and several storm and sanitary sewer lines. IR Site 1 was primarily used to dispose of waste, store aircraft parts and petroleum, and as a pistol and skeet range (Tetra Tech, 2013).

A radiological survey of IR Site 1 in 1998 resulted in the discovery of 335 live, 20-millimeter (mm), high-explosive projectiles and two small arms rounds. In 2007, a TCRA was conducted to remove material potentially presenting an explosive hazard at a former Firing-Range Berm and Debris Pit at IR Site 1. No future munitions response activity, including the imposition of explosive arcs, is anticipated at the site (Tetra Tech, 2013).

TABLE 4.J-1
IR SITE STATUS

Identification Site Name	Status
IR 01 1943-1956 Disposal Area (OU-3)	Final ROD submitted amendment pending
IR 02 West Beach Landfill and Wetlands (OU 4a)	ROD issued, remediation ongoing, restrictions in place.
IR 03, 04, 11, 21 Operable Unit-2b (OU-2b)	RI and FS complete
IR 05, 10, 12 Operable Unit – 2c (OU-2c)	RI and FS complete
IR 06 and 16 Operable Unit 01 (OU-1)	ROD complete
IR 07 Building 459 Navy Exchange Service Station (OU-1)	Response Complete
IR 08 Building 114 Pesticide Storage Area (OU-1)	Response Complete
IR 09 Building 410 Paint Stripping Facility (OU-2A)	Operating Properly and Successfully
IR 13 Former Oil Refinery (OU-2A)	Operating Properly and Successfully; groundwater remediation ongoing
IR 14 Former Fire Training Area (OU-1)	Operating Properly and Successfully
IR 15 Bldg. 301 and 389 Former Transformer Storage Area (OU-1))	Response Complete
IR 17 and 24 Seaplane Lagoon (OU-4b)	ROD Complete
IR 18 Storm Sewers	Remediation Re-assigned to other IR Sites
IR 19 Yard D-13 Hazardous Waste Storage (OU-2A)	Operating Properly and Successfully
IR 20 Oakland Inner Harbor (OU-4C)	Response Complete
IR 22 Building 547 Former Service Station (OU 2a)	Response Complete
IR 23 Building 530 Missile Rework Operations (OU 2a)	Response Complete
IR 25 Former North Village Housing and Estuary Park (OU-5)	Soil Response Complete; Groundwater remediation ongoing, restrictions in place.
IR 26 Western Hangar Zone (OU 6)	Operating Properly and Successfully
IR 27 Dock Zone (OU 6)	Operating Properly and Successfully
IR 28 Todd Shipyard (OU 6)	Operating Properly and Successfully
IR 29 Skeet Range	(OU-4c) Response Complete
IR 30 Miller School	Soil Response Complete; Groundwater remediation ongoing, restrictions in place.
IR 31 Marina Village Housing	Soil Response Complete; Groundwater remediation ongoing, restrictions in place.
IR 32 Northwestern Ordnance Storage Area	Investigation ongoing
IR 33 South Tarmac and Runway Wetlands	Ongoing, Removal Actions Begun
IR 34 Former Northwest Shop Area	ROD Complete
IR 35 Areas of Concern in Transfer Parcel EDC-5	Response Complete

NOTES:
EDC – Economic Development Conveyance
IR – Installation Restoration
ROD – Record of Decision
RI – Remedial Investigation
FS – Feasibility Study

SOURCE: Tetra Tech, 2013.

Alameda Point (former NAS Alameda)

Installation Restoration (IR) Site

Operable Unit

1	2a	2b	2c	3
4a	4b	4c	6	

INSTALLATION RESTORATION SITE DESCRIPTION

1 1943-1956 Disposal Area
2 West Beach Landfill and Wetlands
3 Abandoned Fuel Storage Area
4 Building 360 (Aircraft Engine Facility)
5 Building 5 (Aircraft Rework Facility)
6 Building 41 (Aircraft Intermediate Maintenance Facility)
7 Building 459 (Navy Exchange Service Station)
8 Building 114 (Pesticide Storage Area)
9 Building 410 (Paint Stripping Facility)
10 Building 400 (Missile Rework Operations)
11 Building 14 (Engine Test Cell)
12 Building 10 (Power Plant)
13 Former Oil Refinery
14 Former Fire Training Area
15 Buildings 301 and 389 (Former Transformer Storage Area)
16 C-2 CANS Area (Shipping Container Storage)
17 Seaplane Lagoon
19 Yard D-13 (Hazardous Waste Storage)
20 Oakland Inner Harbor
21 Building 162 (Ship Fitting and Engine Repair)
22 Building 547 (Former Service Station
23 Building 530 (Missile Rework Operations)
24 Piers 1 and 2 Sediments
25 Former North Village Housing and Estuary Park
26 Western Hangar Zone
27 Dock Zone
28 Todd Shipyard
29 Skeet Range
30 Miller School
31 Marina Village Housing
32 Northwestern Ordnance Storage Area
33 South Tarmac and Runway Wetlands
34 Former Northwest Shop Area
35 Areas of Concern in Transfer Parcel EDC-5

SOURCE: Tetra Tech

Alameda Point Project . 130025

Figure 4.J-2
Installation Restoration and Operable Unit Sites

The final ROD was submitted in February 2009 and includes treatment of groundwater to remediation goals and long-term groundwater monitoring to ensure permanent reduction of contaminants. A radiological remedial design/action work plan was issued in October 2012. A groundwater remedial design implementation plan was issued in December 2011. The groundwater remedial action began in February 2012. A final sampling and analysis plan for the burn area focused feasibility study was issued in May 2012. Submittal of an IR Site 1 ROD amendment is pending.

IR Site 2 – West Beach Landfill and Wetlands. IR Site 2, also known as OU-4A and referred to as the West Beach Landfill and Wetlands, encompasses 127.1 acres in the far southwestern portion of former NAS Alameda. The landfill portion of the site occupies 77 acres and the wetlands portion 33 acres. IR Site 2 was originally constructed in a shallow open water environment through dredging and filling. Beginning in 1956, IR Site 2 was reportedly used for disposal of waste generated by former NAS Alameda activities from the 1950s through 1978. Landfill operations at IR Site 2 terminated in early 1978 (Battelle and BBL, 2008 as cited in Tetra Tech, 2013).

An approximately 2.5-acre burial site containing potentially explosive munitions was located in the southeast corner of the IR Site 2 landfill. In 2002, a total of 8,675 20-mm soft-steel target practice rounds were identified within 12 inches of the surface at the burial site, and were removed in accordance with an emergency removal action (FWC 2003 as cited in Tetra Tech, 2013). Given the completion of this removal action and the results of other subsequent investigation activities, the Final Feasibility Study for IR Site 2 does not consider munitions a significant issue pertinent to the overall risk management framework for the site (Battelle and BBL 2008 as cited in Tetra Tech, 2013).

Based on a human health risk assessment, polycyclic aromatic hydrocarbons (PAHs), total polychlorinated biphenyls (PCBs), metals, and radionuclides were identified as primary human risk drivers in the soil at the landfill area. Metals, total PCBs, and radionuclides were identified as primary human risk drivers in soil in the wetland area, again based on the risk assessment. A removal action was recommended to address radionuclides in surface and subsurface soil at IR Site 2. The primary human risk drivers identified in groundwater were total PCBs, pesticides, and polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans. Metals, total PCBs, pesticides, and radionuclides were identified in the ecological risk assessment as primary ecological risk drivers in soil at IR Site 2 in the landfill and the wetland areas (Battelle and BBL 2008 as cited in Tetra Tech, 2013).

The removal action for radiological materials at IR Site 2 was completed in July 2008. The final FS report was submitted in September 2008. The final removal action completion report was issued in August 2009. The Navy assessed the potential for off-site methane migration in December 2008, in the interest of obtaining the necessary data to support the real estate transfer. The results were presented in the draft technical memorandum data gaps investigation results report. The Proposed Plan was issued in September 2009 and selected a multilayer soil cover, engineering controls and ICs, and monitoring for the remedial alternative. The ROD was issued in October 2010. The pre-design field investigation work plan was issued in February 2011.

IR Sites 3, 4, 11 and 21 – OU-2B. Operable Unit 2B consists of IR Sites 3, 4, 11, and 21 which have primarily been affected by contamination from metals and volatile organic compounds (VO"Cs).. There is a high degree of confidence in the OU-2B site boundaries as the site has progressed through RI and FS phases. The RI and FS have been completed for these sites.

IR Sites 5, 10, and 12 – OU-2C. IR Site 5, also known as Building 5 (Aircraft Rework Facility), is 47 acres in size and is located on the north side of OU-2C. IR Site 5 is relatively flat and includes several buildings, paved parking lots, and roads. Building 5 is the largest building and covers approximately 32 percent of the site. Additional features associated with IR Site 5 include several smaller buildings and paved and unpaved open space, USTs, ASTs, oil water separators, solid waste management units, sanitary sewer lines, storm drain lines, and industrial waste lines. IR Site 5 was used for aircraft, aircraft component repair, and maintenance operations. Four corrective action areas have been identified in IR Site 5 around Building 5 under the Petroleum Program. Volatile organic compounds (VOCs) and metals were identified as contaminants of concern (COCs) in soil and groundwater. The presence of TPH-related compounds in soil and groundwater that are not being handled under CERCLA are being addressed under the Petroleum Program. Potentially radiologically impacted storm drain lines running to the north and to the east of IR Site 5 are included in the OU-2C program.

IR Site 10, also known as Building 400 (Missile Rework Operations), is 4 acres in size and is located on the south side of OU-2C. IR Site 10 is relatively flat and is covered by buildings, paved parking lots, and roads. Building 400 covers approximately 85 percent of the site. Building 400 is currently used as office space and a production lot. Because of possible petroleum contamination, a portion of IR Site 10 is addressed under the Petroleum Program.

IR Site 12, also known as Building 10 (Power Plant), is 2 acres in size and is located on the southwestern corner of OU-2C. IR Site 12 is relatively flat and is covered by buildings, paved parking lots, and roads. From the late 1930s to the early 1970s, Building 10 was used as the power plant that generated steam and compressed air. No action was recommended at IR Site 12 in the RI report (Bechtel 2007 as cited in Tetra Tech, 2013).

An addendum to the OU-2C FS report was finalized in January 2012 and supplements the final FS Report for OU-2C IR Sites 5 and 10, which was finalized in May 2011. The Proposed Plan was submitted October 4, 2012.

IR Sites 6 and 16 – OU-1. IR Sites 6 (Aircraft Intermediate Maintenance Facility) and 16 (Shipping Container Storage Area) are part of OU-1. IR Site 6 is 5.6 acres in size, located in the mid-eastern area of the former base, and includes Buildings 41, 273, and 501; asphalt; concrete; roads; and parking lots. No COCs were identified for soil.

IR Site 16 is 11.1 acres in size and is located in the southeastern portion of the former base. IR Site 16 consists mostly of asphalt paved areas, concrete roads, parking lots, and buildings and storage sheds, with some unpaved open areas. A portion of IR Site 16 is occupied by a storage facility, and another portion is used as an auto shop. A removal action for soil began in October

2009 and was completed in March 2010. No further action is required for Site 16 soil (URS 2012a as sited in Tetra Tech, 2013).

The remedial action for groundwater in the ROD was treatment to remediation goals with in situ chemical oxidation (ISCO), monitored natural attenuation, and institutional controls, ISCO was implemented in May 2010.

IR Sites 9, 13, 19, 22, and 23 – OU-2A. IR Site 9 is grouped with Sites 13, 19, 22, and 23 under OU- 2A, however IR Sites 22 and 23 require no further action. IR Site 9, Building 410 (Paint Stripping Facility), is 2.9 acres in size and is located in the southeastern portion of the former base. Two buildings (Buildings 410 and 351), covering approximately 37,000 square feet, are present at IR Site 9. The Industrial Wastewater Treatment Plant (IWTP) 410, also known as Structure 588, was located east of Building 351 and treated paint-stripping wastes.

IR Site 13, the Former Oil Refinery, is 17.5 acres in size and is located in the southeastern portion of the former base. IR Site 13 includes Building 397, a 17,400-square-foot aircraft overhaul plant and engine test facility constructed in 1958 and operated by the Naval Air Rework Facility Alameda. A self-storage facility occupies the southeastern corner of the site. The rest of the site is paved or open space.

IR Site 19, Yard D-13 (Hazardous Waste Storage), is 2.7 acres in size and is located in the southeastern area of the former base. IR Site 19 includes Building 616 and Yard D-13, the only two structures on the site.

The FS Report concluded that there were no COCs for soil. Groundwater COCs identified in the FS Report included volatile organic compounds (VOCs) that exceeded drinking water standards (i.e., maximum contaminant levels [MCLs]) and a benzene plume at IR Site 13 (OTIE 2011 as cited in Tetra Tech, 2013). A Proposed Plan was submitted in August 2011. By letter dated August 6, 2012, the Navy provided information to support a Groundwater Beneficial Use Exception for Southeast Alameda Point based on several lines of evidence, including proximity to San Francisco Bay and potential for salt water intrusion, high salinity, current county restrictions on well installation in shallow groundwater, and potential for surface runoff to contaminate groundwater (Navy 2012a). The regulatory agencies concurred with the Beneficial Use Exception (Water Board 2012a; U.S. EPA 2012c).

As a result of the Beneficial Use Exception, drinking water standards no longer apply as cleanup goals. The OU-2A ROD documents no action for soil and Institutional Controls (ICs) preventing use of groundwater at Site 9 (Navy 2012b).

IR Site 14 – Former Fire Training Area. The Former Fire Training Area is 14.2 acres in size and located in the northwestern portion of the former base near the Oakland Inner Harbor. IR Site 14 is partially paved and relatively flat, and includes five buildings (26, 120, 121, 122, and 388) and open space. Historical use at IR Site 14 included airfield-related materials and equipment storage, and firefighter training in the northwestern portion of the site. The buildings at IR Site 14 are currently unoccupied. Site 14 is grouped with IR Sites 6, 7, 8, 15, and 16 within OU-1.

CERCLA investigations were conducted in 1991, with follow-on investigations in 1994 and 1998, data gap sampling in 1998, supplemental RI data gap sampling in 2001, and removal of soil containing dioxins in 2001. The ROD documented no further action for soil and selected ISCO, monitoring, and temporary institutional controls for groundwater (Navy 2007a as cited in Tetra Tech, 2013). Data gaps were identified and further investigations were conducted in March and April 2007, including a pilot test on a portion of the groundwater plume, to optimize the remedial design. The groundwater remedial action began in September 2008. Groundwater monitoring will continue until remedial action objectives are completed. Based on progress of the remedial action, U.S. EPA determined that the remedy is operating properly and successfully and, therefore, Site 14 is suitable for transfer (U.S. EPA 2012a as cited in Tetra Tech, 2013).

IR Sites 17 and 24 – Seaplane Lagoon and Piers 1 and 2. IR Site 17 (Seaplane Lagoon) and IR Site 24 (Piers 1 and 2 Sediments) were combined into operable unit OU-4B. The Final ROD for Site 17 was submitted in November 2006. The preferred alternative for contaminated sediment at Site 17 is dredging, dewatering, and disposal at a permitted off-site waste disposal facility. A combined Preliminary remedial design was submitted in October 2007 and finalized in July 2008 while the remedial action work plan was finalized in January 2011. Remedial action began in January 2011 and is expected to be completed in December 2012. A removal action was conducted to remove the construction debris piles located along the northern shoreline of Site 17. After evaluation of post-dredging data, additional sediment was removed from the debris pile area in May 2011 (Battelle 2012c as cited in Tetra Tech, 2013).

The ROD for Site 24 was issued May 2010 and detailed the selection of the preferred alternative that includes dredging, dewatering, and disposal of contaminated sediment at a permitted off-site waste disposal facility.

IR Site 18 – Storm Sewers. The work related to the remediation of the storm sewers under the original IR Site 18 has been reassigned to other individual IR sites where these sewer lines intersect.

IR Site 25 – North Village Housing. IR Site 25 is located on the northeastern corner of Alameda Point, outside of the project boundary, and has historically been used for housing. IR Site 25 includes the United States Coast Guard (USCG) North Village residential housing area (Parcel 181), Estuary Park (Parcel 182), and USCG Housing Maintenance Office (Parcel 183). USCG residential housing is vacant.

In 2000, the Navy removed PAH-contaminated soil from the Clover Park area of Site 25 to a depth of 4 feet below surface to eliminate potential exposure to children playing in the park (Navy, 2006). Based on the results of the 2001 RI, the Navy conducted another soil removal during 2001 and 2002 for Estuary Park and several housing areas (Parcel 181 DAs 4, 5, and 7 and all of Parcels 182 and 183). Removal involved excavation of 66,763 cubic yards of soil to a depth of 2 feet below surface in unimproved (soil-covered) areas and offsite disposal of this soil. Following this removal action, the PAH concentrations in soil from the upper 2 feet across all undeveloped (non-paved) areas of Site 25 was calculated to have an average PAH equivalent value of 0.4 mg/kg. Post-removal evaluations show that there is no immediate risk to children or adults, and soil to a depth of 4 feet is protective of human health (Navy, 2006).

The final ROD for groundwater also applies to IR Sites 30 and 31. Remedial action began in October 2008 and a technical memorandum to evaluate the need to continue remediation was submitted in July 2012 (Navy, 2012).

IR Site 26 – Western Hangar Zone. IR Site 26, the former Western Hangar Zone, is located in the center of the former base and is covered by pavement, four aircraft hangars (Buildings 20 through 23), a painting and finishing building (Building 24), and several ancillary buildings. No COCs were identified for soil at IR Site 26 and COCs identified for groundwater were cis-1,2-dichloroethene (DCE), trichloroethene (TCE), and vinyl chloride (Bechtel Environmental, Inc. The final ROD documented no further action for soil and ISCO, enhanced bioremediation, monitored natural attenuation, and institutional controls for groundwater (Navy 2006b as cited in Tetra Tech, 2013). The Final Remedial Design/Remedial Action Work Plan for groundwater was submitted in October 2008.

Evaluation of continuing groundwater monitoring is guiding the ongoing remedial action. Based on the documented remedial action progress, U.S. EPA has determined that the remedy is operating properly and successfully and, therefore, Site 26 is suitable for transfer (U.S. EPA 2012b as cited in Tetra Tech, 2013).

IR Site 27 – Dock Zone. IR Site 27, the Dock Zone, is 15.8 acres and located in the southeastern portion of the former base, adjacent to the Seaplane Lagoon. IR Site 27 is mostly paved or covered by buildings. The site includes Buildings 68, 168, 555, and 601; Ferry Point Road and West Oriskany Avenue; inactive railroad tracks and sidings; and fenced open space between Building 168 and Ferry Point Road.

Historical activities at IR Site 27 included ship docking, ship repair, and marine painting. The eastern portion of IR Site 27 was used for storing materials and equipment, as well as vehicle parking. Building 168 was used as a warehouse and to support waterfront services, including welding activities. Building 555 was used as an electrical substation. Historically, open space at IR Site 27 was used as an aircraft parking area. The southern portion of a former fuel farm area is located in the northwestern portion of IR Site 27.

The ROD for the site documented that no action was selected for soil and selected ISCO, monitored natural attenuation, and institutional controls for groundwater in the central and eastern portion of IR Site 27. Sampling was conducted to support the design of the selected remedy. The remedial design and remedial action work plan was submitted in June 2009. Remedial action began in July 2009 with ISCO completed and monitoring of natural attenuation currently ongoing. Evaluation of continuing groundwater monitoring is guiding the ongoing remedial action. Based on the documented remedial action progress, U.S. EPA has determined that the remedy is operating properly and successfully and, therefore, Site 27 is suitable for transfer (U.S. EPA 2012d as cited in Tetra Tech, 2013).

IR Site 28 – Todd Shipyards. This 2.9 acre site was the location of the former Todd Shipyards located in the northeastern portion of the former base along the Oakland Inner Harbor. The ROD was signed in October 2007 and included soil excavation and disposal and groundwater metals immobilization. The remedial action was completed in June 2010 and remedial action objectives for soil have been achieved. The groundwater remedy consisted of removing and disposing of source area soils, applying and injecting metals immobilization compound, and follow-on groundwater monitoring. Evaluation of continued groundwater monitoring is guiding the ongoing remedial action. Based on the progress documented, U.S. EPA has determined that the remedy is operating properly and successfully and, therefore, Site 28 is suitable for transfer (U.S. EPA 2012e as cited in Tetra Tech, 2013).

IR Site 30 –Miller School. IR Site 30, also known as the Woodstock Child Development Center and Island High School, is located outside of the project boundary to the east. The Final remedial investigation addendum was issued in July 2008 and no further action for soil was selected as the preferred alternative. The final ROD was issued in September 2009 and the groundwater contamination is being addressed along with IR Sites 25 and 31 (Navy, 2012).

IR Site 31- Marina Village Housing. This offsite housing area located adjacent to IR Sites 25 and 30 received a final remedial investigation report in August 2007. No further action for soil was selected as the preferred alternative in the proposed plan issued in February 2008. Groundwater contamination is being addressed along with IR Sites 25 and 30 (Navy, 2012).

IR Site 32 – Northwest Ordnance Storage Area. IR Site 32 is located in the northwestern corner of the project site but within an area being retained by the Navy. This ordnance storage area received a final FS in January 2008. A removal action was completed in June 2008 that determined that areas to the east and south are impacted with low levels of radium-226 (Navy, 2012). A change in closure strategy involving delineation of the radium-226 impacted soil as well as incorporating newly identified areas and portions of neighboring IR Site 1 is underway (Navy, 2012).

IR Site 33 – South Tarmac and Runway Wetlands. Also located outside of the project boundary, the South Tarmac and runway wetlands located west of Seaplane Lagoon, is still in the investigation phase for the presence of PAHs. An Expanded Site Investigation Report was submitted in January 2011 and a removal action work plan and Final Action Memo have been issued (Navy, 2012 and Tetra Tech, 2013). Removal actions began in the fall of 2012 (Tetra Tech, 2013).

IR Site 34 Former Northwest Shop Area. This IR site is a 4.18-acre partially paved, relatively flat open space. IR Site 34 was a Naval Air Rework Facility used to maintain base equipment, such as scaffolding and other apparatus. The site was used primarily for painting services, storage, wood and metal shops, and sandblasting. IR Site 34 formerly contained several structures, including 12 buildings (330, 331, 343, 344, 472, 474, 475, 476, 477, 479, 510, and 604) and intervening open areas; seven above ground storage tanks; generator accumulation points; 15 transformers; and an aviation gasoline fuel line. All buildings, ASTs, generator accumulation points, transformers, and fuel lines were removed between 1996 and 2000, except for their concrete pads (Tetra Tech, 2013). The ROD for Site 34 was issued April 2011 and documents the preferred remedial action of excavation, transportation, and disposal of chemically impacted soil, and no action for groundwater. In addition, soil that contains TPH above cleanup standards collocated with CERCLA contaminants would also be excavated and disposed of at an acceptable site. The disposal site will be chosen (including possible locations at Alameda Point) based on the results from the waste characterization sampling (Navy 2011c as cited in Tetra Tech, 2013).

Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Program

This section addresses the CERCLA sites on the project site. The Navy initiated environmental investigations at the former naval base under the Navy Assessment and Control of Installation Pollutants (NACIP) Program. Under the NACIP Program, the Navy performed an initial assessment study (IAS) in 1982 to assess former NAS Alameda for areas posing a potential threat to human health or the environment due to contamination from historical uses involving hazardous materials (Tetra Tech, 2013)).

On June 6, 1988, the Navy received a Remedial Action Order from the Department of Health Services (now DTSC) that identified former base sites as needing a remedial investigation and feasibility study (RI/FS), in accordance with the requirements of CERCLA. In response, the Navy converted its NACIP Program into the IR Program to be more consistent with CERCLA, and investigations were conducted in a phased approach. A comprehensive base closure strategy was developed by the BCT as part of the 1997 BRAC Cleanup Plan (BCP) at former NAS Alameda. This strategy consolidated the initial 23 IR sites into four Operable Units (OUs) (OUs-2 and -4 were later subdivided) as a management tool to accelerate site investigation (SI). IR Sites 24 through 29 were added later and consolidated into OUs-5 and -6. IR Site 18 (Storm Sewers) was reconfigured and the site was eliminated, and associated contamination in the storm sewers was investigated and remediated within the footprint of individual sites. Three IR sites were added to the CERCLA program in December 2002: IR Sites 30, 31, and 32. An additional three new sites, IR Sites 33, 34, and 35, were added after 2002. The new sites were not assigned to an OU.

Of the 35 IR sites, five (IR 2 – West Beach Landfill and Wetlands; IR-20 – Oakland Inner Harbor; IR-28 – Todd Shipyard; IR-29 – Offshore Skeet Range; and IR 33 – South Tarmac and Runway Wetlands) are located outside of the project site. Not all IR sites within the project site have received regulatory agency concurrence for either No Action (NA) or Response Complete (RC), which would indicate that no unacceptable human health or ecological risk remains for proposed land uses. The status of the IR Sites is presented in Table 4.J-1. Some CERCLA sites remain open; however, for some of them the remedy has been implemented and the U.S. EPA has determined that the remedy is operating successfully. An NA or RC determination is based on the findings of evaluations or cleanup actions that the parcel is suitable for transfer as long as the applicable notifications and restrictions, outlined in Sections 4.0 and 5.0, have been implemented. No Further Action (NFA) designations include sites that have received NFA designations because the required remedial or removal action has been completed.

Petroleum Program

The Petroleum Program was created to address potential and actual soil and groundwater contamination related to petroleum products, which are not regulated under CERCLA. The Navy is continuing with investigation and remediation as directed by the overseeing agency, the Water Board, until regulatory closure is obtained. Some of the petroleum sites will be transferred to the City prior to closure which is allowed under CERCLA because Section 101(14) excludes crude oil and fractions of crude oil, including the hazardous substances such as benzene that are constituents of those petroleum substances, from the definition of hazardous substance.

The sources of contamination for the sites under the Petroleum Program come from former underground storage tanks (USTs), above ground storage tanks (ASTs), underground fuel pipelines, oil-water separators, generator accumulation points (GAPs), and vehicle wash down areas. There are a total of approximately 150 identified sites under the Petroleum Program for the project site which have been documented in the Petroleum Management Plan (PMP) in 2010 and a subsequent update in 2012. Many of these sites have been closed with no further action required, some are in the process of being closed, and some remain open. In accordance with regulatory oversight findings, some petroleum-impacted areas of the project site cannot support unrestricted use due to potentially unacceptable human health risk from residual petroleum contamination in soil and/or groundwater. In such cases, after property transfer the presence of residual petroleum in some areas of the project site will require implementation of appropriate procedures for safe handling and disposal of any potentially contaminated soil or groundwater encountered during construction or removal from the site. Accordingly, land use or activity restrictions relating to the presence of residual petroleum contamination will be necessary for some sites. In most cases, the petroleum components will naturally break down into harmless components over time and only represent health exposure risks if directly encountered through excavation or other substantial earthwork or dewatering activities.

Marsh Crust

Besides the IR sites, another contaminated unit investigated under the CERCLA Program throughout the project site is the Marsh Crust. The Marsh Crust is a layer of sediment contaminated with semivolatile organic compounds (SVOCs) that was deposited across the tidelands and the former subtidal areas from the late 1800s until the 1920s. The contamination is believed to have resulted from direct discharges of petroleum products and wastes from former industrial processes into San Francisco Bay. The Final Marsh Crust Remedial Action Plan (RAP)/Record of Decision (ROD) was signed in February 2001 (Navy 2001). The Marsh Crust RAP/ROD affects the FOST Parcel. See also the discussion of the Marsh Crust Ordinance in the Regulatory Framework section below.

Asbestos Containing Materials

ACMs were commonly used in older structures such as those found within the project site. In accordance with DoD policy to manage ACMs in a manner protective of human health and the environment, the existence, extent and condition of known ACMs on the project site was fully identified in a 2000 Memorandum of Agreement between the Navy and the City. The agreement requires that occupancy of any structures with identified ACMs is prohibited until abatement in accordance federal, state, and local laws is completed.

Lead Based Paint (LBP)

In accordance with the Federal Residential Lead-based Paint Hazard Reduction Act of 1992 (Title X of Public Law 102550), as codified in 42 USC § 4822 (Act), the Navy is required to disclose the presence of known LBP and/or LBP hazards prior to the sale or transfer of property to a nonfederal entity. In 1998, the Navy conducted a LBP risk assessment for the former naval base and found LBP hazards throughout (i.e., the interior and exterior of all former housing units surveyed).

Notice of the existence of LBP at former NAS Alameda was provided to the City in 2000 when a lease agreement was executed. The agreement transferred all responsibility for LBP from the Navy to the City and required the City to comply with all applicable federal, state, and local laws.

The lease agreement notified the City that (1) buildings and other painted structures in the leased premises potentially contained LBP, and (2) such buildings and structures were not suitable for occupancy for residential purposes until any inspections and abatement required by applicable law have been completed.

Polychlorinated Biphenyls

DoD policy guidance for PCBs is based on the Toxic Substances Control Act (TSCA) regulations found in Title 40 CFR Part 761. All Navy equipment at the former naval base with oil or other dielectric fluids that contained a PCB concentration of less than 40 parts per million (ppm) was transferred to the Alameda Bureau of Power and Light, currently known as the Alameda Municipal Power in 2001 (Tetra Tech, 2013).[4]

Radiological Program

During the base-wide Environmental Baseline Survey conducted in 1994, the Navy reviewed onsite records and searched for additional information on known and potential uses of radiological materials at the former naval base. Radioactive materials are any materials that are radioactive, except excluded radioactive materials as defined in Section 101(22) of CERCLA. Following this survey, a 1995 survey and a subsequent Historical Radiological Assessment (HRA) were conducted by the Navy (Tetra Tech, 2013). Results of the HRA were also used to identify building specific dispositions in later work detailing the presence of radiological hazards (ChaduxTt, 2010).

The results of the HRA were presented as a two-volume set that addressed radioactivity associated with the Naval Nuclear Propulsion Program (Volume 1) and radioactivity associated

4 Dielectric fluids are used as electrical insulators in transformers, capacitors, high voltage cables, and switchgear (namely high voltage switchgear) and PCBs were once commonly used for this purpose.

with general radioactive material (G-RAM) (Volume 2)[5]. The two volumes were written by different organizations and published separately because the two programs were managed differently by the Navy.

The HRA under the Naval Nuclear Propulsion Program assessed the impact on the environment from nuclear-powered ship maintenance, overhaul, and refueling. The HRA concluded that the berthing and maintenance of nuclear-powered ships at former NAS Alameda from 1956 to 1997 resulted in no adverse effects on human health or the environment (Tetra Tech, 2013). Volume I of the HRA also concluded that an independent review conducted by U.S. EPA was consistent with findings presented in the Navy report.

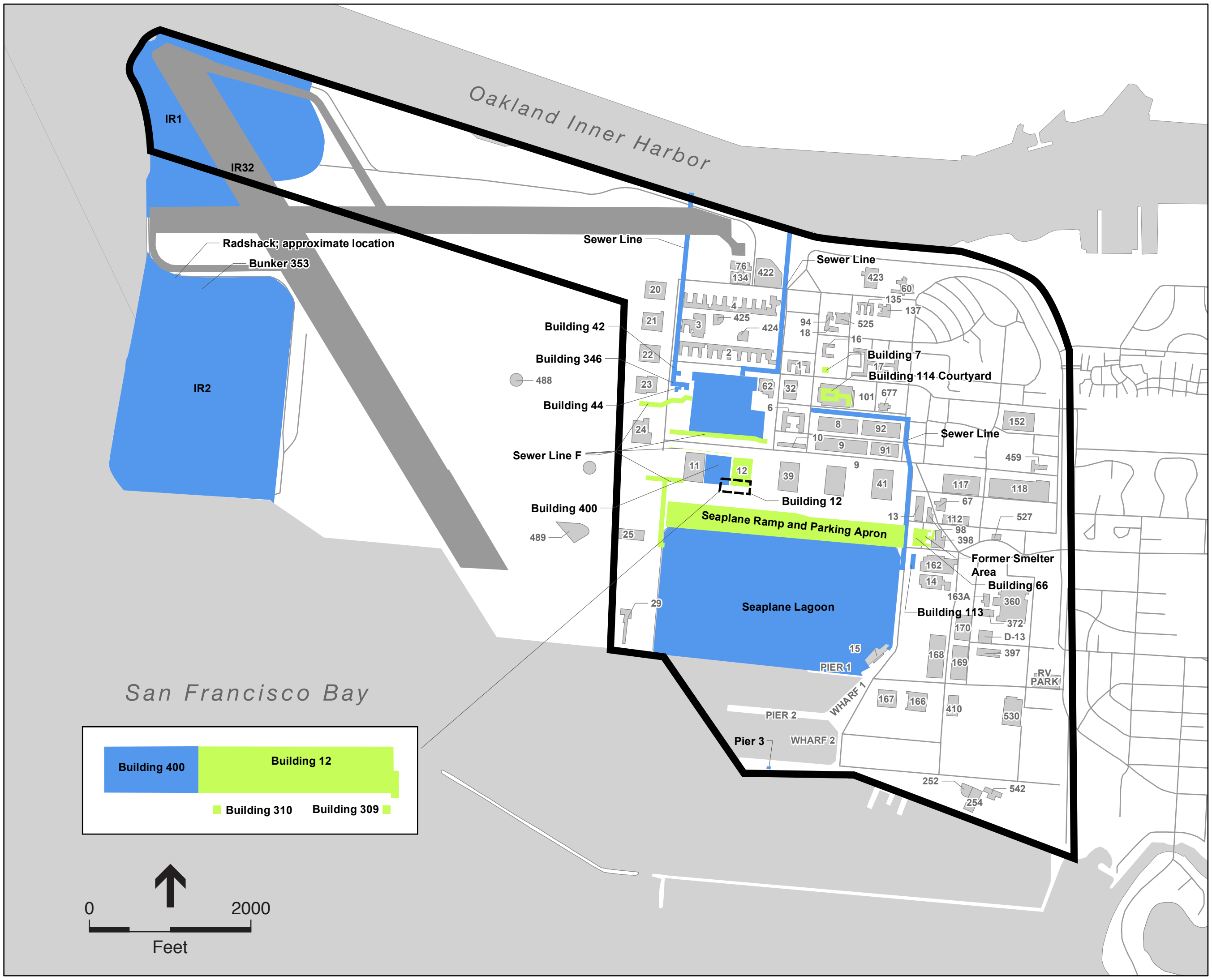
The Volume II HRA designated historical use sites as either radiologically "impacted" or "non-impacted". The HRA defined a site as "impacted" when the site "has or historically had a potential for G-RAM contamination based on the site operating history or known contamination detected during previous radiation surveys." An "impacted" site designation identified a site as having a possibility for contamination based on historical records. Impacted sites include sites where radioactive materials were used or stored; sites where known spills, discharges, or other instances involving radioactive materials have occurred; or sites where radioactive materials might have been disposed of or buried.

Of 685 potential G-RAM sites at the former naval base, the HRA designated 23 sites as radiologically "impacted" (Tetra Tech, 2013). Of these impacted sites, after investigation many were found to require no further action (Tetra Tech, 2013). The radiological site locations and status of each site are shown on **Figure 4.J-3**. The HRA recommended a Final Status Survey be conducted for the Seaplane Ramp (RAD 23F) and Pier 3 (RAD Pier 3) which are in various stages of evaluation and cannot be recommended for free release (i.e., residual contamination is below regulatory release criteria) until the Navy and appropriate regulatory agencies have reviewed each Final Status Survey report and agreed with the assessment. In the event no contamination is found at levels that pose a health or environmental risk, these sites will be redesignated as not impacted.

Radiologically impacted storm drain corridors that originate from Buildings 5, 10, and 400 (part of OU-2C) and drain north to the Oakland Inner Harbor and south to the Seaplane Lagoon were also evaluated as part of the radiological investigation program.[6] Radiological operations within OU-2C included disposing of radioluminescent paints and decontaminating aircraft exposed to fallout from nuclear weapons testing. Modeling for the total risk (mean values) for sediment samples collected from some of these drain lines (i.e., Storm Drain Line Z, the sanitary sewer line, and Oakland Inner Harbor at the point of discharge of Storm Drain Lines A, B, and Z) showed an increased cancer risk of less than one in one million and as a result, no further action is considered necessary (Tetra Tech, 2012). Results of the risk assessment for portions of other

5 For the purposes of the HRA, general radioactive material was defined as any radioactive material used by the Navy or Navy contractors not associated with the Naval Nuclear Propulsion Program.

6 The discharge points in the Oakland Inner Harbor and Seaplane Lagoon were included in the evaluation however the Seaplane Lagoon discharge point has been separated out and included as part of IR Site 17.



Alameda Point (former NAS Alameda)

Building

Suspected Radiologically Contaminated Area Status

Open

Unrestricted Release

SOURCE: Tetra Tech

Alameda Point Project . 130025

Figure 4.J-3
Radiological Sites

drain lines (i.e., Storm Drain Lines A, B, and G, and the industrial waste line), indicate that further action is required in order to reach the remedial action objectives of (a) preventing ingestion, dermal contact, or inhalation of radionuclides of concern in concentrations that significantly exceed background concentrations; (b) ensuring that the total effective dose from radiologically impacted sites to any member of the public does not exceed 15 millirems per year; and (c) ensuring that the increased lifetime cancer risk does not exceed the risk range of 10^{-4} to 10^{-6} for future use scenarios.

The overall conclusion of the HRA is that low levels of radioactive contamination exist within the confines of the former naval base, specifically IR sites 1, 2, 5, 10, 17, and 32 (Tetra Tech, 2013 and Figure 4.J-3). The review of previous radiological activities, cleanup actions, and release surveys has not identified any imminent threat or substantial risk to current tenants or the local community. However, these sites are in various stages of evaluation and have not yet been recommended for "free release" until the Navy and appropriate regulatory agencies have reviewed each Final Status Survey (FSS) report and agreed with the assessment.[7]

Airports

The western portion of the former Naval base included two runways which is outside of the project area. These runways are no longer active and there is no associated airport land use plan associated with them. The nearest airport to the project site is the Oakland International Airport, which is approximately 5miles southeast of the project site.

J.3 Regulatory Framework

Federal

United States Environmental Protection Agency

In September 1992, the Navy, the State of California Department of Health Services (now referred to as California EPA/Department of Toxic Substances Control [DTSC]), and the California Regional Water Quality Control Board (Water Board), entered into a Federal Facility Site Remediation Agreement (FFSRA). The FFSRA defined the Navy's obligations for corrective action and response action under the Resource Conservation and Recovery Act (RCRA) and CERCLA for sites that had been identified in the Navy's IR Program at the former Alameda naval base. Subsequent to the execution of the FFSRA, and following designation of former naval base as a National Priorities List (NPL) site in 1999, the Navy and U.S. EPA executed a Federal Facility Agreement (FFA) in July 2001. Subsequently, DTSC signed the FFA in October 2005 and the Water Board signed it in November 2005. The FFA superseded the FFSRA and defines the Navy's corrective action and response obligations under RCRA and CERCLA for the CERCLA sites that have been identified at the former naval base. However, for the former naval base, all RCRA-permitted units have been closed, and all non-permitted units were delegated

[7] "Free release" is defined in the HRA as "*a recommendation made after historical documentation and previous and current investigations and surveys indicate all applicable release criteria have been met and the site is ready for review by Navy and regulatory agencies for future non-radiological use.*"

either to the CERCLA Program or the Petroleum Program. If newly discovered, pre-existing CERCLA contaminants associated with former base activities are identified such as through construction activities, the Navy is obligated to perform the remedial work required to assure that the property is protective of human health and the environment. For newly discovered petroleum contamination the responsibility to perform remedial work may be covered by contractual obligations under the transfer documentation.

