ALAMEDA SHIPWAYS RESIDENTIAL PROJECT

Draft Environmental Impact Report

SCH No. 2017042021

AERIAL VIEW LOOKING NORTHWEST

City of Alameda
Planning and Building Department
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April 2018

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CHAPTER 1
Introduction

A. Overview

This Environmental Impact Report (EIR) is an informational document intended to disclose to the public and decision-makers the environmental effects of the Alameda Shipways Residential Project (the project or proposed project). This document assesses the direct, indirect, and cumulative environmental impacts that could result from implementation of the project. The analyses in this document are based upon information submitted by The Cavallari Group, Inc. (the applicant) in an application to the City of Alameda for approval of the project along with the following discretionary approvals from the City of Alameda: Design Review, Development Plan, Density Bonus, lot line adjustment, and Historical Advisory Board Certificate of Approval. This EIR is intended as an informational document that, in itself, does not determine whether the project should be approved, but informs the public and local officials in the planning and decision-making process.

A.1 Background

The project site was originally developed for shipbuilding, circa 1916, and the current structures were built between 1939 and 1946. The site is commonly referred to as the "Alameda Shipways." Alameda Shipways is a privately-owned site comprised of three parcels.

This EIR evaluates the proposed project, as currently proposed, and a detailed project description, the project objectives, and further information about the project site can be found in Chapter 3, Project Description.

B Environmental Review under the California Environmental Quality Act

The proposed Alameda Shipways Residential Project approvals constitute a "project" as defined by, and are 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 which 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 project, the City of Alameda is the "lead agency" overseeing and administering the CEQA environmental review process.

As set forth in the provisions of CEQA Guidelines Section 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 15064, if any aspect of the proposed project, either individually or cumulatively, may cause a significant effect on the environment, regardless of whether the overall effect of the project is adverse or beneficial, an EIR must be prepared. 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 avoiding or substantially reducing the project's impacts.

Before any action may be taken to approve the project, the City of Alameda must certify that it has reviewed and considered the information in the EIR and that the EIR has been completed in conformity with the requirements of CEQA. Certification of the EIR does not approve or deny the proposed project.

B.2 Notice of Preparation

Per the requirements of CEQA for the initiation of environmental review, on April 4, 2017, the City sent a Notice of Preparation (NOP) to the State Clearinghouse (SCH No. 2017042021), responsible and trustee government agencies, organizations, and individuals potentially interested in the project. The NOP requested that agencies with regulatory authority over any aspect of the project describe that authority and identify relevant environmental issues that should be addressed in the EIR. Interested members of the public were also invited to comment. A scoping meeting was held on April 24, 2017.

The NOP and the comments received on the NOP are included in Appendix A of this EIR. As discussed in the NOP and per the provisions of CEQA, the City did not prepare a CEQA Initial Study prior to preparation of the EIR, because the City determined that it was clear at the time of the issuance of the NOP that an EIR was required (CEQA Guidelines Section 15060(d)).

B.3 Draft EIR

This document and all attachments hereto constitute the Draft EIR. The Draft EIR contains a description of the project, including the project objectives, description of the environmental setting, identification of project impacts, identification of recommended mitigation measures to avoid or reduce impacts found to be potentially significant, identification of impacts after the implementation of recommended mitigation measures, identification of alternative ways of accomplishing the project's objectives while avoiding or reducing the project's impacts, and a comparative analysis of those alternatives (see Section 1.3, below). The City has filed a Notice of

Completion for the Draft EIR with the Governor's Office of Planning and Research to begin the public review period (Public Resources Code, Section 21161).

Public Notice and Review

This Draft EIR is available for public review for a 45-calendar-day period, during which time written comments on the Draft EIR may be submitted to the City of Alameda. A public hearing will also be held on the Draft EIR, during which public comments may also be submitted. The date of the public hearing will be posted on the City's website for the Alameda Shipways Residential Project (https://alamedaca.gov/shipways-1200-marina-village-parkway-alameda). All comments or questions regarding the Draft EIR should be addressed to:

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B.4 Final EIR and Certification

Following the public review period, a Final EIR will be prepared. The Final EIR will respond to written comments received during the public review period and to oral comments made at the public hearing.

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 Section 15093, as applicable. A Mitigation Monitoring and Reporting Program, as described below, would also be adopted for project design features and mitigation measures that have been incorporated into the proposed project or adopted as conditions of approval to reduce or avoid significant effects on the environment.

Mitigation and Monitoring Program

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

C. Range of Alternatives

CEQA requires that an EIR discuss a range of reasonable alternatives to the proposed project (see Chapter 5). This EIR describes and analyzes a range of reasonable 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 of each and all alternatives considered in this EIR will be addressed and resolved in the findings, when the City of Alameda considers approval of the project, as required by CEQA.

D. Organization of the Draft EIR

The Summary (Chapter 2) includes a brief project description and an overview table of the environmental impacts identified by this EIR. The summary table lists the environmental impacts, proposed mitigation measures (including standard conditions), and the level of significance after mitigation. Detailed analysis of these impacts and mitigations is provided in Chapter 4 (Environmental Setting, Impacts and Mitigation Measures).

The Project Description (Chapter 3) describes the project location and boundaries; lists the project objectives; and provides a general description of the 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.

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, where relevant) that could result from the proposed project. It includes the thresholds of significance used to determine the significance of adverse environmental effects. The chapter also identifies the mitigation measures and/or standard conditions of approval that would reduce or eliminate the adverse impacts that have been determined to be significant. The impact discussions disclose the significance of the impact both with and without implementation of mitigation measures and/or standard conditions.

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 analyzed are the Reduced Project Alternative (Alternative 1), the Preservation Alternative (Alternative 2), and the No Project/No Development Alternative (Alternative 3).

Other Statutory Sections (Chapter 6) presents growth-inducing effects, significant irreversible changes, 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, comment letters received on the NOP, and comments from the scoping hearing, as well as supporting documents and technical information for the impact analyses are presented in Appendices A through E.

E. Intended Uses of the EIR

This EIR provides 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 the proposed project or an alternate 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).

This EIR also provides the CEQA compliance or the basis for National Environmental Policy Act compliance which would be relied upon by Responsible Agencies and Trustee Agencies in considering and acting upon other project approvals.

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CHAPTER 2
Executive Summary

A. Introduction

As provided by Section 15123 of the California Environmental Quality Act (CEQA) Guidelines (CEQA Guidelines), this chapter provides a brief summary of the proposed Alameda Shipways project and its consequences. This chapter is intended to summarize in a stand-alone section the proposed project described in Chapter 3 (Project Description), the impacts and mitigation measures discussed in Chapter 4 (Environmental Setting, Impacts, and Mitigation Measures), and the alternatives analysis presented in Chapter 5 (Alternatives to the Proposed Project).

This Environmental Impact Report (Draft EIR) has been prepared to evaluate the anticipated environmental effects of the project in conformance with the provisions of CEQA and the CEQA Guidelines. The lead agency, the City of Alameda (City), is the public agency that has the principal responsibility for implementing the project, which includes approving the proposed master plan and other approvals (referred to collectively hereafter as the project or proposed project).

B. Regional Location and Project Setting

Regional Setting

The project site is located in the City of Alameda in Alameda County, California. The City of Alameda occupies approximately 10.6 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. 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.

Regional access to the City of Alameda is provided by a variety of transportation modes. Interstate 880 (I-880) through Oakland—the nearest freeway to the project site—provides regional access for automobiles and transit. Regional traffic accesses the project site via State Route 61 through the Webster-Posey Tubes, the Park Street Bridge, the Miller Sweeney Bridge, and the High Street Bridge connecting the island of Alameda and the City of Oakland.

Project Site

The project is located at 1100 - 1250 Marina Village Parkway in the north-central portion of the City of Alameda. The project site encompasses 8.1 acres over 3 parcels (APNs 074-1334-067, -024,

and -026) and is bounded by the Estuary to the north, by Marina Village Parkway to the south, and parking lots for marinas to the east and west. The Extended Stay America Hotel is the first significant structure further west (1350 Marina Village Parkway) and an existing five-story office building is the first significant structure further east (108 Marina Village Parkway).

C. Project Description

The proposed Alameda Shipways Residential Project would demolish existing structures and develop a 292-unit residential apartment complex and a 2.5-acre public waterfront park on a 8.1-acre site. The project would include the following components:

- Approximately 292 residential units comprised of multifamily units in a single structure that would wrap around a central parking structure. Of the 292 apartments, 40 would be marketed as affordable units.
- Approximately 2.5 acres for public waterfront park/ open space, including an extension of the Bay Trail and a kayak launch for direct public access to the water
- Provisions for accommodating a water shuttle, which would allow an option to provide a public water shuttle service from the project site
- Site improvements, including a landscape buffer between the building and the Marina Village Parkway (consisting of Bay Friendly native and regionally adapted trees, shrubs, and groundcovers), new street trees along Marina Village Parkway, and renovated pedestrian walkways
- Participation in a Transportation Management Agency or other City transportation demand management program that would fund transit programs benefitting a service area that includes adjacent neighborhoods

The project would be developed over a period of approximately 32 months. All private and public improvements for the project would be consistent with the requirements of the Alameda General Plan and the Alameda Municipal Code.

D. Project Objectives

The project sponsor, The Cavallari Group, Inc., is proposing a residential redevelopment project at 1100-1250 Marina Village Parkway in the City of Alameda. The objectives of the Alameda Shipways Residential project are listed below.

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 project. Clarifying information is provided for each objective. The project objectives are:

- To create a residential community consistent with the Mixed Use Planned Development (MX) zoning district designation and the Multifamily Residential Combining Zone (MF) and City's General Plan Housing, Land Use, and Transportation Elements.
- To create affordable and market rate housing that would significantly contribute to the General Plan's Housing Element goals, and the Association of Bay Area Governments' Regional Housing Needs Allocation for the City of Alameda.
- To create on-site affordable dwelling units, guided by the City's Inclusionary Housing Ordinance (Municipal Chapter 30-16).
- To redevelop a structurally unsound and underutilized parcel, with a mix of market and affordable rental housing and private and public open space amenities.
- To create a significant public waterfront recreation area with access to the Estuary and support an extension of the Bay Trail.
- To develop a financially viable, high-quality residential community with sufficient density to subsidize the affordable dwelling units.

E. Proposed Project Impacts

As provided by the CEQA Guidelines Section 15123(b)(1), an EIR must provide a summary of the impacts, mitigation measures and significant impacts after mitigation for a proposed project. This information is presented in Chapter 4, Environmental Setting, Impacts, and Mitigation Measures, of this EIR, and summarized in Table 2-1 at the end of this chapter. The proposed project would result in the following significant and unavoidable impacts:

> **Impact 4.E-1:** Project implementation would cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines, Section 15064.5.
>
> **Impact 4.L-2:** The proposed project could increase traffic volumes such that traffic conditions at the Park Street/Blanding Avenue intersection would degrade from LOS D to LOS E under Existing Plus Project conditions and at the Marina Square Drive/Constitution Way intersection would degrade LOS E to LOS F and the proposed project could increase traffic volumes by three percent or more under Cumulative (2040) conditions.

All other significant impacts from the project on air quality and climate change, biological resources, hazards and hazardous materials, hydrology and water quality, noise, and utilities and service systems would be mitigated (when appropriate) to less than significant levels.

F. Alternatives to the Proposed Project

Chapter 5, Alternatives, analyzes a range of reasonable alternatives to the proposed project, including the No Project Alternative (Alternative 1), the Reduced Density Alternative (Alternative 2), the Multi-structure Affordable Housing Alternative (Alternative 3), and the Partial Preservation Alternative (Alternative 4).

The analysis of the alternatives is summarized and compared in Chapter 5, which provides a summary of impact levels within all environmental topic areas. Overall, the analysis shows that the Reduced Density Alternative would reduce project's significant and unavoidable transportation and circulation impact, but the alternative would not successfully meet the objectives of the proposed project, particularly the housing objectives. The No Project alternative would avoid the significant impacts of the project, but would not meet the objectives of the proposed project.

Based on the evaluation described in Chapter 5, the No Project Alternative and the Reduced Density Alternative would both be environmentally superior to the proposed project. The No Project Alternative would be the most environmentally superior alternative with the fewest environmental impacts. However, the No Project Alternative does not meet any of the basic objectives of the project.

CEQA requires that that a second alternative be identified when the "No Project" alternative is the environmentally superior alternative (CEQA Guidelines, Section 15126.6(e)). Therefore, the Reduced Density Alternative would be the Environmentally Superior Alternative for the purpose of this analysis.

G. Comments on Notice of Preparation

Per the requirements of CEQA for the initiation of environmental review, on April 4, 2017, the City sent a Notice of Preparation (NOP) to the State Clearinghouse (SCH No. 2017042021), responsible and trustee government agencies, organizations, and individuals potentially interested in the project. The NOP requested that agencies with regulatory authority over any aspect of the project describe that authority and identify relevant environmental issues that should be addressed in the EIR. Interested members of the public were also invited to comment. A scoping meeting was held on April 24, 2017. The NOP and the comments received on the NOP are included in Appendix A of this EIR.

H. Areas of Controversy

Section 15123(b)(2) of the CEQA Guidelines requires that an EIR summary identify areas of controversy known to the lead agency, including those issues raised by other agencies and the public. Issues raised by the public have included concerns regarding aesthetics; cultural resources; hazardous materials; population, housing, and public services; transportation and circulation; and utilities and service systems. As a result, these issues are potential areas of controversy.

I. Issues to be Resolved

Section 15123(b)(3) of the CEQA Guidelines requires that an EIR present the issues to be resolved, including the choice among alternatives and whether or how to mitigate the

significant effects. The major issues to be resolved for the proposed project include decisions by the City of Alameda, as the Lead Agency, as to whether:

- this EIR adequately describes the environmental impacts of the proposed project;
- recommended mitigation measures should be adopted or modified;
- additional mitigation measures need to be applied to the proposed project;
- feasible alternatives exist that would achieve the objectives of the project and reduce significant environmental impacts;
- significant and unavoidable impacts would occur if the project is implemented; and
- the proposed project should or should not be approved.

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA SHIPWAYS RESIDENTIAL PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
A. Aesthetics		
Impact 4.A-1: The project would not have a substantial adverse effect on a scenic vista nor substantially damage scenic resources. (Less than Significant)	None Required	Less than Significant
Impact 4.A-2: The project would not substantially degrade the existing visual character or quality of the site and its surroundings. (Less than Significant)	None Required	Less than Significant
Impact 4.A-3: The proposed project would not create a new source of substantial light or glare which would adversely affect day or nighttime views in the area. (Less than Significant)	None Required	Less than Significant
Impact 4.A-4: The proposed project would not result in a cumulative aesthetics impact when considering the combined effect of the project, and past, present, approved, pending, and reasonably foreseeable future projects. (Less than Significant)	None Required	Less than Significant
C. Air Quality, Greenhouse Gas Emissions, and Energy		
Impact 4.C-1: The proposed project would not result in localized construction dust-related air quality impacts; generate construction emissions that would result in a substantial increase of criteria pollutants and precursors for which the air basin is in nonattainment under an applicable federal or state ambient air quality standard; or expose sensitive receptors to substantial concentrations of toxic air contaminants or respirable particulate matter ($PM_{2.5}$). (Less than Significant with Mitigation)	**Mitigation Measure 4.C-1:** The project applicant shall be required to demonstrate compliance with all applicable City regulations and operating procedures prior to issuance of building or grading permits, including standard dust control measures. The effective implementation of dust abatement programs, incorporating all of the following dust control measures, would reduce the temporary air quality impact associated with construction dust. • All active construction areas shall be watered two times daily using equipment and staff provided by the project applicant or prime contractor, as needed, to avoid visible dust plumes. Appropriate non-toxic dust palliative or suppressant, added to water before application, may be used. • All trucks hauling soil, sand and other loose materials shall be covered. • All unpaved access roads, parking areas and construction staging areas shall be either paved, watered as necessary to avoid visible dust plumes, or subject to the application of (non-toxic) soil stabilizers. • All paved access roads, parking areas and staging areas at the construction site shall be swept daily with water sweepers. The use of dry power sweeping is prohibited. • If visible soil material is carried onto adjacent public streets, these streets shall be swept daily with water sweepers. The use of dry power sweeping is prohibited.	Less than Significant

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA SHIPWAYS RESIDENTIAL PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
	• All stockpiles of debris, soil, sand or other materials that can be blown by the wind shall either be covered or watered as necessary to avoid visible dust plumes. • An off-pavement speed limit of 15 miles per hour for all construction vehicles shall be incorporated into the construction contract and enforced by the prime contractor. • All inactive portions of the project site (those areas which have been previously graded, but inactive for a period of ten days or more) shall be watered with an appropriate dust suppressant, covered or seeded. • All earth-moving or other dust-producing activities shall be suspended when the above dust control measures prove ineffective in avoiding visible dust plumes during periods of high winds. The wind speed at which this suspension of activity will be required may vary, depending on the moisture conditions at the project site, but suspension of such activities shall be required in any case when the wind speed exceeds 25 miles per hour. • All roadways, 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. • 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 California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points. • All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation. • Post a publicly visible sign with the telephone number and person to contact at the City of Alameda regarding dust complaints. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.	
Impact 4.C-2: The proposed project would not generate operational emissions that would result in a considerable net increase of criteria pollutants or precursors for which the air basin is in nonattainment under an applicable federal or state ambient air quality standard or expose sensitive receptors to substantial concentrations of toxic air contaminants or respirable particulate matter ($PM_{2.5}$). (Less than Significant)	None Required	Less than Significant

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA SHIPWAYS RESIDENTIAL PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
Impact 4.C-3: The proposed project would not expose sensitive receptors to substantial pollutant concentrations during the operations (Less than Significant)	None Required	Less than Significant
Impact 4.C-4: The proposed project would not create objectionable odors affecting a substantial number of people. (Less than Significant)	None Required	Less than Significant
Impact 4.C-5: The proposed project would not conflict with or obstruct the implementation of the applicable air quality plan. (Less than Significant with Mitigation)	**Mitigation Measure 4.C-2:** The City shall require construction plans for the new structures are designed to meet LEED Silver certification or equivalent. Implementation of **Mitigation Measure 4.L-2**	Less than Significant
Impact 4.C-6: The proposed project, when combined with past, present and other reasonably foreseeable development in the vicinity, would not result in cumulative air quality impacts (Less than Significant with Mitigation)	Implementation of **Mitigation Measure 4.C-1**	Less than Significant
Impact 4.C-7: The proposed project would not generate greenhouse gas emissions, either directly or indirectly, that would have a significant impact on the environment. (Less than Significant with Mitigation)	Implementation of **Mitigation Measures 4.C-1 and 4.C-2**	Less than Significant
Impact 4.C-8: The proposed project would not 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 with Mitigation)	Implementation of **Mitigation Measure 4.C-2**	Less than Significant
D. Biological Resources		
Impact 4.D-1: The proposed project would not 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 CDFW or USFWS. (Less than Significant with Mitigation)	**Mitigation Measure 4.D-1a:** The applicant shall obtain all necessary authorizations related to potential impacts to special status fish species from USFWS and NMFS during the permit phase of the project. Such authorizations could be required for in-water demolition work or pile driving activities in areas adjacent to the shoreline and could consist of authorization under one of the programmatic consultations for federally-listed species described above or a separate Biological Opinion. The project applicant shall submit to the City copies of any Biological Opinion received. **Mitigation Measure 4.D-1b:** If it is determined that pile installation using impact hammers along the shoreline would exceed established thresholds for injury or mortality to fish as set forth in FHA 2008 Caltrans 2015, and/or NMFS 2016 (see References), the City shall require a NMFS-approved sound attenuation monitoring plan to protect fish. This plan shall provide detail on a system to accomplish sound attenuation during pile driving, provide detail on 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 the greatest extent feasible. 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):	Less than Significant

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA SHIPWAYS RESIDENTIAL PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
	• 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" and the related USFWS and NOAA Section 7 consultation which establishes general procedures for minimizing impacts to natural resources associated with projects in or adjacent to jurisdictional waters. • All piling installation using impact hammers and all demolition work along the shoreline required for removal of the craneways, welding platform and concrete shipways and work associated with pile driving and excavation/filling adjacent to the shoreline during site preparation shall be conducted between June 1 and November 30, if feasible, when the likelihood of sensitive fish species being present in the work area is minimal. • 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 impact hammer shall be cushioned using a 12-inch thick wood cushion block during all impact hammer pile driving operations. • 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 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 for work completed in-water shall be implemented to attenuate sound levels to below thresholds.	
Impact 4.D-2: Development facilitated by the proposed project would not have a substantial adverse effect on riparian habitat or other sensitive natural communities identified in local or regional plans, policies, regulations, or by CDFW or USFWS. (Less than Significant with Mitigation)	**Mitigation Measure 4.D-2a:** The applicant shall develop and implement a Marine Invasive Species Control Plan prior to commencement of any in-water work and submit such plan to the City for review and approval. Provisions of the plan shall include (i) environmental training of construction personnel involved in in-water work; (ii) actions to be taken to prevent the release and spread of marine invasive species, especially algal species such as Undaria and Sargasso; (iii) procedures for the safe removal and disposal of any invasive species observed on the removed structures; (iv) the onsite presence of a qualified marine biologist to assist the contractor in the identification and proper handling of any invasive species removed from equipment or materials; and (v) preparation of a post-construction report identifying any invasive species attached to	Less than Significant

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA SHIPWAYS RESIDENTIAL PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
	equipment and materials following removal from the water, and describing the treatment or handling of identified invasive species. Reports shall be submitted to the City.	
Impact 4.D-3: Development facilitated by the proposed project would not 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. (Less than Significant)	None Required	Less than Significant
Impact 4.D-4: Development facilitated by the proposed project would not 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. (Less than Significant with Mitigation)	Implement **Mitigation Measures 4.D-1a** and **4.D-1b**. **Mitigation Measure 4.D-4a:** If pile driving during in-water project work would result in exceedance of thresholds as set forth in FHA 2008 Caltrans 2015, and/or NMFS 2016 (see References), the project applicant shall obtain Incidental Harassment Authorization from NMFS for Pacific harbor seals or California sea lions related to potential noise impacts resulting from pile driving activities and in-water work. **Mitigation Measure 4.D-4b:** The sound attenuation monitoring plan required in Mitigation Measures 4.D-1b shall include an evaluation of the potential effects of sound on marine mammals, and shall determine appropriate measures to be employed if sound levels exceed thresholds established by MMPA regulations. If it is found that sound levels would be exceeded a NMFS-approved biological monitor shall conduct daily surveys before and during impact hammer pile driving for the presence of marine mammals. . Monitoring will be completed within "safety zones" that are established in the sound attenuation and monitoring plan based on modeled sound levels resulting from pile driving. If marine mammals enter zones that could result in injury or death to individuals, pile driving shall cease and shall not resume until the individual has left the safety zone or has not been observed for 15 minutes. **Mitigation Measure 4.D-5a:** If feasible, construction work shall take place outside of the February 1 to August 31 breeding window for nesting birds. If construction is to be conducted during the breeding season, a qualified biologist shall conduct a pre-construction breeding bird survey in areas of suitable habitat within 15 days prior to the onset of construction activity. If active bird nests are found, appropriate buffer zones shall be established around all active nests to protect nesting adults and their young from construction disturbance. Size of buffer zones shall be determined by a qualified biologist based on site conditions and species involved. In general, CDFW recommends a 150-foot construction exclusion zone around the nests of active passerine songbirds during the breeding season, and a 300-foot buffer for nesting raptors. Buffer zones should be maintained until it can be documented that either the nest has failed or the young have fledged. **Mitigation Measure 4.D-5b:** If demolition of the shipways buildings is planned to occur during the bird nesting season (February 1 to August 31), the applicant shall use	Less than Significant

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA SHIPWAYS RESIDENTIAL PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
	protective nests or tarps or other measures to reduce the potential for establishment of active nests, including, for example: cover potential nesting sites in the eaves of the Shipways buildings for cliff swallows to prevent initiation of nesting by swallows that could impede demolition of the Shipways buildings. Such features would need to be installed with the assistance of qualified wildlife biologists during the non-nesting season (prior to January 31) to ensure that no nesting birds are harmed by their placement. The protective nets or tarps would remain until the commencement of demolition work for the subject building or could remain throughout the nesting season (until after August 31). **Mitigation Measure 4.D-6a:** Prior to the issuance of construction permits, the City shall ensure the project applicant conducts a preconstruction bat survey and implements any warranted measures necessary to protection of bat populations, including special status bat species. • A daytime bat habitat assessment should be conducted by a qualified bat biologist of all structures slated for demolition (including craneways, the welding platform and shipways). No activities that could disturb active roosts shall proceed prior to completion of the survey. The habitat survey will include a detailed survey of all accessible portions of the exteriors and interiors of structures. If structures contain past or present evidence of roosting bats (fecal pellet accumulations, urine or fur staining at entrances, insect prey remains, live or dead bats, characteristic odor, etc.) and there are walls or other portions of the structure that cannot be completely surveyed, it will be assumed that roosting bats are present unless a detailed visual survey or night emergence survey can be conducted that verifies the absence of bats. Demolition of structures containing roosting bats or signs of past or present use by bats would be delayed until between March 1 (weather permitting) and April 15 to avoid mortality of torpid overwintering bats, and between September 1 and October 15 to prevent mortality of young that are not yet self-sufficiently volant. • If no bats are determined to be present at the project site, appropriate steps shall be taken based on recommendation of the qualified biologist to ensure that accessible entrances are closed off to ensure that a colony does not become established. • If removal of structures during the periods when bats are active is not feasible and active bat roosts being used for maternity or hibernation purposes are found on or in the immediate vicinity of the project site where structure demolition or renovation is planned, a no-disturbance buffer of 100 feet shall be established around the roost sites until they are determined to be no longer active by a qualified biologist. • Removal of structures containing or presumed to contain active bat roosts shall be dismantled under the supervision of the qualified biologist in the evening and after bats have emerged from the roost to forage. Structures shall be partially	

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA SHIPWAYS RESIDENTIAL PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
	dismantled to significantly change the roost conditions, causing bats to abandon and not return to the roost. • If significant bat roosting habitat (e.g., maternity roosts or large non-maternity roost sites) is destroyed during structure removal, mitigation shall be required based on recommendations of the surveying biologist. Mitigation would be determined based on the biological requirements of the specific bat species identified, and may include 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, on-site bat roosts, or other on-site or off-site measures. The design and location of the artificial bat roost(s) shall be determined by a qualified bat biologist. **Mitigation Measure 4.D-7a:** Best Management Practices and all requirements as detailed in the SWPPP (or stormwater quality control plan) shall be implemented to control erosion and migration of sediments off-site. Implementation of water quality controls shall be consistent with the BMP requirements in the most recent version of the California Stormwater Quality Association Stormwater Best Management Handbook-Construction. In addition, vegetation shall only be cleared from the permitted construction footprint. Areas cleared of vegetation, pavement, or other substrates should be stabilized as quickly as possible to prevent erosion and runoff. **Mitigation Measure 4.D-8a:** Through the Design Review application process, the City shall ensure that the project applicant installs lighting on docks, piers, and along the shoreline that minimizes artificial lighting of Bay waters by using shielded, low-mounted, and low light-intensity fixtures and bulbs. **Mitigation Measure 4.D-9a:** The project Design Review plans shall be designed to minimize the risk of bird strikes. 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 buildings to ensure that the potential for bird strikes is sufficiently minimized. The project applicant shall provide the City a written description of the measures and features of the building design that are intended to address potential impacts on birds. Specific features shall include limits on reflective building materials so building appear less transparent and limitations on night lighting.	
Impact 4.D-5: Development facilitated by the proposed project would not conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. (Less than Significant)	None Required	Less than Significant

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA SHIPWAYS RESIDENTIAL PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
E. Cultural Resources		
Impact 4.E-1: Project implementation would cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines, Section 15064.5. (Significant and Unavoidable with Mitigation)	**Mitigation Measure 4.E-1a:** The project proponent shall prepare a treatment plan including but not limited to photo documentation and public interpretation of the shipways at 1100 – 1250 Marina Village Parkway (Shipway 1, 2, 3, and 4). Photo documentation will be overseen by a Secretary of the Interior–qualified architectural historian, documenting the affected historical resource. in accordance with the National Park Service's Historic American Buildings Survey (HABS) and/or Historic American Engineering Record (HAER) standards. Such standards typically include large-format photography using (4x5) negatives, written data, and copies of original plans if available. The HABS/HAER documentation packages will be archived at local libraries and historical repositories, as well as the Northwest Information Center of the California Historical Resources Information System. **Mitigation Measure 4.E-1b:** Public interpretation of historical resources shall be provided and could include a plaque, kiosk, or other method of describing the historic or architectural importance of the shipways to the general public. The design and placement of the display(s) shall be reviewed and approved by the City of Alameda Historic Advisory Board.	Significant and Unavoidable
Impact 4.E-2: Project construction could potentially cause a substantial adverse change in the significance of an archaeological resource, including those determined to be a historical resource defined in Section 15064.5 or a unique archaeological resource defined in PRC 21083.2. (Less than Significant with Mitigation)	**Mitigation Measure 4.E-2a:** During construction, if prehistoric or historic-era cultural materials are encountered, all construction activities within 100 feet shall halt and the City shall be notified. 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-period materials might include stone, concrete, or adobe footings and walls; artifact filled wells or privies; and deposits of metal, glass, and/or ceramic refuse. The project applicant shall ensure that a Secretary of the Interior-qualified archaeologist inspect the find within 24 hours of discovery. If the find is determined to be potentially significant, the archaeologist, shall follow the guidelines provided in Mitigation Measure 4.E-2b. **Mitigation Measure 4.E-2b:** If a find is determined to be potentially significant, the project applicant shall ensure an archaeological testing and data recovery program (as well as archaeological monitoring, if warranted) consistent with a professionally developed Archaeological Resources Management Plan are undertaken as follows: • Preservation in Place. A qualified archaeologist, in consultation with the City of Alameda, the project applicant, and the appropriate Native American representative(s) shall determine whether preservation in place of the site is	Less than Significant

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA SHIPWAYS RESIDENTIAL PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
	feasible. Consistent with CEQA Guidelines Section 15126.4(b)(3), this may be accomplished through planning construction to avoid the resource; incorporating the resource within open space; capping and covering the resource; or deeding the site into a permanent conservation easement. If it is determined that preservation in place is not feasible for the resource and another type of mitigation would better serve the interests protected by CEQA, mitigation shall include testing and data recovery through archaeological investigations and the project applicant shall undertake the following: • Archaeological Resources Management Plan. The project proponent shall retain a Secretary of the Interior-qualified archaeologist, in consultation with a Native American representative(s), to prepare and implement an Archaeological Resources Management Plan (ARMP). The ARMP shall include a preliminary testing program to identify the types of expected archaeological materials, the testing methods to be used to define site boundaries and constituents, and the locations recommended for testing. The purpose of the testing program will be to determine to the extent possible the presence or absence of archaeological materials in the proposed areas of disturbance for the project and to determine whether those materials contribute to the significance of the site. If a significant contributing element to the site is in the project area, the project proponent shall conduct a data recovery program as outlined in the ARMP. The ARMP will include how the data recovery program would preserve the significant information the archaeological resource is expected to contain. Treatment would consist of (but would not be not limited to) sample excavation, artifact collection, site documentation, and historical research, with the aim of targeting the recovery of important scientific data contained in the portion(s) of the significant resource to be impacted by the project. The ARMP shall include provisions for analysis of data in a regional context; reporting of results within a timely manner and subject to review and comments by the appropriate Native American representative, before being finalized; curation of artifacts and data at a local facility acceptable to the City and appropriate Native American representative; and dissemination of final confidential reports to the appropriate Native American representative, the Northwest Information Center of the California Historical Resources Information System and the City.	
Impact 4.E-3: Project construction could potentially disturb human remains, including those interred outside of formal cemeteries. (Less than Significant with Mitigation)	**Mitigation Measure 4.E-3:** Pursuant to Section 7050.5 of the Health and Safety Code, and Section 5097.98 of the Public Resources Code of the State of California, the project applicant shall ensure the following: • Project construction personnel shall be informed of the potential of encountering human remains during construction, and the proper procedures to follow in the event of the discovery of human remains during construction.	Less than Significant

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA SHIPWAYS RESIDENTIAL PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
	• In the event of the discovery of human remains during construction, work shall stop in that area and within 100 feet of the find. The Alameda County Coroner shall be notified and shall make a determination as to whether the remains are Native American. If the Coroner determines that the remains are not subject to their authority, they shall notify the Native American Heritage Commission who shall identify descendants of the deceased Native American. If no satisfactory agreement can be reached as to the disposition of the remains pursuant to this State law, then the project applicant shall re-inter the human remains and items associated with Native American burials on the property in a location not subject to further ground disturbance.	
Impact 4.E-4: Project construction would not cause a substantial adverse change in the significance of a Tribal Cultural Resource as defined in Public Resources Code Section 21074. (Less than Significant)	None Required	Less than Significant
Impact 4.E-5: The project, in combination with past, present, and probable future projects, would substantially contribute to cumulative adverse historic architectural resources impacts. (Significant and Unavoidable with Mitigation)	Implementation of **Mitigation Measures 4.E-1a and 4.E-1b**	Significant and Unavoidable
Impact 4.E-6: The project, in combination with past, present, and probable future projects, could potentially result in cumulative adverse impacts on archaeological resources and human remains. (Less than Significant with Mitigation)	Implementation of **Mitigation Measures 4.E-2a, 4.E-2b, and 4.E-3**	Less than Significant
Impact 4.E-7: The project, in combination with past, present, and probable future projects, would not contribute to cumulative adverse impacts on tribal cultural resources. (Less than Significant)	None Required	Less than Significant
F. Geology, Soils, and Geohazards		
Impact 4.F-1: Project development could be damaged by fault rupture and thereby expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death. (Less than Significant)	None Required	Less than Significant
Impact 4.F-2: Project development could be damaged by seismically induced ground shaking and thereby expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death. (Less than Significant)	None Required	Less than Significant
Impact 4.F-3: Project development could be damaged by seismically related ground failure including liquefaction, settlement, and lateral spreading, and thereby expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death. (Less than Significant)	None Required	Less than Significant

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA SHIPWAYS RESIDENTIAL PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
Impact 4.F-4: The project could result in soil erosion during excavation, grading, and construction activities. (Less than Significant)	None Required	Less than Significant
Impact 4.F-5: The project could result in on- or off-site lateral spreading, subsidence, liquefaction, or collapse from placement of improvements on unstable geologic units or soils. (Less than Significant)	None Required	Less than Significant
Impact 4.F-6: Project implementation could occur on expansive soils, creating risks to life and property. (Less than Significant)	None Required	Less than Significant
Impact 4.F-7: The project, in conjunction with past, present and reasonably foreseeable future projects, would not result in significant cumulative impacts with respect to geology, soils, seismicity, or geohazards. (Less than Significant)	None Required	Less than Significant
G. Hazards and Hazardous Materials		
Impact 4.G-1: Demolition of the existing structures on the project site which likely contain hazardous building materials—such as lead-based paint, asbestos, and PCBs—could potentially expose workers, the public, or the environment to hazardous materials from the transport, use, or disposal of these hazardous materials and waste. (Less than Significant with Mitigation)	**Mitigation Measure 4.G-1a:** Prior to issuance of any demolition permit, the project applicant shall submit to the Alameda County Department of Environmental Health a hazardous building material assessment prepared by qualified licensed contractors for any structure intended for demolition indicating whether asbestos-containing materials, lead-based paint, and/or PCB-containing equipment, are present. **Mitigation Measure 4.G-1b:** If the assessment required by Mitigation Measure 4.G-1a indicates the presence of asbestos-containing materials, lead-based paint, and/or PCBs, the project applicant shall create and implement a health and safety plan in accordance with local, state, and federal requirements 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.G-1c:** If the assessment required by Mitigation Measure 4.G-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 asbestos-containing materials 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 asbestos-containing materials shall be removed and appropriately disposed of by a state certified asbestos contractor. **Mitigation Measure 4.G-1d**: If the assessment required by Mitigation Measure 4.G-1a finds presence of lead-based paint, the project applicant shall develop and implement a lead-based paint removal plan. The plan shall specify, but not be limited to, the following elements for implementation:	Less than Significant

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA SHIPWAYS RESIDENTIAL PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
	1. Develop a removal specification approved by a Certified Lead Project Designer. 2. Ensure that all removal workers are properly trained. 3. Contain all work areas to prohibit off-site migration of paint chip debris. 4. Remove all peeling and stratified lead-based paint 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/or disposal of intact lead-based paint on all materials to be cut and/or removed during the demolition. 5. 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. 6. Clean up and/or vacuum paint chips with a high efficiency particulate air (HEPA) filter. 7. Collect, segregate, and profile waste for disposal determination. 8. Properly dispose of all waste. **Mitigation Measure 4.G-1e:** If the assessment required by Mitigation Measure 4.G-1a finds presence of PCBs, the project applicant shall ensure that PCB abatement in compliance with applicable regulations 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.G-2: Construction at the project site would potentially disturb contaminated soil, 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. (Less than Significant with Mitigation)	**Mitigation Measure 4.G-2a:** Prior to issuance of any demolition permit, the project applicant shall submit to the City a Site-Specific Environmental Health and Safety Plan (HASP). The HASP shall be consistent with State and federal OSHA standards for hazardous waste operations (California Code of Regulations, Title 8, Section 5192 and 29 Code of Federal Regulations 1910.120, respectively) and any other applicable health and safety standards. The HASP shall include descriptions of health and safety training requirements for onsite personnel and levels of personal protective equipment to be used, and any other applicable precautions to be undertaken to minimize direct contact with soil and to a lesser degree, groundwater if is encountered. The HASP shall be adhered to during construction and excavation activities. All workers onsite should read and understand the HASP and copies shall be maintained onsite during construction and excavation at all times. **Mitigation Measure 4.G-2b:** Prior to issuance of a building or grading permit for any ground breaking activities within the project site, the project applicant shall prepare a Site Management Plan (SMP) consistent with US EPA, DTSC, and Water Board	Less than Significant

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA SHIPWAYS RESIDENTIAL PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
	standards for incorporation into construction specifications. 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. At a minimum, the SMP shall include the following components: 1. Dust control measures: Dust generation shall be minimized by any or all appropriate measures. These measures may include: a. Misting or spraying water while existing soils at the site are disturbed; b. Limiting vehicle speeds onsite to 5 miles per hour; c. Controlling earth-moving activities to minimize the generation of dust; d. Minimizing drop heights if/when loading transportation vehicles; and e. Covering any soil stockpiles of soil potentially impacted by contaminants of concern with plastic sheeting or tarps. 2. Decontamination measures: Decontamination methods shall include scraping, brushing, and/or vacuuming to remove dirt on vehicle exteriors and wheels. In the event that these dry decontamination methods are not adequate, methods such as steam cleaning, high-pressure washing, and cleaning solutions shall be used, as necessary, to thoroughly remove accumulated dirt and other materials. Wash water resulting from decontamination activities shall be collected and managed in accordance with all applicable laws and regulations. 3. Stormwater pollution control measures: Should rainfall occur during construction on exposed soils at the site stormwater pollution controls shall be implemented to minimize stormwater runoff from exposed soil containing contaminants of concern at the site and to prevent sediment from leaving the site, in accordance with all laws and regulations. Stormwater pollution controls shall be based on BMPs to comply with State and local regulations. Sediment and erosion protection controls may include but are not limited to: a. Constructing berms or erecting silt fences at entrances to the project site; b. Placing straw bale barriers around catch basins and other entrances to the storm drains; c. During significant rainfall events, covering with plastic sheeting or tarps any soil stockpiles generated as a result of excavating soil potentially impacted by contaminants of concern.	

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA SHIPWAYS RESIDENTIAL PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
Impact 4.G-3: Hazardous materials used onsite during construction activities (e.g., oils, solvents) at the project site 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.G-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.G-5: Construction and operational activities would handle hazardous materials within one-quarter mile of an existing preschool. (Less than Significant with Mitigation)	Implementation of **Mitigation Measures 4.G-1a through 4.G-1e and 4.G-2a and 4.G-2b**	Less than Significant
Impact 4.G-6: Development of the project would 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 the site. (Less than Significant with Mitigation)	**Mitigation Measure 4.G-3:** Prior to issuance of a building permit for residential building construction activities within the project site, the project applicant shall provide documentation to the City detailing that contamination levels at the site are within acceptable levels for residential development. While not considered likely given the conclusions of the site investigations, if it is alternatively determined that elevated contamination levels could impact future residents and/or site users, the project applicant shall prepare a Remedial Risk Management Plan (RRMP). The RRMP shall be developed and followed by current and future owners, tenants, and operators. The RRMP shall include the implementation of any needed corrective action remedies and engineering design necessary to reduce exposures to contaminants to a less than significant level.	Less than Significant
Impact 4.G-7: The project would not impair the 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.G-8: Hazards at the project site, 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
H. Hydrology and Water Quality		
Impact 4.H-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

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA SHIPWAYS RESIDENTIAL PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
Impact 4.H-2: Development of the proposed project would involve dewatering activities that could potentially result in a discharge, which if contaminated, could adversely affect the receiving water quality. (Less than Significant)	None Required	Less than Significant
Impact 4.H-3: Development of the proposed project would not result in an increase of runoff that would result in erosion, siltation, or flooding on- or off-site. (Less than Significant)	None Required	Less than Significant
Impact 4.H-4: Development of the proposed project would not 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. (Less than Significant with Mitigation)	**Mitigation Measure 4.H-1:** The project applicants shall 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 biological resources into the IPM with an emphasis toward reducing pesticide application.	Less than Significant
Impact 4.H-5: The project would not place housing or structures within a 100-year flood hazard area as mapped on a Federal Flood Hazard Boundary or Flood Insurance Rate Map; or place within a 100-year flood hazard area structures which would impede or redirect flood flows. (Less than Significant)	None Required	Less than Significant
Impact 4.H-6: 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.H-7: The project would not expose people or structures to a significant risk of loss, injury or death involving flooding related to sea level rise. (Less than Significant)	None Required	Less than Significant
Impact C-4.H-1: 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 2-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA SHIPWAYS RESIDENTIAL PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
I. Land Use Consistency and Compatibility		
Impact 4.I-1: The proposed project would not physically divide an established community. (Less than Significant)	None Required	Less than Significant
Impact 4.I-2: The proposed project would not 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	Less than Significant
Impact 4.I-4: The proposed project, combined with cumulative development in the defined geographic area, including past, present, reasonably foreseeable future development, would not have significant adverse cumulative land use impacts. (Less than Significant)	None Required	Less than Significant
J. Noise and Vibration		
Impact 4.J-1: Construction of proposed project elements could expose persons to or generate noise levels in excess of the City noise standards or result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project. (Less than Significant with Mitigation)	**Mitigation Measure 4.J-1:** The applicant shall require contractors to limit construction activities to daytime hours between 7:00 am and 7:00 pm Monday through Friday and 8:00 am to 5:00 pm on Saturdays.	Less than Significant
Impact 4.J-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. (Less than Significant)	None required	Less than Significant
Impact 4.J-3: Transportation-related operations facilitated by the proposed project could result in a substantial permanent increase in ambient noise levels in the vicinity or above levels existing without the project. (Less than Significant)	None required	Less than Significant
Impact 4.J-4: The proposed project would result in exposure of people to cumulative increases in construction noise levels. (Less than Significant with Mitigation)	Implementation of **Mitigation Measure 4.J-1**	Less than Significant
Impact 4.J-5: The proposed project would contribute to cumulative construction that could expose buildings, and persons within the project vicinity, to significant vibration. (Less than Significant with Mitigation)	Implementation of **Mitigation Measure 4.J-1**	Less than Significant
Impact 4.J-6: Increases in traffic from development facilitated by the proposed project in combination with other development could potentially result in cumulatively considerable noise increases. (Less than Significant)	None required	Less than Significant

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA SHIPWAYS RESIDENTIAL PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
K. Population, Housing, and Public Services		
Impact 4.K-1: The proposed project would not induce substantial population or housing growth directly or indirectly. (Less than Significant)	None Required	Less than Significant
Impact 4.K-2: Development facilitated by the proposed project, in conjunction with potential past, present, and future development in the surrounding region, would not 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	No Impact
Impact 4.K-3: The proposed project would result in an increase in calls for fire protection and emergency medical response services, but would not require new or physically altered fire protection facilities in order to maintain acceptable performance objectives. (Less than Significant)	None Required	Less than Significant
Impact 4.K-4: The proposed project would 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.K-5: The proposed project would 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
Impact 4.K-6: The proposed project would 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.K-7: The proposed project would increase the use of existing neighborhood and regional parks and recreation centers, but not to the extent that substantial physical deterioration of the facilities to 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.K-8: The proposed project includes recreational facilities and the construction or expansion of recreational facilities which could have an adverse physical effect on the environment (Less than Significant)	None Required	Less than Significant
Impact 4.K-9: The project, in conjunction with other past, current, or foreseeable development in Alameda, could result in impacts related to public services and recreation. (Less than Significant)	None Required	Less than Significant

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA SHIPWAYS RESIDENTIAL PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
L. Transportation and Traffic		
Impact 4.L-1: The proposed project would not exceed both the existing and cumulative city household VMT per capita minus 15 percent and the regional VMT per capita minus 15 percent. (Less than Significant)	None Required	Less than Significant
Impact 4.L-2: The proposed project would increase traffic volumes such that traffic conditions at the Park Street/Blanding Avenue intersection would degrade from LOS D to LOS E under Existing Plus Project conditions and at the Marina Square Drive/Constitution Way intersection would degrade LOS E to LOS F and the proposed project could increase traffic volumes by three percent or more under Cumulative (2040) conditions. (Significant and Unavoidable)	**Mitigation Measure 4.L-2: Transportation Demand Management (TDM).** To reduce the number of automobile trips generated by the project, the project shall prepare a Transportation Demand Management Plan and funding program for Planning Board review and approval. The TDM plan should include a suite of measures to reduce vehicle trips by project residents and visitors, including but are not limited to the following: • Membership in a Transportation Management Agency, which will provide access to transportation information, rideshare programs, and a transportation coordinator. Membership shall include: – Annual funding for operations of transit services between the site and Oakland BART stations and/or a water taxi between Alameda and Oakland across the Estuary. – Annual funding for AC Transit Easy Passes – On-site Car Share parking – On-site bicycle parking – On-site carpool parking – Unbundling parking costs from the unit rent – Transportation “Welcome Packet” – Real-time transit information (e.g., TransitScreen) – Designated Pick-Up/Drop-Off Ridesourcing Services – Annual surveys and reports to document implementation of each measure, relative success of each measure to reduce automobile trips, annual automobile trip count to and from the project at peak periods, and annual recommendations for changes to the program, to reduce the project’s contribution to citywide and regional vehicle trips through the life of the project.	Significant and Unavoidable
Impact 4.L-3: Implementation of the proposed project would not cause travel speeds to decrease by 10 percent or more along a corridor that currently serves as a transit route or is planned to serve as a transit route. (Less than Significant)	None Required	Less than Significant

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA SHIPWAYS RESIDENTIAL PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
Impact 4.L-4: Implementation of the proposed project would not cause pedestrian LOS to degrade to worse than LOS B, or cause the average delay for pedestrians to increase by 10 percent or more where the service level is already LOS C or worse, and could create a safety hazard for pedestrians. (Less than Significant)	None Required	Less than Significant
Impact 4.L-5: Implementation of the proposed project would not cause the bicycle segment LOS to degrade to worse than LOS B, increase LOS score by 10 percent or more if the bicycle segment LOS is already LOS C or worse, or create a safety hazard for bicyclists. (Less than Significant)	None Required	Less than Significant
Impact 4.L-6: The proposed project would not cause congestion of regional significance on a roadway segment on the Congestion Management Program (CMP) and/or the Metropolitan Transportation System (MTS) evaluated per the requirements of the Land Use Analysis Program of the CMP. (Less than Significant)	None Required	Less than Significant
Impact 4.L-7: The proposed project would not substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment). (Less than Significant)	None Required	Less than Significant
Impact 4.L-8: The proposed project would not result in inadequate emergency access. (Less than Significant)	None Required	Less than Significant
Impact 4.L-9: Development facilitated by the proposed project would not be inconsistent with adopted polices, plans, and programs supporting alternative transportation. (Less than Significant)	None Required	Less than Significant
Impact 4.L-10: The proposed project would not generate temporary increases in traffic volumes on area roadways during construction. (Less than Significant)	None Required	Less than Significant
M. Utilities and Service Systems		
Impact 4.M-1: The proposed project would not 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: The proposed project would not have wastewater service demands that would result in a determination by the service provider that it does not have adequate capacity to serve projected demand, necessitating the construction of new or expanded wastewater treatment facilities. (Less than Significant with Mitigation)	**Mitigation Measure 4.M-1:** The project sponsors shall: 1) replace or rehabilitate any existing sanitary sewer collection systems, including sewer lateral lines, to ensure that such systems and lines are free from defects or, alternatively, disconnected from the sanitary sewer system; and 2) ensure any new wastewater collection systems, including new lateral lines, for the project are constructed to prevent infiltration and inflow (I&I) to the maximum extent feasible while meeting all requirements contained in the Regional Private Sewer Lateral Ordinance and applicable municipal codes or City ordinances.	Less than Significant

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE PROPOSED ALAMEDA SHIPWAYS RESIDENTIAL PROJECT

Potential Impact	Mitigation Measures	Level of Significance *after any recommended mitigation measures*
Impact 4.M-3: The proposed project would result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which would not cause significant environmental effects. (Less than Significant)	None Required	Less than Significant
Impact 4.M-4: The proposed project would have sufficient water supplies available to serve the development from existing entitlements and would not require the construction of new water treatment facilities or expansion of existing facilities, the construction of which would not cause significant environmental effects. (Less than Significant)	None Required	Less than Significant
Impact 4.M-5: The proposed project would be served by a landfill with sufficient 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. (Less than Significant)	None Required	Less than Significant
Impact 4.M-6: The proposed project, in combination with other past, present, existing, approved, pending, and reasonably foreseeable future projects, would not result in cumulatively considerable impacts to utilities and service systems. (Less than Significant with Mitigation)	Implementation of **Mitigation Measure 4.M-1**	Less than Significant

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CHAPTER 3
Project Description

A. Project Overview

The project sponsor, The Cavallari Group, Inc., is proposing a residential redevelopment project at 1100 - 1250 Marina Village Parkway in the City of Alameda. Overall, the proposed project would demolish existing structures on the project site and develop a 292-unit residential apartment complex and an approximately 2.5-acre public waterfront park. Characteristics of the proposed project are detailed further in this section.

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 project. The project objectives are:

- To create a residential community consistent with the Mixed Use Planned Development (MX) zoning district designation and the Multifamily Residential Combining Zone (MF) and City's General Plan Housing, Land Use, and Transportation Elements.
- To create affordable and market rate housing that would significantly contribute to the General Plan's Housing Element goals, and the Association of Bay Area Governments' Regional Housing Needs Allocation for the City of Alameda.
- To create on-site affordable dwelling units, guided by the City's Inclusionary Housing Ordinance (Municipal Chapter 30-16).
- To redevelop a structurally unsound and underutilized parcel, with a mix of market rate and affordable rental housing and private and public open space amenities.
- To create a significant public waterfront recreation area with access to the Estuary and support an extension of the Bay Trail.
- To develop a financially viable, high-quality residential community with sufficient density to subsidize the affordable dwelling units.

C. Project Location and Surrounding Uses

Regional Setting

The project site is located in the City of Alameda in Alameda County, California. The City of Alameda occupies approximately 10.6 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. The project site location and regional context are presented in **Figure 3-1**.

Regional access to the City of Alameda is provided by a variety of transportation modes. Interstate 880 (I-880) through Oakland—the nearest freeway 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 Tubes, the Park Street Bridge, the Miller Sweeney Bridge, and the High Street Bridge connecting the island of Alameda and the City of Oakland.

Local Setting

The project is located at 1100 - 1250 Marina Village Parkway in the north-central portion of the City of Alameda. The project site encompasses 8.1 acres over 3 parcels (APNs 074-1334-067, -024, and -026) and is bounded by the Estuary to the north, by Marina Village Parkway to the south, and parking lots for marinas to the east and west. The Extended Stay America Hotel is the first significant structure further west (1350 Marina Village Parkway) and an existing five-story office building is the first significant structure further east (108 Marina Village Parkway). The project site vicinity is shown in **Figure 3-2**.

D. Site Background and Current Conditions

Site Background

The project site was originally developed for shipbuilding, circa 1916, and the current structures were built between 1939 and 1946. The site is commonly referred to as the "Alameda Shipways." The site consists primarily of asphalt and concrete paving, with four narrow crane ways separated by horizontal finger piers, four concrete ship ramps that slope downward into the Estuary (called shipways) and a welding slab that juts into the Estuary that was used for fitting together large welded segments of the ships that could then be lifted onto the shipways.

Each of the four shipways was constructed with a "head house" facing the roadway that originally housed the machine shops and other indoor activities associated with shipbuilding. Along both sides of each shipway is a crane runway. Large cranes that ran on steel tracks were used to lift materials onto the ships under construction resting on the shipways.

Current Conditions

Ship-building activities continued through the 1950s. In 1984 and 1985, the head houses were renovated for commercial office space and continue to be used for that purpose. The four office spaces are currently designated and signed “Shipways 1, 2, 3, and 4” from west to east.

The project site is generally flat with surface elevations ranging from approximately 7 to 18.5 feet above mean sea level. The site is underlain by Bay Mud that is between 50 to 85 feet thick. Because of the poor strength of these Bay Mud deposits, all the structures were supported on piles (untreated timber), with up to approximately 17 feet of fill over the original deposits. The craneways and welding platform consist of interior and exterior walls on a grade beam footing, supported on timber piles. There are approximately 6,000 timber piles under the deck slab. Over the last 80 years, there has been substantial deterioration of the timber piles, separation of the timber piles from the concrete structure and ongoing settlement.

Existing General Plan and Zoning

The project site is designated as Mixed Use (MU) in the General Plan, which allows a mix of uses intended to implement several general plan policies including the provision of affordable housing.

The project site has a Mixed Use Planned Development (MX) zoning district designation with a Multi-family Residential Combining Zone overlay (the “Multi-family District” or “MF District”). Among other housing types, the MF District permits multifamily and town homes by right without any discretionary review other than design review. The MF District is intended for lands in Alameda that “are well located for transit-oriented Multi-family housing necessary to accommodate Alameda’s share of the regional [housing] need, and available to facilitate and encourage the development of a variety of types of housing . . .”. Projects in the MF District must comply with the development standards associated with both the Multi-family District and the underlying zoning district. In the event of a conflict between the Multi-family District and the underlying zoning district, the Multi-family’s standards control.

The maximum permitted residential density in the Multi-family District is thirty units per acre and a maximum height of three stories or 35 feet. Density bonus projects potentially qualify for an up to 35% increase in density (i.e., 40.5 du/acre) and up to 45 feet in height though higher heights can be permitted through a density bonus concession or waiver.

Figure 3-1. Regional Location

April 2018

Figure 3-2. Project Site Vicinity
Source: Fehr and Peers
April 2018

E. Project Description

The proposed project would construct a 292-unit apartment complex and a 2.5-acre public waterfront park on a 8.1-acre site, as depicted in **Figure 3-3 through 3-5b**. Details of the project are described below.

Apartment Complex

Building Massing and Design

The apartment structure would be 4 stories tall, equating to approximately 56 feet in height and would "wrap" around a central parking structure. The building footprint (ground floor coverage), including the parking structure, would be approximately 139,301 square feet.

The proposed residential structure is located at the front (street side) of the site. The public park would be located behind the residential structure on approximately 31% of the site encompassing the entire waterfront of the site.

Unit Types and Affordability

Of the 292 apartments, 40 are proposed to be marketed below market rate as affordable units. The proposed affordability levels include 13 units for very-low income households, 10 units for low income households, and 17 units for moderate income households.

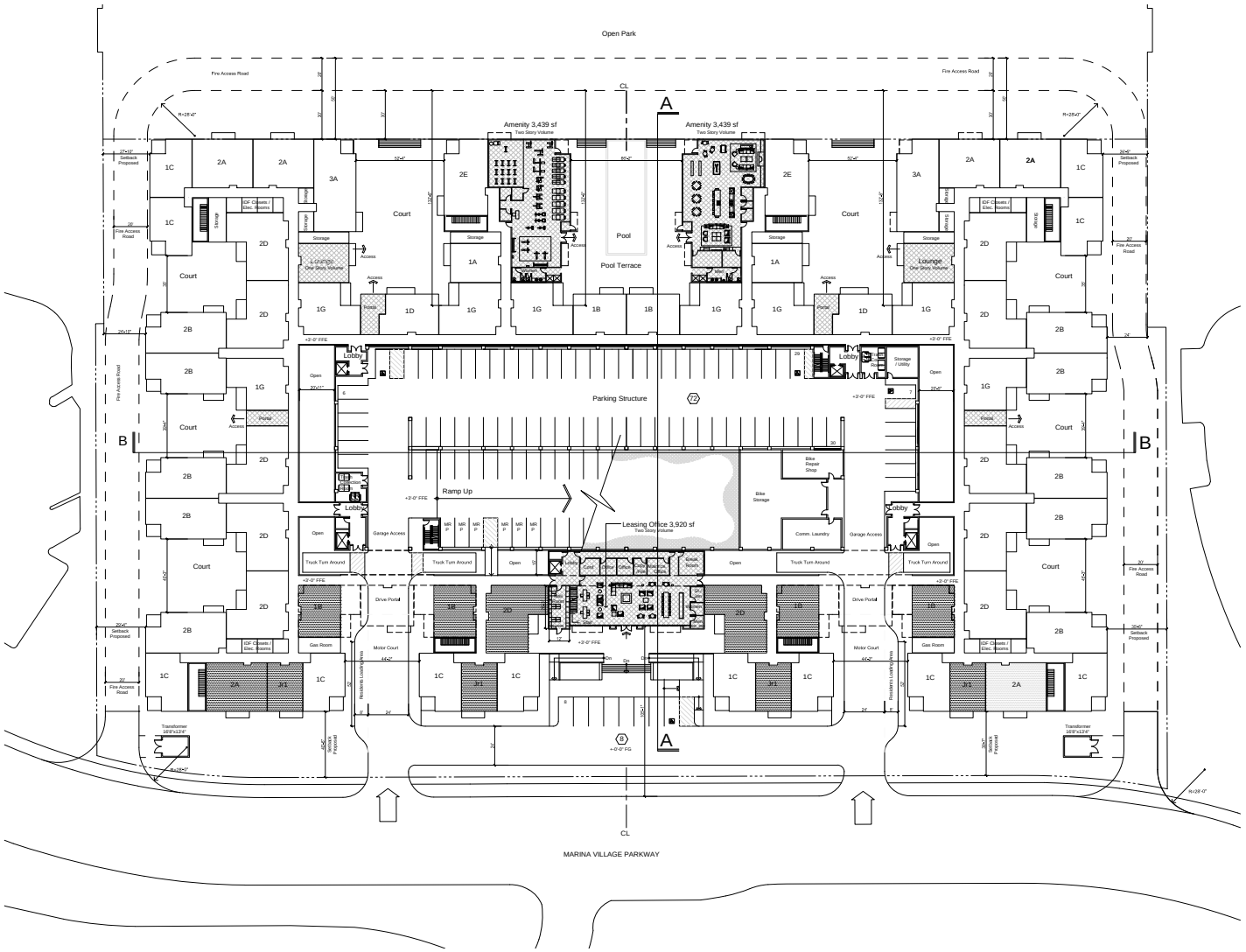
The project developer would enter into an Affordable Housing Agreement with the City of Alameda for the provision of onsite housing affordable to moderate-, low-, and very low-income households consistent with Alameda Municipal Code (AMC) Section 30-16.

As proposed, this project seeks approval of a density bonus pursuant to State of California Government Code Section 65915 and the City's density bonus ordinance, AMC Section 30-17. Proposals that qualify under state law and AMC Section 30-17 may be granted additional residential density as well as concessions, incentives, waivers, and parking reductions from local development standards. (See Chapter 4.C: Land Use for additional discussion.)

Circulation, Public Access, and Parking

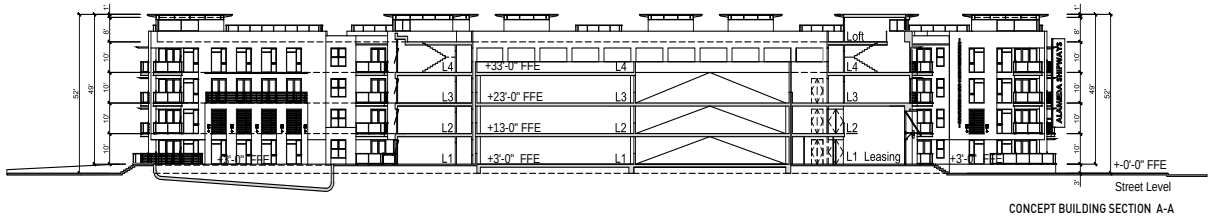
Proposed Parking and On-site Circulation

The project would provide 497 spaces for an overall ratio of 1.7 spaces per unit. The parking would be "unbundled" from the rental of the units (i.e., parking spaces would be rented separately from the dwelling units). The parking structure at the center of the site would accommodate 489 parking spaces in three stories plus an additional level of roof-top parking above the third story. The central parking structure would be lower in height than surrounding residential structures and would be screened from view from public viewpoints. Handicapped and bicycle parking spaces would be provided consistent with City standards. On-site circulation would be provided by short drive aisles that would allow resident vehicles to enter/exit the parking structure at two



MASTER PLAN LEVEL L1

Figure 3-3. Alameda Shipways Site Plan
Source: SVA Architects
April 2018



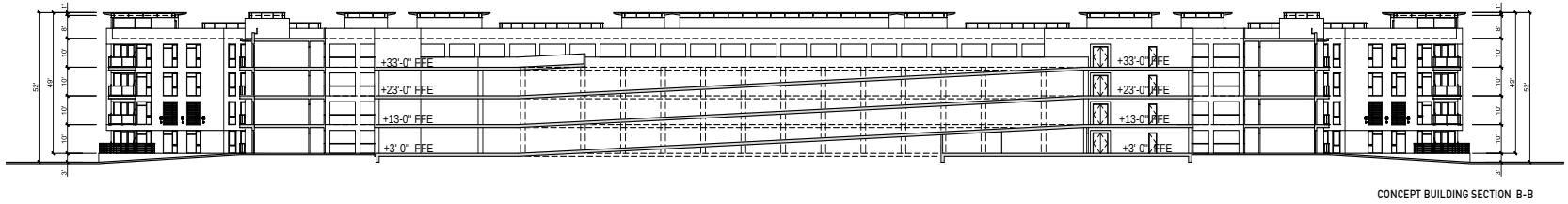
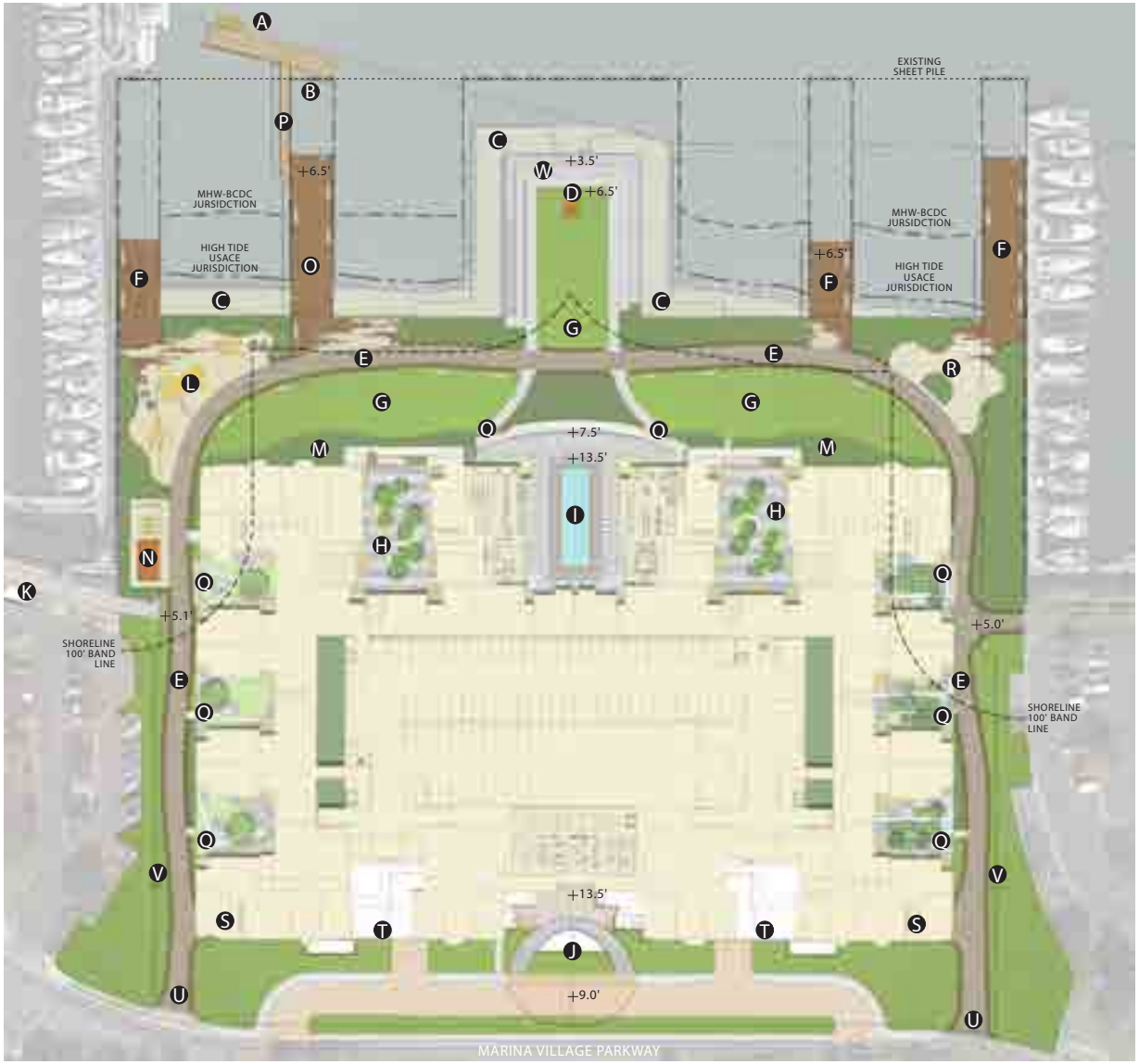


Figure 3.4. Building Elevations
Source: SVA Architects
April 2018



LEGEND

- A WATER SHUTTLE LAUNCH
- B KAYAK LAUNCH
- C STABILIZED WATER EDGE
- D PUBLIC ART
- E PEDESTRIAN/BIKE TRAIL/ EMERGENCY VEHICLE ACCESS
- F PIER
- G OPEN LAWN
- H COURTYARD (PRIVATE)
- I POOL AREA (PRIVATE)
- J MAIN ENTRANCE
- K PRIVATE/PUBLIC RESTROOM
- L CHILDREN PLAY AREA
- M PLANTING BUFFER
- N KAYAK BARN
  - BIKE FIX-IT STATION
  - OUTDOOR SHOWER
  - KAYAK WASH AREA
- O FIXED DOCK
- P GANGWAY
- Q RESIDENT ACCESS
- R PICNIC AREA
- S RESIDENT MOVE-IN
- T GARAGE ACCESS
- U SECURITY BOLLARDS
- V PARK ENTRY SIGN
- W AMPHITHEATER

Figure 3-5a. Waterfront Plan

Source: ima Design
April 2018

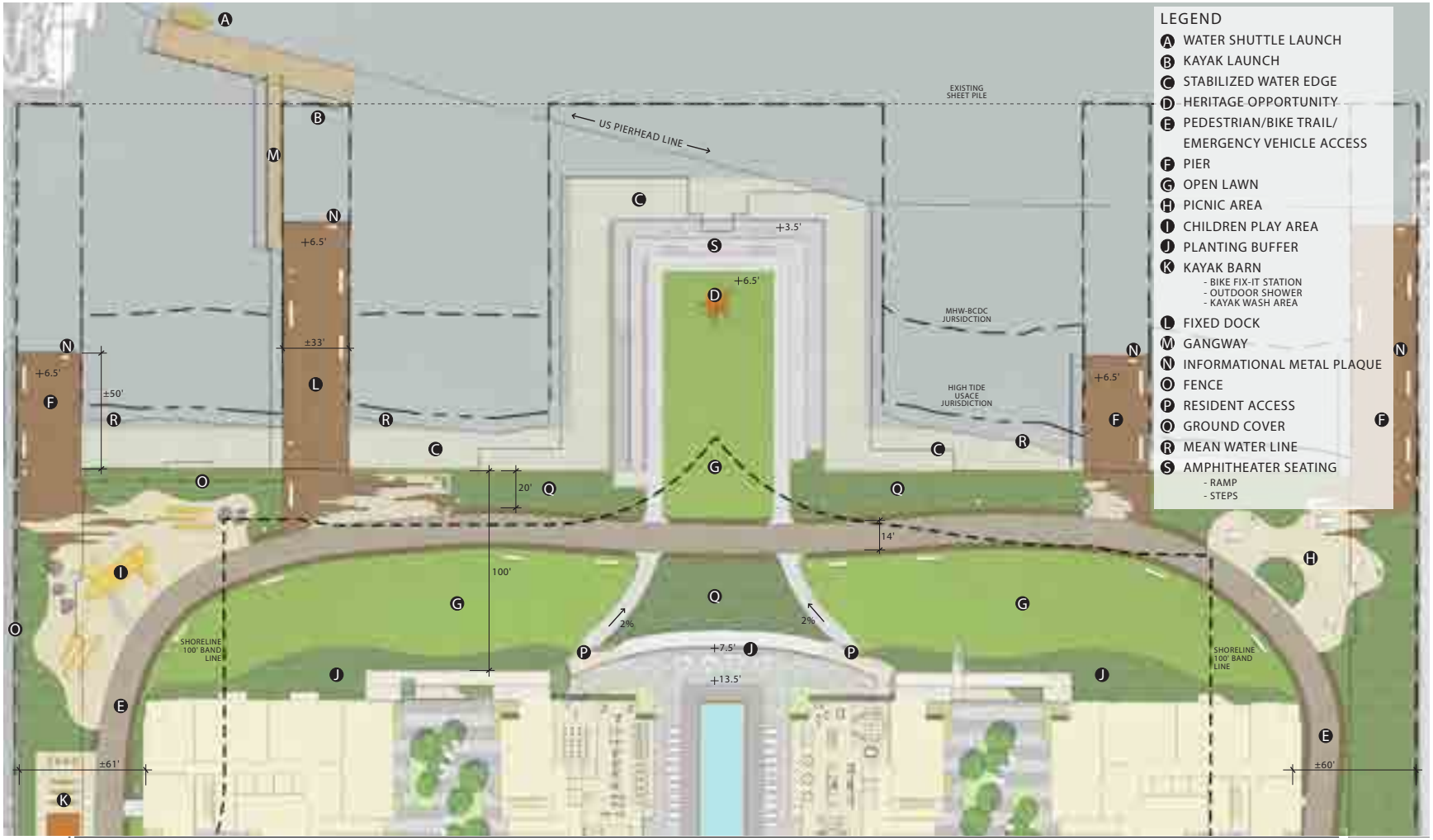


Figure 3-5b. Waterfront Plan (detail)

Source: ima Design
April 2018

driveways along Marina Village Parkway. Public pedestrian access along the eastern and western borders of the Project site and through the public park area would also accommodate access for emergency vehicles to the eastern, western and northern sides of the residential structure.

Streetscape Improvements

The site improvements would include a landscape buffer between the building and the Marina Village Parkway (consisting of Bay Friendly native and regionally adapted trees, shrubs, and groundcovers) and provide new street trees along Marina Village Parkway as well as renovated pedestrian walkways. The proposed street trees would adhere to City of Alameda Street tree standards. The planting areas would also be used to incorporate stormwater treatment areas to treat roof and hardscape runoff.

Public Transit

The project site would be served by AC Transit Line 96, which connects the Marina Village Parkway area to the nearby 12th Street and Lake Merritt Bay Area Rapid Transit (BART) stations. The project site lies approximately 1.25 miles southeast of the Alameda Ferry Terminal at 2660 Main Street, which provides service to San Francisco.

The project proposes to participate in a Transportation Management Agency or other City transportation demand management program that would fund transit programs benefitting a service area that includes adjacent neighborhoods. The City would determine which programs would best address the City's transit needs. The project proposes a dock that would accommodate a water shuttle, which would allow an option to provide a public water shuttle service from the project site to the Oakland side of the Estuary and/or other City neighborhoods. The landing location on the Oakland side could be the existing dock at the Jack London Aquatic Center, the San Francisco Bay Ferry dock at Jack London Square or another location. Water shuttle passengers could thereafter take advantage of a number of public transit options on the Oakland side, including the AC Transit Bus system, BART and ferries. Other transit programs could include maintaining the existing free shuttle service that serves the project site, expanding AC Transit service to Marina Village Parkway, and providing transit passes to project residents, or a combination of these measures.

Open Space and Recreation

Public

The project proposes to open approximately 2.5 acres of the site to the public as a waterfront park, including extension of the Bay Trail along this portion of the Estuary and stabilization of the northern waterfront edge. Programming of the park space would be completed in coordination with the City, but is proposed to include a kayak launch and storage building/support facilities, open lawn areas, a children's play area, and seating opportunities. A dock that could accommodate a water shuttle is also proposed.

Private

The project will include a two-story club room with fitness and a yoga/spin studio, social gathering spaces, and business facilities for use by the residents. The shared outdoor amenities for the residential complex would include a swimming pool and spa and several courtyards that would provide sheltered picnic areas and fire pit/barbeque areas. Private terraces/decks are also proposed to be attached to some residential units.

The parking structure will incorporate bike parking and maintenance areas for the residential complex.

Infrastructure and Utilities

The project site has multiple utility easements. Sewer, water, storm drain, electric, and gas utilities are either onsite or within the site frontage along Marina Village Parkway.

The proposed project would connect to the existing utility infrastructure with updated utility systems that would include stormwater, wastewater, water, electrical, and natural gas. All systems would be designed in accordance with applicable standards.

Stormwater Improvements

The City of Alameda is one of seventeen public agencies within Alameda County that make up the Alameda Countywide Clean Water Program (ACCWP), www.cleanwaterprogram.org. The program and its member agencies are issued permits to discharge storm water by the California Regional Quality Control Board, San Francisco Bay Region. The municipalities must require post-construction storm water controls as part of their Municipal Regional Permit. The post-construction controls are permanent features included in new or redevelopment projects that reduce pollutants in storm water and/or erosive flows during the life of the project after construction is complete. These include Treatment Controls, Source Controls, Site Design and Hydromodification. The ACCWP has published a C.3 Technical Guidance Manual. Stormwater pollutants are controlled through Best Management Practices (BMPs) through Low Impact Development (LID). The project will include stormwater improvements consistent with this guidance, and will include LID features such as swales in the Waterfront Park and pervious planters throughout the project site.

Per the geotechnical reports for the project site, the near-surface soils are mostly Bay Mud and the groundwater elevations high. Because storm water treatment generally requires a depth of 3-3.5 feet depth, these concerns combined with grading constraints will limit the ability to treat storm runoff at grade. Treatment of the roof elements will most likely be treated at the roof and/or through flow-through treatment basins that can be constructed above grade. Filling the north side of the site to redirect drainage and piping toward Marina Village Parkway may introduce opportunities to create at-grade treatment.