Comprehensive Environmental Response Compensation and Liability Act

CERCLA, commonly known as Superfund, is the legal framework for the identification and restoration of contaminated property. In addition, CERCLA:

- Established prohibitions and requirements concerning closed and abandoned hazardous waste sites; and
- Provided for liability of persons or entities responsible for releases of hazardous waste at these sites.

Generally, CERCLA authorizes two kinds of response actions:

- Short-term removals, where actions may be taken to address releases or threatened releases requiring prompt response.
- Long-term remedial response actions, that permanently and significantly reduce the dangers associated with releases or threats of releases of hazardous substances that are serious, but not immediately life threatening.

The Superfund Amendments and Reauthorization Act (“SARA”) (Public Law 99-499), amended CERCLA in 1986, and added certain specific provisions applicable to the cleanup of contaminated sites at Federal facilities. Section 120 of those amendments addressed the cleanup of federal facilities. Under Section 120(a)(1), CERCLA specifies that Federal departments, agencies, and instrumentalities must comply with CERCLA in the same manner and to the same extent as non-governmental entities. DTSC and the U.S. EPA are the lead agencies for the CERCLA sites.

Section 120(h)(3)(A) of CERCLA requires that a federal agency transferring real property (hereafter, transferring federal agency - by "transferring federal agency" EPA means the federal agency responsible for cleanup) to a nonfederal entity include a covenant in the deed of transfer warranting that all remedial action necessary to protect human health and the environment has been taken prior to the date of transfer with respect to any hazardous substances remaining on the property. In addition, CERCLA section 120(h)(3)(B) requires, under certain circumstances, that a federal agency demonstrate to the EPA Administrator that a remedy is "operating properly and successfully" before the federal agency can provide the "all remedial action has been taken" covenant. Under CERCLA section 120(h)(3)(C), the covenant can be deferred so that property may be transferred before all necessary remedial actions have been taken if regulators agree that the property is suitable for the intended use and the intended use is consistent with protection of human health and the environment.

Radioactive Materials

Pursuant to the federal Atomic Energy Act of 1954, later amended by the Energy Reorganization Act of 1974, the United States Department of Energy ("DOE") regulates the storage and use of sources of ionizing radiation (radioactive material and radiation-producing equipment). Radiation protection regulations require control of sources of ionizing radiation and radioactive material and protection against radiation exposure. DOE regulations concerning occupational radiation exposure are prescribed in Title 10, Code of Federal Regulations, Section 835, Occupational Radiation Protection. These regulations specify appropriate worker safety precautions and worker health monitoring programs. Radiation protection requirements for the public and the environment are prescribed in DOE Order 5400.5, "Radiation Protection of the Public and the Environment." DOE regulates radioactive waste and the radioactive portion of mixed waste pursuant to the Atomic Energy Act and DOE Order 435.1, Radioactive Waste Management.

State

In January 1996, the California Environmental Protection Agency (Cal EPA) adopted regulations implementing a Unified Hazardous Waste and Hazardous Materials Management Regulatory Program (Unified Program). The program has six elements: hazardous waste generators and hazardous waste on-site treatment; underground storage tanks; aboveground storage tanks; hazardous materials release response plans and inventories; risk management and prevention programs; and Unified Fire Code hazardous materials management plans and inventories. The plan is implemented at the local level. The Certified Unified Program Agency (CUPA) is the local agency that is responsible for the implementation of the Unified Program. In Alameda, the Alameda County Department of Environmental Health (ACDEH) is the designated CUPA for all businesses.

Hazardous Materials Management

The California Hazardous Materials Release Response Plans and Inventory Law of 1985 (Business Plan Act) requires that any business that handles hazardous materials prepare a business plan, which must include the following:

- Details, including floor plans, of the facility and business conducted at the site;
- An inventory of hazardous materials that are handled or stored on site;
- An emergency response plan; and
- A safety and emergency response training program for new employees with annual refresher courses.

Hazardous Waste Handling

The Cal EPA/DTSC regulates the generation, transportation, treatment, storage, and disposal of hazardous waste. State and federal laws require detailed planning to ensure that hazardous materials are properly handled, used, stored, and disposed of, and, in the event that such materials are accidentally released, to prevent or to mitigate injury to health or the environment. Laws and regulations require hazardous materials users to store these materials appropriately and to train employees to manage them safely.

Under the federal RCRA, described in Table 4.J-1, individual states may implement their own hazardous waste programs in lieu of RCRA, as long as the state program is at least as stringent as federal RCRA requirements. In 1992, USEPA authorized DTSC to be the primary authority for enforcing RCRA hazardous waste requirements in California. DTSC regulates the generation, transportation, treatment, storage, and disposal of hazardous waste. The hazardous waste regulations establish criteria for identifying, packaging, and labeling hazardous wastes; prescribe management of hazardous waste; establish permit requirements for hazardous waste treatment, storage, disposal, and transportation; and identify hazardous wastes that cannot be disposed of in landfills.

Petroleum Program

Investigation and remediation work within the IR Program for those sites associated with petroleum hydrocarbon releases such as fuels and waste oils were conducted according to the Petroleum Program. The Water Board is the lead agency for sites that fall under the Petroleum Program because petroleum hydrocarbons are not CERCLA contaminants and also are exempt from DTSC's State Superfund program. However, for sites where petroleum contamination is co-mingled with CERCLA contamination, the CERCLA program would apply.

Hazardous Materials Transportation

The State of California has adopted DOT regulations for the intrastate movement of hazardous materials. State regulations are contained in Title 26 of the California Code of Regulations (CCR). In addition, the State of California regulates the transportation of hazardous waste originating in the state and passing through the state (26 CCR). Both regulatory programs apply in California. The two state agencies that have primary responsibility for enforcing federal and state regulations and responding to hazardous materials transportation emergencies are the California Highway Patrol (CHP) and the California Department of Transportation (Caltrans).

Occupational Safety

The California Occupational Safety and Health Administration (Cal/OSHA) assumes primary responsibility for developing and enforcing workplace safety regulations in California. Because California has a federally approved OSHA program, it is required to adopt regulations that are at least as stringent as those found in Title 29 of the Code of Federal Regulations (CFR). Cal/OSHA standards are generally more stringent than federal regulations.

Cal/OSHA regulations (8 CCR) concerning the use of hazardous materials in the workplace require employee safety training, safety equipment, accident and illness prevention programs, hazardous substance exposure warnings, and emergency action and fire prevention plan preparation. Cal/OSHA enforces hazard communication program regulations, which contain training and information requirements, including procedures for identifying and labeling hazardous substances, and communicating hazard information relating to hazardous substances and their handling. The hazard communication program also requires that Materials Safety Data Sheets (MSDS) be available to employees, and that employee information and training programs be documented. These regulations also require preparation of emergency action plans (escape and evacuation procedures, rescue and medical duties, alarm systems, and training in emergency evacuation).

State laws, like federal laws, include special provisions for hazard communication to employees in research laboratories, including training in chemical work practices. Specific, more detailed training and monitoring is required for the use of carcinogens, ethylene oxide, lead, asbestos, and certain other chemicals listed in 29 CFR. Emergency equipment and supplies, such as fire extinguishers, safety showers, and eye washes, must also be provided and maintained in accessible places.

Cal/OSHA (8 CCR), like Fed/OSHA (29 CFR) includes extensive, detailed requirements for worker protection applicable to any activity that could disturb ACMs, including maintenance, renovation, and demolition. These regulations are also designed to ensure that persons working near the maintenance, renovation, or demolition activity are not exposed to asbestos.

Emergency Response

California has developed an emergency response plan to coordinate emergency services provided by federal, state, and local government and private agencies. Responding to hazardous materials incidents is one part of this plan. The plan is administered by the State Office of Emergency Services (OES), which coordinates the responses of other agencies, including Cal EPA, CHP, CDFG, the San Francisco Bay Regional Water Quality Control Board (Water Board), and the Alameda County Fire Department (ACFD). The ACFD provides first response capabilities, if needed, for hazardous materials emergencies within the project site vicinity.

Structural and Building Components

Implementation of the project would include demolition of structures which, due to their age, may contain ACMs, PCBs, or lead and LBP. In addition, removal of existing aboveground or underground storage tanks may be required.

Asbestos

State laws and regulations prohibit emissions of asbestos from asbestos-related manufacturing, demolition, or construction activities; require medical examinations and monitoring of employees engaged in activities that could disturb asbestos; specify precautions and safe work practices that must be followed to minimize the potential for release of asbestos fibers; and require notice to federal and local governmental agencies prior to beginning renovation or demolition that could disturb asbestos. Asbestos represents a human health risk when asbestos fibers become friable (easily crumbled or powdery) and potentially airborne, and can be inhaled into the lungs.

The BAAQMD is vested by the California legislature with authority to regulate airborne pollutants, including asbestos, through both inspection and law enforcement, and is to be notified ten days in advance of any proposed demolition or abatement work. BAAQMD Regulation 11, Rule 22 applies to asbestos. Cal/OSHA regulates asbestos removal to ensure the health and safety of workers removing ACMs and also must be notified of asbestos abatement activities.

Polychlorinated Biphenyls (PCBs)

As previously discussed, PCBs are organic oils that were formerly used in many types of electrical equipment and in fluorescent lighting ballasts. PCBs are highly persistent in the environment and are toxic. In 1979, USEPA banned the use of PCBs in most new electrical equipment and began a program to phase out certain existing PCB-containing equipment. The use and management of PCBs in electrical equipment is regulated pursuant to the Toxic Substances Control Act (40 CFR). Fluorescent lighting ballasts that contain PCBs, regardless of size and quantity, are regulated as hazardous waste and must be transported and disposed of as hazardous waste.

Lead and Lead-Based Paint

The California Code of Regulations, Title 22, considers waste soil with concentrations of lead to be hazardous if it exceeds a total concentration of 1,000 parts per million (ppm) or a soluble[8] concentration of 5 ppm. Both the federal and California OSHAs regulate all worker exposure during construction activities that involve LBP. The Interim Final Rule found in 29 CFR Part 1926.62 covers construction work in which employees may be exposed to lead during such activities as demolition, removal, surface preparation for re-painting, renovation, clean up and routine maintenance. The OSHA-specified method of compliance includes respiratory protection, protective clothing, housekeeping, hygiene facilities, medical surveillance, and training.

Radiologic Health Branch

The Radiologic Health Branch is within the Food, Drug, and Radiation Safety Division of the California Department of Public Health. The Radiological Health Branch enforces the laws and regulations indicated below designed to protect the public, workers, and the environment from exposure to radiation. The Radiological Health Branch is responsible for providing public health functions associated with administering a radiation control program. This includes licensing of radioactive materials, inspection of facilities using radiation, investigation of radiation incidents, and surveillance of radioactive contamination in the environment.

The Radiological Health Branch administers and enforces the following laws and implementing regulations:

- Radiation Control Law (Health & Safety Code Sec. 114960 et seq.); and
- Regulations implementing the above laws are in Title 17, California Code of Regulations, Division 1, Chapter 5, Subchapters 4.0, 4.5, & 4.6.

[8] Capable of being dissolved-especially in water.

Regional

Alameda County Hazardous Waste Management Program

Assembly Bill (AB) 2948 required counties and cities either to adopt a county hazardous waste management plan as part of their general plan, or to enact an ordinance requiring that all applicable zoning, subdivision, conditional use permit, and variance decisions be consistent with the county hazardous waste management plan. Once each County had its Hazardous Waste Management Program approved by the State, each city had 180 days to 1) adopt a City Hazardous Waste Management Plan containing specified elements consistent with the approved County Hazardous Waste Management Plan; 2) incorporate the applicable portions of the approved Plan, by reference, into the City's General Plan, or 3) enact an ordinance that requires all applicable zoning, subdivision, conditional use permits, and variance decisions be consistent with the specified portions of the plan. Alameda County has adopted a Hazardous Waste Management Program that addresses procedures for hazardous materials incidents. The Alameda County Hazardous Materials Program is part of the Hazardous Materials / Waste Division within Alameda County Department of Environmental Health and is the Certified Unified Program Agency (CUPA) for the City of Alameda.Under the Unified Hazardous Waste and Hazardous Materials Management Regulatory Program, the Alameda County Department of Environmental Health (ACDEH) is certified by the DTSC to implement the following programs:

- Hazardous Materials Management Plan and Inventory (HMMP) and the Hazardous Materials Business Plan (HMBP)
- Risk Management program (RMP)
- UST program
- Spill Prevention, control and Countermeasure (SPCC) Plan for ASTs
- Hazardous waste generators
- Onsite hazardous waste treatment (tiered permit)

Submittal of updated HMMP and HMBP to the ACDEH in accordance with changes to hazardous materials storage and disposal locations and volumes in association with implementation of the project and future operation of the hospital would be required. Potential removal or installation of USTs or ASTs under the project would also be subject to oversight by ACDEH.

Local Plans and Policies

The *City of Alameda General Plan* includes both Guiding Policies and Implementing Policies that include policies related to hazardous materials management and hazardous material incidents. These include, but are not limited to, clarifying responsibilities for resolving incidents of hazardous materials release (*Guiding Policy 8.4.*b) and requiring entities that store hazardous materials to have the training and capacity to respond to their own emergencies (*Implementing Policy 8.4.i*). In addition, Chapter 9 of the City of Alameda General Plan focuses on the Alameda Point area and includes the following policies:

Environmental Cleanup

Guiding Policy: Environmental Cleanup

Policy 9.6.o Continue to support cleanup of contaminated lands.

Implementing Policies: Environmental Clean-up

Policy 9.6.p Maintain information about contamination and clean-up activities and make the information available to the public.

Policy 9.6.q Require environmental restrictions (i.e., deed restrictions) regarding Marsh Crust/subtidal zone excavation and shallow groundwater use.

Policy 9.6.r Create a land use and construction permitting program that requires consideration of residual contamination. The permitting program should include:

- A means for tracking deed restrictions
- A means for tracking remediation to help ensure that future land uses are compatible
- A method for classifying land uses by exposure scenario
- Identification of areas that might require special construction precautions
- A system for ongoing communication with the environmental regulatory agencies.

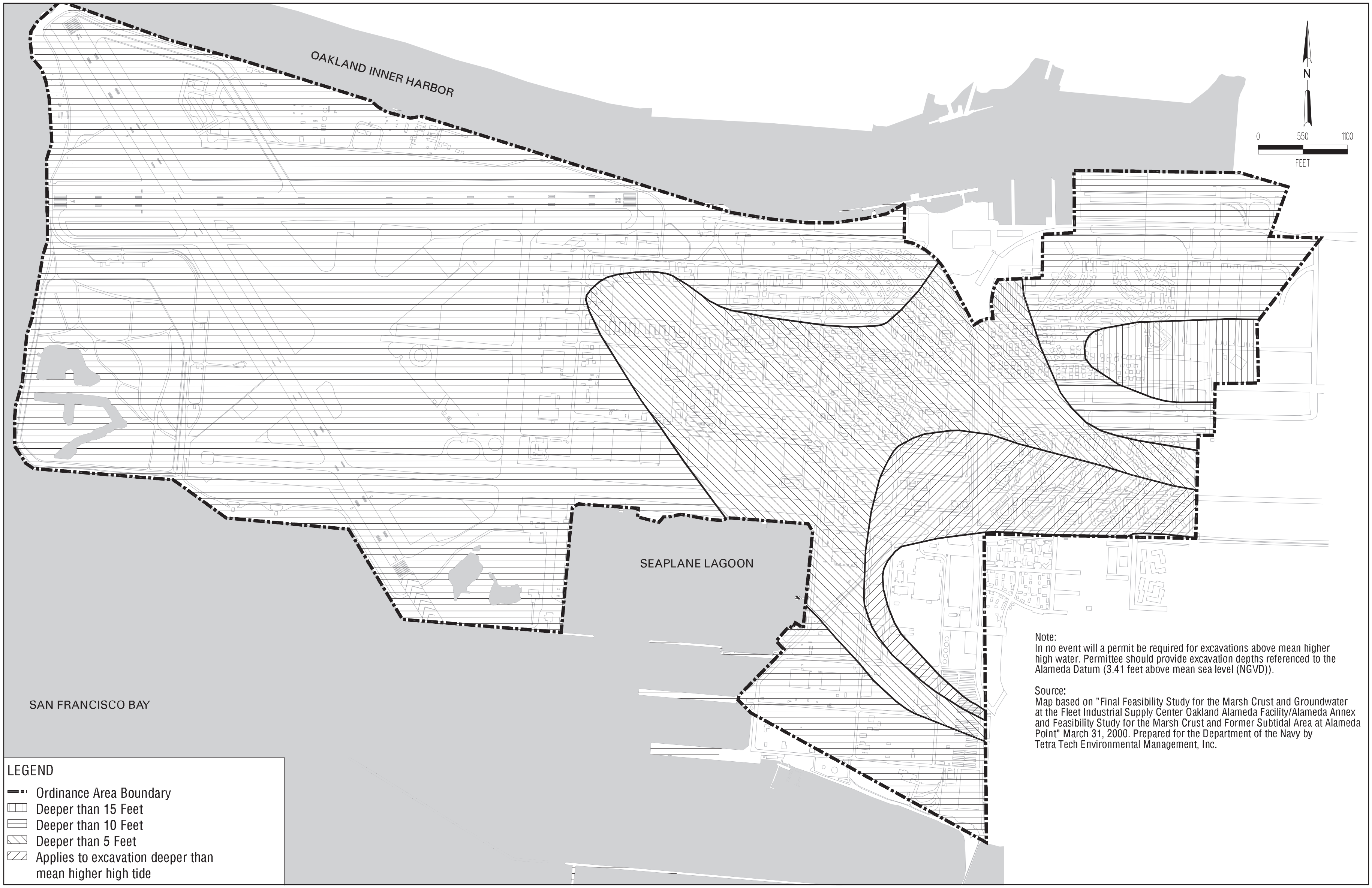
Marsh Crust Ordinance

Most of the project site is within the area covered by the City of Alameda General Ordinance No. 2824 (Alameda Municipal Code Chapter XIII, Article XVII, Section 13-56), also known as the MCO, which applies to former tidal or subtidal areas that were filled in to create dry land (**Figure 4.J-4**). The MCO is an excavation ordinance that contains notification and permit requirements for excavations that may encounter a layer of deposits that commonly contain petroleum related substances. Prior to digging, contractors are required to review the Marsh Crust Map that establishes threshold depths. Most excavations at or beneath the threshold depth requires a Marsh Crust Permit from the City's CBO, an approved site-specific Health and Safety Plan, and special materials handling procedures.

City of Alameda Land-Use Restriction Tracking Program and Soil/Groundwater Management Plan

Portions of the property being transferred by the Navy to the City of Alameda contain residual petroleum contamination in soil and/or groundwater. For areas where the residual contamination could potentially present human health risks, the City of Alameda in coordination with the Water Board will require land-use controls to protect future residents, workers, and visitors.

Two types of transferring petroleum sites will need land-use controls: (1) closed (restricted) petroleum sites and (2) open petroleum sites—those that have not reached regulatory closure, typically due to incomplete characterization (collectively, "affected property"). At the time of



SOURCE: City of Alameda

Alameda Point Project . 130025

Figure 4.J-4
Marsh Crust Map

transfer, a covenant will be recorded against a property that has a closed (restricted) petroleum site to secure the conditions and requirements necessary to protect public health, safety, and the environment. The Water Board will be the Covenantee. Both the Water Board and the City wish to restrict activities at open petroleum sites where appropriate. To achieve this level of control, a notification will be included in the deed of property that has an open petroleum site to inform transferees that, at least until the petroleum site is closed, sensitive land uses[9] are restricted and work involves soil excavation, trenching, or groundwater contact ("Intrusive Activities") must comply with a site management plan ("SMP") that is acceptable to Water Board staff.

The City will enroll transferred affected property in its Land-use Restriction Tracking Program and SMP (City Program). The land-use restrictions for affected property will be identified in the automated permit-tracking system that the City uses for its permitting activities. The associated maps will be updated at the time of any future parcel subdivision and when petroleum-based land-use restrictions are recorded or rescinded. The maps will be used to produce a current map and list that the City will submit to the Water Board on an annual basis summarizing: (1) all Alameda Point parcels; (2) all Alameda Point parcels with petroleum-based land-use restrictions; (3) any Alameda Point parcels that had petroleum-based land-use restrictions removed during that year; and (4) any Alameda Point petroleum contamination cases (open sites) that were closed with petroleum-based land-use restrictions during that year.

J.4 Impacts and Mitigation Measures

Significance Criteria

A project would generally be considered to have a significant adverse impact on the environment if it 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 one-quarter 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, create a significant hazard to the public or the environment.

9 Sensitive land uses include: A residence, including any mobile home or factory-built housing constructed or installed for use as residential human habitation; a hospital for humans; a school for persons under 21 years of age; a daycare facility for children; or any permanently occupied human habitation other than those used for commercial or industrial purposes.

- Be 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, would the project result in a safety hazard for people residing or working in the project area.
- Result in a safety hazard for people residing or working in the project site vicinity for a project within the vicinity of a private airstrip.
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.
- Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

Approach to Analysis

The potential for hazardous impacts at Alameda Point were determined by a thorough review of the existing conditions, particularly the presence of hazardous materials and hazardous wastes that were released to the environment throughout the history of the military and industrial operations at the project site. Available environmental database review, the City General Plan, and other studies and reports conducted by the Navy were reviewed in order to determine the potential for hazardous impacts that would occur from development facilitated by the proposed project.

Impact Analysis

This following impact analysis focuses on potential impacts of the proposed project related to hazards and hazardous materials. The following Appendix G criteria are not considered relevant to the project based upon the proposed project plans and data research; therefore, they will not be evaluated further in this EIR:

> ***Vicinity of Airport and Airstrip*****:** The project site is located adjacent to the airstrip that was formerly part of the naval air base but is no longer active and there is no associated airport land use plan. Otherwise, the project site is not located within two miles of any other airport or private airstrip and therefore there would be no impact. The nearest airport is the Oakland International Airport, which is approximately 5 miles southeast of the project site.
>
> ***Fires.*** The proposed project site is not located in, nor has it been designated as a wildland fire hazard area. The project site is largely surrounded by water and developed areas. Emergency services are provided locally by the City and all new construction would be designed and constructed in accordance with current Fire Safety Codes. Therefore, there would be no impact related to fires.

Construction-Related Impacts

Impact 4.J-1: Demolition of the existing structures on Alameda Point which contain hazardous building materials—such as lead-based paint, asbestos, and PCBs—could potentially expose workers, the public, or the environment from the transport, use, or disposal of these hazardous materials and waste. (Significant)

Demolition of existing structures on the project site may expose construction workers, the public, or the environment to hazardous materials such as LBP, ACMs, and PCBs. The level of potential impact is dependent upon the age, construction, and building materials of each building. Based on the age of the existing structures, any of these hazardous building materials could be present at the site which, if disturbed, could expose workers and the public during demolition. Any remaining ACMs would need appropriate abatement of identified asbestos prior to demolition. Friable asbestos is regulated as a hazardous air pollutant under the Clean Air Act and, ACMs, as a potential worker safety hazard under the authority of Cal OSHA. Potential exposure to these hazardous building materials can be reduced through appropriate abatement measures.

Exposure to asbestos, and the resulting adverse health effects, is possible throughout the demolition and renovation phases if ACMs are present. In structures slated for demolition under the proposed project, any ACMs would be abated in accordance with state and federal regulations prior to the start of demolition or renovation activities. However, the property deed will also contain a restriction that the transferee covenants, on behalf of itself, its successors and assigns, as a covenant running with the land, that prohibits occupancy and use of buildings and structures, or portions thereof, containing known asbestos hazards before abatement of such hazards has been completed in accordance with all applicable federal, state, and local laws relating to asbestos and ACMs.

Section 19827.5 of the California Health and Safety Code requires that local agencies not issue demolition or alteration permits until an applicant has demonstrated compliance with notification requirements under applicable federal regulations regarding hazardous air pollutants, including asbestos. The BAAQMD is vested by the California legislature with authority to regulate airborne pollutants, including asbestos, through both inspection and law enforcement, and is to be notified 10 days in advance of any proposed demolition or abatement work. The provisions that cover these operations are found in District Regulation 11, Rule 2.

Notification includes the names and addresses of operations and persons responsible; description and location of the structure to be demolished/altered including size, age, and prior use, and the approximate amount of friable asbestos; scheduled starting and completion dates of demolition or abatement; nature of planned work and methods to be employed; procedures to be employed to meet BAAQMD requirements; and the name and location of the waste disposal site to be used. The BAAQMD randomly inspects asbestos removal operations and will inspect any removal operation about which a complaint has been received.

Asbestos abatement contractors must follow state regulations contained in 8 CCR 1529 and 8 CCR 341.6 through 341.14 where there is asbestos-related work involving 100 square feet or more of ACMs. Asbestos removal contractors must be certified by the Contractors Licensing

Board of the State of California. The owner of the property where abatement is to occur must have a hazardous waste generator number assigned by and registered with the DTSC in Sacramento. The applicant and the transporter of the waste are required to file a hazardous waste manifest that details the transportation of the material from the site and its disposal.

Both the federal OSHA and Cal OSHA regulate worker exposure during construction activities that disturb LBP. The Interim Final Rule found in 29 CFR 1926.62 covers construction work in which employees may be exposed to lead during such activities as demolition, removal, surface preparation for repainting, renovation, cleanup, and routine maintenance. The OSHA-specified compliance includes respiratory protection, protective clothing, housekeeping, special high-efficiency filtered vacuums, hygiene facilities, medical surveillance, and training. In addition, the property deed will contain a restriction that the transferee covenants, on behalf of itself, its successors and assigns, as a covenant running with the land, in its use and occupancy of the property, including, but not limited to, demolition of buildings, structures, and facilities, and identification and evaluation of any LBP hazards, the transferee (City) shall be responsible for managing LBP and LBP hazards in accordance with applicable federal, state, and local laws, and other requirements relating to LBP and LBP hazards. Further, the transferee, its successors, and assigns will prohibit residential occupancy and use of buildings and structures, or portions thereof, prior to identification and/or evaluation of any LBP hazards, and abatement of any hazards identified as required by applicable laws.

Fluorescent lighting ballasts manufactured prior to 1978, and electrical transformers, capacitors, and generators manufactured prior to 1977, may contain PCBs. In accordance with the Toxic Substances Control Act and other federal and state regulations, the applicant would be required to properly handle and dispose of electrical equipment and lighting ballasts that contain PCBs, reducing potential impacts to a less-than-significant level.

Mitigation Measure 4.J-1a: Prior to issuance of any demolition permit, the project applicant shall submit to the City a hazardous building material assessment prepared by qualified licensed contractors for each structure intended for demolition indicating whether LBP or lead-based coatings, ACMs, and/or PCB-containing equipment are present.

Mitigation Measure 4.J-1b: If the assessment required by Mitigation Measure 4.J-1a indicates the presence of LBP, ACMs, and/or PCBs, the project applicant shall create and implement a health and safety plan to protect demolition and construction workers and the public from risks associated with such hazardous materials during demolition or renovation of affected structures.

Mitigation Measure 4.J-1c: If the assessment required by Mitigation Measure 4.J-1a finds presence of LBP, the project applicant shall develop and implement a LBP removal plan. The plan shall specify, but not be limited to, the following elements for implementation:

- Develop a removal specification approved by a Certified Lead Project Designer.
- Ensure that all removal workers are properly trained.
- Contain all work areas to prohibit off-site migration of paint chip debris.

- Remove all peeling and stratified LBP on building and non-building surfaces to the degree necessary to safely and properly complete demolition activities according to recommendations of the survey. The demolition contractor shall be responsible for the proper containment and disposal of intact LBP on all equipment to be cut and/or removed during the demolition.
- Provide on-site personnel and area air monitoring during all removal activities to ensure that workers and the environment are adequately protected by the control measures used.
- Clean up and/or vacuum paint chips with a high efficiency particulate air (HEPA) filter.
- Collect, segregate, and profile waste for disposal determination.
- Properly dispose of all waste.

Mitigation Measure 4.J-1d: If the assessment required by Mitigation Measure 4.J-1a finds asbestos, the project applicant shall prepare an asbestos abatement plan and shall ensure that asbestos abatement is conducted by a licensed contractor prior to building demolition. Abatement of known or suspected ACMs shall occur prior to demolition or construction activities that would disturb those materials. Pursuant to an asbestos abatement plan developed by a state-certified asbestos consultant and approved by the City, all ACMs shall be removed and appropriately disposed of by a state certified asbestos contractor.

Mitigation Measure 4.J-1e: If the assessment required by Mitigation Measure 4.J-1a finds PCBs, the project applicant shall ensure that PCB abatement is conducted prior to building demolition or renovation. PCBs shall be removed by a qualified contractor and transported in accordance with Caltrans requirements.

Implementation of **Mitigation Measures 4.J-1a** through **4.J-Je** would reduce impacts to less than significant levels.

Significance after Mitigation: Less than Significant.

Impact 4.J-2: Construction at Alameda Point could potentially disturb soil and groundwater impacted by historical hazardous material use, which could expose construction workers, the public, or the environment to adverse conditions related to the transport, use, or disposal of hazardous materials and waste. (Significant)

Construction activities would include demolition of existing buildings, excavation and trenching, which could potentially intercept and/or disturb or uncover impacted soil and/or groundwater.[10] If

[10] Some sites, for example Building 5 IR Site 5, are likely to have institutional controls that prohibit the removal of the existing floor slab in order to prevent exposure to underlying radiologically impacted drain lines that if the building's floor slab is left in place do not present a threat to human health above accepted risk levels (Tetra Tech, 2012). If excavation is required, the excavated soils would be radiologically screened to determine radioactive waste classification prior to disposal. If soil is determined to be impacted, then it would be properly disposed of off-site. Periodic monitoring and maintenance of the engineering controls would be required to ensure they continue to provide adequate protectiveness. Five-year reviews would be included to evaluate the continued protectiveness of the institutional and engineering controls.

significant levels (e.g., concentrations that exceed regulatory screening levels or redmedial goals, if any) of hazardous materials in site soils are discovered, health and safety risks to workers could occur. Exposure to hazardous materials could cause various short-term and/or long-term health effects. Possible health effects could be acute (immediate, or of short-term severity), chronic (long-term, recurring, or resulting from repeated exposure), or both. Acute effects, often resulting from a single exposure, could result in a range of effects from minor to major, such as nausea, vomiting, headache, dizziness, or burns. Chronic exposure could result in systemic damage or damage to organs, such as the lungs, liver, or kidneys. Health effects would be specific to each hazardous material and would depend on a number of factors including dose, route, frequency, and duration of exposure. In addition, contaminated soils and groundwater can present adverse effects to the environment including damage to wildlife. As discussed more fully in Section 4.I, Hydrology, any temporary dewatering activities would be required to adhere to permitted requirements which may include treatment prior to discharge.

These past releases of hazardous materials at the site have been the subject of numerous investigations as part of the Navy's CERCLA and Petroleum Programs. A base-wide investigation was conducted as part of the BRAC process, developed by the DoD for base closures, that identified areas where the potential to cause unacceptable risks to human health and the environment exists or where there is insufficient data available to make such a determination.

Since first identified for base closure, a substantial amount of work has been performed by the Navy regarding the identification and cleanup of subsurface contamination. A FOST has been completed for approximately 511 upland acres and 870 acres of submerged land (see Figure 4.J-1) and concluded that the subject areas are suitable for transfer, based on previous investigations, remedial action completion reports, or because the remedy is in place and operating properly and successfully (OPS), as determined by the United States Environmental Protection Agency (U.S. EPA) (Tetra Tech, 2013). The Navy will continue to complete cleanup requirements and prepare FOST(s) for the remaining portions of Alameda Point that are to be transferred to the City, including sites that are still active prior to commencement of construction for proposed development under the project.[11] The complete FOST is presented in **Appendix K**.

In general, development under the proposed project would not commence construction on any parcel until a FOST has been completed for that area. Areas that may previously have been inaccessible due to the presence of existing structures could potentially contain pockets of previously unidentified contamination. However, as stated above in the Regulatory Framework, Cal OSHA assumes primary responsibility for developing and enforcing standards for safe workplaces and work practices. At sites known to be contaminated, a Site Health and Safety Plan must be prepared to protect workers. The Health and Safety Plan would identify potential contaminants that may be encountered, appropriate personal protective equipment for site workers, and worker safety procedures for spills and accidents. To reduce environmental risks associated with encountering contaminated soil discovered during grading and construction, the Site Management Plan, as required by **Mitigation Measure 4.J-2**, would include protocols to

[11] In some cases, remediation efforts may be combined with construction activities such that excavation and removal of contaminated soil can be combined with grading and foundation preparation work.

isolate any suspected contaminated soil, notify the appropriate regulatory overseeing agency, sample for hazardous material content, and manage it in accordance with all applicable state, federal, and local laws and regulations. All suspected contaminated soil determined to be hazardous or non-hazardous waste would undergo all laboratory analyses for acceptable disposal as required by the receiving facility before it can be removed from the site.[12] Any additional sampling, investigation, or remediation as deemed necessary to protect human health and the environment by the overseeing agency (U.S. EPA, DTSC, or Water Board) would then occur prior to completion of construction activities and prior to occupancy of the site unless determined by the overseeing agency to present no threat to human health. With implementation of the Site Health and Safety Plan, in accordance with Cal OSHA requirements, and a Site Management Plan, as approved by the U.S. EPA, DTSC, and Water Board, construction activities would not expose workers to unacceptable levels of known hazardous materials and the potential impact would be reduced to less-than-significant levels. The project would involve excavation for installation of building substructures and subgrade utilities, and would involve grading that could be substantial in certain areas. Soil disturbance and any necessary dewatering during construction could disperse existing contamination into the environment and expose construction workers and the public to contaminants.

Mitigation Measure 4.J-2: Prior to issuance of a building or grading permit for any ground breaking activities within the project site, the City shall prepare a Site Management Plan (SMP) that is approved by US EPA, DTSC, and the Water Board for incorporation into construction specifications. Any additional or remaining remediation on identified parcels from the City's tracking system shall be completed as directed by the responsible agency, U.S. EPA, DTSC, or Water Board, in accordance with the deed restrictions and requirements as well as any Covenants(s) to Restrict Use of Property (CRUP), prior to commencement of construction activities. Where necessary, additional remediation shall be accomplished by the project applicant prior to issuance of any building or grading permits in accordance with all requirements set by the overseeing agency (i.e., U.S. EPA, DTSC, or Water Board). The SMP shall be present on site at all times and readily available to site workers. The SMP shall specify protocols and requirements for excavation, stockpiling, and transport of soil and for disturbance of groundwater as well as a contingency plan to respond to the discovery of previously unknown areas of contamination (e.g., discolored soils, strong petroleum odors, an underground storage tank unearthed during normal construction activities, etc.). At a minimum the SMP shall include the following components:

1. *Soil management requirements.* Protocols for stockpiling, sampling, and transporting soil generated from onsite activities. The soil management requirements must include:

    - Soil stockpiling requirements such as placement of cover, application of moisture, erection of containment structures, and implementation of security measures. Additional measures related to BAAQMD dust control requirements as they apply to contamination shall also be included, as needed (see also Air Quality section).

[12] Depending on constituent concentrations, soils can be classified as either hazardous or non-hazardous which have differing requirements for transport and disposal.

- Protocols for assessing suitability of soil for on-site reuse through representative laboratory analysis of soils as approved by U.S. EPA, DTSC, or Water Board, taking into account the site-specific health-based remediation goals, other applicable health-based standards, and the proposed location, circumstances, and conditions for the intended soil reuse.
- Requirements for offsite transportation and disposal of soil not determined to be suitable for onsite reuse. Any soil identified for offsite disposal must be packaged, handled, and transported in compliance with all applicable state, federal, and the disposal facility's requirements for waste handling, transportation and disposal.
- Protocols for adherence to the City of Alameda's Marsh Crust Ordinance.
- Measures to be taken for areas of IR Site 13 where refinery wastes and asphaltic residues known as tarry refinery waste might be encountered. Measures shall include requirements for the storage, handling and disposal/recycling of any suspected tarry refinery waste that may be encountered.
- Radiological screening protocols for the radiological sites identified by the Navy as approved by the U.S. EPA, where necessary.

2. *Groundwater management requirements*. Protocols for conducting dewatering activities and sampling and analysis requirements for groundwater extracted during dewatering activities. The sampling and analysis requirements shall specify which groundwater contaminants must be analyzed or how they will be determined. The results of the groundwater sampling and analysis shall be used to determine which of the following reuse or disposal options is appropriate for such groundwater:

   - Onsite reuse (e.g., as dust control);
   - Discharge under the general permit for stormwater discharge for construction sites;
   - Treatment (as necessary) before discharge to the sanitary sewer system under applicable East Bay MUD waste discharge criteria;
   - Treatment (as necessary) before discharge under a site-specific NPDES permit;
   - Offsite transport to an approved offsite facility.

   For each of the options listed, the SMP shall specify the particular criteria or protocol that would be considered appropriate for reuse or disposal options. The thresholds used must, at a minimum, be consistent with the applicable requirements of the Water Board and East Bay MUD.

3. *Unknown contaminant/hazard contingency plan*. Procedures for implementing a contingency plan, including appropriate notification, site worker protections, and site control procedures, in the event unanticipated potential subsurface hazards or hazardous material releases are discovered during construction. Control procedures shall include:

   - Protocols for identifying potential contamination though visual or olfactory observation;

- Protocols on what to do in the event an underground storage tank is encountered;
- Emergency contact procedures;
- Procedures for notifying regulatory agencies and other appropriate parties;
- Site control and security procedures;
- Sampling and analysis protocols; and
- Interim removal work plan preparation and implementation procedures.

Implementation of **Mitigation Measures 4.J-2** would reduce impacts to less than significant levels.

Significance after Mitigation: Less than Significant.

Impact 4.J-3: Hazardous materials used onsite during construction activities (e.g., oils, solvents, etc.) at Alameda Point could potentially be spilled through improper handling or storage, potentially increasing public health and/or safety risks to future residents, maintenance workers, visitors, and the surrounding area. (Less than Significant)

Construction activities would require the use of certain hazardous materials such as fuels, oils, solvents, and glues. Inadvertent release of large quantities of these materials into the environment could adversely impact workers, the public, soil, surface waters, or groundwater quality. The use of construction best management practices implemented as part of a Storm Water Pollution Prevention Plan (discussed further in Section 4.I, *Hydrology*) as required by the National Pollution Discharge Elimination System General Construction Permit would minimize the potential adverse effects to workers, the public, groundwater and soils. These could include the following:

- Establish a dedicated area for fuel storage and refueling activities that includes secondary containment protection measures and spill control supplies;
- Follow manufacturer’s recommendations on use, storage and disposal of chemical products used in construction;
- Avoid overtopping construction equipment fuel gas tanks;
- During routine maintenance of construction equipment, properly contain and remove grease and oils.
- Properly dispose of discarded containers of fuels and other chemicals.

In general, aside from refueling needs for heavy equipment, the hazardous materials typically used on a construction site are brought onto the site packaged in consumer quantities and used in accordance with manufacturer recommendations. The overall quantities of these materials on the site at any one time would not result in large bulk amounts that, if spilled, could cause a significant soil or groundwater contamination issue. Spills of hazardous materials on construction sites are typically localized and would be cleaned up in a timely manner. As described above, refueling activities of heavy equipment would be conducted in a controlled dedicated area complete with secondary containment and protective barriers to minimize any potential hazards that might occur with an inadvertent release. Given the required protective measures (i.e., best management practices) and the quantities of hazardous materials typically needed for construction projects such as the proposed project, the threat of exposure to the public or contamination to soil and/or groundwater from construction-related hazardous materials is considered a less than significant impact.