The proposed project will address construction-period stormwater runoff through a Storm Water Pollution Prevention Plan and BMP procedures to prevent and control the entry of pollutants into the City storm drain system and the Oakland Inner Harbor.

Sewer

The City of Alameda owns and maintains local sanitary sewer pipelines within the public streets, which collect and convey wastewater to East Bay Municipal Utility District (EBMUD) conveyance and treatment facilities. Currently, the wastewater generated from the project site is collected and conveyed by the existing four separate 6-inch sewer laterals that tie into the 8-inch sewer main that is in Marina Village Parkway. The project would connect to this existing wastewater system.

Water

EBMUD provides water service to the City of Alameda and the project site. EBMUD owns and maintains the existing 8-inch pipeline within Marina Village Parkway. The project would connect to this existing water service.

Electric

Alameda Municipal Power provides electric service to the project site. There are existing electrical vaults on the north side of Marina Village Parkway. The project would connect to this electrical service. A new joint trench would be constructed from the source in Marina Village Parkway to and throughout the project site, and would include new facilities for all dry utility systems.

Natural Gas

Pacific Gas & Electric provides natural gas service to the project site from Marina Village Parkway. The project would connect to this existing gas service. As described above, a new joint trench would be constructed and would connect to the facilities in Marina Village Parkway.

Project Construction

Project construction activities would consist of demolition of the existing structures, concrete slab, and pavement, and partial demolition of the steel sheetpile perimeter wall; shoreline improvements; grading; placement of foundation piles; construction of the residential buildings and parking structure; landscaping; extension of the Bay Trail; and utility connections.

Because the existing buildings were constructed of concrete, project demolition activities would include removing steel rebar from existing concrete, crushing the existing building materials and re-using the recycled materials as part of the fill for the building pad and reconstructed open space areas. During the demolition stage, the existing piles will be cut down to excavation depth prior to fill but otherwise left in place. The existing timber piles will likely remain as-is except where they conflict with proposed new foundation piles. The existing steel sheetpile wall along

the perimeter will likely be cut off at an elevation close to the interior mudline (approximately the same elevation as the top of the timber piles).

The proposed building would be supported by deep pile foundations on structural pile caps, grade beams, and slabs. The four-story residential buildings with partial below-grade parking levels below would be wood frame structures.

The project foundations would be located at an elevation approximately 48 inches above current street elevations on Marina Village Parkway. The foundations would be placed on fill used to construct the new building pads. The entire project site would require approximately 120,000 cubic yards of fill. The existing onsite demolition grading and excavation would generate an estimated 50,000 cubic yards of fill material. An additional +/- 70,000 cubic yards of imported clean fill would be required to build the site up to the elevations required for the new construction. Furthermore, the site would need to be pre-loaded with additional fill material to address potential settlement due to the Bay Mud and to support the new building foundations. This surcharging would require an additional +/- 20,000 to 30,000 cubic yards of imported fill, for a total of +/- 90,000 to 100,000 cubic yards of imported fill. Approximately 500 new piles will also be placed across the site to support the proposed structures and park. Piles will be placed to a depth of approximately 125 to 175 feet and will utilize pre-drilled holes and vibration as much as possible to reach the design depth. However, given the characteristics of the soil at the site, it is unknown whether such techniques will enable the piles to reach design depth so this analysis assumes some pile driving will be required.

The open space area would be constructed by using temporary cofferdam structures and dewatering systems within the bay to cut off the water inside the project site. The proposed project will require in-water work to construct a cofferdam, remove the craneways, welding platform and concrete shipways along the shoreline and to install a floating dock. This work will involve activities such as jack-hammering, some required within the Estuary. The implementation of the project will require pile driving of anchor new piers, the dock and the proposed buildings adjacent to the shoreline. All pile driving other than for the proposed dock will occur landward of the proposed cofferdam in dewatered conditions. The proposed water taxi service from the existing Shipways pier to the Oakland side of the Estuary will require installation of guide piles in the water, which may be driven either by vibratory or impact hammer depending on the subsurface soil conditions. . The new shoreline facing the Estuary will be shored with rip rap and supported by concrete piles. The edges of the site facing the existing marinas would include sheetpile walls.

Once the open space construction is complete, the temporary dam and dewatering systems would be removed. The bay waters would be allowed to flow back into the site and establishing the new shoreline for public use.

The Project applicant estimates that the construction would require approximately 32 months. Demolition would require approximately 3 months, site preparation would require approximately 8 months, and construction of the parking garage and apartment structure would require approximately 21 months.

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 Shipways Residential 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 3-1** 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.

Implementation of the project would likely require the following discretionary approvals:

TABLE 3-1
MAJOR PROJECT APPROVALS REQUIRED

Permitting Agency	Discretionary Approval
City of Alameda	Design Review/Development Plan
City of Alameda	Density Bonus/Affordable Housing Agreement
City of Alameda	Affordable Housing Plan
City of Alameda	Historical Advisory Board Certificate of Approval
City of Alameda	Parcel Map/Vesting Tentative Map
San Francisco Bay Conservation and Development Commission (BCDC)	Amendment of existing shoreline band and Bay fill permit. Coastal Zone Management Act certification.
San Francisco Bay Regional Water Quality Control Board (RWQCB)	Section 401 Water Quality Certification
U.S. Army Corps of Engineers	Section 404 of the Clean Water Act/Section10 of the Rivers and Harbors Act approvals

Note that the proposed project includes a 20% density bonus (up to 35% could be allowed). Higher heights can be permitted through a density bonus concession or waiver, which would need to be approved to allow the proposed 56-foot height.

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CHAPTER 4
Environmental Setting, Impacts, and Mitigation Measures

4.0 Introduction to Environmental Analysis

Organized by the environmental resource area, this chapter provides an integrated discussion of the environmental setting (including the regional, local and/or project setting and regulatory setting) and environmental consequences (including environmental impacts and mitigation measures for potentially significant impacts) associated with the demolition of some existing facilities and construction, operation, and maintenance of the project.

4.0.1 CEQA Requirements

CEQA and the CEQA Guidelines require that the environmental analysis for an EIR must evaluate impacts associated with a project and identify mitigation measures for any potentially significant impacts. All phases of a project are evaluated in the analysis. The CEQA Guidelines state:

- An EIR shall identify and focus on the significant environmental effects of the project. In assessing the impact of a project on the environment, the lead agency should normally limit its examination to changes in the existing physical conditions in the affected area as they exist at the time the Notice of Preparation (NOP) is published, or where no NOP is published, at the time environmental analysis is commenced. Direct and indirect significant effects of the project on the environment shall be clearly identified and described, giving due consideration to both the short-term and long-term effects. The discussion should include relevant specifics of the area, the resources involved, physical changes, alterations to ecological systems, and changes induced in population distribution, population concentration, the human use of the land (including commercial and residential development), health and safety problems caused by the physical changes, and other aspects of the resource base such as water, historical resources, scenic quality, and public services (CEQA Guidelines Section 15126.2[a]).
- An EIR must discuss any inconsistencies between the project and applicable general plans and regional plans, including, without limitation, the applicable air quality attainment or maintenance plan or State Implementation Plan, area-wide waste treatment and water quality control plans, regional transportation plans, regional housing allocation plans, habitat conservation plans, natural community conservation plans and regional land use plans (CEQA Guidelines Section 15125[d]).
- An EIR must describe feasible measures that could minimize significant adverse impacts; such measures must be fully enforceable through permit conditions, agreements, or other

legally-binding instruments. Mitigation measures are not required for effects that are found to be less than significant (CEQA Guidelines Section 15126.4[a]).

4.0.2 Project Baseline

The environmental baseline identifies the existing physical conditions on, around, and affecting the project site. The baseline is established to provide a point of comparison between pre-project conditions (the baseline) and post-project conditions to determine whether the change to the existing environment caused by the project is significant under CEQA. While stable regarding its point in time, the baseline condition is tailored to each environmental topic area and is established by the significance criteria (discussed below). For most topics or resource areas (such as hazards and hazardous materials; utilities and service systems; noise environment; and other aspects of the physical environment), the baseline is the same as the "environmental setting," i.e., the physical environmental conditions in the vicinity of the project as they existed in the spring of 2017[1] when the City published the revised NOP for the project (CEQA Guidelines Sections 15125(a), 15126.2(a)). For traffic, potential project impacts are evaluated in the context of scenarios referred to as "Existing Conditions" (existing conditions with volumes obtained from recent traffic counts and the existing roadway system), as well as future "Cumulative (2040) No Project Conditions" (future conditions with planned population and employment growth, and planned transportation system improvements, for the year 2040). Traffic volume forecasts were developed using the Alameda Countywide Travel Demand Model.

4.0.3 Environmental Impacts

This EIR addresses impacts of the project on the existing environment pursuant to CEQA. Potential effects of the environment on a project may not be legally required to be analyzed or mitigated under CEQA, although the CEQA Guidelines include certain significance criteria that pertain to the effect of the environment on a project. A growing number of court cases have supported the position that CEQA is solely, or largely, concerned with the effects of a project on the environment and not the effects of the environment on a project; the latter may include thresholds related to air quality (e.g., locating a new residential project near an existing source of air pollution), geology (e.g., locating a new structure in a seismic hazard zone), and noise (e.g., locating a new residential project on a loud street).

The California Supreme Court's CBIA v. BAAQMD decision[2] indicated that the impact of existing environmental conditions on a project's future users or residents are generally not required to be considered in a CEQA evaluation, except for certain statutory issues or when the project may exacerbate existing hazards or existing conditions.

1 The City issued an NOP for the project on April 4, 2017.

2 *California Building Industry Association v. Bay Area Air Quality Management District*, (2015) 62 Cal. 4th 369 In the decision, the Court held that "agencies subject to CEQA generally are not required to analyze the impact of existing environmental conditions on a project's future users or residents. But when a proposed project risks exacerbating those environmental hazards or conditions that already exist, an agency must analyze the potential impact of such hazards on future residents or users. In those specific instances, it is the *project's* impact on the environment – and not the *environment's* impact on the project – that compels an evaluation of how future residents or users could be affected by exacerbated conditions."

4.0.4 Mitigation Measures

Project-specific mitigation measures are identified throughout this EIR where feasible and necessary to avoid, minimize, rectify, reduce, or compensate for potential significant, adverse impacts of the project in accordance with CEQA Guidelines Section 15126.4. All mitigation measures will be 1) included as part of the design, construction, and operation of the proposed project; 2) adopted as conditions of approval for the proposed project; and 3) subject to monitoring and reporting requirements of CEQA and the terms of the discretionary approvals for the project.

4.0.5 Section Contents and Definition of Terms

Chapter Organization

Chapter 4 is organized into the following environmental resource or issue areas (also sometimes referred to as environmental topics):

4.A Aesthetics
4.B Agricultural, Forest, and Mineral Resources
4.C Air Quality, Greenhouse Gas Emissions, and Energy
4.D Biological Resources
4.E Cultural Resources
4.F Geology, Soils, and Geohazards
4.G Hazards and Hazardous Materials
4.H Hydrology and Water Quality
4.I Land Use Consistency and Compatibility
4.J Noise and Vibration
4.K Population, Housing, and Public Services
4.L Transportation and Circulation
4.M Utilities and Service Systems

Section Contents

Sections 4.A through 4.M generally follow this format:

- **Environmental, Regional, Local, and/or Project Site Setting**: Provides an overview of the physical environmental conditions in the area at the time of, or prior to, the publication of the NOP, that could be affected by implementation of the project in accordance with State CEQA Guidelines Section 15125.
- **Regulatory Setting**: Identifies the laws, regulations, ordinances, plans, and policies that are relevant to each resource area.
- **Significance Criteria**: Provides the criteria used in this document to define the level at which an impact would be considered significant in accordance with CEQA. Significance criteria are based on CEQA Guidelines Section 15064, Appendix F, and the checklist presented in Appendix G; factual or scientific information and data; and regulatory standards of the City of Alameda and federal, State, and local agencies. This section also discusses, where applicable, the Approach to Analysis, and, where applicable, a summary of Topics with No Impact or Otherwise Not Addressed in this EIR.

- **Impacts**: Each section lists impacts numerically and sequentially. An impact statement (always in bold text) precedes the discussion of each impact analysis and summarizes the potential for the project to have an impact. Impact statements use designation that corresponds to the environmental topic chapter and a number to indicate the order in which that impact is identified within that particular analysis (e.g., "4.A-1" for aesthetic impacts). A For example, "Impact 4.A-1" is the first aesthetics impact identified in the aesthetics resources analysis. The impact statement culminates with the level of impact that exists prior to the consideration of mitigation measures, if any are required. The impact determination after the incorporation of mitigation measures is stated at the close of the impact analysis discussion. An impact is categorized as one of the following:
  - ***No Impact (NI):*** The project would not cause a noticeable effect on the environment as measured by the applicable significance criterion and threshold; therefore, no mitigation would be required.
  - ***Less than Significant (LTS):*** The impact of the project, either before or after implementation of feasible mitigation measures, does not reach or exceed the defined threshold of significance. The impact would not cause a substantial adverse change in the environment as measured by the applicable significance criterion and threshold; therefore, no mitigation would be required.
  - ***Less than Significant with Mitigation (LTSM):*** The project would cause a substantial adverse change in the physical conditions of the environment; one or more feasible mitigation measures would reduce the environmental effects to a less-than-significant level.
  - ***Significant and Unavoidable (SU):*** The impact of the project reaches or exceeds the defined threshold of significance. The project would cause a substantial adverse change in the physical conditions of the environment; there is either no feasible mitigation available or, even with implementation of feasible mitigation measures, the project would cause a significant adverse effect on the environment.
- **Mitigation Measures**: Mitigation measures are designated in the same manner described above for impact statements. Where multiple mitigation measures are identified for a particular impact, each is numbered sequentially. Generally, all mitigation measures are indented, and titles are in bold text.

4.0.6 Cumulative Analysis

Approach

CEQA defines cumulative as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." Section 15130 of the CEQA Guidelines requires that an EIR evaluate potential 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 a proposed project together with other projects causing related impacts.

Cumulative Context

Information used to determine cumulative land use assumptions includes the Association of Bay Area Government's (ABAG's) projections for year 2040, information from the City's General Plan, and information regarding projects in the vicinity of the proposed project site that are under construction, approved, and pending based on the City's list of development projects under review as of the summer of 2017. Information on cumulative projects was also obtained from the California Office of Planning and Research (CEQANet Database). For the analyses of traffic, air, GHGs, and noise impacts, cumulative scenario projections were developed using the Alameda County Transportation Commission's Countywide Travel Demand Model.

Cumulative projects considered in the analysis are presented in **Table 4.0-1**. The table does not include all projects that would contribute to cumulative impacts along with the proposed project; rather, it includes a number of concurrent projects in the area to demonstrate the scope and nature of development in the cumulative vicinity. Cumulative impacts are discussed throughout Chapter 4 as necessary, and discussed further and summarized in Chapter 6.

TABLE 4.0-1

ALAMEDA SHIPWAYS EIR CUMULATIVE PROJECTS

Project Name	Description of Project	Location within Alameda
Alameda Point	Rehabilitation and construction of 1,425 residential units and rehabilitation, reuse, and new construction of approximately 5.5 million square feet of commercial and workplace facilities	Former Alameda Naval Air Station on west end of Alameda Island
Alameda Landing	Construction of approximately 342 residential units and 360,000 square feet of maritime commercial adaptive reuse.	Approximately 0.25 to 0.75 miles west of the project site
Del Monte	Adaptive reuse of former warehouse and surrounding land into approximately 380 housing units and 30,000 square feet of commercial/retail space	On Buena Vista Avenue approximately 0.8 miles from the project site
Encinal Terminals	A proposal to construct approximately 589 housing units and up to 50,000 square feet of commercial uses and waterfront public parks	On waterfront approximately 0.75 miles from the project site
Alameda Marina	Proposal to construct approximately 760 housing units and up to 160,000 square feet of commercial uses and approximately 21.35 acres public open space.	On waterfront approximately 1.25 miles from the project site

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A. Aesthetics

A.1 Introduction

This section evaluates the potential for the project to result in significant adverse impacts to aesthetics. The evaluation considers existing visual conditions and assesses the effects of the project on scenic vistas and scenic resources, visual quality and visual character, as well as its potential to have adverse light and glare effects.

A.2 Environmental Setting

Existing Visual Conditions

Regional and Citywide

The City of Alameda occupies approximately 10.6 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. Alameda is approximately 3.5 miles east across San Francisco Bay from San Francisco (10 driving miles), and less than 0.25 miles southwest along the Oakland Inner Harbor and Brooklyn Basin (less than 0.5 driving miles) from Oakland. 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.

The City is relatively flat and low lying, with gradual elevation increases occurring towards Central Avenue at Park Street. Alameda has a largely built-out environment with the majority of its natural open space areas limited to the northwestern-most tip of Alameda Island at the former Naval Air Station Alameda, and the Crab Cove area on the southern side of the island. Various neighborhood parks are also scattered across the City. Alameda's proximity to the San Francisco Bay, Oakland Inner Harbor, Brooklyn Basin, and various other waterways, coupled with the minor elevation changes results in limited public views of aesthetic resources beyond those provided adjacent to or nearby to existing open spaces.

Project Site

The project is located at 1100–1250 Marina Village Parkway in the north-central portion of the City of Alameda in an area of business-industrial and multi-family residential uses south of the project site.

The relatively flat project site, ranging from approximately 7 to 11 feet above sea level, is bounded by the Estuary to the north, Marina Village Parkway to the south, and parking lots for marinas to the east and west (see Figure 3-2, Local Vicinity, in the Project Description). The existing Extended Stay America Hotel is the first significant structure further west and an existing five-story office building is the first significant structure further east. Marina Village, a business-industrial area that includes office-research and development uses, is south of the project site. Multi-family residential uses are located to the east of the site. Across the Estuary to the north, west, and east are commercial and industrial uses that fall within the City of Oakland city limits,

including Brooklyn Basin, a large mixed use development currently under construction. Coast Guard Island, part of the City of Alameda, is located in the Estuary to the northeast of the project site. The Webster Street business core is approximately 0.75 mile to the southwest.

The visual character of the project site vicinity is largely established by maritime, commercial, and office uses, as well as by residential neighborhoods. The approximately 8.1-acre project site was developed for shipbuilding and consists primarily of asphalt and concrete paving, the four craneways and shipways, the welding slab, and four single-story commercial office buildings, which were built in 1943.

There is minimal vegetation throughout the project site, consisting of landscaping vegetation along Marina Village Parkway and between the shipways in addition to other isolated plants hardy enough to grow through cracks and holes within the shipways (see Section 4.D, Biological Resources, for additional detail).

Existing nighttime lighting within the project site is primarily security lighting associated with the office uses, as well as the parking lot. Nighttime lighting adjacent to and in the vicinity of the site includes street lighting along Marina Village Parkway, security lighting associated with adjacent business-industrial/office uses of Marina Village Office Park and the associated parking lots, multi-family residential uses and associated parking lots, as well as and ambient lighting related to the City of Oakland to the north and Coast Guard Island to the east.

Existing Scenic Vistas and Resources

Views along the waterfront of the project site consist primarily of the Oakland-Alameda Estuary, the southern shoreline of the City of Oakland, and the East Bay hills in the distance. As noted below, these views are not currently open to the public.

Public views of the Estuary, the southern shoreline of the City of Oakland, and the East Bay hills in the distance from the immediate vicinity (e.g., along Marina Village Parkway) are limited or obscured by the existing buildings and fencing on the project site.

The project site would be most visible from the adjacent Extended Stay America (to the west), Marina Village Office Park buildings (to the south and east), and Marina Village Parkway (along the southern boundary of the site, running east to west), as well as from the Estuary. Views of the project site from other office and multi-family residential uses in the area would be limited by existing buildings and street trees in the project area.

Figures 4.A-1a and 4.A-1b show various photos taken in and around the project site of the existing visual conditions of the project site and its surroundings.

Figure 4.A-1a. Views from Project Site
Source: ima Design
April 2018

Figure 4.A-1b. Views from Project Site
Source: ima Design
April 2018

A.3 Regulatory Setting

This subsection briefly describes policies pertaining to aesthetics as they apply to the proposed project.

State

San Francisco Bay Conservation and Development Commission's San Francisco Bay Plan

The BCDC regulates development that falls within the open water, marshes and mudflats of greater San Francisco Bay, and its nine-county shoreline. The BCDC uses the McAteer-Petris Act, the San Francisco Bay Plan, its own regulations, and other plans specific to other areas of the Bay to inform its decisions. The BCDC's Bay Plan and Public Access Design Guidelines apply to portions of the project site along the shoreline.

The Bay Plan

The Bay Plan contains findings and policies concerning appearance, design, and scenic views of development around the Bay (SFBCDC, 1968). In accordance with these policies, views of the Bay from vista points and public roads should be protected. Per the Bay Plan, important Bay overlook points, and historic areas and structures that may be located in water-related industrial and port areas, should be preserved and incorporated into site design for new projects, if feasible.

The Bay Plan directs that shoreline developments be built in clusters, leaving open area around them to permit more frequent views of the Bay. Similarly, the Bay Plan recommends structures near or over the Bay to be designed as landmarks that suggest the location of the waterfront when it is not visible, especially in flat areas, but low enough to assure the continued visual presence of the hills around the Bay. 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. Bay Plan policies and goals particularly applicable to a portion of the project site and that pertain to aesthetics include:

- 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.
- 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.
- Shoreline developments should be built in clusters, leaving areas open 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.

- 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.
- 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.

Shoreline Space Public Access Design Guidelines

The BCDC is charged with maintaining public access, including visual public access (views to the Bay from other public spaces) within its jurisdiction. The BCDC developed public access objectives in the Shoreline Space Public Access Design Guidelines to provide, maintain and enhance visual access and visual quality to the Bay and shoreline by locating buildings, structures, parking lots and landscaping of new shoreline projects such that they enhance and dramatize views of the Bay and the shoreline from public thoroughfares and other public spaces, organizing shoreline development to allow Bay views and access between buildings (SFBCDC, 2005).

Per these guidelines, the design character of public access areas should relate to the scale and intensity of the proposed development. Objectives related to visual access and visual quality may be accomplished by providing visual interest and architectural variety in massing and height in new buildings along the shoreline and/or using forms, materials, colors and textures that are compatible with the Bay and adjacent development.

Title 24 Outdoor Lighting Zones

The California Energy Commission (CEC) establishes Building Energy Efficient Standards within Title 24 that address outdoor lighting for public and private uses. The standards specify outdoor lighting requirements for residential and non-residential development, and their intent is to improve the quality of outdoor lighting and help reduce the impacts of light pollution, light trespass, and glare. The standards regulate lighting characteristics, such as maximum power and brightness, shielding, and sensor controls to turn lighting on and off. Different lighting standards are set by classifying areas by lighting zone. The classification is based on population figures in the 2010 U.S. Census and the areas can be designated as LZ1 (dark), LZ2 (low), LZ3 (medium), or LZ4 (high). Lighting requirements for dark and rural areas are stricter in order to protect the areas from new sources of light pollution and light trespass. According to the U.S. Census Bureau, the project site is defined as an urban area and is therefore designated as LZ3 per the CEC classification standards.

Local

City of Alameda General Plan

The City of Alameda General Plan includes a number of policies designed to minimize impacts on visual resources. Relevant policies from the current City of Alameda General Plan include Guiding and Implementing Policies under Section 3, City Design Element, Subsection 3.2, Edges, Vistas, Focal Points, and Section 6, Parks and Recreation, Shoreline Access, Schools and Cultural Facilities Element, Subsection 6.2, Shoreline Access and Development:

Guiding Policies

Policy 3.2.a Maximize views of water and access to shorelines.

Implementing Policies

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 Alameda Estuary waterfront remain visually unobstructed.

Guiding Policies

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.

Implementing Policies

Policy 6.2.e Remove impediments to enjoyment of shoreline access where legal access exists.

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.

City of Alameda Design Review

The City's Design Review procedure, as established in the Municipal Code (Section 30-37), requires all improvements including new buildings and most alterations be subject to Design Review approval. Pursuant to Municipal Code Section 30-37, actions to approve a design review application must include the following three findings: 1) The proposed design is consistent with the General Plan, Zoning Ordinance, and the Citywide Design Review Manual; 2) 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 3) 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.

A.4 Impacts and Mitigation Measures

Significance Criteria

Based on CEQA Guidelines Appendix G and the City's General Plan goals and policies, the project would cause significant adverse impacts to aesthetic resources if it were to:

- Have a substantial adverse effect on a scenic vista or damage scenic resources;
- Substantially degrade the existing visual character or quality of the site and its surroundings; or
- Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

Approach to Analysis

Overall Approach

The methodology of the aesthetics analysis presented below considers several factors that affect the proposed project's physical appearance compared to existing visual conditions as observed from public locations. Existing visual conditions relevant to the project and the site and surroundings are conveyed in the Environmental Setting and the analysis below through site photography taken in 2017.

Nature and Scope of Visual Assessment

This analysis recognizes that aspects of physical appearance are subjective and dependent on individual preferences. Therefore, the analysis represents the City's determinations based on its assessment of the likely project effects and appearance, informed by actual observations of the site and surrounding context.

Generally, while a project's interference with scenic views from public vantage points would be considered an adverse aesthetic effect on the environment, the obstruction of individual landowners' views from private property is not considered a significant environmental impact under CEQA. The purpose of CEQA is to evaluate the impacts of a project on the environment in general, not the impacts of a project on particular individuals. As a result, this EIR does not consider or evaluate the project's impact on views from private residences or other private vantage points.

Approach to Determining Impacts to Scenic Vistas

Definitions

"Scenic vistas" (also referred to as viewsheds) are view corridors that capture the total field of vision from a specific viewpoint; they generally encompass a large geographic area for which the

field of view can be quite wide and extend into the distance. Scenic vistas are formed by built and natural physical elements that guide lines of sight and control view directions available to pedestrians and motorists. The expanse of a scenic vista or viewshed can be limited by the framing of a photograph or illustration. As discussed in Environmental Setting (Existing Scenic Vistas and Resources), views from the shoreline of the Estuary and beyond constitute a scenic vista.

"Scenic resources" (also referred to as features) are elements of high scenic value or visual prominence that appear within a scenic vista or scenic corridor. This analysis does not limit the definition of "scenic resources" to those located within a state scenic highway. As identified under the preceding discussion of Alameda General Plan policies, views of the water and shoreline are considered scenic resources.

A significance determination for criteria above considers if the project would prominently obstruct, or block the majority of the expanse, of a scenic vista or scenic resource, as seen by most viewers from public locations, taking into account the view as a whole, and the land use policies adopted by the City of Alameda. This analysis considers the sensitivity of the affected resource based on the prominence of its visibility and/or the viewpoint location, as well as the characteristics of the view, such as whether it is widely unobstructed; fleeting or intermittent; or transitory, as when viewed by viewers traveling along roadways. Moreover, the significance is measured in light of the context in which the effect occurs. The CEQA Guidelines state "the significance of an activity may vary with the setting. For example, an activity which may not be significant in an urban area may be significant in a rural area" (CEQA Guidelines Section 15064(b)).

Approach to Determining Impacts to Visual Character

The analysis of impacts on visual character and quality focuses on whether the project would substantially degrade the existing visual character and quality (collectively, "visual conditions") of the project site and vicinity. The significance determination considers whether the extent of change in the appearance of the project site would be substantially adverse, damaging, or degrading when compared to existing conditions. Considerations include the project's visual contrast with existing conditions, and/or the compatibility of the project's physical appearance with existing conditions, based on all aspects of the project. These aspects include (but are not limited to) overall design and architectural quality, building massing, facade articulation, relative building heights, project scale, and site plan layout, as presented in the Master Plan Design Framework.

Impact Analysis

Impact 4.A-1: The project would not have a substantial adverse effect on a scenic vista or substantially damage scenic resources. (*Less than Significant*)

The only scenic vista or scenic resource in the vicinity of the project area is the Estuary, as defined in the land use policies of the City of Alameda. Implementation of the proposed project would result in the development of a multi-family residential development within a previously

developed urban area that currently contains a mix of business-industrial, commercial, and residential uses. As shown in Figures 4.A-1a through 4. A-1b, existing views from outside the southern project boundary through the project site to the Estuary are obscured by the existing buildings and fencing. Views from within the project site towards the Estuary are obscured due to the existing site layout and the fencing between the buildings, and would be limited to views from within the buildings. Public views of the Estuary are essentially unavailable to members of the public moving around the periphery of the property along Marina Village Parkway because the existing buildings and fences effectively block public views of the Estuary.

The proposed project, a four-story residential building, would continue to limit public views of the Estuary from the south. The proposed 2.5-acre public waterfront park, however, would constitute a more inviting arrangement whereby members of the public could access and enjoy views of the Estuary from within the site (currently closed to the public), resulting in a beneficial effect. For example, public users of the Bay Trail extension and open lawn areas would have expansive views of the Estuary, interrupted only slightly by trees planted along the shoreline. Based on each of these considerations, the proposed project would substantially improve existing public views of the Estuary, and would meet the relevant goals and policies of the BCDC and the City of Alameda. Therefore, implementation of the proposed project would improve the visual quality of the area, and there would be a less than significant impact with respect to conflicts with existing policies concerning a scenic vista or scenic resources.

Mitigation: None required.

Impact 4.A-2: The project would not substantially degrade the existing visual character or quality of the site and its surroundings. (*Less than Significant*)

The project would change the visual character and visual quality (collectively, "visual conditions") of the project site and its surroundings. The project proposes to develop up to 292 residential units and a 2.5-acre public waterfront park, including an extension of the San Francisco Bay Trail through the site.

As previously discussed, the City's Design Review procedure, as established in the Municipal Code (Section 30-37), requires all improvements including new buildings and most alterations be subject to Design Review approval. Pursuant to Municipal Code Section 30-37, actions to approve a design review application must include the following three findings: 1) The proposed design is consistent with the General Plan, Zoning Ordinance, and the Citywide Design Review Manual; 2) 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 3) 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.

The existing buildings on the site would be demolished, which would alter the site's appearance. Although, the project would alter the visual conditions of the project site, this change in itself is not considered significant unless visual character or quality is substantially degraded. Since the project would be required to comply with the City's Design Review procedures, substantial degradation would not occur. Therefore, the impact would be less than significant.

Mitigation: None required.

Impact 4.A-3: The proposed project would notcreate a new source of substantial light or glare which would adversely affect day or nighttime views in the area. (*Less than Significant*)

The project site is situated in an area typified by business-industrial, commercial, and residential activities. As indicated in the Environmental Setting discussion, existing nighttime lighting in the area consists primarily of security lighting on the project site, security and road lighting of the adjacent uses, and ambient city lights of surrounding areas in Alameda and Oakland to the north. Development under the project would result in additional nighttime lighting from the residential uses and the waterfront park. New sources of light would include pedestrian and bicycle paths, building entries and parking areas, and sidewalks and open spaces for safety, security, and architectural purposes. Broadly speaking, these new lighting features would be consistent with existing sources of lighting that are already present in and around the project site.

The new residential buildings would be taller than the existing buildings, would have more windows, and would generate more nighttime lighting than the existing buildings. Compliance with Title 24 lighting power allowances is expected to adequately control unnecessary brightness of lighting, debilitating glare, and sky glow. Accordingly, new lighting, reflective surfaces or any other sources of illumination would be utilized in a manner that produces no glare on public streets or on any other parcel, and lights would be shielded at lot lines so as not to be directly visible from an adjoining residential district. New lighting would also be subject to the City's design review procedure, during which proposed lighting would be evaluated for adverse effects.

Mitigation: None required.

Cumulative Impacts

Impact 4.A-4: The proposed project would not result in a cumulative aesthetics impact when considering the combined effect of the project, and past, present, approved, pending, and reasonably foreseeable future projects. (*Less than Significant*)

The analysis area for evaluation of cumulative impacts on aesthetics is primarily the City of Alameda. Conceivably, a view from shoreline locations across the Estuary in the City of Oakland

could include the proposed project; however, these views would appear distant and disconnected. Views of the Estuary from public viewpoints in the City of Oakland would therefore be unaffected.

The proposed project, in conjunction with other cumulative past, present or reasonably foreseeable future development in the area, could result in changes to visual conditions (visual character and quality), and light and glare. However, the combined effect that would occur relative to existing conditions would not be significant primarily because the effects related to aesthetics would be localized and would not combine with other sources to contribute to view obstructions, light or glare. The project, combined with other cumulative development in the area, would not result in cumulative adverse changes that would substantially degrade the existing aesthetic conditions of the project site or its surroundings. The impact would be less than significant.

Mitigation: None required.

References

San Francisco Bay Conservation and Development Commission (SFBCDC), 2005. Shoreline Space, Public Access Design Guidelines for the San Francisco Bay. April 2005.

San Francisco Bay Conservation and Development Commission (SFBCDC), 1968. San Francisco Bay Plan. Adopted 1968, Selections Amended in 1979, Republished in 2008.

B. Agricultural, Forest, and Mineral Resources

B.1 Introduction

This section contains discussion regarding the CEQA topic areas of Agricultural, Forest and Mineral Resources. Only limited analysis and discussion for these topic areas is required to make significance determinations due to the nature and specifics of the project site.

B.2 Agricultural and Forest Resources

Under the CEQA Guidelines, Appendix G – Environmental Checklist Form, development of the site as proposed would have a significant environmental impact if it were to result in:

- Conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) as shown on maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use;
- A conflict with existing zoning for agricultural use, or a Williamson Act contract; or
- A conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g)).
- The loss of forest land or conversion of forest land to no-forest land.
- Changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use.

The entirety of Alameda Island, including the project site, is classified as "Urban and Built-up" by the California Farmland Mapping and Monitoring Program (California Department of Conservation, 2014), which is a classification used for lands that present constraints for agricultural use. No Prime Farmland, Unique Farmland, or Farmland of Statewide Importance is designated within any portion of the City. The site is not zoned for agricultural uses, and there are no Williamson Act contracts that affect any portion of the project site. No existing agricultural or timber-harvest uses are located on or in the vicinity of the project site. Based on these considerations, development of the site would result in no impacts on agricultural resources.

B.3 Mineral Resources

Mineral Resources

Under the CEQA Guidelines, Appendix G – Environmental Checklist Form, development of the site as proposed would have a significant environmental impact if it were to result in:

Loss of availability of a known mineral resource that would be of future value to the region and the residents of the state; or

- Loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan.

For the purposes of this analysis, mineral resources are any non-fuel mineral resource that is obtained from the ground, including sand and gravel, cement, boron, crushed stone, gold, limestone, and other important excavated resources.

The project site has no known existing mineral resources. The project site was historically used for shipbuilding uses, and the soil immediately underlying the site is composed of imported fill material. There are no mineral extraction operations occurring on Alameda Island, nor have those operations been known to occur historically. No mineral resource recovery areas have been designated within the City. 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

California Department of Conservation. 2014. Alameda County Important Farmland. 2014.

C. Air Quality, Greenhouse Gas Emissions, and Energy

C.1 Introduction

This section addresses the impacts of the proposed 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. This section 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. Emissions model results are included in this EIR as Appendix B.

C.2 Environmental Setting

Air Quality Environmental 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 CEQA Air Quality Guidelines (2012a). This climatological subregion stretches from Richmond to San Leandro. Its western boundary is defined by the San Francisco Bay and its eastern is boundary by the Oakland-Berkeley Hills. The Oakland-Berkeley Hills have a ridge line height of approximately 1,500 feet above sea level, which represents 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 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 the 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 northern end of Alameda Island indicate that the predominant wind flow is from the west and northwest. The prevailing wind direction is westerly with a 57 percent frequency for wind within the northwest-southwest sector. The average speed for this sector is 9 miles per hour (mph) and ranges from 7 to 10 mph. Winds less than 5 mph occur 30 percent of the time. Maximum temperatures in summer average in the upper 60° Fahrenheit (F) range, with minimum temperatures in the mid-50° F range. Winter highs are in the mid-50° F range and winter lows are in the mid-40° F range. Sunshine is somewhat scarcer than at stations located inland. 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 20 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 (PM_{10} and $PM_{2.5}$), and lead are the six criteria air pollutants.

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 station is in Oakland on 21st Street. The nearest station that monitors PM_{10} is the San Pablo and 1865 Rumrill Boulevard monitoring station. **Table 4.C-1** shows a three-year (2014 through 2016) summary of monitoring data for CO, ozone, PM_{10}, $PM_{2.5}$, NO_2 and SO_2 recorded at the nearest stations.

TABLE 4.C-1
SUMMARY OF AIR QUALITY MONITORING DATA (2014–2016)

Pollutant	Applicable Standard	Number of Days Standards Were Exceeded and Maximum Concentrations Measured[a]		
		2014	2015	2016
Carbon Monoxide (CO) at Oakland - 1100 21st Street				
Maximum 1-hr Concentration (ppm)		3	4.7	2.5
Days State Standard Exceeded	>20 ppm[b]	0	0	0
Days Federal Standard Exceeded	>35 ppm[c]	0	0	0
Maximum 8-hr Concentration (ppm)		2.6	2.6	2.2
Days State Standard Exceeded	>9 ppm[b]	0	0	0
Days Federal Standard Exceeded	>9 ppm[c]	0	0	0
Ozone (O_3) at Oakland - 1100 21st Street				
Maximum 1-hr Concentration (ppm)		0.072	0.091	0.065
Days State Standard Exceeded	>0.09 ppm[b]	0	0	0
Maximum 8-hr Concentration (ppm)		0.059	0.064	0.052
Days State Standard Exceeded	>0.07 ppm[b]	0	0	0
Days Federal Standard Exceeded	>0.08 ppm[c]	0	0	0
Course Particulates (PM_{10}) at San Pablo – 1865 Rumrill Boulevard				
Maximum 24-hr Concentration ($\mu g/m^3$)		46	43	34
Days State Standard Exceeded	>50 µg/m [b]	0	0	0
Days Federal Standard Exceeded	>150 µg/m [c]	0	0	0
Annual arithmetic average concentration (µg/m3)		16.0	18.6	15.2
State Standard Exceeded for the Year	>20 $\mu g/m^3$ [b]	No	No	No
Federal Standard Exceeded for the year	>50 $\mu g/m^3$ [c]	No	No	No
Fine Particulates ($PM_{2.5}$) at Oakland – 1100 21st Street				
Maximum 24-hr Concentration ($\mu g/m^3$)		38.8	38.7	23.9
Days Federal Standard Exceeded	>35 µg/m [c]	1	3	0
Annual arithmetic average concentration (µg/m3)		9.5	10.2	8.7
State Standard Exceeded for the Year	>12 $\mu g/m^3$ [b]	No	ND	ND
Federal Standard Exceeded for the year	>12 $\mu g/m^3$ [c]	No	ND	ND
Nitrogen Dioxide (NO_2) at Oakland - 1100 21st Street				
Maximum 1-hr Concentration (ppm)		0.056	0.057	0.049
Days State Standard Exceeded	>0.25 ppm[b]	0	0	0
Annual arithmetic average concentration (ppm)		.014	0.014	0.012
Federal Standard Exceeded for the year	>0.053 ppm [c]	No	No	No
Sulfur Dioxide (SO_2) at Oakland - 1100 21st Street				
Maximum 1-hr Concentration (ppm)		0.017	0.022	0.026
Days State Standard Exceeded	>0.25 ppm[b]	0	0	0
Maximum 3-hr Concentration (ppm)		ND	ND	ND
Days Federal Standard Exceeded	>0.50 ppm[c]	ND	ND	ND
Maximum 24-hr Concentration (ppm)		0.003	0.004	0.003
Days State Standard Exceeded	>0.04 ppm[b]	0	0	0
Days Federal Standard Exceeded	>0.14 ppm[c]	0	0	0
Annual arithmetic average concentration (ppm)		ND	ND	ND
Federal Standard Exceeded for the year	>0.030 ppm [b]	ND	ND	ND

NOTES:
Bold values are in excess of applicable standard.
conc. = concentration; ppm = parts per million;
$\mu g/m^3$ = 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.
[b] State standard, not to be exceeded.
[c] Federal standard, not to be exceeded. Federal Standard was reduced from 0.075 to 0.070 ppm in October 2015
SOURCE: BAAQMD, 2015, 2016, 2017.

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.

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.C-1, the state and federal 1-hour and 8-hour CO standards were not exceeded between 2014 and 2016.

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 (NO_x). The main sources of ROG and NO_x, 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.C-1 shows that, according to published data, the 1-hour state standard of 0.09 ppm and the state and federal 8-hour standards for ozone were not exceeded between 2014 and 2016.

Particulate Matter (PM_{10} and $PM_{2.5}$)

Particulate matter is a class of air pollutants that consists of heterogeneous solid and liquid airborne particles from manmade and natural sources. Particulate matter is measured in two size ranges: PM_{10} for particles less than 10 microns in diameter, and $PM_{2.5}$ for particles less than 2.5 microns in diameter. In the Bay Area, motor vehicles generate about one-half of the air basin's particulates, through tailpipe emissions as well as brake pad and tire wear. Wood burning in fireplaces and stoves, industrial facilities, and ground-disturbing activities such as construction are other sources of such fine particulates. These fine particulates are small enough to be inhaled into the deepest parts of the human lung and can cause adverse health effects. 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 $PM_{2.5}$ is by far the most harmful air pollutant in the Bay Area Air Basin 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 $PM_{2.5}$ 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.C-1 shows that neither the state nor federal annual standards for PM_{10} were exceeded between 2014 and 2016. However, the federal 24-hour $PM_{2.5}$ standard was exceeded once in 2014 and three times in 2015.

Nitrogen Dioxide

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. As shown in Table 4.C-1, neither the state nor federal NO_2 standards were exceeded between 2014 and 2016.

Sulfur Dioxide

SO_2 is a colorless acidic gas with a strong odor. It is produced by the combustion of sulfur-containing fuels such as oil, coal, and diesel. SO_2 has the potential to damage materials and can cause health effects at high concentrations. It can irritate lung tissue and increase the risk of acute and chronic respiratory disease (BAAQMD, 2012a). As shown in Table 4.C-1, neither the state nor federal SO_2 standards were exceeded between 2014 and 2016.

Lead

Leaded gasoline (phased out in the United States beginning in 1973), 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.

Attainment Status

The CARB is required to designate areas of the state as attainment, nonattainment or unclassified for all state standards. An “attainment” designation for an area signifies that the pollutant concentrations did not violate the standard for a pollutant in that area. A “nonattainment” designation indicates that a pollutant concentration violated the standard, excluding those occasions when a violation was caused by an exceptional event, as defined in the criteria. An “unclassified” designation signifies that data does not support either an attainment or nonattainment status. The California Clean Air Act divides districts into moderate, serious, and severe air pollution categories, with increasingly stringent control requirements mandated for each category.

The EPA designates areas for ozone, CO, and NO_2 as either "does not meet the primary standards," or "cannot be classified," or "better than national standards." For SO_2, areas are designated as "does not meet the primary standards," "does not meet the secondary standards," "cannot be classified" or "better than national standards." **Table 4.C-2** provides a summary of the attainment status for the SFBAAB with respect to federal and state ambient air quality standards.

TABLE 4.C-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]	0.070 ppm	N
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 (PM_{10})	24 hour	50 µg/m^3	N	150 µg/m^3	U
	Annual	20 µg/m^3	N[f]	NA	NA
Fine Particulate Matter ($PM_{2.5}$)	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 PM_{10} standard is attained when the three-year average of the 99th percentile of monitored concentrations is less than the standard. The 24-hour $PM_{2.5}$ standard is attained when the three-year average of the 98th percentile is less than the standard.

[c] The 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, CARB established new annual standards for $PM_{2.5}$ and PM_{10}.

[g] U.S EPA lowered the 24-hour $PM_{2.5}$ standard from 65 µg/m^3 to 35 µg/m^3 in 2006. EPA designated the Bay Area as nonattainment of the $PM_{2.5}$ standard on October 8, 2009. The effective date of the designation was December 14, 2009 and the Air District had 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 $PM_{2.5}$ 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, 2017c.

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 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 San Francisco 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 2015 and details mass annual emissions by facility. BAAQMD's May 2012 Google Earth-based inventory of stationary sources details fence-line risks and hazards for each permitted stationary source. This latter source indicates that there are no permitted TAC sources within 1,000 feet of the project site boundary.

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 value 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).

[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.

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. Potential impacts related to asbestos are addressed in *Section 4.G, Hazards and Hazardous Materials*.

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, 2017a).

There are no sensitive receptors within 1,000 feet of the project site. The closest sensitive receptors in the project vicinity include Peter Pan preschool on Mariner Square Drive approximately 1,050 feet to the southwest, Neptune Park between 1,250 and 1,900 feet to the southwest, residences along Bartlett Drive/Rosefield Loop (nearest approximately 1,300 feet south of the project), and residences along 5th Street (nearest approximately 2,000 feet west of the project).

Odor Emissions

As described by the BAAQMD in its revised CEQA Air Quality Guidelines (2017a), odors are generally regarded as an annoyance rather than a health hazard. Manifestations of a person's

[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.

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 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.

Greenhouse Gas Environmental Setting

Overview

"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 (International Panel on Climate Change (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 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), and nitrous oxide (N_2O) 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[3] associated with agricultural practices and landfills. Other human-generated GHGs, which have much higher heat-absorption potential than CO_2, include fluorinated gases such as hydrofluorocarbons (HFCs), perfluorocarbons (PFC), and sulfur hexafluoride (SF_6), which 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.

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."

[3] Off-gassing is defined as the release of chemicals under normal conditions of temperature and pressure.

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 2011 were 45 billion tons of CO_2e per year (CAIT, 2014). This estimate includes ongoing emissions from industrial and agricultural sources, but excludes emissions from land use changes.

U.S. Emissions

In 2014, the United States emitted about 6.87 billion metric tons of CO_2e or about 21.5 tons per person per year. Of the five major sectors nationwide — residential and commercial, industrial, agriculture, transportation, and electricity — electricity accounts for the highest fraction of GHG emissions (approximately 30 percent), closely followed by transportation (approximately 26 percent); these emissions from energy are primarily generated from the combustion of fossil fuels (approximately 82 percent), and emissions from transportation are entirely generated from direct fossil fuel combustion (USEPA, 2016a).

State of California Emissions

In 2014, California emitted approximately 441.5 million tons of CO_2e. This represents about 6.4 percent of total U.S. emissions. This large number is due primarily to the sheer size of California compared to other states. By contrast, at 11.4 tons/person/year, California has one of the lowest per capita GHG emission rates in the country (CARB, 2016a). This is in part due to the success of the State's energy efficiency and renewable energy programs and commitments that have lowered the GHG emissions rate of growth by more than half of what it would have been otherwise. Another factor that has reduced California's fuel use and GHG emissions is its mild climate compared to that of many other states.

The latest CARB inventory also reports that the composition of gross climate change pollutant emissions in California in 2016 (expressed as CO2e) were as follows:

- CO_2 accounted for 84.3 percent;
- CH_4 accounted for 9 percent;
- NO_2 accounted for 2.8 percent; and
- High GWP gasses (HFCs, PFC, and SF_6) accounted for 3.9 percent.

Of these gases, CARB found that transportation is the source of approximately 37 percent of the state's GHG emissions, followed by industrial sources at 24 percent and electricity generation (both in-state and out-of-state) at 20 percent. Agriculture is the source of approximately 8 percent, and residential activity is the source of about 6 percent, followed by commercial activities at 5 percent (CARB, 2016a).

Bay Area Emissions

In the San Francisco Bay Area, the last inventory prepared by BAAQMD (dated 2011, and updated in 2015) indicates that the transportation sector and industrial/commercial sector represent the largest sources of GHG emissions, accounting for 39.7 percent and 35.7 percent, respectively, of the Bay Area's 86.6 million tons of CO_2e in 2011. Electricity/co-generation sources account for about 14 percent of the Bay Area's GHG emissions, followed by residential fuel usage at about 7.7 percent. Off- road equipment sources currently account for approximately 1.5 percent of total Bay Area GHG emissions (BAAQMD, 2015a).

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.
- Although the City sent approximately 59,024 tons of solid waste to landfills in 2005, because of the aggressive recycling efforts and efficient methane recovery capture of landfills which serve the City, the net GHG emissions from solid waste disposal are less than zero, and are therefore not considered as a contributor to the GHG emission baseline and are zeroed out for inventory purposes.

C.3 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 Regulations

Federal Air Quality Regulations

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.C-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.

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.

Federal Greenhouse Gas Regulations

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 well-mixed 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 well-mixed 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 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 applies 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 Regulations

State Air Quality Regulations

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.C-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 39000 et seq.), which, like its federal counterpart, called for the designation of areas as attainment or nonattainment, but based on state ambient air quality standards rather than the federal standards. As indicated in Table 4.C-2, the SFBAAB is designated as "nonattainment" for state ozone, PM_{10}, and $PM_{2.5}$ 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, 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 to diesel fuel. Subsequent regulation of diesel emission by 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, CARB recommends that proximity to sources of DPM emissions be considered in the siting of new sensitive land uses. In April 2005, 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." 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, 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 (2005).

State Greenhouse Gas Regulations

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.

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 CEQA Guidelines also state that a project's incremental contribution to a cumulative effect is not cumulatively considerable if the project would 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 would 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 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 (referred to as the "Pavley standards" in recognition of the bill's author, state Senator Fran Pavley), 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 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

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 CARB to design and implement feasible and cost-effective emission 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. CARB has identified a GHG reduction target of 15 percent from current levels for local governments themselves and notes that successful implementation of the plan relies on local governments' land use planning and urban growth decisions 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.

California Climate Change Scoping Plan

Pursuant to AB 32, CARB adopted a Scoping Plan in December 2008 (re-approved by 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 for further study and possible State implementation, 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.

Scoping Plan 2014 Update

An update to the initial Scoping Plan was developed by CARB in collaboration with the California Climate Action Team (CCAT) to address the requirement by AB 32 that the Scoping

Plan be updated at least every five years. The Update builds upon the initial Scoping Plan with new strategies and expanded measures, and identifies opportunities to leverage existing and new funds to drive GHG emission reductions through strategic planning and targeted program investments. The first update to the AB 32 Scoping Plan was approved on May 22, 2014 by CARB.

The update describes the state's progress towards AB 32 goals. It found that, "California is on track to meet the near-term 2020 greenhouse gas limit and is well positioned to maintain and continue reductions beyond 2020 as required by AB 32." In addition, the update stated, "if California realizes the expected benefits of existing policy goals (such as 12,000 MW of renewable distributed generation by 2020, net zero energy homes after 2020, existing building retrofits under AB 758, and others) it could reduce emissions by 2030 to levels squarely in line with those needed in the developed world and to stay on track to reduce emissions to 80 percent below 1990 levels by 2050."

In addition, as part of the update to the Scoping Plan, the emissions reductions required to meet the 2020 statewide GHG emissions limit were adjusted. The primary reason for adjusting the 2020 statewide emissions limit was based on the fact that the original Scoping Plan relied on the IPCC's 1996 Second Assessment Report (SAR) to assign the GWPs of greenhouse gases. Recently, in accordance the United Nations Framework Convention on Climate Change (UNFCCC), international climate agencies have agreed to begin using the scientifically updated GWP values in the IPCC's Fourth Assessment Report (AR4) that was released in 2007. Because CARB has begun to transition to the use of the AR4 100-year GWPs in its climate change programs, CARB recalculated the Scoping Plan's 1990 GHG emissions level with the AR4 GWPs (CARB, 2014). Consequently, all GHG inventories going forward apply the AR4 GWPs to be consistent with statewide GHG reduction planning efforts and goals.

Scoping Plan 2017 Update

On January 20, 2017, CARB adopted its second update to the initial Scoping Plan, which establishes a proposed framework for California to meet a 40 percent reduction in greenhouse gases by 2030 compared to 1990 levels as required under SB 32.

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 CARB to complete major rulemakings for reducing GHGs including market mechanisms by January 1, 2011. AB 32 also required the program itself to begin in 2012. The first auction of "carbon offset credits" was held in November 2012.

Carbon offset credits are created through the development of projects, such as renewable energy generation or carbon sequestration projects, that achieve a reduction of emissions or an increase in the removal of carbon from the atmosphere 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 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).

The Cap-and-Trade Regulation provides a firm cap, ensuring that the 2020 statewide emission limit will not be exceeded. An inherent feature of the Cap-and-Trade Program is that it does not guarantee GHG emissions reductions in any discrete location or by any particular source. Rather, GHG emissions reductions are only guaranteed on an accumulative basis. The recently approved (July 2017) Assembly Bill 398 will ensure that California's Cap-and-Trade system will continue through 2030.

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 has been implemented over the past several years. Plan Bay Area, the San Francisco Bay Area's SCS, was adopted in July 2013 and updated in 2017.

Regional and Local Regulations

Regional and Local Air Quality Regulations

Bay Area Air Quality Management District

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 BAAQMD adopt a Clean Air Plan, which is a comprehensive plan to improve Bay Area air quality and protect public health. The BAAQMD must also 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.

Clean Air Plan

In April 2017, BAAQMD adopted the 2017 Clean Air Plan (2017). The plan's primary goals are to protect public health and protect the climate. The plan includes a wide range of proposed control measures, which consist of actions to reduce combustion-related activities, decrease fossil fuel combustion, improve energy efficiency, and decrease emissions of potent GHGs. The 2017 Clean Air Plan updates the Bay Area 2010 Clean Air Plan and complies with state air quality planning requirements as codified in the California Health and Safety Code. The Air Basin is designated non-attainment for both the 1- and 8-hour state ozone standards. In addition, emissions of ozone precursors in the SFBAAB contribute to air quality problems in neighboring air basins. Under these circumstances, state law requires the Clean Air Plan to include all feasible measures to reduce emissions of ozone precursors and to reduce the transport of ozone precursors to neighboring air basins.

The 2017 Clean Air Plan contains 85 measures to address reduction of several pollutants: ozone precursors, particulate matter, air toxics, and/or GHGs. Other measures focus on a single type of pollutant, potent GHGs such as methane and black carbon, or harmful fine particles that affect public health. These control strategies that can be grouped into the following categories:

- Stationary source measures;
- Transportation control measures;
- Energy Control Measures;
- Building Control Measures;
- Agricultural Control Measures;
- Natural and Working Lands Control Measures;
- Waste Management Control Measures;
- Water Control Measures; and
- Super GHG Control Measures.

BAAQMD CEQA Air Quality Guidelines

The BAAQMD CEQA Air Quality Guidelines (Guidelines) advise lead agencies on how to evaluate potential air quality impacts, including establishing quantitative and qualitative thresholds of significance. In June 2010, the BAAQMD adopted updated Guidelines, including new thresholds of significance, and revised them in May 2011 (BAAQMD, 2011). The thresholds BAAQMD adopted were called into question by a minute order issued January 9, 2012 in California Building Industry Association v. BAAQMD, Alameda Superior Court Case No. RGI0548693. The minute order stated that "The Court finds [the BAAQMD's adoption of thresholds] is a CEQA project, the court makes no further findings or rulings."

The claims made in the case concerned the CEQA impacts of adopting the thresholds, and in particular, how the thresholds would affect land use development patterns. Petitioners argued that the thresholds for Health Risk Assessments encompassed issues not addressed by CEQA. As a result, the BAAQMD resolutions adopting and revising the significance thresholds in 2011 were set aside by a judicial writ of mandate on March 5, 2012. In May 2012, the BAAQMD updated its Guidelines to continue to provide direction on recommended analysis methodologies, but without recommended quantitative significance thresholds. On August 13, 2013, the First District Court of Appeal ordered the trial court to reverse the judgment and upheld the BAAQMD's CEQA thresholds (California Building Industry Association v. Bay Area Air Quality Management District, Case No. A135335 & A136212 [Court of Appeal, First District, August 13, 2013]).

The California Supreme Court granted review of the appeal, but only to address whether or not CEQA requires an analysis of how existing environmental conditions would impact future residents or users of a proposed project and did not review or address the adequacy of specific thresholds adopted by the BAAQMD in 2011. On December 17, 2015, the Supreme Court concluded that agencies subject to CEQA generally are not required to analyze the impact of existing environmental conditions on a project's future users or residents, reversing the Court of Appeal's judgment on that issue. However, the court did acknowledge that when a proposed project risks exacerbating those environmental hazards or conditions that already exist, an agency must analyze the potential impact of such hazards on future residents or users.

The case was the remanded back to the Court of Appeal on August 12, 2016. The Court of Appeal concluded that "the challenged thresholds are not invalid on their face, but may not be used for the primary purpose envisioned by District, namely, to routinely assess the effect of existing environmental conditions on future users or occupants of a project" (*CBIA v. BAAQMD* [2016] 2Cal.App.5th 1067).

In May of 2017 the BAAQMD released its 2017 update to the Guidelines which once again contain the thresholds of significance formally presented in the 2011 Guidelines for the consideration of lead agencies in assessing air quality impacts. The 2017 Guidelines specify that under CEQA the receptor thresholds (the analysis of exposing new receptors to existing sources of toxic air pollution and odors) should not be applied to "routinely assess the effect of existing environmental conditions on future users or occupants of a project."

City of Alameda General Plan

The City of Alameda General Plan (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.

The General Plan establishes comprehensive, long-term land use policies for the City. Consistent with state law, the General Plan includes the 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 the Northern Waterfront.

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)

Regional and Local Greenhouse Gas Regulations

There are no applicable regional greenhouse gas regulations.

Local Action Plan for Climate Protection

The LAPCP (City of Alameda, 2008) contains multiple initiatives to help Alameda achieve its overall goal of reducing community-wide emissions by 25 percent below 2005 levels by 2020. The Plan identifies 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.

C.4 Impacts and Mitigation Measures

This analysis evaluates the proposed project's impacts related to air quality and greenhouse gas emissions. 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 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 significant net increase of any nonattainment pollutant;
- Expose sensitive receptors to substantial pollutant concentrations; or
- Create objectionable odors affecting a substantial number of people.

The BAAQMD has further defined these criteria of significance to indicate the project would result in a significant air quality impact if it would:

- Violate the Bay Area Air Quality Management District's air quality standards or contribute substantially to an existing or projected air quality violation by:
  - Generating average daily criteria air pollutant emissions of ROG, NO_x or $PM_{2.5}$ exhaust emissions in excess of 54 pounds per day or PM_{10} exhaust emissions of 82 pounds per day during project construction;
  - For project operations, generating average daily criteria air pollutant emissions of ROG, NO_x, or $PM_{2.5}$ in excess of 54 pounds per day, or maximum annual emissions of 10 tons per year. For emissions of PM_{10}, generating average daily emissions of 82 pounds per day or 15 tons per year; or
  - Contributing to CO concentrations exceeding the State ambient air quality standards of 9 ppm averaged over 8 hours and 20 ppm for 1-hour for project operations.
- Expose sensitive receptors (including residential areas) or the general public to toxic air contaminants in excess of the following thresholds:
  - An excess cancer risk level of more than 10 in one million, or non-cancer (i.e., chronic or acute) risk greater than 1.0 hazard index from a single source;
  - An incremental increase of greater than 0.3 µg /m3 annual average $PM_{2.5}$ from a single source;
  - An excess cancer risk level of more than 100 in one million, or non-cancer risk greater than 100 in one million from all sources; or
  - An incremental increase of greater than 0.8 µg /m3 annual average $PM_{2.5}$ from all sources.

BAAQMD's recommended approach to addressing localized construction dust-related air quality impacts (fugitive PM_{10} dust emissions) is a Best Management Practices (BMP) approach. This approach is identified both in the 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.

Project-related construction emissions would be considered to result in a cumulatively 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, NO_x, or $PM_{2.5}$ (non-inclusive of fugitive dust[4]) or exceed 82 pounds of PM_{10} (exclusive of fugitive dust[5]). The thresholds for PM_{10} and $PM_{2.5}$ 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).

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 $PM_{2.5}$ exceeding 0.3 $\mu g/m^3$ 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. A Hazard Index is a summation of the non-cancer hazard quotients for all chemicals to which an individual is exposed.

For project-level impact operational analyses, the BAAQMD 2017 CEQA Guidelines identifies various thresholds and tests of significance. For ROG, NO_x and $PM_{2.5}$, 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 PM_{10} 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).

[4] 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.

[5] 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.

Under the thresholds identified in the 2017 BAAQMD CEQA Guidelines, a project would have a significant air quality impact if it would result in an incremental increase in localized annual average concentrations of $PM_{2.5}$ exceeding 0.3 micrograms per cubic meter from project operations. A project would also 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 it would expose persons to TACs such that exposure levels exceed a non-cancer Hazard Index of 1.0.

The emission thresholds were established based on the attainment status of the air basin in regard to air quality standards for specific criteria pollutants. Because the concentration standards were set at a level that protects public health with an adequate margin of safety, these emission thresholds are regarded as conservative and would overstate an individual project's contribution to health risks.

The State CEQA Guidelines indicate that a project would have a significant adverse greenhouse gas emission impact if the project would:

- 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.

The BAAQMD has further defined these criteria of significance to indicate the project would result in a less-than-significant air quality impact if it would:

- Result in operational-related greenhouse gas emissions of less than 1,100 metric tons of CO_2e a year; or
- Result in operational-related greenhouse gas emissions of less than 4.6 metric tons of CO_2e per service population (residents plus employees).

Additional information on the applicability of these thresholds to the proposed project, as well as the methodology used for determining the potential impacts of the project is provided below.

Topics with No Impact or Otherwise Not Addressed in this EIR

The project site is located over 1,000 feet (the area of effect) from both other sensitive receptors and from stationary sources and highways. Therefore, impacts related to exposure of sensitive receptors and health risks can be determined to be less than significant with no further analysis.

Impact Assessment Methodology

Air Quality

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 regional air quality primarily through construction vehicle emissions and

paint and pavement off-gassing and 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 and operational emissions were estimated using the current version of the California Emissions Estimator Model (CalEEMod, version 2016.3.2).

Greenhouse Gas Emissions

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). 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.)
- 2.8 metric tons of CO_2e per service population per year in 2030 (i.e., emissions above this level may be considered significant).

For quantifying a project's GHG emissions, BAAQMD recommends that all GHG emissions from a project be estimated, including a project's direct and indirect GHG emissions from operations. Direct emissions refer to emissions produced from onsite combustion of energy, such as natural gas used in furnaces and boilers, emissions from industrial processes, and fuel combustion from mobile sources. Indirect emissions are emissions produced offsite from energy production and water conveyance due to a project's energy use and water consumption. BAAQMD has provided guidance on detailed methods for modeling GHG emissions from proposed projects.

This analysis uses both a quantitative and a qualitative approach. The quantitative approach is used to address the first significance criterion, to determine whether the project would 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 the numeric BAAQMD efficiency threshold of 4.6 metric tons of CO_2e per service population annually without also conflicting with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs (such as the state Climate Change Scoping Plan). Therefore, if a project exceeds the numeric threshold and thereby 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 2016.3.2, with model data and assumptions included in Appendix B. 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 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.

Cumulative Impacts (Criteria Pollutants, TACs, and GHGs)

The 2017 BAAQMD CEQA Guidelines state that if the individual emissions of a project result in an increase in ROG, NO_x, $PM_{2.5}$, or PM_{10} exceeding the project-level significance criteria, then project emissions would also be considered to contribute considerably to a significant cumulative effect.

With regard to cumulative impacts from $PM_{2.5}$, a significant cumulative air quality impact would be considered to occur if localized annual average concentrations of $PM_{2.5}$ 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 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, 2017; CAPCOA, 2008); as such, 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. The quantitative efficiency threshold proposed by BAAQMD in the 2017 Guidelines is 4.6 metric tons of CO_2e per service population annually. For year 2030, a new interim goal of a further 40 percent reduction below 1990 levels has been adopted by CARB pursuant to Senate Bill 32. Applying these further needed reductions to the service population threshold results in an operational-related greenhouse gas emissions threshold of 2.8 metric tons of CO_2e per service population as sufficient to achieve the goals for year 2030 (Vintze, 2016). If

the project construction and operational GHG emissions would exceed these thresholds, then, consistent with BAAQMD Guidelines, the project would be considered to have a cumulatively considerable contribution of GHG emissions and a cumulatively significant impact on climate change.

Impact Analysis

Impact 4.C-1: The proposed project would not result in localized construction dust-related air quality impacts; generate construction emissions that would result in a substantial increase of criteria pollutants and precursors for which the air basin is in nonattainment under an applicable federal or state ambient air quality standard; or expose sensitive receptors to substantial concentrations of toxic air contaminants or respirable particulate matter ($PM_{2.5}$). (*Less than Significant with Mitigation*)

Construction Criteria Pollutants

As described in Chapter 3, *Project Description*, the proposed project includes demolition of existing structures as part of the redevelopment of the project site and the construction of the new structures. Project related demolition, grading and other construction activities at the project site may cause wind-blown dust that could emit particulate matter into the atmosphere. Fugitive dust includes not only PM_{10} and $PM_{2.5}$ but also larger particles as well that can represent a nuisance impact. Dust can be an irritant and cause watering eyes or irritation to the lungs, nose and throat. 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. 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 actions to reduce sources of particulate matter exposure.

During construction, short-term degradation of air quality may occur due to the release of particulate emissions generated by excavation, grading, hauling, and other activities. Emissions from construction equipment are also anticipated and would include CO, NO_x, ROG, directly-emitted particulate matter ($PM_{2.5}$ and PM_{10}), and TACs such as diesel exhaust particulate matter. Site preparation and project construction would involve grading, paving and building activities. Construction-related effects on air quality from the proposed project would be greatest during the site preparation phase due to the disturbance of soils. If not properly controlled, these activities would temporarily generate particulate emissions. Sources of fugitive dust would include disturbed soils at the construction sites. Unless properly controlled, vehicles leaving the site would deposit dirt and mud on local streets, which could be an additional source of airborne dust after it dries. PM_{10} emissions would vary from day to day, depending on the nature and magnitude of construction activity and local weather conditions. PM_{10} emissions would depend on soil moisture, silt content of soil, wind speed, and the amount of operating equipment. Larger dust particles would settle near the source, while fine particles would be dispersed over greater distances from the construction site.

For mitigation of fugitive dust emissions, the BAAQMD recommends implementing best management practices (BMPs), as a pragmatic and effective approach to controlling fugitive dust emissions (BAAQMD, 2009). BAAQMD notes that individual measures have been shown to reduce fugitive dust by anywhere from 30 percent to more than 90 percent. Therefore, implementation of these BMPs would ensure the project's fugitive dust emissions remained below a level of significance. These BMPs are included as **Mitigation Measure 4.C-1**, which would ensure the project's impact would be less than significant with mitigation.

In addition to dust-related PM_{10} emissions, heavy trucks and construction equipment powered by gasoline and diesel engines would generate CO, SO_2, NO_x, VOCs and some soot particulate ($PM_{2.5}$ and PM_{10}) in exhaust emissions. If construction activities were to increase traffic congestion in the area, CO and other emissions from traffic would increase slightly while those vehicles are delayed. These emissions would be temporary and limited to the immediate area surrounding the construction site.

Precise details of construction activities are unknown at this time; therefore, default assumptions (e.g., construction fleet activities and duration) from CalEEMod were assumed. For purposes of this analysis, the construction schedule for all improvements was assumed to be approximately 32 months (or approximately 694 construction days). Construction emissions were estimated for the project using CalEEMod, consistent with BAAQMD recommendations. Construction-related emissions are presented in **Table 4.C-3** and additional information is provided in Appendix B. CalEEMod output sheets are also included in Appendix B.

TABLE 4.C-3
AVERAGE DAILY CONSTRUCTION-RELATED POLLUTANT EMISSIONS (pounds/day)[a]

Scenario	ROG	NO_x	Exhaust $PM_{2.5}$[b]	Fugitive Dust $PM_{2.5}$[b]	Exhaust PM_{10}[b]	Fugitive Dust PM_{10}[b]
Average Daily Emissions [c]	6	9	0.5	0.8	0.5	4
BAAQMD Threshold	54	54	54	BMP	82	BMP
Significant Impact?	No	No	No	NA	No	NA

NA: Not Applicable, the BAAQMD does not have thresholds.
BMP: Best Management Practices.

[a] Emissions include results modeled with CalEEMod. Additional data and assumptions are described in Appendix B.
[b] BAAQMD's construction-related significance thresholds for PM_{10} and $PM_{2.5}$ apply to exhaust emissions only and not to fugitive dust.
[c] Average daily emissions were calculated by dividing total emissions over the construction days.

SOURCE: LSA Associates, Inc., 2016.

As shown in Table 4.C-4, construction emissions associated with the project would be less than significant for ROG, NO_x and $PM_{2.5}$ and PM_{10} exhaust emissions. The BAAQMD requires implementation of Best Management Practices to reduce construction dust impacts to a less than-significant level. Implementation of **Mitigation Measure 4.C-1** would reduce impacts to less than significant levels.

Mitigation Measure 4.C-1: The project applicant shall be required to demonstrate compliance with all applicable City regulations and operating procedures prior to issuance of building or grading permits, including standard dust control measures. The effective implementation of dust abatement programs, incorporating all of the following dust control measures, would reduce the temporary air quality impact associated with construction dust.

- All active construction areas shall be watered two times daily using equipment and staff provided by the project applicant or prime contractor, as needed, to avoid visible dust plumes. Appropriate non-toxic dust palliative or suppressant, added to water before application, may be used.
- All trucks hauling soil, sand and other loose materials shall be covered.
- All unpaved access roads, parking areas and construction staging areas shall be either paved, watered as necessary to avoid visible dust plumes, or subject to the application of (non-toxic) soil stabilizers.
- All paved access roads, parking areas and staging areas at the construction site shall be swept daily with water sweepers. The use of dry power sweeping is prohibited.
- If visible soil material is carried onto adjacent public streets, these streets shall be swept daily with water sweepers. The use of dry power sweeping is prohibited.
- All stockpiles of debris, soil, sand or other materials that can be blown by the wind shall either be covered or watered as necessary to avoid visible dust plumes.
- An off-pavement speed limit of 15 miles per hour for all construction vehicles shall be incorporated into the construction contract and enforced by the prime contractor.
- All inactive portions of the project site (those areas which have been previously graded, but inactive for a period of ten days or more) shall be watered with an appropriate dust suppressant, covered or seeded.
- All earth-moving or other dust-producing activities shall be suspended when the above dust control measures prove ineffective in avoiding visible dust plumes during periods of high winds. The wind speed at which this suspension of activity will be required may vary, depending on the moisture conditions at the project site, but suspension of such activities shall be required in any case when the wind speed exceeds 25 miles per hour.
- All roadways, 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.
- 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 California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.

- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- Post a publicly visible sign with the telephone number and person to contact at the City of Alameda regarding dust complaints. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

Construction Health Risk Impacts

During construction, various diesel-powered vehicles and equipment would be in use. In 1998, CARB identified particulate matter from diesel-fueled engines as a TAC. CARB has completed a risk management process that identifies potential cancer risks for a range of activities using diesel-fueled engines (2000). High volume freeways, stationary diesel engines and facilities attracting heavy and constant diesel vehicle traffic (e.g., distribution centers and truck stops) were identified as having the highest associated risk.

There are no sensitive receptors within 1,000 feet (the area of effect for analysis of health risks per BAAQMD Guidelines) of the project site. Therefore, the project's impact related to exposure of sensitive receptors to construction-period TAC and health risk would be less than significant.

Significance after Mitigation: Less than Significant.

Impact 4.C-2: The proposed project would not generate operational emissions that would result in a considerable net increase of criteria pollutants or precursors for which the air basin is in nonattainment under an applicable federal or state ambient air quality standard or expose sensitive receptors to substantial concentrations of toxic air contaminants or respirable particulate matter ($PM_{2.5}$). (*Less than Significant, No Mitigation Required*)

Long-term air emission impacts are those associated with the operation of area sources and mobile sources related to the proposed project after it is constructed. In addition to the short-term construction emissions, the project would also generate long-term air emissions, such as those associated with changes in permanent use of the project site. These long-term emissions are primarily mobile source emissions that would result from vehicle trips associated with the proposed project. Area sources, such as natural gas heaters, landscape equipment, and use of consumer products, would also result in pollutant emissions. PM_{10} emissions result from running exhaust, tire and brake wear, and the entrainment of dust into the atmosphere from vehicles traveling on paved roadways. Entrainment of PM_{10} occurs when vehicle tires pulverize small rocks and pavement and the vehicle wakes generate airborne dust. The contribution of tire and brake wear is small compared to the other PM emission processes. Gasoline powered engines have small rates of particulate matter emissions compared with diesel-powered vehicles. Since much of the project traffic fleet would be made up of light-duty gasoline-powered vehicles, a majority of the PM_{10} emissions would result from entrainment of roadway dust from vehicle travel.

Energy source emissions result from activities in buildings for which electricity and natural gas are used (non-hearth). The quantity of emissions is the product of usage intensity (i.e., the amount of electricity or natural gas) and the emission factor of the fuel source. Major sources of energy demand include building mechanical systems, such as heating and air conditioning, lighting, and plug-in electronics, such as refrigerators or cooking equipment. Greater building or appliance efficiency reduces the amount of energy for a given activity and thus lowers the resultant emissions. The emission factor is determined by the fuel source, with cleaner energy sources, like renewable energy, producing fewer emissions than conventional sources.

Area source emissions associated with the project would include emissions from heating, on-site utility use, and the use of landscaping equipment. Emission estimates for the project were calculated using CalEEMod, as shown in **Table 4.C-4** below, which shows the project's estimated unmitigated operational emissions. Emissions from existing uses were not subtracted from these results.

TABLE 4.C-4
AVERAGE UNMITIGATED OPERATIONAL-RELATED POLLUTANT EMISSIONS[a]

Scenario	ROG	NO_x	PM_{10}	$PM_{2.5}$
Emissions in pounds/day				
Area Source Emissions	8.2	1.1	0.20	0.20
Energy Source Emissions	0.1	0.6	0.05	0.05
Mobile Source Emissions	3.5	20.6	9.69	2.68
Total Emissions	11.8	22.3	9.94	2.93
BAAQMD Operational Threshold	54.0	54.0	82.00	54.00
Significant Impact?	No	No	No	No
Emissions in tons/year				
Area Source Emissions	1.41	0.03	0.01	0.01
Energy Source Emissions	0.01	0.12	0.01	0.01
Mobile Source Emissions	0.55	3.62	1.66	0.46
Total Emissions	1.98	3.76	1.68	0.48
BAAQMD Operational Threshold	10.00	10.00	15.00	10.0
Significant Impact?	No	No	No	No

[a] Emissions include results modeled with CalEEMod for project operations. Additional data and assumptions are in Appendix B.

SOURCE: Lamphier-Gregory, 2017

The results shown in Table 4.C-5 indicate the project would not exceed the criteria for daily ROG, NO_x, PM_{10} and $PM_{2.5}$ emissions. Therefore, the proposed project would not have a significant effect on regional air quality.

Mitigation: None required.

Impact 4.C-3: The proposed project would not expose sensitive receptors to substantial pollutant concentrations during the operations (*Less than Significant, No Mitigation Required*)

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. BAAQMD recommends assessment of health risk to sensitive receptors within a 1,000-foot area of effect. There are no sensitive receptors within 1,000 feet from the proposed project site boundary. There are also no stationary sources or high volume highways within 1,000 feet of the project site (BAAQMD 2012c). Therefore, the project would have a less than significant impact related to operational exposure of sensitive receptors.