Mitigation: None required.

Operational-Related Impacts

Impact 4.J-4: Development facilitated by the proposed project could potentially involve the transportation, use, and storage of hazardous materials, which could present public health and/or safety risks to residents, visitors, and the surrounding area. (Less than Significant)

Hazardous material use would be associated with proposed residential, commercial, industrial, and institutional land uses on the project site. Businesses associated with industrial/commercial/retail and building support activities would use hazardous chemicals common in other commercial/retail and support settings. These chemicals could include familiar materials such as toners, paints, lubricants, and kitchen and restroom cleaners as well as relatively small quantities of fuels, oils, and other petroleum-based products. Industrial uses could include storage, transport, handling, and disposal of larger quantities of hazardous materials. Small quantities of hazardous materials are also associated with residential land uses, including cleaning products, fuels, oils, pesticides, and lubricants. Activities such as automobile or building maintenance, as well as landscaping, can become sources of releases of hazardous materials. Because general commercial/retail and household hazardous materials are typically handled and transported in small quantities, and because the health effects associated with them are generally not as serious as industrial uses, operation of a majority of new uses at the project site would not cause an adverse effect on the environment with respect to the routine transport, use, or disposal of general office and household hazardous materials. For commercial/retail uses, the regulatory framework requires appropriate training of employees in the use, storage, and disposal of any hazardous materials and wastes. Industrial uses could include the storage, handling, transport, and disposal of relatively larger quantities of hazardous materials that would similarly be subject to regulatory requirements that are designed to minimize the potential for adverse effects due to exposure. As required by the Alameda County Department of Environmental Health (ACDEH), the Certified Unified Program Agency (CUPA), any businesses that would store hazardous materials and/or waste at its business site would be required to submit business information and hazardous materials inventory forms contained in Hazardous Materials Management Plan and

Hazardous Materials Business Plan. The City of Alameda requires all new commercial and other users to follow applicable regulations and guidelines regarding storage and handling of hazardous waste. All hazardous materials are required to be stored and handled according to manufacturer's directions and local, state and federal regulations. With adherence to existing regulatory requirements, impacts related to the routine transport, use or disposal of hazardous materials during operation would be less than significant.

Mitigation: None required.

Impact 4.J-5: Hazardous materials used at Alameda Point during the operational phase could potentially be spilled through upset or accidental conditions, potentially increasing public health and/or safety risks to future residents, workers, visitors, and the surrounding area. (Less than Significant)

As noted above, proposed land uses including residential, commercial, industrial, and institutional land uses would likely include the use hazardous materials and waste common in other commercial/retail and support settings. These chemicals could include familiar materials such as toners, paints, lubricants, and kitchen and restroom cleaners as well as relatively small quantities of fuels, oils, and other petroleum-based products. Industrial uses could include storage, transport, handling, and disposal of larger quantities of hazardous materials. If not handled appropriately, upset and accident conditions could result in releases of hazardous materials or wastes that result in adverse effects to residents, workers, the public or the environment. As described above, any businesses that would store hazardous materials and/or waste at its business site would be required to submit a Hazardous Materials Management Plan and Hazardous Materials Business Plan. The ACDEH requires all new commercial and other users to follow applicable regulations and guidelines regarding storage and handling of hazardous waste in a manner such that accidental spills or releases are minimized and spill response supplies are readily available to quickly contain any spill that may occur. In accordance with the Uniform Fire Code (UFC), the City of Alameda Fire Department conducts site inspections to ensure hazardous materials are stored and handled properly and safety supplies are readily accessible. Industrial uses with relatively larger quantities of hazardous materials use, storage, and disposal of wastes have more stringent inspection and safety requirements that would similarly minimize any accidental releases. With adherence to these existing regulatory requirements, the potential to adversely affect workers, residents, visitors, or the environment would be reduced to less than significant levels.

Mitigation: None required.

Impact 4.J-6: Hazardous materials use at Alameda Point could potentially emit hazardous emissions or handle hazardous or acutely hazardous materials, substances or waste within 0.25 mile of an existing or proposed school. (Less than Significant)

The proposed project includes the construction of a new school on the project site. Although there would likely be some variation in the amount of hazardous materials use across the project site, the proposed uses would entail the storage, handling, transport, and disposal of hazardous materials and wastes. Examples of common hazardous materials could include fuels, oils, lubricants, paints, cleaning chemicals, and other petroleum products. If not managed properly, school children may be exposed to accidental spillage or leakage of hazardous materials stored onsite.

As discussed above, all new development would be required to follow applicable regulations and guidelines regarding storage and handling of hazardous waste. All hazardous materials would be required to be stored and handled according to manufacturer's directions and local, state, and federal regulations. These requirements would include posting of signs, notification of the local fire department, filing of the Hazardous Materials Business Plan, and use of specialized containment facilities. In addition to mandatory adherence to City and County requirements, compliance with the requirements of California Code of Regulations CCR Title 5, Section 14010, Standards for School Site Construction, and California Department of Education School Facilities Planning Division as overseen by DTSC further ensures that hazardous materials impacts on proposed schools would be less than significant. CCR Title 5 Section 14010 includes measures to ensure that future school children are not exposed to adverse effects through exposure to hazardous materials or wastes. For new schools, DTSC requires that a Preliminary Endangerment Assessment (PEA) be prepared under the supervision of DTSC's School Property Evaluation and Cleanup Division that identifies any potential sources of hazardous emissions that could adversely affect future occupants. If the Preliminary Endangerment Assessment discloses the presence of a hazardous materials release, or threatened release, or the presence of naturally occurring hazardous materials, at or near the school site at concentrations that could pose a significant risk to children attending the school or adults working at the school, or discloses that ongoing or planned remediation activities to address such a release near the school could pose a significant risk to children attending the school or adults working at the school, then the school could not open until all actions required by DTSC to reduce the increased cancer risk from exposure to such releases to less than one in a million ($1x10^{-6}$) and reduce the increased risk of noncancerous toxic effects such that the Hazard Index for chronic and acute hazards is less than one.

Therefore, with adherence to local, state, and federal requirements regarding the use, handling, and disposal of hazardous materials at the project site and DTSC requirements for the location of new schools, the potential impact related to emissions of hazardous materials or waste within 0.25 miles of a school would be less than significant.

Mitigation: None required.

Impact 4.J-7: Development facilitated by the proposed project could potentially be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and could result in a safety hazard to the public or environment through exposure to previous contamination of soil or groundwater including vapor intrusion into buildings (Significant)

As mentioned above, the project site has a long history of environmental investigation and cleanup efforts with additional ongoing remediation activities still occurring due to the presence of legacy contaminants (DTSC, 2013). If not managed appropriately, future residents, visitors, and workers could be exposed to these legacy contaminants through vapor intrusion into proposed structures, or contact with contaminated soils through excavation or other ground disturbing activities such as digging. The previous investigations have divided the project site into individual areas based on type and extent of contamination that are actively overseen by regulatory agencies (U.S. EPA, DTSC and Water Board) to ensure that all remediation is completed to levels that protect human health and the environment. The impacts related to safety hazards to the public or environment from these sites are also discussed and analyzed above under Impact 4.J-1. Closure of each IR site, Operable Unit, petroleum program site, and radiological program site would be based on all the collected data, including a Risk Assessment that uses numerical risk values estimated for both carcinogenic and non-carcinogenic compounds. Neither site closure nor a FOST would be approved by the overseeing regulatory agency unless the data clearly indicate that no significant risks to human health or the environment remains including any potential health risks from vapor intrusion.

Locations that have been subject to past releases of volatile organic compounds (VOCs) (e.g., benzene) prone to evaporation and upward migration within the soil gas column, can potentially accumulate in enclosed spaces such as buildings and expose occupants to health risks. In general, incorporation of vapor barriers and other ventilation improvements to proposed structures can easily minimize the potential for harmful soil gases to accumulate in new structures.

In some cases, the ROD may contain land use controls (also known as institutional controls), such as restrictions on use of underlying groundwater or notification requirements for any excavation work, that are implemented to protect human health and the environment against residual contamination. These land use controls have been or will be recorded with the deed and ensure that any residual contamination poses no threat provided that the terms of the deed remain in effect as required by law, as long as required by the regulatory agencies. In addition, as described above in the regulatory framework, the City will enroll transferred affected property in its Land-use Restriction Tracking Program and SMP (City Program). The land-use restrictions for affected property will be identified in the automated permit-tracking system that the City uses for its permitting activities. The associated maps and database will be used to record land-use restrictions and any changes to those restrictions as part of the permitting process to ensure that future land uses are consistent with the regulatory requirements. Therefore, with the appropriate disclosure and land use requirements as required by Mitigation Measure 4.J-7 below, the potential for residual contamination to significantly impact residents, employees or the general public would be minimized and is considered less than significant.

Mitigation Measure 4.J-7: The City shall include closed and open IR CERCLA sites that have land-use controls within its Land-use Restriction Tracking Program for identification and disclosure of any past cleanup efforts and current status of any remaining contamination, if any. Additional control measures such as vapor barriers and venting may be required as a condition of approval in areas where soil gas emissions have been identified. Prior to transfer of title for any parcel, the City shall require that the SMP as approved by US EPA, DTSC, and the Water Board be incorporated into intrusive site operations as required through deed restriction, enforceable Land Use Covenant, or any other applicable legal requirement.

Significance after Mitigation: With the continued remediation efforts currently being conducted by the Navy and any that would be assumed by the City[13] as overseen by the DTSC or Water Board, combined with the City's tracking system, continued compliance with deed restrictions, SMP, and other permit requirements including adherence to the Marsh Crust Ordinance, the potential for residual contamination to significantly impact residents, employees or the general public would be minimized and is considered less than significant with mitigation.

Impact 4.J-8: Development facilitated by the proposed project could potentially impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan. (Less than Significant)

As discussed in Section 4.L, *Public Services and Recreation*, of this EIR, fire protection services would be provided to the project site by the City of Alameda Fire Department. The Fire Department delivers emergency and non-emergency services, including rapid assistance for medical, fire, or other hazardous situations, to the entire City. Development of the project site would be required to ensure that the street system can accommodate emergency response and evacuation.

The circulation plan for the project would be designed to ensure appropriate emergency access to and egress from all areas of the project site with some improvements to existing conditions. The proposed road framework will provide increased access from the project site to the rest of Alameda by extending the east-west City of Alameda street network into the project site. Proposed improvements would enable existing aid emergency vehicles traveling from existing facilities to reach all development on the Site. Additionally, all project-specific designs, including private internal circulation and building site plans, shall be subject to review and approval by the City, including emergency service providers, per project requirements.

The proposed development and existing emergency response requirements are sufficient to ensure that the potential significant health and safety effects associated with possible impairment or

13 In some instances there may be a change from the assumed future land use originally used in the risk analysis where additional remediation is necessary to maintain protection of human health. As with any other development associated with the project, occupancy of the subject site would still not occur until the risk analysis indicates no unacceptable health risks or hazards are present at the site.

implementation of any emergency response or evacuation plans would remain a less-than-significant impact.

Mitigation: None required.

Cumulative Impacts

Impact 4.J-9: Hazards at Alameda Point, in combination with past, present, and future projects could potentially contribute to cumulative hazards in the vicinity of the project site. (Less than Significant)

Cumulative hazardous materials effects could occur if activities at the project site and other past, existing and proposed development, together, could significantly increase risks in the regional vicinity of the project site. However, most routine hazardous materials activities at the project site would likely involve relatively small quantities of hazardous materials both in interior and exterior settings. Any health or safety effects of routine hazardous materials use would be limited to the specific individuals using the materials and anyone in the immediate vicinity of the use. No interaction would occur between these routine activities and similar activities at different sites. In addition, based on the estimated slight increase in usage of hazardous materials due to construction and operation of the proposed project, there would not be a substantial change in the amount of hazardous materials handled on the proposed project site.

Cumulative health and safety impacts could occur if project-related outdoor or offsite hazards were to interact or combine with those of other existing and proposed development. This could only occur through the following mechanisms: air emissions; transport of hazardous materials and waste to or from the project site; inadvertent release of hazardous materials to the sanitary sewer, storm drain, or non-hazardous waste landfill; and potential accidents that require hazardous materials emergency response capabilities. Air emissions are addressed in Section 4.C, *Air Quality and Greenhouse Gases*. The proposed project as well as other past, present, and future projects would be required to adhere to existing regulatory requirements for the appropriate handling, storage, and disposal of hazardous materials that are designed to minimize exposure and protect human health and the environment. Cumulative increases in the transportation of hazardous materials and wastes would cause a less than significant impact because the probability of accidents is relatively low, and the use of legally required packaging minimizes the consequences of potential accidents. In addition, all projects in the area would be required to comply with the same laws and regulations as the project. This includes federal and state regulatory requirements for transporting (Cal EPA and Caltrans) hazardous materials or cargo (including fuel and other materials used in all motor vehicles) on public roads or disposing of hazardous materials (Cal EPA, DTSC, ACEHD).Therefore, this cumulative impact would be less than significant.

Mitigation: None required.

J.5 References – Hazards and Hazardous Materials

Department of Toxic Substances Control (DTSC), *Envirostor Database*, http://www.envirostor.dtsc.ca.gov/public/mapfull.asp?global_id=&x=-119&y=37&zl=18&ms=640,480&mt=m&findaddress=True&city=Alameda,%20CA&zip=&county=&federal_superfund=true&state_response=true&voluntary_cleanup=true&school_cleanup=true&ca_site=true&tiered_permit=true&evaluation=true&military_evaluation=true&school_investigation=true&operating=true&post_closure=true&non_operating=true, accessed May 1, 2013.

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United States Navy (Navy), *Proposed Plan for Installation Site 25 Soil, Former NAS Alameda,* http://www.bracpmo.navy.mil/base_docs/nas_alameda/documents/enviro_docs/alpp_Site25_0806.pdf, August, 2006

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K. Aesthetics

This section analyzes the potential impacts the proposed project would have on visual quality in the project vicinity. The aesthetics evaluation focuses on the effects of the proposed physical changes at the project site. This section also discusses the aesthetic effects of light and glare associated with nighttime activities. This section also summarizes applicable policies related to visual quality contained in the City's General Plan.

K.1 Setting

Visual Character

Regional Setting

The project site is located in the City of Alameda, which occupies approximately 12.4 square miles of land area immediately south of the City of Oakland and the Oakland-Alameda Estuary, east of San Francisco, and north and east of San Francisco Bay. Alameda Island makes up approximately 80 percent of the City's land area, with the remainder on Bay Farm Island across the San Leandro Channel.

Alameda Point is located in the western portion of the City on the western tip of Alameda Island. The regional setting in and surrounding Alameda Point is urbanized and industrial in character set at the edge of San Francisco Bay. The City of San Francisco is visible three miles to the west across the bay, and the high-rise downtown section of Oakland is visible approximately one mile to the north. The Port of Oakland is directly across the Oakland Estuary and has a distinctly industrial character with large-scale docking facilities for ocean-going vessels, including large mechanized cranes, cargo container storage areas, and numerous warehouses. These industrial operations are located within a quarter mile of the project site, and ships pass as close as four feet hundred from the shoreline. Also across the Oakland Estuary is Jack London Square, which is a commercial district made up of pedestrian-oriented restaurants, shops, and a marina. In addition, multi-lane highways built at-grade and in elevated configurations, such as I-880 and the San Francisco-Oakland Bay Bridge, can be seen from Alameda Point.

Project Setting

The Alameda Point project site consists of 878 acres of uplands and 1,229 acres of submerged lands (total of 2,107 acres) of the former Naval Air Station (NAS) Alameda located west of Main Street in the western portion of Alameda. The project site, as illustrated in Figure 3-1, is bounded by the Oakland Estuary on the north, Main Street on the east, and by a large parcel of federally owned land and San Francisco Bay on the south and west. There is an internal network of streets providing access to all of the building and land uses within Alameda Point. However, for previous NAS security purposes, the street network was not integrated with the street network of the City of Alameda but instead the Navy created controlled access entry points to the base.

The project site is relatively flat, with sparse vegetation, and is occupied by facilities related to the previous military activities. Approximately 925 buildings and structures totaling approximately six million square feet are located on the project site. Excluding residential uses, the former naval air station consists of buildings and structures that include various decommissioned military support facilities, such as aircraft hangars, warehouses, office/administrative uses, commercial uses, and military housing. These buildings range in both size and mass depending on their original use. They are from one to four stories, and the facades are largely industrial in appearance and have various light-colored painted textures, mainly concrete or stucco. Many of the existing buildings are vacant, underutilized, or otherwise have not been redeveloped. The project site also has soccer and baseball fields, a fire station (vacant), and a church (also vacant). A viewpoint map with a sample of existing uses on the project site is presented in **Figure 4.K-1**.

Employment Area Aesthetics

Views of areas proposed for employment-generating uses consist of large buildings and expanses of paved and landscaped areas. The Adaptive Reuse Area shown on Figure 3-1 is near the central portion of the former naval air station and features generally large-scale, light-colored, painted concrete or stucco buildings that range between one and three stories in height. North of Midway Street, the buildings are arranged around open lawns with sidewalks and tree and shrub borders, which provide a sharp contrast to the expanses of pavement found in most other areas of the project site.

The Seaplane Lagoon area is a rectangular body of water more than one-half a mile long and nearly a quarter-mile wide that is located in the southern portion of the project site and consists of straight shorelines at right angles to each other on the west, north, and east sides with three piers to the south. The areas adjacent to the Seaplane Lagoon area are predominately covered by hardscape and large industrial buildings, and include a small marina with a breakwater and a landscaped public area. A decommissioned aircraft carrier, the USS Hornet, is moored at one of Alameda Point's piers adjacent to the Seaplane Lagoon, and is now the USS Hornet Museum. Adjacent to and south of the Hornet, several military cargo ships that are part of the U.S. Maritime Administration's ready reserve fleet are docked. Together, the ships and docks provide a visual reminder of the former naval activities at the site.

The portion of the project area located to the north of the Seaplane Lagoon and to the east of the runways is characterized by a series of hangar buildings arranged in a row and surrounded by paved surfaces and other smaller buildings. Most of the hangar buildings on western project boundary are approximately 215 feet long, 250 feet wide and 40 feet high with steel frame wall systems finished in earth-toned painted stucco. The hangers just north of the Seaplane Lagoon are similar in character, just larger at approximately 500 feet long, 250 feet wide, and 60 feet high. Although the buildings are large, their size is somewhat offset by the spacing between the structures that makes them appear to stand in relative isolation.

The portion of the project site east of the Seaplane Lagoon is characterized by an expanse of pavement and buildings with many outdoor storage or work areas enclosed by chain-link fences. Most of the buildings are industrial warehouse in design and are one to two stories high. Landscaping or trees is rare on this portion of the site except near Hornet Field, a soccer field, on the most southern extent of the project site.

SOURCE: ESA

Alameda Point Project . 130025

Figure 4.K-1
Existing Photo Viewpoint of Project Site

Residential Areas Aesthetics

Existing residential structures on the project site range from single-family historic officer's housing to former enlisted personnel barracks. The residential portion of NAS Alameda in the northeast portion of the project area consists of single-family residences, multi-family residences, and large historic single-family residences (Big Whites). There are approximately 60 single-family homes with white or earth-tone stucco finishes west of Main Street. The homes are situated between well-groomed mature landscaping and trees between Pan Am Way, West Essex Drive, and Barbers Point Road.

Wood frame two-story apartments and townhouses with light-colored stucco exteriors are located both north and south of West Midway Avenue. The units have second floor balconies with ground floor parking either beneath the units or in adjacent parking lots. They are arranged to provide common lawn areas to the side away from the street. Most of the buildings were constructed between 1964 and 1969. Multi-family, three- to four-bedroom townhomes also were built in the 1960s. Although there are a number of mature trees distributed throughout, other landscaping features are nonexistent.

Barracks housing, currently unoccupied, is located between Monarch Street and Lexington Street from West Red Line Avenue to West Midway Avenue, and consists of long, flat-topped structures with light-colored concrete or stucco finishes, up to four stories high with wings extending at right angles from a central spine. Typically, the barracks are set back from the street with parking lots between the street and the buildings. Lawn areas serve as common outdoor space with a few trees and shrubs as accents. A soccer field provides a backdrop between the barracks. Another large unoccupied barracks building is located north of West Midway Avenue and west of Pan Am Way, across from the residential neighborhood. Lawns formerly surrounded this building as well, but they have not been maintained.

Views from the residential areas generally consist of naval facilities, employment generating uses, residential areas, utility lines, inconsistent landscaping, and expanses of pavement.

Setting of Adjacent Areas

Various residential, commercial, and office uses are located adjacent to the east and southeast of the project area, and consist of narrow residential lots. The federal land located on the southwestern portion of the island, adjacent to the project site, consists of former runways. Its scale and flatness are its main characteristics. Although it is intensely developed with runways and taxi ways, its location near the Bay and the relative absence of tall elements allow long-range views of the surrounding San Francisco Bay Area.

The Port of Oakland is located along the north shore of the Estuary directly opposite Alameda Point, and provides a distinct industrial waterfront character that includes docking facilities for large ocean-going cargo vessels and large, mechanized loading and unloading cranes. There are expansive cargo container storage areas, numerous warehouses, and a number of rail lines in this area.

Jack London Square is located to the east of the Port and across the estuary from Alameda Point, and is a specialized commercial district that provides restaurants, entertainment, specialty shops, boat sales, hotels, and a marina. Jack London Square has a waterfront/marina theme or character, and is designed to promote pedestrian traffic among the shops and restaurants. Boardwalks along the shore and waterfront restaurants provide opportunities for public views of the Estuary, the San Francisco-Oakland Bay Bridge, and the San Francisco skyline. The Oakland Ferry terminal and Roosevelt Pier are located at the western edge of Jack London Square.

Scenic Views from Alameda Point

Views from Alameda Point include San Francisco Bay, the City of San Francisco, the San Francisco-Oakland Bay Bridge, Mt. Tamalpais, the City of Oakland, the East Bay Hills, and San Bruno Mountain. Because Alameda Point is relatively flat, views are unobstructed and extend for many miles in all directions, depending on weather and air quality conditions. Views of the City of San Francisco and the bay occur along roadway view corridors, where buildings line the roadway and frame the view. The longer streets, such as West Red Line Avenue west of Pan Am Way, provide long-distance views of the City of San Francisco and the bay. Unobstructed views of the bay are also available from most shoreline locations within Alameda Point. Additionally, views of the Estuary, East Bay Hills and the City of Oakland occur throughout Alameda Point when not obstructed by buildings or trees.

Views of Alameda Point

There are no sensitive views of Alameda Point from other portions of the City. Alameda Point is not visible from most of Alameda, because of the lack of topography. Alameda Point is visible from Jack London Square, I-880, the Oakland Ferry Terminal, and from elevated heights in Oakland. However, views of the site are not sensitive, because they consist primarily of buildings, piers, runways, and warehouses with low scenic qualities. Both the Oakland and Alameda Ferry services provide views of the project site from San Francisco Bay and the Oakland Estuary. Recreational boaters experience view of the project site from San Francisco Bay, the Oakland Estuary, and Ballena Marina.

Light and Glare

The project area is within a developed and urbanized area where nighttime lighting is part of the built environment and includes vehicle headlights, street lighting at intersections and along the streets, parking lot lighting, and building lighting as well as various other sources of light from surrounding commercial, recreational, and residential uses. Sources of glare in the project area are largely attributable to reflections from vehicles or building windows. Overall, lighting levels are typical for the level of institutional and residential development in the immediate vicinity.

The Port of Oakland occupies 19 miles of waterfront that includes approximately 680 acres of marine terminal facilities and active support areas. Port property extends along the Oakland Inner and Outer Harbors and includes marine facilities, Jack London Square, and various parks, a generates ambient light and glare that is visible from the eastern project boundary across the Estuary.

K.2 Regulatory Framework

This section identifies the policies related to the physical environment and that pertain to the project's potential effects to scenic vistas and resources, and visual quality and character of the project site and adjacent areas.

Federal Regulations

USFWS 2012 Biological Opinion and Navy Declaration of Restrictions

The United States Fish and Wildlife Service (USFWS) issued a Biological Opinion in 2012 for the purpose of protecting the endangered California least tern nesting colony while at the same time allowing for development of surrounding areas. As a condition of the transfer of project area ownership to the City, the Navy has recorded a Declaration of Restrictions based on the Biological Opinion that will serve as enforceable covenants, codes, and restrictions on subsequent development at Alameda Point (see Appendix D). Because these restrictions are intended to avoid and minimize impacts on least terns by controlling, to some degree, the amount, nature and lighting of development in the project area, relevant to the analysis.

Biological Opinion Avoidance Measures incorporated into the Declaration of Restrictions

The following is a list of all unique avoidance measures derived from the 2012 Biological Opinion and incorporated into the Navy's Declaration of Restrictions, along with an indication of which areas each measure applies to (see also **Figure 3-3**, which shows the location of each area) are presented in 4.A, *Land Use* and 4.E, *Biological Resources*.

Memorandum of Agreement By and Between the US, Acting By and Through the Department of Veterans Affairs and the City of Alameda

A Memorandum of Agreement between the Department of Veterans Affairs and the City of Alameda implements the Lighting Measures for the Protection of the Endangered Least Tern at Alameda Point and on the VA property, required by the 2012 Biological Opinion (BO). The BO applies to both the proposed project by the City and the VA project to the east of the project site. As such, the MOA, establishes an agreement on implementation lighting measures to minimize nighttime lighting levels during the Least Tern breeding season consistent with the 2012 BO.

The BO contains the following avoidance and minimization measures and terms and conditions for the City and/or VA related to nighttime lighting to minimize predation of the Least Terns at night:

BO-AMM 7 Applies to all property at NAS Alameda conveyed to the City or other non-federal entities to limit the effects of additional lighting on least terns. It requires the City to:

- Perform design review and develop lighting requirements and provide them to all project applicants to ensure that the cumulative increase in ambient nighttime light levels from VA and City sources does not exceed 10 percent of the pre-conveyance levels from April 1 to August 15;

- In coordination with the VA, conduct studies to determine the existing, preconveyance ambient nighttime light levels and take corrective action in the event that nighttime light levels exceed 10 percent of the pre-conveyance levels from April 1 to August 15; and
- Perform lighting sampling annually in April and report the results of the annual April sampling.

BO-AMM 20 Requires the VA to:

- Conduct studies to determine the existing, pre-conveyance ambient nighttime light levels;
- In coordination with the City, measure nighttime light levels in April of each year and to take corrective action in the event that nighttime light levels exceed 10 percent of the pre-conveyance levels from April 1 to 15; and a Report the results of the annual April sampling.

BO-AMM 21 Requires the VA to design lighting to minimize nuisance nighttime light levels for the proposed VA Project.

BO-TC t.b Requires the VA and City to conduct a Service-approved nighttime lighting study to determine ambient nighttime light levels at and within 750 feet of the least tern colony and requiring certain measures to minimize lighting increases.

BO-TC 1.c Outlines restrictions on the number of new lights, the direction and screening of lights, and tinting of windows.

The MOA with the VA outlines an agreement between the VA and City to implement the aforementioned AMMs and TCs. The two major provisions of the MOA include:

1. Coordinating to monitor nighttime lighting levels on an annual basis and take any corrective actions necessary to reduce nighttime lighting levels; and
2. Implementing lighting mitigation measures for all new improvements and development at Alameda Point.

State Regulations

California Scenic Highways Program and Scenic Corridor Protection Program

In 1963, the California Legislature established the State's Scenic Highway Program, intended to preserve and protect scenic highway corridors from changes that would diminish the aesthetic value of lands adjacent to highways. The state laws governing the Scenic Highway Program are found in the Streets and Highways Code, Section 260 et seq. The California Department of Transportation administers California's Scenic Highways Program, intended to preserve and protect scenic highway corridors from change that would diminish the aesthetic value of lands adjacent to highways. Within the City of Alameda, there are no officially designated California Scenic Highway segments. (Caltrans, 2013)

San Francisco Bay Conservation and Development Commission's San Francisco Bay Plan

The San Francisco Bay Conservation and Development Commissions (BCDC) has jurisdiction and exercises permit authority over development within the greater San Francisco Bay (including the Oakland Estuary and San Leandro Bay). At the project site, the Commission's jurisdiction under state law includes all tidal areas up to the line of mean high tide or the inland edge of marsh vegetation, up to five feet above mean sea level (MSL), where tidal marsh is present, all areas formerly subject to tidal action that have been filled since September 17, 1965, and the shoreline band extending 100 feet inland from the Bay. Under state law, BCDC administers the San Francisco Bay Plan, which contains policies that are applicable to the proposed project. Commission permits are required for activities, including the placement of fill, substantial changes in use, and dredging, within its jurisdiction. Permits are issued if the Commission finds the activities to be consistent with the MPA and the policies of the Bay Plan.

Policy 1 To enhance the visual quality of development around the Bay and to take maximum advantage of the attractive setting it provides, the shores of the Bay should be developed in accordance with the Public Access Design Guidelines.

Policy 2 All bayfront development should be designed to enhance the pleasure of the user or viewer of the Bay. Maximum efforts should be made to provide, enhance, or preserve views of the Bay and shoreline, especially from public areas, from the Bay itself, and from the opposite shore. To this end, planning of waterfront development should include participation by professionals who are knowledgeable of the Commission's concerns, such as landscape architects, urban designers, or architects, working in conjunction with engineers and professionals in other fields.

Policy 3 In some areas, a small amount of fill may be allowed if the fill is necessary-and is the minimum absolutely required-to develop the project in accordance with the Commission's design recommendations.

Policy 4 Structures and facilities that do not take advantage of or visually complement the Bay should be located and designed so as not to impact visually on the Bay and shoreline. In particular, parking areas should be located away from the shoreline. However, some small parking areas for fishing access and Bay viewing may be allowed in exposed locations.

Policy 8 Shoreline developments should be build in clusters, leaving open area around them to permit more frequent views of the Bay. Developments along the shores of tributary waterways should be Bay-related and should be designed to preserve and enhance views along the waterway, so as to provide maximum visual contact with the Bay.

Policy 10 Towers, bridges, or other structures near or over the Bay should be designed as landmarks that suggest the location of the waterfront when it is not visible, especially in flat areas. But such landmarks should be low enough to assure the continued visual dominance of the hills around the Bay.

Policy 12 In order to achieve a high level of design quality, the Commission's Design Review Board, composed of design and planning professionals, should review, evaluate, and advise the Commission on the proposed design of developments that affect the appearance of the Bay in accordance with the Bay Plan findings and policies on Public Access; on Appearance, Design, and Scenic Views; and the Public Access Design Guidelines. City, county, regional, state, and federal agencies should be guided in their evaluation of bayfront projects by the above guidelines.

Policy 13 Local governments should be encouraged to eliminate inappropriate shoreline uses and poor quality shoreline conditions by regulation and by public actions (including development financed wholly or partly by public funds). The Commission should assist in this regard to the maximum feasible extent by providing advice on Bay-related appearance and design issues, and by coordinating the activities of the various agencies that may be involved with projects affecting the Bay and its appearance.

Policy 14 Views of the Bay from vista points and from roads should be maintained by appropriate arrangements and heights of all developments and landscaping between the view areas and the water. In this regard, particular attention should be given to all waterfront locations, areas below vista points, and areas along roads that provide good views of the Bay for travelers, particularly areas below roads coming over ridges and providing a "first view" of the Bay (shown in Bay Plan Map No. 8, Natural Resources of the Bay).

Policy 15 Vista points should be provided in the general locations indicated in the Plan maps. Access to vista points should be provided by walkways, trails, or other appropriate means and connect to the nearest public thoroughfare where parking or public transportation is available. In some cases, exhibits, museums, or markers would be desirable at vista points to explain the value or importance of the areas being viewed.

Local Plans and Policies

City of Alameda General Plan

The City Design Element and the Parks and Recreation, Shoreline Access, Schools, and Cultural Facilities Element of the City of Alameda General Plan specifically address visual resource issues. The applicable policies are listed below.

City Design Element

Policy 3.2.a Maximize views of water and access to shorelines.

Policy 3.2.d Maintain views and access to the water along streets and other public rights-of-way that extend to the bulkhead line. Construct benches, ramps, rails, and seating appropriate for viewing and access, and provide walls or other screening where needed to protect adjoining property.

Policy 3.2.i Ensure that sections of the Estuary waterfront remain visually unobstructed.

Parks and Recreation, Shoreline Access, Schools, and Cultural Facilities Element

Policy 6.2.a Maximize visual and physical access to the shoreline and to open water.

Policy 6.2.d Through design review of shoreline property, give consideration to views from the water.

Alameda Point Policies

Policy 9.2.a Create a series of neighborhoods, each with a central focus of mixed-use development, including local serving commercial and recreational uses and a mixture of housing types and densities serving all income levels.

Policy 9.2.b Provide diverse and creative development and architectural styles to achieve distinctive neighborhoods.

Policy 9.2.c Create a district that is well integrated with the surrounding neighborhoods and has a high level of accessibility via a variety of transportation modes.

Policy 9.2.d Preserve scenic views from the district and the area's cultural landscape.

Policy 9.2.e Achieve human-scale transit-oriented development.

City of Alameda Design Review Ordinance

The City's Design Review Ordinance requires discretionary review for all new development in the City. Details on the design review procedure are outline in the Development Regulations chapter of the Alameda Municipal Code, Sections 30-36 and 30-37 outline the required procedure and regulations, respectively. Per the Municipal Code, the following findings must be made to approve any alteration or new building:

a. The proposed design is consistent with the General Plan, Zoning Ordinance, and the City of Alameda Design Review Manual.

b. The proposed design is appropriate for the site, is compatible with adjacent or neighboring buildings or surroundings, and promotes harmonious transitions in scale and character in areas between different designated land uses; and

c. The proposed design of the structure(s) and exterior materials and landscaping are visually compatible with the surrounding development, and design elements have been incorporated to ensure the compatibility of the structure with the character and uses of adjacent development.

K.3 Impacts and Mitigation Measures

Significance Criteria

This analysis evaluates the proposed project's impacts on land uses based on the criteria identified in the State CEQA Guidelines, Appendix G. The project could have a significant impact on visual resources if it would:

1. Have a substantial adverse effect on a scenic vista;
2. Substantially damage scenic resources within a state scenic highway;
3. Substantially degrade the existing visual character or quality of the site and its surroundings; or
4. Create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area.

Approach to Analysis

Views are considered to be sensitive when they have high scenic quality and are experienced by relatively large numbers of people. Scenic quality is a measure of the overall impression or appeal of an area created by the physical features of the landscape, such as natural features (landforms, vegetation, water, color, adjacent scenery, and scarcity), and man-made features (bridges, roads, buildings, railroads, agricultural patterns).

Impacts related to aesthetics and views are determined by comparing existing visual conditions within and adjacent to Alameda Point with conditions expected after implementation of the project. Impacts could be considered significant if scenic or valued views would be blocked, or where the loss of visual resources or the introduction of contrasting features would substantially degrade aesthetic quality within the project area. The analysis of potential aesthetic impacts associated with the implementation of the proposed project assesses the degree to which the project would degrade the existing visual quality and characteristics of the area.

Impact Analysis

Impact 4.K-1: Development facilitated by the proposed project could potentially have an adverse effect on a scenic vista. (Significant)

Views of the project area are not sensitive because it consists of buildings, piers, runways, hangars, and other structures with low scenic qualities. Although there are views of the project area from across the bay from Jack London Square, Alameda/Oakland ferry and other boats, I-880, the Oakland Ferry Terminal, and from elevated heights in Oakland, there are no particularly scenic features or views of major interest.

The proposed project would be implemented over a 20-year period in response to development needs, and construction activities would occur in short-term time increments throughout Alameda Point. Construction-related impacts on scenic vistas and on visual quality would not be visually prominent (if discernible at all) from offsite vantage points because the project site is flat, and would be temporary. As a result, construction impacts related to scenic vistas would be less than significant.

Concept Sketch of Enterprise Sub-area and Enterprise Park (City of Alameda, 2013)

The proposed zoning requirements would regulate building heights within Alameda Point in order to concentrate the tallest buildings in the Enterprise and Town Center and Waterfront Sub-areas while generally maintaining existing height limits throughout the surrounding blocks (see Figure 3-1). The taller buildings could redefine Alameda Point's profile against the sky by creating a “mound” within the Enterprise Sub-area and transit center core. From viewpoint of the project site, an increase from 60 to 100 feet could be noticeable but would not result in a substantial or adverse effect on a scenic vista. The taller development would be appropriate for the proposed transit oriented development areas, which are targeted for the most intensive redevelopment. The taller buildings would not be a noticeable height difference from existing 60 foot hangars on the site, and the large ships that dock in the Seaplane Lagoon from long-distance views across the Estuary or Bay. Especially, as the existing height and scale within the project area varies widely, as the large scale hangers and warehouses in raise more than 60 feet. As a result, a height limit of up to 100 feet on some buildings within the project area would be a less than significant impact on a scenic vista, which includes the project area.

Panoramic views from Alameda Point of the bay and the familiar visual landmarks within and surrounding the bay are available from various locations within the project area. Development of new structures by the proposed project would alter scenic vistas of the bay from within the project area, especially along the taxis ways, the Enterprise and the Town Center and Waterfront Sub-areas. The new taller and larger buildings would alter or obscure certain long-range views from areas within, adjacent, and through Alameda Point. However, view corridors along streets and adjacent to the water would be maintained and would be enhanced by the development of form-based zoning development that would frame the public right-of-way. The proposed project would result in various street view corridors appearing more densely built-out, but, given the size of the project site, many of the existing scenic views from the project area would continue to be available. Implementation of the planning and design controls included in the proposed project would ensure that development would not substantially obscure onsite views of the Bay or alter views of the historic district from existing scenic corridors. View corridors along streets and adjacent to the water would be maintained. No scenic views would be substantially or adversely affected by implementation of the project and impacts would be less than significant.

Further, all development under the proposed project would be subject to Design Review to ensure good design, compatibility, and consider views, pursuant to the City’s General Plan polices and Design Review Ordinance, Sections 30-36 and 30-37.

In addition, consistent with BCDC Policy 8 related to “Appearance, Design, and Scenic Views”, the proposed project would cluster development and has a strong street grid pattern, which would allow for frequent views of the Bay. Further, the development of the Bay Trail along the perimeter of Alameda Point would increase visual access to the Bay. The proposed project would have a less than significant impact on scenic views related to the Bay Plan.

Mitigation: None required.

Impact 4.K-2: Development facilitated by the proposed project could potentially damage scenic resources, including, but not limited to, trees, rocks, outcroppings, and historic buildings within a state scenic highway. (Less than Significant)

There are no officially designated scenic highways in or near the project site. Similarly, there are no rock outcroppings on the project site. However, visual resources within the project area include historic buildings. Because no state scenic highways exist within the project vicinity, impacts related to scenic resources within a state scenic highway would not occur with implementation of the proposed project.

Mitigation: None required.

Impact 4.K-3: Development facilitated by the proposed project could potentially degrade the existing visual character or quality of the site and its surroundings in a substantial manner. (Less than Significant)

The proposed project would accommodate a mix of land uses, including approximately 5.5 million square feet of employment-generating uses and 1,425 residential units in existing and newly constructed buildings. Employment uses would include a mix of retail, commercial recreation, commercial office, business park, industrial, institutional, maritime, and marina uses. Residential uses would range from single-family residences to multi-family transit-oriented residences.