The proposed project would result in on-road mobile traffic that could result in localized CO exposure. The proposed project would not result in any stationary sources of TAC emissions. However, an assessment of the potential health risk of locating sensitive residential receptors on the project site is discussed below.

The BAAQMD has established a screening methodology that provides a conservative indication of whether the implementation of a proposed project would result in significant CO emissions. According to the BAAQMD's CEQA Guidelines, a proposed project would result in a less-than significant impact due to localized CO concentrations if the following screening criteria are met:

- The project is consistent with an applicable congestion management program established by the county congestion management agency for designated roads or highways, and the regional transportation plan and local congestion management agency plans.
- Project traffic would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour.
- The project 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, or below-grade roadway).

The proposed project would not conflict with the Alameda County Transportation Commission's (ACTC) program for designated roads or highways, a regional transportation plan, or other agency plans, as the proposed project would not cause the level of service to significantly deteriorate on any regional roadway. In addition, traffic volumes on roadways in the vicinity of the project site are less than 44,000 vehicles per hour. The proposed project would not increase traffic volumes at affected intersections to more than 44,000 vehicles per hour and would not result in localized CO concentrations that exceed State or federal standards. See *Section 4.L, Transportation and Circulation* for additional details of traffic volumes.

Based on the BAAQMD's criteria, project-related traffic would not lead to violations of the CO standards; therefore, no further analysis was conducted for CO impacts of the project at these intersections. This impact would be considered less than significant on a project-level and cumulative basis.

Mitigation: None required.

Impact 4.C-4: The proposed project would not create objectionable odors affecting a substantial number of people. (*Less than Significant, No Mitigation Required*)

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, then the person is describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word strong to describe the intensity of an odor. Odor intensity depends on the concentration in the air. When an odor sample is progressively diluted, the odor concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the detection or recognition of the odor is quite difficult. At some point during dilution, the concentration of the odor reaches a level that is no longer detectable.

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. The project would not include any of the above potential sources of objectionable odors.

Mitigation: None required.

Impact 4.C-5: The proposed project would not conflict with or obstruct the implementation of the applicable air quality plan. (*Less than Significant with Mitigation*)

The applicable air quality plan for the area is the BAAQMD's 2017 Clean Air Plan. Under BAAQMD's updated 2017 methodology, a determination of consistency with the 2017 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.

Consistency with the Clean Air Plan can be determined if the project does the following: 1) supports the goals of the Clean Air Plan; 2) includes applicable control measures from the Clean Air Plan; and 3) would not disrupt or hinder implementation of any control measures from the Clean Air Plan.

Criterion 1: Project Support of the Primary Goals of the *2010 Clean Air Plan*

The primary goals of the 2017 Bay Area Clean Air Plan are to:

- Attain all state and national air quality standards;
- Eliminate disparities among Bay Area communities in cancer health risk from toxic air contaminants; and

- Reduce Bay Area GHG emissions 40 percent below 1990 levels by 2030, and 80 percent below 1990 levels by 2050.

Any project (i.e., project or plan) that would not support these goals would not be considered consistent with the 2017 Clean Air Plan. If approval of a project would not result in significant and unavoidable air quality impacts, after the application of all feasible mitigation, the project may be considered consistent with the 2017 Clean Air Plan.

As indicated under Impact 4.C-1 and Impact 4.C-2, the proposed project would not exceed the BAAQMD's significance criteria for criteria air pollutant emissions. With respect to the second goal (reduction of population exposure to hazardous emissions), the project would result in a less-than-significant impact with respect to exposure to TACs. Likewise, as discussed under Impact 4.C-6, the project would have less than significant impacts with respect to greenhouse gas emissions.

Thus, the proposed project would not hinder the region from attainment of the goals outlined in the 2017 Clean Air Plan.

Criterion 2: Plan Consistency with Control Measures Contained in the Clean Air Plan

The second question recommended in the 2017 BAAQMD CEQA Guidelines for evaluating consistency with the 2017 Clean Air Plan is whether the project includes applicable control measures from the air quality plan. The 2017 Clean Air Plan includes 85 control measures to reduce emissions of PM, ozone precursors, and other air pollutants from a wide variety of emission sources. Forty of these measures address stationary sources and primarily direct the BAAQMD to adopt or revise rules and regulations and other air quality programs and are therefore not directly applicable to implementation of a residential development project.

The 2017 Clean Air Plan contains transportation control measures and measures related to energy, green building, waste management, water control and control of short-lived GHGs. The measures applicable to criteria air pollutants, TACs, or greenhouse gases generated under the proposed project are identified in **Table 4.C-5**. The table identifies the control measure and existing or proposed mechanisms that the project or surrounding local jurisdictions and transit agencies would have in place to implement these measures. Existing mechanisms or those included in the proposed project would be consistent with most, but not all, of the relevant control measures of the 2017 Clean Air Plan.

TABLE 4.C-5
PROJECT CONSISTENCY WITH CONTROL STRATEGIES OF THE 2017 CLEAN AIR PLAN

Control Measure	Existing or Proposed Implementation Mechanism	Consistency of Proposed Project with Measure
TR1 – Clean Air Teleworking Initiative	Future residents within the project area could be expected to take advantage of teleworking opportunities, but the extent to which teleworking would occur cannot be accurately predicted at this time.	Yes
TR2 – Trip Reduction Programs	The project would address this Measure through implementation of its Transportation Demand Management (TDM) program (Mitigation Measure 4.L-2).	Yes, with implementation of project TDM program (Mitigation Measure 4.L-2)
TR3 – Local and Regional Bus Service	Transit services within the area include the Alameda–Contra Costa Transit District (AC Transit), the Bay Area Rapid Transit District (BART), Water Emergency Transit Agency (WETA), and Amtrak	Yes
TR4 – Local and Regional Rail Service	Amtrak and Bay Area Rapid Transit District (BART) stations are within 2.5 miles of project site.	Yes
TR5 – Transit Efficiency and Use	AC Transit Lines 96, 19, 20, 51A, 851, O, and W are located within 0.5 miles from the project site.	Yes
TR7 – Safe Routes to Schools and Safe Routes to Transit	Haight Elementary School is 2 miles southeast from the project site. Wood Middle School is located about 2.2 miles south of the site. Encinal High School is about 1.8 miles from the project site.	Yes
TR8 - Ridesharing	The TDM Program (Mitigation Measure 4.L-2) may include subsidized dedicated on-site carpool parking and on-site car-share parking as part of the overall TDM strategy.	Yes, with implementation of project TDM program (Mitigation Measure 4.L-2)
TR9 – Bicycle and Pedestrian Access and Facilities	The project would complete the segment of the Class I path along the estuary along its frontage and connect to the existing segments of the path in accordance with the Alameda Bicycle Master Plan. The proposed internal street network and Bay Trail segment within the project site would allow for pedestrians and bicyclists to access the site's waterfront park. Bike racks would be provided at strategic locations within public open space areas for convenience and to promote bicycling through and around the site.	Yes
TR10 – Land Use Strategies	The project would include higher density construction and other land use strategies that would result in trip reductions.	Yes
TR13 - Parking Policies	The TDM program (Mitigation Measure 4.L-2) may include unbundled parking programs as part of the overall TDM strategy.	Yes, with implementation of project TDM program (Mitigation Measure 4.L-2)
TR14 – Cars and Light Trucks	The project will wire the parking garage for electric vehicle charging for at least 3% of the parking stalls and will install charging stations for between 4 and 15 of the stalls initially.	Yes

Control Measure	Existing or Proposed Implementation Mechanism	Consistency of Proposed Project with Measure
EN2 – Decrease Electricity Demand	While the LAPCP identifies energy Initiative 4 to amend the Alameda Municipal Code to include sustainable design and green building standards for all new, substantially expanded and remodeled buildings, to date this has only been done for City building projects and Capital Improvement projects through Section 13-19 of the Municipal Code. The project will be designed to meet LEED Silver certification or equivalent (See Mitigation Measure 4.C-2).	Yes
BL1 – Green Buildings	See above discussion for EN-2	Yes
BL2 – Decarbonize Buildings	Implemented through The City's Alameda Green program to allow residents and businesses the ability to choose 100 percent renewable energy.	Yes
BL4 – Urban Heat Island	Mitigation Measure 4.C-2 added to address by identifying Leadership in Energy and Environmental Design (LEED) rating of silver or equivalent. One option for LEED certification is green roofs which serve to reduce a building albedo and associated heat island affects.	Yes, with implementation of Mitigation Measure 4.C-2
NW2 – Urban Tree Planting	While a landscaping plan has not been developed, the project would be required to provide sufficient tree and landscaping elements per the City's development code.	Yes
WA3 – Green Waste Diversion; and WA4 – Recycling and Waste Reduction	The City of Alameda achieves a 75 percent waste diversion rate and as a multifamily property of 5 units or more, the project is required to have adequate recycling and composting service.	Yes
WR2 – Support Water Conservation	Mitigation Measure 4.C-2 added to address by identifying Leadership in Energy and Environmental Design (LEED) rating of silver or equivalent. Indoor and outdoor water conservations are major elements of the LEED certification program.	Yes, with implementation of Mitigation Measure 4.C-2

SOURCE: BAAQMD, Clean Air Plan, Spare the Air, Cool the Climate, 2017d

With elements identified as part of the proposed project, the proposed project would be consistent with applicable control measures from the 2017 Clean Air Plan.

The proposed project would not adversely affect implementation of any 2017 Clean Air Plan control measure.

Criterion 3: Disruption or Hindrance of Applicable Control Measures

The project would develop residential uses in an area that is currently vacant. The proposed project would not hinder or disrupt implementation of any control measures from the 2017 Clean Air Plan.

BAAQMD has identified examples of how a project 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. Development of the project site would include improved pedestrian and bicycle facilities. These elements of project development demonstrate that control measure disruption or delay would not occur.

The proposed project would also be compliant with the GHG reduction initiatives included in the City's 2008 LAPCP, which are similar to several BAAQMD 2010 Clean Air Plan measures discussed in Table 4.C-5 above.

The proposed project would not adversely affect implementation of any 2017 Clean Air Plan control measure.

The proposed project would support the primary goals of the 2017 Clean Air Plan and it would not disrupt or hinder implementation of any 2017 Clean Air Plan control measures.

Mitigation: Implementation of Mitigation Measure 4.L-2, discussed in Section L: Transportation and Circulation, requiring implementation of a Transportation Demand Management Plan, and Mitigation Measure 4.C-2 would reduce impacts to less than significant levels.

> **Mitigation Measure 4.C-2:** The City shall require construction plans for the new structures are designed to meet LEED Silver certification or equivalent.

Significance after Mitigation: Less than Significant.

Cumulative Impacts

Impact 4.C-6: The proposed project, when combined with past, present and other reasonably foreseeable development in the vicinity, would not result in cumulative air quality impacts (*Less than Significant with Mitigation*)

CEQA defines a cumulative impact as two or more individual effects, which when considered together, are considerable or which compound or increase other environmental impacts. According to the BAAQMD, air pollution is largely a cumulative impact. No single project is sufficient in size, by itself, to result in nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. Therefore, if daily average or annual emissions of operational-related criteria air pollutants exceed any applicable threshold established by the BAAQMD, the proposed project would result in a cumulatively significant impact.

As shown in Table 4.C-4, above, implementation of the proposed project with implementation of **Mitigation Measure 4.C-1** would generate less than significant regional emissions. As shown in the project-specific air quality impacts discussion above, the proposed project would not result in individually significant impacts and therefore would also not make a cumulatively considerable contribution to regional air quality impacts.

With regard to regional criteria air pollutants, according to the BAAQMD, no single project is sufficient in size, by itself, to result in nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. There are many projects throughout the 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 2017 BAAQMD CEQA Guidelines, 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.C-2, project operational emissions would not exceed the significance thresholds with mitigation. Impacts would therefore be less than significant. As such, combining project emissions with emissions from other projects would not result in cumulatively significant air quality operational impacts.

Mitigation: Implementation of previously identified Mitigation Measure 4.C-1.

Significance after Mitigation: Less than Significant.

Impact 4.C-7: The proposed project would not generate greenhouse gas emissions, either directly or indirectly, that would have a significant impact on the environment. (*Less than Significant with Mitigation*)

GHG impacts are considered to be exclusively cumulative impacts (CAPCOA, 2008). GHG emissions associated with proposed project construction and operations were modeled with CalEEMod (version 2016.3.2) and are described below.

Construction Activities

Construction activities would produce combustion emissions from various sources. During construction of the project, GHGs would be emitted through the operation of construction equipment and from worker and builder supply vendor vehicles, each of which typically use fossil-based fuels to operate. The combustion of fossil-based fuels creates GHGs such as CO_2, CH_4, and N_2O. In addition, CH_4 is emitted during the fueling of heavy equipment. Exhaust emissions from on-site construction activities would vary daily as construction activity levels change.

Using CalEEMod data outputs, the total project construction emissions are estimated to be 606 metric tons of CO_2e per year. The BAAQMD does not have an adopted Threshold of Significance for construction-related GHG emissions. However, lead agencies are encouraged to quantify and disclose GHG emissions that would occur during construction and the calculated annual construction emissions would be below BAAQMD annual operational threshold of 1,100 metric tons CO_2e. Project construction-period GHG emissions would be less than significant. Implementation of the construction emission control measures in **Mitigation Measure 4.C-1** would further reduce GHG emissions during the construction.

Operational GHG Emissions

Long-term operation of the proposed project would generate GHG emissions from area and mobile sources, and indirect emissions from sources associated with energy consumption. Mobile-source emissions of GHGs would include project-generated vehicle trips. Area-source emissions would be associated with activities such as landscaping and maintenance of proposed land uses, and heating.

Operational emissions estimates for the proposed project are discussed below and were calculated using a method that is consistent with the methodology recommended in the BAAQMD's CEQA Air Quality Guidelines, as described below.

Methodology

The methodology and/or qualitative description of the sources of GHG emissions related to transportation, electricity, water use, and solid waste disposal are described below.

Transportation. Transportation associated with the project would result in GHG emissions from the combustion of fossil fuels in daily automobile and truck trips. Transportation is the largest source of GHG emissions in California and represents approximately 38 percent of annual CO_2 emissions generated in the State. For land use development projects, vehicle miles traveled (VMT) and vehicle trips are the most direct indicators of GHG emissions associated with the project. The proposed project is forecast to generate 1,757 trips per day.

Electricity and Natural Gas. Buildings represent 39 percent of United States primary energy use and 70 percent of electricity consumption (USDOE, 2003). Electricity use can result in GHG production if the electricity is generated by combusting fossil fuel. The project is anticipated to increase the use of electricity and natural gas; however, as part of the project's compliance with the latest California building code standards, the project is expected to be relatively energy efficient.

Water Use. Water and wastewater related GHG emissions are based on water supply and conveyance, water treatment, water distribution, and wastewater treatment. Each element of the water use cycle has unique energy intensities (kilowatt hours [kWh]/million gallons). Recognizing that the actual energy intensity in each component of the water use cycle will vary by utility, the CEC assumes that approximately 3,950 kWh per million gallons are consumed for water that is supplied, treated, consumed, treated again, and disposed of in northern California.

Solid Waste Disposal. Solid waste generated by the project could contribute to GHG emissions in a variety of ways. Average waste generation rates from a variety of sources are available from the California Department of Resources, Recycling and Recovery (Cal Recycle, 2012). Land filling and other methods of disposal use energy for transporting and managing the waste, and these activities produce additional GHGs to varying degrees. Land filling, the most common waste management practice, results in the release of CH_4 from the anaerobic decomposition of organic materials. CH_4 is 25 times more potent a GHG than CO_2. However, landfill CH_4 can also be a source of energy. In addition, many materials in landfills do not decompose fully, and the carbon that remains is sequestered in the landfill and not released into the atmosphere.

Project Emissions

When calculating project GHG emissions to compare to the thresholds of significance, BAAQMD recommends that the lead agency consider project design features, attributes, and local development requirements as part of the project as proposed and not as mitigation measures. Consistent with BAAQMD guidance, GHG emissions were estimated using CalEEMod. **Table 4.C-6** shows the calculated GHG emissions for the proposed project. Mobile source emissions are the largest source of GHG emissions at approximately 76 percent of the total. Energy use is next largest category at approximately 19 percent of CO_2e emissions. Area source emissions are less than one percent of the total emissions, and waste and water source emissions are approximately two and a half percent each. Additional calculation details are provided in Appendix B.

TABLE 4.C-6
PROJECT OPERATIONAL GREENHOUSE GAS EMISSIONS (metric tons/year)

Emissions Source	CO_2e	Percent of Total
Area Source Emissions	9	<1
Energy Source Emissions	497	19
Mobile Source Emissions	2,005	76
Waste Source Emissions	68	2.5
Water Source Emissions	68	2.5
Total Annual Emissions	2,646	100

SOURCE: Lamphier-Gregory, 2017

Based on the analysis results, the proposed project would generate 2,646 metric tons of CO_2e, which would be above the BAAQMD's numeric threshold of 1,100 metric tons CO_2e.

The project would develop 292 residential units, which would provide residence for 724 people. The project's GHG emissions would result in a GHG efficiency of 3.65 metric tons CO_2e per service population which is below the BAAQMD's threshold of 4.6 metric tons. According to the BAAQMD, a project would have less-than-significant GHG emissions if it would meet one or more of the criteria. Therefore, because the project would result in emissions below the 4.6 metric tons CO_2e per service, the project would not have a significant effect on the environment related to GHG emissions.

For year 2030, a new interim goal of a further 40 percent reduction below 1990 levels has been adopted by CARB pursuant to Senate Bill 32. Applying these further needed reductions to the service population threshold results in an operational-related greenhouse gas emissions threshold of 2.8 metric tons of CO_2e per service population as sufficient to achieve the goals for year 2030 (Vintze, 2016). Without considering mitigating factors, the project's 3.65 metric tons CO_2e per service population would exceed this year 2030 threshold.

Based on the VMT analysis for the project, the characteristics of the project site would result in VMT 73.5% the amount assumed in CalEEMod. This reduction in mobile emissions equates to a reduction of approximately 531 metric tons per year of CO_2e for the proposed project, resulting in

2.92 metric tons CO_2e per service population, which would continue to exceed the year 2030 threshold of 2.8. Trip reductions realized through implementation of the project TDM program could additionally reduce mobile emissions, but as efficiency is not known and may overlap with assumptions in the VMT analysis, additional TDM reductions are not taken into account for this assessment.

Implementation of Mitigation Measure 4.C-2 would require the applicant to obtain LEED silver certification or its equivalent for proposed residential structures. LEED silver certification results in approximately 25 percent reduction in building energy demand (USGBC, 2016), which equates to a reduction of approximately 124 metric tons per year of CO_2e for the proposed project. Resultant project emissions of 2.75 metric tons CO_2e per service population would be below the year 2030 threshold of 2.8. Therefore, in concert with the required LEED Silver Certification prescribed by Mitigation Measure 4.C-2, the project would achieve the level of reduction required to mitigate this potential impact and this impact is considered less than significant, with mitigation.

Mitigation: Implementation of Mitigation Measure 4.L-2, discussed in Section L: Transportation and Circulation, requiring implementation of a Transportation Demand Management Plan, and implementation of Mitigation Measure 4.C-2, included previously in this section, requiring LEED Silver certification or equivalent would reduce the level of significance to less than significant.

Significance after Mitigation: Less than Significant.

Impact 4.C-8: The proposed project would not 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 with Mitigation*)

The proposed project would be compliant with the GHG reduction initiatives included in the City's 2008 LAPCP, which are similar to several BAAQMD 2010 Clean Air Plan measures discussed in Table 4.C-5 above. In addition, as indicated in Table 4.C-6 and the following discussion, mitigated GHG emissions generated by construction and operation of the project would be 2.75 metric tons of CO_2e per service population per year, which is less than the BAAQMD "efficiency threshold" of 4.6 metric tons of CO_2e per service population per year and, the analogous 2030 "efficiency threshold" of 2.8 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). 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. The project would have a less-than-significant impact with regard to GHG reduction-planning efforts, because emissions per service population would be below the thresholds developed based on attainment of AB 32 goals.

Mitigation: Implementation of previously identified Mitigation Measure 4.C-2.

Significance after Mitigation: Less than Significant.

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D. Biological Resources

D.1 Introduction

This section identifies the existing biological resources at 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. The environmental setting discussion provides a summary description of biological resources occurring on and around the project site, including identification of any special-status species that have the potential to occur according to the California Natural Diversity Database (CNDDB).

D.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 a diversity of soils, topography, and micro-climates in the area. The rapid pace of development in the San Francisco Bay area and within Alameda County has resulted in a relatively high degree of endangerment for local flora and fauna. The project area is located on the eastern shoreline of Alameda Island, and includes waters of the Oakland-Alameda Estuary (referred to herein as the Alameda Estuary), which is part of the larger San Francisco Bay Estuary.

The City of Alameda is on 12.4 square mile Alameda Island in the San Francisco Bay that is separated from the City of Oakland by the Alameda Estuary. The area encompassed by modern-day Alameda Island was historically a combination of shallow bay waters, tidal marshes, and upland habitats (San Francisco Estuary Institute 2001). The first documented filling of marshes and bay waters began during the 1890s. By the 1920s and 1930s, the portion of the island that became the Alameda Terminal site had been filled, chiefly with dredge materials from U.S. Army Corps of Engineers (USACE) projects associated with the Oakland Harbor and other harbors throughout the East Bay. After World War II, filling of San Francisco Bay waters and marshes over time increased the dry land acreage to current levels. The Alameda Estuary was originally a tidal slough, but was dredged in the mid- to late- 1800s to create a viable port and shipping channel.

Project Site Setting

The project site was developed for shipbuilding and therefore consists of developed uses that include the four craneways and shipways, the welding slab and head houses currently used for commercial office space. The project site is underlain by Bay Mud that is between 50 to 85 feet

thick. In the mid-1980s holes were cut through the shipways and material dredged from nearby marinas was pumped into the voids beneath the shipways. The perimeter of the site is bounded by a steel sheetpile wall, and concrete walls form a barrier between the ramps of the shipways and the adjacent "craneways" and welding platform.

The San Francisco Bay Estuary is designated as a Western Hemisphere Shorebird Reserve Network of importance due to shorebirds use of the 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).

Biological Communities

Huffman-Broadway Group, Inc. (HBG) biologists conducted a field reconnaissance of the project site on April 4, 2017 to observe existing biological conditions at the site, inventory on-site vegetation and habitats, and assess the site for suitability to support special status species known to occur in the project vicinity. The entire Project Site has been previously developed and consists of an urban landscape with vegetation consisting of landscaping vegetation along Marina Village Parkway and between the shipways in addition to other isolated plants hardy enough to grow through cracks and holes within the shipways. Classification systems for identifying vegetative habitats such as the California Department of Fish and Wildlife (CDFW) Vegetation Alliances and Associations or Natural Communities List (CDFW 2010) are not relevant to the site, which supports two essentially non-vegetative habitat types: (i) Urban Habitat or Developed Land and the (ii) Open Water and Subtidal Habitats within the adjacent Alameda Estuary.

Urban Habitat/Developed Land

The existing shipways structures provide few substrates for growth of vegetation or vegetative communities. Vegetation at the project site consists of hardy and opportunistic, mostly non-native plant species able to grow within holes and cracks within the concrete shipways and in areas between the shipways where there is limited vegetation consisting of non-native planted plants. Vegetation along the Marina Village Parkway is entirely planted landscaping species, the most prominent being a row of pines (*Pinus* sp.) along the street frontage, but also including various planted shrubs and lawns. Otherwise, little vegetation can be found on the shipways, which presents a poor environment for plant growth.

The sparse vegetation in the shipways area consists of entirely non-native herbaceous plants and grasses. Grasses included species such as rip-gut brome (*Bromus diandrus),* foxtail barley (*Hordeum murinum leporinum),* and wild oat (*Avena fatua*) and a variety of herbaceous plants included species such as wild radish (*Raphanus sativus*), ice plant (*Carpobrotus edulis*), bristly ox-tongue (*Helminthotheca echioides*), filaree (*Erodium cicutarium*), bull thistle (*Cirsium vulgare*), cat's ear (*Hypochaeris radicata*), peppergrass (*Lepidium latifolium*), sea lavender (*Limonium* sp.), bull mallow (*Malva nicaeensis),* Italian thistle (*Carduus pycnocephalus*), bur clover (*Medicago polymorpha*), sweet clover (*Melilotus officinalis*), bracken fern (*Pteridium aquilinum*), and cudweed (*Pseudognaphalium* sp.). Larger plants included species such as pampas grass (*Cortaderia* sp.), sweet fennel (*Foeniculum vulgare*) and non-native trees such as Acacia

(*Acacia* sp.). Plants that would normally be found in wetlands such as pickleweed (*Salicornia virginica*), saltgrass (*Distichlis spicata*), brass buttons (*Cotula coronopifolia*), jaumea (*Jaumea carnosa*), and marsh gum plant (*Grindelia stricta*) were observed growing from the cracks in the concrete along the water's edge; although, the presence of these species is sparse and discontinuous, and the areas supporting these species do not meet the criteria that define a wetland.

Wildlife observed during the survey were all avian species. Bird species that were commonly observed roosting on the piers included double-crested cormorant (*Phalacrocorax auritus*), western gull (*Larus occidentalis*), and California gull (*Larus californica*), and these were joined by a single Caspian tern (*Hydroprogne caspia*). Least sandpipers (*Calidris minutilla*) were foraging on the shipways along the water's edge, and birds observed in the water just beyond the shoreline included mallard (*Anas platyrhunchos*) and American coot (*Fulica americana*). Additional bird species observed on the property included American crow (*Corvus brachyrhynchos*), black phoebe (*Sayornis nigricans*), house finch (*Haemorhous mexicanus*) and introduced rock pigeon (*Columba livia*), European starling (*Sturnus vulgaris*), and house sparrow (*Passer domesticus*). Cliff swallows (*Petrochelidon pyrrhonota)* were observed nesting in their mud nests under the eaves of each of the four headway buildings.

The Urban Habitat areas within the site and in the project vicinity would be expected to harbor additional bird species including urban-adapted species such as mourning dove *(Zenaida macroura),* Eurasian collared-dove (*Streptopelia decaocto),* Anna's hummingbird *(Calypte anna),* common raven *(Corvus corax),* northern mockingbird *(Mimus polyglottos),* American robin *(Turdus migratorius),* California towhee *(Melozone crissalis),* yellow-rumped warbler *(Setophaga coronata)* (winter), Brewer's blackbird *(Euphagus cyanocephalus),* and brown-headed cowbird *(Molothrus ater).* Other species found along the shoreline in this part of Alameda include water birds and waterfowl such as Canada goose (*Branta canadensis*), great blue heron (*Ardea herodias*), great egret (*Ardea alba),* snowy egret (*Egretta thula*), and killdeer *(Charadrius vociferous).* Spotted sandpipers (*Actitis macularius*) would be expected to forage along the concrete blocks near the water's edge. Raptors such as red-tailed hawk *(Buteo jamaicensis),* red-shouldered hawk (*Buteo lineatus)* and occasionally peregrine falcons (*Falco peregrinus)* can be found in the area, but habitat on the project site is not suitable for nesting of these species. Mammals could include those adapted to the urban environments such as Virginia opossum *(Didelphis virginiana),* house mouse *(Mus musculus),* Norway rat *(Rattus norvegicus),* striped skunk *(Mephitis mephitis),* and raccoon *(Procyon lotor).*

It is also possible that bats may be present in spaces and crevices within the headway buildings and under the shipways. Bats in this region use a wide variety of roosts, including man-made roosts such as buildings, bridges and culverts; they also use trees that contain suitable roost habitat. Bats are nocturnal, and select day roosts for rest, protection, pup-rearing and overwintering, and night roosts during seasonal periods of activity during foraging flights. Often, day roost provides night roost habitat. Colonial bats roost in groups ranging from several to thousands of individuals. Bats in this region of California are not active year-round. Bats are particularly vulnerable to loss or disturbance of their day roosts, especially during pup-rearing

during the summer when bats are not volant (not flying), and during winter months when bats are in torpor or hibernation.

Open Water and Subtidal Habitats of the Adjacent Alameda Estuary

The open waters adjacent to the project site are part of the Alameda Estuary. Subtidal plants and submerged aquatic vegetation was not directly observed during the site reconnaissance. Aquatic vegetation in adjacent areas could include common subtidal species such as green algae (*Ulva/Enteromorpha*, *Gracillaria verrucosa*, *Ruppia maritima,* and *Potamogeton pectinatus*), Eelgrass beds (considered a Special Status Natural Community) are found in the Alameda Estuary approximately two miles northwest of the project site adjacent to the northern edge of Alameda Point, and in small patches on the south side of Alameda Island near the southeastern terminus of the breakwater (Subtidal Goals Project 2010). Bottom elevations in areas offshore of the site are too deep to support eelgrass and similar marine vegetation. Benthic invertebrates found in bottom sediments of the San Francisco Bay and the Alameda Estuary, include polychaetes (marine worms), crustaceans (crabs, amphipods, and isopods), mollusks (clams and mussels) and various species of fish and shark. Organisms living in the water column include planktonic organisms (phytoplankton, copepods, and larval animals) and crustaceans (shrimps and mysiids) that serve as a food source for marine mammals and birds.

Many bird species would be expected to forage in the waters of the Alameda Estuary adjacent to the project site. These species include diving ducks such as bufflehead *(Bucephala albeola)*, lesser scaup *(Aythya affinis)*, common goldeneye *(Bucephala clangula)*, and surf scoter *(Melanitta perspicillata)*; and dabbling ducks such as mallard, northern shoveler *(Anas clypeata)*, and American wigeon *(Anas americana)*. Grebes could include horned *(Podiceps auritus)*, eared *(Podiceps nigricollis)*, western (*Aechmophorus occidentalis)* and Clark's *(Aechmophorus clarkii)*, and loons could include both common (*Gavia immer)* and red-throated *(Gavia stellata)*. Other species could be present such as double-crested cormorant and brown pelican *(Pelecanus occidentalis)*.

San Francisco Bay and the 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*). Common fish species in the waters of the Alameda Estuary near the Project Site include northern anchovy (*Engraulis mordax*) as the most common species, but also Pacific herring (*Clupea pallasii*) and jacksmelt (*Atherinopsis californiensis*).

Pacific herring is an important food source for marine mammals, sea birds, and fish; and constitutes one of the last remaining fisheries in the San Francisco Bay. Pacific herring is a small schooling marine fish that enters estuaries and bays to spawn, including along the Oakland and San Francisco waterfronts. Spawning herring attach egg masses to eelgrass, seaweed, and hard substrates such as pilings, rip-rap and other man-made surfaces. 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 is not a protected species under the Federal Endangered

Species Act of 1973 (FESA) or the California Endangered Species Act OF 1970 (CESA) nor is it managed under the Magnuson-Stevens Act, but the herring fishery is managed pursuant to the California Fish and Game Code. Pacific herring may be present in waters in the vicinity of the project site and may spawn in some years.

Marine mammals known to occur in San Francisco Bay that may be found in the project vicinity include harbor seals (*Phoca vitulina*) and California sea lions (*Zalophus californianus*). Both species are year-round residents in San Francisco Bay and are routinely seen in Bay waters. Both harbor seals and California sea lions are protected under the Marine Mammal Protection Act. A haul-out site for harbor seals is found at Breakwater Island at Alameda Point. California sea lions 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. Either of these species may occasionally forage in the waters adjacent to the project area in the Alameda Estuary.

Special Status Species

Sensitive species include those listed by the federal and state governments as endangered, threatened, or rare or candidate species for these lists. Endangered or threatened species are protected by FESA as amended, the California Native Plant Protection Act of 1977, and CESA. CEQA provides additional protection for unlisted species that meet the “rare” or “endangered” criteria defined in 14 CCR Section 15380.

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.
- Species that may be considered rare or endangered pursuant to Section 15380(b) of the CEQA Guidelines.

The CDFW maintains records for the distribution and known occurrences of sensitive species and habitats in the CNDDB. The CNDDB is organized into map areas based on 7.5-minute topographic maps produced by the United State Geological Survey (USGS). All known occurrences of sensitive species and important natural communities are mapped onto the quadrangle map. The project site is located on the Oakland West 7.5-minute quadrangle. HBG conducted a species search of CNDDB with a 10-mile radius of the project site, a search that also encompassed all or part of the following eight USGS quadrangles: Oakland East, Richmond, San Quentin, San Francisco North, San Francisco South, Hunters Point, San Leandro, and Hayward. A search of the CNDDB records of occurrence for special-status animals, fish, and plants and natural communities within these quadrangles indicated that several special-status species or natural communities are known to occur in the immediate area of the project.

The U.S. Fish and Wildlife Service (USFWS) was consulted for their list of species listed as endangered or threatened under FESA within Alameda County, and this list is included in

Appendix C. In addition, a list of special status plant species found within Alameda County was obtained from the California Native Plant Society (CNPS), and this list is also included in Appendix C. An evaluation of all special status plant and animal species reported in the CNDDB within a 10-mile radius of the project site is also presented in Appendix C.

Special Status Plant Species

Special-status plant species include: (1) species that are listed or proposed for listing as threatened or endangered under the FESA; (2) species that are listed, or proposed for listing by the state of California as threatened or endangered under the CESA; (3) plants considered by CNPS to be rare, threatened, or endangered in California and elsewhere; and (4) plant species that meet the definition of rare or endangered under CEQA.

No special status plant species are expected to occur onsite as the project site is a combination of landscaped street frontage and previously developed areas of buildings and concrete within the old shipways with no natural habitat present to support such species. The only vegetation found at the project site consists of landscaped trees and shrubs located along Marina Village Parkway and common weedy species growing from cracks in the pavement within the shipways.

Special Status Animal Species

Federally and state-listed special status animal species that are either known to occur within the project area, have a potential to occur at the site, or that require specific study to determine presence/absence, are discussed below.

Green sturgeon-Southern Distinct Population Segment. Green sturgeon (*Accipinser medirostris*) is a federally listed threatened species and California Species of Special Concern. 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). Little is known about the movements and habits of green sturgeon, but it is the most widely distributed member of the sturgeon family. The upper Sacramento River has been identified as the only known spawning habitat for green sturgeon in the southern DPS. Adults migrate upstream into rivers between late February and late July, and spawn between March and July, when the water temperature is 46–57°F. Peak spawning occurs from mid-April to mid-June. They are present in the Delta year-round, but their abundance, at least in the south Delta, is low. Because of the lack of study of green sturgeon in the San Francisco Bay, it is hard to determine whether they would be present in the project site and vicinity. 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. However, there is no spawning habitat present in the project area waters or vicinity, and there are no habitat elements to distinguish the site from other locations within San Francisco Bay.

Steelhead Trout – Central Valley and Central California Coast Distinct Population Segment. Steelhead (*Oncorhynchus mykiss*) populations in the Central California Coast Distinct Population Segment (DPS) and the Central Valley DPS are listed as threatened under FESA. Steelhead have been known to migrate through San Francisco Bay to various creeks, including

Sausal Creek to the east of the site. Individuals could pass by the site during migration to Sausal Creek, which is located approximately 2 ½ miles to the east. According to the National Marine Fisheries Service (NMFS), steelhead trout may use marinas, creeks, and sloughs on the bayshore for resting or foraging during migration.

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 areas in the Central Valley and rearing areas in the Pacific Ocean, and may occasionally occur seasonally in the waters of the project area during migration. The number of individuals of this species of fish passing near the project site is projected to be small.

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. 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.

Longfin Smelt. Longfin smelt (*Spirinchus thaleichthys*) is a state-listed threatened species (listed in 2009) and is also a candidate for listing under FESA. CDFW (2009) listed the greatest threats to longfin smelt as reduced freshwater inflows, entrainment, climatic variation, toxic substances, predation, and introduced species, with effects of dredging also a concern. No critical habitat has been designated for this species.

Longfin smelt are anadromous fish that spawn in freshwater and disperse to marine environments as they mature and are adapted to a wide range of salinity levels. Longfin smelt are found throughout San Francisco Bay, though occupying different portions of the estuary at various times of year. Spawning locations in the Delta vary from year to year and depend on environmental conditions including flow, temperature and salinity in areas of appropriate substrate (usually sandy substrates). In the San Francisco Bay-Delta region, longfin smelt spawn primarily in freshwater in the lower reaches of the Sacramento and San Joaquin Rivers. In the Bay-Delta, most longfin smelt spend their first year in Suisun Bay and Marsh and the rest of their life in the San Francisco Bay or coastal waters. Their life cycle in the San Francisco Estuary includes periods during the spring and summer when the population is concentrated in San Pablo Bay, with a gradual shift upstream in fall and winter. Adults and juveniles spend most of their time in the middle and bottom of the water column, whereas larvae stay near the surface (Moyle 2002).

Although longfin smelt spawn primarily in the lower reaches of the Sacramento and San Joaquin Rivers and spend their first year around Suisun Bay, longfin smelt could occur in small numbers

within San Francisco Bay near the Alameda Estuary and the project site, especially in deeper water habitats and especially during wet years.

Sacramento River winter-run, Central Valley spring-run, and Central Valley fall-run Chinook Salmon. The population of Chinook salmon (*Oncorhynchus tshawytscha*) in San Francisco Bay is comprised of three distinct populations: winter-run, spring-run, and fall/late fall-run. These populations 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.

State and federally listed endangered Sacramento River winter-run Chinook salmon 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 streams for 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 federally 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 fall-run Chinook salmon are not expected to occur in the project area.

Adult and juvenile 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, though their occurrence in the project area waters at any given time is unlikely. 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 species.

California least tern. The California least tern (*Sternula antillarum browni*) is a federally listed endangered species. The species is also listed as endangered by the State of California and is a California Fully Protected Species. 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. Least tern is the smallest of the North American terns. California least terns eat mainly small fishes, but also shrimp and other invertebrates.

Most California least terns begin breeding in their third year. Mating begins in April or May. Males perform elaborate aerial displays after which they offer fish to the female. Nesting starts shortly after this in colonies on relatively open beaches kept free of vegetation by natural scouring from tidal action. Colonies typically consist of approximately 25 pairs. The nest is a simple scape in the sand or shell fragments. Typical clutch size is two eggs. Both parents incubate and care for the young. California least tern predators include larger birds, mammals such as raccoons and foxes, and domestic dogs and cats.

The California least tern was first documented nesting at the former Naval Air Station (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 (Department of Veterans Affairs, 2013). The second largest California least tern nesting colony occurs at the Hayward Regional Shoreline, about 14 miles southeast of the project area (Reinsche et al., 2012). The majority of least terns typically arrive at Alameda by late April. Least terns nest almost entirely within the fenced tern colony on the former NAS with only occasional exceptions. Terns also fledge to and roost outside of the fenced colony. Least terns use the adjacent open waters of San Francisco Bay, including waters of the Alameda Estuary for foraging (Department of Veterans Affairs 2013). While foraging in the waters offshore of the project area is possible, the site does not provide suitable nesting habitat for least terns.

Caspian tern. Caspian tern (*Hydroprogne caspia*) is designated as a Bird Species of Conservation Concern by the USFWS. These terns nest on sand or gravel beaches and shell banks in small colonies inland and along the coast. Foraging habitat includes inland fresh-water lakes and marshes and brackish or salt waters of estuaries and bays. Though this species may forage in the waters offshore of the project area, the species is not known to nest within the project site.

California brown pelican. California brown pelican (*Pelecanus occidentalis californicus*) has experienced recovery to the point that it was recently removed from the federal and State lists of threatened and endangered species, but continues to be designated as a Fully Protected Species in California. Brown pelicans 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, especially in areas free of disturbance and near sources of food. Significant roost sites for California brown pelican have been documented at Alameda Point (Department of Veterans Affairs 2013). Though this species may forage in the waters offshore of the project area, the species is not known to nest within the project site.

Double-crested cormorant. Nesting colonies for double-crested cormorant (*Phalacrocorax auritus*) have been placed on the CDFW Watch List. Double-crested cormorant is a year-round resident along the entire coast of California, and is fairly common to locally very common along the coast and in estuaries and salt ponds. The species nests in colonies of a few pairs to hundreds of pairs (Zeiner et al., 1990), with known breeding colonies on the Richmond-San Rafael Bridge,

Alcatraz Island and elsewhere in the Bay Area. A breeding colony on the Bay Bridge was extirpated with construction of the new Bay Bridge and demolition of the old one, where the cormorants nested, but the breeding colony has recently (May 2017) taken up residence within artificial nest structures placed within the new section of the bridge. Though this species may forage in the waters offshore of the project area, the species is not known to nest within the project site.

Osprey. Osprey (*Pandion haliaetus*) was recently considered a California Species of Special Concern, but nesting osprey are currently on the CDFW Watchlist. Ospreys breed in northern California from the Cascade Ranges south to Lake Tahoe, and along the coast south to Marin County. Ospreys are associated strictly with large, fish-bearing waters, primarily in ponderosa pine through mixed conifer habitats (Zeiner et al 1990). They nest usually from late March to late August (Wheeler 2003) in nests built in large snags or open trees near large bodies of water. and may include man-made structures such as telephone poles, channel markers, and nest platforms. Nest sites can be used for breeding purposes for many years. The breeding population was estimated in 1975 at 350-400 pairs in northern California, although numbers have been increasing in recent years. Successful nesting pairs have been noted at the end of Breakwater Island at Alameda Point and in Seaplane Lagoon. Suitable nesting habitat is not present at the site, but this species may forage in the offshore waters.

Peregrine falcon. Peregrine falcon (*Falco peregrinus*) has shown significant recovery in recent years and was removed from the federal list of threatened and endangered species in 1999 and the State list of threatened and endangered species in 2008. The species continues to be designated as a Fully Protected species in California and as a Bird Species of Conservation Concern by the USFWS. Peregrine falcon is a year-around resident along the Pacific coast. Peregrine falcons prey primarily on birds such as pigeons and doves, usually taking them in flight. The species typically uses cliffs near water as nesting sites, but urban sites such as bridges and tall buildings are also used. Peregrine falcons nest annually on the Fruitvale Bridge between Oakland and Alameda and in other urban sites throughout the Bay Area including the Bay Bridge and Golden Gate Bridge. Peregrines are also known to use structures at the Port of Oakland for roosting and are observed regularly soaring above the project area, however the species is not known to nest within the project site.

Townsend's big-eared bat. Townsend's big-eared bat (*Corynorhinus townsendii*) is a candidate for listing as threatened under CESA and designated as a Species of Special Concern in California. The species is distributed along the Pacific coast from British Columbia south to central Mexico and east into the Great Plains, with isolated populations occurring in the central and eastern United States. The species 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. Optimal habitats include caves and abandoned mines, the species has also been reported to utilize buildings, bridges, rock crevices and hollow trees as roost sites. Over 90 percent of the species' diet consists of moths. The species has been reported along the northern Alameda Island shoreline roosting in buildings. Townsend's big-eared bats are extremely sensitive to disturbance of roosting sites, therefore, the general level of activity in the

project area would likely prevent roosting under the shipways at the project site. Any individuals found on the project site are most likely to be transients.

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. CDFW tracks communities it believes to be of conservation concern through its *List of California Terrestrial Communities* (CDFG, 2010) and the CNDDB, and these communities are typically considered special status for the purposes of CEQA analysis. 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; however, none of these habitats occur within the project area.

Certain aquatic areas 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 covered under federal regulations or requiring federal agency approvals. Within San Francisco Bay, submerged aquatic vegetation beds, such as eelgrass beds are routinely afforded special attention. Eelgrass beds are known to occur off the western and northern shores and in several small patches within Seaplane Lagoon on the southern shore of Alameda Point. The closest mapped eelgrass beds are located within the Alameda Estuary approximately two miles northwest of the project area. Waters immediately adjacent to the project site are too deep to support eelgrass.

Critical Habitat and Essential Fish Habitat

The USFWS and 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 FESA as those lands (or waters) within the current range of a listed species that contains the physical or biological features that are considered essential to the species conservation, as well as areas outside the current range of the species 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) 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. 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. No eelgrass is present in the project area and bottom elevations offshore of the project area are too deep to support eelgrass. However, the site provides foraging habitat for several EFH-managed species and therefore EFH is considered present in the waters offshore of the project area.

Jurisdictional Waters

San Francisco Bay and the Alameda Estuary are considered navigable waters of the United States; therefore, they are considered jurisdictional waters regulated under Section 10 of the Rivers and Harbors Act (RHA) of 1899 shoreward to the mean high water (MHW) and Section 404 of the Clean Water Act (CWA) up to the high tide line (HTL). WRA, Inc. calculated the tidal elevations for the project site based on tidal data from the Park Street Bridge NOAA tide station (Station ID 9414746). MHW is based on the tidal benchmark elevation for that station for the current tidal epoch and the HTL is based on highest predicted tide for that station. Using the Alameda Datum MHW is -0.40 feet and HTL 1.69 feet.

These waters are also regulated by the San Francisco Bay Regional Water Quality Control Board (RWQCB) as waters of the State, and by the San Francisco Bay Conservation and Development Commission (BCDC) which generally has jurisdiction over areas of San Francisco Bay that are subject to tidal action, as well as a 100-foot shoreline band.

D.3 Regulatory Framework

The following is a description of federal, State, and local environmental laws and policies that are relevant to the CEQA review process.

Federal Regulations

Rivers and Harbors Act of 1899 Section 10

Section 10 of the RHA jurisdiction in tidal waters extends shoreward to the MHW mark in its unobstructed natural state. Section 10 of RHA says it is unlawful to create an obstruction or modify the course, location, conditions or capacity of navigable waters (33 U.S.C 403). Section 10 of the RHA requires authorization from the Secretary of the Army, acting through the USACE, for the construction of any structure in, under, or over any navigable water of the United States. Structures or work outside the limits defined for navigable waters of the United States require a Section 10 permit if the structure or work affects the course, location, or condition of the water body. The law applies to all structures, from the smallest floating dock to the largest commercial undertaking. The term work is defined in 33 CFR 322.2(c) as "…*any dredging or disposal of dredged material, excavation, filling, or other modification of a navigable water of the United States*."

Clean Water Act-Section 404

The USACE regulates discharges of dredged or fill material into waters of the U.S. under Section 404 of the CWA. "Discharge of fill material" is defined as the addition of fill material into waters of the U.S., including but not limited to the following: placement of fill that is necessary for the construction of any structure, or impoundment requiring rock, sand, dirt, or other material for its construction; site-development fills for recreational, industrial, commercial, residential, and other uses; causeways or road fills; and fill for intake and outfall pipes and sub-aqueous utility lines (33 CFR Section 328.2(f)). In addition, Section 401 of the CWA (33 USC 1341) requires any applicant for a federal license or permit to conduct any activity that may result in a discharge of a pollutant into waters of the United States to obtain a certification that the discharge would comply with the applicable effluent limitations and water quality standards.

The USACE and the EPA are responsible for implementing the Section 404 program. Section 404(a) authorizes the USACE to issue permits, after notice and opportunity for comment, for discharges of dredged or fill material into waters of United States. Section 404(b) requires that the USACE issue permits in compliance with EPA guidelines, which are known as the Section 404(b)(1) Guidelines. Specifically, the Section 404(b)(1) guidelines require that the USACE only authorize the "Least Environmentally Damaging Practicable Alternative" and include all practicable measures to avoid and minimize impacts to the aquatic ecosystem. The guidelines also prohibit discharges that would cause significant degradation of the aquatic environment or violate state water quality standards.

Jurisdictional Waters of the U.S. include a range of wet environments such as lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, and wet meadows. Wetlands are defined as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR Section 328.3(c)(4)). In certain circumstances, Jurisdictional Waters can extend to non-tidal waters. Jurisdictional Waters of the U.S. can be defined by exhibiting a defined bed and bank and Ordinary High Water Mark (OHWM). The OHWM is defined by the USACE as "that line on shore established by the fluctuations of water and indicated by physical character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas" (33 CFR Section 328.3(e)).

Tidal waters are also under the jurisdiction of the USACE. The landward limits of jurisdiction in tidal waters extend to the high tide line (33 CFR Section 328.4(b)). High tide is further defined to include the line reached by spring high tides and other high tides that occur with periodic frequency (33 CFR Section 328.3(d)).

Federal Endangered Species Act

The United States Congress passed FESA in 1973 to protect those species that are endangered or threatened with extinction. FESA is intended to operate in conjunction with the National Environmental Policy Act (NEPA) to help protect the ecosystems upon which endangered and threatened species depend. FESA establishes an official listing process for plants and animals

considered to be in danger of extinction; requires development of specific plans of action for the recovery of listed species; and restricts activities perceived to harm or kill listed species or affect critical habitat (16 USC 1532, 1536).

FESA prohibits the "take" of endangered or threatened wildlife species. "Take" is defined as harassing, harming (including significantly modifying or degrading habitat), pursuing, hunting, shooting, wounding, killing, trapping, capturing, or collecting wildlife species, or any attempt to engage in such conduct (16 USC 1532, 50 CFR 17.3). Taking can result in civil or criminal penalties. Federal regulation 50 CFR 17.3 further defines the term harm in the "take" definition to mean any act that kills or injures a federally listed species, including significant habitat modification or degradation. Additionally, FESA prohibits the destruction or adverse modification of designated critical habitat. In the USFWS's regulations at 50 CFR 402.2, destruction or adverse modification is defined as a "direct or indirect alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of a listed species.

FESA also requires federal agencies to ensure that their actions do not jeopardize the continued existence of listed species or adversely modify critical habitat (16 USC 1536). Therefore, FESA is invoked when the property contains a federally listed threatened or endangered species that may be affected by a permit decision. In the event that listed species are involved and a USACE permit is required for impacts to jurisdictional waters, the USACE must initiate consultation with USFWS (or NMFS) pursuant to Section 7 of the FESA (16 USC 1536; 40 CFR § 402). If formal consultation is required, USFWS or NMFS would issue a biological opinion stating whether the permit action is likely to jeopardize the continued existence of the listed species, recommending reasonable and prudent measures to ensure the continued existence of the species, establishing terms and conditions under which the project may proceed, and authorizing incidental take of the species.

Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (MSFA) conserves and manages the fishery resources found off the coasts of the United States, the anadromous species, and the Continental Shelf fishery resources of the United States, including the conservation and management of highly migratory species through the implementation and enforcement of international fishery agreements. The NMFS enforces the MSFA and regulates commercial and recreational fishing and the management of fisheries resources. The Sustainable Fisheries Act of 1996 amended the MSFA to include new fisheries conservation provisions by emphasizing the importance of fish habitat in regards to the overall productivity and sustainability of U.S. marine fisheries (Public Law 104-267). The revised MSFA mandates the identification and protection of Essential Fish Habitat (EFH) for managed species during the review of projects conducted under federal permits that have the potential to affect such habitat. Federal agencies are required to consult with NMFS on all actions or proposed actions authorized, funded, or undertaken by the agency, which may adversely affect EFH (MSFA 305.b.2).

Under the MSFA, NMFS identifies, conserves, and enhances EFH for those species regulated under a federal fisheries management plan (FMP). EFH is defined as those waters and substrates

necessary to fish for spawning, breeding, feeding, or growth to maturity and includes all associated physical, chemical and biological properties of aquatic habitat that are used by fish. Projects that have the potential to adversely affect EFH must initiate consultation with NMFS. Adverse effects are any impacts that reduce the quality and/or quantity of EFH and can include direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey or reduction in species fecundity), site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 CFR 600.810). There are four FMPs in California, Oregon, and Washington that identify EFH for groundfish, coastal pelagic species, Pacific salmon, and Pacific highly migratory fisheries.

Migratory Bird Treaty Act

The federal Migratory Bird Treaty Act is administered by the USFWS. The Act provides that it is unlawful to: pursue, hunt, take, capture or kill; attempt to take, capture or kill; possess, offer to sell, barter, purchase, deliver or cause to be shipped, exported, imported, transported, carried or received any migratory bird, part, nest, egg or product unless permitted by regulations. Most bird species within California fall under the provisions of the Act. Excluded species include nonnative species such as house sparrow, starling, and ring-necked pheasant and native game species such as quail.

Federal Marine Mammal Protection Act

The Marine Mammal Protection Act (MMPA) is the principal federal legislation related to marine mammal species protection and conservation policy. The MMPA delegates authority for oceanic marine mammals to the National Oceanic and Atmospheric Administration (NOAA). NOAA Fisheries/NMFS is responsible for management of species of the order Cetacea (whales and dolphins) and species, other than walrus, of the order Carnivora, suborder Pinnipedia (seals and sea lions). Sea otters are managed by the USFWS. 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.

Fish and Wildlife Coordination Act

The USFWS also has responsibility for project review under the Fish and Wildlife Coordination Act. This statute requires that all federal agencies consult with USFWS, NMFS, and the state's wildlife agency (CDFW) for activities that affect, control, or modify streams and other water bodies. Under the authority of the Fish and Wildlife Coordination Act, USFWS, NMFS, and CDFW review applications for permits issued under Section 404 and provide comments to the USACE about potential environmental impacts.

State Regulations

California Endangered Species Act

The State of California enacted CESA in 1984. The CESA pertains to state-listed endangered and threatened species. CESA requires state agencies to consult with the CDFW when preparing CEQA documents to ensure that the state lead agency actions do not jeopardize the existence of listed species. CESA directs agencies to consult with CDFW on projects or actions that could affect listed species, directs CDFW to determine whether jeopardy would occur, and allows CDFW to identify "reasonable and prudent alternatives" to the project consistent with conserving the species. Agencies can approve a project that affects a listed species if they determine that "overriding considerations" exist; however, the agencies are prohibited from approving projects that would result in the extinction of a listed species.

CESA prohibits the taking of state-listed endangered or threatened plant and wildlife species. CDFW exercises authority over mitigation projects involving state-listed species, including those resulting from CEQA mitigation requirements. CDFW may authorize taking if an approved habitat management plan or management agreement that avoids or compensates for possible jeopardy is implemented. CDFW requires preparation of mitigation plans in accordance with published guidelines.

Section 401 of the Federal Clean Water Act/Porter Cologne Water Quality Act

Pursuant to Section 401 of the Federal Clean Water Act, projects that require a USACE permit for the discharge of dredge or fill material must obtain water quality certification that confirms a project complies with State water quality standards before the USACE permit is valid. State water quality is regulated/administered by the State Water Resources Control Board and the nine RWQCBs. The state also maintains independent regulatory authority over the placement of waste, including fill, into waters of the State under the Porter-Cologne Act.

The California State Water Resource Control Board has developed a general construction storm water permit to implement the requirements for the federal National Pollution Discharge Elimination System (NPDES) permit. The permit requires submittal of a Notice of Intent to comply, fees, and the implementation of a Storm Water Pollution Prevention Plan (SWPPP).

McAteer-Petris Act

The BCDC has jurisdiction over the San Francisco Bay, certain waterways, and 100-foot shoreline band under the McAteer-Petris Act (see Cal. Govt. Code Section 66610).

Along a shoreline where there is no tidal marsh, the elevation of the upland boundary of BCDC's Bay and certain waterways jurisdictions is the MHW. The Bay jurisdiction includes all areas that are subject to tidal action from the south end of the bay to the Golden Gate (Point Bonita-Point Lobos) and to the Sacramento River line (a line between Stake Point and Simmons Point, extended north easterly to the mouth of Marshall Cut), including all sloughs, and specifically, the

marshlands lying between mean high tide and five feet above mean sea level (msl); tidelands (land lying between mean high tide and mean low tide); and submerged lands (land lying below mean low tide).

Shoreline band jurisdiction consists of all territory located between the shoreline of San Francisco Bay and a line 100 feet landward of and parallel with that line; provided that BCDC may, by resolution, exclude from its area of jurisdiction any area within the shoreline band that it finds and declares is of no regional importance to the bay. No shoreline band jurisdiction exists upland of BCDC's certain waterways jurisdiction.

BCDC is authorized to issue or deny permits for any filling of the bay. Section 66605 of the McAteer-Petris Act allows the Commission to authorize bay fill only for water-oriented uses, and minor fill to improve shoreline appearance or public access. Furthermore, the McAteer-Petris Act requires that the fill in the Bay only should be authorized if there is no feasible upland location, the fill is the minimum amount necessary, the fill minimizes harmful effects to the bay, and the public benefits clearly exceed its detriments. The proposed project would require a BCDC permit for shoreline improvements within a 100-foot band from Alameda Estuary. In 1980, BCDC granted a permit for improvements including the project site; that existing permit, as amended, calls for 89,000 square feet of public open space on the perimeter of the project. The proposed project will require an amended permit from BCDC for work within both BCDC's Bay and Shoreline Band jurisdictions.

Coastal Zone Management Act

The Coastal Zone Management Act (CZMA) enacted by Congress in 1972 is administered by NOAA's Office of Ocean and Coastal Resource Management. The overall program objectives of the CZMA are to "preserve, protect, develop, and where possible, to restore or enhance the resources of the nation's coastal zone."

Under Section 307 of the CZMA (16 USC § 1456), activities that may affect coastal uses or resources that are undertaken by federal agencies, require a federal license or permit, or receive federal funding must be consistent with a state's federally approved coastal management program. California's federally approved coastal management program consists of the California Coastal Act, the McAteer-Petris Act, and the Suisun Marsh Protection Act. The California Coastal Commission implements the California Coastal Act and the federal consistency provisions of the CZMA for activities affecting coastal resources outside of San Francisco Bay. BCDC implements the McAteer-Petris Act and the Suisun Marsh Preservation Act and performs federal consistency reviews for activities affecting the San Francisco Bay and Delta and the Bay shoreline.

California Department of Fish and Wildlife Species of Special Concern

CDFW tracks species in California whose numbers, reproductive success, or habitat may be threatened. Even though not formally listed under FESA or CESA, such plant and wildlife species receive additional consideration during the CEQA process. Species that may be considered for

review are included on a list of "Species of Special Concern" developed by the CDFW. CDFW has also designated special status natural communities which are considered rare in the region, support special status species or otherwise receive some form of regulatory protection. Documentation pertaining to these communities, as well as special status species (including species of special concern), is kept by CDFW as part of the CNDDB.

California Department of Fish and Wildlife – Streambed Alteration Agreement

Section 1602 of the California Fish and Game Code requires any person, governmental agency, or public utility proposing any activity that would divert or obstruct the natural flow or change the bed, channel or bank of any river, stream, or lake, or proposing to use any material from a streambed, to first notify CDFW of such proposed activity. CDFW may propose reasonable modifications, based on the information contained in the notification form and a possible field inspection, CDFW may propose reasonable modifications in the proposed construction as would allow for the protection of fish and wildlife resources. Upon request, the parties may meet to discuss the modifications. If the parties cannot agree and execute a Lake and Streambed Alteration Agreement, then the matter may be referred to arbitration.

California Department of Fish and Wildlife – Fish and Game Code Sections 3503 and 3503.5

Section 3503 of the Fish and Game Code makes it unlawful to take, possess, or needlessly destroy the nests or eggs of any bird. Section 3503.5 makes it unlawful to take or possess birds of prey (hawks, eagles, vultures, owls) or destroy their nests or eggs.

California Department of Fish and Wildlife – Fully Protected Animals

The classification of Fully Protected was an effort by the State of California in the 1960's to identify and provide additional protection to those animals that were rare or faced possible extinction. Most Fully Protected species have also been listed as threatened or endangered species under state endangered species laws and regulations. Species classified as Fully Protected Species by the CDFW may not be taken or possessed at any time and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research and relocation of the bird species for the protection of livestock (as per California Fish and Game Code Section 3511(a)(1)).

California Department of Fish and Wildlife - 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 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.

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.

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.

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. A key component of the LTMS is the establishment of construction work windows that include time periods when construction activities (not just dredging) that have the potential to affect aquatic and terrestrial wildlife habitat and migration activity are allowed, restricted, or prohibited. The requirements are enforced depending on the affected species and time of year. Established work windows for various species for work within the San Francisco Bay are shown in Table 4.D-1.

TABLE 4.D-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 1998; Robinson and Greenfield 2011.

If it is necessary for construction to occur during restricted periods, formal consultation is necessary with the appropriate resource agencies (NMFS, USFWS, and/or CDFW). Through formal consultation specific measures must be implemented to avoid or reduce potential impacts. Best management practices (BMPs) are required for in-water work conducted in San Francisco Bay.

San Francisco Bay Plan

The BCDC is authorized by the McAteer-Petris Act to analyze, plan, and regulate San Francisco Bay and its shoreline. BCDC jurisdiction includes the waters of the 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. BCDC implements the San Francisco Bay Plan (Bay Plan) which specifies goals, objectives, and policies for existing and proposed waterfront land use and other areas. The Bay Plan policies that are most relevant to the proposed project with respect to biological resources are as follows:

Fish, Other Aquatic Organisms, and Wildlife

Policy 4(a) The Commission should consult with the California Department of Fish and Game and the U.S. Fish and Wildlife Service or the National Marine Fisheries Service whenever a proposed project may adversely affect an end

> Policy 4(a) The Commission should consult with the California Department of Fish and Game and the U.S. Fish and Wildlife Service or the National Marine Fisheries Service whenever a proposed project may adversely affect an endangered or threatened plant, fish, other aquatic organism or wildlife species;
>
> Policy 4(b) The Commission should not authorize projects that would result in the "taking" of any plant, fish, other aquatic organism or wildlife species listed as endangered or threatened pursuant to the state or federal endangered species acts, or the federal Marine Mammal Protection Act,

or species that are candidates for listing under the California Endangered Species Act, unless the project applicant has obtained the appropriate "take" authorization from the U.S. Fish and Wildlife Service, National Marine Fisheries Service or the California Department of Fish and Game; and

Policy 4(c) The Commission should give appropriate consideration to the recommendations of the California Department of Fish and Game, the National Marine Fisheries Service or the United States Fish and Wildlife Service in order to avoid possible adverse effects of a proposed project on fish, other aquatic organisms and wildlife habitat.

City of Alameda Tree Preservation Policies

The City of Alameda protects trees according to species, size and location of tree.

1. All coast live oaks (*Quercus agrifolia*) in Alameda with a ten inch (10") or greater diameter measured four and a half feet (4.5') above ground.

2. All Mexican fan palms (*Washingtonia robusta*) and California fan palms (*Washingtonia filifera*) in the public rights of way on both sides of Burbank Street, Portola Avenue, and Eighth Street between Central and Portola Avenues.

3. All trees in the three median islands on Thompson Avenue between High Street and Fernside Boulevard, known as Christmas Tree Lane. First island: Atlas Cedar (*Cedrus atlantica)*; Coast Redwood (Sequoia sempervirens). Second island: Atlas Cedar; Coast Redwood; Monterey Pine (*Pinus radiate*). Third island: Atlas Cedar; Coast Redwood; Jellicote Pine (*Pinus patula*); Bradford Pear (*Pyrus calleryana*).

4. All sycamore (London plane trees) (*Platanus acerifolia*) in the public rights of way on both sides of Central Avenue between Fernside Boulevard and 5th Street.

D.4 Impacts and Mitigation Measures

Significance Criteria

According to the Environmental Checklist in Appendix G of the CEQA Guidelines (Title 14, California Code of Regulations, 15000 et seq.), the project would be considered to have a significant impact on biological resources if it would:

1. 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 U.S. Fish and Wildlife Service.

2. 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.

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

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

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

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

Impact Analysis

Impact 4.D-1: The proposed project would not 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 CDFW or USFWS. (*Less than Significant with Mitigation*)

Sensitive aquatic communities, special status fish, and marine mammals that occur in the Alameda Estuary could be adversely impacted by project activities such as in-water work associated with demolition of the craneways, welding platform and shipways, excavations and filling necessary to bring the development site to proper elevations for residential uses and access and landscaping improvements along the shoreline; pile driving in uplands adjacent to the shoreline; and during construction of the floating dock. Construction activities also have the potential to impact special status species of birds that may forage on the Alameda Estuary near the proposed project.

Special Status Fish

Several species of fish with special status could be impacted by disturbances resulting from in-water work associated with demolition of the craneways, welding platform and shipways necessary to prepare the site for development; by soil movement operations (excavations and filling) necessary to bring the development site to proper elevations for residential uses and access and landscaping improvements along the shoreline; pile driving in areas above MHW and the HTL to install pilings to anchor the proposed buildings; and during construction of the floating dock. The San Francisco Bay waters surrounding Alameda Island are identified as critical habitat for central coast steelhead trout and green sturgeon. The State threatened longfin smelt can also be found in these waters, especially during the winter, along with winter, spring and fall run chinook salmon. The areas immediately off-shore from the project site are also designated as EFH for Fishery Management Plan-managed Pacific groundfish, coastal pelagics, and Pacific Coast salmon. These areas also contain spawning and foraging habitat for Pacific herring.

The proposed project will require in-water work to construct a cofferdam, remove the craneways, welding platform and concrete shipways along the shoreline and to install piers and a floating dock. This work will involve activities such as jack-hammering, some required within the Alameda Estuary, that could cause disturbances to special status fish species and EFH. In addition, pile driving has the potential to cause significant noise and vibration issues for fish populations. The implementation of the project will require pile driving to anchor new piers, dock and the proposed buildings adjacent to the shoreline. All pile driving other than for the proposed dock will occur landward of the proposed cofferdam in dewatered conditions. Pile driving has the potential to disrupt fish populations. The proposed water taxi service from the existing Shipways piers to the Oakland side of the Alameda Estuary will require installation of guide piles in the water, which may be driven either by vibratory or impact hammer depending on the subsurface soil conditions. The water taxi will result in boat trips within open waters of the Bay, which could also stress fish populations.

The potential effects of construction activities on special status fish species and EFH would be temporary and short-term, as they would be apparent only during demolition and construction activities. Pile driving in areas near the shoreline, jack-hammering and other demolition activities could result in noise and vibration causing possible mortality, physical injury, or physiological stress. Impacts could result from the increased noise and vibration but also an increase in sedimentation and turbidity if site runoff is not properly controlled. Long-term effects to fish species in adjacent waters could also occur due to operational concerns such as increased exposure to organic and inorganic contaminants in stormwater runoff and due to the increased number of boat trips in the area because of the proposed water taxi service.

Pile driving adjacent to the shoreline and demolition and removal of the craneways, welding platform and concrete shipways may produce high-intensity noise and vibration levels that could result in damage to soft tissues, such as gas bladders or eyes (barotraumas), and/or harassment of fish 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 use, or may use, the project area waters for foraging and/or as a transit corridor and would be potentially affected by the noise caused by the construction and demolition work.

Mitigation Measure 4.D-1a commits the applicant to completing the necessary permit authorizations from USFWS and/or NMFS pertaining to special status fish species. **Mitigation Measure 4.D-1b** outlines protocols for reducing noise impacts to sensitive fish species. By limiting impact hammer pile driving near the shoreline and in-water work to time periods when most sensitive fish species are not present and by employing BMPs consistent with NMFS current programmatic review for pile driving activities in San Francisco Bay (NMFS 2007a and b) that are demonstrated to reduce noise levels to safe levels for fish, **Mitigation Measure 4.D-1b** would ensure that effects of the proposed project would be less than significant.

> **Mitigation Measure 4.D-1a**: The applicant shall obtain all necessary authorizations related to potential impacts to special status fish species from USFWS and NMFS during the permit phase of the project. Such authorizations could be required for in-water demolition work or pile driving activities in areas adjacent to the shoreline and could consist of

authorization under one of the programmatic consultations for federally listed species described above or a separate Biological Opinion. The project applicant shall submit to the City copies of any Biological Opinion received.

Mitigation Measure 4.D-1b: If it is determined that pile installation using impact hammers along the shoreline would exceed established thresholds for injury or mortality to fish as set forth in FHA 2008 Caltrans 2015, and/or NMFS 2016 (see References), the City shall require a NMFS-approved sound attenuation monitoring plan to protect fish. This plan shall provide detail on a system to accomplish sound attenuation during pile driving, provide detail on 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 the greatest extent feasible. 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*" and the related USFWS and NOAA Section 7 consultation which establishes general procedures for minimizing impacts to natural resources associated with projects in or adjacent to jurisdictional waters.

- All piling installation using impact hammers and all demolition work along the shoreline required for removal of the craneways, welding platform and concrete shipways and work associated with pile driving and excavation/filling adjacent to the shoreline during site preparation shall be conducted between June 1 and November 30, if feasible, when the likelihood of sensitive fish species being present in the work area is minimal.

- 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 impact hammer shall be cushioned using a 12-inch thick wood cushion block during all impact hammer pile driving operations.

- 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.

- 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 for work completed in-water shall be implemented to attenuate sound levels to below thresholds.

Special Status Birds

Federally listed endangered California least tern and other special status bird species such as peregrine falcon, California brown pelican, Caspian tern, osprey, and double-crested cormorant possibly forage in the Alameda Estuary. Minor impacts to these species are possible as noise from construction activities, especially in-water demolition work and pile-driving in uplands adjacent to the shoreline, could cause birds to leave the area, and temporary increases in turbidity resulting

from migration of sediments off site during construction operations could cause minor changes in the abundance of prey as fish and other prey species leave the area and degrade the quality of foraging activity. Though it is possible that California least tern could forage in the project area, the waters of the Alameda Estuary are not a primary foraging area for the species, therefore temporary impacts to these waters due to noise and increased activity associated with construction activity would not adversely impact this species. In addition, efforts to control noise levels in **Mitigation Measure 4.D-1b** and Best Management Practices recommended in **Mitigation Measure 4.D-7a** will also serve to lessen impacts to foraging special status bird species.

Significance after Mitigation: Less than Significant.

Impact 4.D-2: Development facilitated by the proposed project would not have a substantial adverse effect on riparian habitat or other sensitive natural communities identified in local or regional plans, policies, regulations, or by CDFW or USFWS. (*Less than Significant with Mitigation*)

Although there is no riparian habitat located in the vicinity of the project, some sensitive natural communities are present in the vicinity of the proposed project that could be adversely impacted by project development. Critical habitat for green sturgeon and Central California coast steelhead is designated in San Francisco Bay and the Alameda Estuary and includes the waters adjacent to the project area. The areas immediately off-shore from the project site are also designated as EFH for Fishery Management Plan-managed Pacific groundfish, coastal pelagics, and Pacific Coast salmon. These areas also contain spawning and foraging habitat for Pacific herring. Sensitive natural communities including eelgrass are not known to exist within the project area but are present in the San Francisco Bay within about two miles of the project. Eelgrass beds are designated as EFH for various federally managed fish species within the Pacific Coast Groundfish and Pacific Coast Salmon FMPs. Eelgrass is also considered a habitat area of particular concern (HAPC) for various species within the Pacific Coast Groundfish FMP. HAPC areas are rare, particularly susceptible to human-induced degradation, especially ecologically important, and/or located in an environmentally stressed area.

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 piers and wharf 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-water work could result in the release and spread of marine invasive species, especially problem algal species such as *Undaria* and *Sargasso*.

Potentially significant impacts on eelgrass and oyster beds and the potential for release and spread of marine invasive species resulting from in-water work would be reduced to less than significant levels through implementation of **Mitigation Measures 4.D-2a.**

> **Mitigation Measure 4.D-2a**: The applicant shall develop and implement a Marine Invasive Species Control Plan prior to commencement of any in-water work and submit such plan to the City for review and approval. Provisions of the plan shall include (i) environmental training of construction personnel involved in in-water work; (ii) actions to be taken to prevent the release and spread of marine invasive species, especially algal species such as *Undaria* and *Sargasso*; (iii) procedures for the safe removal and disposal of any invasive species observed on the removed structures; (iv) the onsite presence of a qualified marine biologist to assist the contractor in the identification and proper handling of any invasive species removed from equipment or materials; and (v) preparation of a post-construction report identifying any invasive species attached to equipment and materials following removal from the water, and describing the treatment or handling of identified invasive species. Reports shall be submitted to the City.

Significance after Mitigation: Less than Significant.

Impact 4.D-3: Development facilitated by the proposed project would not 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. (*Less than Significant, No Mitigation Required*)

The Alameda Estuary and San Francisco Bay are considered navigable waters of the United States; therefore, they are "jurisdictional" waters regulated by USACE under Section 10 of the Rivers and Harbors Act up to Mean Higher High Water and Section 404 of the CWA up to the mean High Tide Line. These waters are also regulated by RWQCB as Waters of the State and by BCDC, which generally has jurisdiction over areas of San Francisco Bay that are subject to tidal action, as well as a 100-foot shoreline band. No wetlands are present within the Shipways project area.

Demolition of the craneways, welding platform and concrete shipways included in the site preparation activities during construction of the proposed project would result in in-water work which would be subject to provisions of the RHA (Section 10) and the CWA (Sections 404 and 401). The project is also subject to both the Bay and Shoreline Band jurisdiction of BCDC. The project would only result in limited permanent improvements in-water, including the pilings supporting new piers and dock. These improvements would have smaller footprints than existing conditions. The project would result in the net creation of approximately 40,000 square feet of open water habitat within San Francisco Bay, which is expected to benefit aquatic and bird species. In addition, existing areas within the shipway ramps that are within regulatory agency jurisdiction, but are currently comprised of concrete, will be removed, substantially improving habitat value along the shoreline of the project area.

The applicant will need to apply for permits from USACE pursuant to Section 10 of the RHA and Section 404 of the CWA and from the RWQCB pursuant to requirements for a Section 401 water quality certification. As the project would not result in permanent loss of wetlands or waters of the U.S. or state, it is not anticipated that these permit processes will result in a requirement for compensation of wetlands or waters to achieve no net loss. A permit will also be required from BCDC for work within both Bay and Shoreline Band jurisdiction. This potential impact is considered less than significant (no mitigation required) because it will result in a net benefit to aquatic resources, including navigable waters covered by the RHA and CWA.

Recommendation 4.D-3a: The applicant shall apply for necessary permits from USACE pursuant to Section 10 of the RHA and Section 404 of the CWA, from the RWQCB pursuant to Section 401 water quality certification, and from BCDC for work with both Bay and Shoreline Band jurisdiction.

Significance: Less than Significant.

Impact 4.D-4: Development facilitated by the proposed project would not 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. (*Less than Significant with Mitigation*)

The proposed project has the potential to interfere with the movement of native resident or migratory avian and bat species within the project vicinity. In addition, the proposed project could adversely impact the movement of fish and marine mammals within project area waters. Some disturbance to movement of migratory and resident waterbirds is possible during (i) in water work during demolition and construction activities, (ii) excavation or filling activities adjacent to the shoreline necessary to create suitable elevations for residential uses and development of public access and landscaping along the shoreline, (iii) pile-driving, and (iv) during operation of the proposed water taxi service across the Alameda Estuary between the project site and Oakland. These activities also have the potential to affect the movement or migratory corridors of, or impede the use of nursery sites by harbor seals, Chinook salmon, Coho salmon, Steelhead trout, green sturgeon, Pacific herring, and several FMP-managed fish species.

The San Francisco Bay serves as a corridor for movement of fish and other marine species migrating through the Bay to and from spawning habitat, nursery areas, or other forage areas within the Bay and Delta and through the Golden Gate to the open ocean. Given the project's location adjacent to the Alameda Estuary and within a central location of the San Francisco Bay, the proposed project could affect movement of special status and sensitive fish and marine mammals as a result of (i) increased noise and vibration from pile-driving and other site preparation work adjacent to the shoreline, including in-water work associated with demolition and removal of the craneways, welding platform and shipways, and installation of the floating dock, (ii) increased noise levels and potential for harassment of marine mammals resulting from pile-driving or other site preparation work, in-water demolition work, or operation of a water taxi

service between the project and Oakland, and (iii) increased levels erosion and consequent sedimentation within Bay waters resulting from construction work. Some impact to Bay habitat for wildlife could result from shading of the Bay substrate through construction of the proposed floating dock or from lighting associated with the residential project or public use areas.