Buildout of the proposed project would create a generally beneficial aesthetic impact compared to existing conditions by renovating or removing many vacant deteriorating buildings, eliminating open expanses of pavement, creating a greater continuity of land use, and introducing new public views and park and recreation areas to new residents and employees. Further, the proposed project would include new landscaping, street trees, and roadway improvements, which would further contribute to the beneficial aesthetic impact.

The proposed project would be implemented over a 20-year period in response to market demand, and development would occur on individual development sites throughout the project area. To ensure that new development is appropriately designed to improve existing aesthetics onsite and achieve policy goals for job generation, transit development, housing diversity, mixed-use development, historic preservation and water-oriented design, the planning area is divided into four Sub-areas. The Sub-areas are intended to ensure high quality, well designed new buildings that complement the historic district, the physical environment, and existing land uses.

The proposed project would be consistent with, and further, the General Plan goal of improving the vitality and character of Alameda Point through planning of massing and design controls to improve the visual change between existing and proposed land uses.

New buildings, open spaces and streets would be designed to support that environment, with buildings oriented toward streets and Seaplane Lagoon. The intent would be to preserve and frame the views of the San Francisco skyline and Bay Bridge. (City of Alameda, 2013)

Illustrative sketch of Future Seaplane Lagoon Ferry Terminal (City of Alameda, 2013)

Lower heights would transition to lower intensity in the surrounding areas, which is consistent with the existing character of these areas. Throughout Alameda Point, the proposed zoning would require varied massing for visual interest, setbacks to ensure consistency with existing historic structures and installation of street trees and pedestrian amenities to enliven the public realm and create a continual visual theme along streets within the project area.

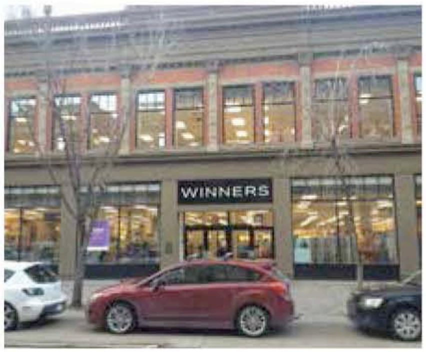
Along the western edges of the project site adjacent to the Nature Reserve, building size and height, location, and uses would be limited to ensure consistency with the federal requirements protecting the Least Tern (see Section 4.E, *Biological Resources*).

Rehabilitation of contributing structures in the NAS Alameda Historic District would be reviewed for conformance with the *Guide to Preserving the Character of the NAS Alameda Historic District*, and all new buildings proposed in and adjacent to the District would be reviewed for conformance with the character defining features of the NAS Alameda Historic District.

Implementation of the planning and design controls included in the proposed project and as required by Section 30-36 and 30-37 would provide for the improvement of onsite aesthetics, and would also ensure that the project would not substantially obscure onsite views of the bay or alter views of the historic district from existing scenic corridors. As described previously, view corridors along streets and adjacent to the water would be maintained.

As outlined in the proposed zoning, the built environment at Alameda Point would be based on a collection of building types that would establish a diverse mix of uses in each of the sub-areas. **Figures 4.K-2** though **4.K-4** sets forth the summary of the building types by each of the zoning sub-districts that would be allowed on the project site. As indicated in the figures, the proposed building types would include a variety of commercial, residential, and mixed-use structures. Each of the building types is designated for an appropriate sub-district to ensure compatibility and cohesiveness.

The proposed building height limitations on the project site are established separately for each sub-area. While the Main Street Neighborhood and Main Street itself would be limited to 40 feet in height, the Town Center and Waterfront and the Adaptive Reuse Sub-areas would be allowed to reach 60 feet in height. The Enterprise Sub-area would have a height limit of 100 feet, stepping down to a limit of 40 feet in height along Main Street. The intent of the height limitations is to ensure both compatibility and cohesiveness of new uses; for example, the existing homes in the Main Street Neighborhood are up to 40 feet in height and the existing hangars are roughly 60 feet

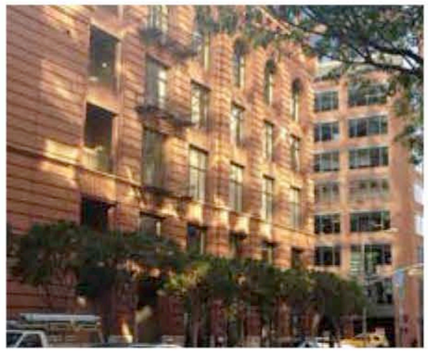


A. COMMERCIAL BLOCK

A small to large-sized structure, typically attached, that provides a vertical mix of uses with ground-floor commercial, service, or retail uses and upper-floor commercial, service, office, lodging or residential uses. Smaller versions of this type may be used for the neighborhood-serving component in the Main Street Neighborhood, while larger versions make up the primary component of the Town Center district.

SUB-DISTRICTS

This type is applicable to all sub-districts at Alameda Point.



B. WORKPLACE COMMERCIAL

A medium to large-sized building designed or adapted for offices, retail sales, and/or professional services, and/or professional uses on the ground floor, with upper floors configured for commercial or additional office uses.

SUB-DISTRICTS

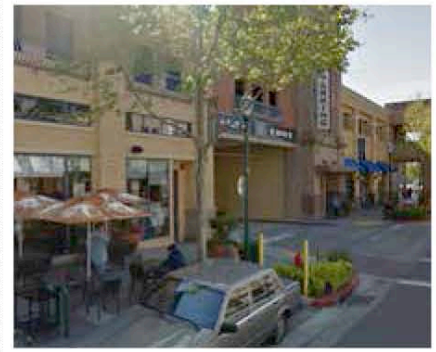
AP-TC, AP-E, AP-M and AP-AR districts.

C. RESEARCH & DEVELOPMENT

A medium to large-sized building designed or adapted for office or light industrial use. Buildings of this type may be arranged in a campus setting with outdoor amenities for employees, such as patios for lunch spots or sports courts.

SUB-DISTRICTS

AP-E and AP-AR districts.



D. PARKING STRUCTURE

Parking structures shall serve multiple users. Entries and exits should be located to minimize disturbance to pedestrians. Buildings should have a distinctive ground floor treatment that complements the massing and articulation of adjacent buildings. Pedestrian entrances should be highly visible and treated with architectural elements such as decorative lighting and materials.

SUB-DISTRICTS

AP-E, AP-TC, and AP-M districts.

SOURCE: Alameda Point Planning Guilde

Alameda Point Project . 130025

Figure 4.K-2

Alameda Point Building Types

E. WORK-LIVE

This building type is a small to medium-sized attached or detached structure that consists of one-dwelling unit above and/or behind a flexible ground floor space that can be used for residential, service, or commercial uses. Both the ground floor flex space and the unit above are owned by the same entity.

SUB-DISTRICTS

AP-TC and AP-AR districts.

F. STACKED FLAT

This is a multi-story building comprising flats, lofts, townhouses, or a mix of residential types arranged side-by-side and on mulitiple floors. Individual residential volumes should be distinguishable through the use of offsetting bays and other building elements.

SUB-DISTRICTS

AP-MS and AP-TC districts.

G. MULTIPLEX

This building type appears as a large-scale house composed primarily as two-story volumes, containing two or more flats or townhouse units whch may be stacked or side-by-side. Common devleopment types include duplex, triplex, quads, and villas.

SUB-DISTRICTS

AP-MS and AP-TC districts.

H. ROW HOUSE

This building type contains attached multi-story dwelling units arranged side-by-side. Rowhouses commonly include stoops on the front facade, and rear yards to enhance residential character. Rowhouses may contain a flat or in-law unit located above or below the primary residence. Building design and volumes should be residential in character.

SUB-DISTRICTS

AP-MS and AP-TC districts.

SOURCE: Alameda Point Planning Guilde

Alameda Point Project . 130025

Figure 4.K-3

Alameda Point Building Types

I. COURTYARD HOUSING

This building type is a medium-to large-sized structure that consists of multiple attached, side-by-side and/or stacked residential units accessed from a courtyard or series of courtyards. Each unit may have its own individual entry, or up to three units may share a common entry. Courtyards should appear welcoming and not feel wall-off.

SUB-DISTRICTS

AP-MS district.

J. SINGLE-FAMILY DETACHED

A free-standing structure designed to accommodate one residence. Carriage houses may be located at the rear of the property. Buildings shall be composed of one and/or two story volumes. The primary entry shall be located on the front or side facade of the building.

SUB-DISTRICT

AP-MS district.

K. CARRIAGE HOUSE

This building type is a secondary structure located at the rear of a single-family residential lot. This structure provides either a small residential unit, home office space, or other small commercial or service use that may be above a garage or at ground level. This building type is important for providing affordable housing and small business opportunities.

SUB-DISTRICT

AP-MS district.

L. ADAPTIVE RE-USE

The intent of this building type is to allow for the re-use of existing buildings within the historic district defined in the NAS Alameda Community Reuse Plan. New uses may be commercial, light industrial, retail or residential in nature. The overall massing and character of building exteriors should be preserved to the extent feasible. Buildings to be reused shall first be rehabilitated to safe levels of occupancy consistent with current building codes.

SUB-DISTRICTS

This type is applicable to all sub-districts at Alameda Point.

SOURCE: Alameda Point Planning Guilde

Alameda Point Project . 130025

Figure 4.K-4

Alameda Point Building Types

in height. The proposed maximum permitted height in the Enterprise Sub-area is to allow for higher-density new construction in the Sub-area that is most removed from the Nature Reserve and Historic District.

The visual character along the city streets that would be experienced by pedestrians, bicyclists and motorists would be largely shaped by the proposed massing and scale, architectural elements, and landscaping of the project. The proposed form-based zoning would provide that development must be sensitive to the existing buildings and would require that new development not overwhelm the existing pedestrian experience on the street. For example, for projects constructed adjacent to lower-scale developments, the proposed zoning would require that massing elements be incorporated into the project to appropriately transition between structures of different heights.

In addition, given the largely developed character of the project site, mature trees are primarily located within the public right-of-ways, including streets, sidewalks and other public areas, and along the perimeter of properties. While it is possible that some mature street trees may be removed as a result of individual development projects in the future, the zoning and MIP require tree lined streets and landscaping for all new development.

Overall, the proposed form-based zoning would require new development to respond to the surrounding environment. Although the visual character of the project area would be altered by the buildout of the project area, the visual quality of the area would not be substantially or adversely affected. Rather, a key objective of the project is to result in a visual improvement of the area. Thus, impacts related to the degradation of visual character or quality of the site and its surroundings would be less than significant.

Mitigation: None required.

Impact 4.K-4: Development facilitated by proposed project could potentially create a new source of substantial light or glare which could potentially adversely affect day or nighttime views in the project area. (Significant)

The project area is within a developed and urbanized area where nighttime lighting is part of the built environment and includes vehicle headlights, street lighting at intersections and along the streets, parking lot lighting, security lighting, and building lighting as well as various other sources of light from surrounding urban uses. Current levels of nighttime lights at Alameda Point are relatively low and are consistent with the relatively low intensity of existing land uses on the site. Sources of glare in the project area are largely attributable to reflections from vehicles. Overall, glare levels are low and typical for the level of development in the project area vicinity.

Implementation of the proposed project would result in higher intensity development in the area, including taller buildings, and exterior lighting for security and aesthetic illumination, which would contribute to the overall ambient nighttime lighting levels at buildout.

The proposed project includes a sports complex on the eastern edge of the project site along the Estuary. The sports complex would include a range of sports facilities (e.g., baseball, soccer, football, basketball, etc.). The proposed Sports Complex includes eight outdoor soccer fields and associated facilities and parking areas. Nighttime use of the complex would require elevated high-intensity outdoor light to illuminate the playing fields, creating a potential for spillover of intrusive amount of lights into nearby areas. The potential for impacts from the sports complex nighttime lighting would be greatest for the existing residential units across Main Street and on the project site, as well as any residential units that would be constructed under the proposed project. General project lighting would also be visible from areas across the bay such as Jack London Square and other Port of Oakland marine facilities (i.e., industrial land uses). Given the height and density of proposed uses on the site, a nighttime skyline of Alameda Point would become a prominent new visual presence within the nighttime view of the bay. Further, the project site and the VA site are subject to the lighting design restrictions document in the BO and the MOA and outlined below.

Reflective light (glare) could be caused by sunlight or artificial light reflecting from finished surfaces such as window glass, or other reflective materials. The reflectivity of glass can vary widely. Generally, darker or mirrored glass would have a higher visible light reflectance factor than clear glass. Buildings constructed of highly reflective materials from which the sun reflects at a low angle commonly cause adverse glare. However, because the use of highly reflective surfaces is inconsistent with the design goals of the proposed project, specifically related to the maintenance of the historic character, development that would occur under the proposed project would not be anticipated to use highly reflective surfaces.

The project includes the project elements, which are required pursuant to the United States Fish and Wildlife 2012 BO and the Navy's Declaration of Restrictions recorded in June, 2013 that apply to all surplus Federal property conveyed to the City, or other non-Federal entity in the NWT and Civic Core and Marina areas, to limit the effects of additional lighting and glare on least terns. The project is also subject to the lighting requirements documented in MOA with the VA. As outlined in the BO, the proposed project would include the following:

- Lighting associated with building security and other lighting needs or requirements throughout the NWT, Civic Core Area, and Marina Area shall be allowed as long as the cumulative increase in ambient nighttime light levels, from VA and City sources as defined in 7b, does not exceed 10 percent above the ambient nighttime light levels in these areas, prior to any V A or City development on transferred/conveyed lands, as defined in Silverman and Light (20 J J) or another Service-approved lighting study conducted prior to conveyance and between April J to August 15, with full development of the NWT, Civic Core Area, and Marina Area, including VA development. (USFWS, 2012)
- The VA conducted a study (Silverman and Light 2011) to determine the existing ambient nighttime light levels at several locations around the least tern colony site. In April of each year following the installation of any light sources that may increase the footcandle nighttime light level at the least tern colony, the City, in coordination with the VA, shall ensure the footcandle nighttime light levels are appropriately sampled and have not exceeded 10 percent of the pre-conveyance levels established by the VA in Silverman and Light (2011) lighting study. In the event of an increase above 10 percent from the VA and

City sources, corrective action will be taken within 2 months to reduce nighttime light levels to less than 10 percent of the pre-conveyance ambient nighttime light level. The results of the April nighttime light level sampling will be included as part of the annual least tern monitoring and management report. (USFWS, 2012)

- As a condition of approval for any project, the City shall perform design review to ensure the cumulative increase in ambient nighttime light levels within and near the least tern colony from V A and City sources does not exceed 10 percent of the pre-conveyance levels from April 1 to August 15, as described in avoidance and minimization measures 7a and 7b. The City shall develop lighting requirements and provide them to all project applicants. (USFWS, 2012)
- The Sports Complex fields shall not be lighted for nighttime play between April 1 and August 15, unless proposed lighting in these areas can be designed to ensure that lighting for the VA and City projects cumulatively will not exceed the light levels by the VA in Silverman and Light (2011) lighting study, **Avoidance and Minimization Measure 7a**. A maximum of 55 light poles, not to exceed 20 feet in height, may be installed and must contain anti-perching devices within the soccer fields and parking areas. (USFWS, 2012)

Further, the MOA between the City and the VA contains an agreement between the VA and City to implement the aforementioned AMMs and TCs. The two major provisions of the MOA are:

1) Coordinating to monitor nighttime lighting levels on an annual basis and taking any corrective actions necessary to reduce nighttime lighting levels; and
2) Implementing lighting mitigation measures for all new improvements and development at Alameda Point.

The lighting mitigation measures were prepared by a licensed lighting engineer and reviewed by numerous City departments, including the Community Development Department and Alameda Municipal Power. New improvements and development as part of the proposed project would be required to follow these measures. The detailed lighting measures are presented in Appendix D. (exhibit C of the lighting plan).

In addition, inclusion of the project elements listed above and implementation of Mitigation Measure 4.K-4 would reduce potential impacts related to new sources of substantial light or glare which could potentially adversely affect day or nighttime views in the project area to a less than significant level.

Mitigation Measure 4.K-4: All lighting installations shall be designed and installed to be fully shielded (full cutoff) and to minimize glare and obtrusive light by limiting outdoor lighting that is misdirected, excessive, or unnecessary, unless expressly exempted below. The location and design of all exterior lighting shall be shown on any site plan submitted to the City of Alameda for approval. The following lighting is exempt from these requirements:

1. Lighting in swimming pools and other water features.
2. Exit signs and other illumination required by building codes.
3. Lighting for stairs and ramps, as required by the building code.
4. Signs that are regulated by the City sign code.

5. Holiday and temporary lighting (less than thirty days use in any one year).
6. Low-voltage landscape lighting, but such lighting should be shielded in such a way as to eliminate glare and light trespass.

Significance after Mitigation: Less than Significant.

Cumulative Impacts

Impact 4.K-5: Development facilitated by the proposed project, in combination with other past, present, existing, approved, pending, and reasonably foreseeable future projects, could potentially result in cumulatively considerable impacts to aesthetic resources. (Less than Significant)

The cumulative context for visual quality encompasses all areas that are visible in the views of the project site. In addition to the immediate vicinity of the Alameda Point, this would include other nearby offsite areas within the City that could be viewed in combination with development on the project site, including the proposed VA hospital. The contribution of the proposed project to cumulative degradation of scenic vistas and the visual quality when considered with anticipated projects in Alameda and along the Bay shoreline, would be less-than-significant because existing views of and through the site are intermittent due to existing development on the site. The development of the proposed project would alter the site, but would not substantially degrade the cumulative aesthetics of the area.

Mitigation: None required.

K.4 References—Aesthetics

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MOA, 2012. *Memorandum of Agreement By and Between The United States of America, Acting By and Through the Department of Veterans Affairs and The City of Alameda*. August 29, 2012.

San Francisco Bay Conservation and Development Commission (BCDC), 2005. *San Francisco Bay Plan*. Available online: http://www.bcdc.ca.gov/laws_plans/plans/sfbay_plan.shtml, Accessed May 10, 2013.

U.S. Fish and Wildlife Service (USFWS), 2012. *Biological Opinion on the Proposed Naval Air Station Alameda Disposal and Reuse Project*. August 29, 2012.

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L. Public Services and Recreation

L.1 Introduction

This section describes public services and facilities, including police, fire and emergency services, parks and recreation facilities, as well as public schools and libraries, and analyzes projected demand on each of these services.

L.2 Environmental Setting

Fire and Emergency Services

The Alameda Fire Department provides fire protection, fire prevention, and emergency medical services to the project site. The Fire Department currently has four operating fire stations strategically located throughout the City and 98 sworn and seven non-sworn personnel, with a minimum of 25 people on duty daily. The staff includes one Fire Chief, one Deputy Chief, three Division Chiefs, one Training Captain, one Emergency Medical Services (EMS) Captain, one Disaster Preparedness Captain, one non-sworn Senior Fire Code Compliance Officer, one non-sworn EMS Education Coordinator, and five non-sworn support staff. The Department maintains a fleet of four front-line and three reserve engines, two front-line and one reserve ladder trucks, and three front-line and three reserve ambulances (D’Orazi, 2013).

The closest currently operating fire station to the project site is Fire Station Two, which is one mile from the project boundary at 635 Pacific Avenue. Station Two is equipped with an engine company, a truck company, and an ambulance. In addition, Fire Stations One and Three are located two to three miles from the project site. Station Five is located within the project boundaries, but is currently closed. The Fire Department will determine if and when Station Five should be reopened based on development and emergency response needs within Alameda Point (D’Orazi, 2013).

The Alameda Fire Department is an all-risk public safety agency, which means that it responds to all emergencies and hazards with the exception of those that are the responsibility of law enforcement. In 2012, the fire department responded to 6,418 calls in the City of Alameda, which included 1,927 calls for Station Two[1] (D’Orazi, 2013).

The Fire Department uses three different Alameda County approved standards for response times, depending on the nature of the call. In 2012, the first responder advanced life support standard of 8:30 minutes was met 98.3 percent of the time, the Medic transport unit standard of 10:00 minutes was met 94.0 percent of the time and the National Fire Protection Association response time of 5:20 minutes was met 72.9 percent of the time (met 90 percent objective at 6:24 minutes) (Lonzisero, 2013).

1 These numbers represent the calls originating in the district, not actual total responses.

Police Services

The Alameda Police Department is located at 1555 Oak Street, approximately 3 miles from the project site, and has 88 sworn officers and 32 non-sworn personnel (Boersma, 2013a). Based on the California Department of Finance 2012 population estimates for the City of Alameda (74,640), the department's current staffing level is 1.8 officers per 1,000 residents.

The Police Department patrol of the City is divided into five sectors. The project site is located within Sector 5 – Alameda Point. There are typically one to four officers assigned to each sector at any given time of day or night.

Table 4.L-1 shows a breakdown of Part I crime[2] reported in the City of Alameda between 2008-2012. The most frequent crime reported in 2012 was theft. The number of crimes in Alameda has decreased in six of the eight categories between 2011 and 2012.

TABLE 4.L-1
CITY OF ALAMEDA PART I CRIME STATISTICS 2008-2012

Crime	2008	2009	2010	2011	2012
Murder	3	4	1	1	1
Rape	9	13	15	15	9
Robbery	107	87	74	94	80
Assault	92	95	83	97	69
Burglary	325	325	369	315	296
Theft	1278	1390	1360	1323	1301
Auto Theft	272	240	215	260	295
Arson	12	12	10	13	18
Total Part 1 Crimes	**2096**	**2166**	**2147**	**2118**	**2069**

SOURCE: Alameda Police Department, 2013

In 2012, the Alameda Police Department received approximately 28,960 emergency (911) calls and 70,360 total calls for service (Boersma, 2013a). The average response time for Priority 1 (in progress, emergency) calls in 2012 was approximately 3:02 minutes. The average response time for all calls for service was 6:30 minutes. The Police Department's goal during this time was a response below three minutes for Priority 1 calls at least 85 percent of the time (Boersma, 2013a).

Schools

The Alameda Unified School District (AUSD) operates the public school system in the City of Alameda and administers 10 elementary schools, two middle schools, and four high schools. It also includes two community learning centers, two charter schools, one preschool child center

2 A Part I crime is defined by the Federal Bureau of Investigation (FBI) as a serious crime that occurs with regularity. throughout the country and is likely to be reported to police (U.S. Department of Justice, 2013).

and an adult continuation school (AUSD, 2013a). AUSD's total enrollment was 10,836 students for the 2012-2013 school year (DataQuest, 2013). The District uses a boundary map to assign students to schools by home address (AUSD, 2013b). Students residing in the project would be within the boundaries of Paden or Ruby Bridges Elementary, Wood Middle School, and Encinal High School (AUSD, 2013a).

Table 4.L-2 below includes school enrollment information between 2009 and 2012 for schools that would serve students of the proposed project

TABLE 4.L-2
SCHOOL ENROLLMENT

School	2009-2010 Enrollment	2010-2011 Enrollment	2011-2012 Enrollment
Paden Elementary	385	390	345
Ruby Bridges	564	614	601
Wood Middle	572	573	595
Encinal High	1,072	1,033	1,089

SOURCE: Ed-Data, 2013http://www.ed-data.k12.ca.us/Pages/Home.aspx.

Parks and Recreation

City Facilities

The City of Alameda has over 228 acres of developed parklands that include neighborhood parks, community parks, community open space, greenways, and regional parks.[3] Existing parks and open space areas in the City are listed in **Table 4.L-3** below. The City currently provides approximately 3 acres of park and recreation space per 1,000 residents. The City of Alameda General Plan states that California cities typically call for 3 to 6 acres of neighborhood and community park space per 1,000 residents (City of Alameda General Plan).

The following ARPD parks and recreational facilities are within the project site: Alameda Point Gym, Alameda Point Multi-Purpose Field, City View Skatepark, Encinal Boat Ramp, Main St. Dog Park and Main St. Soccer Field. The Alameda Point Multi-Purpose Field, approximately 4.80 acres, is located in the northern part of the project site next to the Alameda Point Gym. The Recreation and Park Department hosts 'Starlight Movies in the Park' at this location.

Regional Facilities

The East Bay Regional Park District (Park District) spans Alameda and Contra Costa counties and operates 65 parks of approximately 113,000 acres and over 1,200 miles of trails. These parklands provide habitat for birds and other wildlife, in addition to recreational and educational activities for the public. Crown Memorial Beach, operated by the Park District, has a 2.5 mile beach, with sand dunes bordering a bicycle trail. The Elsie Roemer Bird Sanctuary, at the east

3 Note this acreage does not include the golf course although it is presented in Table 4.L-3.

TABLE 4.L-3
EXISTING PARK AND OPEN SPACE AREAS WITHIN THE CITY

Type/ Name of Park	Acres	Type/ Name of Park	Acres
Neighborhood Parks		***Open Space***	
Bayport Park	4.25	Boat Launches	2.80
Franklin	2.98	Dog Parks	7.00
Godfrey	5.45	Mastick Senior Center	2.66
Harrington (Soccer Field)	2.02	Osborne Model Airplane Field	1.30
Jackson	2.27	Portola Triangle	2.30
LittleJohn	3.45	Scout	0.01
Longfellow	1.14	Shoreline	31.83
Main Street Soccer Field	4.7	Edison (Strip Park)	0.28
Marina Cove Waterfront Park	3.20	Main Street Greenway	11.00
McKinley	1.22	***Subtotal***	***59.18***
Neptune	3.08		
Rittler	4.80	***Regional Park***	
Tillman	4.01	Crown Memorial Beach	80.00
Towata	1.55	Chuck Corica Golf Course	317.00
Woodstock	3.96		
Alameda Point Multi-Purpose Field	4.80		
City View Skate Park	0.55		
Subtotal	**53.43**		
Community Parks			
Leydecker	5.88		
Lincoln	7.80		
Krusi	7.46		
Washington	14.71		
Subtotal	***35.85***		

SOURCE: Urban Greening Plan Parks Improvement Assessment, June 2012.

end of the park, harbors aquatic birds and other salt marsh creatures. Crab Cove is located at the north end of the park, and is a marine reserve where all plant and animal life is protected. In addition, a marine educational center (Crab Cove Visitor Center), is located on McKay Avenue within Crown Memorial Beach, and contains exhibits and aquaria highlighting flora and fauna of San Francisco Bay and other local marine areas.

Crown Memorial State Beach includes a portion of the San Francisco Bay Trail, which is southeast of the project site, adjacent to the water. The Bay Trail is a planned recreational corridor operated and maintained by the Association of Bay Area Governments (ABAG) as part of Senate Bill 100 that will encircle San Francisco and San Pablo Bays with a continuous 500-mile network of bicycling and hiking trails when completed. Approximately 310 miles of the Bay Trail's ultimate length have been completed (Bay Trail, 2013).

Libraries

The Alameda Free Library has three locations. The West End Library, located at 788 Santa Clara Avenue, is the closest library to the project site. The Library offers a wide range of services to support community priorities, including answering reference questions, staging story times, providing summer reading programs, hosting class visits, and offering free public programs (City of Alameda, 2013)

L.3 Regulatory Setting

This subsection briefly describes policies pertaining to public services as they apply to the proposed project.

Senate Bill 50

The California Legislature passed Senate Bill 50 (SB 50) in 1998, which authorized school districts to impose fees on developers of new residential construction. Specifically, SB50 resulted in State preemption of school mitigation. SB 50 also restricts the ability of local agencies to deny project approvals on the basis that public school facilities (classrooms, auditoriums, etc.) are inadequate.

Under SB 50, school districts may collect fees to offset the costs associated with increasing school capacity as a result of development. Under the terms of this statute, payment of school development fees is considered, for the purposes of CEQA, to mitigate in full any impacts to school facilities associated with a development project.

SB 50 establishes three levels of development fees that may be levied upon new construction. Level 1 fees are the maximum amount of fees that can be imposed on new development as set by the State Allocation Board. A school district imposing the development impact fees must show "that a valid method was used for arriving at the fee in question, 'one which established a reasonable relationship between the fee charged and the burden imposed by the development" (Shapell lndustries, lnc. v. Governing Bd. (1991) 1 Cal.App.4tn 218,235.). Level 1 fees are intended to be increased every two years at the January meeting of the State Allocation Board, at which time the increase will become effective. (Gov. Qode, S 65995, subd. (bX3)) The State Allocation Board last increased development fees on January 30, 2008 to $2.97 per square foot for residential development and $0.47 per square foot for commercial and industrial development.

In general, Level 2 and Level 3 fees apply to new residential construction only. Level 2 fees allow the school district levying the fees to increase development fees beyond the statutory levels to no more than 50 percent of construction costs, under certain circumstances stated in Government Code Section 65995.5(b)(3). This assumes that State funds will cover the remaining 50 percent. Level 3 fees allow the school district to impose 100 percent of the cost of the school facility or mitigation when State funds for new school facility construction have been exhausted after 2006. (Gov. Code, $65995.7.) Both Level 2 and Level 3 funds only may be levied if the school districts have conducted and adopted a school facility needs analysis.

All fees are levied at the time the building permit is issued. District certification of payment of the applicable fee is required before the City or County can issue a building permit. Satisfaction of the statutory requirements by a developer is deemed to be "full and complete" mitigation."

City of Alameda General Plan

Public services are addressed in several sections of the City of Alameda General Plan. Fire and police services are addressed in the Health and Safety Element, and schools and parks are addressed in the Parks and Recreation, Shoreline Access, Schools and Cultural Facilities Element and the Open Space and Conservation Element. In addition, general policies related to public services are provided in the Land Use Element. Applicable policies from each of these elements are listed below.

Land Use Element: Residential Areas

Policy 2.4.q Require that all new development pay appropriate development impact fees.

Parks and Recreation, Shoreline Access, Schools and Cultural Facilities Element: Shoreline Access and Development

Policy 6.2.a Maximize visual and physical access to the shoreline and to open water.

Policy 6.2.d Through design review of shoreline property, give consideration to views from the water.

Policy 6.2.f Cooperate with property owners adjoining shoreline access points to ensure that public use does not cause unnecessary loss of privacy or unwarranted nuisance.

Policy 6.2.h Require shoreline access where appropriate as a condition of development approval regardless of whether development occurs within the area of BCDC regulation.

Parks and Recreation, Shoreline Access, Schools and Cultural Facilities Element: Schools

Policy 6.3.b Support the Alameda Unified School District efforts to obtain school impact fees needed to maintain adequate educational facilities to serve enrollment generated by new development in the City.

Policy 6.3.c Approval of residential, commercial and industrial development may be Policy conditioned upon the mitigation of the impact of such development on the Alameda Unified School District.

Health and Safety Element Fire Hazards

Policy 8.2.a Maintain and expand the City's fire prevention and fire-fighting capability.

Policy 8.2.b Maintain the current level of emergency medical service.

Policy 8.2.d Assure the compliance of new structures with the City's current Fire, Seismic, and Sprinkler Codes. Existing structures shall be required to comply with the intent of the Codes in a cost-effective manner.

Alameda Point: Open Space, Conservation and Cultural Resources

Policy 9.5.a Provide open space and recreational opportunities to serve new residents and employees of Alameda Point.

Policy 9.5.b Integrate parks and plazas into new development at Alameda Point.

Policy 9.5.c Provide for community recreation opportunities throughout Alameda Point.

Policy 9.5.d Establish a pedestrian- and bicycle-accessible perimeter shoreline trail throughout Alameda Point. Ensure that this trail is open year round, that the trail meets minimum multi-use trail standards, and that landscape treatment of the open spaces adjacent to the Estuary and the San Francisco Bay does not block distant views.

Policy 9.5.e Establish a public plaza at the marina that will serve as a focus for public uses on the waterfront.

Policy 9.5.f Pursue an aggressive tree-planting program at Alameda Point to bring it up to par with Alameda-wide forestation levels/standards.

Alameda Point: Fire Hazards

Policy 9.6.k Mitigate factors and conditions in Alameda Point that are conducive to fire hazards.

Policy 9.6.l Identify effective means of dealing with fire disasters should they occur.

Policy 9.6.m Maintain and expand the City's fire prevention and fire-fighting capability into Alameda Point by establishing a station with two fire companies to service the emergency needs of all residents and businesses of the area.

Policy 9.6.n Extend Alameda's current level of emergency medical service into Alameda Point as reuse activities and residential buildout proceed

City of Alameda Fiscal Neutrality Policy

In 2003, the Alameda City Council adopted a policy of fiscal neutrality for all development at all former U.S. Navy facilities including the Fleet Industrial Supply Center, East Housing, and Alameda Point. The policy states that because the development of these sites will increase the City’s financial burden to provide municipal services (including but not limited to public safety services, installation and maintenance of public infrastructure, and installation and maintenance of other public improvements including public parks), base reuse and redevelopment projects must fund the cost of the municipal services needed to serve the proposed reuse and new development. The policy requires that all of the projects include an assessment district or community facilities district financing to ensure that the cost of the municipal services and public facilities do not exceed the revenues to the General Fund generated by the development.

L.4 Impacts and Mitigation Measures

Significance Criteria

Implementation of the proposed project could have a significant impact on the environment if it would:

1. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:
   - Fire Protection;
   - Police Protection;
   - Schools;
   - Parks; and
   - Other public facilities.
2. 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.
3. Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

Approach to Analysis

The increases in population and land use intensity that would result from development facilitated by the project were evaluated based on information provided by the Alameda Fire Department, Alameda Police Department, and Alameda Unified School District regarding the public services agencies with jurisdiction over the project site and their service capabilities, service ratios, response times, and performance objectives. Additionally, the development facilitated by the project was evaluated for conformity with the goals, objectives and policies of the General Plan related to public services and recreation.

Impacts

Fire Protection and Emergency Medical Services Impacts

Impact 4.L-1: Development facilitated by proposed project could potentially result in an increase in calls for fire protection and emergency medical response services, and could require new or physically altered fire protection facilities in order to maintain acceptable performance standards. (Less than Significant)

Implementation of the proposed project would include development of 1,158 new residential units, and is estimated to result in a population increase of up to 2,878 persons. In addition, the proposed project includes 5.5 million square feet of employment generating uses that is anticipated to generate approximately 8,909 employees in the project site. This development would generate an increase in demand for fire protection and emergency services at the project site.

The proposed project also includes development of new structures required to meet standard fire code requirements administered by the City of Alameda Building Services Division and specified by the California Building Code and California Fire Code. Fire hydrants developed for the project are required to be spaced a maximum of 250 feet apart, with minimum flow requirements of 1,500 gallons per minute (gpm) with 20 pounds per square inch (PSI) residual pressure. The project would also be subject to fire flow requirements set forth in the California Building Code, which specify a 3,000 gpm from two hydrants and 1,500 from each hydrant with 20 PSI residual pressure (Alameda Fire Code, Municipal Code Section 15-1). The Fire Department requires that fire hydrants be located within 40 feet of Department connections and that all fire access meets CFC requirements, including a 28-foot inside radius on all access routes. These required standard design features would provide adequate infrastructure for firefighting services. In addition, the City's Municipal Code Chapter 27-26, Police and Fire Requirements, states that new development must pay fees to assist in maintaining level of service standards to accommodate new growth.

A project applicant proposing a future development project within the project site would be required by the City's Fiscal Neutrality Policy to fund the development's proportional share of the cost of additional fire and emergency medical services and related infrastructure, such that the resulting expenses do not exceed revenue generated by the project, either through imposition of a fee set forth in a development agreement, participation in an assessment district or community facilities district, provision of in-kind improvements (such as rehabilitation of the existing Fire Station No. 5, which is currently inactive), or a combination thereof. As a result, the proposed project would have a less than significant impact on fire protection services.

Mitigation: None required.

Police Services Impacts

Impact 4.L-2: Development facilitated by the proposed project could potentially result in an increase in calls for police services, but would not require new or physically altered police facilities in order to maintain acceptable performance objectives. (Less than Significant)

The project site is currently substantially underdeveloped, with a large number of vacant buildings. Therefore, calls for service are relatively few at this time. Implementation of the proposed project would increase land use intensity and overall density on the project site. This related population and employment increase could result in an increase in reported crimes and/or calls for police services. As part of the City's development review and approval procedures, the Police Department would review the proposed site plan and would provide recommendations related to security features and opportunities to reduce crime. Although a population increase could result in an increase in reported crime, the new construction, and rehabilitation of existing structures on the project site would infill building sites currently vacant and underused, would serve to revitalize the corridors and community, and could help to minimize any increase in criminal activity within the project site due to the proposed increase in population. Therefore, development under the proposed project would not result in an increased demand for police services such that new or physically altered police facilities would be required (Boersma, 2013b).

A project applicant proposing a future development project within the project site would be required by the City's Fiscal Neutrality Policy to fund the project's proportional share of the cost of additional police services and related infrastructure such that the resulting expenses do not exceed General Fund revenue generated by the project, either through imposition of a fee set forth in a development agreement, participation in an assessment district or community facilities district, provision of in-kind improvements (such as provision of onsite space for a police substation), or a combination thereof.

Given the foregoing, the proposed project would have a less-than-significant impact on police services.

Mitigation: None required.

Public Schools Impacts

Impact 4.L-3: Development facilitated by the proposed project could potentially result in new students for local schools, but would not require new or physically altered school facilities to maintain acceptable performance objectives. (Less than Significant)

Students generated from development of the proposed project would be within the boundaries of Paden or Ruby Bridges Elementary School, Wood Middle School, and Encinal High School. The AUSD employs a student generation factor as a basis for determining the number of students generated by proposed residential development projects. The results of applying AUSD generation factors to the proposed project are shown in **Table 4.L-4**. As shown, the proposed project is anticipated to result in 427 new students: 186 elementary school students, 96 middle school students, and 145 high school students.

**TABLE 4.L-4
ANTICIPATED STUDENTS PER HOUSEHOLD**

Grades	Single Family	Students	Multi-Family	Students	Total
K-5	0.282	141	0.068	45	186
6-8	0.145	73	0.035	23	96
9-12	0.220	110	0.053	35	145
K-12	0.647	324	0.156	104	427

SOURCE: Recht, 2013

Paden Elementary, Ruby Bridges Elementary, Wood Middle School and Encinal High School would generally serve students resulting from development of the proposed project. However, the AUSD has reported that the aforementioned school sites have all long exceeded their true capacities (McPhetridge, 2013). To mitigate potential impacts resulting from an increase of approximately 427 new students, AUSD levies development fees for residential and commercial development. Pursuant to SB 50, payment of the development fees for schools is considered full and complete mitigation for the impacts of a development project on school facilities. Payment of the adopted development fees ensures that the project would result in less than significant impacts related to the provision of school facilities. As a result, the proposed project's impacts on schools would be less than significant.

Mitigation: None required.

Other Public Facilities

Impact 4.L-4: Development facilitated by the proposed project could potentially result in increased use of other governmental facilities, including libraries, but would not require new or physically altered government facilities to maintain acceptable performance objectives. (Less than Significant)

Implementation of the proposed project would cause an increase in demand for library services, but not to the extent that additional facilities would be required. In addition to the West End Library, located within 1 mile of the project site, the Alameda Free Library operates at two additional locations within the City: the Main Library, located at 1550 Oak Street, and the Bay Farm Island Library, at 3221 Mecartney Road. Both are within three miles of the project site.

It is anticipated that project residents would use the library in a much greater proportion than would employees at the project site. Residential growth due to the proposed project would total approximately 3 percent, compared to existing conditions, which is unlikely to adversely affect library services, particularly as the growth would be spread over some 20 years. Therefore, the additional demand generated by the proposed project would be a small percentage of additional monthly visitors, and the project's impact on library services would be considered less than significant.

Mitigation: None required.

Parks and Recreation Impacts

Impact 4.L-5: Development facilitated by the proposed project could potentially increase the use of existing neighborhood and regional parks and recreation centers, but not to the extent that substantial physical deterioration of the facilities would occur or be accelerated, nor would it cause the necessity for new or expanded facilities. (Less than Significant)

The proposed residential uses are located within easy walking distance of existing park and recreation areas that include both neighborhood and regional facilities. Although only a portion of new residents are expected to use neighborhood and regional parks in the area, the proposed project would cause an incremental increase in the use of these facilities.