Depending on timing of the proposed construction, impacts could also result to nesting birds covered by the MBTA and California Fish and Game Code or to roosting bats that could potentially be found under or within the shipways or associated with the craneways or welding platform. The proposed four or five story buildings located immediately adjacent to the Bay could be source of mortality for migratory birds due to bird collisions with the buildings during migration.

Construction Noise and Other Harassment- Fish Populations

Potential noise impacts from in-water demolition of craneways, the welding platform and the concrete shipways and from pile driving and excavation/filling work in uplands adjacent to the shoreline on fish moving through the project area are potentially significant, but would be reduced to a less than significant level for effects on fish by the implementation of **Mitigation Measure 4.D-1a,** which requires consultation with NMFS to determine measures necessary to reduce effects of construction-generated noise and vibration on fish species, and **Mitigation Measure 4.D-1b** requiring specific mitigation measures to reduce noise levels that could affect fish populations. The USACE will initiate consultation with NMFS under Section 7 of the Endangered Species Act and the Magnuson-Stevens Act regarding potential project effects on federally listed threatened and endangered species and EFH, respectively. These consultations will take place under requirements of regulatory actions of federal and state approvals required pursuant to the CWA for in-water work, and will identify any measures necessary beyond the implementation of work windows (e.g. additional items in **Mitigation Measure 4.D-1b**) to reduce potentially significant impacts on federally and state-protected fish species. **Mitigation Measures 4.D-1a** and **Mitigation Measure 4.D-1b** will also serve to ensure that impacts to EFH are reduced to levels that would be less than significant. Therefore, with compliance with the requirements of any NMFS consultation as per **Mitigation Measure 4.D-1a** and compliance with requirements of **Mitigation Measure 4.D-1b** related to special status fish, the potential impacts of construction activities, including pile driving in uplands adjacent to the shoreline and in-water demolition work, on movement or migration of special-status fish species or EFH would be less than significant.

Significance after Mitigation: Less than Significant.

Construction Noise and Other Harassment- Marine Mammals

Pacific harbor seals and California sea lions may occasionally occur in project area waters through most of the year. The Alameda Estuary waters could be used by harbor seals and sea lions for foraging and thus, there is a potential for noise from proposed construction activity, including in-water demolition work and pile driving in uplands adjacent to the shoreline, to significantly affect these marine mammals. In-water work associated with demolition of the craneways, welding platform and concrete shipways and installation of the floating dock, and the pile driving and excavation/filling work in uplands adjacent to the shoreline has the potential to

generate noise and vibration effects that could affect the movement of marine mammals, particularly Pacific harbor seals or California sea lions, in the Alameda Estuary.

As Alameda Estuary waters could be used by harbor seals and sea lions for foraging, there is a potential for noise from proposed pile driving activities and in-water work to significantly affect these marine mammals. **Mitigation Measure 4.D-1b** outlines protocols for reducing noise impacts to special fish species that will also serve to reduce noise impacts to sensitive marine mammals. Implementation of noise reduction measures in **Mitigation Measure 4.D-1b** are consistent with NMFS current programmatic review for pile driving activities in San Francisco Bay (NMFS 2007a and b). Implementation of **Mitigation Measure 4.D-1b** in addition to **Mitigation Measure 4.D-4a** and **Mitigation Measure 4.D-4b,** below, would reduce potential impacts to Pacific harbor seals and California sea lions to a less than significant level.

> **Mitigation Measure 4.D-4a**: If pile driving during in-water project work would result in exceedance of thresholds as set forth in FHA 2008 Caltrans 2015, and/or NMFS 2016 (see References), theproject applicant shall obtain Incidental Harassment Authorization from NMFS for Pacific harbor seals or California sea lions related to potential noise impacts resulting from pile driving activities and in-water work.
>
> **Mitigation Measure 4.D-4b**: The sound attenuation monitoring plan required in Mitigation Measures 4.D-1b shall include an evaluation of the potential effects of sound on marine mammals, and shall determine appropriate measures to be employed if sound levels exceed thresholds established by MMPA regulations. If it is found that sound levels would be exceeded a NMFS-approved biological monitor shall conduct daily surveys before and during impact hammer pile driving for the presence of marine mammals. Monitoring will be completed within "safety zones" that are established in the sound attenuation and monitoring plan based on modeled sound levels resulting from pile driving. If marine mammals enter zones that could result in injury or death to individuals, pile driving shall cease and shall not resume until the individual has left the safety zone or has not been observed for 15 minutes.

Significance after Mitigation: Less than Significant.

Nesting Birds

Active nests of bird species are protected by the MBTA and by California Fish and Game Code Section 3503. Nesting bird species protected by the federal Migratory Bird Treaty Act could be impacted during project construction of the proposed project. Evidence of nesting by bird species protected by the MBTA was observed at the project site during the April 4, 2017 field survey. Cliff swallows were observed nesting under the eaves of all the Shipways buildings. Although not specifically observed during the April 2017 field survey, nesting could also occur by passerines (songbirds) in the planted trees and shrubs along Marina Village Parkway, in the sparse vegetation found throughout the site including in the area between the shipways where some planted shrubs and other plants could be found, and by various waterbirds and shorebirds in areas near the shoreline (e.g., nesting by killdeer is possible in these areas). Construction work during the February 1 to August 31 breeding season could result in mortality of nesting avian species if they are present. Therefore, preconstruction surveys should be conducted of the development area to determine if nesting is occurring. If nests are found, a construction plan would need to be

developed that would allow successful nesting (fledging of young birds). Implementation of **Mitigation Measure 4.D-5a** and **Mitigation Measure 4.D-5b** below, would reduce potential impacts to nesting migratory birds to less than significant.

> **Mitigation Measure 4.D-5a**: If feasible, construction work shall take place outside of the February 1 to August 31 breeding window for nesting birds. If construction is to be conducted during the breeding season, a qualified biologist shall conduct a preconstruction breeding bird survey in areas of suitable habitat within 15 days prior to the onset of construction activity. If active bird nests are found, appropriate buffer zones shall be established around all active nests to protect nesting adults and their young from construction disturbance. Size of buffer zones shall be determined by a qualified biologist based on site conditions and species involved. In general, CDFW recommends a 150-foot construction exclusion zone around the nests of active passerine songbirds during the breeding season, and a 300-foot buffer for nesting raptors. Buffer zones should be maintained until it can be documented that either the nest has failed or the young have fledged.
>
> **Mitigation Measure 4.D-5b**: If demolition of the shipways buildings is planned to occur during the bird nesting season (February 1 to August 31), the applicant shall use protective nests or tarps or other measures to reduce the potential for establishment of active nests, including, for example: cover potential nesting sites in the eaves of the Shipways buildings for cliff swallows to prevent initiation of nesting by swallows that could impede demolition of the Shipways buildings. Such features would need to be installed with the assistance of qualified wildlife biologists during the non-nesting season (prior to January 31) to ensure that no nesting birds are harmed by their placement. The protective nets or tarps would remain until the commencement of demolition work for the subject building or could remain throughout the nesting season (until after August 31).

Significance after Mitigation: Less than Significant.

Roosting Bats

The proposed project has the potential to affect special-status and common roosting bat species during demolition of the existing craneways, welding platform and the concrete shipways and buildings. Bats have the potential to roost in existing vacant or underutilized buildings, other man-made structures, and trees within or near the project site. The field survey of the project site revealed that holes in the shipways used for deposition of dredged material in the 1980s provide excellent portals for bat populations that could roost in spaces and voids under the shipways. Bats and other non-game mammals are protected in California under the State Fish and Game Code.

Specifics of bat biology germane to the impact evaluation and development of mitigation measures to protect bat populations were discussed in the Existing Setting. Protections are necessary for maternity roosts (those that are occupied by pregnant females or females with non-flying young) and non-breeding roosts or day roosts without pregnant females or non-flying young. Significant impacts to bats prohibited under the Fish and Game Code could result from (i) destruction of an occupied, non-breeding bat roost, resulting in the death of bats; (ii) disturbance that causes the loss of a maternity colony of bats (resulting in the death of young); or (iii) destruction of hibernacula. This may occur through direct disturbance from destruction of a roost

site during removal of structures or an indirect disturbance causing behavioral alterations due to construction noise or vibration, or increased human activity in the area.

Conducting demolition of structures (e.g., craneways, the welding platform and shipways at the project site) could result in direct mortality of roosting bats. As part of a preconstruction bat survey, a bat biologist determines if potential habitat for bats is found in structures slated for demolition through visual examination of the exterior and interior surfaces and spaces for suitable entry points, and signs of roosting bats (fecal pellet accumulations, urine or fur staining at entrances, insect prey remains, live or dead bats, characteristic odor, etc.). Demolition could proceed at structures containing no potential habitat. Structures containing potential potential roost habitat and signs of past or present use by bats will be presumed to contain roosting bats unless a detailed visual survey or night emergence survey can be conducted that verifies the absence of bats. Night emergence surveys can only be conducted when bats are active. Buildings containing bats or signs of past or present use by bats will require either humane eviction (installation of blockage materials and one-way exits), or partial dismantling, only during seasonal periods of bat activity. Implementation of **Mitigation Measure 4.D-6a** requiring a preconstruction bat survey will reduce the potential for impacts to bat populations to levels less than significant.

> **Mitigation Measure 4.D-6a**: Prior to the issuance of construction permits, the City shall ensure the project applicant conducts a preconstruction bat survey and implements any warranted measures necessary to protection of bat populations, including special status bat species.
>
> - A daytime bat habitat assessment should be conducted by a qualified bat biologist of all structures slated for demolition (including craneways, the welding platform and shipways). No activities that could disturb active roosts shall proceed prior to completion of the survey. The habitat survey will include a detailed survey of all accessible portions of the exteriors and interiors of structures. If structures contain past or present evidence of roosting bats (fecal pellet accumulations, urine or fur staining at entrances, insect prey remains, live or dead bats, characteristic odor, etc.) and there are walls or other portions of the structure that cannot be completely surveyed, it will be assumed that roosting bats are present unless a detailed visual survey or night emergence survey can be conducted that verifies the absence of bats. Demolition of structures containing roosting bats or signs of past or present use by bats would be delayed until between March 1 (weather permitting) and April 15 to avoid mortality of torpid overwintering bats, and between September 1 and October 15 to prevent mortality of young that are not yet self-sufficiently volant.
>
> - If no bats are determined to be present at the project site, appropriate steps shall be taken based on recommendation of the qualified biologist to ensure that accessible entrances are closed off to ensure that a colony does not become established.
>
> - If removal of structures during the periods when bats are active is not feasible and active bat roosts being used for maternity or hibernation purposes are found on or in the immediate vicinity of the project site where structure demolition or renovation is planned, a no-disturbance buffer of 100 feet shall be established around the roost sites until they are determined to be no longer active by a qualified biologist.

- Removal of structures containing or presumed to contain active bat roosts shall be dismantled under the supervision of the qualified biologist in the evening and after bats have emerged from the roost to forage. Structures shall be partially dismantled to significantly change the roost conditions, causing bats to abandon and not return to the roost.

- If significant bat roosting habitat (e.g., maternity roosts or large non-maternity roost sites) is destroyed during structure removal, mitigation shall be required based on recommendations of the surveying biologist. Mitigation would be determined based on the biological requirements of the specific bat species identified, and may include 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, on-site bat roosts, or other on-site or off-site measures. The design and location of the artificial bat roost(s) shall be determined by a qualified bat biologist.

Significance after Mitigation: Less than Significant.

Increased Contaminants in Stormwater Runoff

Construction activities on the project site would involve disturbance and exposure of soils through demolition of craneways, welding platform and shipways, pile installation to support proposed buildings, and excavation and filling necessary to provide proper construction elevations for residential uses and the public use and landscaping along the shoreline. These activities would result in exposure of soil to runoff, potentially causing erosion and entrainment of sediment in the runoff. If not managed properly, the runoff could cause increased sedimentation and turbidity in surface waters outside of the project site, including the Alameda Estuary, resulting in degradation of water quality. Water from the project site drains east toward the Alameda Estuary.

Ground-disturbing activities could promote erosion and allow elevated levels of sediment to wash into the Alameda Estuary, where potential impacts to fish and wildlife species would be possible. In the absence of water quality controls, indirect impacts to animal populations in downstream aquatic habitats could result from the proposed project due to elevated contaminants in stormwater runoff. However, the requirement for **Mitigation Measure 4.D-7a** requiring the implementation of a Stormwater Pollution Prevention Plan (SWPPP), or similar storm water quality control plan, with identification of proper construction techniques and BMPs will minimize adverse effects associated with these activities. Furthermore, standard techniques to control contaminants in stormwater such as oil and grease traps will be employed to mitigate water quality concerns. With implementation of **Mitigation Measure 4.D-7a**, water quality concerns will be reduced to levels less than significant.

> **Mitigation Measure 4.D-7a**: Best Management Practices and all requirements as detailed in the SWPPP (or stormwater quality control plan) shall be implemented to control erosion and migration of sediments off-site. Implementation of water quality controls shall be consistent with the BMP requirements in the most recent version of the California Stormwater Quality Association Stormwater Best Management Handbook-Construction. In addition, vegetation shall only be cleared from the permitted construction footprint. Areas

cleared of vegetation, pavement, or other substrates should be stabilized as quickly as possible to prevent erosion and runoff.

Significance after Mitigation: Less than Significant

Shading and Lighting Impacts

The installation the floating dock and new piers would result in shading of a small area of subtidal habitat. The presence of structures over the water can result in increased deposition of sediments and the composition of benthic infaunal communities, and can also reduce penetration of ambient light into waters of the Bay which can impact phytoplankton production and growth of algae and eelgrass, as well as both invertebrate and vertebrate community composition and animal behaviors (TRAC 2001). However, Bay waters are typically relatively turbid, which naturally limits ambient light penetration and phytoplankton production. The area of the proposed over the water is small and the project will result in a net increase in open water. A considerable area of adjacent waters provides ample subtidal habitat, therefore the potential effects of shading associated with the proposed structures over the water on sensitive species, foraging activities of birds, or subtidal organisms is 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 (TRAC 2001). 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; use of low-voltage, sodium, or non-yellow/red spectrum lights; and shielding of lights to restrict the transmittance of artificial light over the water. Any lights on the dock, piers, or along public pathways along the shoreline have a minimal potential to affect to animal species within the Alameda Estuary that could be simply reduced to levels of less than significant through the use of shielded, low-mounted, and low light-intensity fixtures and bulbs as required in **Mitigation Measure 4.D-8a**.

Mitigation Measure 4.D-8a: Through the Design Review application process, the City shall ensure that the project applicant installs lighting on docks, piers, and along the shoreline that minimizes artificial lighting of Bay waters by using shielded, low-mounted, and low light-intensity fixtures and bulbs.

Significance after Mitigation: Less than Significant.

Avian Collisions with Buildings and Night Lighting

The project site is located within the Pacific Flyway along the eastern shoreline of San Francisco Bay. Local migratory corridors vary by species, but migratory birds typically follow coastlines, rivers, and mountain ranges in their migration routes. Locally, migratory birds probably use routes along the Bay shoreline, down the coast, or through Altamont Pass or along the Diablo Range. Local migration routes probably include Alameda Island which provides foraging and roosting habitat for numerous migratory species. The waters of the Bay and the Alameda Estuary are a

known valuable stopover habitat for migratory birds. Development of the four and five story buildings proposed in the proposed project may increase the risk of bird collisions over that posed by existing structures. This could be a significant impact as migratory birds are protected under the MBTA and the California Fish and Game Code.

Many collisions are induced by artificial night lighting, particularly from large buildings and high rises, which can be especially problematic for nocturnal migrating songbirds. In addition, birds can become "trapped" by a light source, become disoriented, continue to fly around the source until they become exhausted and drop to the ground, where they may be killed by predators or die from stress or exhaustion. With smaller buildings and at lower stories, windows reflecting planted trees could deceive birds into flying toward the reflected images. Reduction in lighting intensity, changing fixed lighting to flashing or intermittent lights, or shielding of lights can reduce avian mortality. Direct effects on migratory as well as resident birds moving through an area include death or injury as the birds collide with lighted structures as well as collisions with glass during the daytime. 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).

Bird collisions with buildings are a substantial issue for migratory birds when considered at a regional or national scale, and have been considered as the second or third largest source of human-caused bird mortality. Various estimates of birds killed annually in the U.S. by window collisions range from 100 million (Dunn 1993), 365 to 988 million (Loss et al 2014), to as much as one billion (Klem 1990). Across Canada, analogous estimates of annual bird deaths are as much as 22.4 (Calvert et al 2013).

The proposed project site is in a generally urban setting surrounded by light sources and structures with similar heights. A portion of the project site has existing sources of security and parking lighting. The residential development of the project site is expected to increase the amount of light and glare generated at the project site associated with the potential use of reflective building materials, street light fixtures, and increased vehicle and transit use. Given the typical altitude at which migrating birds fly and the fact that proposed lighting would be shielded, it is unlikely that the lighting associated with the proposed project would cause "entrapment" of migratory birds. However, the project is adjacent to San Francisco Bay (the Alameda Estuary), a known migratory stopover site, and therefore the proposed project has the potential to result in a new source of light along the already urbanized shoreline 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. With implementation of **Mitigation Measure 4.D-9a**, the risk of avian collisions will be reduced to a level of less than significant.

> **Mitigation Measure 4.D-9a**: The project Design Review plans shall be designed to minimize the risk of bird strikes. 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 buildings to ensure that the potential for bird strikes is sufficiently minimized. The project applicant shall provide the City a written description of the measures and features of the building design that are intended to address potential impacts on birds. Specific features

shall include limits on reflective building materials so buildings appear less transparent and limitations on night lighting.

Significance after Mitigation: Less than Significant.

Impact 4.D-5: Development facilitated by the proposed project would not conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. (*Less than Significant*)

BCDC's San Francisco Bay Plan (BCDC 2012) 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 regulation of filling, dredging, and shoreline development. The proposed project would require in-water work for demolition and construction activities. The project would also incorporate public access, public pathways and landscaping along the shoreline as well as a water taxi service between the project site and Oakland. The in-water work would occur within BCDC's Bay jurisdiction. Provision of public access and landscaping within BCDC's Shoreline Band jurisdiction are consistent with elements of the Bay Plan. The project will require a permit from BCDC, and permit conditions will be established within the context of the BCDC permit to protect natural/biological resources within BCDC's Bay and Shoreline Band jurisdiction and ensure project consistency with the Bay Plan.

The project is consistent with all policies related to biological resources included within the Alameda General Plan. These policies are listed in Section B.3, Regulatory Framework, under the headings Local Plans and Policies and City of Alameda General Plan.

Significance after Mitigation: Less than Significant.

Cumulative Impacts

Cumulative impacts for the project are viewed in the context of natural habitat areas that remain in the project area, future foreseeable development projects in the area, and any regional habitat preservation programs for the region. 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.

The geographic scope of potential cumulative impacts on biological resources encompasses the project site as well as biologically linked areas sharing the Alameda Estuary and greater San Francisco Bay. 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. Portions of the City of

Alameda are on fill within 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. Few natural communities exist on Alameda Island and vegetation in many locations consists of non-native species and trees and shrubs planted for purposes of landscaping. Due to past development in the project area, significant cumulative effects on biological resources have already occurred.

Although the project would develop the area with residential and recreational uses that could disturb sensitive species or habitat, and will require limited in-water work, the project would implement mitigation measures that would ensure these impacts are less than significant. The project site consists of developed land uses left over from prior shipbuilding activities, and while there is no sensitive habitat located on the project site for this reason, the project could disturb aquatic habitat in the Alameda Estuary through in-water work required for demolition and construction activities. Other foreseeable projects that involve in-water work and could result in cumulative impacts on biological resources in combination with the proposed project include the proposed San Francisco Bay Area Water Emergency Transportation Authority Central Bay Operations and Maintenance Facility, redevelopment of Treasure Island and Hunter's Point, redevelopment associated with the Alameda Marina Master Plan, Encinal Terminals, and Port of Oakland maintenance dredging.

Cumulative impacts are possible due to cumulative development within the Alameda Estuary on waterbirds and marine life or that could lead to significant cumulative impacts on nesting birds or roosting bats. However, 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 biological resources as part of CEQA review for these projects. These regulatory requirements should serve to reduce future contributions to cumulative impacts on biological resources in the project area.

The proposed project would implement mitigation measures to ensure impacts to biological resources from the proposed project are reduced to a less-than-significant level. These measures include preconstruction surveys, requirements for biological monitoring, best management practices for minimizing effects to sensitive species and habitat that could be affected by the project during construction, as well as minimize effects during operation of the project. With implementation of these measures, there would be no significant impact to special status species, sensitive natural communities, federally and state-protected waters, wildlife corridors, or native wildlife nursery sites, and the project would not conflict with applicable local policies or ordinances.

When considered within the context of biological resources in the project area and the greater Bay Area in the context of past, present and reasonably foreseeable similar projects, the project would add only a minor, incremental contribution to impacts on biological resources. The project's contribution would not be considered cumulatively considerable. 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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E. Cultural Resources

E.1 Introduction

This section includes a discussion of the potential cultural resources on the Alameda Shipways project site. Also discussed are the physical and regulatory setting, the significance criteria used for determining environmental impacts, and potential impacts associated with construction, operation, and maintenance of the proposed project. Cultural resources include architectural resources, historic and prehistoric archaeological resources, human remains, and tribal cultural resources.

E.2 Environmental Setting

The northern part of the San Francisco Bay is within the Bay Area-Delta bioregion. 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 island of Alameda was originally a peninsula connected to the mainland. A tidal channel was excavated in 1902, extending and deepening the natural estuary. The spoils were used to fill in low-lying sections of nearby marsh land.

Paleontological Context

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 nonmarine 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.

Prehistoric Background

The natural marshland communities along the edges of bays and channels were the principal source for subsistence and other activities during the prehistory of the San Francisco Bay region.

Between1906 and 1908, University of California, Berkeley archaeologist N.C. Nelson conducted surveys of archaeological sites in the Bay region. His early surveys documented nearly 425 "earth mounds and shell heaps" along the littoral zone of the bay (Nelson, 1909). Archaeologists later excavated some of the most notable of these sites in the Bay Area, such as the Stege Mound Archaeological District (CA-CCO-297), the Ellis Landing Site (CA-CCO-295), the Emeryville shellmound (CA-ALA-309), and the Fernandez Site (CA-CCO-259) in Rodeo Valley (Moratto, 1984). These dense midden[1] sites have been carbon 14 dated to be 2,310 ± 220 years old, but other evidence from around the bay suggests that human occupation in the region is of greater antiquity, perhaps as early as 8000 B.C. (Davis & Treganza, 1959, as cited in Moratto, 1984).

Categorizing the prehistoric period into cultural stages allows researchers to describe a broad range of archaeological resources with similar cultural patterns and components during a given timeframe, thereby creating a regional chronology. Milliken et al. (2007) provide a framework for the interpretation of the San Francisco Bay Area and have divided human history of the region into four broad periods: the *Paleoindian Period* (11,500 to 8000 B.C.), the *Early Period* (8000 to 500 B.C.), the *Middle Period* (500 B.C. to A.D. 1050), and the *Late Period* (A.D. 1050 to 1550).

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.

The *Paleoindian Period* (11,500 to 8000 B.C.) was characterized by big-game hunters occupying broad geographic areas. Evidence of human habitation during *Paleoindian Period* has not yet been discovered in the San Francisco Bay Area. During the *Early Period* (*Lower Archaic*; 8000 to 3500 B.C.), geographic mobility continued from the *Paleoindian Period* and is characterized by the millingslab and handstone as well as large wide-stemmed and leaf-shaped projectile points. The first cut shell beads and the mortar and pestle are documented in burials during the *Early Period* (3500 to 500 B.C.), indicating the beginning of a shift to sedentism. During the *Middle Period*, which includes the *Lower Middle Period* (500 B.C. to A.D. 430), and *Upper Middle Period* (A.D. 430 to 1050), geographic mobility may have continued, although groups began to establish longer-term base camps in localities from which a more diverse range of resources could be exploited. The first rich midden sites are recorded from this period. The addition of milling tools, obsidian and chert concave-base projectile points, and the occurrence of sites in a wider range of environments suggest that the economic base was more diverse. By the *Upper Middle Period*, highly mobile hunter-gatherers were increasingly settling down into numerous small villages. Around A.D. 430 a dramatic cultural disruption occurred evidenced by the sudden collapse of the Olivella saucer bead trade network. During the *Initial Late Period* (A.D. 1050 to 1550), social complexity developed toward lifeways of large, central villages with resident political leaders and specialized activity sites. Artifacts associated with the period include the bow and arrow, small corner-notched projectile points, and a diversity of beads and ornaments.

[1] Any large refuse heap, mound, or concentration of cultural debris associated with human occupation. The term includes such materials as discarded artifacts, food remains, shells, bones, charcoal and ashes, -- and may include the material in which the debris is encapsulated and modifications of this matrix. Midden debris usually contains organic material, bonescrap, artifacts (broken and whole), and miscellaneous detritus. Midden deposits also sometimes contain human burial remains.

Ethnographic Context

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 descriptions of separations between native cultures of California make it an easier task for ethnographers to describe past behaviors, the descriptions can mask Native adaptability and self-identity. Current understanding of California's Native cultures suggests that 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 refers 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. Alameda is within the San Antonio cultural area of the Chochenyo tribelet (Milliken et al., 2009).

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.

Historic Context

The following historic context is adapted from the Historic Resource Evaluation prepared for the project by Carey & Co., Inc. (May 2017), which is included with this EIR as **Appendix D**.

The shipways at Marina Village Parkway were constructed in 1942-1943 as part of the Bethlehem Alameda Shipyard. The Bethlehem Alameda Shipyard, among the key shipbuilding and repair facilities of the West Coast, was located on land known as the Alameda Marsh. By about 1900, Alaska sailing vessels moored at the marsh during the winter and Dickie Brothers of San Francisco built a slip for the construction of small wooden ships by about 1902. United Engineering Company of San Francisco bought the property in 1903, improved it and built up an extensive business in repairing and dry docking steam schooners and other ships by 1916. Ship dry dock and repair was the first important industry on the Alameda side of the estuary and one of the first at the western end

of Alameda. During the World War I, this area would become central to the East Bay's industrial economy.

In 1916, the shipyard was bought by Union Iron Works (owned by Bethlehem Steel Corporation), which manufactured mining machinery, locomotives, and ships, and became known as the Alameda Works of Union Iron Works. United Iron Works already operated the Potrero Works, Risdon Works, and Hunters Point Works in San Francisco. In response to World War I, Bethlehem Steel set up the Bethlehem Shipbuilding Corporation, Ltd. in 1917, consolidating several shipyards throughout the United States. The three works of Union Iron Works became known as the Union Plant of the Bethlehem Shipbuilding Corporation. The Alameda Works shipbuilding facilities underwent a major expansion at that time, including construction of six ways or slips to accommodate the assembly of ships up to 550 feet long; a 500-foot plate shop; a marine building for warehousing and the construction of small parts; a power house; an employee cafeteria; several office buildings; an employee hospital, and a turbine machine shop. A formal entrance gate at Tynan Avenue provided entry to the complex. Altogether, the Alameda Works "spread over seventy acres and was considered one of the largest and best equipped yards in the country." The turbine machine shop itself was referred to as "the finest machine shop on the Pacific Coast." Several accomplishments of the yard—such as construction of the two largest ships ever built on the Pacific Coast and launching a 12,000-ton freighter after only 24 working days—attracted widespread public acclaim and official acknowledgement during World War I.

Alameda Works ceased making ships after 1923, but continued its dry docking and ship repairing operations. The turbine machine shop was renamed the Alameda Fabricating Works in 1933, was revamped to fabricate structural steel, and produced steel for the Alameda County Court House, the San Francisco Mint, and many Army and Navy buildings on the Pacific Coast through World War II. Alameda Works was reestablished as the Bethlehem Alameda Shipyard, Inc. at the beginning of World War II, and was modernized and expanded. The new structures included a five-story reinforced-concrete warehouse; shipway ways; and housing south of the yard. During the war, the shipyard repaired over 1,000 vessels and produced P-2 troop transport ships, "the largest non-combatant vessel to be built by any American shipyard since Pearl Harbor" (Corbett and Welden, 1979).

By March 1942, the Maritime Commission called upon Bethlehem to build and operate a new yard to construct 10 large troop transports. Bethlehem Alameda shipyard was reconditioned to handle this request beginning in June and continuing into 1943, including the clearing of old buildings and the redesign and reconstruction of the aged facilities. Shipbuilding at the yard resumed in December 1942.[2] The subject shipways on Marina Village Parkway were constructed as part of this reconditioning.

Among the major contributors to Bay Area shipbuilding along the Oakland-Alameda Estuary, Bethlehem's Alameda Yard built seven of the Admiral Class troop transports during World War II, the last being commissioned July 10, 1945.[3] The shipyard repaired over 1,000 commercial vessels

[2] "Bethlehem-Alameda Shipyard, Inc. Alameda, Calif.," *The Log of the West Coast Maritime Industries*, vol. 39, no. 8, Miller Freeman Publications, July 1, 1944, p. 106.

[3] Nicholas A. Veronico, *World War II Shipyard by the Bay* (San Francisco: Arcadia Publishing, 2007), p. 103.

and continued to produce structural steel. After the war, ownership of the shipyard was returned to Bethlehem Steel, and the shipbuilding activities were reduced until they eventually ceased. By the early 1950s, the yard was used to maintain and repair equipment used by other Bay Area facilities of Bethlehem Steel. By 1956, the shipyard closed and many of its buildings were demolished. The power house and the shipways are among the remaining Alameda Shipyard structures (Corbett and Welden, 1979). The shipways were rehabilitated and converted to offices in the mid-1980s. The building is not listed on the City of Alameda's Historical Building Study List.

Project Site Resources

Paleontological Resources

The project site is underlain by Bay Mud–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. The top 12 to 15 feet of soils at the site are composed of undocumented and dredged fill material overlying the Bay Mud. (See Section 4.F, Geology, Soils, and Geohazards, for additional information about soils at the site.)

The geologic units at the project site represent either historic (in the last 200 years) or Holocene-age (last 11,000 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. The proposed project overlies geologic units that have low paleontological potential.[4]

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, 2017). 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.

Pre-historic Resources

A records search was conducted at the Northwest Information Center (NWIC) of the California Historical Resources Information System (CHRIS) on September 26, 2018 (File No. 17-0958, included in Appendix D). The CHRIS consists of the California Office of Historic Preservation (OHP), nine Information Centers, and the State Historical Resources Commission. The CHRIS Inventory includes the State Historic Resources Inventory as well as cultural resource records and

[4] 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.

research reports managed under contract by the nine Information Centers including the NWIC. The purpose of the records search was to (1) determine whether known cultural resources have been recorded within or adjacent to the project area; (2) assess the likelihood for unrecorded cultural resources to be present 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 results of the records search indicate that the project area contains no recorded archaeological resources.

Review of historical literature and maps indicate the possibility of historic-period activity within the project area and a high potential for unrecorded historic-period archaeological resources exists.

Tribal Cultural Resources

The NWIC records search concluded that although there are no known Native American resources in or adjacent to the proposed project area, Native American resources in this part of Alameda County have been found in areas marginal to the bayshore and inland near intermittent and perennial fresh watercourses. Therefore, there is a moderate to high potential for unrecorded Native American resources in the project area.

A search of the Sacred Lands Files by the Native American Heritage Commission (included in Appendix D) did not result in identification of traditional sites significant to Native Americans in the vicinity of the project site. A list of potential stakeholders with knowledge of the project vicinity was provided by the Native American Heritage Commission. These stakeholders have been contacted to provide the opportunity for consultation if desired, though no responses have been received during preparation of this EIR.

Historic-Era Resources

The records search conducted at NWIC included a review of historical literature and maps, which indicate the possibility of historic-period activity within the project area, identified four buildings within the project area that may be of historical value under the Office of Historic Preservation. Therefore, there is a high potential for unrecorded historic-period archaeological resources in the project area.

The Historic Resource Evaluation prepared for the project by Carey & Co., Inc. (May 2017; see Appendix D of this EIR) evaluated the potential eligibility of the four shipways at 1100 – 1250 Marina Village Parkway to be individually listed in the National Register of Historic Places (National Register), the California Register of Historical Resources (California Register), and the Alameda Historical Building Study List. The evaluation concluded that the shipways appear eligible for listing in the National Register and California Register under Criterion A/1 (Events), and for listing on the Alameda Historical Building Study List under an “S” designation.

Constructed in 1943, the structures were part of the Bethlehem Shipbuilding Company’s Alameda Yard. They are significant for their association with wartime efforts at the national level and the development of steel shipbuilding and repair in the Bay Area at the local level. The period of

significance would begin in 1943, with the construction of the shipways, and end in the early 1950s when the yard was used to maintain and repair equipment used by other Bay Area facilities of Bethlehem. The shipways retain sufficient integrity to communicate their significance. The structures are described below.

Building Descriptions

The following building descriptions are excerpted from the Historic Resource Evaluation prepared for the project by Carey & Co., Inc. (May 2017; see Appendix D of this EIR).

The four shipway buildings at 1100-1250 Marina Village Parkway (labeled Shipway 1, 2, 3, and 4 from west to east) are virtually identical. The buildings are sited in a northeast-southwest direction and paired together. The one-story, industrial shipway building, identified as "Shipway 4" is rectangular in plan. The poured-in-place, reinforced concrete structure has a sloping roof platform where ships were once constructed. The high end of the roof at the southern side of the building slopes down to the water at the northern end of the structure. Occupiable space is located at the southern end of the building, sheltered by a quarter of the sloping roof. Concrete pilasters divide the front elevation into four bays. Most bays feature a variety of multi-lite steel sash windows varying in size, and pairs of steel doors.

The steel casement and awning multi-lite windows have concrete sills. A raised walkway accesses the doors, while a concrete slab projection at the roof, supported by concrete brackets, shelters these walkways on the sides of the building. Select doorways on the east and west elevations have black awnings. Alterations to the building include window and door modifications, removal of sections of the roof platform, awnings over doorways and interior changes. The interior of the building serves as office space for several different businesses and is built out with offices.

Three other identical shipway buildings are located west of the "Ship Way 4" structure. The "Ship Way 1" and "Ship Way 2" buildings are paired together, while "Ship Way 3" and "Ship Way 4" are grouped together east of the other structures. Ship Way 1 and 2 have a mix of multilite windows and doors in the four bays on the front elevations. Ship Way 3 has similar doors and windows, but only in the center two bays. The side elevations of all three structures are similar to that of the "Ship Way 4" building.

E.3 Regulatory Framework

Federal

Cultural resources are considered through the National Historic Preservation Act (NHPA) of 1966, as amended (54 U.S.C. 306108), and its implementing regulations. Prior to implementing an "undertaking" (e.g., federal funding or issuing a federal permit), Section 106 of the NHPA requires federal agencies to consider the effects of the undertaking on historic properties (i.e., properties listed in or eligible for listing in the National Register of Historic Places [National Register]) and to afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on any undertaking that would adversely affect properties eligible for listing in the

National Register. Under the NHPA, a property is considered significant if it meets the National Register listing criteria at 36 CFR 60.4, as stated below:

The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and that:

a) Are associated with events that have made a significant contribution to the broad patterns of our history, or

b) Are associated with the lives of persons significant in our past, or

c) Embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction, or

d) Have yielded, or may be likely to yield, information important in prehistory or history.

Federal review of projects is normally referred to as the Section 106 process. This process is the responsibility of the federal lead agency. The Section 106 review normally involves a four-step procedure, which is described in detail in the implementing regulations (36 CFR Part 800):

- Identify historic properties in consultation with the SHPO and interested parties;
- Assess the effects of the undertaking on historic properties;
- Consult with the SHPO, other agencies, and interested parties to develop an agreement that addresses the treatment of historic properties and notify the Advisory Council on Historic Preservation; and finally,
- Proceed with the project according to the conditions of the agreement.

State

The State of California consults on implementation the NHPA of 1966, as amended, and also oversees statewide comprehensive cultural resource surveys and preservation programs. The California Office of Historic Preservation, as an office of the California Department of Parks and Recreation (DPR), implements the policies of the NHPA on a statewide level. The Office of Historic Preservation also maintains the California Historical Resources Inventory. The State Historic Preservation Officer is an appointed official who implements historic preservation programs within the state's jurisdictions.

California Environmental Quality Act

CEQA, as codified in Public Resources Code (PRC) Section 21000 *et seq*., is the principal statute governing the environmental review of projects in the state. CEQA requires lead agencies to determine if a proposed project would have a significant effect on historical resources, including archaeological resources. The CEQA Guidelines define a historical resource as: (1) a resource in the California Register; (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.

CEQA requires lead agencies to determine if a proposed project would have a significant effect on important archeological resources, either historical resources or unique archeological resources. If a lead agency determines that an archeological site is a historical resource, the provisions of Public Resources Code Section 21084.1 would apply and CEQA Guidelines Sections 15064.5(c) and 15126.4 and the limits in Public Resources Code Section 21083.2 would not 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 21083.2 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 meets any of the following criteria:

- Contains information needed to answer important scientific research questions and that 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.
- Is directly associated with a scientifically recognized important prehistoric or historic event or person" (PRC Section 21083.2 [g]).

The CEQA Guidelines note 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 15064.5[c][4]).

California Register of Historical Resources

The California Register 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 are based on National Register criteria (PRC Section 5024.1[b]). Certain resources are determined by the statute to be automatically included in the California Register, including California properties formally determined eligible for or listed in the National Register.

To be eligible for the California Register, an historical 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.

4) Has yielded, or may be likely to yield, information important in prehistory or history (PRC Section 5024.1[c]).

For a resource to be eligible for the California Register, 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 National Register criteria may still be eligible for listing in the California Register.

California Public Resources Code and Health and Safety Code

Several sections of the PRC protect cultural resources. Under Section 5097.5, no person shall knowingly and willfully excavate upon, or remove, destroy, injure, or deface, any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site (including fossilized footprints), inscriptions made by human agency, rock art, or any other archaeological, paleontological, or historical feature situated on public lands, except with the express permission of the public agency that has jurisdiction over the lands. Violation of this section is a misdemeanor. Section 5097.98 states that if Native American remains are identified within a project area, the lead agency must work with the appropriate Native Americans as identified by the Native American Heritage Commission and develop a plan for the treatment or disposition of, with appropriate dignity, the human remains and any items associated with Native American burials. These procedures are also addressed in Section 15064.5 of the CEQA Guidelines. California Health and Safety Code Section 7050.5 prohibits disinterring, disturbing, or removing human remains from a location other than a dedicated cemetery. Section 30244 of the PRC requires reasonable mitigation for impacts on paleontological and archaeological resources that occur as a result of development on public lands.

Title 14, Section 4307 of the California Code of Regulations (CCR) also prohibits any person from removing, inuring, defacing, or destroying any object of paleontological, archaeological, or historical interest or value.

Assembly Bill 52

In September of 2014, the California Legislature passed Assembly Bill (AB) 52, which added provisions to the PRC regarding the evaluation of impacts on tribal cultural resources under CEQA, and consultation requirements with California Native American tribes. In particular, AB 52 now requires lead agencies to analyze project impacts on "tribal cultural resources" separately from archaeological resources (PRC Section 21074; 21083.09). The Bill defines "tribal cultural resources" in a new section of the PRC, Section 21074. AB 52 also requires lead agencies to engage in additional consultation procedures with respect to California Native American tribes (PRC Section 21080.3.1, 21080.3.2, 21082.3).

Specifically, PRC Section 21084.3 states:

a) Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource.

b) If the lead agency determines that a project may cause a substantial adverse change to a tribal cultural resource, and measures are not otherwise identified in the consultation process provided in Section 21080.3.2, the following are examples of mitigation measures that, if feasible, may be considered to avoid or minimize the significant adverse impacts:

   1) Avoidance and preservation of the resources in place, including, but not limited to, planning and construction to avoid the resources and protect the cultural and natural context, or planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.

   2) Treating the resource with culturally appropriate dignity taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:

      (A) Protecting the cultural character and integrity of the resource.

      (B) Protecting the traditional use of the resource.

      (C) Protecting the confidentiality of the resource.

   3) Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.

   4) Protecting the resource.

Local Plans

City of Alameda General Plan

The City of Alameda General Plan provides the following guiding and implementing policies regarding cultural resources that apply to the proposed project:

Implementing Policies: 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.

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.j Encourage owners of poorly remodeled but potentially attractive older buildings to restore the exterior of these buildings to their original appearance. Provide lists of altered buildings which present special design opportunities and make the lists widely available. Develop financial and design assistance programs to promote such restoration.

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.

Guiding Policy: Historic and Archaeologic Resources

Policy 5.6.a Protect historic sites and archaeologic resources for their aesthetic, scientific, educational, and cultural values. Historic preservation programs, such as the measures proposed within the 1980 Historic Preservation Element, have been successful in preserving the small-town character of many California communities.

Implementing Policies: Historic and Archaeologic Resources

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. The California Environmental Quality Act (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.

City of Alameda Historic Resources Inventory

From the City's website:

> In April 1978, staff of the City Planning Department began a comprehensive survey of Alameda's architectural and historical heritage. The goal of the survey was two-fold: identify Alameda's heritage, and compile an initial list of buildings and other resources from which the Historical Building Study List could be compiled. One full--time staff person, several consultants, and more than 100 volunteers began a systematic investigation of both the history and the architecture of Alameda. The survey was supplemented by archival research, primarily of building permit records. Based on this architectural and historical information, the survey staff, an architectural historian, and a graduate student of architecture evaluated the City's architecture.

The evaluation criteria to be included in the Historical Building Study List are based on a combination of the criteria for listing in the National Register of Historic Places, for inclusion in the State Historic Resources Inventory, and for designation as an Alameda Historical Monument. These criteria can be divided into the broad categories of architectural significance, historical significance, environmental significance, and design integrity.

- *Architectural Significance* has to do with the style of a historic resource, the reputation and ability of the architect, the quality of the design, its uniqueness and its execution, and the materials and methods of construction.
- *Historical Significance* comes from an association with the lives of persons or important events which have made a significant contribution to the community, state or nation; or from an association with broad patterns of cultural, social, political, economic, or industrial history; or the urban development of Alameda.
- *Environmental Significance* has to do with the continuity or character of a street or neighborhood with a historical resource's setting on the block, its landscaping, and its visual prominence as a landmark or symbol of the city, neighborhood, or street.
- *Design Integrity* has to do with alterations which have been made over time to the original materials and design features of the resource.

The local Historic Resources Inventory consists of the Historic Monument, Historic Buildings Study and the Historic Signs lists. Each property on the Historic Buildings Study List is preceded by an uppercase letter in parentheses which indicates the type of historic resource located on the property.

N – A historic resource of the highest quality, eligible for listing in the National Register of Historic Places, usually because of its architectural significance. These are of the highest priority for inclusion on the list of Alameda Historical Monuments.

S – A historic resource distinguished by its architectural, historical, or environmental significance, eligible for inclusion in the State Historic Resources Inventory, and of secondary priority for inclusion on the list of Alameda Historical Monuments. Many of these are also eligible for listing in the National Register of Historic Places. Others would be eligible if design integrity were restored.

B – A resource which, due to its scale, massing, materials, style, and other features, is similar to a nearby "N" or "S" resource and serves as Background support for it. These resources are eligible for inclusion in a group or district nomination to the National Register of Historic Places.

E – A resource which, by itself, might be insignificant, but which, together with its neighbors, forms an Environment which is distinguished by its continuity, its setting, its urban design features, and its integrity. This resource derives its significance from its association with neighboring resources.

H – A resource which may have Historical importance because of its apparent age or location, or may have architectural importance because of its similarity to other buildings done by important architects and/or builders. Historic research should precede further evaluation of this resource.

Some of the buildings and resources have been further studied by the City or private individuals. The form or report may be on file with the City Planning Department, and is indicated by a lowercase letter following the address.

n – Included on the National Register of Historic Places.

np – Nomination form for National Register of Historic Places designation has been prepared.

s – A State Historic Resources Inventory form has been prepared.

sg – A group State Historic Resources Inventory form has been prepared.

ap – An Alameda Historical Monument report has been prepared.

E.4 Impacts and Mitigation Measures

Significance Criteria

Consistent with Appendix G of the CEQA Guidelines, a project would cause adverse impacts to cultural resources if it would:

- Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5;
- Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines 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; or
- Cause a substantial adverse change in the significance of a Tribal Cultural Resource as defined in Public Resources Code Section 21074.

According to CEQA Guidelines Section 15064.5(a)(3), in general, a resource shall be considered "historically significant" if the resource meets the criteria for listing on the California Register (PRC Section 5024.1). This section also provides standards for determining what constitutes a "substantial adverse change" that must be considered a significant impact on historical resources.

In addition, a resource included on a local register of historical resources, as defined by PRC Section 5020.1(k) or identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g), shall be presumed to be historically or culturally significant.

Topics with No Impact or Otherwise Not Addressed in this EIR

No impacts would be associated with paleontological resources or unique geologic features, based on the very low potential to encounter fossil resources in the project area as discussed in the setting above. Therefore, there would be no impact related to this topic.

Impact Analysis

Impact 4.E-1: Project implementation would cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines, Section 15064.5. (*Significant and Unavoidable with Mitigation*)

CEQA Guidelines Section 15064.5 requires the lead agency to consider the effects of a project on historical resources. A historical resource is defined as any building, structure, site, or object listed in or determined to be eligible for listing in the California Register, or determined by a lead agency to be significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, or cultural annals of California based upon substantial evidence.

As noted above, the Historical Resources Evaluation determined that the shipways appear eligible for listing in the National Register and California Register under Criterion A/1 (Events), and for listing on the Alameda Historical Building Study List. It is not currently listed on any Register of City list. It is also not a designated City of Alameda Historical Monument. Constructed in 1943, these structures were part of the Bethlehem Shipbuilding Company's Alameda Yard and are significant for their association with wartime efforts at the national level and the development of steel shipbuilding and repair in the Bay Area at the local level.

The project includes the demolition of the existing buildings in the project area. None of the buildings identified (Shipway 1, 2, 3, and 4) as being eligible for listing in the National Register, California Register, and on the Alameda Historical Building Study List would be retained. The demolition of these buildings, which have been determined to be historical resources, is considered a significant impact under CEQA. This impact cannot be reduced to a level of less than significant; however, implementation of the following mitigation measures would reduce impacts, to the extent feasible, to historical resources by documenting the resource and preserving the history of the site and buildings. Overall, the proposed project would cause a substantial adverse change in the significance of a historical resource, and this impact would be *significant and unavoidable with mitigation*.

> **Mitigation Measure 4.E-1a:** The project proponent shall prepare a treatment plan including but not limited to photo documentation and public interpretation of the shipways at 1100 – 1250 Marina Village Parkway (Shipway 1, 2, 3, and 4). Photo documentation will be overseen by a Secretary of the Interior–qualified architectural historian, documenting the affected historical resource. in accordance with the National Park Service's Historic American Buildings Survey (HABS) and/or Historic American Engineering Record (HAER) standards. Such standards typically include large-format photography using (4x5) negatives, written data, and copies of original plans if available. The HABS/HAER documentation packages will be archived at local libraries and historical repositories, as well as the Northwest Information Center of the California Historical Resources Information System.
>
> **Mitigation Measure 4.E-1b:** Public interpretation of historical resources shall be provided and could include a plaque, kiosk, or other method of describing the historic or architectural importance of the shipways to the general public. The design and placement of the display(s) shall be reviewed and approved by the City of Alameda Historic Advisory Board.

The recordation of a building or structure to HABS/HAER standards and public interpretation efforts would reduce the impact of the loss of significant historic buildings and structures, but such efforts typically do not reduce those impacts to a level of less than significant (CEQA Section 15126.4(b)(2)). Impacts on significant historic buildings or structures under these circumstances would remain significant and unavoidable.

Significance after Mitigation: Significant and Unavoidable.

Impact 4.E-2: Project construction could potentially cause a substantial adverse change in the significance of an archaeological resource, including those determined to be a historical resource defined in Section 15064.5 or a unique archaeological resource defined in PRC 21083.2. (*Less than Significant with Mitigation*)

This section discusses archaeological resources, both as historical resources according to Section 15064.5 as well as unique archaeological resources as defined in Section 21083.2(g). A significant impact would occur if the project would cause a substantial adverse change to a significant archaeological resource through physical demolition, destruction, relocation, or alteration of the resource.

Records at the NWIC indicate that the project area contains no recorded archaeological resources. There is, however, a moderate to high potential for unrecorded Native American resources in the project area as such resources have been found in areas marginal to the bayshore and inland near intermittent and perennial fresh watercourses in this part of Alameda County.

Ground disturbing construction activities include grading and excavation. These activities have the potential to uncover previously unidentified archaeological resources. The disturbance of unknown archaeological resources would be a potentially significant impact. Implementation of **Mitigation Measure 4.E-2a** would reduce potential impacts to a level of less than significant by ensuring that work would halt in the vicinity of an unanticipated find so that a qualified archaeologist and Native American representative can make additional recommendations, if required.

> **Mitigation Measure 4.E-2a:** During construction, if prehistoric or historic-era cultural materials are encountered, all construction activities within 100 feet shall halt and the City shall be notified. 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-period materials might include stone, concrete, or adobe footings and walls; artifact filled wells or privies; and deposits of metal, glass, and/or ceramic refuse.
>
> The project applicant shall ensure that a Secretary of the Interior-qualified archaeologist inspect the find within 24 hours of discovery. If the find is determined to be potentially

significant, the archaeologist, shall follow the guidelines provided in Mitigation Measure 4.E-2b.

Mitigation Measure 4.E-2b: If a find is determined to be potentially significant, the project applicant shall ensure an archaeological testing and data recovery program (as well as archaeological monitoring, if warranted) consistent with a professionally developed Archaeological Resources Management Plan are undertaken as follows:

- ***Preservation in Place***. A qualified archaeologist, in consultation with the City of Alameda, the project applicant, and the appropriate Native American representative(s) shall determine whether preservation in place of the site is feasible. Consistent with CEQA Guidelines Section 15126.4(b)(3), this may be accomplished through planning construction to avoid the resource; incorporating the resource within open space; capping and covering the resource; or deeding the site into a permanent conservation easement.

  If it is determined that preservation in place is not feasible for the resource and another type of mitigation would better serve the interests protected by CEQA, mitigation shall include testing and data recovery through archaeological investigations and the project applicant shall undertake the following:

- ***Archaeological Resources Management Plan***. The project proponent shall retain a Secretary of the Interior-qualified archaeologist, in consultation with a Native American representative(s), to prepare and implement an Archaeological Resources Management Plan (ARMP). The ARMP shall include a preliminary testing program to identify the types of expected archaeological materials, the testing methods to be used to define site boundaries and constituents, and the locations recommended for testing. The purpose of the testing program will be to determine to the extent possible the presence or absence of archaeological materials in the proposed areas of disturbance for the project and to determine whether those materials contribute to the significance of the site. If a significant contributing element to the site is in the project area, the project proponent shall conduct a data recovery program as outlined in the ARMP. The ARMP will include how the data recovery program would preserve the significant information the archaeological resource is expected to contain. Treatment would consist of (but would not be not limited to) sample excavation, artifact collection, site documentation, and historical research, with the aim of targeting the recovery of important scientific data contained in the portion(s) of the significant resource to be impacted by the project. The ARMP shall include provisions for analysis of data in a regional context; reporting of results within a timely manner and subject to review and comments by the appropriate Native American representative, before being finalized; curation of artifacts and data at a local facility acceptable to the City and appropriate Native American representative; and dissemination of final confidential reports to the appropriate Native American representative, the Northwest Information Center of the California Historical Resources Information System and the City.

Significance after Mitigation: Less than Significant.

Impact 4.E-3: Project construction could potentially disturb human remains, including those interred outside of formal cemeteries. (*Less than Significant with Mitigation*)

Ground disturbing construction activities within the project area have the potential for the discovery of human remains. Disturbance of human remains would be a significant impact. Implementation of **Mitigation Measure 4.E-3** would ensure that impacts related to discovery of human remains would be less than significant. To facilitate legal compliance, project construction personnel shall be alerted to the possibility of encountering human remains during construction, and apprised of the proper procedures to follow in the event they are found.

> **Mitigation Measure 4.E-3:** Pursuant to Section 7050.5 of the Health and Safety Code, and Section 5097.98 of the Public Resources Code of the State of California, the project applicant shall ensure the following:
>
> - Project construction personnel shall be informed of the potential of encountering human remains during construction, and the proper procedures to follow in the event of the discovery of human remains during construction.
> - In the event of the discovery of human remains during construction, work shall stop in that area and within 100 feet of the find. The Alameda County Coroner shall be notified and shall make a determination as to whether the remains are Native American. If the Coroner determines that the remains are not subject to their authority, they shall notify the Native American Heritage Commission who shall identify descendants of the deceased Native American. If no satisfactory agreement can be reached as to the disposition of the remains pursuant to this State law, then the project applicant shall re-inter the human remains and items associated with Native American burials on the property in a location not subject to further ground disturbance.

Significance after Mitigation: Less than Significant.

Impact 4.E-4: Project construction would not cause a substantial adverse change in the significance of a Tribal Cultural Resource as defined in Public Resources Code Section 21074. (*Less than Significant*)

CEQA requires the lead agency to consider the effects of a project on tribal cultural resources. As defined in Public Resources Code Section 21074, tribal cultural resources are sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are listed, or determined to be eligible for listing, on the state or local register of historical resources.

Per the requirements of PRC Section 21080.3.1, the City sent letters describing the proposed project to the local Native American tribes provided by the California Native American Heritage Commission as having an interest in the Alameda area. To date, no requests for consultation were received from the tribes and no tribal concerns or tribal cultural resources have been identified. Impacts would be less than significant.

Mitigation: None Required.

Cumulative Impacts

Impact 4.E-5: The project, in combination with past, present, and probable future projects, would substantially contribute to cumulative adverse historic architectural resources impacts. (*Significant and Unavoidable with Mitigation*)

The geographic scope for cumulative impacts on historic architectural resources includes projects in Alameda that would also involve the demolition of historic buildings. Similar to the proposed project as described under Impact 4.E-1, cumulative projects in the project vicinity could have a significant impact on eligible historic architectural resources.

The potential impacts of the project when considered together with similar impacts from other probable future projects in the vicinity could result in a significant cumulative impact on historic architectural resources. The proposed project's contribution to this impact could be cumulatively considerable, as documented above under Impact 4.E-1 due to the association of the shipways with wartime efforts at the national level and the development of steel shipbuilding and repair in the Bay Area at the local level.

Based on the information in this section and for the reasons summarized above, the proposed project could contribute considerably to the cumulative impact to historic resources, even after implementation of **Mitigation Measures 4.E-1a and 4.E-1b**. This impact is considered significant and unavoidable, with mitigation.

Impact 4.E-6: The project, in combination with past, present, and probable future projects, could potentially result in cumulative adverse impacts on archaeological resources and human remains. (*Less than Significant with Mitigation*)

The geographic scope for cumulative effects on archaeological resources and human remains includes projects in Alameda that would involve excavation or similar ground disturbance in locations with previously recorded or as yet unknown archaeological resources, potentially with human remains. Similar to the proposed project as described under Impacts 4.E-2 and 4.E-3, cumulative projects in the project vicinity could have a significant impact on both recorded and undiscovered archaeological resources, including human remains interred outside of formal cemeteries, given the amount of construction-related ground disturbance that could occur for many of the cumulative projects. The potential impacts of the project when considered together with similar impacts from other probable future projects in the vicinity could result in a significant cumulative impact on archaeological resources and human remains. The proposed project's contribution to this impact could be cumulatively considerable, as documented above under Impacts 4.E-2 and 4.E-3. Mitigation Measures 4.E-2a, 4.E-2b, and 4.E-3 would require implementation of legally-required appropriate treatment of human remains as well as archaeological testing, monitoring and/or data recovery programs to preserve the scientific value of an archaeological resource. Therefore, with implementation of Mitigation Measures 4.E-2a, 4.E-2b, and 4.E-3, the proposed project's contribution to cumulative impacts to archaeological

resources and human remains would not be considerable, and the impact would be less than significant with mitigation.

Impact 4.E-7: The project, in combination with past, present, and probable future projects, would not contribute to cumulative adverse impacts on tribal cultural resources. (*Less than Significant*)

The geographic scope for cumulative effects on tribal cultural resources includes projects in Alameda that would involve disturbance in locations with tribal cultural resources, as defined by PRC Section 21074. Cumulative projects that would potentially impact tribal cultural resources would be a potentially significant impact. The proposed project, however, would not cumulatively contribute to impacts on tribal cultural resources. Therefore, the cumulative impact would be less than significant.

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F. Geology, Soils, and Geohazards

F.1 Introduction

This section identifies and evaluates potential impacts related to geology, soils, seismic conditions, and geohazards that could result from implementation of the proposed project. This section establishes existing conditions based on regional geology and seismicity as well as a preliminary geotechnical investigation (Engeo, 2016) and a preliminary geotechnical data report (Langan, 2018) for the proposed project, which both referenced and relied upon various previous geotechnical investigations of the site. A final geotechnical investigation report for the project site by Langan is underway. The existing setting discussion is followed by a discussion of the regulatory framework, including federal, State, and local policies and regulations that pertain to geology, soils, and geohazards. The impact analysis determines impacts based on the significance criteria as outlined by CEQA Guidelines Appendix G, and appropriate mitigation measures are identified where necessary.

CEQA requires analysis of a project's effects on the environment. Generally, consideration of the potential effects of a site's environment on a project are outside the scope of required CEQA review (*California Building Industry Association v. Bay Area Air Quality Management District* (2015) 62 Cal. 4th 369). The impacts discussed in this section related to increased exposure of people or structures to risks associated with seismic occurrences and location of people or structures on unstable geologic units are effects on users of the project and structures in the project of preexisting environmental hazards, and therefore "do not relate to environmental impacts under CEQA and cannot support an argument that the effects of the environment on the project must be analyzed in an EIR" (*Ballona Wetlands Trust v. City of Los Angeles* (2011) 201 CalApp. 4th 455). Nonetheless, this section analyzes potential effects of geology, seismicity, and soils on the project's implementation as set forth in CEQA Guidelines, Appendix G, Significance Criteria, in order to provide information to the public and decision-makers.

F.2 Environmental Setting

Regional Setting

The project site lies within the geologically complex region of California referred to as the Coast Ranges geomorphic province.[1] The Coast Ranges province lies between the Pacific Ocean and the Great Valley (Sacramento and San Joaquin valleys) provinces and stretches from the Oregon border to the Santa Ynez Mountains near Santa Barbara. Much of the Coast Range province is composed of marine sedimentary deposits and volcanic rocks that form northwest trending mountain ridges and valleys, running subparallel to the San Andreas Fault Zone. The relatively thick marine sediments dip east beneath the alluvium of the Great Valley. The Coast Ranges can be further divided into the northern and southern ranges, which are separated by the San Francisco Bay. The San Francisco Bay lies within a broad depression created from an east-west extension between the San Andreas and the Hayward fault systems.

[1] A geomorphic province is an area that possesses similar bedrock, structure, history, and age.

Predominantly Franciscan Complex rocks of Jurassic and Cretaceous age (190 to 63 million years old) flank the large depression that makes up the San Francisco Bay. The East Bay Hills are bounded to the west by the Hayward fault that trends from Fremont northwest to Point Pinole in the north. Lying at the western foot of the East Bay Hills, the Bay margin is composed of broad alluvial fan deposits of Quaternary-age (1.6 million years old to recent in age) that have accumulated from erosion of the surrounding hills.

The Pleistocene deposits were uplifted and dissected by stream channels that were later filled with younger stream and fan deposits of the Temescal formation. During Holocene time (within the past 11,000 years), fluvial activity eroded these sediments and resulted in the Alameda Estuary channel between Oakland and Alameda. Recent bay mud and estuary deposits filled portions of the channel and buried near-shore portions of the Merritt Sand. Since the late 1800's, Alameda Island has been enlarged by placement of fill into the bay and estuaries, resulting in large sections of Alameda being underlain by artificial fill. In addition, the Alameda Estuary was widened by man-made excavation and has been subjected to dredging to facilitate ship passage.

Project Setting

Geology and Soils

The area encompassed by modern-day Alameda Island was historically a combination of shallow bay waters, tidal marshes, and upland habitats (San Francisco Estuary Institute 2001). The project site was originally an intertidal area between the Oakland Inner Harbor and Alameda Island prior to being developed for shipbuilding beginning in the early 1900s with the shipways being constructed between 1942 and 1943. The shipbuilding structures remain today and consist of approximately 6,000 timber piles supporting concrete slabs and structures covering the site. Dredged material from an adjacent harbor was placed in the void space beneath the concrete structure underlying the site during the 1980s.

Review of geotechnical reports prepared for the project site show the following layers below the concrete surface:

- A void space of approximately 1 to 7 feet is present between the top of the dredged material and the overlying concrete slab.
- Dredged material is located beneath the void space in some areas of the site. Dredge material is generally described as clay and silt with wood fragments. Dredged material in places is undocumented fill likely placed during initial site development. This fill is described as generally gravelly clay with potentially inconsistent character and fill strength. Dredged material and undocumented fill are between 4 and 17 feet in total thickness, where encountered.
- Native estuarine deposits consisting of soft, compressible silty clay (known locally as Bay Mud) is present beneath the undocumented fill and is between approximately 35 and 85 feet in thickness.
- The Bay Mud is underlain by about 5 to 30 feet of dense sandy San Antonio Formation, and about 5 to greater than 50 feet of Old Bay Clay consisting of stiff to very stiff clays

and interbedded medium dense sands. The Alameda Formation exists below the Old Bay Clay at approximately 110 to 140 feet below ground surface.

Groundwater was encountered at depths between approximately 5 and 9 feet below grade. The groundwater levels at the site are expected to fluctuate several feet in response to tidal fluctuations with potentially larger fluctuations annually, depending on the amount of rainfall. Based on the California Geologic Survey (2003) historical mapped depth to groundwater and the mean high water line, it is assumed that ground water levels could approach the existing surface grades in portions of the site.

Faults and Seismicity

The project site lies within a region of California that contains many active and potentially active faults and is considered an area of high seismic activity, as shown in Figure 4.5-1 and described in Table 4.F-1.[2] The United States Geological Survey (USGS) along with the California Geological Survey (CGS) and the Southern California Earthquake Center (SPEC) form the Working Group on California Earthquake Probabilities (WGCEP), which develops official earthquake-rupture forecast models for California. The most recent forecast model was developed in2014, which updated the 30-year earthquake forecast for California. The WGCEP reported that there is a 72 percent probability of at least one earthquake of magnitude 6.7 or greater striking somewhere in the San Francisco Bay region before 2044 (WGCEP, 2015)).

Richter magnitude is a measure of the size of an earthquake as recorded by a seismograph, a standard instrument that records ground shaking at the location of the instrument but not necessarily at the location of a given project. The reported Richter magnitude 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 tenfold 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 (Mw) as the preferred way to express the size of an earthquake. The Moment Magnitude scale 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 a fault (CGS, 2002). 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.

[2] An “active” fault is defined by the State of California as a fault that has had surface displacement within Holocene time (approximately the last 11,000 years). A “potentially active” fault is defined as a fault that has shown evidence of surface displacement during the Quaternary (last 1.6 million years), unless direct geologic evidence demonstrates inactivity for all of the Holocene or longer (Hart, 2007).

TABLE 4.F-1
ACTIVE FAULTS IN THE PROJECT AREA VICINITY

Fault Name	Distance and Direction From Site	Recency of Movement	Historical Activity [a]	Maximum Moment Magnitude Earthquake (Mw) [b]
Hayward	4 miles northeast	Historic (1869 rupture)	M 6.8, 1868 Many <M 4.5	7.1
San Andreas	14 miles west	Historic (1906; 1989 ruptures)	M 7.1, 1989 M 8.25, 1906 M 7.0, 1838 Many <M 6	7.9
Concord- Green Valley	17 miles northeast	Historic (1955)	Historic active creep	6.7
Rodgers Creek	24 miles northwest	Historic	M 6.7, 1898 M 5.6, 5.7, 1969	7.0
Calaveras	14 miles east	Historic (1861, 1911, 1984)	M 5.6-M 6.4, 1861 M 6.2, 1911, 1984	6.8
Marsh Creek-Greenville	24 miles east	Historic (1980 rupture)	M 5.6, 1980	6.9
San Gregorio	19 miles west	Prehistoric (sometime prior to 1775 but after 1270 AD)	n/a	7.3

[a] Richter magnitude (M) and year for recent and/or large events. The Richter magnitude scale reflects the maximum amplitude of a particular type of seismic wave.

[b] Moment Magnitude (Mw) is related to the physical size of a fault rupture and movement across a fault. Moment magnitude provides a physically meaningful measure of the size of a faulting event (CGS, 2002). The Maximum Moment Magnitude Earthquake, derived from the joint CGS/USGS Probabilistic Seismic Hazard Assessment for the State of California (Peterson, 1996).

SOURCES: Hart, 2007; Jennings, 2010; Peterson e. al., 1996; USGS, 2003a, and USGS and CGS 2006

Ground movement during an earthquake can vary depending on the overall magnitude, distance to the fault, focus of earthquake energy, and type of geologic material. The composition of underlying soils, even those relatively distant from faults, can intensify ground shaking. For this reason, earthquake intensities are also measured in terms of their observed effects at a given locality. The Modified Mercalli (MM) intensity scale in Table 4.F-2 is commonly used to measure earthquake damage due to ground shaking. The MM values for intensity range from I (earthquake not felt) to XII (damage nearly total), and intensities ranging from IV to X could occur on those faults that have the highest probability of generating earthquakes of magnitude (M) 6.7 or greater in the Bay Area (USGS, 2003a). The Hayward-Rodgers Creek fault has a 33 percent probability of one or more magnitude 6.7 or greater quakes by 2043 (USGS, 2016) and has the potential to cause moderate to significant structural damage.[3] The intensities of an earthquake will vary over the region of a fault and generally decrease with distance from the epicenter of the earthquake.

[3] The damage level represents the estimated overall level of damage that will occur for various MM intensity levels.

The damage, however, will not be uniform. Not all buildings perform identically in an earthquake. The age, material, type, method of construction, size, and shape of a building all affect its performance.

TABLE 4.F-2
MODIFIED MERCALLI INTENSITY SCALE

Modified Mercalli Intensity	Description
I	Not felt except by a very few under especially favorable conditions
II	Felt only by a few persons at rest, especially on upper floors of buildings
III	Felt quite noticeably by persons indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibrations similar to the passing of a truck. Duration estimated.
IV	Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably.
V	Light. Felt by nearly everyone; many awakened. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop.
VI	Moderate. Felt by all, many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight.
VII	Strong. Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable damage in poorly built or badly designed structures; some chimneys broken.
VIII	Very Strong. Damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned
IX	Violent. Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations.
X	Very Violent. Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations. Rails bent.
XI	Few, if any (masonry) structures remain standing. Bridges destroyed. Rails bent greatly
XII	Damage total. Lines of sight and level are distorted. Objects thrown into the air.
Source: ABAG, 2003; USGS, 2003b; Wald, 1999	

The San Andreas, Hayward and Calaveras Faults pose the greatest threat of significant damage in the Bay Area according to the WGCEP (USGS, 2003a). These three faults exhibit strike-slip orientation and have experienced movement within the last 150 years.[4] Other principal faults capable of producing significant ground shaking in the Bay Area are listed on Table 4.F-1 and include the Concord-Green Valley, Marsh Creek-Greenville, San Gregorio and Rodgers Creek faults.

The major active faults in the area are the Hayward, Rodgers Creek, San Andreas, San Gregorio, and Calaveras faults. Of the faults in the vicinity of the proposed project, the closest active fault to the site is the Hayward fault. Inactive faults are also located throughout the Bay Area. Inactive faults with a long period of inactivity do not provide any guarantee that a considerable seismic

[4] A strike-slip fault is a fault on which movement is parallel to the fault's strike or lateral expression at the surface.

event could not occur. Occasionally, faults classified as inactive can exhibit secondary, or sympathetic, coseismic displacement during a major event on another active fault.

Hayward Fault

The Hayward fault zone is the southern extension of a fracture zone that includes the Rodgers Creek fault (north of San Pablo Bay), the Healdsburg fault (Sonoma County), and the Maacama fault (Mendocino County). The Hayward fault trends to the northwest within the East Bay, and extends from San Pablo Bay in Richmond 60 miles south to San Jose. The Hayward fault in San Jose converges with the Calaveras fault, a similar type fault that extends north to Suisun Bay. The Hayward fault is designated as an active fault.

Historically, the Hayward fault generated one sizable earthquake in the 1800s.[5] In 1868, a Richter magnitude 7 earthquake on the southern segment of the Hayward fault ruptured the ground for a distance of about 30 miles. Recent analysis of geodetic data indicates surface deformation may have extended as far north as Berkeley. Lateral ground surface displacement during these events was at least 3 feet.

A characteristic feature of the Hayward fault is its well-expressed and relatively consistent fault creep.[6] Although large earthquakes on the Hayward fault have been rare since 1868, slow fault creep has continued to occur and has resulted in 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 Mw 7.1 (Table 4.F-1). The WGCEP includes the Hayward–Rodgers Creek fault systems in the list of faults with the highest probabilities of generating damaging earthquakes (WGCEP, 2015).

San Andreas Fault

The San Andreas fault zone is a major structural feature that forms at the boundary between the North American and Pacific tectonic plates, extending from the Salton Sea in Southern California near the border with Mexico to north of Point Arena, where the fault trace extends out into the Pacific Ocean. The main trace of the San Andreas fault runs through the Bay Area and trends northwest through the Santa Cruz Mountains and the eastern side of the San Francisco Peninsula. As the principal strike-slip boundary between the Pacific plate to the west and the North American plate to the east, the San Andreas is often a highly visible topographic feature, such as between Pacifica and San Mateo, where Crystal Springs Reservoir and San Andreas Lake clearly mark the fault zone. Near San Francisco, the San Andreas fault extends off-shore near Daly City approximately 6 miles west of the Golden Gate Bridge.

In the San Francisco Bay Area, the San Andreas fault zone was the source of the two major seismic events in recent history that affected the San Francisco Bay region. The 1906 San Francisco earthquake was estimated at M 7.9 and resulted in approximately 290 miles of surface

[5] Prior to the early 1990s, it was thought that a Richter magnitude 7 earthquake occurred on the northern section of the Hayward Fault in 1836. However, a study of historical documents by the California Geological Survey concluded that the 1836 earthquake was not on the Hayward Fault (Bryant and Cluett, 2000).

[6] Fault creep is defined as the slow, more or less continuous movement occurring on faults due to ongoing tectonic deformation (USGS, 2012).

fault rupture, the longest of any known continental strike slip fault. Horizontal displacement along the fault approached 17 feet near the epicenter. The more recent 1989 Loma Prieta earthquake, with a magnitude of Mw 6.9, resulted in widespread damage throughout the Bay Area (ABAG, 2003). The Northern San Andres fault has a 22 percent likelihood of one or more magnitude 6.7 or greater quakes by 2044 (USGS, 2016).

Calaveras Fault

The Calaveras fault 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 along the eastern side of the East Bay Hills, west of San Ramon Valley, and extends into the western Diablo Range, to eventually join the San Andreas Fault Zone south of Hollister. The northern extent of the fault zone is not well constrained, but is assumed to step to the east, where slip may be transferred to the Concord-Green Valley fault.

This fault separates rocks of different ages, with older rocks west of the fault and younger sedimentary rocks to the east. The location of the main active fault trace is defined by youthful geomorphic features (linear scarps and troughs, right-laterally deflected drainage, and sag ponds) and local groundwater barriers. 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/year and sparse seismicity. South of Calaveras Reservoir the fault zone is characterized by a higher rate of surface fault creep. The Calaveras Fault has been the source of numerous 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 (USGS, 2003a). However, this fault is considered capable of generating earthquakes with upper bound Mw ranging from 6.6 to 6.8. The Calaveras fault has a 26 percent probability of one or more magnitude 6.7 or greater quakes by 2044 (USGS, 2016).

Rodgers Creek Fault

The Rodgers Creek Fault Zone, located approximately 23.5 miles northeast of the project site, is considered to be the northern extension of the Hayward Fault Zone. The most recent significant earthquakes on the Rodgers Creek fault 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 33 percent probability of one or more magnitude 6.7 or greater earthquakes by 2044 (USGS, 2016).

Concord-Green Valley Fault

The Concord-Green Valley fault, located approximately 17 miles northeast of the project site, extends from Walnut Creek north to Wooden Valley (east of Napa Valley). Historical records indicate 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 Concord-Green Valley Fault has a 16 percent probability of one or more magnitude 6.7 or greater quakes by 2043 (USGS, 2016).

The San Gregorio Fault

The San Gregorio fault, located approximately 19 miles west 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 San Gregorio fault has a 6 percent chance of one or more magnitude 6.7 or greater quakes by 2043 (USGS, 2016).

Seismic Hazards

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.

The project site is not within an Alquist-Priolo Fault Rupture Hazard Zone, as designated through the Alquist-Priolo Earthquake Fault Zoning Act, and no mapped active faults are known to pass through the immediate project vicinity.

Ground Shaking

Strong ground shaking from earthquakes generated by active faults in the Bay Area is a significant hazard to the project site and could affect the site during the next 30 years. During the life of the project, proposed improvements are likely to be subjected to at least one moderate to severe earthquake that would cause strong ground shaking.

The severity of ground shaking at the project site resulting from a specific earthquake would depend on the characteristics of the generating fault, distance to the energy source, the magnitude of the event, and the site-specific geologic conditions. Earthquakes on the active faults (listed in Table 4.F-1) are expected to produce a range of ground shaking intensities within the project site. Ground shaking may affect areas hundreds of miles distant from the earthquake's epicenter. Historic earthquakes have caused strong ground shaking and damage in the San Francisco Bay Area–the 1989 Loma Prieta earthquake, for example, caused severe damage. This nearly 20 second earthquake generated a moment magnitude of 6.9 with an average peak ground acceleration 0.7 g. At Oakland and San Francisco recording sites over 50 miles away, the average peak ground acceleration was measured at 0.3 g (CGS, 1990).

The primary tool that seismologists use to describe groundshaking 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 worst-case scenarios as described above) and estimates their characteristic magnitudes to generate a probability map for groundshaking.

The PSHA maps depict PGA values that have either a 10 percent or 2 percent probability of being exceeded in 50 years (i.e., a 1 in 500 or 1 in 2,000 chance of occurring each year). Using the CGS Ground Motion Interpolator (2008, www.quake.ca.gov/gmaps/PSHA/psha_interpolator.html) and assuming a soft clay soil site (Site Class E), the PGA (10 percent probability of being exceeded in 50 years) for the project location is estimated at 0.508g, and the PGA (2 percent probability of being exceeded in 50 years) for the project location is estimated at 0.743g.

Liquefaction and Lateral Spreading

Liquefaction is the sudden temporary loss of shear strength in saturated, loose to medium-density granular sediments subjected to ground shaking. It generally occurs when seismically-induced ground shaking causes the pressure of the water between granules to increase to a point equal to the pressure of the soil overburden. When this occurs, the soil can move like a fluid, hence the term liquefaction. Liquefaction can cause foundation failure of buildings and other facilities due to the reduction of foundation bearing strength. Liquefaction-induced lateral spreading is defined as the finite, lateral displacement of gently sloping ground as a result of pore-pressure buildup or liquefaction in a shallow underlying deposit during an earthquake.

The potential for liquefaction depends on the duration and intensity of ground shaking, particle size distribution of the soil, density of the soil, and elevation of the groundwater. Areas at risk due to the effects of liquefaction are typified by a high groundwater table and underlying loose to medium-density granular sediments, particularly younger alluvium and artificial fill sediments and other reclaimed areas along the margin of San Francisco Bay. According to maps compiled by the Association of Bay Area Governments (ABAG), the project site is considered to have a moderate to very high potential for liquefaction (2017).

The geotechnical investigations completed for the project site included an analysis of liquefaction potential. Based on the sandy lenses encountered in the dredged material, undocumented fill, and Bay Mud, Langan anticipates between 1 and 3 inches of liquefaction-induced settlement is possible across the site, if not mitigated. This settlement would not affect structures supported on deep foundations extending below the base of the liquefiable strata, as are proposed for the project.

Lateral spreading is a failure within weak soil, typically due to liquefaction, which causes a soil mass to move toward a free face, such as an open channel, or down a gentle slope. Typically lateral spreading is associated with liquefaction of one or more subsurface layers near the bottom of the exposed slope, or where sites are underlain by thick layers of soft clay, such as Bay Mud.

As failure tends to propagate as block failures, it is difficult to analyze and estimate where the first tension crack will form. For sites underlain by deep Bay Mud, modes of failure often resemble circular failure wedges that form “mud waves” as the soil mass rotates outward towards the free face.

The site lies immediately adjacent to the dredged Alameda Estuary, which is a man-made channel constructed in former tidal marshlands. The potential for liquefaction-induced lateral spreading is relatively low because of the thin and discontinuous nature of layers that are liquefiable. However, because of the presence of deep Bay Mud, the potential for waterfront slope instability is relatively high during a major earthquake in the region if not mitigated during design and construction.

Cyclic Densification Earthquake shaking can produce compaction and densification of dry, uniformly graded, granular, and loose soil material above the water table. The amount of cyclic densification across an area can vary due to differences in soil types, producing differential settlement Differential settlement can affect existing and proposed foundations, slabs, and pavements. Given the geologic setting and characteristics of the underlying materials of the project site, the site could be subjected to earthquake-induced cyclic densification settlement of approximately 1-inch, with differential settlement of up to ½ inch over a distance of 50 feet. However, this settlement would not affect structures supported on deep foundations, as are proposed for the project (Engeo, 2016).

Other Geologic Hazards

Expansive Soil

Expansive soils exhibit a “shrink-swell” behavior, also referred to as linear extensibility. 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 result over an extended period of time, usually as the result of inadequate soil and foundation engineering or the placement of structures directly on expansive soils. Typically, soils that exhibit expansive characteristics comprise the upper five feet of the surface. The effects of expansive soils could damage foundations of above-ground structures, paved roads and streets, and concrete slabs. Expansion and contraction of soils, depending on the season and the amount of surface water infiltration, could exert enough pressure on structures to result in cracking, settlement, and uplift. Bay Mud, which is approximately 35 to 85 feet thick at the project site, typically has a high expansion potential, but only where not fully saturated (i.e., above the water table).

Settlement

Settlement can occur from immediate settlement, consolidation, shrinkage of expansive soil, and liquefaction. Immediate, or static, 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. 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.

Soft, highly compressible Bay Mud deposits, approximately 35 to 85 feet thick were encountered in explorations at the project site. Additionally, dredge spoils and undocumented fill materials are

present at the site. These materials can consolidate due to loading from new fill or structures. Furthermore, settlement of the Bay Mud at the project site from previous filling may still be ongoing. New buildings will be supported on deep foundations extending through the compressible soils. However, because of the new fills planned, settlement in non-pile supported areas is a significant issue to be addressed at the project site..

Soil Erosion

Soil erosion is the process whereby soil materials are worn away and transported to another area either by wind or water. Rates of erosion can vary depending on the soil material and structure, soil placement, and human activity. Shoreline areas are subject to soil erosion from wave action and tidal currents. Excessive soil erosion can eventually lead to damage of building foundations and other improvements. Erosion is most likely on sloped areas with exposed soil, especially when unnatural slopes are created by cut and fill activities. Soil erosion rates can therefore be higher during the construction phase. Typically, soil erosion potential during construction is reduced by using modern construction practices; and once an area is graded and covered with concrete, structures, asphalt, or vegetation, the soil erosion potential is nearly eliminated if analyzed and constructed properly.

Project site soil erosion is dominated by relative sea level fluctuations and changes in the rate of precipitation. Consistent with the sedimentological conditions of the Bay Area, which is in an interglacial period of heavy sedimentation, the project site does not experience excessive soil erosion eliminated if analyzed and constructed properly.

Landslides/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 project site is relatively flat and is not within an area where previous occurrence of landslide movement, or local topographic, geological, geotechnical, and subsurface water conditions

indicate a potential for permanent ground displacements. However, slope stability of the project's proposed interface with the waterline is a geotechnical consideration.

F.3 Regulatory Setting

Federal

Earthquake Hazards Reduction Act

The Earthquake Hazards Reduction Act was enacted in 1997 to "reduce the risks of life and property from future earthquakes in the United States through the establishment and maintenance of an effective earthquake hazards reduction program." To accomplish this, the Act established the National Earthquake Hazards Reduction Program (NEHRP). This program was significantly amended in November 1990 to refine 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 with 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.

Occupational Safety and Health Administration Regulations

Excavation and trenching are among the most hazardous construction activities. The Occupational Safety and Health Administration's (OSHA) Excavation and Trenching standard, Title 29 of CFR, Part 1926.650-652, covers requirements for excavation and trenching operations. OSHA requires that all excavations in which employees could potentially be exposed to cave-ins be protected by sloping or benching the sides of the excavation, supporting the sides of the excavation, or placing a shield between the side of the excavation and the work area.

State

Alquist-Priolo Earthquake Fault Zoning Act

In 1972, the Alquist-Priolo Earthquake Fault Zoning Act (Alquist-Priolo Act) was passed (PRC Sections 2621-2630) to mitigate the effects of surface faulting on structures designed for human occupancy. This law was mainly intended to prevent the construction of buildings for human occupancy directly on the surface trace of active faults. This law only addresses the hazard of surface fault rapture and does not consider other seismic hazards.

Pursuant to the Alquist-Priolo Act, the State Geologist is required to establish regulatory zones, known as Earthquake Fault Zones, around the surface traces of active faults and issue maps accordingly. The maps are to be provided to all affected cities, counties, and California agencies

to assist with planning decisions. If a project is within a designated Alquist-Priolo Earthquake Fault Zone, prior to approving any development the city or county must require a geologic investigation to prove that the proposed structures would not be constructed across active faults. As discussed above in the Environmental Setting, no active faults pass through the project site. Therefore, the Alquist-Priolo Act does not apply to the proposed project.

Seismic Hazards Mapping Act

The State regulations protecting the public from geoseismic hazards, other than surface faulting, are contained in PRC Sections 2690 et seq. (the Seismic Hazards Mapping Act), described here, and California Code of Regulations, Title 24, Part 2 (the California Building Code), described further below. Both of these sets of regulations apply to public buildings, and a large percentage of private buildings, intended for human occupancy.

The Seismic Hazards Mapping Act was passed in 1990 following the Loma Prieta earthquake to reduce threats to public health and safety and to minimize property damage caused by earthquakes. The Act requires the State Geologist to delineate various seismic hazard zones, and cities, counties, and other local permitting agencies to regulate certain development projects within these zones. For projects that would locate structures for human occupancy within designated Zones of Required Investigation, the Seismic Hazards Mapping Act requires project applicants to perform a site-specific geotechnical investigation to identify the potential site-specific seismic hazards and corrective measures, as appropriate, prior to receiving building permits.

The CGS Guidelines for Evaluating and Mitigating Seismic Hazards (Special Publication 117A) provides guidance for evaluating and mitigating seismic hazards. The CGS is in the process of producing official maps based on USGS topographic quadrangles, as required by the Act. The CGS has completed delineations for the USGS quadrangles in which project site is located. Consequently, the project site is located in a Zone of Required Investigation. As previously discussed, a preliminary geotechnical investigation has been completed for the project (Engeo, 2016) and a final geotechnical investigation will be produced by Langan prior to the approval of grading and construction permits. In addition, specific structures (occupied for living or working) constructed for the project would be required to comply with the seismic code requirements within the California Building Code and Special Publication 117A as a condition of permit approval and would thus be consistent with the Seismic Hazards Mapping Act, as discussed below.

California Building Code

The California Building Code (CBC), which is codified in Title 24 of the California Code of Regulations, Part 2, was promulgated to safeguard the public health, safety, and general welfare by establishing minimum standards related to structural strength, means of egress to facilities (entering and exiting), and general stability of buildings. The purpose of the CBC is to regulate and control the design, construction, quality of materials, use/occupancy, location, and maintenance of all buildings and structures within its jurisdiction. 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 provisions of the CBC apply to the construction, alteration, movement, replacement, location, and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures throughout California.

The 2016 edition of the CBC is based on the 2015 International Building Code (IBC) published by the International Code Council, which replaced the Uniform Building Code. The CBC is updated triennially, and the 2016 edition was published by the California Building Standards Commission on July 1, 2016, and took effect starting January 1, 2017.

The 2016 CBC contains California amendments based on the American Society of Civil Engineers (ASCE) Minimum Design Standard ASCE 7-10, Minimum Design Loads for Buildings and Other Structures, provides requirements for general structural design and includes means for determining earthquake loads[7] as well as other loads (such as wind loads) for inclusion into building codes. Seismic design provisions of the building code generally prescribe minimum lateral forces applied statically to the structure, combined with the gravity forces of the dead and live loads of the structure, which the structure then must be designed to withstand. The prescribed lateral forces are generally smaller than the actual peak forces that would be associated with a major earthquake. Consequently, structures should be able to: (1) resist minor earthquakes without damage, (2) resist moderate earthquakes without structural damage but with some nonstructural damage, and (3) resist major earthquakes without collapse, but with some structural as well as nonstructural damage. Conformance to the current building code recommendations does not constitute any kind of guarantee that significant structural damage would not occur in the event of a maximum magnitude earthquake. However, it is reasonable to expect that a structure designed in accordance with the seismic requirements of the CBC should not collapse in a major earthquake.

The earthquake design requirements take into account the occupancy category of the structure, site class, soil classifications, and various seismic coefficients, all of which are used to determine a seismic design category (SDC) for a project. The SDC is a classification system that combines the occupancy categories with the level of expected ground motions at the site; SDC ranges from A (very small seismic vulnerability) to E/F (very high seismic vulnerability and near a major fault). Seismic design specifications are determined according to the SDC in accordance with Chapter 16 of the CBC. Chapter 18 of the CBC covers the requirements of geotechnical investigations (Section 1803), excavation, grading, and fill (Section 1804), load-bearing of soils (1806), as well as foundations (Section 1808), shallow foundations (Section 1809), and deep foundations (Section 1810). 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 measures to be considered in structural design, which may include ground stabilization, selecting appropriate foundation type and depths, selecting appropriate structural

[7] A load is the overall force to which a structure is subjected in supporting a weight or mass, or in resisting externally applied forces. Excess load or overloading may cause structural failure.

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.

The design of the proposed project is required to comply with CBC requirements as a condition of permit approval, which would make the proposed project consistent with the CBC.

Construction General Permit

Construction associated with the project would disturb more than one acre of land surface affecting the quality of stormwater discharges into waters of the U.S. The proposed project would therefore be subject to the NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Order 2009-0009-DWQ, NPDES No. CAS000002; as amended by Orders 2010-0014-DWQ and 2012-006-DWQ). The Construction General Permit regulates discharges of pollutants in stormwater associated with construction activity to waters of the U.S. from construction sites that disturb one or more acres of land surface, or that are part of a common plan of development or sale that disturbs more than one acre of land surface. The permit regulates stormwater discharges associated with construction or demolition activities, such as clearing and excavation; construction of buildings; and linear underground projects, including installation of water pipelines and other utility lines.

The Construction General Permit requires that construction sites be assigned a Risk Level of 1 (low), 2 (medium), or 3 (high), based both on the sediment transport risk at the site and the receiving waters risk during periods of soil exposure (e.g., grading and site stabilization). The sediment risk level reflects the relative amount of sediment that could potentially be discharged to receiving water bodies and is based on the nature of the construction activities and the location of the site relative to receiving water bodies. The receiving waters risk level reflects the risk to the receiving waters from the sediment discharge. Depending on the risk level, the construction projects could be subject to the following requirements:

- Effluent standards
- Good site management “housekeeping”
- Non-stormwater management
- Erosion and sediment controls
- Run-on and runoff controls
- Inspection, maintenance, and repair
- Monitoring and reporting requirements

The Construction General Permit requires the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP) that includes specific Best Management Practices (BMPs) designed to prevent sediment and pollutants from contacting stormwater from moving offsite into receiving waters. The BMPs fall into several categories, including erosion control, sediment control, waste management and good housekeeping, and are intended to protect surface water

quality by preventing the off-site migration of eroded soil and construction-related pollutants from the construction area. Routine inspection of all BMPs is required under the provisions of the Construction General Permit. In addition, the SWPPP is required to contain a visual monitoring program, a chemical monitoring program for non-visible pollutants, and a sediment monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment.

The SWPPP must be prepared before construction begins. The SWPPP must contain a site map(s) that delineates the construction work area, existing and proposed buildings, parcel boundaries, roadways, stormwater collection and discharge points, general topography both before and after construction, and drainage patterns across the project area. The SWPPP must list BMPs and the placement of those BMPs that the applicant would use to protect stormwater runoff. Examples of typical construction BMPs include scheduling or limiting certain activities to dry periods, installing sediment barriers such as silt fence and fiber rolls, and maintaining equipment and vehicles used for construction. Non-stormwater management measures include installing specific discharge controls during certain activities, such as paving operations, vehicle and equipment washing and fueling.

The Construction General Permit also sets post-construction standards (i.e., implementation of BMPs to reduce pollutants in stormwater discharges from the site following construction).

In the project area, the Construction General Permit is implemented and enforced by the San Francisco Bay RWQCB, which administers the stormwater permitting program. Dischargers are required to electronically submit a notice of intent (NOI) and permit registration documents (PRDs) in order to obtain coverage under this Construction General Permit. Dischargers are responsible for notifying the RWQCB of violations or incidents of non-compliance, as well as for submitting annual reports identifying deficiencies of the BMPs and how the deficiencies were corrected. The risk assessment and SWPPP must be prepared by a state Qualified SWPPP Developer and implementation of the SWPPP must be overseen by a state Qualified SWPPP Practitioner. A Legally Responsible Person, who is legally authorized to sign and certify PRDs, is responsible for obtaining coverage under the permit.

Construction projects of one acre or more would be required to comply with the Construction General Permit as a condition of permit approval and would thus be consistent with the Construction General Permit.

Local

City of Alameda General Plan

The City has established goals, policies, and implementing actions in the General Plan in regards to seismic and geologic hazards. Goals and actions as outlined in the Safety and Noise Element that would apply to the proposed project are listed as follows:

Policy SN-6: Amend and update the Alameda local California Building Code, as necessary, to incorporate new standards for construction pertaining to development on areas of fill or underlain by Bay Mud or Merritt Sand and the design of new buildings to

resist the lateral effects and other potential forces of a large earthquake on any of the nearby faults.

Policy SN-10: Require owners of vulnerable structures, to the extent feasible, to retrofit existing structures to withstand earthquake ground shaking, and require retrofitting when such structures are substantially rehabilitated or remodeled.

a) Continue to implement the City's Soft Story Program including mandatory requirements for substantially improving the seismic performance of multi-family wood frame residential buildings with "soft stories."

b) Continue to implement the City's Wood Framed Building Program including voluntary requirements for substantially improving the seismic performance of one and two-story wood frame residential buildings with vulnerable "cripple walls."

c) Develop incentives and assistance to help property owners make their homes and businesses more earthquake-safe. Pursue a variety of funding sources, such as grants, low- interest loans, and tax credits, to assist residents and businesses with seismic upgrades.

d) Require owners of shoreline properties, to the extent feasible, to inspect, maintain, and repair the perimeter slopes to withstand earthquake ground shaking, consolidation of underlying Bay Mud, and wave erosion.

e) Establish incentives and exemptions from City zoning code requirements, such as off- street parking and/or on-site common open space, to facilitate private rehabilitation and strengthening of soft story multi-family buildings.

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.

F.4 Impacts and Mitigation Measures

Significance Criteria

Consistent with Appendix G of the State CEQA Guidelines, a project would cause adverse impacts related to geology, soils, or geohazards if it would:

- Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
  - Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault (refer to Division of Mines and Geology Special Publication 42);
  - Strong seismic ground shaking;
  - Seismic-related ground failure, including liquefaction;
  - Landslides;
- Result in substantial soil erosion or the loss of topsoil;
- Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse;
- Be located on expansive soil, as defined in 24 CCR 1803.5.3 of the California Building Code,8 creating substantial risks to life or property;
- Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater; or
- Directly or indirectly destroy a unique geologic feature.

Topics with No Impact or Otherwise Not Addressed in this EIR

Impacts would not be associated with septic systems or alternative waste disposal systems because the project would not include septic tanks or alternative wastewater disposal systems. Control of wastewater would be through the existing wastewater collection, treatment, and disposal system. Therefore, there would be no impact.

Impact Analysis

Impact 4.F-1: Project development could be damaged by fault rupture and thereby expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death. (*Less than Significant, No Mitigation Required*)

8 Although the CEQA Guidelines Appendix G checklist still refers to the out of date Table 18-1-B for identifying expansive soils, the updated CBC no longer cites that table and instead cites 24 CCR 1803.5.3 of the CBC.

The closest active faults to the project site are the Hayward fault, located approximately 4 miles to the east, the Calaveras fault located approximately 14 miles to the east, and the San Andreas fault, which is approximately 14 miles to the west. Although fault rupture is not necessarily limited to areas that coincide with the mapped fault trace, the project site is sufficiently far enough away from the nearest active fault to be considered not at risk of fault rupture.

Historically, ground surface displacements closely follow the trace of geologically young faults. The site is not within an Earthquake Fault Zone, as defined by the Alquist-Priolo Earthquake Fault Zoning Act, and no known active or potentially active faults exist on the site. Therefore, the risk of fault offset at the site from a known active fault is very low. In a seismically active area, the remote possibility exists for future faulting in areas where no faults previously existed; however, the risk of surface faulting and consequent secondary ground failure from previously unknown faults is also very low (Engeo, 2016). Therefore, impacts related to the rupture of a known earthquake fault would be less than significant.

Mitigation: None required.

Impact 4.F-2: Project development could be damaged by seismically induced ground shaking and thereby expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death. (*Less than Significant, No Mitigation Required*)

According to the WGCEP, the project site is likely to experience at least one major earthquake (i.e., greater than M 6.7) within the next 30 years. The project site would experience strong to very strong ground shaking during a major earthquake on any of the nearby faults. The intensity of such an event would depend on the causative fault and the distance to the epicenter, the moment magnitude, the duration of shaking, and the site-specific soil conditions. The project site is about 4 miles from the Hayward fault. Therefore, the potential exists for a large earthquake to induce strong to very strong ground shaking at the site during the life of the project.

The structural elements of the project would undergo appropriate design-level geotechnical evaluations prior to final design and construction. Implementing the regulatory requirements in the CBC and local codes and ordinances, and ensuring that all buildings and structures are constructed in compliance with the law is the responsibility of the project engineers and building officials. The geotechnical engineer, as a registered professional with the State of California, is required to comply with the CBC and local codes while applying standard engineering practice and the appropriate standard of care for the particular region in California, which, in the case of the proposed project, is Alameda County and the City of Alameda.[9] The California Professional Engineers Act (Building and Professions Code Sections 6700-6799), and the Codes of Professional Conduct, as administered by the California Board of Professional Engineers and Land Surveyors, provides the basis for regulating and enforcing engineering practice in

[9] A geotechnical engineer (GE) specializes in structural behavior of soil and rocks. GEs conduct soil investigations, determine soil and rock characteristics, provide input to structural engineers, and provide recommendations to address problematic soils.

California. The local Building Officials are typically with the local jurisdiction (i.e., Alameda County and the City of Alameda) and are responsible for inspections and ensuring CBC and local code and ordinance compliance prior to approval of the building permit. Although damage and injury cannot be completely avoided during a significant seismic event, construction or renovation in compliance with the CBC and local codes and ordinances would reduce the potential damage and personal injury to less than significant levels.

Appropriate grading and design, in accordance with the CBC requirements and local planning and building department requirements, would be used to reduce the secondary effects of ground shaking on structures and associated improvements. Any fill materials would be appropriately compacted and engineered as directed by the California certified engineering geologist or geotechnical engineer assigned to the project.

The preliminary geotechnical investigation prepared for the project concluded that there are no geotechnical conditions at the site that preclude construction of the proposed project (Engeo, 2016). As required by the CBC, a final design-level geotechnical investigation is underway for the project and project site in accordance with standard industry practices and code requirements, and will be published by Langan. The investigation will include an analysis of expected ground motions at the site from known active faults. The analysis will be completed in accordance with applicable City ordinances and policies and consistent with the most recent version of the CBC, which requires structural design that can accommodate ground accelerations expected from known active faults. The investigation will include final design parameters for the earthwork, foundations, foundation slabs, and any surrounding related improvements, including utilities, parking lots, roadways, and sidewalks. The investigation will be signed by a registered geotechnical engineer. Therefore, implementation of the geotechnical recommendations made by the final design-level geotechnical report in accordance with the current seismic design criteria required under the CBC will reduce the potential impacts associated with ground shaking during a major seismic event to less- than-significant levels.

Mitigation: None required.

Impact 4.F-3: Project development could be damaged by seismically related ground failure including liquefaction, settlement, and lateral spreading, and thereby expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death. (*Less than Significant, No Mitigation Required*)

Mapping compiled by ABAG indicates that the project site has a moderate to very high potential for liquefaction (2017). The preliminary geotechnical investigation completed for the project site included an analysis of liquefaction potential. Langan anticipates between 1 and 3 inches of liquefaction-induced settlement is possible across the site if not mitigated. This settlement would not affect structures supported on deep foundations extending below the base of the liquefiable strata, as are proposed for the project.If not addressed during site preparation and/or in foundation design, people could be harmed and structures may be damaged from earthquake-induced

liquefaction, rapid settlement, lateral spreading or other earthquake-induced ground failures. The proposed deep foundations and rock slopes or retaining structures will be designed considering seismic demands, and will address the potential for liquefaction, settlement, and damage due to lateral spreading.

As with the previously discussed requirements for addressing seismic shaking, the impacts from ground failure, including liquefaction, settlement, and lateral spreading from development of the proposed project will be addressed in the final design-level geotechnical investigation prepared in accordance with CBC and local building code requirements and standard industry practices, which is underway and will be produced by Langan. Development will conform to the current seismic design provisions of the CBC to mitigate losses from ground failure as a result of an earthquake. Therefore, implementation of the geotechnical recommendations made by the final design-level geotechnical report in accordance with current CBC and local building code requirements will reduce the potential impacts associated seismically-related ground failure, including liquefaction, to less-than-significant levels.

Mitigation: None required.

Impact 4.F-4: The project could result in soil erosion during excavation, grading, and construction activities. (*Less than Significant, No Mitigation Required*)

Project construction would require earthwork and grading, which would expose soil and potentially subject it to wind and water erosion. The extent of erosion that could occur varies depending on soil type, slope steepness and stability, vegetation/cover, and weather conditions. Water- and wind-induced erosion could occur during the construction phase of the project when concrete and asphalt are removed and soils are stockpiled and exposed.

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 temporary dam structures and dewatering systems would be used to minimize water inside the construction area, 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 covered by dredged and undocumented fill, and thus any minor loss of onsite soils would not represent loss of a natural resource. Finally, the project involves the disturbance of more than one acre, which would require the project to obtain coverage under the state Construction General Permit, as described in the Regulatory Setting. The Construction General Permit would require the preparation and implementation of a SWPPP that would control runon and runoff from the construction areas. With compliance with the Construction General Permit, the impacts would be less than significant.

Mitigation: None required.

Impact 4.F-5: The project could result in on- or off-site lateral spreading, subsidence, liquefaction, or collapse from placement of improvements on unstable geologic units or soils. (*Less than Significant, No Mitigation Required*)

The potential for seismically-induced liquefaction, settlement, and lateral spreading is described above in Impact 4.F-3.

The project site is underlain by artificial fills and Bay Mud materials which are susceptible to settlement and subsidence. The preliminary geotechnical report concluded that proposed deep foundations combined with recommendations for the specifics of the piles, a surcharge program, deep soil mixing, lightweight fill particularly near site boundaries, and flexible pavement design, as well as development in accordance with the CBC and local codes and ordinances and current engineering standards would effectively mitigate unstable soils.

Additionally, the project proposes to construct a new interface between the proposed development and the waterfront. The stability of the proposed shoreline was assessed in the preliminary geotechnical report given both the additional weight of proposed development at the site and location in a seismically-active region. The preliminary study concluded that the factor of safety would be below acceptable limits without implementation of design-level geotechnical recommendations, which will be provided in the final report by Langan.

As discussed above for Impact 4.F-1, a design-level geotechnical investigation is underway for the proposed improvements and would recommend an appropriate approach to address settlement and subsidence hazards. The analyses will be in accordance with the CBC and local codes and ordinances and current engineering standards that would effectively mitigate unstable soils. The investigations will determine final design parameters for the earthwork, foundations, foundation slabs, and any surrounding related improvements, utilities, roadways, parking lots, and sidewalks. The investigations will be signed by a California registered geotechnical engineer and submitted to the City for review. Therefore, implementation of the geotechnical recommendations made by the final design-level geotechnical report in accordance with currently required geotechnical design criteria will reduce the potential impacts associated with unstable geologic units or materials to less-than-significant levels.

Mitigation: None required.

Impact 4.F-6: Project implementation could occur on expansive soils, creating risks to life and property. (*Less than Significant, No Mitigation Required*)

Typically, expansive soils could cause risks to life and property if they comprise the upper five feet of the surface. The project proposes site preparation such that at least the top 5 feet would be comprised of engineered fill, which would be engineered to avoid any expansion risks. As stated above, the proposed project will receive a site-specific design- level geotechnical investigation produced by Langan. As required by the CBC and local codes and ordinances, the final design-level geotechnical investigation will evaluate site materials for potential expansive soils. Any use

of imported fill materials or the reuse of existing fills will be required to meet minimum standards for expansion potential. The final design-level geotechnical report will include recommendations for mitigating any potential hazards associated with expansive soils, if present. Therefore, implementation of the geotechnical recommendations made by the final design-level geotechnical report in accordance with currently required geotechnical design criteria will reduce the impacts associated with the potential presence of expansive soils to less–than-significant levels.

Mitigation: None required.

Cumulative Impacts

Impact 4.F-7: The project, in conjunction with past, present and reasonably foreseeable future projects, could result in significant cumulative impacts with respect to geology, soils, seismicity, or geohazards. (*Less than Significant, No Mitigation Required*)

This section presents an analysis of the cumulative effects of the proposed project in combination with other past, present, and reasonably foreseeable future projects that could cause cumulatively significant impacts.

As previously discussed, the proposed project would have no impact relative to septic tanks and alternative wastewater disposal systems and therefore could not contribute to cumulative impacts in those respects.

Geology, soils, and seismic impacts tend to be site-specific and depend on the local conditions. For these reasons, the geographic scope for potential cumulative impacts consists of the project area and the immediate vicinity. In general, to have a cumulative impact, two or more projects would have to spatially overlap and occur at the same time.

The timeframe during which the proposed project could contribute to cumulative impacts includes the construction and operations phases. For the proposed project, the operations phase is considered permanent. However, similar to the geographic limitations discussed above, it should be noted that impacts relative to geologic, seismic, and soils impacts are generally time-specific, and could only be cumulative if two or more events occurred at the same time, as well as overlapping the same location.

The San Francisco Bay Area region is considered seismically active, and any development exposes people and structures to potentially adverse effects associated with earthquakes, including seismic ground shaking and seismic-related ground failure such as liquefaction. In addition, this area is susceptible to expansive soils. Development of the project, combined with past, present, and other reasonably foreseeable development in the area, would result in increased population and development in an area subjected to seismic risks and liquefaction hazards. However, the proposed project, as well as all other future projects in the region, would be constructed in accordance with the most current version of CBC and local seismic safety ground preparation (e.g., address liquefaction or expansive soil issues) requirements and

recommendations contained in each site-specific geotechnical report as required prior to approval of a building permit. Future development would be constructed to standards similar to those that are described above, which likely would exceed those of older structures within the region. With compliance with existing regulations, the potential impacts would not be cumulatively considerable (less than significant).

Construction activities have the potential to cause soil erosion and loss of topsoil. If cumulative projects are constructed at the same time, the erosion effects could be cumulatively considerable. However, the state Construction General Permit would require each project to prepare and implement a SWPPP. The SWPPPs would describe BMPs to control runoff and prevent erosion for each project. Through compliance with this requirement, the potential for erosion impacts would be reduced. The Construction General Permit has been developed to address cumulative conditions arising from construction throughout the state, and is intended to maintain cumulative effects of projects subject to this requirement below levels that would be considered significant. For example, two adjacent construction sites would be required to implement BMPs to reduce and control the release of sediment and/or other pollutants in any runoff leaving their respective sites. The runoff water from both sites would be required to achieve the same action levels, measured as a maximum amount of sediment or pollutant allowed per unit volume of runoff water. Thus, even if the runoff waters were to combine after leaving the sites, the sediments and/or pollutants in the combined runoff would still be at concentrations (amount of sediment or pollutants per volume of runoff water) below action levels and would not be cumulatively considerable (less than significant).

In addition, the proposed project as well as other current and future projects would be required to implement BMPs to comply with the NPDES Phase II MS4 drainage control requirements during the operational phases (see Section 4.H Hydrology and Water Quality for discussion of MS4 permit). With compliance with MS4 requirements, potential impacts from cumulative projects within the project area would not be cumulatively considerable (less than significant).

Mitigation: None required.

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G. Hazards and Hazardous Materials

G.1 Introduction

This section discusses the extent to which hazardous conditions or hazardous materials are present at the project site and evaluates the potential for implementation of the project to result in significant impacts related to exposing people or the environment to adverse effects related to hazards and hazardous materials. This section is based on Phase I and Limited Phase II Environmental Site Assessments prepared for the proposed project (Cornerstone Earth Group, 2014 and Engeo, 2016), which also referenced and relied upon previous site assessments. A review of the applicable regulatory framework governing project implementation is also provided. Potential impacts are discussed and evaluated, and mitigation measures are identified where appropriate.

CEQA requires the analysis of potential adverse effects of a project on the environment. Generally, consideration of the potential effects of a site's environment on a project are outside the scope of required CEQA review (*California Building Industry Association v. Bay Area Air Quality Management District* (2015) 62 Cal. 4th 369). The impacts discussed in this section relate to hazardous conditions or hazardous materials that may be present at the project site and evaluate the potential for implementation of the project to result in significant impacts related to exposing people or the environment to adverse effects related to hazards and hazardous materials, and therefore "do not relate to environmental impacts under CEQA and cannot support an argument that the effects of the environment on the project must be analyzed in an EIR" (*Ballona Wetlands Trust v. City of Los Angeles* (2011) 201 Cal. App. 4th 455). Nonetheless, this section analyzes potential effects of hazards and hazardous materials on the built project, as set forth in Appendix G of the CEQA Guidelines, in order to provide information to the public and decision-makers.

G.2 Environmental Setting

Definitions

Materials and waste are generally considered hazardous if they are poisonous (toxicity), can be ignited by open flame (ignitability); corrode other materials (corrosivity); or react violently, or 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[n]) as materials that, because of quantity, concentration, or physical or chemical characteristics, pose 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. 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.

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 effects from exposure can be evaluated in a health risk assessment. The main 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.

Soil and Groundwater Contamination

In California, regulatory databases listing hazardous materials sites provided by numerous federal, state, and local agencies are consolidated in the "Cortese List" pursuant to Government Code Section 65962.5. The Cortese List is located on the California Environmental Protection Agency's (Cal EPA) website and is a compilation of the following lists:

- List of Hazardous Waste and Substances sites from Department of Toxic Substances Control (DTSC) EnviroStor database;
- List of Leaking Underground Storage Tank Sites by County and Fiscal Year from the State Water Resources Control Board (SWRCB) GeoTracker database;
- List of solid waste disposal sites identified by SWRCB with waste constituents above hazardous waste levels outside the waste management unit;
- List of active Cease and Desist Orders and Cleanup and Abatement Orders from the SWRCB; and
- List of hazardous waste facilities subject to corrective action pursuant to Section 25187.5 of the Health and Safety Code, identified by DTSC and listed in the EnviroStor database (DTSC, 2017).

The five databases cited above identify sites with suspected and confirmed releases of hazardous materials to the subsurface soil and/or groundwater. The statuses of these sites change as identification, monitoring and clean-up of hazardous materials progress. Typically, a site is closed once it has been demonstrated that existing site uses combined with the levels of identified contamination present no significant risk to human health or the environment.

The lists and databases comprising the Cortese List were reviewed to identify any active cleanup sites at or within 1,000 feet of the project site, as shown in **Table 4.G-1** below. No other cleanup

sites were identified that could have the potential to affect the project site through migration of contaminants onto the project site.

TABLE 4.G-1
REGULATORY SITES LISTED IN THE PROJECT SITE AND VICINITY

Facility Name	Database Listing	Comments
Project Site Listings		
Vintage Properties; 1150 Marina Village Parkway	HIST Cortese, LUST	Database listing related to the discovery of a 15,000 gallon leaking underground storage tank (UST) on site. The database lists the site as closed as of June 13, 1995.
1250 Marina Village Parkway	ERNS, CHIMIRS	A report was filed for a sheen in the harbor believed to be diesel form the adjacent recreational harbor. No other documentation was available concerning this report.
Rigging International, 1210 Marina Village Parkway	HAZNET	Hazardous waste filing for laboratory waste chemicals, oil-containing waste, waste oil, and hydrocarbon solvents generated at this facility. No violations noted.
Alameda Real Estate, Inc. and Marina Village Supply Shop; 1150 Marina Village Parkway Suite 100	HAZNET	Hazardous waste filing for unspecified solvent mixture and other organic solid wastes generated at this facility in 2006, likely related to materials at the maintenance area between Shipways 3 and 4. No violations noted.
Vicinity Listings		
Vintage Properties; 1150 Marina Village Parkway	SLIC, Spills	This property is located adjacent to the eastern border of the site. Database listing for the detection of contaminated soil at this property. The case is listed as closed as of February 14, 1997. This case is further discussed below.
Vintage Properties; 1150-1301 Marina Village Parkway	RGA LUST	This database listing is related to three leaking USTs discovered at these addresses. Closure was granted in 1995.

Source: Engeo, 2016.

Hazardous Building Materials

Redevelopment of infill sites often involves the need to demolish existing older structures. Many older buildings contain building materials that can be hazardous to people and the environment once disturbed. These materials include lead-based paint , asbestos-containing materials, and polychlorinated biphenyls (PCBs).

Lead and Lead-Based Paint

Prior to the U.S. Environmental Protection Agency (U.S. EPA) ban in 1978, lead-based paint was commonly used on interior and exterior surfaces of buildings. Through such disturbances as sanding and scraping activities, or renovation work, or gradual wear and tear, old peeling paint, or paint dust particulates have been found to contaminate surface soils or cause lead dust to migrate and affect indoor air quality. Exposure to residual lead can cause severe adverse health effects, especially in children.

Asbestos

Asbestos is a naturally-occurring fibrous material that was extensively used as a fireproofing and insulating agent in building construction materials before such uses were banned by the EPA in the 1970s. Asbestos containing materials were commonly used for insulation of heating ducts as well as ceiling and floor tiles. Similar to lead-based paint, asbestos containing material contained within the building materials present no significant health risk because there is no exposure pathway. However, once these tiny fibers are disturbed, they can become airborne and become a respiratory hazard. Once they are inhaled, they can become lodged in the lung potentially causing lung disease or other pulmonary complications.

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. BAAQMD has the 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. (See Regulatory Setting, below, for further regulations regarding asbestos removal.)

Polychlorinated Biphenyls

PCBs are organic oils that were formerly used primarily as insulators in many types of electrical equipment including transformers and capacitors. After PCBs were determined to be a carcinogen in the mid to late 1970s, the U.S. EPA banned PCB use in most newer 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.

Regional and Site Setting

The project site and vicinity are characterized by a mix of maritime, residential, commercial and retail, warehouse, and dry storage uses. The project site was originally an intertidal area between the Oakland Inner Harbor and Alameda Island prior to being developed for shipbuilding and repair between 1939 and 1946. The shipbuilding structures remain today and consist of approximately 6,000 timber piles supporting concrete slabs and structures covering the site. Dredged material from an adjacent harbor was placed in the void space beneath the concrete structure underlying the site during the1970s and 1980s. Dredged materials and undocumented fill likely placed during initial site development total up to 17 feet in thickness. These materials are underlain by about 35 to 85 feet of Bay Mud, about 5 to 30 feet of dense sandy San Antonio Formation, and about 5 to greater than 50 feet of Old Bay Clay. The Alameda Formation exists below the Old Bay Clay at approximately 110 to 140 feet below ground surface.

Contaminants of Potential Concern on Site

Former UST

A 15,000-gallon diesel UST had been located between Shipway 2 and 3 and was removed in 1989. During removal, visibly stained soil reportedly was observed along the sidewalls of the excavation and petroleum hydrocarbons were detected in the sidewalls and groundwater. The visibly stained soils was excavated and the excavation was backfilled. Ground water monitoring wells were installed during site investigation in the 1990s, which detected hydrocarbons and volatile organic compounds down-gradient from the former UST.

Follow-up investigation of groundwater at the site (Engeo, 2016) found petroleum hydrocarbons above the detectable range but within concentrations levels considered acceptable for residential development. All other tested contaminants were below the detectable range in groundwater samples. Results of follow-up soil testing are discussed below.

Dredged Fill and Undocumented Fill

Native soils at the site are overlain by up to 17 feet of undocumented fill likely placed during initial site development and dredged materials from an adjacent harbor that was placed in the void space beneath the concrete structure underlying the site during the1970s and 1980s. The undocumented nature of the fill materials poses a concern of presence of contaminants as does the potential for previous contamination by the former UST (discussed above).

Follow-up investigation of soil at the site (Engeo, 2016) determined that petroleum hydrocarbons, metals, and polycyclic aromatic hydrocarbons were not detected at concentrations exceeding their corresponding screening levels for a residential land use in the samples collected from the dredged material. Aroclor-1260, a polycyclic aromatic hydrocarbon, was detected at a concentration exceeding the corresponding screening level in one sample collected from the dredged material at a depth of 6 feet below ground surface.

Several contaminants, including petroleum hydrocarbons, lead, polycyclic aromatic hydrocarbons (including benzo(b)pyrene and indeno(1,2,3- cd)pyrene), volatile organic compounds (ethylbenzene), and polycyclic aromatic hydrocarbons (aroclor-1260) were detected at concentrations exceeding their corresponding screening levels for a residential land use in the samples collected from the shallow fill material at the in the southern portion of the project site.

Detectable concentrations of arsenic were reported in all of the samples analyzed, at concentrations ranging between 2 to 7.1 milligrams per kilogram. All samples exceed the residential screening level for arsenic; however, these concentrations are within background concentrations observed in the San Francisco Bay Area.

All other tested contaminants were either below the detectable range or were detected at concentrations below the corresponding screening levels in the samples collected from fill materials and native soils at the project site.

Hazardous Building Materials

Due to the age of the structures at the site (pre-1970s), asbestos, lead based paint, and PCB-containing equipment are assumed to be potentially present in the existing structures at the project site.

Contaminants of Potential Concern Offsite

As shown in Table 4.G-1, hazardous materials lists in the site include one report of contaminated soils and one report of leaking USTs. Both cases are closed and are not considered to be a source of potential concern for contamination at the project site.

Wildland Fire

Factors that contribute to the risk of fire include dense and fire-prone vegetation, poor access to fire- fighting equipment because of slopes or inadequate roads, lack of adequate water pressure and service in fire-prone locations, and seasonal atmospheric conditions that result in warm, dry fire seasons with strong afternoon winds. Wildfire hazard maps from the California Department of Forestry and Fire Protection (CAL FIRE) and compiled by ABAG show the site as not being within or immediately adjacent to an area that is considered a fire threatened community (2017). The CAL FIRE Fire Hazard Severity Zones maps rank land under local and State responsibility as to wildland fire hazard. The project site is shown as being located within an area considered to be a Non-Very High Fire Hazard Severity Zone (CAL FIRE, 2008). While these maps are not intended for site specific planning, they do indicate potential risks based on existing conditions.

Airports and Air Hazards

Airport Influence Areas are used in land use planning to identify areas commonly overflown by aircraft as they approach and depart an airport, or as they fly within established airport traffic patterns. The project site is located approximately 4 miles north of Oakland International Airport, the nearest airport. Due to the project site's location outside an airport influence area, the public safety requirements to minimize the risk related to airport proximity would not apply.

G.3 Regulatory Setting

Federal

The primary federal agencies with responsibility for hazardous materials management include the U.S. EPA, U.S. Department of Labor Occupational Safety and Health Administration (Fed/OSHA), and the U.S. Department of Transportation (DOT). Federal laws, regulations, and responsible agencies are summarized by topic below.

Hazardous Materials Management: Community Right-to-Know Act of 1986 (also known as Title III of the Superfund Amendments and Reauthorization Act [SARA]). Imposes requirements to ensure that hazardous materials are properly handled, used, stored, and disposed of and to prevent or mitigate injury to human health or the environment in the event that such materials are accidentally released.

Hazardous Waste Handling: Resource Conservation and Recovery Act of 1976 (RCRA). Under RCRA, the EPA regulates the generation, transportation, treatment, storage, and disposal of hazardous waste from "cradle to grave."

Hazardous and Solid Waste Act. Amended RCRA in 1984, affirming and extending the "cradle to grave" system of regulating hazardous wastes. The amendments specifically prohibit the use of certain techniques for the disposal of some hazardous wastes.

Hazardous Materials Transportation: U.S. Department of Transportation (DOT). Has the regulatory responsibility for the safe transportation of hazardous materials. The DOT regulations govern all means of transportation except packages shipped by mail (49 CFR).

U.S. Postal Service (USPS). USPS regulations govern the transportation of hazardous materials shipped by mail.

Occupational Safety: Occupational Safety and Health Act of 1970. Fed/OSHA sets standards for safe workplaces and work practices, including the reporting of accidents and occupational injuries (29 Code of Federal Regulations [CFR]).

Structural and Building Components (Lead- based paint, PCBs, and asbestos): Toxic Substances Control Act. Regulates the use and management of PCBs in electrical equipment, and sets forth detailed safeguards to be followed during the disposal of such items.

U.S. EPA. The EPA monitors and regulates hazardous materials used in structural and building components and effects on human health.

State and local agencies often have either parallel or more stringent regulations than federal agencies. In most cases, state law mirrors or overlaps federal law and enforcement of these laws is the responsibility of the state or of a local agency to which enforcement powers are delegated. For these reasons, the requirements of the law and its enforcement are discussed under either the state or local agency section.

State

Unified Program

The Unified Program consolidates, coordinates, and makes consistent the administrative requirements, permits, inspections, and enforcement activities of six environmental and emergency response programs (see below). The Unified Program Administration and Advisory Group (UPAAG) was created to foster effective working partnerships between local, State and federal agencies. The UPAAG's goals and objectives are listed in the UPAAG Strategic Plan. The six programs are:

- Hazardous Materials Release Response Plans and Inventories (Business Plans)
- California Accidental Release Prevention (CalARP) Program
- Underground Storage Tank Program

- Aboveground Petroleum Storage Act Program
- Hazardous Waste Generator and Onsite Hazardous Waste Treatment (tiered permitting) Programs
- California Uniform Fire Code: Hazardous Material Management Plans and Hazardous Material Inventory Statements

The State agency partners involved in the Unified Program have the responsibility of setting program element standards, working with Cal/EPA on ensuring program consistency, and providing technical assistance to the certified unified program agencies (CUPAs). The following State agencies are involved with the Unified Program:

California Environmental Protection Agency (Cal EPA). The Secretary of the California Environmental Protection Agency is directly responsible for coordinating the administration of the Unified Program. The Secretary certifies Unified Program Agencies. The Secretary has certified 83 CUPAs to date. These 83 CUPAs carry out the responsibilities previously handled by approximately 1,300 State and local agencies.

Department of Toxic Substances Control. DTSC provides technical assistance and evaluation for the hazardous waste generator program including onsite treatment (tiered permitting).

Governor's Office of Emergency Services. The Governor's Office of Emergency Services is responsible for providing technical assistance and evaluation of the Hazardous Material Release Response Plan (Business Plan) Program and the California Accidental Release Response Plan (CalARP) Programs.

Office of the State Fire Marshal. The Office of the State Fire Marshal is responsible for ensuring the implementation of the Hazardous Material Management Plans and the Hazardous Material Inventory Statement Programs. These programs tie in closely with the Business Plan Program.

State Water Resources Control Board. SWRCB provides technical assistance and evaluation for the underground storage tank program in addition to handling the oversight and enforcement for the aboveground storage tank program.

Title 22 of the California Code of Regulations & Hazardous Waste Control Law, Chapter 6.5

DTSC regulates the generation, transportation, treatment, storage, and disposal of hazardous waste under RCRA and the California Hazardous Waste Control Law. Both laws impose "cradle to grave" regulatory systems for handling hazardous waste in a manner that protects human health and the environment. Cal EPA has delegated some of its authority under the Hazardous Waste Control Law to county health departments and other CUPAs.

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 above, 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.

California Human Health Screening Levels

The California Human Health Screening Levels (CHHSLs) were developed as a tool to assist in the evaluation of contaminated sites for potential adverse threats to human health. Preparation of the CHHSLS was required by the California Land Environmental Restoration and Reuse Act of 2001 (SB 32 (Chapter 764, Statutes of 2001, OEHHA, 2010). The CHHSLs are concentrations of 54 hazardous chemicals in soil or soil gas the Cal/EPA considers to be below thresholds of concern for risks to human health. The CHHSLs were developed by OEHHA, an agency under the umbrella of Cal/EPA, and are contained in its report entitled Human-Exposure-Based Screening Numbers Developed to Aid Estimation of Cleanup Costs for Contaminated Soil (OEHHA and Cal EPA 2005). The thresholds of concern used to develop the CHHSLs are an excess lifetime cancer risk of 1 in 1 million and a hazard quotient of 1.0 for noncancer health effects. The CHHSLs were developed using standard exposure assumptions and chemical toxicity values published by USEPA and Cal/EPA. The CHHSLs can be used to screen sites for potential human health concerns where releases of hazardous chemicals to soils have occurred. Under most

circumstances, the presence of a chemical in soil, soil gas, or indoor air at concentrations below the corresponding CHHSLs can be assumed to not pose a significant health risk to people who may live (residential CHHSLs) or work (commercial/industrial CHHSLs) at the site.

California Department of Toxic Substances Control / Hazardous Waste Management

The Federal Resource Conservation and Recovery Act of 1976 (RCRA) established a "cradle-to-grave" regulatory program governing the generation, transportation, treatment, storage, and disposal of hazardous waste. Under RCRA, 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.

The U.S. EPA approved California's RCRA program, called the Hazardous Waste Control Law in 1992. In California, Cal EPA and the Department of Toxic Substances Control DTSC, a department within Cal EPA, regulates the generation, transportation, treatment, storage, and disposal of hazardous waste. The hazardous waste regulations establish criteria for identifying, packaging, and labeling hazardous wastes; dictate the 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. These regulations also require hazardous waste generators to prepare a Hazardous Waste Contingency Plan that describe hazardous waste storage and secondary containment facilities, emergency response and evacuation procedures, and employee hazardous waste training program. While DTSC generally retains authority, day to day enforcement of hazardous waste management rules is delegated to CUPA, Alameda County Department of Environmental Health (ACDEH).

Hazardous Materials Transportation

The State of California has adopted federal 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 and the California Department of Transportation (Caltrans).

Occupational Safety and Health Administration

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 29 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. 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.

In January 1996, 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 CUPA is the local agency that is responsible for the implementation of the Unified Program. In the City of Alameda, ACDEH is the designated CUPA for all businesses.

California Department of Toxic Substances Control

The DTSC is responsible for regulating management of hazardous waste and correction of releases of hazardous constituents to the environment. The DTSC promulgates rules and regulations, but enforcement of compliance with California hazardous waste management regulations is delegated to local agencies. CCHS is the local agency having jurisdiction over compliance with California hazardous waste management regulations. DTSC retains the authority to intercede in hazardous waste management issues, permitting for hazardous waste treatment, storage and disposal, and review and approval of corrective action planning activity at hazardous waste contaminated sites.

Local

Airborne Pollutants

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. Cal/OSHA regulates asbestos removal to ensure the health and safety of workers removing asbestos containing materials and also must be notified of asbestos abatement activities.

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 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 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.

City of Alameda General Plan

The City of Alameda General Plan identifies the policies and strategies necessary to address hazards and hazardous materials. Goals and policies presented in the Safety and Noise, and Open Space and Conservation elements of the General Plan applicable to this project are as follows:

Policy SN-1 Maintain emergency management and disaster preparedness as a top City priority.

a) Maintain and update the recommendations and standards established in the City of Alameda's Emergency Management and Operations Plan as the guide for disaster planning in Alameda.

b) Maintain training programs to ensure that City personnel are sufficiently prepared to respond to an emergency and staff the Emergency Operations Center.

c) Identify and publicize essential emergency facilities in the City, including shelters, evacuation routes, and emergency operation staging areas, and take

the necessary actions to ensure that they will remain operational following a disaster.

d) Conduct periodic emergency response exercises to test the effectiveness of local preparedness response, recovery, and mitigation procedures.

Policy SN-29 Continue to identify and assess the risks associated with various hazardous materials transported in Alameda.

Policy SN-30 Increase public awareness of hazardous material use and storage in the City, the relative degree of potential health hazards, and the appropriate channels for reporting odor problems and other nuisances.

a) Promote public education about the safe disposal of household hazardous waste, such as motor oil and batteries, including the locations of designated household hazardous waste disposal sites.

Policy SN-31 Work with county, regional, state and federal agencies to implement programs for hazardous waste reduction, hazardous material facility siting, hazardous waste handling and disposal, public education and regulatory compliance.

a) Continue to remove and monitor methane gas produced as a waste product of materials decomposing in the former landfill on Doolittle Drive.

Policy SN-32 Work with county, regional, state, and federal agencies and private property owners to ensure that the necessary steps are taken to clean up residual hazardous waste on any contaminated sites.

a) Require that all new construction, including construction on former industrial sites, has been cleared for residential, commercial or industrial uses from the appropriate federal, state and local agencies and acts, including the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Program, the Resource Conservation and Recovery Act (RCRA), the California Department of Toxic Substances Control (DTSC), the Regional Water Quality Control Board (RWQCB) and the Alameda County Department of Environmental Health (ACDEH), which is the Certified Unified Program Agency (CUPA) responsible for implementing state environmental regulations related to hazardous waste and hazardous materials.

Policy SN-33 Continue to support the various resource recovery initiatives and other measures specified in the Alameda County Countywide Integrated Waste Management Plan.

Policy SN-34 Ensure that the City's Emergency Preparedness programs include provisions for hazardous materials incidents, as well as measures to quickly alert the

community and ensure the safety of residents and employees following an incident.

a) Improve the training and capability of the Fire Department to handle accidental releases of hazardous materials. Provide ongoing training for hazardous materials enforcement and response personnel. Apply the Emergency Operations Plan, if necessary, in response to a hazardous materials release disaster.

Policy SN-35 Require adequate and safe separation between areas and uses with hazardous materials and sensitive uses such as schools, residences and public community facilities.

Policy SN-36 Require that all facilities that handle and/or store hazardous materials are designed to minimize the possibility of environmental contamination and adverse off-site impacts and that they are in compliance with state and federal standards and requirements designed to protect public health and the environment.

Policy SN-37 Encourage residential, commercial and industrial property owners to test their properties for elevated levels of radon gas (more than 4 pico curies per liter).

Policy SN-45 Regulate land uses within designated airport safety zones, height referral areas, and noise compatibility zones to minimize the possibility of future noise conflicts and accident hazards.

Policy SN-46 Maintain a high degree of readiness to respond to aircraft crashes through participation in preparedness drills and mutual aid activities with the City and Port of Oakland to ensure quick and effective response to emergencies.

Policy 5.1.u Participate in the County Hazardous Waste program and/or consider establishment of hazardous waste and/or oil disposal or transfer sites.

Policy 5.1.w Require new marinas and encourage existing marinas to provide easily accessible waste disposal facilities for sewage and bilge and engine oil residues.

G.4 Impacts and Mitigation Measures

Significance Criteria

Consistent with Appendix G of the State CEQA Guidelines, a project would cause adverse impacts related to hazards and hazardous materials 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 which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment;
- 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, would result in a safety hazard for people residing or working in the project area;
- For a project within the vicinity of a private airstrip, would result in a safety hazard for people residing or working in the project area;
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; or
- 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.

Exposure of the public to air emission hazards associated with construction and operation of the project is addressed in Section 4.C, Air Quality, Greenhouse Gas Emissions, and Energy.

Topics with No Impact or Otherwise Not Addressed in this EIR

Review and comparison of the setting circumstances and project characteristics with each of the eight significance criteria stated above clearly show that no impacts associated with hazards or hazardous materials would result for criteria related to: impacts to nearby airports or risk exposure to wildland fires. The following discusses the reasoning supporting this conclusion:

The project would not 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. There is no airport land use plan that includes the project site, and there are no public airports or public use airports within two miles of the project site. Therefore, the project would have no impact.

The project would not be located in the vicinity of a private airstrip. There is no private airstrip in the vicinity of the project site. Therefore, the project would have no impact.

The project would not expose people or structures to a significant risk of loss, injury or death involving wildland 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 wildland fires.

Impact Analysis

Impact 4.G-1: Demolition of the existing structures on the project site which likely contain hazardous building materials—such as lead-based paint, asbestos, and PCBs— could potentially expose workers, the public, or the environment to hazardous materials from the transport, use, or disposal of these hazardous materials and waste. (*Less than Significant with Mitigation*)

Demolition of existing structures on the project site may expose construction workers, the public, or the environment to hazardous materials such as asbestos, lead-based paint, 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 asbestos containing materials 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, asbestos containing materials, 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 asbestos is present. In structures slated for demolition under the proposed project, any asbestos containing materials detected would be required to be abated in accordance with state and federal regulations prior to the start of demolition or renovation activities.

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 at least 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.

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 asbestos containing materials. 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.

Based on the age of the buildings, all painted surfaces may contain lead. Both the federal OSHA and Cal OSHA regulate worker exposure during construction activities that disturb lead-based paint. 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. OSHA-specified compliance includes respiratory protection, protective clothing, housekeeping, special high-efficiency filtered vacuums, hygiene facilities, medical surveillance, and training.

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.

Implementation of Mitigation Measures 4.G-1a through 4.G-1e would reduce construction period impacts to less-than-significant levels.

Mitigation Measure 4.G-1a: Prior to issuance of any demolition permit, the project applicant shall submit to the Alameda County Department of Environmental Health a hazardous building material assessment prepared by qualified licensed contractors for any structure intended for demolition indicating whether asbestos-containing materials, lead-based paint, and/or PCB-containing equipment, are present.

Mitigation Measure 4.G-1b: If the assessment required by Mitigation Measure 4.G-1a indicates the presence of asbestos-containing materials, lead-based paint, and/or PCBs, the project applicant shall create and implement a health and safety plan in accordance with local, state, and federal requirements 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.G-1c: If the assessment required by Mitigation Measure 4.G-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 asbestos-containing materials 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 asbestos-containing materials shall be removed and appropriately disposed of by a state certified asbestos contractor.

Mitigation Measure 4.G-1d: If the assessment required by Mitigation Measure 4.G-1a finds presence of lead-based paint, the project applicant shall develop and implement a lead-based paint removal plan. The plan shall specify, but not be limited to, the following elements for implementation:

1. Develop a removal specification approved by a Certified Lead Project Designer.
2. Ensure that all removal workers are properly trained.
3. Contain all work areas to prohibit off-site migration of paint chip debris.
4. Remove all peeling and stratified lead-based paint 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/or disposal of intact lead-based paint on all materials to be cut and/or removed during the demolition.

5. 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.
6. Clean up and/or vacuum paint chips with a high efficiency particulate air (HEPA) filter.
7. Collect, segregate, and profile waste for disposal determination.
8. Properly dispose of all waste.

Mitigation Measure 4.G-1e: If the assessment required by Mitigation Measure 4.G-1a finds presence of PCBs, the project applicant shall ensure that PCB abatement in compliance with applicable regulations is conducted prior to building demolition or renovation. PCBs shall be removed by a qualified contractor and transported in accordance with Caltrans requirements.

Significance after Mitigation: Less than Significant.

Impact 4.G-2: Construction at the project site would potentially disturb contaminated soil, 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. (*Less than Significant with Mitigation*)

Construction activities would involve exposure of known and potentially contaminated soils, which can pose a risk to project workers (and potentially even to close bystanders) if high concentration contamination is encountered. This issue is relevant only in cases of elevated contaminant concentrations where the exposure threshold(s) is likely to be exceeded.

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.

To reduce worker health risks associated with known and potentially contaminated soil, a detailed Site- Specific Environmental Health and Safety Plan (HASP) would be prepared by the selected site contractor as required by Mitigation Measure 4.G-2a. The HASP would be consistent with State and federal OSHA standards for hazardous waste operations (California Code of Regulations, Title 8, Section 5192 and 29 Code of Federal Regulations 1910.120, respectively) and any other applicable health and safety standards. Among other things, the HASP would include descriptions of health and safety training requirements for onsite personnel and levels of personal protective equipment to be used, and any other applicable precautions to be undertaken to minimize direct contact with soil and to a lesser degree, groundwater if is encountered.

To reduce environmental risks associated with encountering contaminated soil discovered during grading and construction, the Site Management Plan (SMP), as required by Mitigation Measure 4.G-2b, would include protocols to 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. The detailed site-specific SMP would be developed based on the development plan and its staging. The SMP measures would be implemented by the excavation contractor and any future earthwork contractors to mitigate potential impacts to human health and the environment during excavation at the site. All site soil excavation and earthwork would be subject to SMP procedures. The SMP would include measures to mitigate the potential impacts of earthwork including: dust control measures, decontamination of construction and transportation equipment, stormwater pollution controls, and treatment of any groundwater prior to disposal to the storm drain, to the sanitary sewer, or at an appropriate offsite facility.

Dust control measures would be implemented during construction activities at the site to minimize the generation of dust. It is particularly important to minimize exposure of onsite construction workers or commercial workers if present on other areas of the site to dust containing any contaminants of concern and to prevent nuisance dust and dust containing contaminants of concern from migrating offsite. Dust generation activities that would be mitigated include those associated with demolition and site preparation activities. Once the site is covered with clean engineered fill, any dust generated would not be considered to be potentially contaminated.

Construction equipment and transportation vehicles that contact exposed soils with the potential for contamination would be decontaminated prior to leaving the site. This would minimize the possibility that earth-moving equipment would track contaminants of concern containing soil onto public roadways. Decontamination methods would include scraping, brushing, and/or vacuuming to remove dirt on vehicle exteriors and wheels. In the event that these dry decontamination methods are not adequate, methods such as steam cleaning, high-pressure washing, and cleaning solutions would be used, as necessary, to thoroughly remove accumulated dirt and other materials. Wash water resulting from decontamination activities would be collected and managed in accordance with all applicable laws and regulations.

Should rainfall occur during construction on exposed soils at the site, stormwater pollution controls would be implemented to minimize stormwater runoff from exposed soil containing contaminants of concern at the site and to prevent sediment from leaving the site, in accordance with all laws and regulations. Stormwater pollution controls would be based on BMPs to comply with State and local regulations. Onsite sediment and erosion protection controls would be the primary methods for minimizing discharges of sediments from the site, as discussed in Section 4.H, Hydrology and Water Quality.

The project would temporarily expose contaminated and potentially contaminated soils at the site. Soil disturbance during construction could disperse existing contamination into the environment and expose construction workers and the public to contaminants. With implementation of the Site Health and Safety Plan, in accordance with Cal OSHA requirements, and a SMP, as approved by

the U.S. EPA, DTSC, and the 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. Implementation of Mitigation Measures 4.G-2a and 4.G-2b would reduce impacts to less than significant levels.

Mitigation Measure 4.G-2a: Prior to issuance of any demolition permit, the project applicant shall submit to the City a Site-Specific Environmental Health and Safety Plan (HASP). The HASP shall be consistent with State and federal OSHA standards for hazardous waste operations (California Code of Regulations, Title 8, Section 5192 and 29 Code of Federal Regulations 1910.120, respectively) and any other applicable health and safety standards. The HASP shall include descriptions of health and safety training requirements for onsite personnel and levels of personal protective equipment to be used, and any other applicable precautions to be undertaken to minimize direct contact with soil and to a lesser degree, groundwater if is encountered. The HASP shall be adhered to during construction and excavation activities. All workers onsite should read and understand the HASP and copies shall be maintained onsite during construction and excavation at all times.

Mitigation Measure 4.G-2b: Prior to issuance of a building or grading permit for any ground breaking activities within the project site, the project applicant shall prepare a Site Management Plan (SMP) consistent with US EPA, DTSC, and Water Board standards for incorporation into construction specifications. 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. At a minimum, the SMP shall include the following components:

1. Dust control measures: Dust generation shall be minimized by any or all appropriate measures. These measures may include:
    a. Misting or spraying water while existing soils at the site are disturbed;
    b. Limiting vehicle speeds onsite to 5 miles per hour;
    c. Controlling earth-moving activities to minimize the generation of dust;
    d. Minimizing drop heights if/when loading transportation vehicles; and
    e. Covering any soil stockpiles of soil potentially impacted by contaminants of concern with plastic sheeting or tarps.

2. Decontamination measures: Decontamination methods shall include scraping, brushing, and/or vacuuming to remove dirt on vehicle exteriors and wheels. In the event that these dry decontamination methods are not adequate, methods such as steam cleaning, high-pressure washing, and cleaning solutions shall be used, as necessary, to thoroughly remove accumulated dirt and other materials. Wash water resulting from decontamination activities shall be collected and managed in accordance with all applicable laws and regulations.

3. Stormwater pollution control measures: Should rainfall occur during construction on exposed soils at the site stormwater pollution controls shall be implemented to minimize stormwater runoff from exposed soil containing contaminants of concern at the site and to prevent sediment from leaving the site, in accordance with all laws and regulations. Stormwater pollution controls shall be based on BMPs to comply with

State and local regulations. Sediment and erosion protection controls may include but are not limited to:

a. Constructing berms or erecting silt fences at entrances to the project site;

b. Placing straw bale barriers around catch basins and other entrances to the storm drains;

c. During significant rainfall events, covering with plastic sheeting or tarps any soil stockpiles generated as a result of excavating soil potentially impacted by contaminants of concern.

Significance after Mitigation: Less than Significant.

Impact 4.G-3: Hazardous materials used onsite during construction activities (e.g., oils, solvents) at the project site 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, No Mitigation Required*)

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.H, Hydrology and Water Quality) 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; and
- 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.

Impact 4.G-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, No Mitigation Required*)

Residential building and park support activities would use hazardous chemicals common in such settings. These chemicals could include familiar materials such as paints, lubricants, and cleaning products, as well as relatively small quantities of pesticides, fuels, oils, and other petroleum-based products.

Because these common "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. 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.G-5: Construction and operational activities would handle hazardous materials within one-quarter mile of an existing preschool. (*Less than Significant with Mitigation*)

The project site is located approximately 0.20 miles from the Peter Pan Preschool.

As discussed above, construction activities would disturb structures potentially containing hazardous building materials (Impact 4.G-1), temporarily expose contaminated soils at the site (Impact 4.G-2), and utilize common construction hazardous materials such as fuels, oils, solvents, and glues (Impact 4.G-3). Common household hazardous materials such as paints, lubricants, cleaning products, pesticides, and other petroleum-based products would also be handled during the operational period. The project will implement identified Mitigation Measures 4.G-1a through 4.G-1e to minimize potential impacts related to hazardous building materials during demolition

and Mitigation Measures 4.G-2a and 4.G-2b to minimize potential impacts related to exposure of contaminated soils at the site. Air emissions are addressed in Section 4.C, Air Quality. With compliance with existing regulatory requirements and implementation of identified mitigation measures, impacts related to handling of hazardous materials within one-quarter mile of a school would be less than significant.

Mitigation: Mitigation Measures 4.G-1a through 4.G-1e and 4.G-2a and 4.G-2b, detailed above, would also reduce this impact.

Significance after Mitigation: Less than Significant.

Impact 4.G-6: Development of the project would 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 the site. (*Less than Significant with Mitigation*)

The project site includes one former regulatory site related to the leaking UST that was previously removed from the site. This case was closed in 1995. Additionally, there is indication that the dredged fill and undocumented fill at the site could contain contaminants. Contamination of subsurface soils and groundwater can potentially expose workers, the public, or future occupants to legacy contaminants through direct exposure, from contact with contaminated soils through excavation or other ground disturbing activities.

As discussed in more detail in the setting, recent site investigations (Engeo, 2016) indicated that contaminants above screening levels for residential use were discovered in the dredged fill (polycyclic aromatic hydrocarbons) and undocumented fill (petroleum hydrocarbons, lead, polycyclic aromatic hydrocarbons, volatile organic compounds, and polycyclic aromatic hydrocarbons) underlying the site. The project proposes to place engineered fill over the site, which is expected to allow the site to meet screening levels. Therefore, with implementation of Mitigation Measure 4.G-3, the potential impact would be less than significant.

> **Mitigation Measure 4.G-3**: Prior to issuance of a building permit for residential building construction activities within the project site, the project applicant shall provide documentation to the City detailing that contamination levels at the site are within acceptable levels for residential development. While not considered likely given the conclusions of the site investigations, if it is alternatively determined that elevated contamination levels could impact future residents and/or site users, the project applicant shall prepare a Remedial Risk Management Plan (RRMP). The RRMP shall be developed and followed by current and future owners, tenants, and operators. The RRMP shall include the implementation of any needed corrective action remedies and engineering design necessary to reduce exposures to contaminants to a less than significant level.

Significance after Mitigation: Less than Significant.

Impact 4.G-7: The project would not impair the implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. (*Less than Significant, No Mitigation Required*)

As discussed in Section 4.K, Population, Housing, and Public Services, 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 is designed to ensure appropriate emergency access to and egress from the site in accordance with all City and Fire Code requirements (for further information, see Section 4.L, Transportation and Circulation). Proposed improvements would not close or reroute any of the existing roadways and would not interfere with roads, access, and egress of future occupants. Additionally, all project-specific designs, including private internal circulation and building site plans, would be subject to review and approval by the City, including emergency service providers, per project requirements. Therefore, the project would not interfere with an adopted emergency response plan or emergency evacuation plan, and would have a less than significant impact.

Mitigation: None required.

Cumulative Impacts

Impact 4.G-8: Hazards at the project site, in combination with past, present, and future projects could potentially contribute to cumulative hazards in the vicinity of the project site. (*Less than Significant, No Mitigation Required*)

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.

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, Greenhouse Gas Emissions, and Energy. 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.

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H. Hydrology and Water Quality

H.1 Introduction

This section describes existing hydrologic conditions in the project vicinity and presents applicable regulations that pertain to surface water drainage, stormwater management, flooding potential, 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.

CEQA requires the analysis of potential adverse effects of a project on the environment. Generally, consideration of the potential effects of a site's environment on a project are outside the scope of required CEQA review (*California Building Industry Association v. Bay Area Air Quality Management District* (2015) 62 Cal. 4th 369). To the extent that the impacts discussed in this section relate to the existing hydrologic conditions that may be present at the project site and evaluate the potential for implementation of the project to result in significant impacts related to exposing people or the environment to adverse effects related to those hydrologic conditions, those impacts "do not relate to environmental impacts under CEQA and cannot support an argument that the effects of the environment on the project must be analyzed in an EIR" (*Ballona Wetlands Trust v. City of Los Angeles* (2011) 201 CalApp. 4th 455). Nonetheless, this section analyzes potential effects of the existing hydrologic conditions on the built project, as set forth in Appendix G of the CEQA Guidelines, in order to provide information to the public and decision-makers.

H.2 Environmental Setting

Regional Hydrology

The project site lies in the Central Basin within the San Francisco Bay Hydrologic Region. The project site is located on the northern shoreline of Alameda, which lies in between Alameda Estuary 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, 2017). 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 plain of the East Bay toward San Francisco Bay.[1]

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.

[1] Alluvial plain is an area formed by deposition of sediment by a stream.

Local Hydrology

The project site is primarily covered in concrete, asphalt, and other impermeable surfaces associated with maritime industrial uses. The location of the office parking and site-access, craneways, and welding platform on the project site are generally flat with surface elevations ranging from approximately 4 to 5. The shipways slope from the roofs of the head house down to the shipways and into the Alameda Estuary. These elevations range from approximately 16.5 to -4 feet.[2] Within the southerly third of the project site, stormwater is collected via the existing storm drain system along the frontage in Marina Village Parkway and conveyed to the City of Alameda's storm drain system. The remaining two-thirds of the site drains overland, to the north, and discharges into the Alameda Estuary. The perimeter of the site along the shoreline and adjacent marinas are bounded by steel sheetpile walls.

The open waters adjacent to the project site are part of the Alameda Estuary. The Alameda 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 Alameda 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.

Local Water Quality

In addition to the mingling of fresh and marine water associated with industrial waste discharges and urban stormwater runoff contaminants, past and present urban uses in the area have affected water quality of the Alameda Estuary. Pollutant sources discharging into the Alameda 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 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.

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[3] 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,

[2] Existing elevations in this section are based upon the City of Alameda Datum, which, when added to an additional 6.1 feet is then equal to NAVD88 Datum levels presented in FEMA Flood Insurance Risk Maps.

[3] A groundwater basin is defined as a hydrogeologic unit containing one large aquifer or several connected and interrelated aquifers (RWQCB, 1995).

and agricultural use (RWQCB, 2017). 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. During the most recent geotechnical investigation near the site, the groundwater table was observed at depths ranging from 5 and 9 feet below existing grade. The groundwater levels at the site are expected to fluctuate several feet in response to tidal fluctuations with potentially larger fluctuations annually, depending on the amount of rainfall. Based on the California Geologic Survey (2003) historical mapped depth to groundwater and the mean high water line, it is assumed that ground water levels could reach up to grade level.

Flooding

Flooding is inundation of normally dry land as a result of rise in the level of surface waters or rapid accumulation of stormwater runoff. Flooding can also occur due to tsunamis, seiches, or failure of dams.

100-Year Flood Hazard Area

The Federal Emergency Management Agency (FEMA), through its Flood Insurance Rate Map (FIRM) program, designates areas where flooding could occur during a 1.0 percent annual chance (100-year) flood event or a 0.2 percent annual chance (500-year) flood event. FEMA defines the areas of inundation by a 100-year flood event as Zone A in the FIRMs. Zone A areas with a specified Below Flood Elevation (BFE) are further delineated as Zone AE. Areas designated as Zone V are subject to inundation by a 100-year flood event with additional hazards that result from storm-induced velocity wave action by a 3-foot or higher wave. Similar to Zone AE, Zone VE indicates that a BFE has been designated for Zone V. Most municipalities do not allow construction within Zone A unless the applicant raises the development above the BFE.

The August 3, 2009 FIRM for the project area indicates that the project site is not within a flood zone (Zone X; FEMA, 2009). Converted to the elevation datum used by FEMA (NAVD88), surface elevations at the site are approximately 10.1 feet. The project proposes to build up the site an additional 4 feet, to 14.1 feet.

Tsunami and Seiche

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[4] and 4.26 feet from a local source.[5]

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 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.F, Geology, Soils, and Geohazards. 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, which in turn helps emergency managers, land-use planners, public works managers, and the maritime community understand potential tsunami impacts and 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 (City of

[4] Aleutian Islands
[5] Point Reyes thrust fault

Alameda, 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

As discussed in Section 4.C, Air Quality and Greenhouse Gases, a rise in average global temperature due largely to an increase in GHG emissions is expected to be accompanied by a rise in the global sea level.

The State of California has provided planning guidance for assessing and adapting to the impacts of sea level rise. The State's current guidance (Ocean Protection Council, 2013) incorporates the most recent scientific findings from the National Academy of Science National Research Council (NRC, 2012). For the San Francisco Bay Region, the National Research Council projects sea level rise of 11 inches by 2050 and 36 inches by 2100. These projections consider regional sea levels and vertical land motion. The NRC's possible range for San Francisco Bay sea level rise in 2050 is 5 to 24 inches and in 2100 is 17 to 66 inches. The ranges account for uncertainty in future greenhouse gas emissions and Earth's response to these emissions. In spite of this uncertainty in NRC's and other's projections, all trends are upward and are similar in magnitude when rounded to the nearest foot and allowing for variability of one or two decades.

H.3 Regulatory Setting

Federal

Clean Water Act

The Clean Water Act (33 U.S.C. 1251 – 1388) established the basic structure for regulating discharges of pollutants into the waters of the U.S. and gave the U.S. EPA the authority to implement pollution control programs such as setting wastewater standards for industry. The CWA sets water quality standards for all contaminants in surface 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 US Army Corps of Engineers (USACE) has jurisdiction over all waters of the U.S. including, but not limited to, perennial and intermittent streams, lakes, and ponds, as well as wetlands in marshes, wet meadows, and side hill seeps. Under Section 401 of the CWA every applicant for a

federal permit or license for any activity which may result in a discharge to a water body must obtain State Water Quality Certification that the proposed activity will comply with state water quality standards.

The National Pollutant Discharge Elimination System (NPDES) permit program under the CWA controls water pollution by regulating point and nonpoint sources that discharge pollutants into "waters of the U.S." California has an approved state NPDES program. The U.S. EPA has delegated authority for NPDES permitting to the California State Water Resources Control Board (SWRCB), which has nine regional boards. The San Francisco Bay RWQCB regulates water quality in the project site and surroundings.

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. Generally, TMDL is the sum of the allowable loads of a single pollutant from all contributing point and nonpoint sources. The intent of the Section 303(d) list is to identify water bodies that require future development of a TMDL to maintain water quality.

United States Environmental Protection Agency

The U.S. EPA is responsible for implementing federal laws designed to protect air, water, and land. While numerous federal environmental laws guide U.S. EPA's activities, its primary mandate with respect to water quality is the CWA. U.S. EPA has developed national technology-based water quality standards and states have developed water quality standards in accordance with the CWA. U.S. EPA also has authority to establish water quality standards if a state fails to do so. In the National Toxics Rule and California Toxics Rule, U.S. EPA has established such standards for certain toxic pollutants applicable to California waters. These standards are used to determine the amount and the conditions under which pollutants can be discharged.