The proposed project provides for development of approximately 1,158 net new housing units that are anticipated to result in a population of approximately 2,215 net residents in the project site by 2035. These additional residents would generally utilize the 258 acres of new park and recreation facilities that are proposed as part of the project because they are located near the residential uses. The proposed parks and open space areas include: waterfront promenade, a bay trail, historic open spaces, parade grounds, neighborhood parks, walking and bike trails, on-street sidewalks, and bike paths. The addition of 258 acres of park and recreation facilities will increase the ratio of park and recreation space to 6.4 acres per 1,000 residents.

The proposed park and open space areas are intended to provide park and recreation areas for the new residents, and provide more park space for existing residents of the project site and the City as a whole. Thus, the residents generated by the project would not be anticipated to increase the use of neighborhood facilities to the degree that substantial deterioration would occur.

In addition, most of the visitors to regional parks within the City are part of the 2.6 million residents of Alameda and Contra Costa Counties, all of whom can find regional parks within 15 minutes of their homes (EBRPD, 2013b). The proposed project's increase of 2,796 residents in Alameda would represent a 0.1 percent increase in potential users of the regional parks within the East Bay. Although new residents resulting from the proposed project would incrementally increase the use of both local and regional existing parks, the additional use of regional facilities would not cause substantial deterioration to occur.

Furthermore, the proposed project would be required to pay the City's Development Fees (described in Municipal Code Chapter 27-2), which are designed to mitigate the impact of development on city-owned new and existing parks throughout the City. As a result, the proposed project would have a less-than-significant impact on local and regional parks.

Mitigation: None required.

Impact 4.L-6: Development facilitated by the proposed project would include recreational facilities and the construction or expansion of recreational facilities which could potentially have an adverse physical effect on the environment. (Less than Significant)

As described in the Impact 4.L-5 discussion, the proposed project would provide approximately 258 acres of parks and open space including a waterfront promenade, a continuous Bay Trail, historic open spaces and parade grounds, neighborhood parks, and recreational facilities, such as on-site parks, walking and bike trails, and on-street sidewalks and bike paths. The proposed project would also include a 44-acre sports complex along the Oakland Estuary. Subject to the City securing funding, this on-site portion of the sports complex would likely include ballfields, a gym, swimming pools, a BMX bicycle park, a sand volleyball court, tennis courts, and an existing skate park, and a picnic area, potentially along with additional comparable facilities. Parking would also be provided.

Construction activities of the proposed parks and recreational facilities have been evaluated as part of the overall project. The construction of the proposed parks and recreational facilities would be phased over time as specific development projects are implemented under the proposed project. Construction-related impacts in any single location would be temporary. The construction impacts of the proposed project related to new park and recreational facility construction, and, as needed, mitigation measures and other construction related regulatory requirements, are discussed in [Section 4.B *Transportation and Circulation*; Section 4.C, *Air Quality and Climate Change*; Section 4.D *Noise*; and Section 4.J *Hazardous Materials*.] Recreational areas that were contaminated would require remediation prior to future development activities, would be addressed in Remedial Action Plans (RAPs), Corrective Action Plans, and/or Remedial Design Documents, which would require specific remedial actions and risk levels appropriate for areas of the site where particular land uses, including parks and open space areas, are proposed.

Some of Alameda Point's existing recreational facilities could be displaced over time or relocated due to the proposed project. Sufficient recreational facilities are available throughout the City and would be provided by the project such that recreational uses currently within the project site would be accommodated during the proposed project's construction period without overuse or physical deterioration of those facilities. (See Impact 4.L-5, above.)

Mitigation: None required.

Cumulative Impacts

Impact 4.L-7: Development facilitated by the proposed project, in conjunction with other past, current, or foreseeable development in Alameda, could potentially result in impacts related to public services and recreation. (Less than Significant)

The geographic setting for cumulative impacts to public services includes all areas within each public service provider's service area, or within the service areas of the City's Fire and Police Departments, AUSD, and the City of Alameda and the EBRPD service area for parks and recreation services. Past, present, and reasonably foreseeable future projects have and would continue to be required to comply with existing regulations and existing fee structures regarding public services.

Fire Protection

There would be an overall increase in the demand for fire protection services with the increase of developments within the City.

As described above, the project is within three miles of three operating fire stations. In addition, Station Five could reopen if the number of calls for services, due to increased development, resulted in the need for an additional facility, with funding to be provided through developer fees, an assessment district or community facilities district, in-kind improvements, or a combination of these sources.

Furthermore, all proposed development projects elsewhere in the City would require incorporation of fire detection and suppression systems, emergency access, and properly placed fire hydrants as required by the Fire Code, along with compliance to the California Building Code and the California Fire Code. The City's Municipal Code requires payment of fire services impact fees for all new residential and commercial development in Alameda to fund adequate provision of fire protection services and facilities. Therefore, the contribution of the proposed project to cumulative impacts on fire protection services is less than significant.

Police Protection

As additional development occurs in the City, there would be an overall increase in the demand for police services, including personnel and/or equipment. With the addition of these projects, the proposed project would not contribute to a cumulative impact on police services because (1) the project is anticipated to be served within the established response times; (2) no new or physically altered facilities would be required to accommodate these projects, the construction of which could result in significant environmental impacts; (3) adequate emergency access will be provided pursuant to the existing City plan check process; and (4) existing city programs, practices, and procedures, would continue to ensure the adequate provision of police protection services. Therefore, the contribution of the proposed project to cumulative impacts on police protection services would be less than significant (Boersma, 2013b).

Schools

The proposed project in combination with other development in the AUSD boundaries would increase the demand on the school district. As described above and shown in Table 4.L-2, existing enrollment in the AUSD schools in the project area are approaching or exceeding capacity, and therefore existing schools may not have the capacity to accommodate an increase in student population that would result from the proposed project. School fees from individual development projects would be collected pursuant to SB50 to fund construction of new school facilities if needed in the area of the City where new development may occur, as required and allowed by state law. Therefore, the contribution of the proposed project to cumulative impacts on school services would be less than significant.

Parks and Recreation

Development of the proposed project in conjunction with other cumulative projects would gradually result in an increased intensity of land use and a corresponding increase in usage of park and recreational facilities. As described above, the project would create 258 acres of new park and recreation facilities to be utilized by the new and existing residents, including those generated by the related projects. The proposed facilities are planned to be easily accessible to residential uses, and would provide for the additional recreation demand resulting from the project, plus related projects. With provision of the new park and recreation facilities the proposed project would have a less than cumulatively considerable contribution to park and recreation impacts, and the cumulative impact would be less than significant.

Mitigation: None required.

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M. Utilities and Service Systems

M.1 Introduction

This section discusses existing utilities and service systems that serve the Alameda Point project, which include water service (potable and fire protection), wastewater collection and treatment, stormwater and drainage, solid waste collection and disposal, energy (electricity and natural gas), and telecommunications, and the potential impacts of the project to those utilities.

M.2 Environmental Setting

Potable Water Supply

Water service in Alameda is provided by the East Bay Municipal Utility District (EBMUD). EBMUD supplies water to approximately 1.3 million people in a service area that includes 20 cities and communities in Contra Costa and Alameda counties. About 90 percent of the EBMUD water supply originates from the Mokelumne River on the west slope of the Sierra Nevada and is stored at the Pardee Reservoir about 40 miles northeast of Stockton.

Local Potable Water Supply

Raw water is treated at EBMUD's Orinda filter plant and conveyed to Alameda via pipeline. EBMUD owns and operates a 24-inch water transmission line that crosses the Oakland/Alameda Estuary near the Webster/Posey Tubes. This facility supplies water to the majority of the west end of Alameda. There is an existing 10-inch diameter pipeline within Main Street, north of Ralph Appezzato Memorial Parkway, and 12-inch and 16-inch diameter pipelines within Main Street to the south between Ralph Appezzato Memorial Parkway and Pacific Avenue. Alameda Point receives water via three large existing meters, two (2) 8-inch and one (1) 10-inch diameter pipelines, which connect to these EBMUD pipelines in Main Street (CBG, 2013).

Distribution Network within Project Site

The existing potable water system within Alameda Point connects to the above-described meters and distributes potable and firefighting water to all areas within the project site. The existing system was installed by the Navy and the majority of the system is over 60 years old. Historical records indicate that demand for potable water at the project site was up to approximately 2.8 million gallons per day (mgd) prior to closure of the Naval Air Station (NAS) in 1997. In 1986, the existing water system in the southeast portion of the project site was reconstructed and new pipelines were installed.

Historically, there were two distinct water systems at Alameda Point, a potable water system and a separate dedicated fire protection system. The fire protection system was designed to provide very large fire flows for a short period of time to protect aircraft and activities at the former NAS Alameda, and included large pipelines (up to 24-inch diameter), onsite storage, and an onsite pumping plant to boost available fire flows. There is now no demand for a separate, dedicated fire protection system because the base was closed in 1997. Additionally, because the fire protection system was costly to maintain and the elevated tanks were not up to required seismic standards, the fire protection system has since been abandoned, and fire protection is now provided by the potable water system.

EBMUD operates and maintains the existing water system on behalf of the City through a Joint Powers Agreement (JPA). The system is owned by the City, and does not meet EBMUD's standards for District ownership and acceptance into the EBMUD system. The existing potable water system of pipelines at Alameda Point ranges in size from 6-inch to 16-inch in diameter. The existing system remains functional and provides water service to the existing uses within the project site. However, this system is deteriorating and subject to pipeline breaks and leaks, which require frequent maintenance. Most of the existing water pipelines are not located in existing or proposed street alignments, and portions of the system are located underneath existing buildings (CBG, 2013).

Wastewater

Onsite Wastewater Collection System

The City owns and operates the existing wastewater collection system within the project site. The existing collection system consists of gravity pipelines ranging in size from 4-inch to 30-inch in diameter, 15 pump/lift stations, and force mains ranging from 4-inch to 8-inch in diameter. The system consists of approximately 28 miles of wastewater pipelines. Wastewater from the project site is collected and conveyed to an existing pump station (Pump Station No. 1), located just west of the Main Gate at the northern edge of Alameda Point. As described below, wastewater collected at this pump station is transported via force main to the EBMUD Main Wastewater Treatment Plant (MWWTP) for treatment.

Although the wastewater system is functional, the system was built approximately 70 years ago by the Navy and is beyond its service life and has numerous deficiencies. The majority of the system has deteriorated due to the age of the facilities. In addition, differential settlement has occurred over time at the project site, which has resulted in groundwater infiltration entering the onsite collection system and downstream transmission system. Also, portions of the system consist of pipes that have steep slopes which are causing wastewater build-up and stagnant conditions. There are portions of the collection pipelines that are located under existing buildings and outside of the existing and proposed backbone street rights-of-way. The existing wastewater collection system does not meet current City standards (CBG, 2013).

Recent flow monitoring conducted by the EBMUD just upstream of Pump Station No. 1 indicates the existing peak wet weather wastewater flow from Alameda Point is approximately 1.80 mgd.

Offsite Wastewater Transmission Facilities

The existing onsite wastewater collection system directs wastewater to Pump Station No. 1, described above. Since 2003, wastewater from this pump station gets directed eastward via an approximately 8,600-foot-long 20-inch force main to the Alameda Siphon facility near the Webster/Posey Tubes.

The Alameda Siphon consists of three pipelines that convey wastewater flows from the City of Alameda under the Oakland/Alameda Estuary. The Alameda Siphon then connects into EBMUD's South Interceptor, which continues conveyance wastewater from the City and portions of the City of Oakland to EBMUD's MWWTP, which is located near the eastern landing of the Bay Bridge in West Oakland (approximately 2.5 miles from the project site).

EBMUD owns and maintains all of the above-described off-site wastewater transmission facilities. The existing capacity of Pump Station No. 1 is approximately 7.5 mgd, and the 20-inch diameter force main has a capacity of 12.1 mgd. The Alameda Siphon has an existing peak wastewater flow of approximately 28 mgd.

Wastewater Treatment

EBMUD receives wastewater from seven East Bay wastewater collection agencies (referred to as the"Satellites") with a total population of approximately 650,000. Each Satellite, including the City of Alameda, owns and operates its own wastewater collection system, which delivers wastewater to EBMUD's interceptor system. The interceptor system then transports wastewater to EBMUD's MWWTP, which has a current average dry weather flow capacity of approximately 54 mgd. The permitted dry weather flow of the plant is 120 mgd; therefore, the excess dry weather flow capacity is 66 mgd.

EBMUD operates three wet weather facilities that handle excess sewage during storm events when flows exceed the capacity of EBMUD's MWWTP. The excess flows are largely caused by stormwater and groundwater leaking into the region's aging sanitary sewer collection pipelines and through improper connections that allow stormwater to flow into the sewer system (infiltration and inflow, or "I & I").

During wet weather the MWWTP can provide secondary treatment for up to 168 mgd and primary treatment for an additional 157 mgd of wastewater (SWRCB, 2007). When the wet weather flow capacity is exceeded, untreated sewage discharges from the wet weather facilities get discharged to the San Francisco Bay. In January 2009, EBMUD entered into a Stipulated Order for Preliminary Relief (Stipulated Order) from the U.S. Environmental Protection Agency (EPA), State Water Resources Control Board (SWRCB) and the San Francisco Bay Regional Water Quality Control Board (RWQCB). This Stipulated Order contains the measures that EBMUD is required to implement in order to address discharges of inadequately treated sewage to San Francisco Bay during wet weather conditions. The intent of the Stipulated Order is to formulate long-term solutions to minimize the high level of infiltration to the East Bay collection systems and eliminate the discharge of the excess flows from EBMUD's wet weather facilities. The Stipulated Order requires EBMUD to conduct a flow monitoring study to identify the regions within the District's service area that generate the largest wet weather flows. This flow monitoring study is also to establish a range of scenarios of capacity flow limits for specific locations within the District's system that could eliminate the need for discharges from the wet weather facilities. A draft of this flow monitoring study has been prepared, and EBMUD is currently working with the EPA and various stakeholders to develop a long-term plan for region-wide reductions (CBG, 2013).

In March 2011, the Satellites (including the City of Alameda) entered into a Stipulated Order with the EPA, SWRCB and the RWQCB. This Stipulated Order obligates Satellites to improve management of their wastewater collection systems, to address sanitary sewer overflows, and to reduce inflow and infiltration (I&I) in their collection systems. The Stipulated Order requires that the City of Alameda cooperate with EBMUD in the development of a regional flow monitoring/data assessment program, implement an inflow identification and reduction plan to identify and reduce sources of direct water inflow, a pump station renovation plan, a sewer cleaning and root control plan, and to report annually on progress to EPA.

Stormwater

Alameda is one of several cities in the Bay Area that is responsible for controlling stormwater pollution by complying with the Municipal Regional Stormwater National Pollutant Discharge Elimination System (NPDES) permit issued by the San Francisco Bay Regional Water Quality Control Board. The City implements the Municipal Regional Stormwater NPDES permit requirements with all other Alameda County local agencies as a co-permittee in the Alameda County Clean Water Program. This permit (No. CAS612008) requires the City to prevent the discharge of non-stormwater (materials other than rain water) from entering the municipal storm drain system and San Francisco Bay, including the Oakland Inner Harbor (RWQCB, 2011).

The City of Alameda's Department of Public Works oversees and maintains the storm drainage system throughout the city limits. The City has a Storm Drain/Urban Runoff Project Administration program that provides management and maintenance of the City's storm drainage system, including lagoons, in accordance with the City's NPDES permit requirements.

Stormwater runoff at Alameda Point is conveyed directly to outfalls by a storm drain system. The portion of the storm drain system within land owned by the City is owned and operated by the City, and the remaining portion of the system within land still owned by the Navy is owned by the Navy. This system was installed by the Navy over 70 years ago and is operable but does not meet the City's current standards. The majority of the stormwater system is gravity driven, consisting of pipelines, inlets, junction boxes/manholes and outfalls to surrounding waters (CBG, 2013).

Recycled Water

There is no existing source of recycled water at Alameda Point. Accordingly, there are no existing recycled water distribution facilities within the project site.

Electricity

Electric System

Alameda Municipal Power (AMP), which is a department of the City, owns and operates the electric power facilities at Alameda Point and throughout the City. The electric system at Alameda Point consists of 115 kilovolt (kV) transmission, 12 kV and 4 kV distribution facilities. Electricity is supplied to the project site via the existing overhead 115 kV transmission facilities along Pacific

Avenue to the east, which turn north on Main Street and enter Alameda Point and connect to the Cartwright Substation near the intersection Skyhawk and /11th streets. The overhead 115 kV transmission line continues north on Main Street and connects to Northern California Power Agency (NCPA) Combustion Turbines twin peaking generators located north of the linear park and trail along Main Street.

The Cartwright Substation is a critical component of the electric system and is intended to remain in service throughout the reuse and development of Alameda Point. The substation provides local electric distribution to Alameda Point and portions of the surrounding areas outside of the project site. The Cartwright Substation is a 115/12.47 kV substation equipped with two 33/44/55 mega volt ampere (MVA) transformer banks. Nine active 12.47 kV, 600 Amp underground distribution feeders (electric main lines) exit the substation to the west, providing local electric service throughout the project site. 600 Amp and 200 Amp looped underground distribution circuits provide feeds to local unit substations and existing customers throughout the project site. Unit substations located in strategic areas of the project site provide switching and/or protection for the various 12kV electric main lines (CBG, 2013).

Electric System Disposition and Capacity

AMP estimates that the Cartwright Substation has an electric capacity for a maximum demand of approximately 50 MVA. The substation can be upgraded to increase the electric capacity, if necessary. The electric transmission system facilities, which are115kV pole lines providing electricity to Alameda Point, could support an additional electric demand of approximately 80 MVA. The electric system is operable and provides electricity to the existing tenants within the project site. The Cartwright Substation is in acceptable condition and would be preserved with implementation of the project. The existing 115kV overhead electric transmission lines along Main Street and connecting to the Cartwright Substation would remain overhead, but may be relocated to accommodate adjacent street improvements or developments. The existing electric distribution facilities on the piers were recently replaced and will remain.

Natural Gas

Natural Gas System

Pacific Gas and Electric Company (PG&E) owns and operates the existing natural gas supply facilities at Alameda Point. Natural gas is supplied to Alameda Point by an existing 8-inch steel main, which is located along West Atlantic Ave and continues within the project site, heading northwest along the former rail line route. The 4-inch main terminates at an existing regulating /metering station that is located at the Ferry Point / West Tower Ave intersection. The gas distribution facilities beyond the regulating / metering station are owned and operated by the City. These facilities are deteriorated and are unreliable. The gas system does not extend to all areas within Alameda Point. In addition, the operating pressure of the existing system is so low that many existing tenants cannot use the natural gas service. PG&E will not accept the existing gas distribution system into its system because it does not meet PG&E’s standards. PG&E is currently evaluating a system improvements and rehabilitation plan for Alameda Point.

Communications

The existing communication utility systems at Alameda Point are owned and operated by AT&T, AMP and Comcast. AT&T operates the existing telephone system east of the project site, which includes conduits and fiber optic cables that extend across the project site and terminate near the West Midway Ave and Lexington Street intersection. Comcast operates the existing cable TV system within the project site. Comcast has extended its wires within existing available conduits within AMP's sub-structure facilities; however, this has resulted in inadequate separation between cable wires and electric power lines.

Solid Waste

Alameda County Industries provides residential, commercial, and industrial collection services for recyclables, organics and garbage (ACI, 2013). The City of Alameda delivers its solid waste to the Davis Street Resource Recovery Complex located in San Leandro, where it is sorted and recyclable materials are recovered. Residual solid waste is disposed at the Altamont Landfill, which accepts the following types of waste: ash, construction/demolition, contaminated soil, green materials, industrial, mixed municipal, other designated waste, tires, shreds. This landfill has an estimated permitted capacity of 62,000,000 cubic yards, a daily permitted capacity of 11,500 tons per day (CalRecycle, 2013a), and an estimated remaining capacity of 47,220,000 cubic yards as of 2012 (Alameda County Environmental Health Department, 2013).

M.3 Regulatory Setting

This section briefly describes state and local plans and policies related to the adequate provision and protection of utilities.

State

Senate Bill 610

Senate Bill (SB) 610, codified as Sections 10910-10915 of the California Water Code, requires the preparation of a Water Supply Assessment (WSA) for large-scale development projects proposing over 500 housing units, 250,000 square feet of commercial office space (or more than 1,000 employees), a shopping center or business establishment with over 500,000 square feet (or more than 1,000 employees), or equivalent usage. The WSA report evaluates the water supply available for new development based on the anticipated demand. For the broad range of projects that are subject to this law, the WSA must be requested by the lead agency from the local water provider, this case EBMUD, at the time the lead agency determines whether an EIR is required for the project. The water agency must then provide the assessment within 90 days, but may request a time extension under certain circumstances. The water supply assessment must include specific information including an identification of existing water supply entitlements and contracts. The governing board of the water agency must approve the assessment at a public meeting.

California Integrated Waste Management Act of 1989 and SB 1016

The California Integrated Waste Management Act of 1989, or Assembly Bill (AB) 939, established the Integrated Waste Management Board, required the implementation of integrated waste management plans and also mandated that local jurisdictions divert at least 50 percent of all solid waste generated (from 1990 levels), beginning January 1, 2000, and divert at least 75 percent by 2010. In 2006, SB 1016 updated the requirements. The new per capita disposal and goal measurement system moves the emphasis from an estimated diversion measurement number to using an actual disposal measurement number as a factor, along with evaluating program implementation efforts. These two factors will help determine each jurisdiction's progress toward achieving its Integrated Waste Management Act (AB 939) diversion goals. As of 2011, the Alameda's diversion rate was 72 percent, which is above AB 939's 50 percent diversion requirement (StopWaste.Org, 2013). As of 2007 and with the passage of SB 1016, the 50 percent diversion requirement is now measured in terms of per-capita disposal.

In addition to the requirements of AB 939, Alameda County adopted the Alameda County Waste Reduction and Recycling Initiative Charter Amendment (Measure D) in November 1989. Under this charter amendment, the County is required to divert 75 percent of solid waste from landfills by the year 2010.

California Code of Regulations Title 24

The State of California regulates energy consumption under Title 24 of the California Code of Regulations. The Title 24 Building Energy Efficiency Standards were developed by the California Energy Commission (CEC) and apply to energy consumed for heating, cooling, ventilation, water heating and lighting in new residential and non-residential buildings. The CEC updates these standards periodically and adopted the latest standards in 2008; 2013 standards will become effective in January 2014. These standards establish lighting zones that differentiate the amount of outdoor lighting by geographical location, and establish new performance standards for residential lighting.

Urban Water Management Planning Act

The project site is within the EBMUD water service area. EBMUD's Urban Water Management Plan (UWMP) 2010 provides an overview of the District's water supply sources and usage, recycled water and conservation programs, and projected water demands. The UWMP must be updated every five years pursuant to California's Urban Water Management Planning Act.

Local Plans and Policies

Alameda County Clean Water Program

As described in Section 4.I, *Hydrology*, construction activities associated with the proposed project would be subject to the National Pollutant Discharge Elimination System (NPDES) permit requirements for stormwater management and discharges. The Alameda County Clean Water Program (ACCWP) NPDES permit incorporates updated state and federal requirements related to the quantity and quality of post-construction stormwater discharges from new development and redevelopment projects. The stormwater system at the project site would be regulated under the NPDES permit. In particular, Provision C.3 in the NPDES Permit governs storm drain systems and regulates post-construction stormwater runoff. The provision requires new development and redevelopment projects to incorporate treatment measures and other appropriate source control and site design features to reduce the pollutant load in stormwater discharges and to manage runoff flows. "Redevelopment" is defined as a project on a previously developed site that results in the addition or replacement of impervious surface. A redevelopment project that adds or replaces at least 10,000 square feet of impervious surface is required to adhere to the C.3 provisions. The proposed project would replace more than 5,000 square feet of impervious surface; therefore would be required to incorporate treatment measures and appropriate source control and site design measures under the NPDES permit.

City of Alameda General Plan

Policies from the City's 1991 General Plan that relate to utilities are listed below.

Open Space for the Preservation of Natural Resources

Policy 5.1.h Continue to support EBMUD in its efforts to promote and implement water conservation measures.

Policy 5.1.i Encourage the use of drought-resistant landscaping.

Policy 5.1.y Work with EBMUD to implement the Alameda Reclamation Project.

Policy 5.1.z Develop a comprehensive City Water Conservation Ordinance that recognizes Alameda's unique climate, soil conditions, and development patterns.

Policy 5.1.aa Review proposed development projects for both water and energy efficiency, and integrate plans for the use of reclaimed wastewater for landscaping as a condition of approval.

Waste Management

Policy 8.4.d Continue to support the resource recovery measures specified in the Alameda County "Solid Waste Management Plan," July 1987.

Policy 8.4.j Implement the recently approved residential area curbside recycling program

Policy 8.4.k Design and implement a recycling program for commercial and industrial businesses, including paper product recycling strategies for business parks.

Alameda Municipal Code

In an effort to meet the state's AB 939 waste reduction mandate, the City's Municipal Code requires that projects valued at $100,000 submit a Waste Management Plan (WMP) (see Chapter XXI, Article VI., Subsections 21-24.IA of the Municipal Code) to divert at least 50 percent of all construction and demolition debris.

In addition, in order to increase the diversion rate and facilitate compliance with AB 939 as well as Alameda County's Measure D (the Alameda County Source Reduction and Recycling Initiative Charter Amendment, described above), the City Municipal Code requires all persons receiving solid waste collection to separate recyclable and organic materials for collection.

City of Alameda Sewer Lateral Ordinance

Under the City's sewer lateral ordinance (No. 3048), private property owners are required to fix old, cracked sanitary sewer pipes to ensure they do not allow the infiltration of rainwater, to reduce the overwhelming of wastewater treatment facilities.

City of Alameda Bay-Friendly Landscaping Program

Consistent with the state of California's Water Efficiency Landscape ordinance, the City of Alameda amended the Alameda Municipal Code by adding Section 30-60, Bay-Friendly Landscaping Requirements for new City landscaping projects, renovation projects, and public-private partnership projects. This ordinance requires both public and private-sector projects that include new construction and renovation of landscapes of 2,500 square feet of irrigated area or greater to obtain a permit. Applicants are required to meet nine practices of the County's Bay-Friendly basics checklist which include mulching, amending the soil with compost prior to planting, reduction and recycling of landscape construction waste, planting drought tolerant and California native plants, and weather-based irrigation controllers (Stopwaste.Org, 2011).

City of Alameda Zero Waste Implementation Plan

The City of Alameda has developed a draft citywide integrated waste management plan in effort to identify the policies, programs, and facilities that will be needed to achieve zero waste. The draft plan requires preparation of a project-specific waste management plan as part of the demolition or building permits for development.

M.4 Impacts and Mitigation Measures

Significance Criteria

Consistent with CEQA *Guidelines* Appendix G (Environmental Checklist) the project could have a significant impact if it would:

- Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board;
- 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;
- Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;

- Have insufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed;
- Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments;
- Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs;
- Not comply with federal, state, and local statutes and regulations related to solid waste.

Approach to Analysis

This impact discussion assesses potential impact on utilities and service systems as it relates to the proposed project, describes adverse impacts that would result from implementation and projected buildout, and recommends mitigation measures as appropriate.

The potable water supply and wastewater demands that would be generated by the proposed project were calculated and compared to the existing demand for utility services in the 2013 Draft Master Infrastructure Plan prepared by Carlson, Barbee & Gibson, Inc.'s (CBG, 2013). Using projected utility demands, the net increases in utility usage associated with implementation of the project were determined. The section addresses potential impacts related to the construction of new water, wastewater, and storm water drainage facilities. In addition, this section evaluates the potential for the project to result in temporary adverse impacts on landfill capacity due to the disposal of project-generated demolition debris and construction waste as well as operational impacts on landfill capacity once project construction is completed. The largest potential source of solid waste would be demolished concrete and excavated soil.

Impacts and Mitigation Measures

Impact 4.M-1: Development facilitated by the proposed project could potentially result in an exceedance of wastewater treatment requirements of the applicable Regional Water Quality Control Board. (Less than Significant)

EBMUD's MWWTP is permitted by the RWQCB and effluent is regularly monitored to ensure that water quality standards are not violated. There have been no violation of water quality standards by the treatment plant in the last couple years (August 1, 2010 through March 1, 2013), and there are no RWQCB enforcement actions pending against EBMUD (SWRCB, 2013).

As described above, EBMUD's MWWTP has excess dry weather flow capacity of 66 mgd and can, therefore, accommodate the projected wastewater flows of up to 2.16 mgd that would be generated by the proposed project. At buildout, the project would generate increased wastewater treatment demand of approximately 0.23 mgd. The increase in peak wastewater flow from the project would comprise less than 1 percent of the current peak wastewater flows within the downstream transmission and treatment facilities. Wastewater generated by the project would not contain any unusual pollutants that would be within the existing dry weather capacity and permitted discharge volume of the treatment plant. As described in the Setting section, during wet weather events, the MWWTP can provide secondary treatment for up to 168 mgd and primary treatment for an additional 157 mgd of wastewater (SWRCB, 2007). Due to the MWWTP's shortage of wet weather capacity, in 2009, EBMUD entered into a Stipulated Order with the U.S. EPA, Water Board, and RWQCB, which contains measures that EBMUD is required to implement in order to address inadequately treated sewage discharges to San Francisco Bay during wet weather conditions. The Stipulated Order requires EBMUD to formulate and implement long-term solutions to minimize the high level of infiltration to the East Bay collection systems and eliminate the discharge of the excess flows from EBMUD's wet weather facilities. As described under Impact 4.M-2, below, the project would replace the existing, onsite wastewater collection system, which would greatly reduce I&I flows entering the system in wet weather conditions and thereby reduce wet weather flows from the project site to the MWWTP. Such improvements are expected to further ensure that the project does not contribute to exceedences of RWQCB treatment standards for water discharged to the Bay; therefore, this impact would be less than significant.

Mitigation: None required.

Impact 4.M-2: Development facilitated by the proposed project could potentially result in wastewater service demands that would result in a determination by the wastewater treatment provider that it does not have adequate capacity to serve projected demand or result in the construction of new or expanded wastewater treatment facilities. (Less than Significant)

Development of the proposed project would increase the amount of wastewater generated at Alameda Point, potentially affecting the capacity of EBMUD's MWWTP. As described in the Draft MIP, the total estimated peak wastewater generated by the full buildout of the project is approximately 2.16 mgd. This estimate was determined using the City's current design criteria used in the City-wide sewer model and does not account for the implementation of water conserving fixtures in new buildings. With a current average dry weather flow capacity of approximately 54 mgd, EBMUD has adequate dry weather capacity at the MWWTP for the projected wastewater flows. Additionally, the estimate maximum additional peak wastewater flow from Alameda Point represents an increase of less than 1 percent in the current peak wastewater flows from Alameda and an even smaller percentage of the total flows conveyed in EBMUD's downstream transmission and treatment facilities.

As described in the Setting section, above, as part of EBMUD's Stipulated Order, the City is working with EBMUD to reduce the amount of I&I entering the wastewater collection system (CBG, 2013). To address this issue and as part of the proposed project (see Chapter 3 for additional details), a new wastewater collection system would be installed in orderly phases within the Development Areas.[1] The new system would include gravity pipelines (ranging between 8-inch and 36-inch in

1 "Development Areas" are areas within the project site that are anticipated to consist primarily of new construction. New infrastructure, including sanitary sewer lines and a wastewater collection system would occur in cohesive areas and would be installed as development occurs.

diameter) and five lift stations, and would connect to the existing Pump Station No. 1 located at the Main Gate. The wastewater collection system within the Reuse Areas[2] would consist of the existing system initially but would eventually be replaced with a system similar to the system that would be built within the Development Areas. The full buildout of the proposed project would generate additional waterwater flows that are small, and would not alter existing flows to the offsite wastewater transmission facilities (e.g., Pump Station 1, the 20-inch force main, Estuary siphon facility and the EBMUD Interceptor) in any substantial way.

Through its efforts in preparing a flow monitoring study and coordination efforts with the City to comply with the 2009 Stipulated Order, EBMUD has indicated that the conclusions of its efforts will not limit the future growth or proposed reuse and development at Alameda Point (CBG, 2013). As development occurs, and consistent with the 2011 Stipulated Order, the project would replace the existing onsite wastewater system in order to maximize the reduction in I&I entering the system in wet weather conditions. Consistent with EBMUD's recommendations and the City's sewer later ordinance, as development occurs, the project would replace or rehabilitate any existing sanitary sewer collection system (including sewer lateral lines). The project would also ensure that any new wastewater collection system facilities (including sewer lateral lines) serving Alameda Point and that any new wastewater collection systems are constructed to prevent I&I to the maximum extent feasible. Such improvements would greatly reduce the system's infiltration and inflow and would help provide the required wet weather capacity for Alameda Point (CBD, 2013). Therefore, the MWWTP is expected to have adequate capacity to serve projected new demand generated by the proposed project and this impact would be less than significant.

Mitigation: None required.

Impact 4.M-3: Development facilitated by the proposed project would require and result in the need for new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects. (Less than Significant)

As part of the project, a new stormwater system to be owned and operated by the City would be constructed at Alameda Point. The stormwater system would include new pipelines, pump stations, multi-purpose basins, and outfalls with water quality treatment features that are designed to meet current City, County of Alameda and RWQCB design criteria (CBG, 2013). Within the Development Area, an entirely new stormwater system that consists of gravity storm drain pipes ranging in size from 12 to 60 inches in diameter and 5 new outfalls would be constructed at existing outfall locations. Within the Reuse Area, new trunk stormwater lines, multi-purpose basins, pump stations, and outfalls would be installed incrementally over time within the various sub-Districts. Construction of the new stormwater system could result in potentially significant environmental effects.

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[2] "Reuse Areas" include the historic areas within the project site that are intended to be preserved and adaptively reused. In these areas, existing infrastructure would be rehabilitated and upgraded.

Construction activities of the new storm water drainage facilities and expanded storm drainage facilities would include in-street trenching and excavation work. Such activities would be phased as development occurs. As described in Section 4.I, *Hydrology and Water Quality*, to comply with the requirements of the RWQCB concerning discharges of stormwater during project construction, the future project applicant would be required to obtain a NPDES permit for construction activities and execute a Stormwater Pollution Prevention Plan (SWPPP) that would specify construction stormwater quality management practices based on the ACCWP *Stormwater Quality Management Plan*. The SWPPP would describe erosion control measures similar to those recommended by the ACCWP which are designed to reduce the potential for pollutants to contact stormwater and eliminate or reduce discharge of materials to stormwater during on-land construction. As further discussed in Section 4.I, in-water construction activities for the proposed outfalls would include removal and disposal of potentially contaminated sediment, which could result in turbidity and other adverse water quality effects within the Inner Harbor and the Bay. In-water construction activities would be required to adhere to Sections 401 and 404 of the Clean Water Act and the future project applicant would also be required to obtain necessary permits and approvals from the U.S. Army Corps of Engineers, RWQCB and BCDC. Additionally, as discussed in Section 4.J, *Hazards and Hazardous Materials*, excavation for installation of utilities (including storm water drainage facilities) would entail soil disturbance that could disperse and expose workers, the public, or the environment to contamination. Any temporary dewatering activities for utilities construction could also encounter contamination which may require treatment prior to discharge as discussed in Section 4.I. For a detailed discussion of impacts, mitigation measures, and permits required regarding construction and operation of the proposed stormwater system, please refer to Section 4.I and Section 4.E, *Biological Resources*, and Section 4.J. Through compliance with the requirements of the necessary permits, standard construction specifications incorporated as part of the project, and mitigation measures identified in Sections 4.I, 4.E, and 4.J, environmental impacts would be less than significant.

As described in Section 4.I, the project would reduce the overall impervious area within the project site by increasing pervious areas. Once project construction is completed, runoff from the project site would flow into the adjacent water bodies through the proposed storm drain system. Projects developed at Alameda Point would be required to adhere to the C.3. provision in the NPDES permit by including specific site design features that minimize land features and impervious surfaces and implementation of Low Impact Development (LID) measures such as bioretention planters and bioswales to provide pretreatment of stormwater runoff prior to discharging into the stormwater system. For these reasons, with implementation of LID measures and compliance with C.3 provisions, operation impacts of the new storm drainage system would be considered less than significant. Also see Section 4.E, *Biological Resources*, for a discussion of environmental impacts on habitat and sensitive species.

Mitigation: None required.

Impact 4.M-4: Development facilitated by the proposed project could potentially have insufficient water supplies available to serve the development from existing entitlements and could require construction of new water treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects. (Less than Significant)

At full buildout of the proposed project, water demand from Alameda Point would be approximately 1.9 mgd, which includes an irrigation demand of approximately 0.95 mgd. This estimated demand does not assume the use of recycled water for irrigation or for other permitted uses. However, EBMUD is implementing the East Bayshore Recycled Water Project, which currently supplies recycled water to portions of Oakland and Emeryville, and will eventually extend to the City of Alameda, including Alameda Point. Once EBMUD's recycled water project gets extended to Alameda, the City proposes to install a recycled water system to reduce potable water consumption and demand. The recycled water system would consist of a network of recycled water pipelines that would be constructed within the proposed rights of ways of the backbone streets (ranging in size from 6 to 12 inches). Recycled water would extend to all anticipated large open space or park facilities such as the Northwest Territories, Sports Complex, and Enterprise Park areas. Approximately 0.95 mgd of recycled water is expected to provide irrigation to the proposed public open space areas within the project site, which would decrease potable water demand. All other proposed uses of recycled water would need to confirm available supply with EBMUD at the time of that application (CBG, 2013).

Pursuant to Sections 10910-10915 (SB 610) of the California Water Code, the City of Alameda submitted a request to EBMUD to prepare a water supply assessment for the proposed project assuming a total water demand resulting from the proposed project of approximately 1.9 mgd. In the WSA, presented in **Appendix L**, EBMUD determined that an increased water demand of up to 1.9 mgd is accounted for in EBMUD's 2040 water demand projections published in the 2010 Urban Water Management Plan (EBMUD, 2013). The proposed project would not change EBMUD's 2040 water demand projection and would not result in a new significant increase in water use.

EBMUD recommends incorporating water conservation measures into the design and construction of all new development projects to ensure that sufficient water capacity is available through EBMUD's planning horizon year 2040. EBMUD also recommends that the project comply with the California Model Water Efficient Landscape Ordinance. EBMUD notes that the proposed project is a likely candidate for the use of recycled water (EBMUD, 2013), which is consistent with the City's plan to install a recycled water system once EBMUD's East Bayshore Recycled Water Project is extended to Alameda.

Within the proposed Development Area, a new water distribution system would be installed to serve Alameda Point and would connect to the existing EBMUD water facilities in Main Street. The existing system would be replaced with a new water system in phases, consistent with the development buildout, and would adequately accommodate the project's expected water demand. The proposed project would not exceed existing or projected water supply or result in the need for new or expanded water treatment facilities. Therefore, project-related impacts on water supply availability would be less than significant.

Mitigation: None required.

Impact 4.M-5: Development facilitated by the proposed project could potentially be served by a landfill with insufficient permitted capacity to accommodate solid waste generated by the project, and would comply with federal, state, and local statutes and regulations related to solid waste. (Significant)

Construction Impacts

Solid waste generated by the buildout of the Alameda Point would include demolition debris from demolition of existing non-historic buildings, other buildings not intended for adaptive reuse, utility systems, street improvements, and landscaping. Demolition of buildings, utilities, streets, and landscape elements would occur in a phased manner that matches the development phases.