National Pollutant Discharge Elimination System

The NPDES permit program under the CWA controls water pollution by regulating point and nonpoint sources that discharge pollutants into "waters of the U.S." California has an approved state NPDES program. The U.S. EPA has delegated authority for NPDES permitting to the California State Water Resources Control Board (SWRCB), which has nine regional boards. The San Francisco Bay RWQCB regulates water quality in the Plan Area and surroundings. Under this system, municipal and industrial facilities are required to obtain a NPDES permit that specifies allowable limits, based on available wastewater treatment technologies, for pollutant levels in their effluent. Stormwater discharges are regulated somewhat differently than pollutant discharges. Discharge of stormwater runoff from construction areas of one acre or more requires either an individual permit issued by the RWQCB or coverage under the statewide Construction General Stormwater Permit for stormwater discharges (discussed below). Specific industries and public facilities, including wastewater treatment plants that have direct stormwater discharges to

navigable waters, are also required to obtain either an individual permit or obtain coverage under the statewide General Industrial Stormwater Permit.

Rivers and Harbors Act

Section 10 of the Rivers and Harbors Act of 1899 prohibits work affecting the course, location, conditions or capacity of navigable waters of the United States without a permit from the USACE. Examples of activities requiring a permit from the USACE are the construction of any structure in or over any navigable water; excavation or deposition of materials in such waters; and various types of work performed in such waters, including placement of fill and stream channelization. The Corp's compliance with Section 404 of the Clean Water Act and NEPA will also satisfy requirements under Section 10 of the Rivers and Harbors Act.

State

Porter-Cologne Act

The State Board and the RWQCBs share the responsibility under the Porter-Cologne Act to formulate and adopt water policies and plans, and to adopt and implement measures to fulfill CWA requirements. In order to meet this requirement for the San Francisco Bay area, the Regional Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) was prepared by the RWQCB to protect the water quality of the State according to the beneficial uses identified for each water body.

Prior to authorizations of waste discharge by the RWQCB, the Porter-Cologne Act requires reports of waste discharges to be filed. The RWQCB then prescribes Waste Discharge Requirements, which serve as NPDES permits under a provision of the Porter-Cologne Act.

Regional

Water Quality Control Plan for the San Francisco Region

The RWQCB is responsible for developing and implementing the San Francisco Bay Basin Plan, which documents approaches to implementing State and federal policies in the context of actual water quality conditions. The RWQCB's other activities include permitting of waste discharges and implementing monitoring programs of pollutant effects.

The RWQCB most recently revised the Basin Plan on December 31, 2011, which the SWRCB and the Office of Administrative Law previously adopted in 1995. The Basin Plan identifies beneficial uses of receiving waters, water quality objectives imposed to protect the designated beneficial uses, and strategies and schedules for achieving water quality objectives.

Section 303(c)(2)(B) of the CWA requires basin plans to include water quality objectives governing approximately 68 of U.S. EPA's list of 126 pollutants.

Water quality objectives are achieved primarily through the establishment and enforcement of Waste Discharge Requirements for each wastewater discharger. State policy for water quality control in California is directed toward achieving the highest water quality consistent with maximum benefit to the people of the State. Therefore, all water resources must be protected

from pollution and nuisance that may occur from waste discharges. Beneficial uses of surface waters, ground waters, marshes, and mud flats serve as a basis for establishing water quality standards and discharge prohibitions to attain this goal.

San Francisco Bay Conservation and Development Commission

The BCDC regulates development that falls within the open water, marshes and mudflats of greater San Francisco Bay, and its nine-county shoreline. The BCDC requires permits for the following activities:

- Place solid material, build or repair docks, pile-supported or cantilevered structures, dispose of material or moor a vessel for a long period in San Francisco Bay or in certain tributaries that flow into the Bay;
- Dredge or extract material from the Bay bottom;
- Substantially change the use of any structure in the area;
- Construct, remodel or repair a structure; or
- Subdivide property or grade land.

The BCDC uses the McAteer-Petris Act, the San Francisco Bay Plan, its own regulations and other plans specific to other areas of the bay in order to inform its decisions. The project will require a permit from BCDC, which is necessary prior to the commencement of work within 100 feet of the shoreline.

BCDC policies also require sea level rise risk assessments to be conducted when planning shoreline areas or designing large shoreline projects within BCDC jurisdiction. Risk assessments should be prepared by a qualified engineer, and based on the estimated 100-year flood elevation, taking into account the best estimates of future sea level rise.

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[6] 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).

6 Hydromodification is alteration of the natural flow of water through a landscape.

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.

The most recent Municipal Regional Stormwater NPDES Permit[7] (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 10,000 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.

Construction General Permit

The California Construction Stormwater Permit (Construction General Permit)[8], adopted by the SWRCB, regulates construction activities that include clearing, grading, and excavation resulting in soil disturbance of at least one acre of total land area. The Construction General Permit authorizes the discharge of storm water to surface waters from construction activities. It prohibits the discharge of materials other than storm water and authorized non-storm water discharges and all discharges that contain a hazardous substance in excess of reportable quantities established at 40 Code of Federal Regulations 117.3 or 40 Code of Federal Regulations 302.4, unless a separate NPDES Permit has been issued to regulate those discharges.

The Construction General Permit requires that all developers of land where construction activities will occur over more than one acre do the following:

- Complete a Risk Assessment to determine pollution prevention requirements pursuant to the three Risk Levels established in the General Permit;
- Eliminate or reduce non-storm water discharges to storm sewer systems and other waters of the Nation;
- Develop and implement a Stormwater Pollution Prevention Plan (SWPPP), which specifies Best Management Practices (BMPs) that will reduce pollution in storm water

[7] 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.

[8] General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities, Order No. 2009-0009-DWQ, as amended by Order No. 2010-0014-DWQ, National Pollutant Discharge Elimination System No. CAS000002.

discharges to the Best Available Technology Economically Achievable/Best Conventional Pollutant Control Technology standards; and

- Perform inspections and maintenance of all BMPs.

In order to obtain coverage under the NPDES Construction General Permit, the Legally Responsible Person must electronically file all Permit Registration Documents with the SWRCB prior to the start of construction. Permit Registration Documents must include:

- Notice of Intent;
- Risk Assessment;
- Site Map;
- SWPPP;
- Annual Fee; and
- Signed Certification Statement.

Typical BMPs contained in SWPPPs are designed to minimize erosion during construction, stabilize construction areas, control sediment, control pollutants from construction materials, and address post construction runoff quantity (volume) and quality (treatment). The SWPPP must also include a discussion of the program to inspect and maintain all BMPs.

Dewatering Permit

Construction activities 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 removed water could potentially be contaminated with chemicals released from construction equipment or sediments from excavation. Therefore, disposal of dewatering discharge would require permits either from the RWQCB for discharge to surface creeks and groundwater or from local agencies for discharge to storm or sanitary sewers. The RWQCB lists non-stormwater discharge controls specifically for dewatering operations. The control measures are described in the mitigation for impacts discussion. Discharge of water 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

Construction activities associated with implementation of the project, such as the shoreline improvements or dock construction, could involve dredging. If dredging is required, the project sponsor for such projects would be required to apply for and obtain Section 404 permit from the USACE prior to dredging. As a part of the Section 404 permitting process, the project sponsor would be required to obtain a water quality certification from the RWQCB under Section 401 of

the CWA. The project would be required to dredge and dispose material in accordance with the requirements of the RWQCB Basin Plan and USACE. The RWQCB may choose to act under the authority of the state Porter Cologne Water Quality Control Act and issue waste discharge requirements for the project in conjunction with the water quality certification. Typically, the dredged material is 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 sponsor would be required to provide an adequate alternatives analysis showing that there are no practicable alternatives to in-bay disposal.

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 mean lower low water (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 proposed project would likely fall into the first category.

Local

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.

Implementing Policies

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.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.i Reduce the effect of surface runoff by the use of extensive landscaping, minimizing impervious surface and drainage easements.

Policy SN-14.a Implement a program for Resilient Shoreline Facilities, including performing appropriate seismic, storm, flooding and other safety analyses based on current and future use for all City-owned shoreline facilities, including dikes, shore protection (rip rap), lagoon sea walls, storm water outfalls, marinas and protective marshlands.

Policy SN-19.a Require new development to provide adequate setbacks along waterfront areas for the future expansion of seawalls and levees to adapt to sea level rise.

Policy SN-10.d Require owners of shoreline properties, to the extent feasible, to inspect, maintain, and repair the perimeter slopes to withstand earthquake ground shaking, consolidation of underlying Bay Mud, and wave erosion.

Guiding Policies

Policy 9.6b Support improvement programs that address water quality, urban runoff, and flooding.

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.

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.K. Population, Housing, and Services, for information related to medical emergency services.

H.4 Impacts and Mitigation Measures

Significance Criteria

Based on CEQA Guidelines Appendix G, the project would cause adverse impacts to hydrology and water quality if it would:

- 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;
- 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.

Topics with No Impact or Otherwise Not Addressed in this EIR

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.H-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 Regulatory 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.

Impacts Analysis

Impact 4.H-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, No Mitigation Required*)

Stormwater pollution, during both construction and operational phases of the project, can include oils, fuels, heavy metals, pesticides, and other contaminants of concern that originate on rooftops, parking lots, and other impervious surfaces that are subsequently washed into local waterways during storm events. Pollutants also include sedimentation caused by erosion from such activities as ground clearing for construction, chemicals used for lawn and garden maintenance, and litter. New and increased levels of urban land uses on the project site can increase the level of stormwater pollution that could ultimately wash to the Alameda Estuary and San Francisco Bay.

Any increased pollution that would violate water quality standards is considered a potentially significant impact.

On-land Construction

The majority of construction associated with the proposed project would occur on land, including demolition of existing structures, import of fill/site preparation, installation of piles and utilities, and subsequent construction of structures. 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, during construction, development under the project would be subject to the NPDES General Construction Permit requirements which include preparation of a SWPPP along with a Notice of Intent prior to construction. Implementation of the SWPPP would begin with the commencement of construction and continue through the completion of the project. At a minimum, the SWPPP would include a description of construction materials, practices and equipment storage and maintenance, a list of pollutants likely to contact stormwater, site specific erosion and sedimentation control practices, list of provisions to eliminate or reduce discharge of materials to stormwater and BMPs for fuel and equipment storage.

The project applicant would develop and implement a monitoring program as required under the General Construction Permit. The project applicant would require the contractor to conduct inspections of the construction site prior to anticipated storm events and after the actual storm events. During extended storm events, inspections would be conducted after every 24-hour period. The goals of these inspections are:

- To identify areas contributing to stormwater discharge,
- To evaluate whether measures to reduce pollutant loadings identified in the SWPPP are adequate and properly installed and functioning in accordance with the General Construction Permit, and
- To evaluate whether additional control practices or corrective maintenance activities are needed.

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 Alameda Estuary and San Francisco Bay. Thus equipment, materials and workers would be available for rapid response to spills and/or emergencies. All corrective maintenance or BMPs would be performed as soon as possible, depending upon worker safety. Upon project completion, the project sponsor would submit a Notice of Termination to the RWQCB.

New Shoreline Construction

In addition to construction on land, the proposed project would involve construction within the boundaries of nearby surface waters to make shoreline improvements. Rather than complete work

in-water, a temporary dam and dewatering systems would be used to cut off water to the project site to allow for demolition of the exiting shipways structures and installation of a new shoreline and piers that will be shored with rip rap and supported by concrete piles. The edges of the site facing the existing marinas would include sheetpile walls. Once construction of the new shoreline is complete, the temporary dam and dewatering systems would be removed and bay waters would be allowed to flow back into the site. Construction activities at the shoreline could result in turbidity and re-suspension of sediments. This could adversely affect the water quality of the Alameda Estuary and the Bay.

Any construction work that would take place within the boundaries of the Alameda Estuary 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.D, Biological Resources, for a detailed description of related permits and impacts. The applicant would also be required to obtain permits from the U.S. Army Corps of Engineers, RWQCB, BCDC, and the City, which would 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 for erosion and sedimentation control.

If dredging is required to establish the new shoreline, 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 Alameda Estuary and the Bay. If dredging is required, the project would be subject to the DMMO requirements for dredging and dredged materials and as discussed in the Regulatory Setting section, likely would fall under the first category of projects permitted by the DMMO.

Should testing of the proposed sediments to be dredged be considered necessary, the applicant would prepare a sediment analysis plan (SAP) and obtain an approval of the SAP from the DMMO. The project applicant would conduct sampling and testing of the material. As part of the permit application, the project applicant would propose a disposal location 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.

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.H-2: Development of the proposed project would involve dewatering activities that could potentially result in a discharge, which if contaminated, could adversely affect the receiving water quality. (*Less than Significant, No Mitigation Required*)

Shoreline construction activities (including piers) are proposed to proceed with installation of a temporary dam and dewatering systems to keep the area dry for construction. During dewatering, groundwater would be pumped out of the dammed area 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 the project site (see Section 4.G Hazards and Hazardous Materials for discussion of site contaminants), or could become sediment-laden from construction activities. 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. However, compliance with permit conditions as part of RWQCB's dewatering permit (if required) and the project SWPPP would minimize the water quality impact to the receiving waters to a less-than-significant level.

Mitigation: None required.

Impact 4.H-3: Development of the proposed project would not result in an increase of runoff that would result in erosion, siltation, or flooding on- or off-site. (*Less than Significant, No Mitigation Required*)

The project site is predominantly paved, with runoff flowing into storm drains onsite or directly into the Alameda Estuary 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 use and introduce improved pervious open spaces.

The existing project site is predominantly covered in concrete, asphalt, and other impermeable surfaces associated with maritime industrial uses. The proposed project would increase the overall pervious area onsite with the introduction of new pervious surfaces including the dedication of approximately 2.5 acres of public park space as well as front and side yard areas. The addition of pervious surfaces would allow for an increased in stormwater infiltration and reduce the peak runoff compared to existing conditions. Project-related stormwater collection and drainage would maintain the existing patterns of the project site, and stormwater runoff from the project site would continue to be directed to existing and updated outfalls.

Development of the project 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 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. Due to shallow groundwater table onsite, there could be limitations with the infiltration of storm runoff.

In addition to implementing stormwater management measures onsite, the project applicant would install a new and improved stormwater system throughout the project site to collect and convey the stormwater flows. The new storm drain system would be required to conform to City of Alameda, County of Alameda, and RWQCB design criteria, which include flooding criteria. (see also Section 4.M, Utilities and Service Systems and Section 4.D, Biological Resources).

As a result of incorporating 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 also be designed to address the potential impacts of future sea level rise through forward planning of adaptation strategies and infrastructure (see Impacts 4.H-5 and 4.H-7 for further discussion related to flooding and flooding from sea level rise). The impact would be less than significant.

Mitigation: None required.

Impact 4.H-4: Development of the proposed project would not 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. (*Less than Significant with Mitigation*)

Stormwater from the majority of the residential portion of the project site would be discharged through the proposed storm drain system into City storm drain system within Marina Village Parkway, and a portion of the residential and entire park portion of the project site would discharge into the Alameda Estuary similar to the existing setting. Stormwater from the project site could expose pollution or contaminants released onsite and flow into the Alameda Estuary and then into the Bay through direct discharge. However, as discussed in Impact 4.H-3, the project 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.

Selected post-construction stormwater BMPs such as bioretention swales, flow through planter boxes, self-retaining areas, and, pervious pavements, required as part of the C.3 NPDES requirements would be installed, where practicable, to treat runoff from impervious surface areas.

In addition, the project would also include new landscaping as part of the 2.5 acres of parks and additional open space areas. The project would thus 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. 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.H-1, which would 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.H-1 below, would effectively reduce surface water pollutants and the potential water quality impact to a less-than-significant level.

> **Mitigation Measure 4.H-1**: The project applicants shall 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 biological resources into the IPM with an emphasis toward reducing pesticide application.

Significance after Mitigation: Less than Significant.

Impact 4.H-5: The project would not place housing or structures within a 100-year flood hazard area as mapped on a Federal Flood Hazard Boundary or Flood Insurance Rate Map; or place within a 100-year flood hazard area structures which would impede or redirect flood flows. (*Less than Significant, No Mitigation Required*)

Under the current 2009 FEMA FIRMs, no part of the dry land area within the project site is currently located within flood hazard area, as defined by FEMA (2009).

The project site would be developed in accordance with FEMA criteria and with additional consideration to sea level rise (see Impact 4.H-7). That is, proposed elevations would be established to provide built-in protection against a minimum of 36 inches of sea level rise. Accordingly, the elevations of the shoreline areas and finished first floor elevations at the site are 8 feet (14.1 feet NAVD88), which is 5.1 feet above current flood elevations. This built-in protection would be estimated to provide protection from sea level rise for approximately 80 years.

The Bay Trail would be constructed along the shoreline at the generally same elevation as the rest of the site. The minimum elevation of the Bay Trail in these areas would conform to BCDC's and the San Francisco Bay Trail's design guidelines for public use areas along the Bay shoreline.

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 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. 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.

With compliance with existing City of Alameda requirements for infrastructure, BCDC's design guidelines, and implementation of grading plans which would increase ground elevations above flood hazard levels, impacts related to development within flood hazard zones would be less than significant.

Mitigation: None required.

Impact 4.H-6: The proposed project could expose people or structures to risk of loss, injury, or death from inundation by a tsunami. (*Less than Significant, No Mitigation Required*)

As discussed in the Regulatory 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 4.3 feet from a local source (10.4 feet NAVD88) and 10.6 feet (16.7 feet NAVD88), the latter of which would cause inundation of the project site. Similar to the 100-year flood impact (see Impact 4.H-5 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, the project proposes to raise site elevations above flood elevation levels plus sea level rise of at least 36 inches. These measures in conjunction with those described in Section 4.F, Geology and Soils, 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 USGS 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.F. Geology and Soils, 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. 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.H-7: The project would not expose people or structures to a significant risk of loss, injury or death involving flooding related to sea level rise. (*Less than Significant, No Mitigation Required*)

As discussed in Impact 4.H-5, the proposed project would involve grading a minimum elevation of 14.1 feet NAVD88. All residential structures within the project site would be located at or above the 100-year tidal elevation 9 feet NAVD88 plus 36 inches (the planning-level increase to 2100) for sea level rise considerations. The proposed project would incorporate structural design for protection from flooding from sea level rise (in concert with a 100-year storm and high tide event) and the impact is considered less than significant.

Mitigation: None required.

Cumulative Impacts

Impact C-4.H-1: 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, No Mitigation Required*)

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 Alameda Estuary 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 Alameda Estuary would require permits from the U.S. Army Corps of Engineers and San Francisco Bay RWQCB which require that all activities 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 36 inches initially. 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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I. Land Use Consistency and Compatibility

I.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 project.

I.2 Environmental Setting

Land Uses in the Vicinity

The project site vicinity is shown in **Figure 3-2**. The Extended Stay America Hotel is the first significant structure further west (1350 Marina Village Parkway) and an existing five-story office building is the first significant structure further east (108 Marina Village Parkway). Marina Village, a business-industrial area that includes office-research and development uses, is south of the project site. Multi-family residential uses are located to the east of the site. Adjacent to the north is the Oakland-Alameda Estuary (Alameda Estuary), a 7-mile-long, approximately 1,000-foot-wide water body separating Oakland and Alameda. It receives marine traffic from both commercial and recreational users. Beyond the Alameda Estuary to the north is the Port of Oakland container terminal, which includes roadways, railroad facilities, shipping cranes, and container storage areas. Across the Alameda Estuary to the north and east are commercial and industrial uses that fall within the City of Oakland city limits. Coast Guard Island, part of the City of Alameda, is located in the Alameda Estuary to the northeast of the project site.

I.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 mitigating an environmental effect that could result in significant adverse physical effects on the environment.

Federal

There are no federal regulations with respect to land use that apply to the project.

State

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

The 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 66600, 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.

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 is provided to and along the Bay. 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 Bay'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 2011 in accordance with the McAteer-Petris Act. 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.

Development of the Bay and Shoreline, Dredging

Policy 1 Dredging and dredged material disposal should be conducted in an environmentally and economically sound manner. Dredgers should reduce disposal in the Bay and certain waterways over time to achieve the Long Term Management Strategy (LTMS) goal of limiting in-Bay disposal volumes to a maximum of one million cubic yards per year. The LTMS agencies should implement a system of disposal allotments to individual dredgers to achieve this goal only if voluntary efforts are not effective in reaching the LTMS goal. In making its decision regarding disposal allocations, the Commission should confer with the LTMS agencies and consider the need for the dredging and the dredging projects, environmental impacts, regional economic impacts, efforts by the dredging community to implement and fund alternatives to in-Bay disposal, and other relevant factors. Small dredgers should be exempted from allotments, but all dredgers should comply with policies 2 through 12.

Policy 2 Dredging should be authorized when the Commission can find: (a) the applicant has demonstrated that the dredging is needed to serve a water-oriented use or other important public purpose, such as navigational safety; (b) the materials to be dredged meet the water quality requirements of the San Francisco Bay Regional Water Quality Control Board; (c) important fisheries and Bay natural resources would be protected through seasonal restrictions established by the California Department of Fish and Game, the U.S. Fish and Wildlife Service and/or the National Marine Fisheries Service, or through other appropriate measures; (d) the siting and design of the project will result in the minimum dredging volume necessary for the project; and (e) the materials would be disposed of in accordance with Policy 3.

Development of the Bay and Shoreline, Recreation

Policy 1 Diverse and accessible water-oriented recreational facilities, such as marinas, launch ramps, beaches, and fishing piers, should be provided to meet the needs of a growing and diversifying population, and should be well distributed around the Bay and improved to accommodate a broad range of water-oriented recreational activities for people of all races, cultures, ages and income levels. Periodic assessments of water-oriented recreational needs that forecast demand into the future and reflect changing recreational preferences should be made to ensure that sufficient, appropriate water-oriented recreational facilities are provided around the Bay. Because there is no practical estimate of the acreage needed on the shoreline of the Bay, waterfront parks should be provided wherever possible.

Policy 3 Recreational facilities, such as waterfront parks, trails, marinas, live-aboard boats, non-motorized small boat access, fishing piers, launching lanes, and beaches, should be encouraged and allowed by the Commission, provided they are located, improved and managed consistent with the following standards:

a) General Recreational facilities should: (1) Be well distributed around the shores of the Bay to the extent consistent with the more specific criteria below. Any concentrations of facilities should be as close to major population centers as is feasible; (2) Not pre-empt land or water area needed for other priority uses, but efforts should be made to integrate recreation into such facilities to the extent that they are compatible; (3) Be feasible from an engineering viewpoint; and (4) Be consistent with the public access policies that address wildlife compatibility and disturbance. In addition: (5) Different types of compatible public and commercial recreation facilities should be clustered to the extent feasible to permit joint use of ancillary facilities and provide a greater range of choices for users. (6) Sites, features or facilities within designated waterfront parks that provide optimal conditions for specific water-oriented recreational uses should be preserved and, where appropriate, enhanced for those uses, consistent with natural and cultural resource preservation. (7) Access to marinas, launch ramps, beaches, fishing piers, and other recreational facilities should be clearly posted with signs and easily available from parking reserved for the public or from public streets or trails. (8) To reduce the human health risk posed by consumption of contaminated fish, projects that create or improve fishing access to the Bay at water-oriented recreational facilities, such as fishing piers, beaches, and marinas, should include signage that informs the public of consumption advisories for the species of Bay fish that have been identified as having potentially unsafe levels of contaminants. (9) Complete segments of the Bay and Ridge Trails where appropriate, consistent with policy 4-a-6.

b) Marinas. (1) Marinas should be allowed at any suitable site on the Bay. Unsuitable sites are those that tend to fill up rapidly with sediment and require frequent dredging; have insufficient upland; contain valuable tidal marsh or tidal flat, or important subtidal areas; or are needed for other water-oriented priority uses. At suitable sites, the Commission should encourage new marinas, particularly those that result in the creation of new open water through the excavation of areas not part of the Bay and not containing valuable wetlands. (2) Fill should be permitted for marina facilities that must be in or over the Bay such as breakwaters, shoreline protection, boat berths, ramps, launching facilities, pump-out and fuel docks, and short-term unloading areas. Fill for marina support facilities may be permitted at sites with difficult land configurations provided that the fill in the Bay is the minimum necessary and any unavoidable loss of Bay habitat, surface area, or volume is offset to the maximum amount feasible, preferably at or near the site. (3) No new marina or expansion of any existing marina should be approved unless water quality and circulation will be adequately protected and, if possible, improved, and an adequate number of vessel sewage pump-out facilities that are convenient in location and time of operation to recreational boat users should be provided free of charge or at a reasonable fee, as well as receptacles to dispose of waste oil. (4) In addition, marinas should include public amenities, such as viewing areas, restrooms, public

mooring docks or floats and moorages for transient recreational boaters, non-motorized small boat launching facilities, public parking; substantial physical and visual access; and maintenance for all facilities.

e) Non-Motorized Small Boats. (1) Where practicable, access facilities for non-motorized small boats should be incorporated into waterfront parks, marinas, launching ramps and beaches, especially near popular waterfront destinations. (2) Access points should be located, improved and managed to avoid significant adverse effects on wildlife and their habitats, should not interfere with commercial navigation, or security and exclusion zones or pose a danger to recreational boaters from commercial shipping operations, and should provide for diverse, water-accessible overnight accommodations, including camping, where acceptable to park operators. (3) Sufficient, convenient parking that accommodates expected use should be provided at sites improved for launching non-motorized small boats. Where feasible, overnight parking should be provided. (4) Site improvements, such as landing and launching facilities, restrooms, rigging areas, equipment storage and concessions, and educational programs that address navigational safety, security, and wildlife compatibility and disturbance should be provided, consistent with use of the site. (5) Facilities for boating organizations that provide training and stewardship, operate concessions, provide storage or boathouses should be allowed in recreational facilities where appropriate. (6) Design standards for non-motorized small boat launching access should be developed to guide the improvement of these facilities. Launching facilities should be accessible and designed to ensure that boaters can easily launch their watercraft. Facilities should be durable to minimize maintenance and replacement cost.

f) Fishing Piers. Fishing piers should not block navigation channels, nor interfere with normal tidal flow.

h) Water-oriented commercial-recreation. Water-oriented commercial recreational establishments, such as restaurants, specialty shops, private boatels, recreational equipment concessions, and amusements, should be encouraged in urban areas adjacent to the Bay. Public docks, floats or moorages for visiting boaters should be encouraged at these establishments where adequate shoreline facilities can be provided. Effort should be made to link commercial-recreation centers and waterfront parks by ferry or water taxi.

Policy 9 Ferry terminals may be allowed in waterfront park priority use areas and marinas and near fishing piers and launching lanes, provided the development and operations of the ferry facilities do not interfere with current or future park and recreational uses, and navigational safety can be assured. Terminal configuration and operation should not disrupt continuous shoreline access. Facilities provided for park and marina patrons, such as parking, should not be usurped by ferry patrons. Shared parking arrangements should be provided to minimize the amount of shoreline area needed for parking.

Development of the Bay and Shoreline, Public Access

Policy 5 Public access should be sited, designed, managed and maintained to avoid significant adverse impacts from sea level rise and shoreline flooding.

Policy 6 Whenever public access to the Bay is provided as a condition of development, on fill or on the shoreline, the access should be permanently guaranteed. This should be done wherever appropriate by requiring dedication of fee title or easements at no cost to the public, in the same manner that streets, park sites, and school sites are dedicated to the public as part of the subdivision process in cities and counties. Any public access provided as a condition of development should either be required to remain viable in the event of future sea level rise or flooding, or equivalent access consistent with the project should be provided nearby.

Policy 7 Public access improvements provided as a condition of any approval should be consistent with the project and the physical environment, including protection of Bay natural resources, such as aquatic life, wildlife and plant communities, and provide for the public's safety and convenience. The improvements should be designed and built to encourage diverse Bay-related activities and movement to and along the shoreline, should permit barrier free access for persons with disabilities to the maximum feasible extent, should include an ongoing maintenance program, and should be identified with appropriate signs.

Policy 9 Access to and along the waterfront should be provided by walkways, trails, or other appropriate means and connect to the nearest public thoroughfare where convenient parking or public transportation may be available. Diverse and interesting public access experiences should be provided which would encourage users to remain in the designated access areas to avoid or minimize potential adverse effects on wildlife and their habitat.

Development of the Bay and Shoreline, Appearance, Design, and Scenic View

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 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.

Regional

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.

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; Safety and Noise Element; and Housing Element.

The General Plan Housing Element was last updated in 2012 and then again in 2014. In 2012, the project site was identified as a Housing Opportunity Site necessary for the City to accommodate Regional Housing Needs Allocation. Concurrent with the adoption of the 2012 Housing Element, the City of Alameda also amended its General Plan Land Use Element and Zoning Code to allow for higher density multifamily residential development on the site.

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

Policy 2.4c 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.

City Design Element Policies

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. Westline Drive, Grand Street, Park Street, Central Avenue and Encinal Avenue are candidates for architectural or landscape features that would enhance the meeting of land and water.

Policy 3.2.g 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.

Transportation Element Policies

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 4.2.4a 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 4.2.4c Encourage mixed use development that utilizes non-single occupancy vehicle transportation modes.

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

Policy 6.1a Expand Alameda's park system.

Policy 6.1.e Work with property owner, Tidelands Lease holders, the Army Corp of Engineers, BCDC, the Coastal Conservancy, open space advocates, non-profits, and agencies, and to create a continuous shoreline access and park areas along the northern waterfront.

Policy 6.2h Require shoreline access where appropriate as a condition of development approval regardless of whether development occurs within the area of BCDC regulation.

Safety and Noise Element Policies

Consistency with Health and Safety Element policies regarding seismic and geologic hazards are discussed under EIR Section 4.F Geology, Soils, and Geohazards, while consistency with policies related to flooding and sea level rise are discussed in Section 4.H Hydrology and Water Quality.

Housing Element Policies

The Housing Element identifies the site as a Housing Opportunity site necessary to assist the City meet its Regional Housing Needs Allocation. Housing Element goals, objectives and/or policies that apply to the project land use are listed below:

Goal #1 Provide housing services and opportunities to support, maintain, and enhance Alameda's diverse community and excellent quality of life and provide for the housing needs of Alameda's future residents and regional housing needs.

Policy HE-1 Support public and private efforts to increase the supply of housing in Alameda consistent with the City's environmental, climate action, transportation, historic preservation and economic development policy objectives.

Goal #3 Create transit oriented pedestrian friendly neighborhoods to reduce regional and local greenhouse gas emissions and local traffic congestion.

Policy HE-10 To reduce greenhouse gas emissions and improve regional transportation services and facilities, facilitate and encourage mixed-use and residential development in the Northern Waterfront area and at Alameda Point consistent with Plan Bay Area, the regional sustainable communities' strategy.

Goal #4 Ensure High Quality Architectural and Sustainable Site Design.

Policy HE-12 Ensure that new residential development utilizes "green" building strategies, environmentally sensitive building technologies, and site planning strategies to minimize greenhouse gas emissions.

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 of Alameda. One of the purposes of zoning is to implement the land use designations set forth in the General Plan.

The project site has a Mixed Use Planned Development (MX) zoning district designation with a Multi-family Residential Combining Zone overlay (MF District).

Alameda Municipal Code (AMC) Section 30-4.20 states that properties within the MX, Mixed-Use Planned Development District Zoning District must prepare a Master Plan for to: "...encourage the development of a compatible mixture of land uses which may include residential, retail, offices, recreational, entertainment, research oriented light industrial, water oriented or other related uses."

In 1984, the City of Alameda adopted the Marina Village Master Plan that governs the use of land within the 156-acre Marina Village area. The Marina Village Master Plan envisions the development of residential, commercial, recreational, office and open space uses located on 156 acres of land along the Alameda Estuary. The 1984 Master Plan identified the project site as a site for residential development.

In 2012, the City of Alameda adopted a zoning amendment for the project site, which applied a Multifamily Residential Combining District (MF District) designation to the project site. The MF designation was necessary to bring the City of Alameda General Plan and Zoning code into conformance with State Housing Law. The MF District permits multi-family rental housing by right.

I.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:

- Physically divide an established community;

- Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, the General Plan, specific plans, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect; or
- Conflict with any applicable habitat conservation plan or natural community conservation plan.

Approach to Analysis

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.

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 a 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.

Impact Analysis

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

Impact 4.I-1: The proposed project would not physically divide an established community. (*Less than Significant, No Mitigation Required*)

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 located within an urban area, bordered by the Alameda Estuary to the north, by Marina Village Parkway to the south, and parking lots for marinas to the east and west. The proposed project would develop the site with residential and public uses and would provide

vehicular and pedestrian circulation within the site. The project would also develop a segment of the Bay Trail along the northern perimeter of the project site adjacent to the estuary that would connect to other future segments bordering the Alaska Basin and Fortman Marina. In addition, the project proposes a dock that would accommodate a water shuttle, which would allow an option to provide a public water shuttle service from the project site to the Oakland side of the Estuary and/or other City neighborhoods.

Based on the above, the proposed project would not divide an established community; rather, the proposed project would improve bicycle and pedestrian access in proximity to the site and provide new circulation routes through the site to Oakland. Therefore, impacts related to physical division of an established community would be less than significant.

Mitigation: None required.

Impact 4.I-2: The proposed project would not 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, No Mitigation Required*)

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.

Consistent with the General Plan's Land Use Element, the proposed project would support the intent of the current City of Alameda General Plan. In particular, the project would be consistent with the General Plan's policies for waterfront sites, housing development, shoreline access, and policies regarding architectural resources and historic resources.

The proposed project would be consistent with the policies from the Transportation Element. The project proposes a dock that would accommodate a water shuttle, which would allow an option to provide a public water shuttle service from the project site to the Oakland side of the Estuary

and/or other City neighborhoods. The project would also include increased bicycle and pedestrian amenities. The proposed project's potential impacts to vehicular traffic, transit, bicycle, and pedestrian circulation and safety are discussed in Section 4.L, Transportation and Circulation.

The consistency of the proposed project with policies applicable to biological resources are contained in Section 4.D, Biological Resources. The project site is located on the shores of the Alameda Estuary and proximate to 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.D, Biological Resources and 4.H Hydrology and Water Quality for further discussion of these measures.

The proposed project would expand access to the shoreline and provide new public open spaces by creating passive and active recreational opportunities on-site, including waterfront-recreational opportunities. The proposed project would therefore be consistent with the applicable policies of the Parks and Recreation, Shoreline Access, Schools and Cultural Facilities Element.

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. Impacts related to seismic events are addressed under Section 4.F, Geology, Soils, and Geohazards flooding is addressed under Section 4.H, Hydrology and Water Quality, hazardous materials are discussed in Section 4.G, Hazards and Hazardous Materials, and noise impacts are addressed in Section 4.J, Noise and Vibration.

Buildout pursuant to the project would provide up to 292 units of housing intended for households at a range of income levels. As discussed in the Population, Housing, and Public Services section of this EIR (Section 4.K), 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.

Consistent with the Marina Village Master Plan, the proposed project would provide residential, recreational, and open space uses within the Mixed Use Planned Development (MX) zoning district with a Multi-family Residential Combining Zone overlay (MF District). The Marina Village Master Plan identified the project site as a site for residential development, and the MF District overlay allows for multi-family rental housing by right. The proposed project is eligible for a density bonus concession or waiver, which would allow an up to 35% increase in density and which is considered consistent with the City's development standards for the purposes of the Housing Accountability Act (§65589.5).

The project site is within the jurisdiction of the BCDC San Francisco Bay Plan since the northern edges is within the 100-foot shoreline band. Because a portion of the project site lies within BCDC jurisdiction, that portion of the project would be subject to the San Francisco Bay Plan. Buildout of the proposed waterfront improvements 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.

Similar to the projects consistency with the City's Parks and Recreation Shoreline Access guidelines, the proposed project would be required to comply with all applicable BCDC permitting policies. Implementation of the proposed project would allow better and easier public access to the shoreline by establishing a boardwalk/promenade that facilitates and encourages public access to the shoreline. Therefore, implementation of the proposed project would be consistent with the BCDC San Francisco Bay Plan and policies.

The proposed extension of the San Francisco Bay Trail through the project site would serve as a recreational trail. As such, the project would be consistent with Bay Trail Plan policies for protecting existing trail segments and expanding proposed trail links along the San Francisco Bay.

The physical environmental effects of the proposed project 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 proposed project described above, the project would be consistent with the applicable land use plans and policies and impacts related to land use would be less than significant.

Mitigation: None required.

Impact 4.I-3: The proposed project would not conflict with an applicable Habitat Conservation Plans or Natural Community Conservation Plans. (*No Impact*)

There are no Habitat Conservation Plans or Natural Community Conservation Plans adopted for the project area. Therefore, there would be no conflict with any such plan, and there would be no impact.

Mitigation: None required.

Cumulative Impact

Impact 4.I-4: The proposed project, combined with cumulative development in the defined geographic area, including past, present, reasonably foreseeable future development, would not have significant adverse cumulative land use impacts. (*Less than Significant, No Mitigation Required*)

The geographic context considered for cumulative land use impacts include the City of Alameda and 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 buildout of the City of Alameda General Plan.

As concluded in this section, the impacts of the proposed project would be less than significant with respect to: physically dividing an established community, conflicting with any land use plan, policy or regulation adopted for purposes of avoiding or mitigating an environmental effect, and conflicting with a habitat conservation plan.

Land use impacts from the proposed project are local and limited to the project site. The area to the south, east, and west of the project site is generally built out pursuant to the General Plan with a mix of residential and commercial land uses. Although redevelopment of the project site would increase the intensity of 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 accessibility and 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. Like the proposed projects, other projects would need to conduct biological resource surveys and implement mitigation measures to ensure development facilitated by the proposed project reduces potential impacts to the maximum extent feasible, which would also ensure future projects are developed in a manner consistent with the Comprehensive Conservation Management Plan for the San Francisco Bay Estuary, as discussed under Impact 4.C-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.

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.

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J. Noise and Vibration

J.1 Introduction

This section provides an overview of the existing noise and vibration environment at the proposed project site and surrounding area, the regulatory framework as it relates to noise and vibration, an analysis of potential noise and vibration impacts that would result from implementation of the proposed project, and mitigation measures where appropriate.

J.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 **Table 4.J-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. Community noise is commonly described in terms of the "ambient" noise level, which is defined as the all-encompassing noise level associated with a given noise environment.

TABLE 4.J-1
TYPICAL SOUND LEVELS MEASURED IN THE ENVIRONMENT

Examples of Common, Easily Recognized Sounds	Decibels (dBA) at 50 feet	Subjective Evaluations
Near Jet Engine	140	Deafening
Threshold of Pain (Discomfort) Threshold of	130	
Feeling – Hard Rock Band Accelerating	120	
Motorcycle (at a few feet away)	110	
Loud Horn (at 10 feet away)	100	Very Loud
Noisy Urban Street	90	
Noisy Factory	85	
School Cafeteria with Untreated Surfaces	80	Loud
Near Freeway Auto Traffic	60	Moderate
Average Office	50	
Soft Radio Music in Apartment	40	Faint
Average Residence Without Stereo Playing	30	
Average Whisper	20	Very Faint
Rustle of Leaves in Wind	10	
Human Breathing	5	
Threshold of Audibility	0	

NOTE: Continuous exposure above 85 dBA is likely to degrade the hearing of most people. Range of speech is 50 to 70 dBA.

SOURCE: United States Department of Housing and Urban Development, *The Noise Guidebook*, 1985.

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:

L_{eq}: 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 L_{eq} 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).

L_{max}: 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 L_{dn}, 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-dB "penalty" for the evening hours between 7:00 p.m. and 10:00 p.m. in addition to a 10-dB 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 L_{eq} during the peak-hour is generally within one to two decibels of the L_{dn} at that location.

Effects of Noise on People

The effects of noise on people can be placed into three categories:

- Subjective effects of annoyance, nuisance, dissatisfaction;
- Interference with activities such as speech, sleep, learning; and
- Physiological effects such as hearing loss or sudden startling.

Environmental noise typically produces effects in the first two categories. Workers in industrial plants generally experience noise in the last category. There is no completely satisfactory way to measure the subjective effects of noise, or the corresponding reactions of annoyance and dissatisfaction. A wide variation exists in the individual thresholds of annoyance, and different tolerances to noise tend to develop based on an individual's past experiences with noise.

Thus, an important way of predicting a human reaction to a new noise environment is the way it compares to the existing environment to which one has adapted: the so called "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 (Caltrans, 2013):

- except in carefully controlled laboratory experiments, a change of 1-dB cannot be perceived;
- outside of the laboratory, a 3-dB change is considered a just-perceivable difference;
- a change in level of at least 5-dB is required before any noticeable change in human response would be expected; and
- a 10-dB 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 as 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, 2013).

Health Effects of Environmental Noise

The World Health Organization (WHO) is perhaps the best source of current knowledge regarding the health effects of noise impacts because European nations have continued to study noise and its health effects. According to WHO, sleep disturbance can occur when continuous indoor noise levels exceed 30 dBA or when intermittent interior noise levels reach 45 dBA, particularly if background noise is low. With a bedroom window slightly open (a reduction from outside to inside of 15 dB), the WHO criteria suggest that exterior continuous (ambient) nighttime noise levels should be 45 dBA or below, and short-term events should not generate noise in excess of 60 dBA. The WHO also notes that maintaining noise levels within the recommended levels during the first part of the night is believed to be effective for the ability of people to initially fall asleep (1999).

Other potential health effects of noise identified by WHO include decreased performance for complex cognitive tasks, such as reading, attention span, problem solving, and memorization; physiological effects such as hypertension and heart disease (after many years of constant exposure, often by workers, to high noise levels); and hearing impairment (again, generally after long-term occupational exposure, although shorter-term exposure to very high noise levels, for example, exposure several times a year to concert noise at 100 dBA, can also damage hearing). Finally, noise can cause annoyance and can trigger emotional reactions like anger, depression, and anxiety. WHO reports that, during daytime hours, few people are seriously annoyed by activities with noise levels below 55 dBA or moderately annoyed with noise levels below 50 dBA.

Vehicle traffic and continuous sources of machinery and mechanical noise contribute to ambient noise levels. Short-term noise sources, such as truck backup beepers, the crashing of material being loaded or unloaded, car doors slamming, and engines revving outside a nightclub, contribute very little to 24-hour noise levels but are capable of causing sleep disturbance and severe annoyance. The importance of noise to receptors depends on both time and context. For example, long-term high noise levels from large traffic volumes can make conversation at a normal voice level difficult or impossible, while short-term peak noise levels, if they occur at night, can disturb sleep.

Fundamentals of Vibration

As described in the Federal Transit Administration's (FTA) Transit Noise and Vibration Impact Assessment (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 effect 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 the commonly used metric to describe RMS amplitude. 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 (2006).

Existing Noise Setting

As described in the Alameda General Plan, the noise environment surrounding the project site is influenced primarily by aircraft and surface traffic noise, as well as industrial uses on both sides of the Oakland Estuary. According to the General Plan, the highest surface street noise levels in the general vicinity of the project site occur on Constitution Way (65-69 dB) and Webster Street (70-74 dB). The project site is not within the noise contour area related to the airport.

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 generally are more sensitive to noise than are commercial (other than lodging facilities) and industrial land uses.

There are no sensitive receptors within 1,000 feet of the project site. The closest sensitive receptors in the project vicinity include Peter Pan pre-school on Mariner Square Drive approximately 1,050 feet to the southwest, Neptune Park between 1,250 and 1,900 feet to the southwest, residences along Bartlett Drive/Rosefield Loop (nearest approximately 1,300 feet south of the project), and residences along 5th Street (nearest approximately 2,000 feet west of the project).

J.3 Regulatory Framework

Federal

There are no applicable federal standards that would apply to the project with respect to noise.

The FTA has adopted vibration standards that are used to evaluate potential building damage impacts related to construction activities. The vibration damage criteria adopted by the FTA are shown in **Table 4.J-2**.

TABLE 4.J-2
CONSTRUCTION VIBRATION DAMAGE CRITERIA

Building Category	PPV (in/sec)
I. Reinforced-concrete, steel, or timber (no plaster)	0.5
II. Engineered concrete and masonry (no plaster)	0.3
III. Non-engineered timber and masonry buildings	0.2
IV. Buildings extremely susceptible to vibration damage	0.12

SOURCE: FTA, 2006.

In addition, the FTA has also adopted standards associated with human annoyance for ground-borne vibration impacts for the following three land-use categories: Vibration Category 1 – High Sensitivity, Vibration Category 2 – Residential, and Vibration Category 3 – Institutional. The FTA defines Category 1 as buildings where vibration would interfere with operations within the building, including vibration-sensitive research and manufacturing facilities, hospitals with vibration-sensitive equipment, and university research operations. Vibration-sensitive equipment includes, but is not limited to, electron microscopes, high-resolution lithographic equipment, and normal optical microscopes. Category 2 refers to all residential land uses and any buildings where people sleep, such as hotels and hospitals. Category 3 refers to institutional land uses such as schools, churches, other institutions, and quiet offices that do not have vibration-sensitive equipment but still have the potential for activity interference. The vibration thresholds associated with human annoyance for these three land-use categories are shown in **Table 4.J-3**. No thresholds have been identified or recommended specific to commercial and office uses, although Category 3 standards may be applied as they are defined as land uses with primarily daytime and evening use. Because the

project-induced vibration would be from impact pile driving activities, the impact thresholds for the proposed project would be based on Frequent Events as stated in Table 4.J-3.

TABLE 4.J-3
GROUND-BORNE VIBRATION IMPACT CRITERIA FOR GENERAL ASSESSMENT

Land Use Category	Frequent Events[a]	Occasional Events[b]	Infrequent Events[c]
Category 1: Buildings where vibration would interfere with interior operations	65 VdB[d]	65 VdB[d]	65 VdB[d]
Category 2: Residences and buildings where people normally sleep	72 VdB	75 VdB	80 VdB
Category 3: Institutional land uses with primarily daytime use	75 VdB	78 VdB	83 VdB

[a] Frequent Events" is defined as more than 70 vibration events of the same source per day.
[b] Occasional Events" is defined as between 30 and 70 vibration events of the same source per day.
[c] Infrequent Events" is defined as fewer than 30 vibration events of the same kind per day.
[d] This criterion is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes.

SOURCE: FTA, 2006.

State

The State of California does not have statewide standards for environmental noise, but the California Department of Health Services (DHS) has established guidelines for evaluating the compatibility of various land uses as a function of community noise exposure. The purpose of these guidelines is to maintain acceptable noise levels in a community setting for different land use types. Noise compatibility by different land uses types is categorized into four general levels: "normally acceptable," "conditionally acceptable," "normally unacceptable," and "clearly unacceptable." For instance, a noise environment ranging from 50 dBA CNEL to 65 dBA CNEL is considered to be "normally acceptable" for multi-family residential uses, while a noise environment of 75 dBA CNEL or above for multi-family residential uses is considered to be "clearly unacceptable." In addition, Section 65302 of the California Government Code requires each county and city in the state to prepare and adopt a comprehensive long-range General Plan for its physical development, with Section 65302(g) requiring a Noise Element to be included in the General Plan. The Noise Element must: (1) identify and appraise noise problems in the community; (2) recognize Office of Noise Control guidelines; and (3) analyze and quantify current and projected noise levels.

The California Noise Act of 1973 (Health and Safety Code Sections 46000–46080) sets forth a resource network to assist local agencies with legal and technical expertise regarding noise issues. The objective of the act is to encourage the establishment and enforcement of local noise ordinances.

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.

Local

City of Alameda General Plan

The City of Alameda General Plan (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.

The General Plan establishes comprehensive, long-term land use policies for the City. Consistent with state law, the General Plan includes the Land Use Element; City Design Element; Transportation Element; Open Space and Conservation Element; Parks and Recreation, Shoreline Access, Schools and Cultural Facilities Element; Safety and Noise Element; Housing Element; and specific elements/amendments relating to Alameda Point and the Northern Waterfront.

A combined Safety and Noise Element became effective on January 1, 2017. The element includes the following noise policies that would be applicable to the project:

Policy SN-50 Where feasible and appropriate, develop and implement noise reduction measures when undertaking improvements, extensions or design changes to Alameda streets.

Policy SN-51 Maintain day and nighttime truck routes that minimize the number of residents exposed to truck noise.

Policy SN-53 Require compliance with the California Building Code requirements to ensure appropriate interior noise levels in new or replacement residential construction, hotels, motels, and schools. In new dwellings subject to an airport noise easement, the maximum interior noise level is not to exceed 45 dB CNEL. If this requirement is met by inoperable or closed windows, a mechanical ventilation system meeting California Building Code requirements must be provided. Require acoustical analyses as allowed by the California Building Code.

Policy SN-54 Ensure that purchasers of property within or adjacent to the following areas are aware of existing and future potential noise conditions and the limitations of the City's ability to abate existing or future noise conditions: Oakland International Airport Influence Areas, as defined by the ALUC, commercial districts, truck routes, major arterials, Alameda United School District facilities, City recreation facilities, and business parks. Require the full disclosure of the existing and potential future noise levels within deeds and lease agreements as a condition of project approval, whenever possible.

Policy SN-55 To the extent feasible, through the development entitlement process, require local businesses to reduce noise impacts on the community by avoiding or replacing excessively noisy equipment and machinery, applying noise-reduction technology, and following operating procedures that limit the potential for conflicts.

Policy SN-56 Require noise reduction strategies in all construction projects. Require a vibration impact assessment for proposed projects in which heavy-duty construction equipment would be used (e.g., pile driving, bulldozing) within 200 feet of an existing structure or sensitive receptor. If applicable, the City shall require all feasible mitigation measures to be implemented to ensure that no damage to structures will occur and disturbance to sensitive receptors would be minimized.

Policy SN-57 In making a determination of impact under the California Environmental Quality Act (CEQA), consider the following impacts to be "significant" if the proposed project causes: an increase in the L_{dn} noise exposure of 4 or more dBA if the resulting noise level would exceed that described as normally acceptable for the affected land use, as indicated in [referenced Table 8-1 omitted but discussed below], or any increase in L_{dn} of 6 dBA or more.

General Plan Table 8-1 identifies community noise exposure for multiple family residential uses as normally acceptable up to 65 CNEL, conditionally acceptable up to 70 CNEL, normally unacceptable between 70 and 75 CNEL, and clearly unacceptable above 75 CNEL. For park uses, the levels are considered normally acceptable up to 70 CNEL, conditionally acceptable up to 75 CNEL, and normally unacceptable above 75 CNEL.

City of Alameda Municipal Code

The following sections of the City of Alameda Municipal Code are relevant to the project.

- In the event the measured ambient noise level exceeds the applicable noise level standard in any category in **Table 4.J-4**, the applicable standards shall be adjusted so as to equal said ambient noise level (Section 4.10.4(c)).
- Each of the noise level standards specified in Table 4.J-4 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(d)).
- 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.J-4 (Section 4.10.4(e)).
- 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. (Section 4-10.5(b)(10)

TABLE 4.J-4
CITY OF ALAMEDA EXTERIOR NOISE STANDARDS

Location	Cumulative Number of Minutes in Any One Hour Time Period	7:00 am to 10:00 pm Standard (dBA)	10:00 pm to 7:00 am Standard (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

J.4 Impacts and Mitigation Measures

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;
- 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);
- 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); or
- Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels.

There are no public airports or private airstrips within two miles of the project site. The nearest airport is the Oakland International Airport, which is approximately four miles southeast of the

project. There is an existing helipad located on Coast Guard Island located approximately 1 mile east of the proposed project site. The operations and frequency of use of this helipad is highly variable. A recent California Supreme Court case found that "agencies subject to CEQA generally are not required to analyze the impact of existing environmental conditions on a project's future users or residents." In *California Building Industry Association v. Bay Area Air Quality Management District* (2015) 62 Cal. 4th 369, the Supreme Court explained that an agency is only required to analyze the potential impact of such hazards on future residents if the project would exacerbate those existing environmental hazards or conditions. CEQA analysis is therefore concerned with a project's impact on the environment, rather than with the environment's impact on a project and its users or residents. Since there are no public airports or private airstrips within two miles of the project and the existing helipad located on Coast Guard Island is considered as a part of the existing environment, aircraft related noise would not be a significant impact for land uses to be developed under the proposed project, and this significance criterion is 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: 7:00 a.m. to 7:00 p.m. Monday through Fridays and 8:00 a.m. to 5:00 p.m. on Saturdays.

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 the FTA vibration threshold level of 0.2 PPV for building damage, or if sensitive individuals would be exposed to the FTA vibration threshold level of 72 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.J-4 have been applied to non-transportation sources associated with project operations. For the nearest sensitive receptors, a resulting offsite noise level from stationary non-transportation sources that exceeds 55 dBA L_{eq} in the daytime (7:00 a.m. to 10:00 p.m.) or 50 dBA L_{eq} in the nighttime (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 SN-57 of the City of Alameda General Plan Safety and Noise Element (2017), the significance criteria for changes in noise from project operational traffic are as follows:

1. A 4 dBA increase in CNEL 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).
2. Any CNEL increase of 6 dBA or more, due to the potential for adverse community response.

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 individual pieces of equipment from the FTA. The project would result in a violation of the City's noise standards if construction activity would occur outside of the allowable daytime hours specified by the City noise ordinance. Specifically, 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. Temporary noise disturbance during the weekday daytime hours of 7:00 am and 7:00 pm and 8:00 am to 5:00 pm on Saturdays is considered acceptable and consistent with expected activity within an urban environment.

Roadway Noise Levels

Roadway noise levels under existing and cumulative with and without project conditions were calculated for selected roadway segments near the project site based on information provided in the traffic study for the proposed project. The roadway segments selected for analysis are expected to be most directly impacted by project-related traffic, which, for the purpose of this analysis, includes the streets that are nearest to the project site that also experiences the highest traffic volumes. These roadways, when compared to other roadways located further away from the project site, would experience the greatest percentage increase in traffic generated by the proposed project. The noise levels were calculated through the use of California Vehicle Noise Reference Energy mean Emission Levels (Calveno REMELS) and traffic data found in the project's transportation analysis (see Section 4.L, Transportation and Circulation).

Per policy SN-57 of the City of Alameda General Plan Safety and Noise Element (2017), 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.

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.

Impact Analysis

Impact 4.J-1: Construction of proposed project elements could expose persons to or generate noise levels in excess of the City noise standards or result in a substantial

temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project. (*Less than Significant with Mitigation*)

Noise levels from construction activity would fluctuate depending on the particular type, number, and duration of usage of various pieces of construction equipment. Construction-related material haul trips would raise ambient noise levels along haul routes, depending on the number of haul trips made and types of vehicles used. **Table 4.J-5** shows typical noise levels produced by various types of construction equipment.

TABLE 4.J-5
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
Heavy Diesel Truck	88

SOURCES: Federal Transit Administration, 2006.

The loudest source of noise during project construction would be generated through use of an impact pile driver, which is assumed to be required for installation of the piles at the site. The nearest existing noise sensitive use is a preschool located approximately 1,050 feet southwest of the site. Assuming an attenuation rate of 6 dB per doubling of distance, the nearest existing sensitive receptors would experience exterior noise levels of up to approximately 75 dBA during

impact pile driving. These noise levels would be greater than the existing ambient noise environment at the receptors.

The project would result in a violation of the City's noise standards if construction activity would occur outside of the allowable daytime hours specified by the City noise ordinance. Specifically, 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. As a standard conditional of approval of the project, the applicant shall create and implement development- specific noise and vibration reduction plans to minimize construction noise impacts, which shall be enforced via contract specifications.

Although construction activities associated with the project would be temporary in nature and the maximum noise levels discussed above would be short-term, noise generated during project construction would temporarily elevate ambient noise levels in and around the project area. Consequently, **Mitigation Measure 4.J-1** is identified to address this significant construction-related noise impact.

Additionally, implementation of **Mitigation Measure 4.D-1b**, which addresses construction impacts to fish species, also will serve to lower noise impacts in surrounding areas.

Mitigation: With implementation of Mitigation Measure 4.J-1, this impact would result in a less than significant impact.

> **Mitigation Measure 4.J-1**: The applicant shall require contractors to limit construction activities to daytime hours between 7:00 am and 7:00 pm Monday through Friday and 8:00 am to 5:00 pm on Saturdays.

Significance after Mitigation: Less than Significant.

Impact 4.J-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. (*Less than Significant, No Mitigation Required*)

Since the City does not have specific regulations pertaining to vibration, the FTA thresholds for building damage and annoyance have been applied to the project. The project would result in a significant vibration impact if buildings would be exposed to the FTA vibration threshold level of 0.2 in/sec PPV for building damage, or if sensitive individuals would be exposed to the FTA vibration threshold level of 72 VdB for human annoyance outside allowable construction hours. Vibration impacts are considered below for project construction only, since no major vibration sources would be associated with project operations.

The highest source of vibration during project construction would be generated during impact pile driving. According to the FTA's *Transit Noise and Vibration Impact Assessment*, use of an impact pile driver could generate vibration levels up to 0.644 in/sec PPV and 104 VdB RMS at a

distance of 25 feet (FTA, 2006). The nearest sensitive land use to the project site is a preschool located approximately 1,050 feet southwest of the project site. At that distance, the closest sensitive receptors would be exposed to vibration levels less than 0.01 in/sec PPV and 65 VdB RMS, which would not exceed the FTA impact criteria for both building damage and human annoyance (see Table 4.J-2 and Table 4.J-3). This impact would result in a less than significant impact.

Mitigation: None required.

Impact 4.J-3: Transportation-related operations facilitated by the proposed project could result in a substantial permanent increase in ambient noise levels in the vicinity or above levels existing without the project. (*Less than Significant*)

Stationary Noise

New residential and park uses to be developed under the project would not produce stationary-source noise that could potentially affect noise-sensitive receptors. Furthermore, stationary sources associated with these land uses would be subject to the exterior noise standards of the City's Noise Ordinance and would therefore be less than significant.

Traffic Noise

Most of the noise generated by the development of the proposed project would be traffic-generated noise. As discussed in Section 4.L, Transportation and Circulation, the estimated daily number of net new vehicle trips generated by the proposed project would be 1,757. These additional vehicle trips would be distributed across local roadways, and would result in marginally higher noise levels than under existing conditions. The significance of project-related traffic noise impacts can be determined by comparing estimated traffic noise level increases resulting from the project relative to baseline noise levels without the project. Per policy SN-57 of the City of Alameda General Plan Safety and Noise Element (2017), the significance criteria for changes in noise from project operational traffic are as follows:

1. A 4 dB increase in CNEL 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).
2. Any CNEL increase of 6 dB or more, due to the potential for adverse community response.

As noted in the setting, noise sources combine in a logarithmical fashion. When applied to traffic noise, this calculates to approximately a 3 dB increase in noise for every doubling of traffic volume on a given roadway. As demonstrated in Section 4.L, Transportation and Circulation, the proposed project would not double traffic volumes on area roadways. Therefore, increases in traffic noise volumes due to the project would be below 3dB, which is below applicable thresholds and project-level increase in traffic noise would be a less than significant impact.

Land Use Compatibility

As discussed in the setting, the project site is not within an area substantially affected by airport noise nor proximate to a noisy street. As discussed above, traffic generated by the proposed project on adjacent streets would result in marginally greater noise exposure in the future than traffic under existing conditions. An exterior noise exposure of 60 dBA or greater would result in potentially incompatible interior noise for new sensitive receptors without mitigation. Residences to be developed as part of the project would be subject to the Alameda General Plan policy and standard Building Permit requirements which requires an acoustical analysis for new or replacement dwellings and hotels, to limit intruding noise to 45 dBA CNEL in all habitable rooms. The project would need to comply with Title 24 of the 2016 California Building Code with respect to noise insulation standards. Specifically, Section 1207.4 requires that "Interior noise levels attributable to exterior sources shall not exceed 45 dB in any habitable room."

Significance: Less than Significant.

Cumulative Impact

The geographic context for changes in the noise and vibration environment due to development of the proposed project would be the adjacent urban areas of the City of Alameda. In order to contribute to a cumulative construction noise impact, another project in close proximity would have to be constructed at the same time as the proposed project. There are numerous foreseeable development projects at various locations near the proposed project site, currently in the planning stages, which could be constructed and operational in the foreseeable future. The largest projects in close vicinity of the proposed project are Encinal Terminals Development, Alameda Landing Mixed-Use Development, Alameda Point Project, Alameda Station Retail Development, Boat Works Residential Project, Del Monte Mixed Use Project, Marina Cove II, Alameda Marina, Alameda Housing Authority Eagle Avenue Residential Project, 1435 Webster Street Mixed Use Development, and Veteran's Affair's Clinic and National Cemetery.

The proposed project's main contribution to a cumulative noise impact is future traffic volumes. Cumulative non-transportation (e.g., HVAC noise sources) noise impacts are typically project-specific and highly localized. Since cumulative non-transportation noise sources cannot be compared to existing conditions, they are not discussed here. However, as discussed under impact 4.J-3, stationary sources associated with the land uses under the proposed project would be minor and the project would be subject to the City's Noise Ordinance and the policies included in the City General Plan. Project-related construction activities within the Project area would contribute to cumulative noise levels on a temporary basis.

Impact 4.J-4: The proposed project would result in exposure of people to cumulative increases in construction noise levels. (*Less than Significant with Mitigation*)

The proposed project may be constructed during the same time and duration as other cumulative projects that could result in a contribution in construction noise levels. The closest cumulative projects to the project area are the Del Monte and Encinal Terminals projects located

approximately 4,000 feet southeast of the proposed project area. These projects could be under construction at the same time as the proposed project.

As previously discussed under Impact 4.J-1, construction of the proposed project would result in a temporary substantial increase in ambient noise levels for nearby sensitive receptors. Therefore, there is a possibility that the proposed project, in conjunction with other present and reasonably foreseeable future projects, could result in a significant cumulative impact associated with construction noise. However, with implementation of **Mitigation Measure 4.J-1 (above)**, noise levels generated during construction of the proposed project would be reduced by requiring the applicant to adhere to the City's noise ordinance. After mitigation, the proposed project's contribution to this cumulative impact would not be cumulatively considerable.

Impact 4.J-5: The proposed project would contribute to cumulative construction that could expose buildings, and persons within the project vicinity, to significant vibration. (*Less than Significant with Mitigation*)

As previously discussed under Impact 4.J-2, the construction activities within the proposed project may require the use of impact pile drivers. Vibration levels generated during the construction of the proposed project by itself would not exceed the applied vibration threshold for human annoyance and building damage at nearby existing sensitive receptors. However, if project-related activities were to coincide with another development in close physical proximity, the combined effect could result in the exposure of sensitive land uses or buildings to higher vibration levels than what was predicted for the proposed projects. However, under **Mitigation Measure 4.J-1** (above), noise levels generated during construction of the proposed project would be reduced by requiring the applicant to adhere to the City's noise ordinance. Additionally, implementation of **Mitigation Measure 4.D-1b**, which addresses construction impacts to fish species, will also serve to lower noise impacts in surrounding areas. After mitigation, the proposed project's contribution to this cumulative impact would not be cumulatively considerable.

Impact 4.J-6: Increases in traffic from development facilitated by the proposed project in combination with other development could potentially result in cumulatively considerable noise increases. (*Less than Significant*)

As discussed under Impact 4.J-3, increases in traffic noise from project traffic would be less than 3 dB. While overall traffic noise levels would increase as cumulative traffic levels increase, the contribution of the project (3 dB or less) would remain below threshold levels (4 dB in noisy environs or 6 dB in any area). Therefore, the project would not have a cumulatively considerable contribution to cumulative increases in traffic noise.

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K. Population, Housing, and Public Services

K.1 Introduction

This section identifies and evaluates the potential impacts related to population, and housing that could result from project implementation. This section includes a description of existing and projected conditions, criteria used to determine impact significance, and a discussion of impacts associated with implementation of the project. The demographic information presented in this section provides the statistical basis for determining population-related inputs and/or impacts in other sections of this EIR.

This section also describes public services and facilities, including police, fire and emergency services, parks and recreation facilities, as well as public schools and libraries, and analyzes the project's projected demand on each of these services.

K.2 Environmental Setting

Population and Housing

Population and Households

The City of Alameda is an urbanized island city with limited developable land remaining within its boundaries. According to the Department of Finance population estimates, Alameda's population was 79,277 on January 1, 2016. For the past two decades, the population in Alameda has been less than its peak in 1994 of 79,291 residents, due to the closing of Naval Air Station Alameda (NAS Alameda) and the Fleet Industrial Supply Center (FISC), now called Alameda Landing. 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 (Housing Element, 2014). By 2040, ABAG estimates the population of Alameda will reach 95,500 persons (ABAG and MTC, 2013).

The average household size for the City of Alameda in 2010 was 2.40 persons per household, and ABAG estimated that figure had grown to 2.48 in 2014 (ABAG 2014). Between 1990 and 2000, the number of households in the City of Alameda increased from 29,235 to 30,226 households, or by approximately 3 percent. Between 2000 and 2010, the number of households decreased to 30,123 households (Bay Area Census, 2016). The number of households is projected by ABAG to increase to 36,570 households in 2040 as shown in **Table 4.K-1**.

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

	2000[a]	2010[a]	2014[b]	2040[c]	*Percent Change 2010-2040*
Population	72,259	73,812	75,763	95,500	*29.4*
Households	30,226	30,123	30,346	36,570	*21.4*
Housing Units	31,644	32,351	32,166	38,240	*18.2*
Jobs	27,380	24,030	na[1]	33,220	*38.2*

NOTES:

[1] U.S. Census does not provide information on the number of jobs in 2014.

SOURCES: [a] Bay Area Census, 2016; [b] U.S. Census, 2016; City of Alameda, 2014; [c] ABAG and MTC, 2013.

Housing

According to the 2010 Census, there were 32,351 housing units in the City of Alameda. Of these, 53 percent were detached single-family units and the remaining 47 percent were multi-family units (Housing Element 2014).

The project site is identified as a housing opportunity site in the City of Alameda General Plan Housing Element, which identifies housing opportunity sites in Alameda to meet the City of Alameda's Regional Housing Needs Allocation for the period 2015 through 2023.

Employment

Just as with population growth, employment history has been turbulent in Alameda over the past decades. Jobs decreased in the 1990s as the result of the NAS and FISC closures, with total jobs decreasing from 38,730 in 1990 to 27,380 in 2000. Jobs in Alameda declined again between 2000 and 2010 as result of the nationwide economic recession from 27,380 in 2000 to 24,030 in 2010 (Table 4.K-1; City of Alameda 2014). However, since the recession, the City's economy has exhibited a strong recovery with the addition of about 2,400 new jobs by 2015.

Public Services

Fire and Emergency Services

The Alameda Fire Department (AFD) provides fire protection and emergency medical services to the project site. The AFD currently has four operating fire stations located throughout the City and 98 sworn and 7 non-sworn personnel. The AFD is also equipped to provide emergency medical services with three full-time advanced life support ambulances. A response for a first alarm assignment consists of three fire engines, two fire trucks, one ambulance and the Division Chief vehicle. The response team for a first alarm call includes, at minimum, eighteen fire personnel accompanied by at least one paramedic. The AFD also provides non-emergency ambulance transport for patients to or from medical facilities through the Basic Life Support Transport Program, including inter-facility transportation, doctors' appointments, dialysis appointments, and medical event standbys.

The project is within two miles of Station Number 2 (approximately 0.75 mile from the project site) and Station Number 3 (approximately 1.5 miles from the project site). Station Number 2, at 635 Pacific Avenue, would likely be the first to provide fire and emergency response services at the site. In 2016, Station No. 2 responded to 2,083 calls, 1,423 of which were emergency response calls, 50 of which were fire-related calls, and 610 of which were other calls.[1]

According to the City of Alameda's General Plan Safety and Noise Element, the AFD's goal is to respond to calls within 5 minutes and 20 seconds 90 percent of the time (City of Alameda, 2017). The AFD does not have an official staffing ratio, but generally there are 24 firefighters and one fire chief on duty every day.

Police Services

Police protection to the project site would be provided by the Alameda Police Department (APD). The Department operates out of one station located at 1555 Oak Street, which is approximately 2.25 miles from the project site. The APD has a total of 88 sworn officers and 33 non-sworn personnel (City of Alameda, 2016a).

The APD's patrol is based on a five-sector system. Seven days a week, 24 hours a day, officers are assigned to patrol the five sectors during which there are typically one to four officers assigned to each sector. APD aims to respond to 85 percent of all calls for service within three minutes and generally responds to around 5,000 priority calls and 60,000 non-priority calls per year (City of Alameda, 2016a).

Schools

The project site is located within the service boundaries of the Alameda Unified School District (AUSD). AUSD operates a childhood development center, 10 elementary schools, 2 middle schools, 2 comprehensive high schools, an Early College High School, and an adult continuation school. AUSD's total enrollment was 11,201 students for the 2016-2017 school year (DataQuest, 2016). The District uses a boundary map to assign students to schools by home address. Students residing in the project area are served by Haight Elementary School, Wood Middle School, and Encinal High School (AUSD, 2017). Haight Elementary is located at 2025 Santa Clara Avenue, about 2 miles southeast of the site. Wood Middle School is located at 420 Grand Street, about 2.2 miles southeast of the site, and Encinal High School is located at 210 Central Avenue, approximately 1.8 miles southwest of the project site.

Table 4.K-2 shows enrollment trends for the three nearest schools from 2011 to 2016. As shown, enrollment at each of these schools has fluctuated over the years. Enrollment at Haight Elementary is down 14 students from enrollment in the 2014-2015 school year. Wood Middle School has steadily decreased over the five-year period, down 127 students from the 2011-2012 school year. Enrollment at Encinal High School has also decreased since the 2011-2012 school year, with 37 fewer students enrolled in the 2014-2015 school year. As of the 2015-2016 school year, enrollment at all three facilities was well below their maximum student capacity.

[1] City of Alameda Fire Department, 2017a. Website accessed at: https://alamedaca.gov/fire/station-2

TABLE 4.K-2
SCHOOL ENROLLMENT AND CAPACITY

School	Students 2011-2012	Students 2012-2013	Students 2013-2014	Students 2014-2015	Students 2015-2016	Capacity
Haight Elementary	nd[1]	nd[1]	nd[1]	452	438	532
Wood Middle School	595	537	429	439	468	928
Encinal High School[2]	1,089	1,055	1,038	1,052	1,336	nd[1]

NOTES:
[1] No data available.
[2] Encinal High School became Encinal Junior and Senior High School beginning in year 2015-2016. Student enrollment for that year and capacity are reported for Encinal Junior and Senior High School.

SOURCE: Ed-Data, 2016; CDE, 2016; City of Alameda, 2006.

Parks and Recreation

City Facilities

The Alameda General Plan provides the following definitions for the four types of parks and community open space that can be found within the City:

- ***Developed Park Land.*** The City has over 200 acres of neighborhood parks, community parks, community open space, greenways, and regional parks.
- ***Planned Park Lands.*** Undeveloped park lands include the 20-acre Mt. Trashmore site, the 22-acre Jean Sweeny Open Space Park currently under construction, the 8-acre Estuary Park currently under construction, the planned 4-acre waterfront park at Alameda Landing and the planned greenways, waterfront parks, regional sports center and trails planned for Alameda Point.
- ***Limited Access Lands.*** Limited-access park lands either require a fee for use or are closed to the general public, and include the Chuck Corica Municipal Golf Course, College of Alameda recreation and open space facilities, AUSD facilities, and two public swimming pools. The City has a joint agreement with AUSD for the use of the pools, which are used by students, City Swim Clubs, and the Master's Program during the school year. The Recreation and Park Department provides public aquatic programs during the summer at the pools.
- ***School Parks.*** This includes all AUSD school properties, which are generally not available for public use after school and on weekends due to locked gates.

TABLE 4.K-3
EXISTING PARK AND OPEN SPACE AREAS WITHIN THE CITY

Type/ Name of Park	Acres	Type/ Name of Park	Acre
Neighborhood Parks		***Open Space***	
Bayport Park	4.25	Encinal Boat Ramp	1.40
Franklin	2.98	Grand Street Boat Ramp	1.40
Godfrey	5.45	Main Street Dog Park	1.30
Harrington (Soccer Field)	2.02	Main Street Linear Park	11.00
Jackson	2.27	Osborne Model Airplane Field	1.30
Littlejohn	3.45	Portola Triangle	2.30
Longfellow	1.14	Scout	0.01
Marina Cove Waterfront Park	3.20	Shoreline	31.83
McKinley	1.22	***Subtotal***	***50.82***
Neptune	3.08		
Rittler	4.80	***Recreational Facilities/Other***	
Tillman	4.01	Alameda Point Gym	0.20
Towata	1.55	Albert DeWitt Officers' Club	3.40
Woodstock	3.96	College of Alameda Hardball Field	4.60
Alameda Point Multi-Purpose Field	4.80	Mastick Senior Center	2.66
City View Skate Park	0.55	***Subtotal***	***10.86***
Main Street Soccer Field	4.92		
Subtotal	***53.65***	***Regional Park***	
		Crown Memorial Beach	80.00
Community Parks		***Subtotal***	***80.00***
Leydecker	5.88		
Lincoln	7.80		
Krusl	7.46		
Washington	14.71		
Subtotal	***35.85***	**Total for all Parks and Facilities**	**228.60**

SOURCE: City of Alameda, 2016b

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 State Beach, a State park operated by the Park District, is the closest Park District facility to the project site. The park has a 2.5-mile beach, with sand dunes bordering a bicycle trail. The Elsie Roemer Bird Sanctuary at the east 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 State 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 south of the project site, adjacent to the water. The Bay Trail is a planned recreational corridor administered

by ABAG pursuant to 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). Completed segments of the Bay Trail that are located in Alameda and near the project site include: Atlantic Avenue from Webster Street to Buena Vista Avenue, the walking path through Shoreline Park connecting to Atlantic Avenue via Triumph Drive, and Grand Street beginning at Buena Vista Avenue and heading south. Future planned expansions of the Bay Trail within Alameda, in addition to those proposed under the project, include: Buena Vista Avenue from Atlantic Avenue to the northern shoreline via Tilden Way, and Grand Street from Buena Vista Avenue north to the Alameda Marina. In addition, much of the shoreline on the northern side of the Oakland Estuary is a completed or planned segment of the Bay Trail.

In addition, the City of Oakland owns and operates two parks located on the northern side of the Oakland Estuary, near the project site. To the north of the project site is Estuary Park, a seven-acre facility that is adjacent to the Jack London Aquatic Center and connected to existing segments of the Bay Trail. Estuary Park provides a boat launch ramp, fish cleaning station, a pier, an athletic field, and other amenities. Union Point Park is a nine-acre facility located to the east of the project site that provides waterfront access, picnic and barbeque facilities, a children's play area, and other amenities.

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.

K.3 Regulatory Setting

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

State and Regional

Association of Bay Area Governments

State Housing Element Law, Government Code Section 65580 et seq., 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 15, 2014 for the period 2015 through 2023, with the 2013 RHNA allocations. The project site was identified in the Housing Element as a Housing Opportunity Site necessary to meet the City's regional housing needs.

Senate Bill 50

The California Legislature passed Senate Bill 50 (SB 50) in 1998 adding Government Code Sections 65995.5-65885.7, which authorized school districts to impose fees on developers of new residential construction. 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. 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.

San Francisco Bay Conservation and Development Commission's San Francisco Bay Plan

The San Francisco Bay Plan was completed and adopted by the San Francisco Bay Conservation and Development Commission in 1968 and submitted to the California Legislature and Governor in January 1969. The Bay Plan was prepared by the Commission pursuant to the McAteer-Petris Act of 1965 which established the Commission as a temporary agency to prepare an enforceable plan to guide the future protection and use of San Francisco Bay and its shoreline. In 1969, the Legislature acted upon the Commission's recommendations in the Bay Plan and revised the McAteer-Petris Act by designating the Commission as the agency responsible for maintaining and carrying out the provisions of the Act and the Bay Plan for the protection of the Bay and its great natural resources and the development of the Bay and shoreline to their highest potential. Applicable policies from the Bay Plan are provided below.

Recreation

Policy 1 Diverse and accessible water-oriented recreational facilities, such as marinas, launch ramps, beaches, and fishing piers, should be provided to meet the needs of a growing and diversifying population, and should be well distributed around the Bay and improved to accommodate a broad range of water-oriented recreational activities for people of all races, cultures, ages and income levels[...] Because there is no practical estimate of the acreage needed on the shoreline of the Bay, waterfront parks should be provided wherever possible.

Public Access

Policy 2 In addition to the public access to the Bay provided by waterfront parks, beaches, marinas, and fishing piers, maximum feasible access to and along the waterfront and on any permitted fills should be provided in and through every new development in the Bay or on the shoreline, whether it be for housing, industry, port, airport, public facility, wildlife area, or other use, except in cases where public access would be clearly inconsistent with the project because of public safety considerations or significant use conflicts, including unavoidable, significant adverse effects on Bay natural resources. In these cases, in lieu access at another location preferably near the project should be provided.

Policy 5 Public access should be sited, designed, managed and maintained to avoid significant adverse impacts from sea level rise and shoreline flooding.

Policy 9 Access to and along the waterfront should be provided by walkways, trails, or other appropriate means and connect to the nearest public thoroughfare where convenient parking or public transportation may be available. Diverse and interesting public access experiences should be provided which would encourage users to remain in the designated access areas to avoid or minimize potential adverse effects on wildlife and their habitat.

Policy 10 Roads near the edge of the water should be designed as scenic parkways for slow-moving, principally recreational traffic. The road-way and right-of-way design should maintain and enhance visual access for the traveler, discourage through traffic, and provide for safe, separated, and improved physical access to and along the shore. Public transit use and connections to the shoreline should be encouraged where appropriate.

Policy 12 The Public Access Design Guidelines should be used as a guide to siting and designing public access consistent with a proposed project. The Design Review Board should advise the Commission regarding the adequacy of the public access proposed.

Local

City of Alameda General Plan

The City's General Plan Housing Element was adopted on July 15, 2014. The Housing Element accommodates the City's RHNA 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 RHNA. The site is identified as one of the necessary housing sites to meet the RHNA.

The City of Alameda General Plan Land Use Element and Open Space and Conservation Element contain the following policies related to population 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 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.

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

Public services are addressed in several sections of the City of Alameda General Plan. Fire and police services are addressed in the Safety and Noise 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 conditioned upon the mitigation of the impact of such development on the Alameda Unified School District.

Noise and Safety Element: Fire

Policy SN-23 Maintain the City's fire prevention, disaster preparedness, and fire-fighting and emergency medical service capabilities.

Policy SN-26 Require new development to comply with the City's current Fire, Seismic, and Sprinkler Codes.

K.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.

Implementation of the proposed project could have a significant impact on the environment if it would:

- 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
- Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.
- Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

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.

Project-generated increases in population and land use intensity were evaluated based on information from public services providers regarding their service capabilities, service ratios, response times, and performance objectives. Additionally, this EIR evaluates the project's conformance and consistency with the goals, objectives and policies of the General Plan related to public services and recreation.

Topics with No Impact or Otherwise Not Addressed in this EIR

The proposed project would not result in significant impacts pursuant to Significance Criteria related to displacement of existing housing or people, listed above. The project site currently does not include any housing, and the project would not result in the displacement of any existing housing or people; therefore, the proposed project would not result in an impact in this regard.

Impact Analysis

Population and Housing

Impact 4.K-1: The proposed project would not induce substantial population or housing growth directly or indirectly. (*Less than Significant, No Mitigation Required*)

The proposed project would result in a direct increase in population through the development of up to 292 new housing units. According to ABAG, the average per-household population within the City of Alameda is 2.48 (2014). Using this number, the project would cause an increase in residential population of up to 724 people. The population growth resulting from the proposed project is generally consistent with the population growth projections in the City of Alameda General Plan Housing Element, which are based on those estimates provided by the ABAG RHNA. The projections are also consistent with the Alameda County Transportation Commission's population growth projections for the City of Alameda. The growth in population that would occur with implementation of the proposed project was planned for in the General Plan.

The proposed project includes affordable housing, which is an identified need in Alameda and the region. The proposed project site is located within a half-mile of AC Transit bus stops along Marina Village Parkway, across from as well as north and south of the project site, which is consistent with population, housing, transportation, and greenhouse gas reduction (global warming) policies established by the State of California (most recently by SB 375 and AB 32), the Metropolitan Transportation Commission, and ABAG.

The project would constitute infill development within a developed urban area, and new roads and infrastructure would not be extended into an undeveloped area. For the above-described reasons, the project would not cause a new impact related to a substantial increase in population growth, and would be in line with the projected growth planned for the area as defined in the City of Alameda's General Plan. Therefore, the effects of the proposed project on population, housing, and employment would have a less than significant environmental effect.

Mitigation: None required.

Cumulative Impacts

Impact 4.K-2: Development facilitated by the proposed project, in conjunction with potential past, present, and future development in the surrounding region, would not result in unanticipated population, housing, or employment growth, or the displacement of existing residents or housing units on a regional level. (*Less than Significant, No Mitigation Required*)

Development of the proposed project, present projects, and reasonably foreseeable future projects, when added to past development in the City, would result in population, housing, and employment growth. "Substantial" growth is defined as unplanned growth, for which infrastructure, services, and housing have not been planned. So long as the cumulative project scenario generates cumulative population, housing, and employment conditions that are within the projections of the City and ABAG, there would be no significant adverse growth impact related to population, housing, or employment.

The geographic context for the analysis of cumulative impacts related to population and housing is the City of Alameda. The geographic context for analysis of cumulative impacts on

employment would include the City of Alameda, as well surrounding cities and counties in the Bay Area,[2] since a portion of the City's population commutes to jobs outside the City limits and some of the jobs in the City are likely filled by residents living in surrounding areas.

The past and present development in the City is described in the Environmental Setting section of this chapter, which represents the baseline conditions for evaluation of cumulative impacts. Reasonably foreseeable future development forecasts are based on projections of future growth provided by the City and developed to be consistent with ABAG. These forecasts account for other major projects currently in various stages of the approval process.

The increase in housing and population associated with the proposed project would not have a significant cumulative impact on population, housing or employment growth. The City of Alameda routinely prepares growth projections to inform the planning and environmental review process; these projections are based on regional estimates provided by ABAG that reflect growth in the Bay Area as a whole. These projections inform the policies of the General Plan to ensure infrastructure and government services are expanded accordingly.

The Housing Element of the General Plan currently assumes that residential uses will be developed at the project site. This growth is anticipated at a regional level by ABAG, which envisions the population within the City reaching 95,500 by 2040, an increase of 15,723 people from 2016. As such, the 724 new residents that would be associated with the project fall within ABAG's growth estimates for City of Alameda and for the region as a whole. The project would result in the construction of new housing in the Bay Area where regionally housing growth is outpaced by job and population growth, resulting in a housing shortage.

The direct and indirect impacts of population and housing on the project site are considered throughout this EIR and include potential impacts from increased traffic, air pollutant emissions, greenhouse gas emissions, noise, biological resources, cultural resources, hazardous materials, hydrology and water quality, the provision of public services and utilities, and transportation. 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, in accordance with the City's General Plan and in combination with the development of cumulative projects in the area, would accommodate planned growth, rather than induce unplanned growth. As a result, cumulative impacts related to population and housing would be less than significant.

Mitigation: None required.

[2] The Bay Area region includes the following counties: Alameda County, Contra Costa County, Marin County, Napa County, San Francisco County, San Mateo County, Santa Clara County, Solano County, and Sonoma County.

Public Services

Fire Protection and Emergency Medical Services Impacts

Impact 4.K-3: The proposed project would result in an increase in calls for fire protection and emergency medical response services, but would not require new or physically altered fire protection facilities in order to maintain acceptable performance objectives. *(Less than Significant, No Mitigation Required*)

According to ABAG, the average per-household population within the City of Alameda is 2.48 (ABAG, 2014). Based on this factor, the proposed project would result in approximately 742 new residents. This development and additional persons within the project site would generate an increase in demand for fire protection and emergency services.

The proposed project would demolish existing structures on the project site and allow for development of up to 292 new housing units, a leasing office, a new 2.5-acre public waterfront park, common areas, and a 489-space parking structure. This is estimated to result in 724 new residents. This development and additional persons within the project site would generate an incremental increase in demand for fire protection and emergency services.

Project construction would comply with standard fire code requirements administered by the City of Alameda Community Development Department's Permit Center and specified by the California Building Code and California Fire Code. Consistent with City requirements, the project would place fire hydrants a maximum of 250 feet apart, and meet 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 Fire Code, which specify a typical 3,000 gpm from two hydrants and 1,500 gpm from each hydrant with 20 PSI residual pressure. Additionally, all new buildings would be required to be equipped with complete sprinkler systems. These standard required design features would ensure that adequate infrastructure would be provided for firefighting services. The City of Alameda Municipal Code Chapter 27 Development Fees, states that new development must pay fees to assist in maintaining level of service standards to accommodate new growth. The project would not generate demand for construction of a new fire station. The project would be adequately serviced from Alameda Fire Station No. 3.

The project would result in an increase in calls for fire services, which could result in a need for additional equipment and traffic light control devices, but the acquisition of such equipment and installation of new light devices would not result in any significant environmental impacts since this type of activity would be relatively minor and would occur in an already developed area. Development on the project site would result in increased tax revenues to pay for fire services, and the project would be required to pay the City's Development Impact Fee, which would be the source of funding for any improvements needed by the Fire Department and would substantially mitigate the project's impacts on fire service to a less than significant level. For the above-described reasons and because the project would not require development of new public fire facilities, the project's impact on fire protection services would be less than significant.

Mitigation: None required.

Police Services Impacts

Impact 4.K-4: The proposed project would 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, No Mitigation Required*)

Implementation of the proposed project would increase land use intensity and overall density in and around the project site. This related population increase could result in an increase in reported crimes and/or calls for police services. However, it is not anticipated that the proposed project would result in an increase in calls to such an extent that new police facilities or alterations to existing facilities would be needed. 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. The City's Municipal Code Chapter 27 Development Fees, would require the project to pay development impact fees to maintain service levels and accommodate growth. The project would also result in an increase in tax revenues to fund the provision of police services. The project would result in an incremental increase in calls for police services for a variety of property- and traffic-related incidents, but the increase would not be sufficient to require construction of new police stations in order to maintain adequate response times. The closest police station is located within approximately 2.25 miles at 1555 Oak Street, Alameda, CA 94501. As such, the project's impact on police services would be less than significant.

Mitigation: None required.

Public Schools Impacts

Impact 4.K-5: The proposed project would 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, No Mitigation Required*)

Students generated from development of the proposed project would attend Haight Elementary School, Wood Middle School, and Encinal High School. AUSD uses a student yield factor as a basis for the determination of students generated by a specific project. Based on these factors, as shown in **Table 4.K-4**, the proposed project's 292 units would generate approximately 46 new students, including 20 students at the K-5 grade level, 10 students at the 6-8 grade level, and 16 students at the 9-12 grade level.

TABLE 4.K-4
ANTICIPATED STUDENTS PER HOUSEHOLD

Grade Level	Multi-Family Units	Students
K-5	0.068	20
6-8	0.035	10
9-12	0.053	16
Total	**0.156**	**46**

SOURCE: Recht, 2014.

Table 4.K-2 summarizes enrollment and capacity for schools that would serve the proposed project. All three schools have sufficient capacity to accept the estimated number of students generated by the proposed project. As such, it is unlikely that the addition of new students associated with the proposed project would cause school enrollment to exceed existing capacity, or result in a need for physical expansion of school facilities. If the need for new schools arise, the District is currently planning to receive a vacant school site from the Federal Government on Singleton Avenue (the Miller School Site) and the District owns acreage at Alameda Point that is not currently being used.

Payment of the School Facilities Mitigation Fee has been deemed by the State legislature to be full and complete mitigation for the impacts of a development project on the provision of adequate school facilities. The assessment of the adopted School Facilities Mitigation Fee ensures that the project would not result in a significant impact under CEQA, in accordance with Senate Bill 50, which became effective in 1998. With payment of the school impact fees, the proposed project's impact on public school services would be less than significant.

Mitigation: None required.

Other Public Facilities

Impact 4.K-6: The proposed project would 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, No Mitigation Required*)

The Alameda Free Library offers library services to the residents of Alameda. The West End library branch, located approximately 1 mile south of the project site at 788 Santa Clara Avenue, is the closest library. The Library offers a wide range of services, including answering reference questions, staging story times, providing summer reading programs, hosting class visits and educational events.

While the proposed project would generate an incremental increase in demand for library services, the additional demand that would be generated by an estimated population of 724 persons, only a small portion of whom would be expected to use the library in any given month, would be expected to be a small fraction of the existing monthly visitors. This would not require an expansion of library facilities, and the project's impact on library services would be considered less than significant.

Mitigation: None required.

Parks and Recreation Impacts

Impact 4.K-7: The proposed project would increase the use of existing neighborhood and regional parks and recreation centers, but not to the extent that substantial physical

deterioration of the facilities to occur or be accelerated, nor would it cause the necessity for new or expanded facilities. (*Less than Significant, No Mitigation Required*)

The proposed residential uses are located within 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 292 new housing units that are anticipated to result in a population of approximately 724 residents in the project site by 2035. These additional residents would generally use the new 2.5-acre public waterfront park facilities that are proposed as part of the project, as well as the parks that are located in the vicinity of the project. The proposed open space would include amenities such as trail connections to the Bay Trail, open lawn areas, children's play areas, and a kayak launch. The proposed project would also include private outdoor amenities such as a swimming pool and several courtyards with sheltered picnic areas.

Although the proposed project would result in an incremental increase in demand for existing parks, the amount of additional use by new residents would not be expected to result in physical deterioration of the parks, or otherwise adversely affect park facilities. The project would pay the City's Development Impact Fees (described in Municipal Code Chapter 27-3), which would mitigate the impacts of new development on existing city parks by providing funds for the construction or expansion of new parks. Because the project includes open space and recreational uses and would pay Citywide Development Impact Fees, the project's impact on park facilities would be less than significant.

Mitigation: None required.

Impact 4.K-8: The proposed project includes recreational facilities and the construction or expansion of recreational facilities that could have an adverse physical effect on the environment (*Less than Significant, No Mitigation Required)*.

As discussed under Impact 4.K-7, the proposed project would result in the construction of a new 2.5-acre public waterfront park in addition to private courtyard areas. The open space would include trail connections to the Bay Trail.

Construction activities of the proposed parks and recreational facilities have been evaluated as part of the overall 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 other sections of this EIR under the applicable resource section.

While construction of the proposed park and recreation facilities could result in potentially significant environmental impacts, implementation of mitigation measures described throughout this EIR would reduce these construction-related impacts to a level of less than significant.

Mitigation: None required.

Cumulative Impacts

Impact 4.K-9: The project, in conjunction with other past, current, or foreseeable development in Alameda, could result in impacts related to public services and recreation. (*Less than Significant, No Mitigation Required*)

The geographic setting for cumulative impacts to public services is the City of Alameda, or the service area of each respective public service agency. Past and present projects are described in the Environmental Setting section of this chapter, which represents the baseline conditions for the evaluation of cumulative impacts. Reasonably foreseeable future development forecasts are based on projections of future growth and take into account projects going through the entitlement process. Those forecasts account for other major projects currently in various stages of the approval and construction process. The proposed project, in combination with other past, present, and future projects in the City of Alameda would result in an increase in demand for public services for an estimated 95,500 residents that would be living in Alameda by 2040 (ABAG and MTC, 2013).

Fire Protection

The proposed project, and cumulative projects, would result in an increase in demand for fire protection and emergency response services over time. As individual development projects pursue City approvals, the City and the AFD consider the ability of existing AFD facilities to accommodate each project. To the extent that future development results in a need for new staff members, equipment, or improvement to or expansions of their facilities, the City and AFD leverage the City's Development Impact Fees and property tax revenues for expanding their services. Like the proposed project, all development projects that are proposed in the City are reviewed by AFD to ensure fire detection and suppression systems, emergency access, and fire hydrants are provided, as required by the California Building Code, Fire Code, and the City's Municipal Code. If new AFD facilities are needed to accommodate cumulative projects, the facility would require discretionary approval and undergo project-specific environmental review pursuant to CEQA to determine the potential for physical, construction-related environmental effects and identify all feasible mitigation measures. The potential location and impacts of such facilities currently are speculative, foreclosing meaningful environmental review at this time. The proposed project, in conjunction with other cumulative development, would not have a significant cumulative impact associated with fire protection services, and the project's cumulative impact would be less than significant.

Police Protection

The proposed project, and cumulative projects, would result in an increase in demand for police services over time. As individual development projects pursue City approvals, the City and APD consider the ability of existing facilities to accommodate each project. The City and project site are currently served by APD, which operates out of one station located at 1555 Oak Street. As discussed above, the project would be adequately served by the existing station and no new station would need to be constructed. Adequate emergency access would be required for the proposed Project, and all cumulative projects, pursuant to the existing City plan check process and existing city programs, practices, and procedures, would continue to ensure the adequate provision of police protection services. All future development projects would undergo environmental analysis to determine their potential impact on police services, on a project-by-project basis, and the City would leverage development impact fees and/or property tax revenues to expand their services, as needed. The proposed project, in conjunction with other cumulative development, would not have a significant cumulative impact associated with police services, and the Project's cumulative impact would be less than significant.

Schools

The proposed project, and cumulative projects, would result in an increase in demand for public school services over time. As individual development projects pursue City approvals, the City and AUSD consider the ability of existing facilities to accommodate each project. As discussed under Impact 4.K-5 above, the Project Applicant would pay the City's development impact fees, which would fully mitigate the impacts of the project under SB 50 by providing funds to expand school facilities and services, as needed. Cumulative development projects in the City would also pay these fees, which would fully mitigate the effects of cumulative development pursuant to SB 50 and thus, no significant cumulative impact to schools would result. It is not known if and when the construction of additional school facilities, beyond those currently planned, might be required or where they would be located. If new AUSD facilities were needed to accommodate cumulative projects, the facility would require discretionary approval and undergo project-specific environmental review pursuant to CEQA to determine the potential for physical, construction-related environmental effects and identify all feasible mitigation measures. The potential location and impacts of such facilities currently are speculative, foreclosing meaningful environmental review at this time. The proposed project, in conjunction with other cumulative development, would not have a significant cumulative impact associated with public school services, and the project's cumulative impact would be less than significant.

Parks and Recreation

Development of the proposed project in conjunction with other past, present, and reasonably foreseeable future projects would result in an increased intensity of land use and a corresponding increase in usage of park and recreational facilities. The City periodically conducts studies to support long term planning efforts as part of the General Plan process to ensure adequate parkland acreage is provided to serve new residents. This effort, and future efforts, will continue to inform the future expansion of the City's park system to ensure adequate services are provided. There is an extensive network of local and regional parks, trails, and open space areas provided in the Bay Area, totaling at least 1.4 million acres, with projections for expansion to 2 million acres

by 2025 (Open Space Council, 2014). Future projects requiring discretionary approval would undergo environmental analysis pursuant to CEQA to ensure adequate park and recreation facilities are provided, and new facilities would undergo project specific environmental review to determine the potential for physical, construction-related effects and identify mitigation measures to reduce those effects. The potential location and impacts of such facilities currently are speculative, foreclosing meaningful environmental review at this time. Like the proposed project, past projects have, and present and future projects in the City would, contribute to public park improvements through the construction of park and recreational facilities included as part of the project, payment of fees, or the dedication of land or conservation easements, as permitted by the Quimby Act and required by the City's development impact fees. As such, the approval process would ensure that the substantial physical degradation of existing neighborhood and regional parks and other recreational facilities would not occur or be accelerated as a result of an increase in use from new residents. The proposed project, in conjunction with other cumulative development, would not have a significant cumulative impact associated with park and recreational facilities, and the project's cumulative impact would be less than significant.

Library

The proposed project in combination with past, present, and future development in the City of Alameda would increase the demand for library service. As discussed above, the project would be adequately served by the existing library and no new facilities would need to be constructed. All future development projects would undergo environmental analysis to determine their potential impact on library services, on a project-by-project basis, and the City would leverage development impact fees and/or property tax revenues to expand their services, as needed. If new library facilities were needed, they would undergo further project-specific environmental analysis to determine the potential for physical, construction-related effects and identify mitigation measures to reduce those effects. The potential location and impacts of such facilities currently are speculative, foreclosing meaningful environmental review at this time. The proposed project, in conjunction with other cumulative development, would not have a significant cumulative impact associated with library services, and the project's cumulative impact would be less than significant.

The proposed project, in conjunction with other cumulative development, would not have a significant cumulative impact associated with public services, and the project's cumulative impact would be less than significant.

Mitigation: None required.

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L. Transportation and Circulation

L.1 Introduction

This section describes the current transportation network and regulatory setting and summarizes the effects on the existing and future circulation system that would result from the development of the Alameda Shipways project located in the City of Alameda (Alameda).

L.2 Environmental Setting

Regional Setting

Regional vehicular access is provided primarily by the interstate freeway system, which is most directly accessible to and from the project site via Interstate 880 (I-880).

I-880 is an eight-lane freeway that links Oakland and San Jose through East Bay cities such as San Leandro, Hayward, Union City, Newark, Fremont and Milpitas. I-880 is oriented east/west in the study area and provides access to the City of San Francisco via the Bay Bridge (I-80), as well as to other locations on the San Francisco Peninsula via the San Mateo (SR 92) and Dumbarton (SR 84) Bridges. Primary automobile access between the project site and I-880 is via the Webster and Posey Tubes, which connect to freeway ramps on 5th and 6th Streets through a detour in Oakland's Chinatown neighborhood. Additional access to I-880 is available in eastern Alameda via the Park Street, Fruitvale Avenue, and High Street Bridges across the Oakland Estuary.

According to Caltrans and the Metropolitan Transportation Commission (MTC), I-880 is one of the Bay Area's most congested freeways and experiences several hours of congestion each day. Congestion is heaviest in the northbound direction during the morning commute hours and in the southbound during the afternoon and evening hours. Congestion on I-880 has been increasing in recent years, resulting in increased vehicular delay for Alameda residents attempting to access the region in the morning commute hours or return to Alameda in the evening hours.

I-980 connects I-880 and I-580 in the study area and continues as SR 24 north of I-580. Access between Alameda and I-980 is provided by the Webster and Posey Tubes via the I-980/I-880 junction or local Oakland streets.

SR 24 connects Oakland with Contra Costa County via the Caldecott Tunnel.

SR 61 bisects Alameda along Central Avenue, Encinal Avenue, Broadway, and Otis Drive before crossing the Bay Farm Island Bridge to continue as Doolittle Drive past the Oakland International Airport and into San Leandro.

Congestion in the Bay Area has increased significantly over the past twenty years with the addition of over one million residents and almost one million jobs. This congestion has affected the regional freeway system, as well as the local street networks that connect to those regional freeways.

In the most recent Regional Transportation Plan, the MTC and ABAG found that the Bay Area consistently ranks as one of the most congested metropolitan areas in the nation. They concluded, however, that additional roadway capacity would not solve the problem and that the region must instead find ways to operate the existing highway and transit networks more efficiently. To that end, Plan Bay Area recommends increasing non-auto travel mode share and reducing vehicle miles traveled (VMT) per capita and per employee by promoting transit-oriented development, transit improvements, and active transportation modes such as walking and bicycling. These strategies seek to not only improve mobility within the region, but also reduce regional and statewide GHG emissions.

Local Setting

The Alameda Shipways site is located along the northern shoreline of Alameda on the north side of the Marina Village Parkway.

The **Webster and Posey Tubes** provide access between Alameda and Oakland via SR 260 and serve as the most direct connections between I-880 and the project site. The Webster Tube serves southbound traffic from Oakland to Alameda, while the Posey Tube serves northbound traffic from Alameda to Oakland.

Webster Street is a north/south roadway identified as a Regional Arterial in the City of Alameda General Plan. It extends between Central Avenue in the south and the City of Oakland in the north, travelling through the Webster and Posey Tubes. Webster Street provides two travel lanes in each direction. Sidewalks are provided on both sides of the street south of Willie Stargell Avenue, and parallel parking is allowed south of Atlantic Avenue. Webster Street connects the project site to I-880 and Downtown Oakland.

Constitution Way is a north/south Regional Arterial between the Webster and Posey Tubes in the north and Lincoln Avenue in the south. South of Lincoln Avenue, the roadway continues as 8th Street. Constitution Way provides two travel lanes in each direction, with left turn lanes at most intersections. Sidewalks are provided on both sides of the street, with no on-street parking allowed.

Park Street is a north/south Regional Arterial between the Park Street Bridge in the north and Shore Line Drive in the south. Park Street provides two travel lanes in each direction. North of San Jose Avenue, sidewalks are provided on both sides of the street, and parallel parking is allowed. The Park Street Bridge provides access to and from Oakland and I-880.

Atlantic Avenue/Ralph Appezzato Memorial Parkway is an east/west Regional Arterial between Ferry Point in the west and Wind River Way in the east. South of Wind River Way, the roadway continues as Sherman Street. The segment between Main and Webster Streets is called Ralph Appezzato Memorial Parkway and continues as West Atlantic Avenue to the west. Atlantic Avenue provides two travel lanes in each direction west of Constitution Way and one travel lane in each direction east of Constitution Way. The roadway provides sidewalks and Class II bikeways (bike lanes) on both sides of the street east of Constitution Way. West of Constitution

Way, sidewalks are only provided on the north side of the street, and no bikeways are provided. On-street parking is prohibited along the entire street.

Clement Avenue is an east/west Regional Arterial along the northern Alameda waterfront between Grand Street in the west and Broadway in the east. Clement Street provides one travel lane in each direction, with sidewalks and on-street parking on both sides of the street. Clement Avenue is currently being extended in phases between Grand Street and the eastern end of the planned Jean Sweeney Open Space Park. It will form an intersection at the boundary between Sherman Street and Atlantic Avenue. The Marina Cove and Marina Shores residential developments completed the extension between the Shell Oil facility (adjacent to the current Grand Street terminus) and Entrance Road at the Encinal Terminals. A further extension between Entrance Road and Jean Sweeney Park is planned for construction beginning in 2017 as part of the Del Monte Warehouse adaptive reuse project. Once that section and a 100-foot link through the Shell Oil facility are completed, Clement Avenue will be part of the Cross Alameda Trail bicycle trail. It will also provide an alternative cross-Alameda route for trucks and automobiles currently using Buena Vista Avenue.

Marina Village Parkway extends between 5th Street at Alameda Landing in the north and Constitution Way in the south. The City of Alameda General Plan identified Marina Village Parkway as a Regional Arterial west of Challenger Drive and an Island Arterial east of Challenger Drive. The roadway forms the south boundary of the proposed Shipways Project. Marina Village Parkway provides two travel lanes in each direction between Constitution Way and Marina Village Shopping Center and one travel lane in each direction elsewhere, including the segment adjacent to the project site. The roadway provides a raised median with left-turn lanes between Constitution Way and Mariner Square Drive. Marina Village Parkway provides sidewalks and Class II bike lanes in both directions, and on-street parking is prohibited.

Mariner Square Drive is a north/south Regional Arterial between Mariner Square in the north and Constitution Way in the south. Mariner Square Drive has one travel lane in each direction. It provides sidewalks and angled street parking north of Marina Village Parkway.

Challenger Drive is a north/south Regional Arterial between Marina Village Parkway in the north and Atlantic Avenue in the south. Challenger Drive provides one travel lane in each direction, with left-turn lanes providing access to the adjacent commercial developments. Sidewalks and Class II bike lanes are provided in both directions, and on-street parking is prohibited.

Travel Conditions

To provide information to the Alameda community and Alameda decision-makers about the relative impact of the proposed project on the transportation system, this EIR provides a VMT, level of service (LOS) analysis at intersections, a transit LOS analysis, a pedestrian LOS analysis, and a safety assessment.

Vehicle Miles Traveled

VMT refers to the amount and distance of automobile travel attributable to a project. In 2013, Governor Brown signed Senate Bill (SB) 743, which added Public Resources Code Section 21099 to CEQA, to change the way that transportation impacts are analyzed in transit priority areas under CEQA to better align local environmental review with statewide objectives to reduce GHG emissions, encourage infill mixed-use development in designated priority development areas, reduce regional sprawl development, and reduce VMT in California.

The new law required the Office of Planning and Research (OPR) to develop guidelines to establish criteria for determining the significance of transportation impacts of projects in transit priority areas, which have not yet been adopted. The project is not located in a transit priority area and OPR has not yet approved final guidelines. Nonetheless, this EIR provides an analysis of VMT impacts. SB 743 recommends VMT as an appropriate measure for assessing the transportation impact of a project on the environment. SB 743 states that VMT is a more appropriate measure than automobile delay, and that automobile delay as measure by an intersection LOS is not an impact on the environment. Automobile delay is a measure of travel speed. Increased travel speed increases safety hazards and encourages automobile use, which increases GHG emissions and air quality impacts. SB 743 specifically targets automobile LOS as an inappropriate measure of environmental impact, and encourages the use of VMT as an appropriate replacement measure.

Increased VMT leads to a number of direct and indirect impacts to the environment and human health. Among other effects, increasing VMT on the roadway network leads to increased emissions of air pollutants, including GHGs, as well as increased consumption of energy. Transportation is associated with more GHG emissions than any other sector in California. As documented in the City of Alameda Climate Action Plan, more than 54 percent of Alameda's GHG emissions are produced by local transportation. Reducing VMT by Alameda residents is the single most effective means to reduce Alameda's GHG emissions.

This analysis uses the MTC Travel Model to estimate VMT. Based on the MTC Travel Model, the regional average daily VMT per capita is 15.0 and the City of Alameda citywide average daily VMT per capita is 14.5 under 2020 conditions. Since the regional VMT is higher than the citywide VMT per capita, the applicable threshold for the proposed project is the regional residential VMT per capita minus 15 percent, which corresponds to VMT per capita of 12.8.

Travel Time and Speeds

At the request of the City of Alameda Planning Board, travel times and speed were evaluated on the three major corridors in and out of Alameda that would be used by occupants of the proposed project to access the regional roadway network:

- **Webster Street** – both directions of Webster Street (including the Webster/Posey tubes) between Lincoln Avenue in Alameda and 7th Street in Oakland)
- **Park Street** – northbound Park Street from Lincoln Avenue in Alameda to 7th Avenue in Oakland, and southbound Park Street from just north of the Park Street Bridge to Lincoln Avenue

Existing travel times and the corresponding vehicle travel speeds were assessed by collecting travel time information from anonymized cell phone data for weekdays in March 2017 in the northbound and southbound direction along each corridor. **Table 4.L-1** summarizes the typical range of observed travel times (minimum and maximum speeds) and the overall average travel times for each corridor during both the AM and PM peak periods, while **Table 4.L-2** summarizes the corresponding travel speeds. **Appendix E:A** provides the detailed travel time speed data.

TABLE 4.L-1
EXISTING TRAVEL TIMES

Corridor	Direction	Distance (feet)	Travel Time (min:sec)[1]					
			AM Peak Period			PM Peak Period		
			Minimum	Maximum	Average	Minimum	Maximum	Average
Webster Street (Lincoln Avenue to 7th Street)	Northbound	9,000	04:58	09:09	06:29	04:09	07:05	04:50
	Southbound	9,000	03:32	04:28	03:56	04:31	05:37	04:59
Park Street	Northbound[2]	3,700	2:40	05:28	03:32	02:19	03:48	02:57
	Southbound[3]	2,600	01:41	02:27	01:57	02:02	03:09	02:28

NOTES:

[1] Travel times are based on data collected from anonymized cell phones on weekdays during March 2017

[2] Northbound Park Street corridor is from Lincoln Avenue to 7th Avenue in Oakland

[3] Southbound Park Street corridor is from just north of the Park Street Bridge to Lincoln Avenue

SOURCE: Fehr & Peers, 2017.

TABLE 4.L-2
EXISTING TRAVEL SPEEDS

Corridor	Direction	Distance (feet)	Travel Speed (mph)[1]					
			AM Peak Period			PM Peak Period		
			Minimum	Maximum	Average	Minimum	Maximum	Average
Webster Street (Lincoln Avenue to 7th Street)	Northbound	9,000	11	21	16	14	25	21
	Southbound	9,000	23	29	26	18	23	21
Park Street	Northbound[2]	3,700	8	16	12	11	18	14
	Southbound[3]	2,600	12	18	15	9	14	12

NOTES:

[1] Travel speeds are based on travel time data collected from anonymized cell phones on weekdays during March 2017

[2] Northbound Park Street corridor is from Lincoln Avenue to 7th Avenue in Oakland

[3] Southbound Park Street corridor is from just north of the Park Street Bridge to Lincoln Avenue

SOURCE: Fehr & Peers, 2017.

The peak period speeds along both directions of the Webster Street corridor range between 11 and 29 mph and the speeds along both directions of the Park Street corridor range between 8 and 18 mph. Speeds are lower in the northbound direction than the southbound direction in the AM peak period due to the high volume of traffic destined for areas outside Alameda. In the PM peak

period, this behavior reverses itself, with a high volume of traffic headed back to the island. The range in speed along both directions of both corridors is primarily due to the congestion along I-880, which affects traffic leaving and coming into Alameda. In addition, travel times along the Park Street corridor may be affected by the ongoing construction on the I-880/23rd Avenue and 29th Avenue Interchange.

Intersection LOS Analysis

For the LOS analysis, traffic operations are measured in terms of a grading system (shown in **Table 4.L-3** for signalized and unsignalized intersections), which is based on "control delay" experienced at intersections. Control delay is a function of signal timing, lane configuration, hourly traffic volumes, pedestrian and bicycle volumes, and parking and bus conflicts, among other variables. However, signal operations are not the only factors that affect delay at intersections. Downstream constraints such as freeway congestion can cause delay at intersections leading to freeway on-ramps. Motorists in Alameda often face this type of delay, especially on Webster Street and Park Street during the morning commute, as automobiles attempt to access an already-congested I-880. Since this delay is not caused by the intersection itself, it cannot be reduced by modifying its design.

To provide a baseline for identification of impacts on the local roadway network, existing peak-hour traffic conditions were determined at the following 11 project area intersections:

1. Webster Street/Willie Stargell Avenue
2. Mariner Square Drive/Marina Village Parkway
3. Mariner Square Drive/Constitution Way
4. Constitution Way/Marina Village Parkway
5. Constitution Way/Atlantic Avenue
6. Challenger Drive/Atlantic Avenue
7. Marina Village Parkway/Existing Site Driveway
8. Grand Street/Clement Avenue
9. Park Street/Blanding Avenue
10. Park Street/Clement Avenue
11. Tilden Way-Blanding Avenue/Fernside Boulevard

Figure 4.L-1 shows the location of the project site and study intersections. The study intersections represent major traffic routes to and from the project site, locations that could affect operations of other traffic modes, or locations that may be affected by diverted traffic seeking alternate routes to/from the Webster and Posey Tubes.

Traffic counts including turning movements, and pedestrian and bicycle volumes were collected for all 11 study intersections during both AM and PM peak periods (7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM, respectively). These periods were selected because they are expected to represent typical worst traffic conditions after completion of the project. Data was collected for intersections #1 through #4 and #7 on March 23, 2017, and data for the remaining intersections were collected on November 2, 2016. Both collection days were clear days with local schools in normal session.

TABLE 4.L-3
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	Stable Operation or Acceptable Delays: Higher delays resulting from fair signal progression and/or longer cycle lengths. Drivers begin having to wait through more than one red light. Most drivers feel somewhat restricted.
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*, 2010.

Figure 4.L-1. Project Site and Study Intersections
Source: Fehr and Peers
April 2018

For each study intersection, the hour with the highest traffic volume within each peak period was selected for analysis. Figure 1 in **Appendix E:B** shows the existing AM and PM peak hour intersection vehicle volumes and the lane configurations and controls at the study intersections. Figure 2 in **Appendix E:B** shows the existing AM and PM peak hour bicycle and pedestrian volumes. **Appendix E:C** presents the detailed count sheets for the study intersections.

Table 4.L-4 summarizes the existing LOS at the 11 study intersections under Existing Conditions. All study intersections currently operate at LOS D or better during both AM and PM peak hour. The intersections with the highest delay are those that provide access to or from Oakland and I-880 on the approach to the Park Street Bridge (Intersections #9 and #10) or the Webster and Posey Tubes (Intersection #1). However, delays at these intersections are due to downstream congestion rather than the traffic volume at the intersection. This is particularly true for intersections in the immediate vicinity of the island crossings where the tunnel/bridge connections experience heavy congestion and vehicle queues that adversely affect flow through the adjacent intersections. **Appendix E:D** provides the detailed LOS calculations.

TABLE 4.L-4
EXISTING INTERSECTION LEVEL OF SERVICE

Study Intersection Name		Traffic Control	AM Peak Hour		PM Peak Hour	
			Delay[1]	LOS	Delay[1]	LOS
1	Webster Street/Willie Stargell Avenue[2]	Signal	22	C	27	C
2	Mariner Square Drive/Marina Village Parkway	AWSC	9	A	10	B
3	Mariner Square Drive/Constitution Way (tunnel entrance)[2]	Signal	19	B	12	B
4	Constitution Way/Marina Village Parkway[2]	Signal	16	B	21	C
5	Constitution Way/Atlantic Avenue	Signal	18	B	19	B
6	Challenger Drive/Atlantic Avenue	Signal	15	B	19	B
7	Marina Village Parkway/Existing Site Driveway	SSSC	13	B	11	B
8	Grand Street/Clement Avenue	SSSC	11	B	15	C
9	Park Street/Blanding Avenue[2]	Signal	33	C	54	D
10	Park Street/Clement Avenue	Signal	35	C	35	C
11	Tilden Way-Blanding Avenue/Fernside Boulevard	Signal	11	B	13	B

NOTES:

[1] The LOS/Delay for Side-Street Stop-Control (SSSC) intersections represents the worst approach; for Signalized and All-Way Stop-Controlled (AWSC) intersections, the LOS/Delay represents the overall intersection.

[2] Based on HCM 2000, since HCM 2010 does not calculate LOS for this intersection.

Bold indicates locations with unacceptable level of service (LOS E or worse).

SOURCE: Fehr & Peers, 2017.

Pedestrian, Bicycle, and Transit Travel Conditions

Pedestrian Travel

Alameda is a very walkable city with flat topography, a mild climate, compact development patterns, varied architecture, moderate block sizes, sidewalks, and street trees. Sidewalks are provided along both sides of most residential streets. Though sidewalks typically were not provided in former industrial areas, new developments in these areas have included sidewalks in their construction.

Adjacent to the project site, Marina Village Parkway provides sidewalks with a landscaped buffer on both sides of the street. While crosswalks are provided at the driveways of most nearby developments, no crosswalks are provided at the project site driveway.

Pedestrian access between Downtown Oakland and the west side of the island is provided by a narrow, raised walkway in the Posey Tube that is shared with bicycle traffic. Pedestrians can also take AC Transit buses across the estuary via the Webster or Posey Tubes. The sidewalks across the Park Street and Miller-Sweeney (Fruitvale Avenue) Bridges on the east side of the island also provide pedestrian access between Oakland and Alameda, but these are more than three miles from the project site.

Bicycle Travel

Alameda's flat terrain and temperate climate make bicycling a feasible mode of transportation around the island for able-bodied travelers.

Bicycle access between Downtown Oakland and the west side of the island is provided by a substandard, narrow, raised walkway in the Posey Tube that is shared with pedestrian traffic. Bicyclists can also take AC Transit buses across the estuary via the Webster or Posey Tubes. The sidewalks across the Park Street and Miller-Sweeney (Fruitvale Avenue) Bridges on the east side of the island also provide bicycle access between Oakland and Alameda.

Bikeway facilities are defined as the following four classes according to Chapter 1000 of the Caltrans *Highway Design Manual*:

- **Class I (Bike Path)** – Provides a completely separated right-of-way for the exclusive use of bicyclists and pedestrians, with minimized cross-flows by motorists.
- **Class II (Bike Lane)** – Provides a designated lane for exclusive one-way bicycle travel within the paved area of the roadway.
- **Class III (Bike Route)** – Provides signage designating a shared roadway between bicycles and automobiles.
- **Class IV (Separated Bikeway)** – Provides a right-of-way for the exclusive use of bicycles and includes a separation, such as parking lane, between the bikeway and roadway.

Figure 4.L-2 identifies existing and proposed facilities in the study area. Marina Village Parkway provides Class II bike lanes on both sides of the street for the entire length of the road. This facility connects the project with the retail developments at Marina Village Shopping Center and Alameda Landing. Cyclists can also connect to a Class I bike path at Constitution Way that connects to Posey Tube. However, as with the bicycle access inside the tube, this route is narrow and shared with pedestrians.

A Class I path along the estuary between Mariner Square and Grand Street is also connected to the project site. Class II bike lanes on Grand Street provide access to additional east/west Class II bike lanes on Santa Clara and Central Avenues and a Class I path along Shoreline Drive. The eastern bridges to and from Oakland can be accessed via Class II bike lanes on Atlantic Avenue that connect to the Class III bike route on Pacific Avenue.

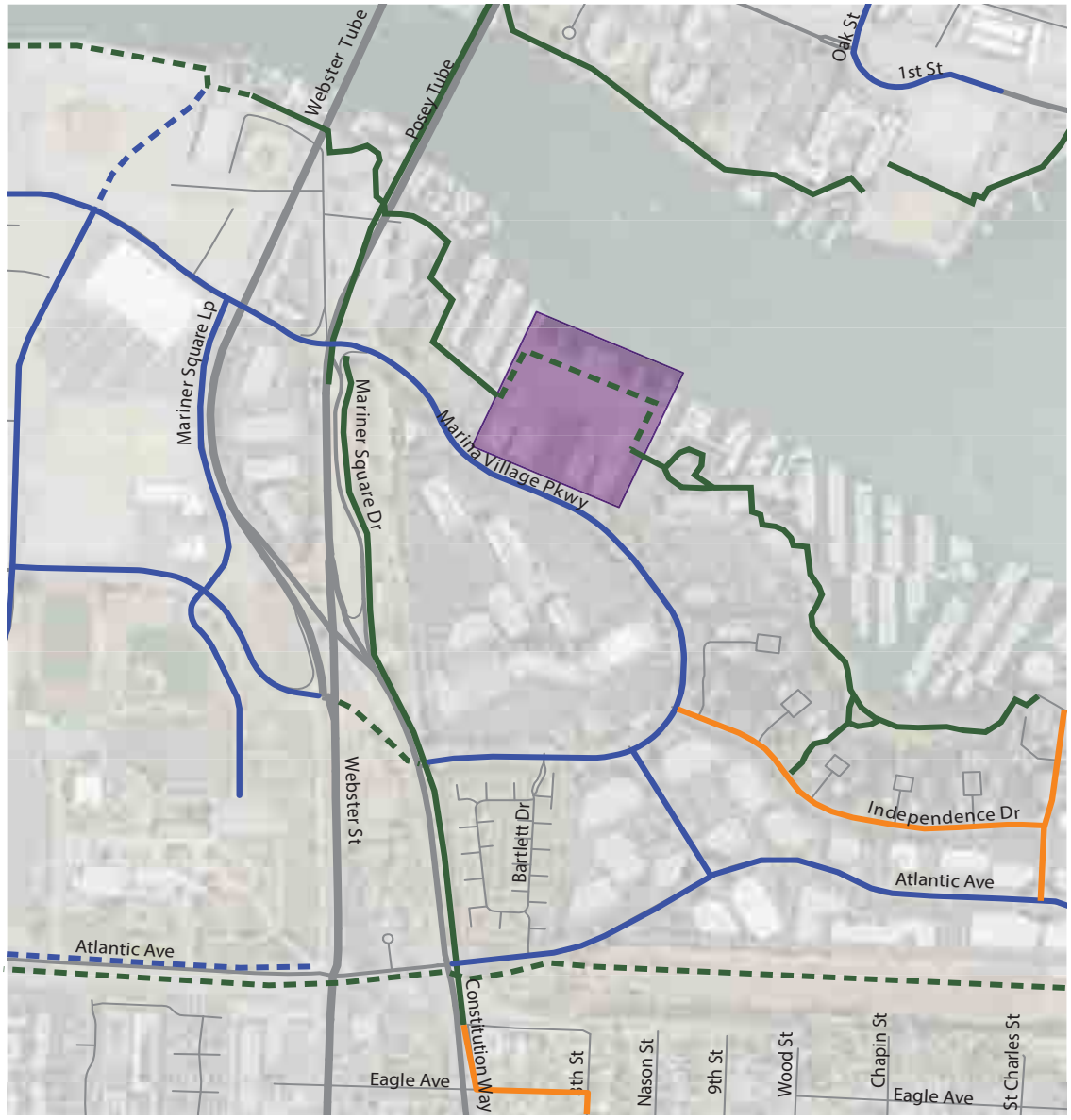
The *City of Alameda Bicycle Master Plan* (updated November 2010) proposes the extension of the Class I path along the estuary along the entire northern shoreline between the Main Street Ferry Terminal and the Fruitvale Avenue Bridge. It also proposes Class II bike lanes on Clement Street, which would provide Class II bike lanes between the project site and eastern bridges.

Transit Services

Public transit services in the project vicinity are provided by the Alameda-Contra Costa Transit District (AC Transit), the Bay Area Rapid Transit District (BART), Water Emergency Transit Agency (WETA), Amtrak, and the Alameda Landing Express Shuttle. **Figure 4.L-3** shows the transit routes in the vicinity of the project site. Each transit service is described below.

AC Transit provides fixed-route bus service in 13 cities and unincorporated areas in Alameda and Contra Costa counties, extending north to Richmond/Pinole, south to Fremont, east to Castro Valley, and west to San Francisco. Several AC Transit routes operate near the project site, as summarized in **Table 4.L-5**.

Seven AC Transit routes stop within one-half mile of the project site. AC Transit bus route (Line 96) operates along Marina Village Parkway and serves the project site. The nearest bus stops to the project site are located on southbound Marina Village Parkway across the street from the project site and on northbound Marina Village Parkway just north of the project site. Both bus stops provide bus turnouts, and the northbound stop provides a shelter, bench, and a trash receptacle. In addition, three routes (Lines 19, 20, and 51A) provide local-only service, Line 851 provides night service, and two routes (Lines O and W) provide Transbay service to San Francisco. All six of these routes stop in both directions of Webster Street just south of Willie Stargell Avenue. Both bus stops provide bus turnouts, benches shelters, bike racks. Northbound Webster Street provides a bus-only lane from Atlantic Avenue to Willie Stargell Avenue.



Source: Alameda Bicycle Master Plan Update (November 2010)

Figure 4.L-2. Bicycle Network
Source: Fehr and Peers
April 2018

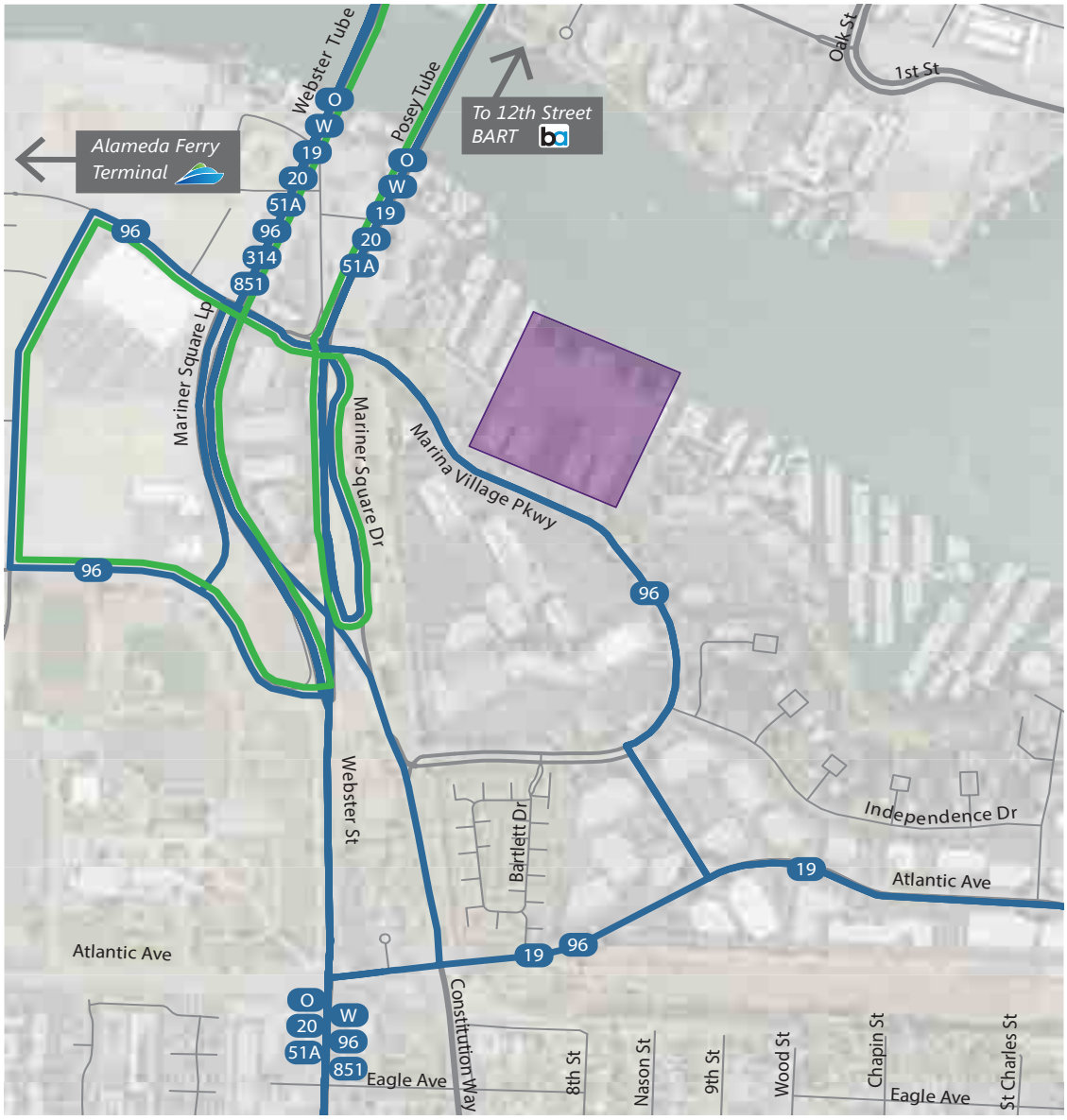


Figure 4.L-3. Existing Transit Network
Source: Fehr and Peers
April 2018

TABLE 4.L-5
AC TRANSIT SERVICE SUMMARY

Line	Route	Nearest Stop [1]	Weekday		Weekend	
			Hours	Frequency	Hours	Frequency
Local Routes						
19	Downtown Oakland to Fruitvale BART via the Webster/Posey tubes, Atlantic Ave, Buena Vista Ave, Alameda Bridgeside Center, and Fruitvale Ave	Webster Street/ Willie Stargell Avenue (about 0.4 miles away)	6:00 AM to 10:30 PM	20 to 30 minutes	6:00 AM to 10:45 PM	30 minutes
20	Dimond District, Oakland, to downtown Oakland via Fruitvale Ave, Fruitvale BART, Park St, Alameda Towne Centre, Shoreline Dr, Grand St, Otis Dr, Westline Dr, Central Ave and Webster St	Webster Street/ Willie Stargell Avenue (about 0.4 miles away)	5:00 AM to 11:00 PM	30 minutes	5:00 AM to 11:00 PM	30 minutes
51A	Rockridge BART to Fruitvale BART via College Ave, Broadway (Oakland), Webster St, Santa Clara Ave, and Broadway (Alameda)	Webster Street/ Willie Stargell Avenue (about 0.4 miles away)	5:00 AM to 12:30 AM	10 to 20 minutes	5:30 AM to 12:45 AM	15 to 20 minutes
96	Alameda Point to Dimond District via Midway Ave, Lincoln Ave, Marina Village Parkway, Webster/Posey tubes, Downtown Oakland, E 12th St, 14th Ave and Highland Hospital	1080-1250 Marina Village Parkway (about 0.1 miles away)	5:30 AM to 11:00 PM	30 minutes	6:00 AM to 10:45 AM	30 minutes
Night Routes						
851	Downtown Berkeley to Fruitvale BART via Southside Berkeley (UC campus), College Ave, Broadway, downtown Oakland, Webster St., Santa Clara Ave, Broadway, and Fruitvale Ave	Webster Street/ Willie Stargell Avenue (about 0.4 miles away)	12:15 AM to 5:00 AM	60 minutes	12:15 AM to 5:00 AM	60 minutes
Transbay Routes[2]						
O	Fruitvale BART to Transbay Temporary Terminal, San Francisco, via Fruitvale Bridge, Fernside Blvd, High St, Encinal Ave, Broadway, Santa Clara Ave and Webster St	Webster Street/ Willie Stargell Avenue (about 0.4 miles away)	5:00 AM to 10:45 PM	10 to 60 minutes	6:00 AM to 10:45 PM	60 minutes
W	Broadway & Blanding Ave, Alameda, to Transbay Temporary Terminal, San Francisco via Fernside Blvd, High St, Otis Dr and Webster St	Webster Street/ Willie Stargell Avenue (about 0.4 miles away)	5:45 AM to 9:15 AM (WB) 4:00 PM to 8:45 PM (EB)	15 to 50 minutes	No Weekend Service	

[1] Distance shown is walking distance between Oakland-bound bus stop and 1192 Marina Village Parkway.

[2] Line O allows both local and Transbay riders, while Line W is restricted to Transbay riders only.

Source: AC Transit, June 2017.

BART provides regional commuter rail service in Alameda, Contra Costa, San Francisco, and San Mateo Counties. BART operates on weekdays from 4:00 AM to 1:00 AM, on Saturdays from

6:00 AM to 1:00 AM, and on Sundays from 8:00 AM to 1:00 AM. Each individual line in the system operates a train every 15 to 20 minutes.

The nearest BART stations to the project site are the 12th Street Oakland City Center, Lake Merritt, and Fruitvale Stations. These stations are not within walking distance of the project site but can be accessed via nearby AC Transit Bus Lines 96 (to 12th Street only), 19, 20, 51A, and W (to Fruitvale only). San Francisco-bound trains depart from the 12th Street Oakland City Center Station approximately every four to five minutes during peak commuting hours.

WETA provides ferry service between Alameda and San Francisco. Ferries can be accessed at Alameda Main Street Terminal on the northern shore of Alameda Island or at Jack London Square Terminal in Oakland. Both stations are about two miles from the project site and can be accessed by automobile, AC Transit buses, or active modes. Due to heavy demand, WETA has recently increased frequencies from Alameda and is working with the City of Alameda to construct a terminal at the Seaplane Lagoon at Alameda Point. The City of Alameda has also sought a regional transportation grant to re-establish water shuttle services connecting waterfront locations like the Encinal Terminals and the Main Street and Jack London Square Ferry Terminals.

Amtrak provides service from the Oakland Jack London Square Amtrak station. Jack London Square can be accessed from the project site by automobile, AC Transit bus, or active modes. This station is a stop on Amtrak's Capitol Corridor and San Joaquin routes. The Capitol Corridor serves Sacramento and Auburn to the east and Fremont and San Jose to the south, operating 15 trains in each direction on weekdays and 11 trains in each direction on weekends. The Amtrak San Joaquin serves the Central Valley cities of Stockton, Fresno and Bakersfield and operates six trains in each direction on a daily basis.

The **Alameda Landing Express** is a free shuttle service between Alameda Landing and the 12th Street Oakland City Center BART Station. The shuttle operates with 30 minute frequencies on weekdays from 6:45 AM to 10:00 AM and from 3:30 PM to 7:00 PM.

L.3 Regulatory Framework

State Senate Bill 743

As described above, Senate Bill (SB) 743 (Steinberg 2013), which added Public Resources Code Section 21099 to CEQA, proposes a change in the manner that transportation impacts are analyzed in transit priority areas to better align local environmental review with statewide objectives to reduce GHG emissions, encourage infill mixed-use development in designated priority development areas, reduce regional sprawl development, and reduce vehicle miles traveled in California.

SB 743 supports and complements the following:

- Assembly Bill 32 (AB 32), which requires statewide GHG reductions to 1990 levels by 2020, and continued reductions beyond 2020.

- Senate Bill 375 and California Air Resources Board established GHG reduction targets for metropolitan planning organizations to achieve in Regional Transportation Plans and Sustainable Community Strategies. Targets for the largest metropolitan planning organizations range from 13 percent to 16 percent reduction by 2035.
- Senate Bill 391 requires the California Transportation Plan to support an 80 percent reduction in GHGs below 1990 levels by 2050.
- Executive Order B-30-15, which sets a GHG emissions reduction target of 40 percent below 1990 levels by 2030. Executive Order S-3-05, which sets a GHG emissions reduction target of 80 percent below 1990 levels by 2050. Executive Order B-16-12, which specifies a GHG emissions reduction target of 80 percent below 1990 levels by 2050 specifically for transportation.

In November 2017, OPR released the final proposed update to CEQA Guidelines consistent with SB 743, which recommend using VMT both within and outside of transit priority areas as the most appropriate metric of transportation impact to align local environmental review under CEQA with California's long-term GHG emissions reduction goals. These guidelines have not yet been adopted.

Regional

The Alameda County Transportation Commission (Alameda CTC), 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

City of Alameda General Plan

The City of Alameda General Plan is consistent with State of California transportation planning objectives, standards, and requirements and the Regional Sustainable Communities Strategy (Plan Bay Area). General Plan policies support in-fill, mixed use development, and improvements to access and mobility for all Alameda residents through a variety of modes of transportation, including automobiles, bicycles, transit, and walking. The Transportation Element ensures that decisions regarding the roadway network consider the benefits and impacts to all four modes of transportation as well as the potential quality of life and safety impacts on Alameda neighborhoods that might occur as the result of increasing automobile speeds, noise, and emissions in those local neighborhoods. The following General Plan Transportation Element policies demonstrate consistency between State objectives and Alameda General Plan objectives:

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 4.3.1.c Actively encourage increases in public transit, including frequency and geographic coverage.

Policy 4.3.1.h Encourage the creation of transit-oriented development and mixed-use development.

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.e Mitigations for future development should be solely directed at reducing traffic through TDM measures and transit, bicycle and pedestrian capital projects, as well as more efficient use of existing infrastructure via traffic signal re-timing, etc. in order to reduce the negative environmental effects of development, rather than attempting to accommodate them.

Climate Action Plan

In 2008, the City of Alameda adopted a Local Action Plan for Climate Protection, which establishes a citywide goal of reducing GHG emission by 25 percent below 2005 levels by 2020. As documented in the Climate Action Plan, more than 54 percent of Alameda's GHG emissions are produced by local transportation. Reducing vehicle miles traveled by Alameda residents is the single most effective means to reduce Alameda's GHG emissions.

L.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:

- 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.
- 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.
- 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.

- Substantially increase hazards due to a design feature. (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?
- Result in inadequate emergency access.
- Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

Thresholds of Significance

For the purpose of this EIR, the project would have a significant transportation impact if it has one or more of the following effects:

- **Vehicle Miles Travelled (VMT)**. Fails to reduce regional VMT because the project exceeds both the existing city household VMT per capita minus 15 percent and the existing regional household VMT per capita minus 15 percent.
- **Automobile Level of Service (LOS)**. Cause an intersection Level of Service to degrade to LOS E or F, or would increase traffic volumes by three percent or more at an intersection that is currently operating at LOS E or F, which would result in a significant increase in automobile emissions.
- **Transit Level of Service**. Degrade transit speeds by 10 percent or more along transit corridors serving the project site during the peak congestion periods.
- **Pedestrian Level of Service and Safety**. Cause the pedestrian LOS to degrade to worse than LOS B at a signalized intersection. If the intersection were already worse than LOS B, an impact would be considered significant if the delay at a crosswalk increases by 10 percent.
- **Bicycle Level of Service and Safety**. Cause a bicycle segment LOS to degrade to worse than LOS B. If a street segment were already worse than LOS B, an impact would be considered significant if the bicycle segment LOS score increases by 10 percent or more in value.
- **CMP Roadways**. 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.

Approach to Analysis

Vehicle Miles Traveled

Per OPR's final proposed updates to the CEQA Guidelines on Evaluating Transportation Impacts (November 2017), Section 15064.3 explains that a "lead agency may use models to estimate a project's vehicle miles traveled…" and as has been done for several decades under CEQA, lead agencies are responsible for deciding their choice of methodology to analyze impacts. OPR recommends that a reduction target per capita of 15 percent below that of either regional VMT or citywide VMT, whichever is higher, be used to determine if a residential project would have a transportation impact on the environment, consistent with Assembly Bill 32 (AB 32).

Based on OPR's recommendations, a new land-use project would have a less-than-significant transportation impact if the project were to achieve either a VMT per capita (resident) that is 15 percent less than the regional VMT rate, or 15 percent less than the city's VMT rate, whichever is higher. If a project were to result in VMT rates that exceed both 15 percent-reduction thresholds, the project would be inconsistent with statewide and local environmental and transportation policies and would result in a significant transportation impact. This analysis uses the MTC Travel Model to estimate VMT.

Neighborhoods are expressed geographically in transportation analysis zones, or TAZs, which are used in transportation planning models for transportation analysis and other planning purposes. The MTC Travel Model includes 1,454 TAZs in the nine-county Bay Area region, including 17 TAZs within the City of Alameda. The MTC Travel Model is a model that assigns all predicted trips within, across, or to/from the nine-county San Francisco Bay Area region onto the roadway network and the transit system by mode (single-driver and carpool vehicle, biking, walking, or transit) and transit carrier (bus, rail) for a particular scenario.

The travel behavior from MTC Travel Model is modeled based on the following inputs:

- Socioeconomic data developed by ABAG
- Population data created using the 2000 US Census and modified using the open source PopSyn software
- Zonal accessibility measurements for destinations of interest
- Travel characteristics and vehicle ownership rates derived from the 2000 Bay Area Travel Survey (BATS)
- Observed vehicle counts and transit boardings

The daily VMT output from the MTC Travel Model for residential uses comes from a tour-based analysis. The tour-based analysis examines the entire chain of trips over the course of a day, not just trips to and from the project site. In this way, all of the VMT for an individual resident is included; not just trips into and out of the person's home. For example, a resident leaves her apartment in the morning, stops for coffee, and then goes to the office. In the afternoon she heads out to lunch, and then returns to the office, with a stop at the drycleaners on the way. After work, she goes to the gym to work out, and then joins some friends at a restaurant for dinner before returning home. All the stops and trips within her day form her "tour." The tour-based approach would add up the total number of miles driven over the course of her tour and assign it as her daily VMT.

This analysis evaluates project VMT under existing (based on the MTC Travel Model results for the year 2020) and cumulative conditions (based on the MTC Travel Model results for the year 2040). Based on the MTC Travel Model, the regional VMT per capita are 14.9 and 13.8, and the City of Alameda citywide VMT per capita are 14.1 and 13.2 under 2020 and 2040 conditions, respectively. Since the regional VMT is higher than the citywide VMT per capita, the applicable threshold for the proposed project is the regional residential VMT per capita minus 15 percent, which corresponds to VMT per capita of 12.7 under 2020 conditions and 11.7 under 2040 conditions.

Automobile Intersection Level of Service

Traffic operations at intersections are measured in terms of a grading system called LOS, which is based on vehicle delay that is a function of the signal timing, intersection lane configuration, hourly traffic volumes, pedestrian volumes, and parking and bus conflicts among other factors.

Calculated LOS does not always reflect the total volume of traffic that wishes to travel through the intersection, but instead is based on the volume of traffic that is counted travelling through the intersection during the peak hour. Congestion downstream from the intersections (on I-880 and in the Posey Tube) causes backups that constrain the number of vehicles that get through the intersections in an hour.

LOS has historically proven to be an inadequate measure in Alameda because residents experience delays at certain intersections, yet the LOS analysis indicates that the intersection LOS is adequate. The experienced delay is the result of downstream congestion, not a result of the intersection design or the volume of cars moving through the intersection.

Due to the limitations of the intersection LOS as a measure of travel delay, this analysis also includes a travel time and travel speed analysis for major street segments in Alameda. Travel times and speeds were analyzed during the peak commute periods of 7:00 to 9:00 AM and 4:00 to 6:00 PM along the major corridors connecting Alameda to the regional transportation system. The current average travel speed along major corridors near the project site was estimated using anonymized cell phone data collected on weekdays during March 2017. The travel speed for the Existing Plus Project, Cumulative No Project, and Cumulative plus Project conditions were estimated by adjusting the existing observed speeds based on the results of the Alameda CTC model, and travel speeds estimated by the Highway Capacity Manual 2010 methodology, which provides a calculation of corridor travel speed based on traffic volume, intersection and segment geometry, and signal timings. Changes in travel speed affect all users of the streets, including automobile drivers and bus passengers; therefore the analysis informs the analysis of the impact of the project on both automobiles and transit.

Transit Level of Service

Transit travel speeds were analyzed during the peak commute periods of 7:00 to 9:00 AM and 4:00 to 6:00 PM. The current average travel speed along transit corridors near the project site was estimated using anonymized cell phone data collected on weekdays during March 2017. The travel speed for the Existing Plus Project, Cumulative No Project, and Cumulative plus Project conditions were estimated by adjusting the existing observed speeds based on the results of the Alameda CTC model, and travel speeds estimated by the HCS 2010 software package, which provides a calculation of corridor travel speed based on traffic volume, intersection and segment geometry, and signal timings.

Pedestrians Level of Service

The pedestrian patterns in the study area were analyzed during the peak commute hours of 7:00 to 9:00 AM and 4:00 to 6:00 PM, where the number of pedestrians crossing each approach at the study intersections was noted. Potential impacts on pedestrian LOS were evaluated based on the

HCM 2010 methodology for determining average delay for pedestrians at signalized study intersections (TRB, 2010). Pedestrian delay (in seconds per person) is based on the effective green signal time for pedestrians to cross each intersection approach, and the actuated cycle length of the signal. **Table 4.L-6** shows the pedestrian LOS grade and associated ranges of delay.

TABLE 4.L-6
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, 2010 Highway Capacity Manual, 2010

Bicycle Level of Service

Potential impacts on bicycle LOS were evaluated based on the Florida Department of Transportation methodology for assessing bicyclists' perceived level of comfort along study roadway segments (FDOT, 2013). Bicycle LOS scores are based on five variables: 1) average effective width of the outside through lane (and presence of bike lane); 2) motor vehicle volumes; 3) motor vehicle speeds; 4) truck volumes; and, 5) pavement conditions. **Table 4.L-7** shows the numerical bicycle LOS scores (tied to a LOS letter grade).

TABLE 4.L-7
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

Alameda County Transportation Commission CMP LOS Standards for Monitoring

The Alameda CTC CMP establishes LOS E as the standard for facilities under LOS monitoring in the CMP network. Certain segments are identified in the CMP as "grandfathered segments," which were operating at LOS F during the PM peak in 1991 when existing LOSs were established for the CMP network. The following segments within the project study area are included in the CMP network:

- Freeway: I-880
- Arterials In Alameda: SR 260 (Webster and Posey Tubes), Webster Street, Constitution Way
- Arterials in Oakland: Webster, Harrison, 7th, and 8th Streets

The only grandfathered segment in the study area is southbound SR 260 (the Webster Tube) from Seventh Street in Oakland to Atlantic Avenue in Alameda.

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 Freeway Access Study involves the Alameda CTC, Caltrans, cities of Alameda and Oakland, BART, and AC Transit, and is evaluating multi-modal solutions to movements through and around Oakland's Chinatown, including travel to and from the west end of Alameda.

Local Agency Thresholds

Since 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. This EIR considers the impacts of the proposed project on CMP roadways to be significant if the addition of project-related traffic would degrade the facility from LOS E or better to LOS F, except where the roadway is at LOS F without the project. For those locations that operate at LOS F without the project, the impacts of the project are considered significant if the contribution of project-related traffic would increase the volume-to-capacity (V/C) ratio by 0.03 or more. This criterion is consistent with other recent EIRs completed in Alameda and Oakland; it was developed based on professional judgment using a "reasonableness test" of daily fluctuations of traffic. Also a change in 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 volume to the hourly capacity of the road link.

Project Trip Generation

The project trip generation was developed by applying appropriate trip generation rates from the Institute of Transportation Engineers (ITE), *Trip Generation Manual*, 9th Edition. **Table 4.L-8** summarizes the estimated trip generation for the project using the ITE methodology for typical weekdays and accounts for the trips generated by the existing offices that would be demolished. The trip generation for the existing offices was estimated based on counts at the existing site driveways. At the time of the count, approximately 41 percent of the office space (about 23,400 square feet) was occupied. Since the existing parking lot on the west side of the project site serves both the existing office uses as well as an adjacent boat marina, the parking lot was observed during the peak periods to determine the number of vehicles accessing the boat marina versus the office building. The marina trips were deducted from the total driveway count to accurately account for the office building trips removed with the project. As shown in **Table 4.L-8**, the project is estimated to generate 128 net AM peak hour trips and 156 net PM peak hour trips for a typical weekday.

TABLE 4.L-8
PROJECT VEHICLE TRIP GENERATION

Land Use	ITE Code	Size	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Apartments	220[a]	292 DU	30	119	149	118	63	181
Existing Offices[b]		*56.5 KSF*[c]	*-17*	*-4*	*-21*	*-10*	*-15*	*-25*
Net New Project Trips			**13**	**115**	**128**	**108**	**48**	**156**

NOTES:
[a] The following ITE trip generation rates were used (ITE Code 220 – Apartments):
AM: T=0.51 * X; Enter=20%, Exit=80%
PM: T=0.62 * X; Enter=65%, Exit=35%
Where X=number of dwelling units (DU), T=number of vehicle trips
[b] The trip generation of the existing uses on site is based on counts at the existing site driveways in March 2017
[c] At the time of the count approximately 41 percent of the office space was occupied (23.4 ksf)
SOURCE: Fehr & Peers, 2017; Trip Generation Manual (9th Edition), ITE, 2012

Trip Distribution

The project trip distribution was developed using the Alameda CTC Travel Demand Model. A select zone analysis for the AM and PM peak hours for the Traffic Analysis Zone (TAZ) where the project is located was used to estimate the project's distribution and the project trips were assigned to the road network based on the distribution patterns. **Figure 4.L-4** shows the trip distribution assumed for the project.

During the AM and PM peak hours, it is estimated that between 60 to 71 percent of the trips generated by the project would travel to and from the Webster and Posey Tubes, up to about seven percent would travel to and from the southern bridges (Park Street, Fruitvale, and Doolittle Drive Bridges), and the remainder of the trips would be inter-island trips.

Using the trip generation assumptions summarized in **Table 4.L-7** and the trip distribution assumptions shown in **Figure 4.L-4**, the project trips were assigned to the roadway network and project study intersections. Figure 3 in **Appendix E:B** shows the trip assignment through each study intersection.

Figure 4.L-4. Project Trip Distribution
Source: Fehr and Peers
April 2018

Impact Analysis

Vehicle Miles Travelled

Impact 4.L-1. The proposed project would not exceed the existing and cumulative city household VMT per capita minus 15 percent and the regional VMT per capita minus 15 percent. (*Less than Significant, No Mitigation Required*)

The City of Alameda has a lower per capita VMT than the region, and the northern waterfront neighborhood (TAZ 960), which includes the proposed project site, has a lower per capita VMT than the rest of the City. Within the Bay Area region, cities like Alameda, Berkeley, Oakland, and San Francisco at the geographic center of the Bay Area region and closest to the regional job centers with more urban, mixed use neighborhoods, generate a lower per capita VMT than the Bay Area cities located at the edges of the region, such as Livermore, Dublin, and similar cities whose residents have longer commutes to their jobs in the inner Bay Area and live in automobile-oriented suburban neighborhoods that require multiple automobile trips for all or most daily activities.

Within Alameda, the neighborhoods on the main island, including TAZ 960 in the northern waterfront where the proposed project is located, that have easy access and proximity to transit, commercial services, and other daily needs, have a lower average per capita VMT than the City average. The neighborhoods at Harbor Bay and Bay Farm Island, which display a more suburban style neighborhood design with less multifamily housing and less proximity to transit and services, have a higher per capita VMT than the City average.

According to the MTC Travel One Model (2016), the regional VMT per capita is projected to be 14.9 in 2020 and 13.8 in 2040 (**Table 4.L-9**). The City of Alameda's projected VMT per capita will be 14.1 in 2020 and 13.2 in 2040. The VMT per capita for TAZ 960 (northern waterfront where the project is located) will be 12.3 in 2020 and 11.1 in 2040. Considering that most of the existing residential developments in TAZ 960 are single family units with lower density than the proposed project, it is expected that the proposed project would have a lower VMT per capita than the TAZ average. However, this EIR conservatively assumes that the proposed project would be generally similar to the existing residential developments in TAZ 960; thus, the project is estimated to have the same VMT per capita as TAZ 960.

TABLE 4.L-9
AVERAGE DAILY VMT PER CAPITA–
YEAR 2020 AND 2040 PROJECTIONS

Analysis Zone	Metric	Year 2020 Average VMT	Year 2040 Average VMT
Project	Per Capita	12.3	11.1
City of Alameda	Per Capita	14.1	13.2
	(minus 15%)	12.0	11.2
Region	Per Capita	14.9	13.8
	(minus 15%)	12.7	11.7

SOURCE: MTC Travel One Model, 2017.

A 12.3 per capita VMT in 2020 and a VMT per capita of 11.1 in 2040 represent a project VMT that is less than the regional VMT minus 15 percent and is comparable to the citywide average minus 15 percent. Therefore, the proposed project would not exceed both the existing citywide household VMT per capita minus 15 percent and the regional VMT per capita minus 15 percent and would have a less than significant impact on VMT.

Mitigation: None required.

Automobile LOS

Impact 4.L-2: The proposed project would increase traffic volumes such that traffic conditions at the Park Street/Blanding Avenue intersection would degrade from LOS D to LOS E under Existing Plus Project conditions and at the Marina Square Drive/Constitution Way intersection would degrade LOS E to LOS F and the proposed project could increase traffic volumes by three percent or more under Cumulative (2040) conditions. (*Significant and Unavoidable with Mitigation)*

The threshold for determining the level of impact for the proposed project is:

- Would the automobile trips generated by the proposed project cause an intersection Level of Service to degrade to LOS E or F, or increase traffic volumes by three percent or more at an intersection that is currently operating at LOS E or F.

The impacts of the proposed project on intersection LOS under Existing and 2040 conditions are described below.

Existing Plus Project Conditions

The intersection traffic volumes under Existing Plus Project Conditions were developed by adding the project trip assignment to the Existing intersection volumes. Figure 4 in **Appendix E:B** shows the AM and PM peak hour intersection volumes under Existing Plus Project Conditions. No modifications to the roadway network, including changes to signal timing at the signalized study intersections, are assumed for the Existing Plus Project analysis. **Tables 4.L-10a and 10b** summarize the study intersections LOS under Existing Plus Project conditions for the AM and PM peak hours, respectively. **Appendix E:D** provides the detailed LOS calculations.