Many of the existing buildings to be deconstructed and demolished were formerly used for military functions and supporting uses. These buildings would be deconstructed to maximize the reuse or recycling of materials, as required by AMC Section 21-24. The deconstruction of existing buildings would include the abatement of hazardous materials including asbestos materials, lead based paints and materials, and other materials that may be identified as hazardous. Refer to Impact 4.J-1 in Section 4.J, *Hazards and Hazardous Materials*, for a discussion of impacts and mitigation measures related to the demolition of existing structures containing hazardous materials.

When structures are "deconstructed," rather than demolished, wood and fixtures are retained for resale or other reuse rather than disposed, and the majority of such materials can be diverted from the waste stream (City of Alameda, 2002). Deconstructed materials can be diverted from landfills to recycling and reuse markets. Solid waste generated from demolition of existing utility systems would also require disposal. Because the portions of existing utility systems within development areas may either be abandoned in place or removed and disposed, the amount of solid waste generated from demolition of existing utility systems is unknown at this time.

With regards to existing street improvements that require demolition, the debris would be recycled and reused onsite to the maximum extent feasible. The crushing operation and associated stockpiles would require the City's approval to ensure impacts to nearby residents and businesses are minimized. Refer to Section 4.F, *Air Quality and Greenhouse Gases*, and Section 4.G, *Noise*, for discussion of air quality and noise impacts and mitigation measures as a result of demolition activities. The construction and operation of this type of crushing facility may be subject to additional environmental review under CEQA depending on the proposed location of any such operations. Landscaping activities that involve removing trees and plants would generate materials that will be composted for onsite uses, such as mulching and potentially erosion control.

Assuming that approximately 4.5 million square feet of buildings would require demolition, 416,666 cubic yards of demolition debris would be generated by the project. This quantity was calculated using the conversion factors in CalEEMod's Appendix A (Calculation Details for CalEEMod) (2011), and represents approximately 0.88 percent of the total remaining capacity of the Altamont

Landfill. Because adequate landfill capacity exists to accept the project's construction waste, impacts related to landfill capacity would not be substantial. However, because the actual phasing of project construction is to be determined and would be driven by various factors (i.e., market demand fiscal impact), the timing of disposal of waste generated by the proposed project is also unknown. Therefore, it is conservatively estimated that the project could adversely affect the City's ability to comply with its diversion goals. However, implementation of **Mitigation Measure 4.M-5**, which requires development and implementation of a solid waste management plan, would reduce this impact to a less-than-significant level.

Operation Impacts

CalRecycle reports numerous solid waste generation rates developed by a variety of jurisdictions throughout the State, ranging from 7.8 pounds per dwelling unit per day (lb/unit/day) to 12.23 pounds per household per day (lb/household/day) for single-family residential development (CalReycle, 2013b). For commercial uses, solid waste generation rates range from 5 pounds per 1,000 square feet per day (lb/1,000 sq ft/day) to 10.53 pounds per employee per day (lb/employee/day) (CalRecycle, 2013c). Based on the solid waste generation rates developed most recently (i.e., 12.23 lb/household/day and 10.53 lb/employee/day), estimated by the City of Los Angeles, the proposed project's 1,425 residential units and approximately 9,000 jobs would generate approximately 112,200 pounds per day (56 tons per day). This would represent a small increase in current waste disposal at the Altamont Landfill, and consumption of 0.5 percent of daily permitted capacity at the landfill. Given the City's existing diversion rate and Measure D, the solid waste generated by operation of the project could be expected to be less than this worst-case estimate. Although the Altamont Landfill has an estimated closure date of 2025 (CalRecycle, 2013a), it has an estimated disposal capacity through 2045 (Waste Management, 2013). The proposed project would represent a small increase in collection and disposal of household waste, and would utilize less than 1 percent of permitted daily landfill capacity. As more than 30 years of remaining capacity at the landfill exist, solid waste generated by the project in the long-term would not substantially reduce existing landfill capacity. Therefore, operation of the project would represent a less-than-significant impact on solid waste disposal.

> **Mitigation Measure 4.M-5:** The City shall develop a solid waste management plan for the Alameda Point project consistent with Alameda's demolition and debris ordinance. Plans for managing construction debris from specific reuse and development projects that require separation of waste types and recycling, and provide for reuse of materials onsite for the reuse and development areas, shall be developed by the project sponsor. The solid waste management plan shall be prepared in coordination with City staff, the project sponsor(s), and demolition subcontractors, and shall be approved by City staff prior to issuance of a demolition permit. The City and sponsors of projects shall work with organizations able to provide funding and technical assistance for managing and financing deconstruction, demolition, and recycling and reuse programs, should those programs exist at the time of site clearance.

Cumulative Impacts

Impact 4.M-6: Development facilitated by the proposed project, in combination with other past, present, existing, approved, pending, and reasonably foreseeable future projects, could potentially result in cumulatively considerable impacts to utilities and service systems. (Less than Significant)

For all impacts described below, the geographic area for the assessment of cumulative impacts encompasses the project site and the surrounding areas of the City of Alameda unless otherwise stated. For cumulative impacts related to water supply, the geographic area consists of the EBMUD service area. The geographic are for cumulative impacts on landfill capacity consists of Alameda County.

Wastewater

As discussed under Impacts 4.M-1 and 4.M-2, the project would generate an estimated increase in wastewater flows of 2.16 mgd. This estimated increase in wastewater flows would be well within the existing remaining available capacity of the wastewater treatment plant of 66 mgd average dry weather flow. Other Alameda development projects listed in Chapter 4 (including the Neptune Beach project, Encinal Terminals, Boatworks, and Marina Cove II, Veterans Hospital, Alameda Landing, and Alameda Station Retail Development) would result in incremental demands for wastewater treatment. Based on generation rates of approximately 240 gpd per single-family dwelling, 0.1 gpd per square feet of office/retail uses, 0.02 gpd per square-foot for manufacturing/ warehouse uses, and 0.5 gpd per square-foot for food service; a peak factor of 2; and information provided in the IS/MNDs for the Marina Cove II and Veterans Hospital projects, implementation of the proposed project as well as other Alameda projects would generate an increased demand of approximately 3.0 mgd. Because this estimate in wastewater flows would be well within the existing remaining dry weather capacity of the MWWTP, cumulative impacts related to wastewater would be less than significant.

Stormwater

As discussed in Impact 4.M-3, the proposed project would include a new storm drainage system throughout the Development Area and storm drainage upgrades to the Reuse Area, and would also reduce the total area of impervious surfaces. Therefore, the proposed project would not contribute to potential cumulative drainage impacts.

Water Supply Availability and Water Treatment

As discussed under Impact 4.M-4, the project would increase the project site's demand for water supply and no new construction of water treatment facilities would be required. Implementation of a 0.95 mgd of recycled water could provide irrigation to the proposed public open space areas within the project site and would further reduce project's water supply demand. As described above, the water demand projections for the proposed project calculated by CBG were reviewed by EBMUD, and the District confirmed that its water supply is adequate to meet existing and projected demand (EBMUD, 2013). No significant additional facilities or expansion needs beyond those already underway or planned would be required to serve the project. The Alameda Point project and other Alameda projects (listed above) would result in incremental demand increases for potable water of approximately 2.4 mgd. Development of such projects have been planned in the Alameda General Plan for the past 20 years, and are factored into the growth projections on which EBMUD bases its infrastructure and supply planning. For these reasons, cumulative impacts on water supply and water treatment and distribution systems would be less than significant.

Landfill Capacity

As discussed under Impact 4.M-5, disposal of the project's excavated soil, construction, and demolition debris is not anticipated to result in a significant impact, but when considered with other development projects it could result contribute to a potentially significant cumulative impact depending on timing. Once project construction is completed, development facilitated by the project would generate solid waste that consumes approximately 0.5 percent of the daily permitted capacity at the Altamont Landfill. Considering the remaining capacity at the Altamont Landfill, and that capacity estimates account for all planned development, there should be sufficient capacity to handle demolition and operational waste resulting from the Alameda Point project. Implementation of Mitigation Measure 4.M-5 would reduce the project's impact on the Altamont Landfill's capacity. Similar to the proposed project, other projects in the vicinity would also be subject to the City's diversion goals, which would reduce estimated increases in solid waste generation. Therefore, the Alameda Point project's contribution to this cumulative impact related to construction waste generation and landfill capacity would not be cumulatively considerable.

Mitigation: None required.

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CHAPTER 5
Alternatives

The purpose of this chapter is to describe and evaluate a reasonable range of alternatives to the proposed project in order to inform the public and decision makers regarding the comparative merits of alternatives that might avoid or substantially lessen any of the project's significant environmental effects.

A. CEQA Requirements

CEQA requires that an EIR describe and evaluate a range of reasonable alternatives to the proposed project, or to the location of the proposed project, and evaluate the comparative merits of the alternatives (*CEQA Guidelines* Section 15126.6(a), (d)). The "range of alternatives" is governed by the "rule of reason," which requires the EIR to set forth only those alternatives necessary to permit informed public participation and an informed and reasoned choice by the decision-making body (Section 15126.6(a), (f)).

The range of alternatives shall include alternatives that would feasibly attain most of the basic objectives of the project and would avoid or substantially lessen any of the significant effects of the project (*CEQA Guidelines* Section 15126.6(a)-(c)). CEQA generally defines "feasible" to mean an alternative that is capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, technological, and legal factors. In addition, the following may be taken into consideration when assessing the feasibility of alternatives: site suitability; economic viability; availability of infrastructure; general plan consistency; other plans or regulatory limitations; jurisdictional boundaries; and the ability of the proponent to attain site control (Section 15126.6(f)(1)). If the lead agency concludes that no feasible alternative locations exist, it must disclose the reasons for this conclusion, and should include the reasons in the EIR (Section 15126.6(f)(2)(B)).

The description or evaluation of alternatives does not need to be exhaustive, and an EIR need not consider alternatives for which the effects cannot be reasonably determined and for which implementation is remote or speculative. An EIR need not describe or evaluate the environmental effects of alternatives in the same level of detail as the proposed project, but must include enough information to allow meaningful evaluation, analysis, and comparison with the proposed project (*CEQA Guidelines* Section 15126.6(d)).

The "no project" alternative must be evaluated. This analysis shall discuss the existing conditions, as well as what could be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services (*CEQA Guidelines* Section 15126.6(e)(2)).

CEQA also requires that an environmentally superior alternative be selected from among the alternatives. The environmentally superior alternative is the alternative with the fewest or least severe adverse environmental impacts. When the “no project” alternative is the environmentally superior alternative, the EIR must also identify an environmentally superior alternative from among the other alternatives (*CEQA Guidelines* Section 15126.6(e)(2)).

B. Project Objectives

As previously presented in Chapter 3, *Project Description*, the proposed project is designed to achieve a specific set of objectives. The selection of alternatives was designed to create a range of alternatives that would achieve at least some of the project objectives. **Table 5-6** itemizes each of the project objectives and summarizes how each alternative evaluated may or may not meet the objectives. The Alameda Point project objectives are:

Property Rehabilitation and Reinvestment Objectives

The project should eliminate the blighted conditions on the property, and correct geotechnical and flood hazards and infrastructure deficiencies in the area by:

- Ensuring orderly and systematic reinvestment and development of the project site into an integrated mixed use community with an integrated network of public open spaces, trails, and streets.
- Facilitating reinvestment in substandard infrastructure systems and buildings, including reinvestment in contributing structures and cultural landscapes within the NAS Alameda Historic District, where feasible.
- Ensuring orderly and timely clean-up and conveyance of the remaining property under Navy ownership consistent with the Economic Development Conveyance Memorandum of Agreement (EDC MOA), and the Navy’s other conveyance obligations.

Environmental Protection and Sustainability Objectives

The project should protect the local, regional, and global environment and facilitate sustainable reuse and redevelopment of Alameda Point by:

- Creating opportunities for transit-oriented development consistent with Regional Sustainable Communities Strategies for greenhouse gas emission reductions as required by SB 375.
- Reinvesting in the replacement and rehabilitation of substandard infrastructure systems that may contribute to regional water quality impacts due to infiltration, inflow, storm water run-off, and substandard storm water treatment facilities.
- Investing in improvements to adapt to sea-level rise and climate change over time.
- Applying sustainability principles in the design and development of open spaces, recreation facilities, buildings, and infrastructure, including wastewater, storm water, electrical and

transportation systems, including promotion of alternative modes of transportation through preparation and implementation of a Transportation Demand Management (TDM) Program.

Public Benefit Objectives

The project should produce tangible community benefits for the Alameda community as a whole by:

- Creating an open space network that incorporates preservation, restoration and enhancement of wetlands and other natural habitats and provides for both passive and active recreational uses.
- Enhancing views of water and public access to the waterfront in all development and creatively encouraging the usage of the waterfront, by providing a waterfront promenade, public art, open space, and other public amenities.

Economic Development and Employment Objectives

The project should strengthen and diversify the economic base of the community by:

- Emphasizing employment and a mix of economic development opportunities that complement economic development strategies in other parts of Alameda; and provide a range of employment opportunities and quality jobs, through adaptive reuse of existing buildings and new construction to replace up to 9,000 of the 14,000 jobs lost to Alameda and the region by the closure of NAS Alameda.
- Reoccupying existing buildings and constructing new buildings to create 5.5 million square feet of business, commercial, industrial, maritime and retail uses that will provide jobs, services, tax revenue, and new amenities for Alameda residents.
- Actively marketing to new retail land uses that will complement and provide synergies with existing retail development at Webster Street, Park Street and other locations within Alameda.
- Provide for clear and orderly phasing, sizing, and financing of site infrastructure for both the circulation and utility network and provide for a predictable development process.
- Address the impact of the site development on the City's operating budget to comply with City Council Policies adopted by Resolution 13643 related to fiscal neutrality.

Transit Oriented Mixed Use Development Objectives

The project should provide transit oriented mixed use development opportunities, by

- Ensuring that the project site design is in concert with the established transit-oriented and mixed-use goals, policies, and objectives of the *NAS Alameda Community Reuse Plan* as incorporated into the Alameda General Plan.
- Balancing development objectives with transportation constraints and opportunities.
- Providing for mixed use development opportunities and sites within close proximity to existing and planned transit and encouraging the types of non-residential uses that provide for the everyday needs of Alameda Point residents and employees and reduce the need to use an automobile to obtain goods and services.

- Creating human-scale, tree-lined walkable streets and bicycle routes throughout the project site and extending the street grid street pattern that is characteristic of the existing city neighborhoods and districts throughout Alameda Point.
- Increasing the City's supply of land available for residential development and increasing the supply of affordable housing sites for Alameda and the region to balance the jobs proposed for the project site and attract potential riders for proposed transit.
- Including a mix of single-family homes, attached townhomes, a mix of stacked flats and low and midrise multifamily housing with higher-density housing concentrated around transit nodes, where possible.
- Including a diversity of housing types and pricing that attract the market segments most likely to use alternatives to the automobile, such as self-selective transit commuters and households with zero to low-automobile ownership.
- Facilitating the relocation and consolidation of existing supportive housing providers in new facilities at Alameda Point to help ensure a mix of incomes and populations are represented at the project site.

C. Factors in the Selection and Rejection of Alternatives

The *CEQA Guideline*s provide that an EIR should briefly describe the rationale for selecting the alternatives to be discussed, identify any alternatives that were considered by the lead agency but were rejected as infeasible, and briefly explain the reasons underlying the lead agency's determination (*CEQA Guidelines* Section 15126.6(c)). The following factors were considered in identifying the reasonable range of alternatives analyzed in this EIR:

- Requests by interested parties, community members, and decision makers at the scoping sessions for information regarding the relative environmental impacts of different development programs and different numbers of housing units;
- The extent to which the alternative would avoid or substantially lessen any of the significant environmental effects of the project;
- The feasibility of the alternative, taking into account site suitability, availability of infrastructure, consistency with applicable plans and regulatory limitations, and other factors;
- The extent to which an alternative contributes to a "reasonable range" of alternatives necessary to permit a reasoned choice;
- The extent to which the alternatives may inform public decision making about whether to amend existing City plans and zoning and to adopt revised development plans for Alameda Point;
- The requirement of the *CEQA Guidelines* to consider a "no project" alternative and to identify an "environmentally superior" alternative;
- Previously completed planning and other studies concerning Alameda Point; and
- The extent to which the alternative would feasibly accomplish most of the basic project objectives.

CEQA *Guidelines* § 15126.6(c) requires an EIR to identify and briefly discuss any alternatives that were considered by the lead agency but were rejected as infeasible during the scoping process. In identifying alternatives, primary consideration was given to alternatives that would reduce significant impacts while still meeting most of the project objectives.

Because the basic purpose of the proposed project is to guide the redevelopment of Alameda Point, an alternative site would not be appropriate as an alternative to the proposed project. An environmental impact report will sometimes examine an "off-site" alternative in which the proposed project is constructed on a different site. This alternatives analysis does not include an analysis of an off-site alternative. The purpose of the subject project is to determine the best uses and development standards and requirements for a specific property: the lands vacated by the Navy when the federal government vacated NAS Alameda. Consideration of an alternative that considers the impact of developing a different property located at some other location would have no practical use or relevance to the decisions that must be made about the development of this particular piece of property.

A project that focuses exclusively on non-residential land uses which would exclude residential development would not achieve the mixed use and residential objectives of the proposed project, or the intent and obligations of the 2001 Settlement Agreement between the City and Renewed Hope Housing Advocates and its co-plaintiffs. Therefore, these alternatives were rejected from further analysis in the EIR because they do not meet the objectives, nor do they fulfill legal requirements.

D. Description of Alternatives Selected for Analysis

The alternatives selected for analysis are designed to inform the public discussion and the final decisions by the City of Alameda Planning Board and City Council on the proposed Alameda Point zoning, master infrastructure plan, and town center plan. Specifically, the range of alternatives is designed to inform decision makers about:

- Potential modifications to the proposed Alameda Point project that might minimize or avoid environmental impacts.
- The relative change in environmental impact (increase or decrease) that might be expected by potential modifications to the proposed project.
- The impact on the City's ability to achieve the project objectives with the potential modifications to the project.

D.1 The No Project/No New Development Alternative

This alternative considers the environmental impacts of continuing the existing uses on the site, which include 267 existing housing units and existing non-residential business leases with approximately 1,000 jobs. Under this alternative, no construction of new housing units or new commercial development would occur. Because this alternative would severely limit private investment at Alameda Point, this alternative would be the least likely to achieve any of the project objectives. In this alternative, the City would not allow private investment in new businesses or new residential construction. Existing tenants within the existing 267 residential units would be able to reinvest in their buildings, and existing commercial tenants would be able to reinvest in their buildings; however, it cannot be expected that existing residential tenants (200 of which are low income households) or existing commercial tenants would be able to fund rehabilitation of the site wide infrastructure; sea level rise improvements; rehabilitation and expansion of public open space and parks; and rehabilitation and improvement of vacant buildings in the Historic District. The alternative would also fail to achieve project objectives related to the creation of new jobs and economic development opportunities (as no new businesses would be allowed), expansion of housing opportunities (as no new housing would be allowed), or creation of transit oriented, tree-lined pedestrian friendly neighborhoods.

Finally, this alternative would fail to meet the objectives related to climate change, greenhouse gas emissions, and transit-oriented development consistent with *Plan Bay Area*, the regional Sustainable Communities Strategies, related to greenhouse gas emission reductions as required by SB 375. Alameda Point represents an important urban infill site for the region. From a regional perspective, prohibiting development of the property would cause future development to locate further from the urban centers, which will result in longer Bay Area commutes and increased greenhouse emissions.

As shown in Table 5-6, of all the alternatives considered in this analysis, the No Project Alternative would be the least successful alternative with respect to meeting the project objectives.

D.2 The Preservation/Less Development Alternative

This alternative considers the environmental impacts of allowing some additional development, but not as much as the proposed project. This alternative would include a total of 1,000 housing units (733 additional units) and up to 6,000 jobs (5,000 additional jobs). Approximately 733 of the housing units would be created through new construction. Of the 5,000 new jobs, approximately half (2,500) of the new jobs would occur in new non-residential buildings and the other half would occur in exiting vacant or underutilized buildings, primarily in the Historic District.

Given the limited development program in this alternative, the alternative is specifically designed to minimize any environmental impact to the NAS Historic District. In this alternative, no new construction would be allowed within the Historic District. All new residential units and all new buildings for employment uses would be constructed in outside of the boundaries of the NAS Historic District.

This alternative would be able to achieve more of the objectives for the project than the No Project Alternative because it would allow for limited private reinvestment in Alameda Point. This alternative would allow limited private investment in new businesses and up to 733 new residential units. In addition, existing tenants within the existing 267 residential units would be able to reinvest in their buildings, and existing commercial tenants would be able to reinvest in their buildings.

Under this alternative, a mixed-use, pedestrian and transit-oriented development at Alameda Point could only be developed outside of the Historic District, leaving almost half of the project site (i.e., the portion within the Historic District) in its historic military industrial configuration. The Historic District was designed by the Navy as a military industrial facility for the movement of large equipment, airplanes, and material, not for pedestrians and bicyclists. The spacing between buildings, the size of the streets and the orientation of buildings were all designed for industrial and military purposes, not mixed-use, transit-oriented development. By prohibiting development along the taxiways on the northern edge of the Seaplane Lagoon and within other appropriate locations within the Historic District, this alternative would limit transit-oriented development opportunities at the heart of the project.

Although this alternative would achieve more of the project objectives than the No Project Alternative, it would not achieve the project objectives as well as the proposed project because it would limit private reinvestment and redevelopment, thus it is less likely to attract sufficient private capital to fund the necessary public infrastructure improvements, build the planned public parks and open spaces, and rehabilitate as many of the buildings, landscapes, and other assets in the NAS Historic District. In addition, this alternative would not do as well as the project in attracting new business and economic development to Alameda, and would not generate as many housing opportunities.

By limiting development on the taxiways and within the District, this alternative severely limits reinvestment potential. Land adjacent to or along the waterfront achieves greater land values, which can be leveraged to help pay for more infrastructure development or other public benefits such as public parks and waterfront promenades. By limiting private development along the taxiways, this alternative would make it more difficult to achieve reinvestment objectives. It is likely, that this alternative would require a significant reduction in the extent and scope of the infrastructure and sea level rise improvements. Given the location of the Historic District at the western end of the site, it is likely that the reductions in the infrastructure plan would be most evident in the Historic District, which may not be able to support sea level rise improvements or sewer, storm water or other utility upgrades.

Similar to the No Project Alternative, from a regional perspective, this would be less effective than the proposed project with regard to the objectives related to climate change, greenhouse gas emissions, and transit-oriented development consistent with *Plan Bay Area*, the regional Sustainable Communities Strategies, related to greenhouse gas emission reductions as required by SB 375. From a regional perspective, limiting development of the property to 733 new housing units would increase pressures to allow future development to locate further from the urban centers, which would result in longer Bay Area commutes and increased greenhouse emissions from vehicles.

As shown in Table 5-6, the Preservation/Less Development Alternative would be marginally better than the No Project Alternative in meeting the project objectives, but not as good as the proposed project.

D.3 The Existing General Plan Alternative: More Housing and Less Jobs

Under this alternative, the City would not amend the existing General Plan and would allow approximately 500 more housing units (up to 1,928), but fewer jobs (6,000 instead of 8,900) than the proposed project. This, therefore, would constitute the No Project Alternative applicable to a proposed plan, under which existing land use plans continue in effect and are implemented.

With significantly fewer jobs, this alternative would be less effective than the proposed project at achieving the objectives related to economic development, employment and retail development. By limiting the total non-residential development to 2.3 million square feet, this alternative significantly reduces economic development opportunities as compared to the proposed project which would accommodate 5.5 million square feet of non-residential development. Alameda Point currently includes over 5 million square feet of existing buildings, of which approximately 1.8 million is occupied space. This alternative would require mothballing or demolishing a large number of existing buildings and maintaining large areas of the property vacant or underutilized. Alternatively, large areas of the property could be used for land intensive uses that do not require a lot of employees or improvements, such as large scale outdoor storage uses, such as lumber yard and auto storage yards.

This alternative and the limitation on non-residential use raise questions about the ability to preserve the buildings within the Historic District and achieve overall economic development goals. The Historic District includes over two million square feet of existing buildings. If new non-residential and business buildings were constructed for new companies in areas of the property that are not included with the Historic District, a number of existing buildings in the Historic District would need to be indefinitely mothballed, boarded up, or demolished to ensure that the City did not exceed the 2.3 million square feet of employment uses.

This alternative would perform slightly better on objectives related to housing opportunities because the alternative allows for up to 1,928 units as compared to the proposed project which is limited to 1,425 units.

D.4 The Multifamily Alternative

Under this alternative, the City would allow the same number of housing units and jobs as the proposed project but the all new housing would be limited to multifamily housing. Existing single family housing units and the “Big Whites” would remain, but no new single family housing would be constructed.

At the request of the public and the Oakland Chinatown community, this alternative was included to provide an opportunity to examine and document the potential transportation benefits of multifamily housing relative to single family housing, given the significant transportation constraints in West Alameda.

From an economic development perspective, this alternative would be very similar to the proposed project relative to job growth and business expansion. From a housing perspective, this alternative would not allow for a diversity of housing, and by limiting opportunities for the subdivision and sale of single family lots, this alternative would likely generate less financial return to support and fund reinvestment in the site wide infrastructure. For these reasons, this alternative – similar to the Preservation/Less Development Alternative – may require a reduction in the scope of the infrastructure plan.

Also, similar to the Preservation/Less Development Alternative, the multifamily alternative would likely result in little to no new residential development within the Historic District. The new multifamily residential development would occur between Main Street and the eastern edge of the Historic District. An exception might be that some of the new multifamily units could be located in the Bachelors Officers Quarters (BOQ) or Bachelors Enlisted Men's Quarters (BEQ). Nevertheless, this alternative would generally result in a transit oriented multifamily mixed use community on approximately half the property, and the other half, which is roughly defined by the NAS Historic District, would remain in its current and historic military industrial configuration, which is not particularly transit oriented or pedestrian friendly.

D.5 The Transit Oriented Mixed Use Alternative

This alternative is designed to examine the relative environmental impacts of more housing and more retail development at Alameda Point. Generally consistent with the "Mixed Use Alternative" examined in the 2003 General Plan Amendment EIR and the "Transit Plus Scenario" examined in the 2008 Alameda Point Station Area Plan: Transit-Oriented Development Alternatives, this alternative increases the number of residential units to 3,400 units to create a more transit supportive development. The alternative maintains the total number of square feet of non-residential uses (approximately 5.5 million), but changes the mix of non-residential uses to increase the retail uses on the site from 300,000 square feet to 1 million, and decreases the industrial, warehouse, and office space to 4.5 million square feet to increase retail opportunities and services on the site and increase revenues for infrastructure and other site improvements.

This alternative provides an opportunity to examine the additional environmental impacts that might occur with these types of changes to the proposed project.

The increased residential development and the increased retail uses allowed in this alternative are designed to attract more private investment to the property and create a more transit oriented, higher density, mixed used environment. This additional investment would make it easier for the alternative to meet its objectives for the replacement and improvement of the onsite and off-site infrastructure, improvement and addition of onsite parks and public facilities, and creation of additional public benefits. However, this alternative is inconsistent with the EDC MOA with the Navy for the no-cost conveyance of the land, which could result in penalty payments to the Navy, making it more expensive to development the property, and could potentially affect the conveyance of future phases of the property and the ability to ensure orderly redevelopment of the property.

By increasing the retail component of the land use program, this alternative would do a better job of meeting the objectives for expansion of retail development and achievement of fiscal neutrality, through increase sales tax generated by the project. Additionally, by increasing the retail and residential component of the program, this alternative would create a more transit-oriented, mixed-use development than the project.

From a regional environmental perspective, as explained in the analysis of Air Quality and Greenhouse Gases below, this alternative would perform better than the project when considering the major environmental issues of global climate change and regional greenhouse gas emissions, with lower GHG emissions per service population. By allowing for more development at Alameda Point and within the inner Bay Area, this alternative would perform better related when considering project objectives related to climate change and greenhouse gas emissions.

D.6 High Density Alternative

The High Density Alternative includes 4,841 housing units and 3.8 million square feet of non-residential uses. This alternative is included at the request of speakers who attended the January and February 2013 Planning Board Scoping Sessions. This alternative is modeled on the plan contained in the 2009 Ballot Initiative for Alameda Point. It includes 4,841 housing units and 3,800,000 square feet of commercial uses.

This alternative includes significantly more housing than the proposed project (4,841 units compared to 1,425 units) and less non-residential use. With more housing this alternative has many of the same strengths and weaknesses associated with the More Housing/More Retail Alternative. With significantly more residential development, it can be expected that its weaknesses related to balancing development objectives with transportation constraints and capacity, as well as consistency with the EDC MOA will be significantly increased.

From a regional environmental perspective, this alternative will perform better than both the project and the Transit Oriented Mixed Use Alternative when considering the major environmental issues of global climate change and regional greenhouse gas emissions. By allowing far more development at Alameda Point and within the inner Bay Area, this alternative would perform better when considering project objectives related to climate change and greenhouse gas emissions. From a local perspective, the increased traffic from this alternative would cause increased local traffic and associated air quality and noise impacts, but from a regional and global perspective, these local impacts would be off-set by a corresponding decrease in regional vehicular miles traveled (from shorter commutes) and the associated reductions in air quality and noise impacts associated with regional traffic.

Table 5-6 summarizes the analysis of ability of each alternative to achieve the project objectives. The ability of each alternative to achieve each project objective is assessed and given a numerical grade from -2 to +2, to qualitatively compare how each alternative performs compared to the proposed project on each objective. Hence, the project is ranked with a 0 (meets project objective) for all project objectives. A “-1” ranking indicates that the alternative would only partially achieve the objective. A “-2” ranking indicates that the alternative will not achieve the objective. A "+1" ranking indicates that the alternative would do a slightly better job than the proposed project, and a "+2" ranking indicates that the alternative would do a much better job.

F. Environmental Assessment

This section presents an environmental assessment of each alternative relative to the proposed project, by environmental topic. As permitted by CEQA, the significant environmental effects of the alternatives are discussed in less detail than are the effects of the proposed project (CEQA *Guidelines*, Section 15126.6(d)). However, the analysis is conducted at a sufficient level of detail to provide the public and decision-makers with adequate information to fully evaluate the alternatives and to approve any of the alternatives without further environmental review.

The proposed project would result in significant environmental impacts, which are described in the previous sections of this document and summarized in Chapter 2. The impact discussion of each alternative below addresses each alternative's ability to avoid or reduce each of the significant impacts identified for the project. The following evaluation of the environmental impacts is summarized in **Table 5-7**.

F.1 Land Use

The analysis presented in Section 4.A, *Land Use*, found less than significant impacts associated with development of the proposed project. The analysis found that no mitigation measures would be needed to address potential land use impacts from redevelopment of Alameda Point.

The land use impacts from all of the alternatives would also be expected to be less than significant. All the alternatives (with the possible exception of the No Project Alternative) are designed to allow for the redevelopment of the former Naval Air Station in a manner that:

1) Would not divide an established community,
2) Would not conflict with an applicable land use plan, policy or regulation adopted for the purpose of avoiding an environmental effect, and
3) Would not conflict with applicable Habitat Conservation Plan.

The land use impacts from all the alternatives would also be expected to be less than significant. No additional significant land use impacts would result and no additional land use mitigations would be needed for adoption of these alternatives.

F.2 Population and Housing

The analysis presented in Section 4.B, *Population and Housing*, found less than significant impacts associated with development of the proposed project.

The population and housing impacts from all of the alternatives would also be expected to be less than significant. All the alternatives (with the possible exception of the No Project Alternative) are designed to allow for the redevelopment of the former Naval Air Station in a manner that:

1) Would not induce substantial population or housing growth, and
2) Would not displace a substantial number of people or housing.

Although two of the alternatives (the Transit Mixed Use and the High Density) are designed to allow a larger number of housing units, the increase in population would not be considered a substantial increase from an environmental or regional perspective. In fact the two higher density alternatives would be better than the project at addressing regional housing needs as identified in *Plan Bay Area*. (The transportation impacts are discussed below.)

No additional significant land use impacts would result and no additional land use mitigations would be needed for adoption of any of the alternatives.

F.3 Transportation and Circulation

The analysis presented in Section 4.C, *Transportation and Circulation*, found that the proposed project would result in significant impacts that could be mitigated and significant impacts that could not be mitigated because the possible mitigation measures were not feasible, are within the responsibility or jurisdiction of another agency, or would result in significant impacts on other modes of transportation.

As described in Section 4.C, *Transportation and Circulation*, the impacts to vehicular, pedestrian, transit, and bicycle riders would be caused by increases in traffic volumes generated by the project. The increased traffic volumes are generated by the project generated trips. Because each alternative has a different development program, the trips generated by each alternative differ. **Table 5-1** summarizes the estimated peak-hour trips from each alternative.

TABLE 5-1
PEAK HOUR VEHICLE TRIP GENERATION BY PROJECT ALTERNATIVE

Alternative	Total AM Trips	Total PM Trips
No Project	722	703
Preservation/Less Development	1,560	1,921
Project	2,928	3,294
Existing General Plan[a]	2,704	2,911
Multifamily[b]	2,631	2,950
Transit Oriented Mixed Use	3,521	4,255
High Density[c]	6,370	5,967

a SOURCE: 2002 General Plan EIR.
b SOURCE: 2008 Station Area Plan Transit Oriented Development Alternatives Study.
c SOURCE: 2009 Initiative Report.

No Project Alternative

None of the transportation impacts associated with the proposed project would occur under the No Project Alternative; however, it should be noted that, as described in Section 4.C, *Transportation and Circulation*, many of the impacted intersections are expected to be impacted under Cumulative No Project conditions because of other development projected in Alameda and the region. Therefore, although the No Project Alternative does not create impacts, the unacceptable conditions would continue to occur at a number of locations.

Automobile Impacts: As described in Section 4.C, *Transportation and Circulation,* the following intersections are either already at or would be at an unacceptable level of service in the No Project Alternative.

Alameda Intersections

- Main Street and Singleton Avenue in the a.m. (#3)
- Park Street and Clement Avenue in the a.m. and p.m. (#12)
- Park Street and Encinal Avenue in the p.m. (#14)
- Broadway and Otis Street in the a.m. (#18)
- Tilden Way and Blanding Avenue in the a.m. and p.m. (#19)
- High Street and Fernside Boulevard in the a.m. and p.m. (#20)
- High Street and Otis Drive in the a.m. and p.m. (#21)
- Island Drive and Otis Drive in the a.m. (#22)
- Fernside Boulevard and Otis Drive in the a.m. and p.m. (#25)
- Park Street and Blanding Avenue in the a.m. and p.m. (#26)
- Challenger Drive and Atlantic Avenue in the a.m. and p.m. (#27)

Oakland Intersections

- Jackson Street and Seventh Street in p.m. (#33
- Jackson Street and Sixth Street in a.m. and p.m. (#34)
- Jackson Street and Fifth Street in a.m. (#35)
- Webster Street and Eighth Street in a.m. and p.m. (#39)
- Broadway and Fifth Street in a.m. (#43)
- Brush Street and 11th Street in a.m. (#55)
- Brush Street and 12th Street in a.m. (#44)
- High Street and Oakport Street in a.m. and p.m. (#45)
- High Street and Coliseum Way in a.m. and p.m. (#46)
- Fruitvale Avenue and Ninth Street in a.m. and p.m. (#47)
- 29th Avenue and Ford Street in p.m. (#51)

Pedestrian Impacts: As described in Section 4.C, *Transportation and Circulation*, the following intersections would operate at worse than the LOS B standard in 2035 in the No Project Alternative due to regional and other development over the next 20 years.

- Main Street and Navy Way in the a.m. and p.m. (#1)
- Main Street and Ferry Terminal Way in the a.m. and p.m. (#2)

- Main Street and Pacific Avenue in the a.m. and p.m. (#6)
- Fifth Street and Willie Stargell Avenue in the a.m. and p.m. (#7)
- Webster Street and Atlantic Avenue in the a.m. and p.m. (#9)
- Constitution Way and Atlantic Avenue in the a.m. and p.m. (#12)
- Constitution Way and Lincoln Avenue in the a.m. and p.m. (#13)
- Eighth Street and Central Avenue in the a.m. and p.m. (#14)
- Challenger Drive and Marina Village Parkway in the a.m. and p.m. (#15)
- Challenger Drive and Atlantic Avenue in the a.m. and p.m. (#16)
- Park Street and Blanding Avenue in the a.m. and p.m. (#19)
- Park Street and Clement Avenue in the a.m. and p.m. (#20)
- Park Street and Encinal Avenue in the a.m. and p.m. (#23)
- Park Street and Otis Drive in the a.m. and p.m. (#24)
- Tilden Way and Blanding Avenue in the a.m. (#25)
- Broadway and Tilden Way in the a.m. and p.m. (#26)
- Broadway and Otis Drive in the p.m. (#28)
- High Street and Fernside Boulevard in the a.m. and p.m. (#29)
- High Street and Otis Drive in the a.m. and p.m. (#30)
- Island Drive and Otis Drive in the a.m. and p.m. (#32)

Transit Impacts: All of the transit routes would operate below the LOS B standard under existing and 2035 No Project Alternative with the exception of Willie Stargell Avenue between Main Street and Webster Street. As described in Section 4.C, *Transportation and Circulation*, the following transit routes would be below the LOS B standard and result in an increase of more than 10 percent in travel speed with the project.

- Main Street at Willie Stargell Avenue to Pacific Avenue at Webster Street in the a.m.
- Park Street from Blanding Avenue to Otis Drive in the a.m.

Bicycle Impacts: Under 2035 No Project conditions, all of the analysis locations would operate at worse than LOS B with the exception of Pacific Avenue between Main Street and Third Street. As described in Section 4.C, *Transportation and Circulation*, the following locations would be worse than the LOS B standard for bicycle impacts where the proposed project resulted in a project impact due an increase of 10 percent or more to the score.

- Willie Stargell Avenue between Main Street and Webster Street
- Main Street between Appezzato Parkway and Pacific Street
- Central Avenue between Main Street and Fourth Street
- Oak Street between Santa Clara Avenue and Central Avenue

The Preservation/Less Development Alternative

With fewer automobile trips, the Preservation/Less Development Alternative would have fewer transportation impacts than the project but more than the No Project Alternative.

Under the Less Development Alternative, all of the No Project impacted locations (listed above) would continue to occur and the addition of housing and jobs at Alameda Point would either cause the following additional impacts or cause a significant increase in severity of an impact that would occur in the No Project Alternative.

The Preservation/Less Development Alternative would result in impacts to following intersections. To adopt this alternative, the City should adopt the mitigations recommended for the project for these impacted locations.

- Park Street and Clement Avenue in the p.m. (#12)
- Park Street and Encinal Avenue in the p.m. (#14)
- High Street and Fernside Boulevard in the a.m. and p.m. (#20)
- High Street and Otis Drive in the p.m. in the a.m. (#21)
- Island Drive and Otis Drive in the a.m. (#22)
- Fernside Boulevard and Otis Drive in the a.m. (#25)
- Park Street and Blanding Avenue in the a.m. (#26)
- Challenger Drive and Atlantic Avenue in the a.m. and p.m. (#27)
- Webster Street and Eighth Street in a.m. and p.m. (#39)
- High Street and Oakport Street in a.m. (#45)
- High Street and Coliseum Way in p.m. (#46)
- 29th Avenue and Ford Street in a.m. and p.m. (#51)
- 23rd Avenue and Seventh Street in p.m. (#56)

Table G4-1 in Appendix G identifies the locations where pedestrian impacts would occur in the Preservation/Less Development Alternative. This alternative is projected to have pedestrian impacts at fewer locations than the project. As shown in the table, the impacted locations represent a subset of the locations for the project. The mitigations for each of these locations would be the same mitigation as recommended for the location in the project analysis in Section 4.C, *Transportation and Circulation*.

- Main Street and Pacific Avenue (#6)
- Constitution Way and Atlantic Avenue (#24)

Table G4-2 in Appendix G displays the results for bicycle LOS for the Preservation/Less Development Alternative conditions for both a.m. and p.m. peak hours. Similar to pedestrian and vehicle impacts, this alternative is projected to have fewer locations with impacts to bicycle than the project. None of the impacted locations under the Preservation/Less Development Alternative conditions would be new beyond those that would be impacted under the project. Furthermore, the same mitigations for the project would be prescribed for those locations impacted under Preservation/Less Development Alternative conditions.

- Willie Stargell Avenue between Main Street and Webster Street
- Main Street between Singleton Avenue and Willie Stargell Avenue
- Central Avenue between Main Street and Webster Street

Transit Impacts: Table G4-3 in Appendix G displays the results for transit LOS for the Preservation/Less Development Alternative conditions for both a.m. and p.m. peak hours. As with the other modes, the impacts to transit are a subset of the locations identified for the project. Likewise, the necessary mitigation would be the same as that recommended for the project.

- Park Street between Blanding Avenue and Otis Drive

Existing General Plan Alternative

This alternative would generate 200 to 300 fewer peak-hour vehicle trips than the proposed project. The differences, which are relatively small, can be attributed to the fact that although the proposed project includes approximately 500 more residential units, the increases in trips generated by the additional units are offset by the substantial reduction in jobs under the Existing General Plan Alternative. Given that the differences in vehicle trips are so small, it can be expected that the impacts anticipated with the proposed project would also occur in this alternative. Although the locations would be the same, it may be expected that the significant unavoidable a.m. peak period vehicle impacts associated with the proposed project would be slightly less severe in this alternative, but that the p.m. peak hour vehicle impacts would be slightly more severe due to the slight increase in p.m. peak trips. However, the change in severity would not even be noticeable to the average driver due to the daily and seasonal variety in transportation conditions that normally occur, as typical traffic volumes vary by approximately five percent on a daily basis.

To reduce impacts of the General Plan Alternative, the City should adopt all of the mitigation measures recommended for the proposed project. No new mitigations would be needed.

The Multifamily Alternative

This alternative includes the same amount of residential and non-residential use as the proposed project, but the residential component of the alternative is limited to multifamily housing. In 2009, the City of Alameda conducted a study examining the transportation benefits of multi-family housing as compared to single family housing. The Alameda Point Station Area Plan – Transit Oriented Development Alternatives, which was funded by the Metropolitan Transportation Commission, found that a plan that provided all of the new housing at Alameda Point in a multifamily configuration would:

- Allow the alternative to use less land and concentrate the homes in smaller area, which would create a more pedestrian friendly, transit supportive development;
- Increase transit use and reduce automobile use; and
- Result in reduction in a.m. and p.m. peak hour vehicle trips.

Based upon these findings, the Multifamily Alternative would generate approximately 2,631 a.m. peak hour trips and 2,950 p.m. peak hour trips, or a reduction in trips of 297 during the a.m. peak hour and 344 during the p.m. peak hour, relative to the project.

Similar to the General Plan Alternative, the project-wide reduction in trips under the Multifamily Alternative would reduce the severity of the impacted locations but these reductions would not necessarily reduce an impact to a less than significant level. It would be expected that impacts associated with the proposed project would be slightly less severe in this alternative, due to the trip reductions and the increased transit use. However, transportation impacts would remain significant and unavoidable, as with the proposed project.

Although adoption of this alternative would require the adoption of the same mitigation measures as the proposed project, the reduction in trips would increase the likelihood that the first mitigation (Transportation Demand Management) would be successful in reducing the severity of the impact to the extent that the secondary recommended physical improvements at each location would or may not be necessary, at least at certain locations. As described in Section 4.C, the mitigation program is designed to require TDM as a first tier mitigation. The City will then monitor the success of the TDM program to determine whether the forecasted impact in fact occurs at the location. (The traffic analysis did not assume trip reductions from TDM.) If the monitoring proves that the physical improvement is still needed, then the project will fund the physical improvement.

In the multifamily alternative, it may be expected that although the City adopts the same package of mitigations, the number of physical improvements that will be necessary will be less than the project, because the Multifamily Alternative generates less trips and the residents of multifamily housing are more likely to take advantage of transit, car share, shuttles and other TDM program components.

The Transit Oriented Mixed Use Alternative

This alternative would generate more trips than the proposed project, as it would involve a total of 3,230 households and 8,408 employees. As a result of the increased trips, this alternative does cause an increase in the number of transportation impacts and required mitigations. Mitigation Measures for this alternative are presented in **Appendix G4**.

Table G4-4 in Appendix G4 includes the a.m. and p.m. peak hour levels of service for vehicles. As shown in Table G4-4, in addition to the locations impacted in the project scenario, this alternative would add the following locations to the list of intersections that would be impacted:

- Ralph M. Appazzatto Memorial Parkway and Webster Street in the p.m.(#7).
- Central Avenue and Eighth Street in the p.m. (#9)
- Broadway and Tilden Avenue in the p.m. (#16)
- Constitution Way and Atlantic Avenue in the p.m. (#24)

Appendix G, Table G4-5 identifies pedestrian impacts for the alternative. As shown in the table additional pedestrian impacts would occur at:

- Main Street and Ralph Appezzato Memorial Parkway (#5)
- Broadway and Tilden Way (#16)

- Broadway and Otis Drive (#18)
- High Street and Otis Drive (#21)
- Island Drive and Otis Drive (#22)
- Park Street and Blanding (#26)
- Challenger Drive and Atlantic Avenue (#27)

Appendix G, Table G4-6 includes the results for transit LOS under Cumulative Plus Project and Transit Oriented Mixed Use Alternative conditions for both a.m. and p.m. peak hours. One additional impact would occur at Willie Stargell Avenue between Main Street and Webster Street.

Appendix G Table G4-7 displays the results for bicycle LOS for this alternative. As shown in the table, one additional location would experience Bicycle level of service impacts on Pacific Avenue between Main Street and Webster Street.

In conclusion, to adopt this alternative, the City would adopt the transportation mitigations recommended for the project and the additional mitigations described for the additional impacts caused by this alternative. The additional mitigations are included in Appendix G.

High Density Alternative

A comprehensive quantitative multimodal analysis of the High Density Alternative was not completed. In 2009; however, a detailed quantitative analysis of this alternative was completed, but that analysis did not consider bicycle, pedestrian, and transit impacts (see **Appendix M**). Therefore, the following analysis represents a qualitative analysis based upon the quantitative work that was done for the proposed project, and the other alternatives.

Based upon the previous analyses, it can be assumed that the number of locations impacted and the severity of the impacts at those locations will be more severe in the High Density Alternative than in any of the other alternatives and that additional mitigations would be necessary at those locations.

F.4 Cultural Resources

The proposed project would result in significant and unavoidable impacts to cultural resources as a result of activities to redevelop, reuse, and re-design the former naval air station for civilian use. Other potential impacts to archeological, paleontological, and human remains that might occur as the result of redevelopment could be mitigated to a level of less than significance with mitigation.

No Project Alternative

The cultural resource impacts from the No Project Alternative would also be expected to be less than significant, due little or no actual physical improvements being made to the property. However, as described above, the No Project Alternative would also not correct the ongoing and current deterioration of the NAS Historic District that has been occurring since the Navy's departure in 1997. Without reinvestment and reoccupation, the buildings and infrastructure that support the buildings and the few uses in those buildings would continue to deteriorate. With time, this deterioration and blight increases the costs to adaptively reuse and rehabilitate existing buildings and facilities. As these costs increase over time, the feasibility for economically viable reuse and rehabilitation becomes less thereby increasing the likelihood that the buildings stay vacant and deteriorate.

Preservation/Less Development Alternative

The Preservation Alternative is specifically designed to avoid the potential cultural impacts associated with the proposed project. Due to the need to repair, maintain, and/or replace subsurface infrastructure supporting the Historic District, the less than significant impacts to archeological, paleontological, and human remains could still occur and would need to be mitigated to avoid significant impacts.

As designed, this alternative would attempt to avoid the significant and unavoidable impacts to cultural resources that might result from activities to redevelop, reuse, and re-design the former naval air station for civilian use. For example, proposals described in the 1996 Community Reuse Plan such as plans to re-purpose the seaplane taxiways for mixed use development and public spaces would not be proposed. Buildings that could not be feasibly repurposed and rehabilitated would be mothballed and preserved. As described above, the alternative may fail to meet a number of project objectives, but it would avoid the potential significant and unavoidable impacts to the Historic District that might occur under the proposed project.

Adoption of this alternative would avoid the need for Historic Preservation impact mitigations, but the City would still need to adopt the mitigations related to archeological, paleontological, and human remains that might be discovered as the result of excavation for infrastructure improvements elsewhere on the property.

Other Alternatives

The cultural resource impacts from these alternatives would be expected to be the same as the proposed project. No additional significant impacts would result and no additional mitigations would be needed for adoption of these alternatives.

F.5 Biological Resources

The analysis presented in Section 4.E, *Biological Resources*, found less than significant impacts with mitigation associated with development of the proposed project during both construction and occupation.

In all alternatives, the project site includes some level of human occupation and some construction activities. Even in the No Project Alternative, the site would continue to require some construction work to maintain and repair existing facilities, and buildings adjacent to the sensitive wildlife areas would, remain occupied. The Preservation Alternative would assume no reuse of the Seaplane Lagoon; therefore, it would have less impact on marine biological resources.

Therefore, all of the alternatives, with the exception of the Preservation Alternative, could be expected to result in similar biological impacts, and the recommended mitigations would be required under each alternative to reduce the potential biological impacts to a level of less than significant. Furthermore, the design of the mitigation measures is such that they would not need to be adjusted to reflect the different development programs within the different alternatives, specifically because they are tied to the 2012 Biological Opinion and Memorandum of Agreement between the Department of Veterans Affairs and the City requirements on the site.

F.6 Air Quality and Greenhouse Gases

The analysis presented in Section 4.F, *Air Quality and Greenhouse Gases*, found that the proposed project would result in significant impacts that could not be mitigated to a less-than-significant level. Specifically, the proposed project could have significant and unavoidable impacts related to construction emissions, depending on the phasing of construction. Additionally, the proposed project would generate a variety of emissions from sources, such as onsite area and energy sources (e.g., natural gas combustion for space and water heating, landscape maintenance, use of consumer products such as hairsprays, deodorants, cleaning products, etc.) and mobile on-road sources. Even with mitigation, the proposed project would have a significant and unavoidable impact related to emissions of ROG and PM10, and potentially for PM2.5. Similarly, the proposed project would have a significant cumulative impact on criteria air pollutant air quality. However, effects related to exposure of sensitive receptors to toxic air contaminants would be less than significant, with mitigation, as would effects related to consistency with the Clean Air Plan. Odor and carbon monoxide impacts would be less than significant.

No Project Alternative

None of the air quality impacts associated with the proposed project would occur under the No Project Alternative, as no construction would occur and no additional trips would be generated from the project site.

The Preservation/Less Development Alternative

With less overall construction and fewer automobile trips, the Less Development Alternative would have fewer emissions impacts than the proposed project, but more than the No Project Alternative. Operational emissions would be significant and unavoidable, as with the proposed project, and the mitigation measures required under the proposed project would also be required of this alternative. However, depending on the timing of development, construction-related emissions could be less than significant, unlike the project, especially because this alternative would result in greater reuse of existing structures.

The General Plan Alternative

This alternative would generate 200 to 300 fewer peak-hour vehicle trips than the proposed project, and the number of daily vehicle trips would also be lower. As such the criteria pollutant emissions would be somewhat less than those of the proposed project, but would also be significant and unavoidable with mitigation. With more residential units and less non-residential development, construction under this this alternative would be comparable in magnitude to that with the proposed project, and construction emissions would remain significant and unavoidable depending on the phasing of construction. Operational and construction mitigation measures required under the proposed project would also be required of this alternative.

The Multifamily Alternative

This alternative includes the same amount of residential and non-residential use as the proposed project, but the residential component of the alternative is limited to multifamily housing. Vehicle trip generation would be similar to that of the General Plan Alternative. Therefore, while this alternative would also generate fewer daily vehicle trips than the proposed project and operational emissions would be slightly less severe in this alternative, the mitigation measures required for this alternative would be the same as required by the proposed project, and the impact would remain significant and unavoidable. Similarly, construction emissions would also remain significant and unavoidable depending on the phasing of construction. The mitigation measures required under the proposed project would also be required of this alternative.

The Transit Oriented Mixed Use Alternative

This alternative would generate more trips than the proposed project, as it would involve a total of 3,230 households and 8,408 employees. As a result of the increased trips, this alternative would result in an increase in operational emissions, compared to those of the project. The significant and unavoidable impacts associated with operation and construction would be more severe under this alternative. The mitigation measures required under the proposed project would also be required of this alternative, and impacts would be significant and unavoidable, as with the project.

It is noted that, to the extent that an alternative develops greater density and transit accessibility, that alternative could result in an incremental regional benefit with respect to criteria air pollutants. This is because it can be assumed that the amount of regional growth in population and employment will not change as a result of development patterns at Alameda Point and, as shown in the recently certified Final EIR for *Plan Bay Area* (ABAG and MTC, 2013; DEIR, p. 3-1.24), development scenarios that increase density and focus development near transit can incrementally reduce regional vehicle trips for the same number of households and jobs, particularly if increased transit service is provided. However, at the level of an individual project, even one as large as the proposed Alameda Point project, it would be speculative to try to determine whether additional new housing and employment at Alameda Point would offset an equal number of households and jobs that might otherwise be developed in a less transit-friendly part of the Bay Area and to determine the regional benefit of such a locational swap.

Table 5-2 and **Table 5-3** summarizes the average daily and annual emissions of criteria pollutants that would be generated by the Transit Oriented Alternative in 2035 and compares them with BAAQMD thresholds. As indicated in the tables, net operational emissions of ROG, NOx, PM10, and PM2.5 would exceed the BAAQMD thresholds. Unlike the project, this alternative would result in significant emissions of NOx (before and after mitigation) and PM2.5 (after mitigation) on a daily and annual basis.

TABLE 5-2
TRANSIT ORIENTED MIXED USE ALTERNATIVE:
AVERAGE DAILY OPERATIONAL-RELATED POLLUTANT EMISSIONS (pounds/day)[a]

Scenario	ROG	NOx	PM10	PM2.5
Unmitigated Emissions – Year 2035	627	107	244	75
BAAQMD Operational Threshold	54	54	82	54
Significant Impact?	**Yes**	**Yes**	**Yes**	**Yes**
Mitigated Emissions – Year 2035	591	98	235	67
BAAQMD Operational Threshold	54	54	82	54
Significant Impact?	**Yes**	**Yes**	**Yes**	**Yes**

NOTES:

[a] Emissions include results modeled with CalEEMod for Alternative operations. Additional data and assumptions are in Appendix I.
[b] Mitigated Emissions are based on incorporation of Mitigation Measure 4.F-4 into the CalEEMod model.

TABLE 5-3
TRANSIT ORIENTED MIXED USE ALTERNATIVE:
ANNUAL OPERATIONAL-RELATED POLLUTANT EMISSIONS (tons/year)[A]

Scenario	ROG	NOx	PM10	PM2.5
Unmitigated Emissions – Year 2035	114	20	44	14
BAAQMD Operational Threshold	10	10	15	10
Significant Impact?	**Yes**	**Yes**	**Yes**	**Yes**
Mitigated Emissions – Year 2035	108	18	43	12
BAAQMD Operational Threshold	10	10	15	10
Significant Impact?	**Yes**	**Yes**	**Yes**	**Yes**

NOTES:

[a] Emissions include results modeled with CalEEMod for Alternative operations. Additional data and assumptions are in Appendix I.
[b] Mitigated Emissions are based on incorporation of Mitigation Measure 4.F-4 (for area and energy sources) into the CalEEMod model.

Roadway Toxic Air Contaminants. BAAQMD *CEQA Air Quality Guidelines* also recommend the inclusion of surface streets with annual average daily traffic (AADT) of 10,000 or greater within 1,000 feet of a given project (BAAQMD, 2012b). Upon review, the streets with the greatest increase of traffic from this alternative with receptors in the vicinity are at Main and Atlantic (Alameda) and Jackson and 7th (Oakland) and Harrison and 8th (Oakland). Cancer risk and PM2.5 concentrations were estimated for these streets using the BAAQMD Surface Street

Screening Tables for Alameda County. The incremental health risk and PM2.5 concentrations from increased traffic on these roadways for existing and/or potential future sensitive receptors after Cumulative development and Alternative development would be 3.1 in a million and 0.1 ug/m^3 (Main and Atlantic), 0.4 in a million and 0.01 ug/m^3 (Jackson and 7th), 0.3 in a million and 0.01 ug/m^3 (Harrison and 8th). These incremental risk and PM2.5 concentrations from Alternative traffic would be fractionally greater than the comparable risk and concentration values for the proposed project, owing to greater traffic volumes, would be considerably below the respective BAAQMD thresholds of significance. Therefore, roadway TAC values, while slightly greater than those for the project, would be less than significant.

Greenhouse Gases. The CalEEMod model, version 2013.2, was used to estimate GHG emissions increases in motor vehicle trips, grid electricity usage, solid waste, and other sources (including area sources, natural gas combustion, and water/wastewater conveyance). **Table 5-4** presents a gross estimate of unmitigated operational CO_2e emissions in a buildout horizon year of 2035 resulting from these sources for this alternative.

TABLE 5-4
ESTIMATED EMISSIONS OF GREENHOUSE GASES (2035)

Source[a]	Emissions (metric tons of CO_2e per year)
Construction (Amortized)	814
Area	288
Energy	18,241
Motor Vehicle Trips	58,600
Solid Waste	4,523
Water	2,542
Total GHG Emissions (Construction + Operations)	85,008
Total Net Unmitigated GHG Emissions (Alternative – Existing)	59,952
Operational GHG Emissions per Increase in Service Population (7,408 jobs + 7,516 population = 14,924)[b]	4.0
BAAQMD Efficiency Threshold	*4.6*
Significant (Yes or No)?	***No***

NOTES:

a GHG emissions were calculated using the CalEEMod model for the alternative development, for the Existing scenario and for 2035 buildout. Additional assumptions and data are included in Appendix I,

b The net service population of represents the incremental increase in jobs and population within the alternative site due to development. The value does not include jobs and population associated with the Existing scenario.

Table 5-4 indicates that the net GHG emissions associated with this alternative would be below BAAQMD's "efficiency threshold" of 4.6 metric tons of CO_2e per service population per year. This would represent a cumulatively less-than-significant GHG impact. Although this alternative would result in greater overall emissions of GHGs than the project, the emissions per increase in service population would be less than the project since the alternative includes substantially more residential population.

In conclusion, adoption of this alternative would result in additional local air quality impacts, but the mitigation measures recommended for the project are the same measures that would be recommended for this alternative. Given the limitations on the types of mitigations that can be feasibly implemented to address air quality impacts, there are no additional feasible mitigations that could be implemented to further reduce air quality impacts.

The High Density Alternative

This alternative would generate approximately twice the number of vehicle trips as the proposed project, as it would involve more construction. Therefore, the number of air quality impacts associated with this alternative would be the highest of all the alternatives. The significant and unavoidable impacts associated with operation and construction would be more severe under this alternative. The mitigation measures required under the proposed project would also be required of this alternative.

F.7 Noise

The analysis presented in Section 4.G, *Noise*, found that the proposed project would result in both significant impacts that could be mitigated and significant impacts that could not be mitigated because the mitigations could not reduce impacts to a less than significant level. Specifically, the proposed project could have significant and unavoidable related to construction noise, depending on the phasing of construction.

The proposed project would generate a significant amount of traffic, and therefore increase noise associated with traffic. The mitigation measure which requires the implementation of a TDM program cannot be certain to work sufficiently to reduce traffic noise; therefore, the impact would be significant and unavoidable. Similarly, the proposed project would have a cumulative impact on noise related to automobile traffic, even with the implementation of mitigation.

No Project Alternative

None of the noise impacts associated with the proposed project would occur under the No Project Alternative, as no construction would occur and no additional trips would be generated from the project site.

Preservation/Less Development Alternative

With less overall construction and fewer automobile trips, the Less Development Alternative would have fewer noise impacts than the proposed project, but more than the No Project Alternative. The mitigation measures required under the proposed project would also be required of this alternative.

The General Plan Alternative

This alternative would generate 200 to 300 fewer peak-hour vehicle trips than the proposed project. As such the noise associated with the alternative's traffic would be incrementally less than with the proposed project. Although slightly fewer locations would experience a significant increase in noise, traffic noise would be significant and unavoidable with mitigation, as with the project. Similarly, construction noise would also remain significant and unavoidable depending on the phasing of construction. The mitigation measures required under the proposed project would also be required of this alternative.

The Multifamily Alternative

This alternative includes the same amount of residential and non-residential use as the proposed project, but the residential component of the alternative is limited to multifamily housing. The project-wide reduction in trips by 10 percent under the Multifamily Alternative would reduce the severity and number of the impacted noise locations but these reductions not to a less-than-significant level. Thus, the significant unavoidable impacts associated with the proposed project related to traffic noise would be slightly less severe in this alternative, due to the trip reductions and the increased transit use. However, given that the differences in trips are relatively small, the mitigation measures required for this alternative would be the same as required by the proposed project, and the impact would remain significant and unavoidable. Similarly, construction noise would also remain significant and unavoidable depending on the phasing of construction. The mitigation measures required under the proposed project would also be required of this alternative.

The Transit Oriented Mixed Use Alternative

This alternative would generate more trips than the proposed project, as it would involve a total of 3,230 households and 8,408 employees. As a result of the increased trips, this alternative does cause an increase in the number noise impacts and required mitigations related to automobile traffic noise. The significant and unavoidable impacts associated with operation and construction would be more serve under this alternative. The mitigation measures required under the proposed project would also be required of this alternative.

As for the project, the major source of noise associated with this alternative development would be from traffic on the street network, which would result in cumulative noise increases created by the Transit Oriented Alternative together with existing traffic and traffic from the development of other projects in the area through the year 2035. Development facilitated by this alternative would result in cumulatively considerable noise if the cumulative noise increase with the alternative results in a 5 dBA permanent increase in ambient noise levels along analyzed streets (i.e., the cumulative condition including the alternative compared to the existing scenario) and a 3 dBA permanent increase is attributable to the alternative (i.e., the cumulative condition including the alternative compared to the cumulative no alternative scenario).

As shown in **Table 5-5** below, this alternative would result in the same incremental cumulative noise increases as described for the project along the streets in Oakland with the greatest increase in future traffic volumes—Harrison Street, Eighth Street, and Jackson Street. Accordingly, the alternative would have a less-than-significant cumulative impact with respect to traffic noise in Oakland.

In Alameda, based on the increased traffic for this alternative, it was assumed that similar cumulatively considerable impacts would occur as for the project on segments 1, 2, and 12, so these roadways were not included in the modeling. As shown in Table 5-6, unlike the project, this alternative would result in a greater than 5 dBA cumulatively significant noise level increase (shown in the column labeled "D-A") along segment 13 (Atlantic Avenue west of Main Street). In addition, this alternative would result in greater than 3 dBA cumulatively considerable noise increases (shown in the column labeled "D-C") along segment 8 (Main Street south of West Midway Avenue) and segment 13 (Atlantic west of Main), which were not considered significant under the project. Implementation of Mitigation Measure 4.G-3 would reduce the alternative's cumulatively considerable impact, but not to a less-than-significant level.

High Density Alternative

This alternative would generate more trips than the proposed project, as it would involve more construction. As such, the High Density Alternative would increase in the number of noise impacts and required mitigations. The significant and unavoidable impacts associated with operation and construction would be more serve under this alternative. The mitigation measures required under the proposed project would also be required of this alternative.

F.8 Geology, Soils, and Seismicity

The analysis presented in Section 4.H, *Geology, Soils, and Seismicity*, found less than significant impacts with mitigation associated with development of the proposed project during both construction and occupation.

In all alternatives, the property includes some level of human occupation and some construction activities. Even in the No Project Alternative, the site would continue to require some construction work to maintain and repair existing facilities and infrastructure, upgrade obsolete infrastructure, and certain buildings would continue to be occupied.

Therefore, all of the alternatives could be expected to result in similar geology, soils, and seismicity impacts, and the recommended mitigations would be required to reduce the potential impacts to a level of less than significant. Furthermore, the design of the mitigation measure is such that they would not need to be adjusted to reflect the different development programs within the different alternatives.

TABLE 5-5
TRANSIT ORIENTED ALTERNATIVE: EXISTING AND PROJECTED PEAK-HOUR TRAFFIC NOISE LEVELS ALONG STREETS IN THE PROJECT VICINITY

	Peak-Hour Noise Level, dBA, Leq[1]						
Street Segment	**Existing [A]**	**Cumulative 2035 [C]**	**Cumulative 2035 Plus Alternative [D]**	**Incremental Increase vs Existing [D-A]**	**Cumulatively Significant? (Yes or No)[3]**	**Incremental Increase vs Cum. 2035 [D-C]**	**Cumulatively Considerable? (Yes or No)[3]**
3. Main St south of Ferry Terminal	64.7	64.6	67.4	2.7	No	2.9	No
4. Main St north of Singleton Ave	65.2	67.2	69.3	4.1	No	2.1	No
5. Main St south of Singleton Ave	66.3	70.8	71.8	5.5	Yes	1.0	No
7. Main St north of W Midway Ave	66.2	70.8	71.8	5.6	Yes	1.0	No
8. Main St south of W Midway Ave	65.1	68.1	71.2	6.1	Yes	3.1	**Yes**
9. Willie Stargell Ave east of Main St	58.7	61.7	64.1	5.4	Yes	2.4	No
10. Main St north of Atlantic Ave	62.2	65.1	67.7	5.5	Yes	2.6	No
11. Main St south of Atlantic Ave	62.9	64.3	67.8	4.9	No	3.5	No
13. Atlantic Ave west of Main St	59.1	59.2	64.5	5.4	**Yes**	5.3	**Yes**
14. Main St north of Pacific Ave	63.2	64.5	67.7	4.5	No	3.2	No
15. Main St south of Pacific Ave	65.9	67.2	70.4	4.5	No	3.2	No
17. High St south of Otis Dr	60.7	64.0	64.9	4.2	No	0.9	No
18. Atlantic Ave west of Constitution	57.8	62.1	63.8	6.0	Yes	1.7	No
19. Willie Stargell Ave west of 5th St	60.0	62.7	64.6	4.6	No	1.9	No
20. Seventh St west of Jackson St (O)	70.0	72.1	72.2	2.2	No	0.1	No
21. Eight Street west of Harrison (O)	65.3	70.5	70.7	5.4	Yes	0.2	No

NOTES”

O – Intersection located in Oakland

1 Noise levels were determined using FHWA Traffic Noise Prediction Model (FHWA RD-77-108). As a general rule, in areas where the noise environment is dominated by traffic, the Leq during the peak-hour is generally equivalent to the CNEL at that location. Notably, a 4 dBA reduction was assumed for Willie Stargell Ave to account for existing rubberized asphalt and a 6 dBA reduction was assumed for Atlantic to account for existing noise walls around nearest homes.

2 Traffic noise is considered significant if the incremental increase in noise is 4 dBA or more if the resulting noise level would exceed that described as normally acceptable for the affected land use (60 dBA DNL or less for residential uses) or if the noise level increased by 6 dBA in any noise environment.

3 Road noise is assumed to be cumulatively significant if the Cumulative + Alternative minus the Existing scenario is 5 dBA or greater, and the alternative would result in a cumulatively considerable contribution to the cumulatively significant impact if the Cumulative + Alternative minus the Cumulative scenario is 3 dBA or greater.

Bold-face indicates impact that would not occur with proposed project.

F.9 Hydrology and Water Quality

The analysis presented in Section 4.I, *Hydrology and Water Quality*, found less than significant impacts with mitigation associated with development of the proposed project during both construction and occupation.

In all alternatives, the property would experience some level of human occupation and some construction activities. Even in the No Project Alternative, the site would continue to require some construction work to maintain and repair existing facilities and infrastructure, upgrade obsolete infrastructure, and certain buildings would continue to be occupied.

Therefore, all of the alternatives could be expected to result in similar hydrology and water quality impacts, and the mitigation measures required of the proposed project would also be required to reduce the potential impacts to a level of less than significant of each of the alternatives. Furthermore, the design of the mitigation measures is such that they would not need to be adjusted to reflect the different development programs within the different alternatives.

F.10 Hazards and Hazardous Materials

The analysis presented in Section 4.J, *Hazards and Hazardous Materials*, found less than significant impacts with mitigation associated with development of the proposed project during both construction and occupation.

The hazards and hazardous materials impacts under all the alternatives would also be expected to be less than significant with mitigation as remediation of the site would be required under all scenarios. No additional significant impacts would result and no additional mitigations would be needed for any of these alternatives beyond what would be required of the proposed project. It should be noted that under the No Project Alternative and possibly under the Less Development and Preservation Alternatives portions of the property may not have to be cleaned-up to residential standards which could entail less clean-up effort. Nonetheless, remediation activities and mitigation measures outlined in Section 4.J would be required of all the alternatives.

F.11 Aesthetics

The analysis presented in Section 4.K, *Aesthetics*, found less than significant impacts associated with development of the proposed project during both construction and occupation.

The aesthetic impacts from all the alternatives would also be expected to be less than significant. No additional significant impacts would result and no additional mitigations would be needed for adoption of these alternatives. It should be noted that under the No Project Alternative and possibly under the Less Development Alternative portions of the property could experience significant deterioration and blight over the years. Although these problems would detract from the visual appearance of the property and could cause serious problems, they would not be considered significant aesthetic impacts under CEQA.

F.12 Public Services and Recreation

The analysis presented in Section 4.L, *Public Services and Recreation*, found less than significant impacts associated with development of the proposed project during both construction and occupation.

The public service and recreation impacts from all the alternatives would also be expected to be less than significant. No additional significant impacts would result and no additional mitigations would be needed for adoption of these alternatives. As described above, each of the alternatives except the No Project Alternative is designed to provide the full range of services needed to support the amount of development in each alternative. As described in Section 4.L, *Public Services and Recreation*, the City's fiscal neutrality policy ensures that the redevelopment of Alameda Point funds the operations and services needed to support the development.

F.13 Utilities and Service Systems

The analysis presented in Section 4.M, *Utilities and Service Systems*, found less than significant impacts with mitigation associated with development of the proposed project during both construction and occupation.

In all alternatives, the property would experience some level of human occupation and some construction activities. Even in the No Project Alternative, the site would continue to require some construction work to maintain and repair existing facilities, and certain buildings would continue to be occupied.

Therefore, all of the alternatives could be expected to result in similar utilities and service systems impacts, and the mitigation measures required of the proposed project would also be required to reduce the potential impacts to a level of less than significant of each of the alternatives. Furthermore, the design of the mitigation measures is such that they would not need to be adjusted to reflect the different development programs within the different alternatives.

It should be noted however that under the No Project Alternative and possibly under the Less Development Alternative, the current substandard storm water systems and storm water runoff areas would likely remain and continue to contribute and/or increase existing water quality issues at Alameda Point. Therefore, it is possible that the worst alternative from a utilities and service systems perspective is the No Project Alternative.

G. Environmentally Superior Alternative

Based on the evaluations above and the thresholds of significance used for each environmental topic in Chapter 4, the environmentally superior alternatives would be the No Project Alternative and the Preservation/Less Development Alternative.

The “No Project” alternative would avoid all of the environmental impacts associated with the redevelopment of Alameda Point, but would not meet any of the project objectives.

The Preservation/Less Development Alternative would result in fewer environmental impacts than the project. Specifically, the Preservation/Less Development Alternative would avoid or lessen environmental impacts related to Cultural Resources, Traffic, Air Quality, and Noise that are associated with the proposed project.

Based upon the thresholds of significance used in Chapter 4, and recommended by the CEQA Guidelines, and the Bay Area Air Quality Management District, the Transit Mixed Use Alternative and the High Density Alternative would result in greater traffic, air quality, noise, and climate change environmental impacts. This determination is due to the fact that the thresholds focus on the local rather than regional environment.

Plan Bay Area, which is the regional plan for reduction of greenhouse gases recently approved this year by the Metropolitan Transportation Commission and the Association of Bay Area Governments argues that best way to reduce greenhouse gases regionally, improve air quality regionally, and reduce traffic regionally, is to focus development within the Planned Development Areas within the in the Bay Area. *Plan Bay Area* argues that increasing density and the number of jobs and housing in locations like Alameda Point will decrease pressures to develop in the outer Bay Area communities, reduce vehicle miles traveled, and generally improve air quality and reduce greenhouse gases.

Despite the potentially conflicting conclusions regarding transportation, air quality, and greenhouse gases, the Preservation/Less Development Alternative would still avoid or lessen impacts related to cultural resources and noise that are associated with the project, Therefore, in compliance with CEQA Guidelines, Section 15126.6, this analysis finds that the Preservation/Less development Alternative would be the Environmentally Superior Alternative for the purpose of this analysis.

References – Alternatives

ABAG and MTC, 2013. *Plan Bay Area Environmental Impact Report*. July 2013. http://onebayarea.org/regional-initiatives/plan-bay-area/plan-elements/environmental-impact-report.html

TABLE 5-6
QUALITATIVE COMPARISON OF PROJECT OBJECTIVES AND PROJECT ALTERNATIVES

Objectives	Project	No Project	Preservation	Existing Gen Plan	Multi family	Transit Oriented Mixed Use	High Density
Property Rehabilitation and Reinvestment Objectives - The project should eliminate the blighted conditions on the property, and correct geotechnical and flood hazards and infrastructure deficiencies in the area by:							
Ensuring orderly and systematic reinvestment and development of the project site into an integrated mixed use community with an integrated network of public open spaces, trails, and streets.	0	-2	-1	0	1	2	2
Facilitating reinvestment in substandard infrastructure systems and buildings, including reinvestment in contributing structures and cultural landscapes within the NAS Alameda Historic District, where feasible.	0	-2	-1	1	1	2	2
Ensuring orderly and timely clean-up and conveyance of the remaining property under Navy ownership consistent with the Economic Development Conveyance Memorandum of Agreement (EDC MOA), and the Navy's other conveyance obligations.	0	-2	-1	0	0	-1	-1
Environmental Protection and Sustainability Objectives – The project should protect the local, regional, and global environment and facilitate sustainable reuse and redevelopment of Alameda Point by:							
Creating opportunities for transit-oriented development consistent with Regional Sustainable Communities Strategies for greenhouse gas emission reductions as required by SB 375.	0	-2	-1	0	0	+1	+2
Reinvesting in the replacement and rehabilitation of substandard infrastructure systems that may contribute to regional water quality impacts due to infiltration, inflow, storm water run-off, and substandard storm water treatment facilities.	0	-2	-1	0	-1	1	2
Investing in improvements to adapt to sea-level rise and climate change over time.	0	-2	-1	0	-1	1	2
Applying sustainability principles in the design and development of open spaces, recreation facilities, buildings, and infrastructure, including wastewater, storm water, electrical and transportation systems, including promotion of alternative modes of transportation through preparation and implementation of a Transportation Demand Management (TDM) Program.	0	-2	-1	0	0	1	1
Public Benefit Objectives – The project should produce tangible community benefits for the Alameda community as a whole by:							
Creating an open space network that incorporates preservation, restoration and enhancement of wetlands and other natural habitats and provides for both passive and active recreational uses.	0	-2	-1	0	0	0	-1
Enhancing views of water and public access to the waterfront in all development and creatively encouraging the usage of the waterfront, by providing a waterfront promenade, public art, open space, and other public amenities.	0	-2	-1	0	-1	0	0
Economic Development and Employment Objectives – The project should strengthen and diversify the economic base of the community by:							
Emphasizing employment and a mix of economic development opportunities that complement economic development strategies in other parts of Alameda; and provide a range of employment opportunities and quality jobs, through adaptive reuse of existing buildings and new construction to replace up to 9,000 of the 14,000 jobs lost to Alameda and the Region by the closure of NAS Alameda.	0	-2	-1	+1	+1	0	0

TABLE 5-6 (Continued)
QUALITATIVE COMPARISON OF PROJECT OBJECTIVES AND PROJECT ALTERNATIVES

Objectives	Project	No Project	Preservation	Existing Gen Plan	Multi family	Transit Oriented Mixed Use	High Density
Economic Development and Employment Objectives (cont.) – The project should strengthen and diversify the economic base of the community by:							
Reoccupying existing buildings and constructing new buildings to create 5.5 million square feet of business, commercial, industrial, maritime and retail uses that will provide jobs, services, tax revenue, and new amenities for Alameda residents.	0	-2	-1	+1	0	0	-1
Actively seeking new retail land uses that will complement and provide synergies with existing retail development at Webster Street, Park Street and other locations within Alameda.	0	-2	-1	-1	0	+2	+1
Provide for orderly phasing, sizing, and financing of site infrastructure for both the circulation and utility network and provide for a predictable development process.	0	-1	-1	0	-1	0	0
Address the impact of the site development on the City's operating budget to comply with City Council Policies adopted by Resolution 13643 related to fiscal neutrality.	0	-1	-1	0	-1	+1	+2
Transit Oriented Mixed Use Development Objectives – The project should provide transit oriented mixed use development opportunities, by							
Ensuring that the project site design is in concert with the established goals, policies, and objectives of the *NAS Alameda Community Reuse Plan* as incorporated into the Alameda General Plan.	0	-2	-1	0	0	0	0
Balancing development objectives with transportation constraints and opportunities.	0	0	+1	0	+1	0	-2
Providing for mixed use development opportunities and sites within close proximity to transit and encouraging the types of non-residential uses that provide for the everyday needs of Alameda Point residents and employees and reduce the need to use an automobile to obtain goods and services.	0	-2	-1	0	+1	+1	+2
Creating human-scale, tree-lined walkable streets and bicycle routes throughout the project site and extending the street grid street pattern that is characteristic of the existing city neighborhoods and districts throughout Alameda Point.	0	-2	-1	0	0	+1	+2
Increasing the City's supply of land available for residential development and increasing the supply of affordable housing sites for Alameda and the region to balance the jobs proposed for the project site and attract potential riders for proposed transit.	0	-2	-1	+1	0	+1	+2
Including a mix of single-family homes, attached townhomes, a mix of stacked flats and low and midrise multifamily housing with higher-density housing concentrated around transit nodes, where possible.	0	-2	-1	0	-1	+1	+2
Including a diversity of housing types and pricing that attract the market segments most likely to use alternatives to the automobile, such as self-selective transit commuters and households with zero to low-automobile ownership.	0	-2	-1	0	+1	+1	+2
Facilitating the relocation and consolidation of existing supportive housing providers in new facilities at Alameda Point.	0	-1	-1	+1	-1	+1	+2

TABLE 5-7
SUMMARY OF IMPACTS: PROJECT AND ALTERNATIVES

	No Project	Proposed Project	Preservation/ Less Development	Existing General Plan	Multifamily	Transit Oriented Mixed Use	High Density
A. Land Use Consistency and Compatibility							
Impact 4.A-1: Development facilitated by the proposed Alameda Point project would not physically divide an established community within the City of Alameda. (Less than Significant)	N	LS	LS	LS	LS	LS	LS
Impact 4.A-2: Development facilitated by the proposed project could potentially conflict with an applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, the General Plan and zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect. (Less than Significant)	N	LS	LS	LS	LS	LS	LS
Impact 4.A-3: Development facilitated by the proposed project could potentially conflict with an applicable Habitat Conservation Plans or Natural Community Conservation Plans. (Less than Significant)	N	LS	LS	LS	LS	LS	LS
Impact 4.A-4: Development facilitated by the proposed project, combined with cumulative development in the defined geographic area, including past, present, reasonably foreseeable future development, could potentially have significant adverse cumulative impacts in the area. (Less than Significant)	N	LS	LS	LS	LS	LS	LS
B. Population and Housing							
Impact 4.B-1: Development facilitated by the proposed project could potentially induce substantial population or housing growth both directly and indirectly. (Less than Significant)	N	LS	LS⇩	LS	LS	LS	LS⇧
Impact 4.B-2: Development facilitated by the proposed could potentially displace a substantial number of people or housing. (Less than Significant)	N	LS	LS	LS	LS	LS	LS
Impact 4.B-3: Development facilitated by the proposed project, in conjunction with potential past, present, and future development in the surrounding region could potentially introduce additional population to the region, and would result in unanticipated population, housing, or employment growth, or the displacement of existing residents or housing units on a regional level. (Less than Significant)	N	LS	LS⇩	LS	LS	LS	LS⇧

NOTE: Significance levels shown in the table reflect levels of significance *after mitigation* and indicate maximum impact during buildout and operation, unless otherwise specified.

LSM = Less than Significant with any proposed mitigation
LSM⇧ = Less than significant with any proposed mitigation, but also increased effect compared to proposed project
LSM⇩ = Less than significant with any proposed mitigation, but also decreased effect compared to proposed project
SU = Significant and Unavoidable
SU⇧ = Significant and Unavoidable, but also increased effect compared to proposed project
SU⇩ = Significant and Unavoidable; but also decreased effect compared to proposed project
N = No Impact
LS = Less than Significant

TABLE 5-7 (Continued)
SUMMARY OF IMPACTS: PROJECT AND ALTERNATIVES

	No Project	Proposed Project	Preservation/ Less Development	Existing General Plan	Multifamily	Transit Oriented Mixed Use	High Density
C. Transportation and Circulation							
Impact 4.C-1: Development facilitated by the proposed project would generate temporary increases in traffic volumes on area roadways during construction. (Significant)	N	LSM	LSM⇩	LSM	LSM	LSM⇧	LSM⇧
Impact 4.C-2: Development facilitated by the proposed project would potentially result in a transportation impact at study intersection under Existing plus Project conditions. (Significant)	N	SU	SU⇩	SU	SU	SU⇧	SU⇧
Impact 4.C-3: The increase in traffic on the freeway mainline due to the project would result in negligible changes in density (vehicles per lane) and no change in LOS, with the exception of the segment of I-980 south of I-580. (Less than Significant)	N	LS	LS⇩	LS	LS	LS⇧	LS⇧
Impact 4.C-4: The change in traffic volumes on the freeway ramps due to the project would result in no change in LOS and minimal, if any, change in density (vehicles per lane). (Less than Significant)	N	LS	LS⇩	LS	LS	LS⇧	LS⇧
Impact 4.C-5: Cumulative development, including the proposed project, would potentially result in transportation impacts at local study intersections under Cumulative plus project conditions. (Significant)	N	SU	SU⇩	SU	SU	SU⇧	SU⇧
Impact 4.C-6: The increase in traffic on the freeway mainline due to the project results in negligible changes in density and no change in LOS under cumulative conditions. (Less than Significant)	N	LS	LS⇩	LS	LS	LS⇧	LS⇧
Impact 4.C-7: The change in traffic volumes on the freeway ramps due to the project results in no change in LOS and minimal, if any, change in density under existing conditions. (Less than Significant)	N	LS	LS⇩	LS	LS	LS⇧	LS⇧
Impact 4.C-8: Development facilitated by the proposed project would potentially result in inadequate emergency access. (Less than Significant)	N	LS	LS⇩	LS	LS	LS⇧	LS⇧
Impact 4.C-9: Development facilitated by the proposed project could potentially increase traffic safety hazards for vehicles, bicyclists, and pedestrians on public roadways due to roadway design features or incompatible uses. (Significant)	N	LS	LS⇩	LS	LS	LS⇧	LS⇧

LSM = Less than Significant with any proposed mitigation
LSM⇧ = Less than significant with any proposed mitigation, but also increased effect compared to proposed project
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TABLE 5-7 (Continued)
SUMMARY OF IMPACTS: PROJECT AND ALTERNATIVES

	No Project	Proposed Project	Preservation/ Less Development	Existing General Plan	Multifamily	Transit Oriented Mixed Use	High Density
C. Transportation and Circulation (cont.)							
Impact 4.C-10: Development facilitated by the proposed project could potentially be inconsistent with adopted polices, plans, and programs supporting alternative transportation. (Less than Significant)	N	LS	LS	LS	LS	LS	LS
Impact 4.C-11: The addition of project-generated traffic would increase traffic volumes on many CMP and MTC roadways above levels identified under 2020 Baseline Conditions. (Less than Significant)	N	LS	LS⇩	LS	LS	LS⇧	LS⇧
Impact 4.C-12: The addition of project-generated traffic would increase traffic volumes on many CMP and MTC roadways above levels identified under 2035 Baseline Conditions. (Less than Significant)	N	LS	LS⇩	LS	LS	LS⇧	LS⇧
Impact 4.C-13: The addition of project-generated traffic would increase ridership on AC Transit buses above that under 2020 Baseline conditions. (Less than Significant)	N	LS	LS⇩	LS	LS	LS⇧	LS⇧
Impact 4.C-14: The addition of project-generated traffic would increase ridership on AC Transit buses above that under 2035 Cumulative Baseline conditions. (Less than Significant)	N	LS	LS⇩	LS	LS	LS⇧	LS⇧
Impact 4.C-15: The addition of project-generated passengers would increase ridership on BART above that under 2020 Baseline conditions. (Less than Significant)	N	LS	LS⇩	LS	LS	LS⇧	LS⇧
Impact 4.C-16: The addition of project-generated passengers would increase ridership on BART above that under 2035 Cumulative Baseline conditions. (Less than Significant)	N	LS	LS⇩	LS	LS	LS⇧	LS⇧
D. Cultural and Paleontological Resources							
Impact 4.D-1: Development facilitated by the proposed project could potentially have a significant, adverse impact on Historic Resources within the Alameda Historic District. (Significant)	N	SU	LSM⇩	SU	SU	SU	SU⇧
Impact 4.D-2: Development facilitated by the proposed project could potentially result in the inadvertent discovery of unique archaeological resources. (Significant)	N	LSM	LSM	LSM	LSM	LSM	LSM

LSM = Less than Significant with any proposed mitigation
LSM⇧ = Less than significant with any proposed mitigation, but also increased effect compared to proposed project
LSM⇩ = Less than significant with any proposed mitigation, but also decreased effect compared to proposed project
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TABLE 5-7 (Continued)
SUMMARY OF IMPACTS: PROJECT AND ALTERNATIVES

	No Project	Proposed Project	Preservation/ Less Development	Existing General Plan	Multifamily	Transit Oriented Mixed Use	High Density
D. Cultural and Paleontological Resources (cont.)							
Impact 4.D-3: Development facilitated by the proposed project could potentially result in the discovery of unidentified unique paleontological resources. (Significant)	N	LSM	LSM	LSM	LSM	LSM	LSM
Impact 4.D-4: Development facilitated by the proposed project could potentially result in the inadvertent discovery of human remains. (Significant)	N	LSM	LSM	LSM	LSM	LSM	LSM
Impact 4.D-5: Development facilitated by the proposed project, in conjunction with, past, present, and future development, could potentially adversely affect historic architectural resources in the project vicinity. (Significant)	N	SU	LSM	SU	SU	SU	SU
Impact 4.D-6: Development facilitated by the proposed project, in conjunction with cumulative development, would have a less-than-significant impact on unique archaeological and paleontological resources, as well as human remains, in the project vicinity. (Significant)	N	LSM	LSM	LSM	LSM	LSM	LSM
E. Biological Resources							
Impact 4.E-1: Development facilitated by the proposed project would have a substantial adverse effect, either directly or through habitat modifications, on species identified as candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the United States Fish and Wildlife Service. (Significant)	N	LSM	LSM	LSM	LSM	LSM	LSM
Impact 4.E-2: Development facilitated by the proposed project would have a substantial adverse effect on riparian habitat or other sensitive natural communities identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service. (Significant)	N	LSM	LSM	LSM	LSM	LSM	LSM
Impact 4.E-3: Development facilitated by the proposed project would have a substantial adverse effect on federally protected wetlands, 'other waters', and navigable waters as defined by Sections 404 and 10 of the Clean Water Act and waters of the State through direct removal, filling, hydrological interruption, or other means. (Significant)	N	LSM	LSM⇩	LSM	LSM	LSM	LSM

LSM = Less than Significant with any proposed mitigation
LSM⇧ = Less than significant with any proposed mitigation, but also increased effect compared to proposed project
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TABLE 5-7 (Continued)
SUMMARY OF IMPACTS: PROJECT AND ALTERNATIVES

	No Project	Proposed Project	Preservation/ Less Development	Existing General Plan	Multifamily	Transit Oriented Mixed Use	High Density
E. Biological Resources (cont.)							
Impact 4.E-4: Development facilitated by the proposed project would interfere with the movement of native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. (Significant)	N	LSM	LSM	LSM	LSM	LSM	LSM
Impact 4.E-5: Development facilitated by the proposed project would conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. (Significant)	N	LSM	LSM	LSM	LSM	LSM	LSM
Impact 4.E-6: Development facilitated by the proposed project would conflict with an adopted local, regional, or State Habitat Conservation Plan. (Significant)	N	LSM	LSM	LSM	LSM	LSM	LSM
Impact 4.E-7: The proposed project, in conjunction with other past, current, or foreseeable development in Alameda, could result in cumulative impacts on special-status species, habitats, wetlands and other waters of the U.S. (Significant)	N	LSM	LSM	LSM	LSM	LSM	LSM
F. Air Quality and Greenhouse Gases							
Impact 4.F-1: Development facilitated by proposed project could potentially result in air quality impacts due to construction activities. (Significant)	N	SU	SU⇩	SU	SU	SU	SU⇧
Impact 4.F-2: Development facilitated by the proposed project could potentially generate operational emissions that would result in a considerable net increase of criteria pollutants and precursors for which the air basin is in nonattainment under an applicable federal or state ambient air quality standard. (Significant)	N	SU	SU⇩	SU	SU	SU⇧	SU⇧
Impact 4.F-3: Operation of the development facilitated by the proposed project could potentially expose sensitive receptors to substantial concentrations of toxic air contaminants or respirable particulate matter (PM2.5). (Less than Significant)	N	LS	LS⇩	LS	LS	LS⇧	LS⇧
Impact 4.F-4: Development facilitated by the proposed project could potentially expose persons (new receptors) to substantial levels of TACs, which may lead to adverse health. (Significant)	N	LSM	LSM⇩	LSM	LSM	LSM⇧	LSM⇧

LSM = Less than Significant with any proposed mitigation
LSM⇧ = Less than significant with any proposed mitigation, but also increased effect compared to proposed project
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TABLE 5-7 (Continued)
SUMMARY OF IMPACTS: PROJECT AND ALTERNATIVES

	No Project	Proposed Project	Preservation/ Less Development	Existing General Plan	Multifamily	Transit Oriented Mixed Use	High Density
F. Air Quality and Greenhouse Gases (cont.)							
Impact 4.F-5: Development facilitated by the proposed project could potentially expose sensitive receptors to substantial carbon monoxide concentrations. (Less than Significant)	N	LS	LS⇩	LS	LS	LS⇧	LS⇧
Impact 4.F-6: Development facilitated by the proposed project could potentially create objectionable odors affecting a substantial number of people. (Less than Significant)	N	LS	LS	LS	LS	LS	LS
Impact 4.F-7: Development facilitated by the proposed project could potentially conflict with or obstruct implementation of the applicable air quality plan. (Significant)	N	LSM	LSM	LSM	LSM	LSM	LSM
Impact 4.F-8: Development facilitated by the proposed, when combined with past, present and other reasonably foreseeable development in the vicinity, could potentially result in cumulative criteria air pollutant air quality impacts. (Significant)	N	SU	SU⇩	SU	SU	SU⇧	SU⇧
Impact 4.F-9: Development facilitated by the proposed project could cumulatively expose persons to substantial levels of TACs, which may lead to adverse health effects. (Less than Significant)	N	LS	LS	LS	LS	LS	LS
Impact 4.F-10: Development facilitated by the proposed project could potentially generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment. (Less than Significant)	N	LS	LS⇩	LS	LS	LS⇧	LS⇧
Impact 4.F-11: Development facilitated by the proposed project could potentially conflict with an applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases. (Less than Significant)	N	LS	LS	LS	LS	LS	LS
G. Noise							
Impact 4.G-1: Construction facilitated by the proposed project could potentially expose persons to or generate noise levels in excess of the City noise standards. (Significant)	N	SU	SU	SU	SU	SU⇧	SU⇧
Impact 4.G-2: Construction facilitated by the proposed project could potentially result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels. (Significant)	N	LSM	LSM	LSM	LSM	LSM⇧	LSM⇧

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TABLE 5-7 (Continued)
SUMMARY OF IMPACTS: PROJECT AND ALTERNATIVES

	No Project	Proposed Project	Preservation/ Less Development	Existing General Plan	Multifamily	Transit Oriented Mixed Use	High Density
G. Noise (cont.)							
Impact 4.G-3: Transportation-related operations facilitated by the proposed project could potentially result in a substantial permanent increase in ambient noise levels in the vicinity or above levels existing without the project. (Significant)	N	SU	SU⇩	SU	SU	SU⇧	SU⇧
Impact 4.G-4: Non-transportation-related operations facilitated by the proposed project could potentially result in a substantial permanent increase in ambient noise levels in the vicinity. (Significant)	N	LSM	LSM	LSM	LSM	LSM	LSM
Impact 4.G-5: Development facilitated by the proposed project could potentially place noise-sensitive residential uses in a noise environment that would exceed the City's goal for exterior/interior noise exposure. (Significant)	N	LSM	LSM	LSM	LSM	LSM	LSM
Impact 4.G-6: Increases in traffic from development facilitated by the proposed project in combination with other development could potentially result in cumulatively considerable noise increases. (Significant)	N	SU	SU⇩	SU	SU	SU⇧	SU⇧
H. Geology, Soils, and Seismicity							
Impact 4.H-1: In the event of a major earthquake in the region, seismic ground-shaking could potentially injure people and cause collapse of or structural damage to structures and/or retaining walls developed under the proposed project. (Significant)	N	LSM	LSM	LSM	LSM	LSM	LSM
Impact 4.H-2: In the event of a major earthquake in the region, people and property at the project site could potentially be exposed to seismically-induced ground failure, including liquefaction, lateral spreading and earthquake-induced settlement. (Significant)	N	LSM	LSM	LSM	LSM	LSM	LSM
Impact 4.H-3: In the event of a major earthquake in the region, development facilitated by the proposed project could potentially be subject to adverse effects resulting from seismically induced landslides. (Significant)	N	LSM	LSM	LSM	LSM	LSM	LSM

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SUMMARY OF IMPACTS: PROJECT AND ALTERNATIVES

	No Project	Proposed Project	Preservation/ Less Development	Existing General Plan	Multifamily	Transit Oriented Mixed Use	High Density
H. Geology, Soils, and Seismicity (cont.)							
Impact 4.H-4: Development facilitated by the proposed project could potentially 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 landslide, lateral spreading, subsidence, liquefaction or collapse. (Significant)	N	LSM	LSM	LSM	LSM	LSM	LSM
Impact 4.H-5: Development facilitated by the proposed project could potentially be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code creating substantial risks to life or property. (Significant)	N	LSM	LSM	LSM	LSM	LSM	LSM
I**mpact 4.H-6:** Development facilitated by the proposed project, combined with past, present, and reasonably foreseeable probable projects, could potentially result in substantial adverse cumulative impacts to geology, soils, or seismic hazards. (Less than Significant)	N	LS	LS	LS	LS	LS	LS
I. Hydrology and Water Quality							
Impact 4.I-1: Project construction facilitated by the proposed project, on-land and in-water, would potentially involve activities that could violate water quality standards or waste discharge requirements or otherwise substantially degrade water quality. (Less than Significant)	N	LS	LS	LS	LS	LS	LS
Impact 4.I-2: Development facilitated by the proposed project could potentially involve dewatering and shoring activities, which would potentially result in a discharge, which if contaminated would adversely affect the receiving water quality. (Significant)	N	LSM	LSM	LSM	LSM	LSM	LSM
Impact 4.I-3: Development facilitated by the proposed project would potentially increase runoff and result in flooding on or offsite. (Less than Significant)	N	LS	LS	LS	LS	LS	LS
Impact 4.I-4: Development facilitated by the proposed project would potentially result in increased use at the project site, including maintenance of new landscaping areas and open lawns, which would affect receiving water quality. (Significant)	N	LS	LS	LS	LS	LS	LS

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SUMMARY OF IMPACTS: PROJECT AND ALTERNATIVES

	No Project	Proposed Project	Preservation/ Less Development	Existing General Plan	Multifamily	Transit Oriented Mixed Use	High Density
I. Hydrology and Water Quality (cont.)							
Impact 4.I-5: Maintenance dredging to serve development facilitated by the proposed project would potentially affect water quality of the Bay. (Less than Significant)	N	LS	LS	LS	LS	LS	LS
Impact 4.I-6: Development facilitated by the proposed project would potentially place housing and other structures in an area subject to 100-year flooding, however would not subject people or structures to a substantial risk of loss from a 100-year storm event. (Significant)	N	LS	LS	LS	LS	LS	LS
Impact 4.I-7: Development facilitated by the proposed project could expose people or structures to risk of loss, injury, or death from inundation by a tsunami. (Less than Significant)	N	LS	LS	LS	LS	LS	LS
Impact 4.I-8: Development facilitated by proposed project would potentially be subjected to flooding as a result of sea level rise. (Significant)	N	LSM	LSM	LSM	LSM	LSM	LSM
Impact 4.I-9: Increased construction activity and new development facilitated by the proposed project, in conjunction with past, present, reasonably foreseeable future development in Alameda, could potentially impact hydrologic resources including water quality. (Less than Significant)	N	LS	LS	LS	LS	LS	LS
J. Hazards and Hazardous Materials							
Impact 4.J-1: Demolition of the existing structures on Alameda Point which contain hazardous building materials—such as lead-based paint, asbestos, and PCBs—could potentially expose workers, the public, or the environment from the transport, use, or disposal of these hazardous materials and waste. (Significant)	N	LSM	LSM	LSM	LSM	LSM	LSM
Impact 4.J-2: Construction at Alameda Point could potentially disturb soil and groundwater impacted by historical hazardous material use, which could expose construction workers, the public, or the environment to adverse conditions related to the transport, use, or disposal of hazardous materials and waste. (Significant)	N	LSM	LSM	LSM	LSM	LSM	LSM

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SUMMARY OF IMPACTS: PROJECT AND ALTERNATIVES

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J. Hazards and Hazardous Materials (cont.)							
Impact 4.J-3: Hazardous materials used onsite during construction activities (e.g., oils, solvents, etc.) at Alameda Point could potentially be spilled through improper handling or storage, potentially increasing public health and/or safety risks to future residents, maintenance workers, visitors, and the surrounding area. (Less than Significant)	N	LS	LS	LS	LS	LS	LS
Impact 4.J-4: Development facilitated by the proposed project could potentially involve the transportation, use, and storage of hazardous materials, which could present public health and/or safety risks to residents, visitors, and the surrounding area. (Less than Significant)	N	LS	LS	LS	LS	LS	LS
Impact 4.J-5: Hazardous materials used at Alameda Point during the operational phase could potentially be spilled through upset or accidental conditions, potentially increasing public health and/or safety risks to future residents, workers, visitors, and the surrounding area. (Less than Significant)	N	LS	LS	LS	LS	LS	LS
Impact 4.J-6: Hazardous materials use at Alameda Point could potentially emit hazardous emissions or handle hazardous or acutely hazardous materials, substances or waste within 0.25 mile of an existing or proposed school. (Less than Significant)	N	LS	LS	LS	LS	LS	LS
Impact 4.J-7: Development facilitated by the proposed project could potentially be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and could result in a safety hazard to the public or environment through exposure to previous contamination of soil or groundwater including vapor intrusion into buildings (Significant)	N	LSM	LSM	LSM	LSM	LSM	LSM
Impact 4.J-8: Development facilitated by the proposed project could potentially impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan. (Less than Significant)	N	LS	LS	LS	LS	LS	LS
Impact 4.J-9: Hazards at Alameda Point, in combination with past, present, and future projects could potentially contribute to cumulative hazards in the vicinity of the project site. (Less than Significant)	N	LS	LS	LS	LS	LS	LS

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SUMMARY OF IMPACTS: PROJECT AND ALTERNATIVES

	No Project	Proposed Project	Preservation/ Less Development	Existing General Plan	Multifamily	Transit Oriented Mixed Use	High Density
K. Aesthetics							
Impact 4.K-1: Development facilitated by the proposed project could potentially have an adverse effect on a scenic vista. (Significant)	N	LS	LS	LS	LS	LS	LS
Impact 4.K-2: Development facilitated by the proposed project could potentially damage scenic resources, including, but not limited to, trees, rocks, outcroppings, and historic buildings within a state scenic highway. (Less than Significant)	N	LS	LS	LS	LS	LS	LS
Impact 4.K-3: Development facilitated by the proposed project could potentially degrade the existing visual character or quality of the site and its surroundings in a substantial manner. (Less than Significant)	N	LS	LS	LS	LS	LS	LS
Impact 4.K-4: Development facilitated by proposed project could potentially create a new source of substantial light or glare which could potentially adversely affect day or nighttime views in the project area. (Significant)	N	LSM	LSM	LSM	LSM	LSM	LSM
Impact 4.K-5: Development facilitated by the proposed project, in combination with other past, present, existing, approved, pending, and reasonably foreseeable future projects, could potentially result in cumulatively considerable impacts to aesthetic resources. (Less than Significant)	N	LS	LS	LS	LS	LS	LS
L. Public Services and Recreation							
Impact 4.L-1: Development facilitated by proposed project could potentially result in an increase in calls for fire protection and emergency medical response services, and could require new or physically altered fire protection facilities in order to maintain acceptable performance standards. (Less than Significant)	N	LS	LS⇩	LS	LS	LS⇧	LS⇧
Impact 4.L-2: Development facilitated by the proposed project could potentially result in an increase in calls for police services, but would not require new or physically altered police facilities in order to maintain acceptable performance objectives. (Less than Significant)	N	LS	LS⇩	LS	LS	LS⇧	LS⇧

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L. Public Services and Recreation (cont.)							
Impact 4.L-3: Development facilitated by the proposed project could potentially result in new students for local schools, but would not require new or physically altered school facilities to maintain acceptable performance objectives. (Less than Significant)	N	LS	LS⇩	LS	LS	LS⇧	LS⇧
Impact 4.L-4: Development facilitated by the proposed project could potentially result in increased use of other governmental facilities, including libraries, but would not require new or physically altered government facilities to maintain acceptable performance objectives. (Less than Significant)	N	LS	LS⇩	LS	LS	LS⇧	LS⇧
Impact 4.L-5: Development facilitated by the proposed project could potentially increase the use of existing neighborhood and regional parks and recreation centers, but not to the extent that substantial physical deterioration of the facilities would occur or be accelerated, nor would it cause the necessity for new or expanded facilities. (Less than Significant)	N	LS	LS⇩	LS	LS	LS⇧	LS⇧
Impact 4.L-6: Development facilitated by the proposed project would include recreational facilities and the construction or expansion of recreational facilities which could potentially have an adverse physical effect on the environment. (Less than Significant)	N	LS	LS⇩	LS	LS	LS⇧	LS⇧
Impact 4.L-7: Development facilitated by the proposed project, in conjunction with other past, current, or foreseeable development in Alameda, could potentially result in impacts related to public services and recreation. (Less than Significant)	N	LS	LS⇩	LS	LS	LS⇧	LS⇧
M. Utilities and Service Systems							
Impact 4.M-1: Development facilitated by the proposed project could potentially result in an exceedance of wastewater treatment requirements of the applicable Regional Water Quality Control Board. (Less than Significant)	N	LS	LS⇩	LS	LS	LS	LS⇧
Impact 4.M-3: Development facilitated by the proposed project would require and result in the need for new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects. (Less than Significant)	N	LS	LS	LS	LS	LS	LS

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M. Utilities and Service Systems (cont.)							
Impact 4.M-4: Development facilitated by the proposed project could potentially have insufficient water supplies available to serve the development from existing entitlements and could require construction of new water treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects. (Less than Significant)	N	LS	LS	LS	LS	LS	LS
Impact 4.M-5: Development facilitated by the proposed project could potentially be served by a landfill with insufficient permitted capacity to accommodate solid waste generated by the project, and would comply with federal, state, and local statutes and regulations related to solid waste. (Significant)	N	LSM	LSM⇩	LSM	LSM	LSM⇧	LSM⇧
Impact 4.M-6: Development facilitated by the proposed project, in combination with other past, present, existing, approved, pending, and reasonably foreseeable future projects, could potentially result in cumulatively considerable impacts to utilities and service systems. (Less than Significant)	N	LS	LS⇩	LS	LS	LS⇧	LS⇧

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CHAPTER 6
Other Statutory Sections

Consistent with CEQA Guidelines Section 15126.2, this section addresses growth-inducing effects, significant irreversible environmental changes, cumulative impacts (when considered with other projects), significant unavoidable environmental, and effects found to be less than significant.

A. Growth-Inducing Effects

The CEQA Guidelines require that an EIR evaluate the growth-inducing impacts of a proposed action (Section 15126.2[d]). A growth-inducing impact is defined by CEQA Guidelines Section 15126.2(d) as:

> *[T]he ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth.... It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.*

A project can have direct and/or indirect growth-inducement potential. Direct growth inducement would result if a project involved construction of new housing that would result in new residents moving to the area. A project can have indirect growth-inducement potential if it would establish substantial new permanent employment opportunities (e.g., commercial, industrial or governmental enterprises) or if it would involve a substantial construction effort with substantial short-term employment opportunities and indirectly stimulate the need for additional housing and services to support the new employment demand. Similarly, under CEQA, a project would indirectly induce growth if it would remove an obstacle to additional growth and development, such as removing a constraint on a required public service. Increases in population could tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects. The CEQA Guidelines also require analysis of the characteristics of projects that may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively.

The timing, magnitude, and location of land development and population growth are based on various interrelated land use and economic variables. Key variables include regional economic trends, market demand for residential and non-residential uses, land availability and cost, the availability and quality of transportation facilities and public services, proximity to employment centers, the supply and cost of housing, and regulatory policies or conditions. Because city and county general plans define the location, type and intensity of growth, they are the primary means of regulating development and growth in California.

Both the Alameda General Plan (as proposed for amendment as part of the project) and the Bay Area's Sustainable Communities Strategies, *Plan Bay Area*, anticipate growth at Alameda Point in essentially the nature and density proposed with the project. Hence, the development of the proposed project has been anticipated by the City in its long-range planning (since the closure of NAS Alameda) as well as in the regionally forecast growth of the Bay Area. Thus, while the proposed project would not result in unplanned growth, it would accommodate an increase in both population and employment growth in Alameda as compared to the existing condition. Specifically, new infrastructure outlined in the Draft MIP would allow for growth to occur on the project site that has been constrained due to lack of appropriate infrastructure, as described below under points 1 through 3.

The growth inducing impacts analysis addresses the potential of the project for growth inducement in the project vicinity or broader area. Under CEQA, a project is generally considered to be growth-inducing if it results in any one of the following:

1. Extension of urban services or infrastructure into a previously unserved area;

2. Extension of a transportation corridor into an area that may be subsequently developed; or

3. Removal of obstacles to population growth (such as provision of major new public services to an area where those services are not currently available).

A.1 Extension of Urban Services or Infrastructure

Although onsite infrastructure improvements would occur as part of the proposed project, the site is within an urban setting, and the project infrastructure would connect to existing city infrastructure and not require any major expansions of infrastructure other than on the site itself. The project would not extend infrastructure to any other undeveloped areas. The project site, although occupied by buildings, is currently underutilized and located in an urban area. Hence, the proposed project would be infill development within an existing urban area.

A.2 Extension of Transportation Corridor

The proposed project would include improvement to streets that serve the project site and connect the project site to the existing street network as part of the vision of integrating the project site with the City. The project site is adjacent to City development on the east. As a redevelopment property, the proposed project would not extend transportation corridors into undeveloped areas resulting in growth inducing impacts. In fact, the project site's location near Interstate 880 and regional alternative transportation systems could result in less impact on regional transportation systems and air quality than would comparable development in a more outlying "greenfields" area, or an area with a lower concentration of population within the County.

A.3 Removal of Obstacles to Population Growth

The project involves a zoning ordinance amendment and general plan amendment for the project site to facilitate the proposed project. These amendments would remove “obstacles to population growth” only for the project site. The amendments would not facilitate population growth on any other property.

Further, by implementing the MIP, as part of the proposed project, the infrastructure improvements would allow for growth to occur on the project site that has been constrained due to lack of appropriate infrastructure. Implementing the MIP would not facilitate population growth on any other property.

The proposed project would result in the development of up to 1,425 residential dwelling units and 5.5 million square feet of commercial space. ABAG estimates that by 2040, Alameda would increase its housing stock by 18 percent over 2010 levels (from 32,350 housing units to 38,240 housing units. Therefore, the growth in housing units proposed by the project, and thus population growth generated by the proposed project, would be within the ABAG projections for the City of Alameda.

Further, because the project site is included in Plan Bay Area as the NAS Alameda PDA, from a regional standpoint the project is part of a coordinated strategy for managing land use patterns and transportation investments to accommodate projected population growth while also reducing emissions of greenhouse gases, consistent with the direction in SB 375. As Plan Bay Area’s transportation projects are tied to the proposed land use development pattern and the region’s population projections, they are inherently designed to focus growth primarily in PDAs, as opposed to other locations in the region. That is, the transportation projects in Plan Bay Area were selected to complement a certain type of land development (balanced and compact) and discourage imbalanced, sprawling, and greenfields development. As such, by specifically being included in the Play Bay Area, the proposed project is promoting focused infill growth rather than growth beyond targeted areas. By accommodating growth in a targeted urban area, the proposed project would regionally contribute to reduced vehicle miles travels and greenhouse gas emissions, as required by SB 375 (see Section 4.A, *Land Use*, for further discussion of SB 375 and Plan Bay Area).

The physical effects of implementing the proposed project, including the zoning ordinance and general plan amendments and the Master Infrastructure Plan, are described in Chapter 4 of this EIR.

B. Significant Irreversible Changes

Pursuant to Section 15126.2(c) of the State CEQA Guidelines, an EIR must consider any significant irreversible environmental changes that would be caused by the proposed Project should it be implemented. Section 15126.2(c) states:

> *“Uses of nonrenewable resources during the initial and continued phases of the project may be irreversible since a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary impacts and, particularly, secondary impacts (such as highway*

> *improvement which provides access to a previously inaccessible area) generally commit future generations to similar uses. Also irreversible damage can result from environmental accidents associated with the project. Irretrievable commitments of resources should be evaluated to assure that such current consumption is justified."*

Resources that would be permanently and continually consumed by implementation of the proposed project include water, electricity, natural gas, and fossil fuels; however, the amount and rate of consumption of these resources would be typical for infill urban development and would not result in significant environmental impacts or the unnecessary, inefficient, or wasteful use of resources. Construction activities related to the proposed project would also result in the irretrievable commitment of nonrenewable energy resources, primarily in the form of fossil fuels (including fuel oil), natural gas, and gasoline for automobiles and construction equipment. With respect to the operational activities of the proposed project, compliance with all applicable building codes, as well as EIR mitigation measures, would ensure that all natural resources are conserved to the maximum extent practicable. It is also possible that new technologies or systems would emerge, or would become more cost-effective or user-friendly, and would further reduce the project reliance upon nonrenewable energy resources.

The CEQA *Guidelines* also require a discussion of the potential for irreversible environmental damage caused by an accident associated with the proposed project. Completion of the proposed project with residential and waterfront land uses would not involve the routine use, transport, storage, or disposal of hazardous wastes other than small amounts of construction chemicals and household cleaners by residents of the site. Commercial and industrial land uses on the site that could potentially include hazardous materials in their operation would be subject to regulatory oversight. Therefore, the potential for the completed project to cause significant irreversible environmental damage from an accident or upset of hazardous materials would be less-than-significant.

Reuse of contaminated properties could result in a greater potential for exposure of the public to hazardous materials. Implementing approved remedial actions pursuant to DTSC oversight at each of these site to remove, treat, manage, or isolate any potentially hazardous materials prior to conveyance to the City would minimize the potential for significant impacts. These land use controls have been or will be recorded with the deed and ensure that any residual contamination poses no threat provided that the terms of the deed remain in effect as required by law, as long as required by the regulatory agencies. Deed conveyances attached to properties, as determined by the Navy's Finding of Suitability for Transfer, would ensure that sites have had appropriate regulatory oversight.

C. Cumulative Impacts

CEQA defines cumulative impacts as two or more individual impacts which, when considered together, are substantial or which compound or increase other environmental impacts. The cumulative analysis is intended to describe the "incremental impact of the project when added to other, closely related past, present, or reasonably foreseeable future projects" that can result from "individually minor but collectively significant projects taking place over a period of time."

(CEQA Guidelines Section 15355) The analysis of cumulative impacts is a two-phase process that first involves the determination of whether the project, together with existing and reasonably foreseeable projects, would result in a significant impact. If there would be a significant cumulative impact of all such projects, the EIR must determine whether the project's incremental "contribution" is cumulatively considerable, in which case, the cumulative impact would be significant. (CEQA Guidelines Section 15130)

The analysis of each environmental topic included in Chapter 4, *Environmental Setting, Impacts, and Mitigation Measures*, of this EIR considers possible cumulative impacts and identifies circumstances in which the project would contribute to significant cumulative impacts.

Cumulative traffic, noise, and air quality impacts were identified for the year 2035. These cumulative analyses assumed that the project-required mitigation transportation system improvements identified in this EIR would be implemented. Nonetheless, transportation, cultural resources, noise, and air quality impacts would be cumulatively considerable and not fully mitigable. No other cumulative impacts were determined to be significant after mitigation.

> **Impact 4.C-5:** Cumulative development, including the proposed project, would potentially result in transportation impacts at local study intersections under Cumulative plus project conditions.

> **Impact 4.D-5:** Development facilitated by the proposed project, in conjunction with, past, present, and future development, could potentially adversely affect historic architectural resources in the project vicinity.

> **Impact 4.F-8:** Development facilitated by the proposed, when combined with past, present and other reasonably foreseeable development in the vicinity, could potentially result in cumulative criteria air pollutant air quality impacts.

> **Impact 4.G-6:** Increases in traffic from development facilitated by the proposed project in combination with other development could potentially result in cumulatively considerable noise increases.

D. Significant and Unavoidable Environmental Impacts

In accordance with CEQA Section 21083, and with CEQA Guidelines Sections 15064 and 15065, an EIR must also identify impacts that cannot be eliminated or reduced to an insignificant level by mitigation measures included as part of the implementation of the proposed project, or by other mitigation measures that could be implemented, as described in Chapter 4, *Environmental Setting, Impacts, and Mitigation Measures*. The proposed project would result in significant and unavoidable impacts to transportation, cultural resources, air quality, noise, aesthetics and public services, as summarized below:

> **Impact 4.C-2:** Development facilitated by the proposed project would potentially result in a transportation impact at study intersection under Existing plus Project conditions.

Impact 4.C-5: Cumulative development, including the proposed project, would potentially result in transportation impacts at local study intersections under Cumulative plus project conditions.

Impact 4.C-9: Development facilitated by the proposed project could potentially increase traffic safety hazards for vehicles, bicyclists, and pedestrians on public roadways due to roadway design features or incompatible uses.

Impact 4.D-1: Development facilitated by the proposed project could potentially have a significant, adverse impact on Historic Resources within the Alameda Historic District.

Impact 4.D-5: Development facilitated by the proposed project, in conjunction with, past, present, and future development, could potentially adversely affect historic architectural resources in the project vicinity.

Impact 4.F-1: Development facilitated by proposed project could potentially result in air quality impacts due to construction activities.

Impact 4.F-2: Development facilitated by the proposed project could potentially generate operational emissions that would result in a considerable net increase of criteria pollutants and precursors for which the air basin is in nonattainment under an applicable federal or state ambient air quality standard.

Impact 4.F-8: Development facilitated by the proposed, when combined with past, present and other reasonably foreseeable development in the vicinity, could potentially result in cumulative criteria air pollutant air quality impacts.

Impact 4.G-1: Construction facilitated by the proposed project could potentially expose persons to or generate noise levels in excess of the City noise standards.

Impact 4.G-3: Transportation-related operations facilitated by the proposed project could potentially result in a substantial permanent increase in ambient noise levels in the vicinity or above levels existing without the project.

Impact 4.G-6: Increases in traffic from development facilitated by the proposed project in combination with other development could potentially result in cumulatively considerable noise increases.

E. Effects Found Not To Be Significant

A Notice of Preparation (NOP) was circulated on January 10, 2013 to solicit comments from the public and agencies about the scope of this EIR. Written comments received on the NOP were considered in the preparation of the final scope for this document and in the evaluation of the proposed project. An Initial Study was not prepared for the proposed project.

Because an Initial Study was not prepared, all environmental topics in the CEQA *Environmental Checklist*, with the exception of the two topics listed below, have been fully analyzed in this document (Chapter 4).

The following two topics were excluded from detailed discussion in Chapter 4 of this EIR because it was determined during the EIR scoping phase that there would be no impacts associated with these topics.

E.1 Agricultural and Forestry Resources

As discussed in Section 4.A, *Land Use and Planning*, the General Plan Land Use Map designates various residential and commercial land use classifications in and surrounding the project site. The project site, as with the majority of developed land in the City of Alameda, is designated by the California Department of Conservation's Important Farmland in California Map as urban and built-up land (Department of Conservation, 2006). Therefore, the proposed project would not convert Prime Farmland, Unique Farmland or Farmland of Statewide Importance to non-agricultural use; would not conflict with existing zoning for agricultural use, or a Williamson Act contract; and would not involve other changes in the existing environment which, due to their location or nature, could result in conversion of farmland to non-agricultural use. The proposed project would have no impact on agricultural resources.

Likewise, the proposed project would not cause rezoning of forest land, timberland or timberland-zoned Timberland Production. Development of the proposed project would not result in the loss of forest land or convert forest land to non-forest use.

E.2 Mineral Resources

The project site is located in a developed urban area that has no known existing mineral resources. The California Geological Survey has classified lands within the San Francisco Bay Region into Mineral Resource Zones (MRZs) based on guidelines adopted by the California State Mining and Geology Board, as mandated by the Surface Mining and Reclamation Act (SMARA) of 1974 (Stinson et al., 1982). The project site is mapped by the California Department of Mines and Geology as MRZ-1, an area where adequate information indicates a low likelihood of significant mineral resources (Stinson, et al., 1982). The intent of designating significant deposits is to identify areas where mineral extraction could occur prior to development. Therefore, development of the proposed project would not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state; and would not result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan. Development of the proposed project would have no impact on mineral resources.

References – Other Statutory Sections

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CHAPTER 7
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