Cumulative (2040) Conditions

The 2040 No Project traffic volume forecasts were developed using the Alameda CTC Model, which was released in June 2015 and uses land use data consistent with ABAG *Projections 2013* land uses for 2040. The land use database was modified to ensure that the planned and proposed developments in Alameda are correctly accounted. The modifications include updates to the database to ensure accurate projections for all new development in Alameda previously approved or planned, including all Housing Element opportunity sites and build out of the NAS Alameda Priority Development Area and the Northern Waterfront Priority Development Areas. **Appendix E:F** summarizes the modifications to the Alameda CTC Model land use database.

TABLE 4.L-10a
EXISTING PLUS PROJECT AM PEAK HOUR INTERSECTION LEVEL OF SERVICE

Study Intersection		Traffic Control	Existing		Existing + Project	
			Delay[1]	LOS	Delay[1]	LOS
1	Webster Street/Willie Stargell Avenue[2]	Signal	22	C	22	C
2	Mariner Square Drive/Marina Village Parkway	AWSC	9	A	9	A
3	Mariner Square Drive/Constitution Way[2]	Signal	19	B	23	C
4	Constitution Way/Marina Village Parkway[2]	Signal	16	B	16	B
5	Constitution Way/Atlantic Avenue	Signal	18	B	18	B
6	Challenger Drive/Atlantic Avenue	Signal	15	B	16	B
7	Marina Village Parkway/Existing Site Driveway	SSSC	13	B	0	A
8	Grand Street/Clement Avenue	SSSC	11	B	11	B
9	Park Street/Blanding Avenue[2]	Signal	33	C	34	C
10	Park Street/Clement Avenue	Signal	35	C	36	D
11	Tilden Way-Blanding Avenue/Fernside Boulevard	Signal	11	B	11	B

NOTES:

[1] The LOS/Delay for Side-Street Stop-Control (SSSC) intersections represents the worst movement or approach; for Signalized intersections and All-Way Stop-Control (AWSC) intersections, the LOS/Delay represents the overall intersection.

[2] Based on HCM 2000, since HCM 2010 does not calculate LOS for this intersection.

Bold indicates locations with unacceptable level of service (LOS E or greater).

SOURCE: Fehr & Peers, 2017.

TABLE 4.L-10b
EXISTING PLUS PROJECT PM PEAK HOUR INTERSECTION LEVEL OF SERVICE

	Study Intersection	Traffic Control	Existing		Existing + Project	
			Delay[1]	LOS	Delay[1]	LOS
1	Webster Street/Willie Stargell Avenue[2]	Signal	27	C	27	C
2	Mariner Square Drive/Marina Village Parkway	AWSC	10	B	11	B
3	Mariner Square Drive/Constitution Way [2]	Signal	12	B	13	B
4	Constitution Way/Marina Village Parkway[2]	Signal	21	C	22	C
5	Constitution Way/Atlantic Avenue	Signal	19	B	19	B
6	Challenger Drive/Atlantic Avenue	Signal	19	B	20	C
7	Marina Village Parkway/Existing Site Driveway	SSSC	11	B	0	A
8	Grand Street/Clement Avenue	SSSC	15	C	15	C
9	Park Street/Blanding Avenue[2]	Signal	54	D	**56**	**E**
10	Park Street/Clement Avenue	Signal	35	C	35	C
11	Tilden Way-Blanding Avenue/Fernside Boulevard	Signal	13	B	13	B

[1] The LOS/Delay for Side-Street Stop-Control (SSSC) intersections represents the worst movement or approach; for Signalized intersections and All-Way Stop-Control (AWSC) intersections, the LOS/Delay represents the overall intersection.

[2] Based on HCM 2000, since HCM 2010 does not calculate LOS for this intersection.

Bold indicates locations with unacceptable LOS (LOS E or greater); **Shaded Bold** indicates significant impacts.

SOURCE: Fehr & Peers, 2017.

The AM and PM peak hour roadway segment volumes forecasted by the Alameda CTC Model for year 2040 were used to develop 2040 turning movement forecasts at the study intersections and the freeway forecasts using the "Furness" process, which "adjusts" existing volumes to reflect changes in roadway segment volumes forecasted by the Alameda CTC Model.[1] In addition, this analysis assumes that pedestrian and bicycle volumes at the study intersections would increase proportional to the projected growth in land uses in the study area.

Figures 5 and 6 in **Appendix E:B** show the AM and PM peak hour intersection volumes under 2040 No Project and 2040 Plus Project Conditions, respectively. The 2040 analyses assume the completion of the following:

- The I-880 Operational and Safety Improvements at 29th Avenue and 23rd Avenue Overcrossings, which is currently under construction and would reconstruct the overcrossing structures at 23rd and 29th Avenues, reconfigure several on and off-ramps, extend the northbound auxiliary lane along I-880, and include various changes to the local roadway network around the ramps.

[1] Outlined in NCHRP-255, the industry-standard Furness technique estimates projected (future) intersection turning movement volumes based on comparing existing traffic counts and the Model results. It uses mathematical formulae to balance roadway segment volumes approaching and departing from the intersection and thus balances turning volumes that make sense compared to the existing counts and Model results. This process improves the level of confidence in the forecasted future turning movement volumes.

- The Clement Avenue extension between Grand Street and Atlantic Avenue.
- The Cross Alameda Trail project, which includes a Class IV separated bikeway on the south side of Atlantic Avenue between Webster Street and Constitution Way. The project would modify the Constitution Way/Atlantic Avenue (#4) intersection by eliminating one through lane on the eastbound Atlantic Avenue approach and the exclusive right-turn lane on the northbound Constitution Way approach. The Cross Alameda Trail project would also modify the signal timings at the intersection.

The 2040 No Project Conditions assumes the same intersection configuration as Existing Conditions at all other study intersections and that all signal timing parameters would remain the same as current ones at all other study intersections.

Tables 4.L-11a and 11b summarize the study intersections LOS under Cumulative (2040) No Project and Cumulative (2040) Plus Project conditions for the AM and PM peak hours, respectively. **Appendix E:D** provides the detailed LOS calculations.

As shown in Table 4.L-10b, the project would have a significant impact at the Park Street/ Blanding Avenue intersection (#9), which is located immediately adjacent to the Park Street Bridge. While only 0.3% of the traffic through that intersection, the project would increase traffic volumes such as that the intersection delay would increase by 2 seconds and the operations would deteriorate from LOS D to LOS E during the PM peak hour under Existing Plus Project conditions.

As shown in Table 4.L-11a, the project in combination with all other future developments would have a significant impact at the Marina Square Drive/Constitution Way intersection (#3), which would operate at an unacceptable LOS during both peak traffic hours under Cumulative 2040 conditions. The increase in traffic volumes due to the project would exceed the three-percent threshold of significance during the AM peak hour, when the project's contribution would be 3.1%, and therefore the project impact would be significant.

The project would contribute automobile trips at the following intersections that would operate at LOS E or LOS F under Cumulative conditions: Webster Street/Willie Stargell Avenue (#1), Constitution Way/Atlantic Avenue (#5), Challenger Drive/Atlantic Avenue (#6), Park Street/ Blanding Avenue (#9), Park Street/Clement Avenue (#10), and Tilden Way-Blanding Avenue/ Fernside Boulevard (#11) intersections. However, the project's contribution is less than three percent at each of these intersections, and is therefore less than significant.

The project would improve the LOS at the Marina Village Parkway/Existing Site Driveway intersection (#7) during both AM and PM peak hours under Existing and Cumulative (2040) conditions, because the project would eliminate the existing full-access project driveway (southbound approach of the intersection) at this location, reducing the possible movements at this intersection to straight-through, turns into and out of the driveway for the commercial center across the street, and U-turns. The proposed project would not have a driveway at this intersection, but rather would replace it with two right-in/right-out only driveways on either side of the existing driveway. As right-in/right-out only driveways, the proposed project driveways would not substantially affect roadway operation so were not further studied. The Existing Plus

Project and Cumulative (2040) Plus Project Conditions analyses at the Marina Village Parkway/Existing Site Driveway intersection (#7) account for the project generated traffic that would make U-turns at the existing intersection to access the proposed project driveways; however, even given the additional U-turns, the elimination of the existing driveway would improve the LOS at the intersection.

TABLE 4.L-11a
CUMULATIVE (2040) AM PEAK HOUR INTERSECTION LEVEL OF SERVICE

Study Intersection		Control	2040 No Project		2040 + Project	
			Delay[1]	LOS	Delay[1]	LOS[2]
1	Webster Street/Willie Stargell Avenue[3]	Signal	27	C	27	C
2	Mariner Square Drive/Marina Village Parkway	AWSC	13	B	14	B
3	Mariner Square Drive/Constitution Way [3]	Signal	**66**	**E**	**86**	**F (3.1%)**
4	Constitution Way/Marina Village Parkway[3]	Signal	20	B	20	B
5	Constitution Way/Atlantic Avenue	Signal	29	C	29	C
6	Challenger Drive/Atlantic Avenue	Signal	**>120**	**F**	**>120**	**F (0.7%)**
7	Marina Village Parkway/Existing Site Driveway	SSSC	17	C	11	B
8	Grand Street/Clement Avenue	Signal	34	C	35	D
9	Park Street/Blanding Avenue[3]	Signal	**>120**	**F**	**>120**	**F (0.2%)**
10	Park Street/Clement Avenue	Signal	**>120**	**F**	**>120**	**F (0.2%)**
11	Tilden Way-Blanding Avenue/Fernside Boulevard	Signal	25	C	26	C

NOTES:

[1] The LOS/Delay for Side-Street Stop-Control (SSSC) intersections represents the worst movement or approach; for Signalized intersections and All-Way Stop-Control (AWSC) intersections, the LOS/Delay represents the overall intersection.

[2] Intersection LOS followed by percent increase in traffic between the 2040 No Project and 2040 Plus Project conditions for intersections operating at LOS E or F.

[3] Based on HCM 2000, since HCM 2010 does not calculate LOS for this intersection.

Bold indicates locations with unacceptable LOS; **Shaded Bold** indicates significant impacts.

SOURCE: Fehr & Peers, 2017.

TABLE 4.L-11b
CUMULATIVE (2040) PM PEAK HOUR INTERSECTION LEVEL OF SERVICE

Study Intersection		Control	2040 No Project		2040 + Project	
			Delay[1]	LOS	Delay[1]	LOS[2]
1	Webster Street/Willie Stargell Avenue[3]	Signal	**68**	**E**	**75**	**E (1.5%)**
2	Mariner Square Drive/Marina Village Parkway	AWSC	21	C	24	C
3	Mariner Square Drive/Constitution Way [3]	Signal	**79**	**E**	**92**	**F (1.3%)**
4	Constitution Way/Marina Village Parkway[3]	Signal	30	C	31	C
5	Constitution Way/Atlantic Avenue	Signal	**70**	**E**	**70**	**E (0.4%)**
6	Challenger Drive/Atlantic Avenue	Signal	49	D	48	D
7	Marina Village Parkway/Existing Site Driveway	SSSC	13	B	11	B
8	Grand Street/Clement Avenue	Signal	18	B	18	B
9	Park Street/Blanding Avenue[3]	Signal	**68**	**E**	**69**	**E (0.2%)**
10	Park Street/Clement Avenue	Signal	**>120**	**F**	**>120**	**F (0.2%)**
11	Tilden Way-Blanding Avenue/Fernside Boulevard	Signal	**>120**	**F**	**>120**	**F (0.1%)**

NOTES:

[1] The LOS/Delay for Side-Street Stop-Control (SSSC) intersections represents the worst movement or approach; for Signalized intersections and All-Way Stop-Control (AWSC) intersections, the LOS/Delay represents the overall intersection.

[2] Intersection LOS followed by percent increase in traffic between the 2040 No Project and 2040 Plus Project conditions for intersections operating at LOS E or F.

[3] Based on HCM 2000, since HCM 2010 does not calculate LOS for this intersection.

Bold indicates locations with unacceptable LOS; **Shaded Bold** indicates significant impacts.

SOURCE: Fehr & Peers, 2017.

As described above, a Level of Service analysis is not always the best indicator of travel time for commuters trying to leave Alameda each morning and returning each evening. For this reason, this analysis also includes a travel time and speed analysis for the two major corridors into and off the island.

Tables 4.L-12 through 4.L-15 summarize the AM and PM peak hour corridor travel times and speeds, under Existing and Cumulative (2040) conditions, respectively, for the two main corridors providing transit access for the project site: Webster and Posey Tubes and Park Street. These tables compare the travel time results for the no project conditions with the plus project conditions under both Existing and 2040 scenarios. The Alameda CTC model and HCS 2010 software were used to estimate the change in travel times for each scenario and compared to the existing travel times collected in March 2017 and described earlier. **Appendix E:A** shows the detailed travel time and speed results for each corridor.

TABLE 4.L-12
EXISTING PLUS PROJECT TRAVEL TIMES

Corridor	Direction	Distance (feet)	Travel Time (min:sec)			
			AM Peak Hour		PM Peak Hour	
			Existing[1]	Existing Plus Project[2]	Existing[1]	Existing Plus Project[2]
Webster Street (Lincoln Avenue to 7th Street)	Northbound	9,000	6:29	6:31	4:50	4:51
	Southbound	9,000	3:56	3:57	4:59	5:01
Park Street	Northbound[3]	3,700	3:32	3:33	2:57	2:57
	Southbound[4]	2,600	1:57	1:58	2:28	2:29

NOTES:
[1] Travel speeds are based on travel time data collected from anonymized cell phones on weekdays during March 2017
[2] Existing Plus Project travel speeds are based on the increase in travel time estimated from the HCS 2010 software.
[3] Northbound Park Street corridor is from Lincoln Avenue to 7th Avenue in Oakland
[4] Southbound Park Street corridor is from the Park Street Bridge to Lincoln Avenue

SOURCE: Fehr & Peers, 2017.

TABLE 4.L-13
EXISTING PLUS PROJECT TRAVEL SPEEDS

Corridor	Direction	Distance (feet)	Travel Speed (mph)					
			AM Peak Hour			PM Peak Hour		
			Existing[1]	Existing Plus Project[2]	Change (%)	Existing[1]	Existing Plus Project[2]	Change (%)
Webster Street (Lincoln Avenue to 7th Street)	Northbound	9,000	15.8	15.7	-0.5%	21.2	21.1	-0.2%
	Southbound	9,000	26.0	25.9	-0.5%	20.5	20.4	-0.8%
Park Street	Northbound[2]	3,700	11.9	11.8	-0.5%	14.3	14.3	0%
	Southbound[3]	2,600	15.1	15.0	-0.5%	12.0	11.9	-0.8%

NOTES:

[1] Travel speeds are based on travel time data collected from anonymized cell phones on weekdays during March 2017

[2] Existing Plus Project travel speeds are based on the increase in travel time estimated from the Alameda CTC model.

[3] Northbound Park Street corridor is from Lincoln Avenue to 7th Avenue in Oakland

[4] Southbound Park Street corridor is from the Park Street Bridge to Lincoln Avenue

SOURCE: Fehr & Peers, 2017.

As shown in Tables 4.L-12 and 4.L-13, the additional automobile trips generated by the proposed project would have little to no effect on travel time and speeds. In the Existing Plus Project scenario, zero to two seconds of time would be added on average and there would be zero to 0.1 mph travel speed reduction.

TABLE 4.L-14
CUMULATIVE PLUS PROJECT TRAVEL TIMES

Corridor	Direction	Distance (feet)	Travel Time (min:sec)			
			AM Peak Hour		PM Peak Hour	
			Cumulative	Cumulative Plus Project	Cumulative	Cumulative Plus Project
Webster Street (Lincoln Avenue to 7th Street)	Northbound	9,000	7:47	7:48	6:33	6:33
	Southbound	9,000	4:15	4:16	7:04	7:10
Park Street	Northbound[2]	3,700	4:25	4:26	4:03	4:05
	Southbound[3]	2,600	2:04	2:04	2:46	2:46

NOTES:

[1] Cumulative and Cumulative Plus Project travel speeds are based on the increase in travel time estimated from the HCS 2010 software.

[2] Northbound Park Street corridor is from Lincoln Avenue to 7th Avenue in Oakland

[3] Southbound Park Street corridor is from the Park Street Bridge to Lincoln Avenue

SOURCE: Fehr & Peers, 2017.

TABLE 4.L-15
CUMULATIVE PLUS PROJECT TRAVEL SPEEDS

Corridor	Direction	Distance (feet)	Travel Speed (mph)					
			AM Peak Hour			PM Peak Hour		
			Cumulative	Cumulative Plus Project	Change (%)	Cumulative	Cumulative Plus Project	Change (%)
Webster Street (Lincoln Avenue to 7th Street)	Northbound	9,000	13.1	13.1	-0.3%	15.6	15.6	0%
	Southbound	9,000	24.0	23.9	-0.4%	14.5	14.3	-1.4%
Park Street	Northbound[3]	3,700	9.5	9.5	-0.1%	10.4	10.3	-1.0%
	Southbound[4]	2,600	14.3	14.3	0%	10.7	10.6	-0.6%

NOTES:

[1] Travel speeds are based on travel time data collected from anonymized cell phones on weekdays during March 2017

[2] Cumulative Plus Project travel speeds are based on the increase in travel time estimated from the Alameda CTC model.

[3] Northbound Park Street corridor is from Lincoln Avenue to 7th Avenue in Oakland

[4] Southbound Park Street corridor is from the Park Street Bridge to Lincoln Avenue

Bold and shaded indicates a significant transit impact

SOURCE: Fehr & Peers, 2017.

In the Cumulative scenario, shown in Tables 4.L-14 and 4.L-15, the project would add zero to six seconds of time added on average and there would be zero to 0.2 mph travel speed reduction. This is largely due to the small number of trips contributed by the project relative to the large number of automobiles traveling on these corridors during the peak period and the fact that travel

times are largely determined not by the volume of vehicles on the corridor, but by congestion on the Oakland side of the crossings and on I-880.

> **Mitigation Measure 4.L-2: Transportation Demand Management (TDM).** To reduce the number of automobile trips generated by the project, the project shall prepare a Transportation Demand Management Plan and funding program for Planning Board review and approval. The TDM plan should include a suite of measures to reduce vehicle trips by project residents and visitors, including but are not limited to the following:
>
> - Membership in a Transportation Management Agency, which will provide access to transportation information, rideshare programs, and a transportation coordinator. Membership shall include:
>   - Annual funding for operations of transit services between the site and Oakland BART stations and/or a water taxi between Alameda and Oakland across the Estuary.
>   - Annual funding for AC Transit Easy Passes
>   - On-site Car Share parking
>   - On-site bicycle parking
>   - On-site carpool parking
>   - Unbundling parking costs from the unit rent
>   - Transportation "Welcome Packet"
>   - Real-time transit information (e.g., TransitScreen)
>   - Designated Pick-Up/Drop-Off Ridesourcing Services
>   - Annual surveys and reports to document implementation of each measure, relative success of each measure to reduce automobile trips, annual automobile trip count to and from the project at peak periods, and annual recommendations for changes to the program, to reduce the project's contribution to citywide and regional vehicle trips through the life of the project.

TDM strategies can potentially reduce automobile trips generated by the project and either eliminate or reduce the magnitude of the significant impact at the impacted intersections. Since the specific TDM strategies that would be implemented at the project are not known at this time, their effectiveness cannot be accurately estimated.

Intersection operations at the impacted intersections could be improved through widening the streets to provide additional travel lanes, longer signal cycle lengths, and/or signal optimization. However, these improvements would have a significant secondary impact on pedestrians. In addition, further widening of streets to provide additional travel lanes 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 additional improvements would be inconsistent in the context of impacts to non-automobile travel modes. Thus, they are not considered feasible, and the impact remains significant and unavoidable.

Significance after Mitigation: Significant and Unavoidable.

Transit Travel Speed

Impact 4.L-3. Implementation of the proposed project would not cause travel speeds to decrease by 10 percent or more along a corridor that currently serves as a transit route or is planned to serve as a transit route. (*Less than Significant, No Mitigation Required*)

The threshold for determining the level of impact for the proposed project is:

- Would the increase in automobile trips cause travel speeds to degrade by 10 percent or more along a corridor that currently serves as a transit route or is planned to serve as a transit route?

Tables 4.L-12 through 4.L-15 summarize the AM and PM peak hour corridor travel times and speeds, under Existing and Cumulative (2040) conditions, respectively, for the two main corridors providing transit access for the project site: Webster and Posey Tubes and Park Street. These tables compare the travel time results for the no project conditions with the plus project conditions under both Existing and 2040 scenarios. The Alameda CTC model and HCS 2010 software were used to estimate the change in travel times for each scenario and compared to the existing travel times collected in March 2017 and described earlier. **Appendix E:A** shows the detailed travel time and speed results for each corridor.

Although the traffic generated by the proposed project would increase travel times and reduce travel speeds along both corridors, it would not reduce the travel speeds by more than ten percent. The transit travel time analysis presented in this document does not account for the bus only lane on northbound Webster Street between Atlantic and Willie Stargell Avenues. It assumes that buses would use the mixed-flow lanes along this segment. In addition, the cumulative travel times and speeds do not account for the completion of the improvements at the I-880/29th Avenue interchange, which is currently under construction.

Based on the City's significance criteria, the proposed project would not cause a significant impact on transit travel times in the project area.

Mitigation: None required.

Pedestrian LOS

Impact 4.L-4. Implementation of the proposed project would not cause pedestrian LOS to degrade to worse than LOS B, or cause the average delay for pedestrians to increase by 10 percent or more where the service level is already LOS C or worse, and could create a safety hazard for pedestrians. (*Less than Significant. No Mitigation Required*)

The threshold for determining the level of impact for the proposed project is:

- Would the project cause the Pedestrian LOS to degrade to worse than LOS B (or increase the delay by 10 percent or more if the service level is LOS C or worse without the project) at a signalized intersection or create a safety hazard for pedestrians?

Tables 4.L-16 and 4.L-17 summarize the pedestrian LOS for all crosswalks at the study intersections under Existing and Cumulative (2040) conditions, respectively. These tables compare the pedestrian LOS results for the no project conditions with the plus project conditions under both Existing and 2040 scenarios. The detailed LOS calculation sheets for each study intersection are presented in **Appendix E:G**. The proposed project would not cause a significant impact on pedestrian LOS under Existing or Cumulative (2040) conditions.

Although the proposed project would increase vehicle and pedestrian traffic in the project vicinity, it would not modify the configuration or signal control of any existing intersections, nor would it include the removal of any pedestrian crossings or introduce any new safety hazards for pedestrians.

Mitigation: None required.

Bicycle LOS

Impact 4.L-5. Implementation of the proposed project would not cause the bicycle segment LOS to degrade to worse than LOS B, increase LOS score by 10 percent or more if the bicycle segment LOS is already LOS C or worse, or create a safety hazard for bicyclists. (*Less than Significant, No Mitigation Required*)

The threshold for determining the level of impact for the proposed project is:

- Would the increase in automobile trips cause the Bicycle segment LOS to degrade to worse than LOS B (or increase the bicycle segment LOS score by 10 percent or more if the service level is LOS C or worse without the project) or create a safety hazard for bicyclists?

Tables 4.L-18 and 4.L-19 summarize the bicycle segment LOS under Existing and Cumulative (2040) conditions, respectively. These tables compare the bicycle analysis results for the no project conditions with the plus project conditions under both Existing and 2040 scenarios. The detailed LOS calculation sheets for each study intersection are presented in **Appendix E:H**.

TABLE 4.L-16
EXISTING CONDITIONS PEDESTRIAN LEVELS OF SERVICE (LOS) BY CROSSWALK[1]

Study Intersection		Peak Hour	Scenario	South		North		East		West	
				Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1	Webster Street/ Willie Stargell Avenue	AM	Existing	49.5	E	N/A	N/A	N/A	N/A	45.1	E
			Existing Plus Project	49.5	E	N/A	N/A	N/A	N/A	45.1	E
		PM	Existing	49.5	E	N/A	N/A	N/A	N/A	45.1	E
			Existing Plus Project	49.5	E	N/A	N/A	N/A	N/A	45.1	E
2	Mariner Square Drive/ Marina Village Parkway	AM	Existing	0	A	0	A	0	A	0	A
			Existing Plus Project	0	A	0	A	0	A	0	A
		PM	Existing	0	A	0	A	0	A	0	A
			Existing Plus Project	0	A	0	A	0	A	0	A
3	Mariner Square Drive/ Constitution Way	AM	Existing	N/A	N/A	37.1	D	N/A	N/A	N/A	N/A
			Existing Plus Project	N/A	N/A	37.1	D	N/A	N/A	N/A	N/A
		PM	Existing	N/A	N/A	37.1	D	N/A	N/A	N/A	N/A
			Existing Plus Project	N/A	N/A	37.1	D	N/A	N/A	N/A	N/A
4	Constitution Way/ Marina Village Parkway	AM	Existing	30.5	D	N/A	N/A	30.5	D	N/A	N/A
			Existing Plus Project	30.5	D	N/A	N/A	30.5	D	N/A	N/A
		PM	Existing	30.5	D	N/A	N/A	30.5	D	N/A	N/A
			Existing Plus Project	30.5	D	N/A	N/A	30.5	D	N/A	N/A
5	Constitution Way/ Atlantic Avenue	AM	Existing	35.0	D	35.0	D	35.0	D	35.0	D
			Existing Plus Project	35.0	D	35.0	D	35.0	D	35.0	D
		PM	Existing	35.0	D	35.0	D	35.0	D	35.0	D
			Existing Plus Project	35.0	D	35.0	D	35.0	D	35.0	D
6	Challenger Drive/ Atlantic Avenue	AM	Existing	N/A	N/A	28.8	C	28.8	C	28.8	C
			Existing Plus Project	N/A	N/A	28.8	C	28.8	C	28.8	C
		PM	Existing	N/A	N/A	28.8	C	28.8	C	28.8	C
			Existing Plus Project	N/A	N/A	28.8	C	28.8	C	28.8	C
8	Grand Street/ Clement Avenue	AM	Existing	0	A	0	A	0	A	N/A	N/A
			Existing Plus Project	0	A	0	A	0	A	N/A	N/A
		PM	Existing	0	A	0	A	0	A	N/A	N/A
			Existing Plus Project	0	A	0	A	0	A	N/A	N/A
9	Park Street/ Blanding Avenue	AM	Existing	20.8	C	N/A	N/A	20.8	C	20.8	C
			Existing Plus Project	20.8	C	N/A	N/A	20.8	C	20.8	C
		PM	Existing	20.8	C	N/A	N/A	20.8	C	20.8	C
			Existing Plus Project	20.8	C	N/A	N/A	20.8	C	20.8	C
10	Park Street/ Clement Avenue	AM	Existing	20.0	B	20.0	B	22.5	C	22.5	C
			Existing Plus Project	20.0	B	20.0	B	22.5	C	22.5	C
		PM	Existing	20.0	B	20.0	B	22.5	C	22.5	C
			Existing Plus Project	20.0	B	20.0	B	22.5	C	22.5	C
11	Tilden Way-Blanding Avenue/ Fernside Boulevard	AM	Existing	N/A	N/A	36.4	D	36.4	D	N/A	N/A
			Existing Plus Project	N/A	N/A	36.4	D	36.4	D	N/A	N/A
		PM	Existing	N/A	N/A	36.4	D	36.4	D	N/A	N/A
			Existing Plus Project	N/A	N/A	36.4	D	36.4	D	N/A	N/A

[1] LOS/Delay for pedestrians as estimated by HCM 2010.

SOURCE: Fehr & Peers, 2017.

TABLE 4.L-17
CUMULATIVE CONDITIONS PEDESTRIAN LEVELS OF SERVICE (LOS) BY CROSSWALK[1]

Study Intersection		Peak Hour	Scenario	South		North		East		West	
				Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1	Webster Street/ Willie Stargell Avenue	AM	2040 No Project	49.5	E	N/A	N/A	N/A	N/A	45.1	E
			2040 Plus Project	49.5	E	N/A	N/A	N/A	N/A	45.1	E
		PM	2040 No Project	49.5	E	N/A	N/A	N/A	N/A	45.1	E
			2040 Plus Project	49.5	E	N/A	N/A	N/A	N/A	45.1	E
2	Mariner Square Drive/ Marina Village Parkway	AM	2040 No Project	0	A	0	A	0	A	0	A
			2040 Plus Project	0	A	0	A	0	A	0	A
		PM	2040 No Project	0	A	0	A	0	A	0	A
			2040 Plus Project	0	A	0	A	0	A	0	A
3	Mariner Square Drive/ Constitution Way	AM	2040 No Project	N/A	N/A	37.1	D	N/A	N/A	N/A	N/A
			2040 Plus Project	N/A	N/A	37.1	D	N/A	N/A	N/A	N/A
		PM	2040 No Project	N/A	N/A	37.1	D	N/A	N/A	N/A	N/A
			2040 Plus Project	N/A	N/A	37.1	D	N/A	N/A	N/A	N/A
4	Constitution Way/ Marina Village Parkway	AM	2040 No Project	30.5	D	N/A	N/A	30.5	D	N/A	N/A
			2040 Plus Project	30.5	D	N/A	N/A	30.5	D	N/A	N/A
		PM	2040 No Project	30.5	D	N/A	N/A	30.5	D	N/A	N/A
			2040 Plus Project	30.5	D	N/A	N/A	30.5	D	N/A	N/A
5	Constitution Way/ Atlantic Avenue	AM	2040 No Project	35.0	D	35.0	D	35.0	D	35.0	D
			2040 Plus Project	35.0	D	35.0	D	35.0	D	35.0	D
		PM	2040 No Project	35.0	D	35.0	D	35.0	D	35.0	D
			2040 Plus Project	35.0	D	35.0	D	35.0	D	35.0	D
6	Challenger Drive/ Atlantic Avenue	AM	2040 No Project	N/A	N/A	28.8	C	28.8	C	28.8	C
			2040 Plus Project	N/A	N/A	28.8	C	28.8	C	28.8	C
		PM	2040 No Project	N/A	N/A	28.8	C	28.8	C	28.8	C
			2040 Plus Project	N/A	N/A	28.8	C	28.8	C	28.8	C
8	Grand Street/ Clement Avenue	AM	2040 No Project	34.7	D	34.7	D	34.7	D	34.7	D
			2040 Plus Project	34.7	D	34.7	D	34.7	D	34.7	D
		PM	2040 No Project	34.7	D	34.7	D	34.7	D	34.7	D
			2040 Plus Project	34.7	D	34.7	D	34.7	D	34.7	D
9	Park Street/ Blanding Avenue	AM	2040 No Project	20.8	C	N/A	N/A	20.8	C	20.8	C
			2040 Plus Project	20.8	C	N/A	N/A	20.8	C	20.8	C
		PM	2040 No Project	20.8	C	N/A	N/A	20.8	C	20.8	C
			2040 Plus Project	20.8	C	N/A	N/A	20.8	C	20.8	C
10	Park Street/ Clement Avenue	AM	2040 No Project	20.0	B	20.0	B	22.5	C	22.5	C
			2040 Plus Project	20.0	B	20.0	B	22.5	C	22.5	C
		PM	2040 No Project	20.0	B	20.0	B	22.5	C	22.5	C
			2040 Plus Project	20.0	B	20.0	B	22.5	C	22.5	C
11	Tilden Way- Blanding Avenue/ Fernside Boulevard	AM	2040 No Project	N/A	N/A	36.4	D	36.4	D	N/A	N/A
			2040 Plus Project	N/A	N/A	36.4	D	36.4	D	N/A	N/A
		PM	2040 No Project	N/A	N/A	36.4	D	36.4	D	N/A	N/A
			2040 Plus Project	N/A	N/A	36.4	D	36.4	D	N/A	N/A

[1] LOS/Delay for pedestrians as estimated by HCM 2010.

SOURCE: Fehr & Peers, 2017.

TABLE 4.L-18
EXISTING PLUS PROJECT BICYCLE LEVELS OF SERVICE (LOS)

Segment	Peak Hour	Scenario	Northbound/Westbound			Southbound/Eastbound		
			Bike Score	LOS	% Change in Bike Score	Bike Score	LOS	% Change in Bike Score
Atlantic Avenue (Constitution Way- Sherman Street)	AM	Existing	2.6	B	0%	2.4	B	0%
		Plus Project	2.6	B		2.4	B	
	PM	Existing	2.5	B	1%	2.7	B	0%
		Plus Project	2.5	B		2.7	B	
Grand Street (Buena Vista Avenue - Clement Avenue)	AM	Existing	0.7	A	0%	0.5	A	0%
		Plus Project	0.7	A		0.5	A	
	PM	Existing	0.5	A	0%	0.9	A	0%
		Plus Project	0.5	A		0.9	A	
Marina Village Parkway (5th Street - Constitution Way)	AM	Existing	1.6	A	12%	1.3	A	2%
		Plus Project	1.8	A		1.3	A	
	PM	Existing	1.2	A	2%	2.7	B	1%
		Plus Project	1.2	A		2.7	B	
Challenger Drive (Marina Village Parkway - Atlantic Avenue)	AM	Existing	2.0	B	0%	0.5	A	0%
		Plus Project	2.0	B		0.5	A	
	PM	Existing	0.5	A	0%	1.8	A	0%
		Plus Project	0.5	A		1.8	A	

SOURCE: Fehr & Peers, 2017.

TABLE 4.L-19
2040 PLUS PROJECT BICYCLE LEVELS OF SERVICE (LOS)

Segment	Peak Hour	Scenario	Northbound/Westbound			Southbound/Eastbound		
			Bike Score	LOS	% Change in Bike Score	Bike Score	LOS	% Change in Bike Score
Atlantic Avenue (Constitution Way- Sherman Street)	AM	2040	2.5	B	0%	2.5	B	0%
		Plus Project	2.5	B		2.5	B	
	PM	2040	2.5	B	0%	2.7	B	0%
		Plus Project	2.5	B		2.7	B	
Grand Street (Buena Vista Avenue - Clement Avenue)	AM	2040	0.7	A	0%	0.5	A	0%
		Plus Project	0.7	A		0.5	A	
	PM	2040	0.5	A	0%	0.6	A	0%
		Plus Project	0.5	A		0.6	A	
Marina Village Parkway (5th Street - Constitution Way)	AM	2040	1.8	A	7%	1.6	A	1%
		Plus Project	1.9	A		1.6	A	
	PM	2040	1.4	A	7%	2.8	C	0%
		Plus Project	1.5	A		2.8	C	
Challenger Drive (Marina Village Parkway - Atlantic Avenue)	AM	2040	2.2	B	0%	0.5	A	0%
		Plus Project	2.2	B		0.5	A	
	PM	2040	1.5	A	2%	2.0	A	0%
		Plus Project	1.5	A		2.0	A	

SOURCE: Fehr & Peers, 2017.

All study segments, except one, are forecasted to operate at LOS A or LOS B during both AM and PM peak hours under Existing Plus Project and Cumulative (2040) Plus Project conditions. The Marina Village Parkway segment is forecasted to operate at LOS C during the PM peak hour under the Cumulative (2040) conditions, regardless of the proposed project. The addition of project trips to the peak-hour volumes along this segment would not cause the bicycle LOS score to increase by more than the 10 percent threshold.

Although the proposed project would increase vehicle and bicycle traffic in the project vicinity, it is not expected to significantly affect or modify any existing or future bicycle facilities or create. Based on the City's significance criteria, the proposed project would not cause a significant impact on bicycle travel in the area.

Mitigation: None required.

CMP Segments

Impact 4.L-6: The proposed project would not cause congestion of regional significance on a roadway segment on the Congestion Management Program (CMP) and/or the Metropolitan Transportation System (MTS) evaluated per the requirements of the Land Use Analysis Program of the CMP. (*Less than Significant, No Mitigation Required*)

The threshold for determining the level of impact for the proposed project is:

- For a roadway segment of the Congestion Management Program (CMP) Network, would the project 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 Alameda County CMP requires the assessment of development-driven impacts to regional roadways. Since the project would generate more than 100 "net new" PM peak-hour trips, Alameda CTC requires the use of the Countywide Travel Demand Model to assess the impacts on the regional roadways near the project site. The CMP and MTS roadways in the project vicinity identified in the NOP comments by Alameda CTC (April 20, 2017 letter) include the following:

- Freeway: I-880
- Arterials In Alameda: SR 260 (Webster and Posey Tubes), Webster Street, Constitution Way
- Arterials in Oakland: Webster, Harrison, 7th, and 8th Streets

The Alameda CTC Model used in this study is a regional travel demand model that uses socio-economic data and roadway and transit network assumptions to forecast traffic volumes and transit ridership using a four-step modeling process that includes trip generation, trip distribution, mode split, and trip assignment. This process accounts for changes in travel patterns due to future growth and balances trip productions and attractions. This version of the Alameda CTC Model is based on ABAG *Projections 2013* land uses for 2020 and 2040.

For the purposes of this CMP and MTS Analysis, the project is assumed to not be included in the Alameda CTC Model to present a more conservative analysis. The traffic forecasts for the 2020 and 2040 scenarios were extracted for the CMP and MTS highway roadway segments from that model and used as the "No Project" forecasts. Vehicle trips generated by the project were added to the "No Project" forecasts to estimate the "Plus Project" forecasts.

The CMP and MTS segments were assessed using a V/C ratio methodology. For freeway segments, a per-lane capacity of 2,000 vehicles per hour (vph) was used. For surface streets, a per-lane capacity of 800 vph was used. Roadway segments with a V/C ratio greater than 1.00 signify LOS F.

The "Plus Project" results were compared to the baseline results for the 2020 and 2040 horizon years. **Appendix E:I** provides the 2020 and 2040 peak hour volumes, V/C ratios, and the corresponding LOS for both the without and with project conditions.

The project would contribute to 2020 and 2040 increases in traffic congestion on CMP MTS roadways. However, the project would not cause a roadway segment on the CMP MTS to degrade from LOS E or better to LOS F. The project also would not increase the V/C ratio by more than three percent for roadway segments that would operate at LOS F without the project. Therefore, the project would not have a significant impact on CMP roadways.

Based on the application of the CMP thresholds to the MTS roadway segments, the project would not cause congestion of regional significance on the MTS roadway segments.

Mitigation: None required.

Transportation Hazards

Impact 4.L-7: The proposed project would not substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment). (Less than Significant, No Mitigation Required)

The proposed project would eliminate the existing site driveway and provide two driveways about 80 feet on either side of the existing driveway. The proposed driveways would connect through an entry way with eight parking spaces and access the project parking garage which would provide 489 parking spaces.

Both project driveways would be right-in/right-out only. Considering the median along Marina Village Parkway, many motorists driving to and from the site would need to make U-turns, especially if they are leaving the site to travel south on Marina Village Parkway, or travelling from the north to the site. It is expected that most drivers that need to make a U-turn would make a U-turn at the intersection for the existing site driveway, which would remain as a T-intersection. The U-turn from northbound Marina Village Parkway can be accommodated for all passenger vehicles due to the existing driveway and bus pullout on southbound Marina Village Parkway. However, larger vehicles may not be able to complete the U-turn from southbound Marina Village Parkway. Providing a bus pullout along northbound Marina Village Parkway would allow larger vehicles to make that U-turn, in addition to improving bus access for the project site. Since larger vehicles would be able to make a U-turn at other median openings along Marina Village Parking, this is not considered a significant impact.

Both project driveways would also provide adequate sight distance between vehicles entering and leaving the driveways and pedestrians on the adjacent sidewalk and vehicles along northbound Marina Village Parkway.

The proposed project would provide a Class I path along the project frontage on the estuary and connect to the existing path on either side of the project site. The path would have somewhat sharp curves at the locations where the proposed path would connect to the existing paths. Proposed landscaping may limit the sight lines between cyclists and pedestrians traveling in opposite directions. The sight lines can be improved by ensuring that the landscaping at these locations would not block the sightlines for cyclists and pedestrians along the path. Since the Class I path will be constructed consistent with the applicable design standards, this is not considered a significant impact.

The proposed project would not modify the existing transportation network in the surrounding areas. In addition, the residential uses proposed by the project are compatible with the existing

office and commercial uses in the surrounding areas. Thus, the proposed project would not increase hazards due to a design feature or incompatible uses.

Mitigation: None Required.

Emergency Access

Impact 4.L-8: The proposed project would not result in inadequate emergency access. (*Less than Significant, No Mitigation Required*)

Emergency vehicles would access the project site from emergency vehicle only access points surrounding the project site. Thus, if one access point is blocked, the other one could be used to access the project site. Marina Village Parkway adjacent to the project site would continue to accommodate access by fire apparatus and other emergency response vehicles. Therefore, the project would not cause a significant impact on emergency access.

Mitigation: None required.

Consistency with Adopted Polices, Plans, and Programs Supporting Alternative Transportation

Impact 4.L-9: Development facilitated by the proposed project would not be inconsistent with adopted polices, plans, and programs supporting alternative transportation. (Less than Significant, *No Mitigation Required*)

The proposed project would complete the segment of the Class I path along the estuary along its frontage and connect to the existing segments of the path, which is consistent with the City's Bicycle Master Plan. The proposed project would not modify existing pedestrian or bicycle facilities in the surrounding areas and would not adversely affect installation of future facilities.

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. 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." Although the proposed project is not a mixed-use development, it would be located in a mixed-use area with office and commercial uses in the vicinity.

Furthermore, Mitigation Measure 4.L-2 requires the project to develop and implement a comprehensive Transportation Demand Management Program, which would further encourage the use of non-automobile travel modes.

Accordingly, the proposed project would have a less-than-significant impact with respect to polices, plans, and programs supporting alternative transportation.

Mitigation: None required.

Project Construction Analysis

Impact 4.L-10: The proposed project would generate temporary increases in traffic volumes on area roadways during construction. (*Less than Significant, No Mitigation Required*)

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 reduction 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. In addition, prior to issuance of grading and building permits, the project applicant is required to submit a Traffic Control Plan.

The weekday work is expected to start around 7:00 AM and end around 4:00 PM. The construction worker arrival peak would occur between 6:30 AM and 7:00 AM, and the departure peak would occur between 4:00 PM and 4:30 PM. Those peak hours are slightly before the citywide commute peak hours, and the number of trips generated during construction would not only be temporary, but would also be less than the proposed project at buildout.

The requirements within the Traffic Control Plan would include, but not limited to, the following: truck drivers would be notified of and required to use the most direct route between the site and the freeway, as determined by the City Engineering Department; all site ingress and egress would occur only at the main driveways to the project site and construction activities may require installation of temporary (or ultimate) traffic controls as determined by the City Engineer; specifically designated travel routes for large vehicles would be monitored and controlled by flaggers for large construction vehicle ingress and egress; parking for construction workers would be provided on the project site; and warning signs indicating frequent truck entry and exit would be posted on adjacent roads.

Because of the temporary nature of construction-period impacts, and the City-required Traffic Control Plan, project construction impacts are considered 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 project site, 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.

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 (City of Alameda, 2013).

EBMUD owns and maintains the existing 8-inch pipeline within Marina Village Parkway. The project would connect to this existing water service.

Wastewater

Existing Collection System

Currently, the wastewater generated from the project site is collected and conveyed by the existing four separate 6-inch sewer laterals that tie into the 8-inch sewer main that is in Marina Village Parkway. The project would connect to this existing wastewater system.

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 people located within an 88-square mile service area. Each Satellite, including the City of Alameda, owns and operates its own wastewater collection system, which delivers wastewater to EBMUD's interceptor system. Wastewater from the City is then transferred to EBMUD's Main Wastewater Treatment Plant (MWWTP), located at the foot of the San Francisco-Oakland Bay Bridge in the City of Oakland.

The MWWTP provides secondary treatment for a maximum flow of 168 million gallons per day (MGD), while primary treatment is provided for up to 320 MGD. On average, about 63 million gallons of wastewater is treated every day (EBMUD, 2016). The wastewater treatment plant is permitted by the Regional Water Quality Control Board (RWQCB) and effluent from the plant is regularly monitored to ensure that water quality standards are not violated. There have been no violations of water quality standards by the treatment plant in recent years (January 1, 2010 through January 1, 2016), and there are no RWQCB enforcement actions pending against EBMUD (SWRCB, 2016).

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). These storage basins provide plant capacity for a short-term hydraulic peak of up to 415 MGD during wet weather events. 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. EPA, SWRCB, and 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 by 2036.

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 in their collection systems. The Stipulated Order required 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, develop a pump station renovation plan, develop a sewer cleaning and root control plan, and 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 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 (City of Alameda, 2013).

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 from the project site is collected via the existing storm drain system along the frontage in Marina Village Parkway and conveyed to the City of Alameda's storm drain system. The project would connect to this existing storm drain system.

Recycled Water

There is no existing source of recycled water in the project vicinity. Accordingly, there are no existing recycled water distribution facilities within the project site.

Solid Waste

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 a maximum permitted capacity of 124.4 million cubic yards, a daily permitted capacity of 11,150 tons per day and, as of December 31, 2014, an estimated remaining capacity of 65.4 million cubic yards, which is anticipated to be reached by the current cease operation date of January 2025 (CalRecycle, 2017a). The City has a diversion rate of 79 percent as of 2016, which is above Assembly Bill 939 diversion goals (refer to State regulations below; Stopwaste.Org, 2016).

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, in 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. Preparation of a WSA is not required for the proposed 292-residential unit project.

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, 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.

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 January 2017. 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) 2016 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.

California's Model Water Efficient Landscape Ordinance

AB 2717 was passed in 2004 and it requested the California Urban Water Conservation Council to convene a stakeholder task force, composed of public and private agencies, to evaluate and recommend proposals by December 31, 2005, for improving the efficiency of water use in new and existing urban irrigated landscapes in California. Based on this charge, the Task Force adopted a comprehensive set of 43 recommendations, essentially making changes to AB 325 of 1990 and updating the Model Local Water Efficient Landscape Ordinance. The recommendation of the bill charges the California Department of Water Resources (DWR) to update the Model Efficient Landscape Ordinance and to upgrade California Irrigation Management Information System.

The Water Conservation in Landscaping Act of 2006 (AB 1881) enacts many, but not all of the recommendations reported to the Governor and Legislature in December 2005 by the California Urban Water Conservation Council Landscape Task Force (Task Force). AB 1881 requires DWR, not later than January 1, 2009, by regulation, to update the model ordinance in accordance with specified requirements, reflecting the provisions of AB 2717. AB 1881 requires local agencies, not later January 1, 2010, to adopt the updated model ordinance or equivalent or it will be automatically adopted by statute. Also, the bill requires the Energy Commission, in consultation with the department, to adopt, by regulation, performance standards and labeling requirements for landscape irrigation equipment, including irrigation controllers, moisture sensors, emission devices, and valves to reduce the wasteful, uneconomic, inefficient, or unnecessary consumption of energy or water.

Local Plans and Policies

EBMUD Regional Private Sewer Lateral Ordinance

In 2009, the EPA and the California RWQCB ordered EBMUD to fix old, cracked sanitary sewer pipes. The EPA's mandate compelled EBMUD and its partners to phase in a Regional Private Sewer Lateral Ordinance beginning in 2011. The ordinance requires affected property owners to obtain a certificate from EBMUD certifying that all of their sewer laterals are leak-free, or that the necessary repairs or replacements have been made.

Alameda County Clean Water Program

Construction activities associated with the proposed project would be subject to NPDES permit requirements for stormwater management and discharges. The Alameda County Clean Water Program 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 it 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 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.

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 or more submit a 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.

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 30-58.4, 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 installation of 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 an 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.

City of Alameda's Water Efficient Landscaping Ordinance

The City of Alameda's Water Efficient Landscaping Ordinance (Alameda Municipal Code Chapter 30, Article IV, Section 30-58) implements Assembly Bill 325, California's Model Water Efficient Landscape Ordinance (Division 2, Title 23, California Code of Regulations, Chapter 2.7, Sections 490-495).

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 the project's potential impact on utilities and service systems, describes adverse impacts that would result from implementation and projected buildout, and recommends mitigation measures as appropriate.

Projected utility demands, or net increases in utility usage associated with implementation of the project, were determined and compared to existing capacity. 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: The proposed project would not result in an exceedance of wastewater treatment requirements of the applicable Regional Water Quality Control Board. (*Less than Significant, No Mitigation Required*)

Wastewater flows from the proposed project would consist of typical residential sewage. Residential wastewater generation is generally the same or less than water usage, so would be less than 0.06 mgd of wastewater generated by the proposed project (see Impact 4.M-4). The

MWWTP would have adequate dry weather capacity to accommodate the proposed project. Wastewater generated by the project would not contain any unusual pollutants that would otherwise result in such an exceedance.

As discussed in the Environmental Setting above, EBMUD entered into a Stipulated Order from the EPA, SWRCB, and San Francisco RWQCB, which contains measures that EBMUD is required to implement in order to address inadequately treated sewage to San Francisco Bay during wet weather conditions (City of Alameda, 2013). Subsequently, in March 2011, the East Bay wastewater collection agencies, including the City of Alameda, entered into a Stipulated Order with the EPA, SWRCB, and the RWQCB. This particular Stipulated Order obligates the collection agencies 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.

Consistent with the Stipulated Order and the City of Alameda's Private Lateral Ordinance, the proposed project would construct new wastewater infrastructure to connect to the Alameda Sewer System in Marina Village Parkway which conveys flow to the EBMUD Interceptor. The project would not contribute to exceedances 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: The proposed project would not have wastewater service demands that would result in a determination by the service provider that it does not have adequate capacity to serve projected demand, necessitating the construction of new or expanded wastewater treatment facilities. (*Less than Significant with Mitigation*)

As described above, the project's 292 new residential units would generate less than 0.06 mgd of sewage. With a current average dry weather flow of approximately 63 mgd and dry weather flow capacity of 168 mgd at EBMUD's MWWTP, EBMUD has adequate dry weather capacity at the MWWTP for the projected wastewater flows (EBMUD, 2017).

The East Bay regional wastewater collection system experiences exceptionally high peak flows during storms due to excessive infiltration and inflow (I&I) that enters the system through cracks and misconnections in both public and private sewer lines. All new sanitary sewer lines would be designed and constructed to prevent I&I to the maximum extent feasible.

Mitigation Measure 4.M-1 below would ensure the project implements the necessary improvements to reduce I&I flow to the maximum extent feasible. Additionally, as described in Impact 4.M-3 below, the project would include installation of a new onsite storm drainage system consisting of new inlets and pipelines that would further reduce wet weather flows to the MWWTP. This measure would reduce the level of impact to less than significant.

> **Mitigation Measure 4.M-1:** The project sponsors shall: 1) replace or rehabilitate any existing sanitary sewer collection systems, including sewer lateral lines, to ensure that such systems and lines are free from defects or, alternatively, disconnected from the sanitary

sewer system; and 2) ensure any new wastewater collection systems, including new lateral lines, for the project are constructed to prevent infiltration and inflow (I&I) to the maximum extent feasible while meeting all requirements contained in the Regional Private Sewer Lateral Ordinance and applicable municipal codes or City ordinances.

Consistent with the Stipulated Order, such improvements would greatly reduce the system's infiltration and inflow. Since the MWWTP and the EBMUD interceptor are expected to have adequate capacity to serve projected new demand generated by the proposed project, the project would not require the construction of any new wastewater treatment facilities or the expansion of such facilities. Therefore, impacts on existing wastewater treatment facilities would be less than significant.

Significance after Mitigation: Less than Significant.

Impact 4.M-3: The proposed project would result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which would not cause significant environmental effects. (*Less than Significant, No Mitigation Required*)

Currently the project site is primarily covered in concrete, asphalt, and other impermeable surfaces associated with maritime industrial uses. Within the project site, stormwater is collected via the existing storm drain system along the frontage in Marina Village Parkway and conveyed to the City of Alameda's storm drain system. The project would connect to this existing storm drain system. Redevelopment of the project site would provide 2.5 acres of public open space, and the planting areas would also be used to incorporate stormwater treatment areas to treat roof and hardscape runoff. Project-related stormwater collection and drainage would maintain the existing patterns of the project site, and stormwater runoff from the project site would continue to be directed to existing and updated outfalls.

Construction activities of the new stormwater drainage facilities would include in-street trenching and excavation work. The project would be required to comply with the requirements of the RWQCB concerning discharges of stormwater during project construction, and the project applicant would be required to obtain a NPDES permit for construction activities and execute a Stormwater Pollution Prevention Plan (SWPPP) that would outline construction stormwater quality management practices based on the CWPAC Stormwater Quality Management Plan. The SWPPP would describe erosion control measures similar to those recommended by the CWPAC 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. Although construction activities associated with the stormwater drainage facilities could result in potentially significant environmental impacts, implementation of mitigation measures described throughout this EIR would reduce construction-related impacts to a level of less than significant.

The proposed project would be required to adhere to the C.3 provision in the NPDES by including specific site design features that minimize land features and impervious surfaces and implementation of Low Impact Development (LID) measures, which include bioretention areas to treat stormwater runoff from impervious areas on the project site prior to discharging into the

stormwater system. These bio-treatment areas would be integrated in landscaping areas adjacent to parking areas or buildings. With implementation of LID measures and compliance with C.3 provisions, operational impacts of the storm drainage system would be considered less than significant.

Mitigation: None required.

Impact 4.M-4: The proposed project would have sufficient water supplies available to serve the development from existing entitlements and would not require the construction of new water treatment facilities or expansion of existing facilities, the construction of which would not cause significant environmental effects. (*Less than Significant, No Mitigation Required*)

Water Supply

EBMUD supplies approximately 220 mgd of potable water throughout its service area in non-drought years. According to EBMUD's 2010 UWMP, EBMUD's water supply is adequate to meet existing and projected area-wide demand through 2030 under normal conditions and up to two years of drought. EBMUD implements numerous water conservation and recycling programs to reduce demand and develops projects to manage future water supply needs. The water demand projections used by EBMUD are derived from a land-use based demand forecast that reflects the City's plans and policies, and assumes an amount of future development permitted under the General Plan's growth management ordinance and additional growth.

According to EBMUD average usages, the project would generate demand for less than 0.06 mgd of water for indoor and outdoor water use.[1]

Section 31 of EBMUD's Water Service Regulations requires that water service shall not be furnished for new or expanded services unless all applicable water-efficiency measures described in the regulation are installed at the project sponsor's expense. The project would comply with the City of Alameda's Bay Friendly and Water Efficient Landscape Ordinance (Alameda Municipal Code Chapter 30, Article IV, Section 30-58). In addition to compliance with the City of Alameda Water Efficient Landscaping Ordinance (Alameda Municipal Code Chapter 30, Article IV, Section 30-58), the project sponsor may be required to implement additional water conservation programs and best management practices contained in EBMUD's Water Service Regulations and/or California's Model Water Efficient Landscape Ordinance (Assembly Bill 325).

For these reasons, the proposed project would be adequately served by the existing water supply and the impact would be less than significant.

Water Facilities

EBMUD provides potable water service to the City of Alameda and other communities within Contra Costa and Alameda Counties. EBMUD also owns and maintains the distribution pipeline

[1] Calculated based on rates of 35 to 55 gallons per day for each resident and 12 gallons per day for each 100 square feet of landscaped area as provided in http://www.ebmud.com/water-and-drought/conservation-and-rebates/residential/save-pro/

facilities within public streets throughout its service area. The 8-inch pipeline in Marina Village Parkway is owned by EBMUD, to which the project would connect.

EBMUD's long-range planning for future water infrastructure and supply needs is based on population projections compiled by ABAG, which takes into account growth planned in the adopted general plans of Bay Area cities and counties. Development of the project site with new homes has been planned for in the Alameda General Plan for the next 20 years, and therefore has been factored into EBMUD's water demand projections within the Water Supply Management Program 2040. The proposed project's incremental increase in demand would not be significant, and would not require the construction of new water treatment facilities or the expansion of such facilities. Water supply for the project would be adequate.

Construction activities associated with the pipeline connections result in temporary and potentially significant environmental impacts, but implementation of mitigation measures described throughout this EIR (i.e., construction mitigation measures related to air quality, noise, hydrology, and transportation) would reduce construction-related impacts to a level of less than significant level.

Mitigation: None required.

Impact 4.M-5: The proposed project would be served by a landfill with sufficient 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. (*Less than Significant, No Mitigation Required*)

Construction Impacts

Solid waste generated from construction could include materials from demolition of the existing structures and the site and the upper portions of the timber piles that will be cut down to surface level. Because the existing buildings were constructed of concrete, project demolition activities would include crushing the existing building materials and re-using the recycled materials as part of the fill for the building pad and reconstructed open space areas, which will divert much of the solid waste from landfills.

In addition, the project would be required to comply with Chapter XXI, Section 21 of the City of Alameda Municipal Code, which requires that new developments submit plans for managing construction debris to promote separation of waste types and recycling. These plans would need to be prepared in coordination with City staff, the project sponsor(s), and demolition subcontractors, and must be approved by City staff prior to issuance of a demolition permit. Compliance with the City's Municipal Code regarding management of construction debris, project construction would result in less-than-significant impacts on landfill capacity.

Operation Impacts

CalRecycle reports numerous solid waste generation rates developed by a variety of jurisdictions throughout the State, ranging from four pounds per dwelling unit per day (lb/unit/day) to 8.6 pounds per dwelling unit per day (lb/household/day) for multifamily residential development

(CalRecycle, 2016a). Based on the highest of these solid waste generation rates (i.e., 8.6 lb/household/day), the proposed project's up to 292 new housing units would generate approximately 2,511 pounds per day (or 1.25 tons per day). As of 2014, the Altamont Landfill (which serves Alameda) had an estimated remaining capacity of 65.4 million cubic yards and a permitted daily capacity of 11,500 tons/day. The project would represent an incremental increase in current waste disposal at the Altamont Landfill. Given the City's existing diversion rate, 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, 2016b), it has an estimated disposal capacity through 2045 (Waste Management, 2013). With nearly 30 years of remaining capacity at the landfill, solid waste generated by the project in the long-term would not substantially reduce existing landfill capacity. Therefore, impacts on solid waste disposal from operation of the project would be less than significant.

Regulatory

The proposed project would not conflict with or interfere with the City's ability to implement its adopted solid waste management programs and policies, including the Citywide integrated waste management plan and Chapter XXI, Section 21 of the City of Alameda Municipal Code. The project would be served by weekly curbside pickup of recyclable materials by ACI. Waste generated by the proposed project would enter the same stream as other area waste collected by ACI, and would be subject to the same existing requirements regarding recycling and solid waste disposal. Because existing solid waste collection and disposal in Alameda complies with current federal, State and local requirements, and because the project's solid waste would enter the same existing disposal stream, the proposed project would not violate any federal, State, or local statutes or regulations related to solid waste.

Mitigation: None required.

Cumulative Impacts

Impact 4.M-6: The proposed project, in combination with other past, present, existing, approved, pending, and reasonably foreseeable future projects, would not result in cumulatively considerable impacts to utilities and service systems. (*Less than Significant with Mitigation*)

The geographic setting for cumulative impacts to utilities and service systems is the service area of each respective utility service agency. Past and present projects are described in the Environmental Setting, which represents the baseline conditions for the evaluation of cumulative impacts. Reasonably foreseeable future development forecasts are based on projections of future growth and take into account projects going through the entitlement process. Those forecasts account for other major projects currently in various stages of the approval and construction process. The proposed project, in combination with other past, present, and future projects in the City of Alameda, would result in an increase in demand for public services for an estimated 95,500 residents that would be living in Alameda by 2040 (ABAG and MTC, 2013).

Wastewater

As discussed under Impact 4.M-1 and 4.M-2 above, EBMUD would have adequate dry weather capacity to accommodate the proposed project, but wet weather flows could present a concern. Under the Stipulated Order EBMUD is required to implement several measures in order to address inadequately treated sewage to San Francisco Bay during wet weather conditions (City of Alameda, 2013), and subsequently EBMUD's Satellite Agencies entered into a Stipulated Order that obligates them 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. To support these efforts, the proposed project would implement **Mitigation Measure 4.M-1** by replacing or rehabilitating the wastewater infrastructure that serves the site, and complying with EBMUD's Regional Private Sewer Lateral Ordinance. The physical effects of these improvements are described throughout this EIR, and mitigation is provided to reduce these impacts to less than significant, where feasible.

All present and future projects that are subject to discretionary approval would be required to undergo project-specific environmental analysis, pursuant to the CEQA, to determine the potential for environmental impacts and identify mitigation where feasible. Like the proposed project, all past, present, and future projects have been and would be required to comply with the Regional Private Sewer Lateral Ordinance by replacing or rehabilitating existing sewer lines, or installing new lines, to serve the proposed development. These projects would also be required to ensure adequate capacity is available to accommodate new wastewater that is generated by the proposed development. Therefore, the proposed project, in conjunction with other development, would not have a significant cumulative impact associated with wastewater, and the project's cumulative impact would be less than significant.

Water Supply Availability and Water Treatment

As discussed under Impact 4.M-4, there is adequate water available to serve the project, and no new facilities would need to be constructed. All present and future projects that are subject to discretionary approval would be required to undergo project-specific environmental analysis, pursuant to CEQA, to determine the potential for environmental impacts and identify mitigation where feasible. Like the proposed project, all past, present, and future projects have been and would be required to comply with the City of Alameda Municipal Code, including the Water Efficient Landscaping Ordinance. These projects would also be required to ensure adequate water supply is available to serve the proposed development. Therefore, the proposed project, in conjunction with other development, would not have a significant cumulative impact associated with water, and the project's cumulative impact would be less than significant.

Stormwater

The proposed project would connect to the existing storm drain system and provide stormwater treatment areas to treat roof and hardscape runoff. The physical effects of these improvements are described throughout this EIR, and mitigation is provided to reduce these impacts to less than significant, where feasible.

All present and future projects that are subject to discretionary approval would be required to undergo project-specific environmental analysis, pursuant to CEQA, to determine the potential

for environmental impacts and identify mitigation where feasible. Like the proposed project, past, present, and future developments over one acre in size have been or would be required to comply with the requirements of the RWQCB concerning discharges of stormwater during project construction, through obtaining a NPDES permit for construction activities and executing a SWPPP that would outline construction stormwater quality best management practices designed to reduce the potential for pollutants to contact stormwater and eliminate or reduce discharge of materials to the City's stormwater system. Therefore, the proposed project, in conjunction with other development, would not have a significant cumulative impact associated with stormwater, and the project's cumulative impact would be less than significant.

Landfill Capacity

Solid waste generated in Alameda is sent to the Altamont Landfill. As of 2014, the Altamont Landfill (which serves Alameda) had an estimated remaining capacity of 65.4 million cubic yards and a permitted daily capacity of 11,500 tons/day.

All present and future projects that are subject to discretionary approval would be required to undergo project-specific environmental analysis, pursuant to CEQA, to determine the potential for environmental impacts and identify mitigation where feasible. Many past and all present and reasonably foreseeable future development projects have or would generate construction and operational solid waste and, depending on the volumes and end uses, have been or would be required to implement recycling and waste reduction measures. The proposed project would generate construction and demolition waste, mostly attributed to the removal of the concrete structures onsite. The proposed project would divert a minimum of 50 percent of its construction waste for recycling or reuse and would comply with the requirements of CALGreen and AB 939. Operation of the proposed project would generate an estimated 2,511 pounds per day (or 1.25 tons per day), representing an incremental increase in waste being sent to the Altamont landfill, and the landfill would have adequate capacity to serve the proposed project. Assuming the residents on the project site have similar waste generation rates to the rest of Alameda, operational waste generated by the project would not cause the City to exceed their target waste diversion rates. The project would not exceed permitted landfill capacity or violate any state or federal regulations related to solid waste and the proposed project would have a less-than-significant impact on solid waste generation. All past, present, and foreseeable future projects have been and would be required to demonstrate that adequate landfill capacity is available to accommodate increased waste prior to any project approvals. Such projects have been and would also be required to comply with the recycling and reuse measures and targets established by CALGreen and AB 939 for construction and operational waste. Therefore, the proposed project, in conjunction with other development, would not have a significant cumulative impact associated with solid waste, and the project's cumulative impact would be less than significant.

Mitigation: Implement Mitigation Measure 4.M-1

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CHAPTER 5
Alternatives to the Proposed Project

Pursuant to the provisions of CEQA, this chapter describes and evaluates alternatives to the proposed project, including a "No Project" alternative, and identifies an "environmentally superior" alternative. The primary purpose of this section is to provide decision-makers and the public with a qualitative review of project alternatives that eliminate or substantially reduce any of a project's adverse environmental impacts while, at the same time, attaining most of the project objectives.

A. CEQA Requirements

CEQA requires that an EIR describe and evaluate a range of reasonable alternatives to 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 foster informed decision-making and public participation (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. Factors in the Selection and Rejection of Alternatives

The nature and scope of the range of alternatives to be discussed is governed by the "rule of reason." The CEQA Guidelines recommend that an EIR should briefly describe the rationale for selecting the alternatives to be discussed (Section 15126.6[c]). This alternatives analysis considers the following factors:

- The extent to which the alternative would accomplish most of the basic objectives of the proposed project
- The extent to which the alternative would avoid or lessen the identified significant, or less than significant with mitigation, environmental effects of the proposed project
- Requests by interested parties, community members, and decision makers at the EIR scoping session for information regarding the relative environmental impacts of different development programs and different numbers of housing units
- The feasibility of the alternative, taking into account site suitability, availability of infrastructure, general plan consistency, and consistency with other applicable plans and regulatory limitations
- The extent to which an alternative contributes to a "reasonable range" of alternatives necessary to permit a reasoned choice
- The requirement of the CEQA Guidelines to consider a "No Project" alternative, and to identify an "environmentally superior" alternative in addition to the no-project alternative (Section 15126.6[e])

Project Objectives

As stated above, the selection of alternatives shall consider the basic objectives of the proposed project. The proposed project (presented in Chapter 3, Project Description) is designed to achieve a specific set of objectives, which are as follows:

- To create a residential community consistent with the Mixed Use Planned Development (MX) zoning district designation and the Multifamily Residential Combining Zone (MF) and City's General Plan Housing, Land Use, and Transportation Elements.
- To create affordable and market rate housing that would significantly contribute to the General Plan's Housing Element goals, and the Association of Bay Area Governments' Regional Housing Needs Allocation for the City of Alameda.

- To create on-site affordable dwelling units on site, guided by the City's Inclusionary Housing Ordinance (Municipal Chapter 30-16).
- To redevelop a structurally unsound and underutilized parcel, with a mix of market rate and affordable rental housing and private and public open space amenities.
- To create a significant public waterfront recreation area with access to the Estuary and support an extension of the Bay Trail.
- To develop a financially viable, high-quality residential community with sufficient density to subsidize the affordable dwelling units.

Elimination and/or Reduction of Significant Impacts

CEQA Guidelines §15126.6(b) states that:

> Because an EIR must identify ways to mitigate or avoid the significant effects that a project may have on the environment (Public Resources Code Section 21002.1), the discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly.

Potentially significant environmental impacts that would result from the proposed project are evaluated in Chapter 4.0, Environmental Setting, Impacts, and Mitigation Measures, of this EIR. With implementation of the project design features, standard conditions and requirements, and mitigation measures identified for each resource area significantly impacted, many of the potentially significant impacts resulting from the proposed project would be reduced to a less than significant level. The proposed project impacts listed below would remain significant and unavoidable even after mitigation, and the alternatives evaluated in this EIR have been selected because they are anticipated to reduce and/or eliminate one or more of the significant impacts associated with the proposed project.

> **Impact 4.E-1:** Project implementation would cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines, Section 15064.5. (Significant and Unavoidable)

> **Impact 4.L-2:** The proposed project could increase traffic volumes such that traffic conditions at the Park Street/Blanding Avenue intersection would degrade from LOS D to LOS E under Existing Plus Project conditions and at the Marina Square Drive/Constitution Way intersection would degrade LOS E to LOS F and the proposed project could increase traffic volumes by three percent or more under Cumulative (2040) conditions. (Significant and Unavoidable)

Alternatives Considered but Rejected for Further Consideration

CEQA Guidelines Section 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 basic project objectives.

Alternative Site: Section 15126.6(f)(2) of the CEQA Guidelines sets forth the following criteria for determining whether to analyze an alternative site because "An EIR need not consider an alternative whose effect cannot be reasonably ascertained and whose implementation is remote and speculative." CEQA Guidelines Section 15126.6(f)(2) states:

(A) Key question. The key question and first step in analysis is whether any of the significant effects of the project would be avoided or substantially lessened by putting the project in another location. Only locations that would avoid or substantially lessen any of the significant effects of the project need be considered for inclusion in the EIR.

(B) None feasible. 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. For example, in some cases there may be no feasible alternative locations for a geothermal plant or mining project, which must be in close proximity to natural resources at a given location.

(C) Limited new analysis required. Where a previous document has sufficiently analyzed a range of reasonable alternative locations and environmental impacts for projects with the same basic purpose, the lead agency should review the previous document. The EIR may rely on the previous document to help it assess the feasibility of potential project alternatives to the extent the circumstances remain substantially the same as they relate to the alternative (Citizens of Goleta Valley v. Board of Supervisors (1990) 52 Cal.3d 553, 573 . . .).

Because the basic purpose of the proposed project is to redevelop the Alameda Shipways site, an alternative site would not be feasible as an alternative to the proposed project. The purpose of the proposed project is to determine the best uses and development standards and requirements for the project site. Consideration of an alternative that analyzes 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. Therefore, an alternative site is not considered a feasible alternative to the proposed project, and is not analyzed in this EIR.

Other Preservation Alternatives: Section 15126.6 of the CEQA Guidelines requires an EIR to assess a "range of reasonable alternatives" and specifies that, "An EIR need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation."

The removal of existing structures at the site was determined to be a significant impact of the project. Alternative 1: No Project Alternative represents full preservation of the existing structures, so an additional full preservation alternative was not assessed. Alternative 4: Partial Preservation Alternative represents partial preservation of existing structures at the site.

There could be other ways to partially preserve existing structures while allowing for some development. For example, the City considered a partial preservation alternative that preserved only the head houses of the four historic shipways structures, reduced residential development from 292 (the project) to 166 units, and included the waterfront park/open space proposed under the project. Ultimately, the choice of which partial preservation alternative to assess was made based on the one that would best convey the historic use of the structures (though preservation of full shipways rather than just the head houses), that best meets the project objectives to provide housing, and that has a better chance to be technically feasible (by allowing for new foundational supports connecting directly to the solid ground at the roadway, rather than leaving a gap where old foundational supports would be retained under the head houses).

While there could be changes to the analyzed Alternative 4: Partial Preservation Alternative that would still meet the intent of the alternative (to reduce the loss of historic structures), such changes would not be likely to substantially change the conclusions covered in this analysis or contribute meaningfully to a reasonable range of alternatives and therefore additional partial preservation alternatives were rejected from further consideration in this EIR.

C. 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 Shipways Residential Project. Specifically, the range of alternatives is designed to inform decision makers about:

- Potential modifications to the proposed project that might minimize or avoid environmental impacts
- The relative change in environmental impact (increase or decrease) that might be expected due to 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

Based on these considerations, the City has identified the following range of reasonable alternatives to be addressed in this EIR:

- **Alternative 1: No Project Alternative**
- **Alternative 2: Reduced Density Alternative**
- **Alternative 3: Multi-Structure Affordable Housing Alternative**
- **Alternative 4: Partial Preservation Alternative**

Table 5-1 presents a comparison of these alternatives (and a summary of the proposed project) carried forward for consideration and evaluation.

TABLE 5-1

DESCRIPTION OF PROPOSED PROJECT AND ALTERNATIVES SELECTED FOR EVALUATION

Land Use	Proposed Project	1: No Project Alternative	2: Reduced Density Alternative	3: Multi-Structure Affordable Housing Alternative	4: Partial Preservation Alternative
Residential Units – Very Low Income	13	—	7	27	13
Residential Units – Low Income	10	—	5	10	10
Residential Units – Moderate Income	17	—	9	17	17
Total Residential Units	292	—	146	329	272
Substantially avoids or lessens SU impacts?	N	Y	Y	N	Y

NOTES: SU – Significant and Unavoidable

Alternative 1: The No Project Alternative

The No Project Alternative represents the circumstance under which the proposed project does not proceed. This Alternative is analyzed consistent with Section 15126.6(e) of the CEQA Guidelines, which states that the No Project Alternative must include the assumption that conditions at the time the Notice of Preparation of an EIR was circulated for public review would not be changed because the proposed project would not be constructed, and the events or actions that would reasonably be expected to occur in the foreseeable future if the proposed project were not approved.

Under the No Project Alternative, the project would not be constructed, and the site would remain in the same state as its current condition, with the existing structures, parking areas, and deteriorating timber pile supports remaining in place. Residential units would not be constructed at the site, the proposed open space would not be developed, and the new portion of the Bay Trail would not be constructed.

Alternative 2: Reduced Density Alternative

The Reduced Density Alternative assumes the same development footprint across the site, including both residential development and the proposed waterfront park, but with substantially fewer residential units than under the proposed project. The Reduced Density Alternative would include a 50% reduction in residential units—from 292 under the proposed project to 146 units, which was chosen as that necessary to avoid the Project's cumulatively considerable contribution to the significant traffic impacts (**Impact 4.L-2**). Overall, it is assumed that the massing of the proposed residential development would be reduced in size when compared with the Project, resulting in fewer floors and lower overall height. The reduction in unit count would also result in a reduction (by up to about 50%) in total square footage (with the potential for slightly larger units and/or amenity areas).

Alternative 3: Multi-Structure Affordable Housing Alternative

Under the Multi-Structure Affordable Housing Alternative, the project site would be developed as allowed under the state's allowable affordable housing density bonus. This alternative was not chosen to address environmental impacts, but rather to acknowledge the potential for increased development intensity under the affordable housing density bonus law and ensure the analysis considered this potentiality. Additionally, this alternative responds to City Planning Department comments requesting an alternative with the massing separated into multiple structures and allowing for views across the site from the street to the Estuary.

The Multi-Structure Affordable Housing Alternative would include an increase in both affordable housing units and market-rate units for a total of 329 apartment units (27 units for very-low income households, 10 units for low income households, and 17 for moderate income households). This is an increase in number of residential units of 13% compared to the proposed project. The units would be located in four structures comprising a "podium" design that would conceal the parking structures at ground level below the apartments. The two structures fronting on Marina Village Parkway would be 4 stories, approximately 56 feet in height. The two structures fronting the new park would reach 6 stories, approximately 71 feet in height. This alternative would also include similar amenities as the proposed project, and would also include the approximately 2.5-acre public "Waterfront Park" proposed under the project. The site plan and a visual rendering for Alternative 3, the Multi-Structure Affordable Housing Alternative, are shown in **Figures 5-1 and 5-2**.

Alternative 4: Partial Preservation Alternative

The Partial Preservation Alternative includes the preservation of Shipways 1 and 4 in their current state, which includes approximately 28,300 square feet of existing office space in the head houses. Residential development along the center of the site would be flanked by the preserved shipways on either side. Behind the head houses, where the shipways slope to the water, the shipways would be visible from surrounding and proposed internal development, but public access beyond the head houses would not be allowed as the structures are not structurally sound. While not accessible, remnants of the shipways structures would be left in place in the water.

The residential development portion would include podium-level parking and multi-structure residential buildings with views between the buildings from the street to the Estuary that would accommodate 272 residential units. This alternative does not include the public waterfront park, though access for the Bay Trail would be provided in the approximately 15-foot strip along the water side of the site. The site plan for Alternative 4, the Partial Preservation Alternative, is shown in **Figure 5-3**.

Figure 5-1. Alternative 3 Site Plan

Source: SVA Architects

April 2018

Figure 5-2. Alternative 3 Rendering
Source: SVA Architects
April 2018

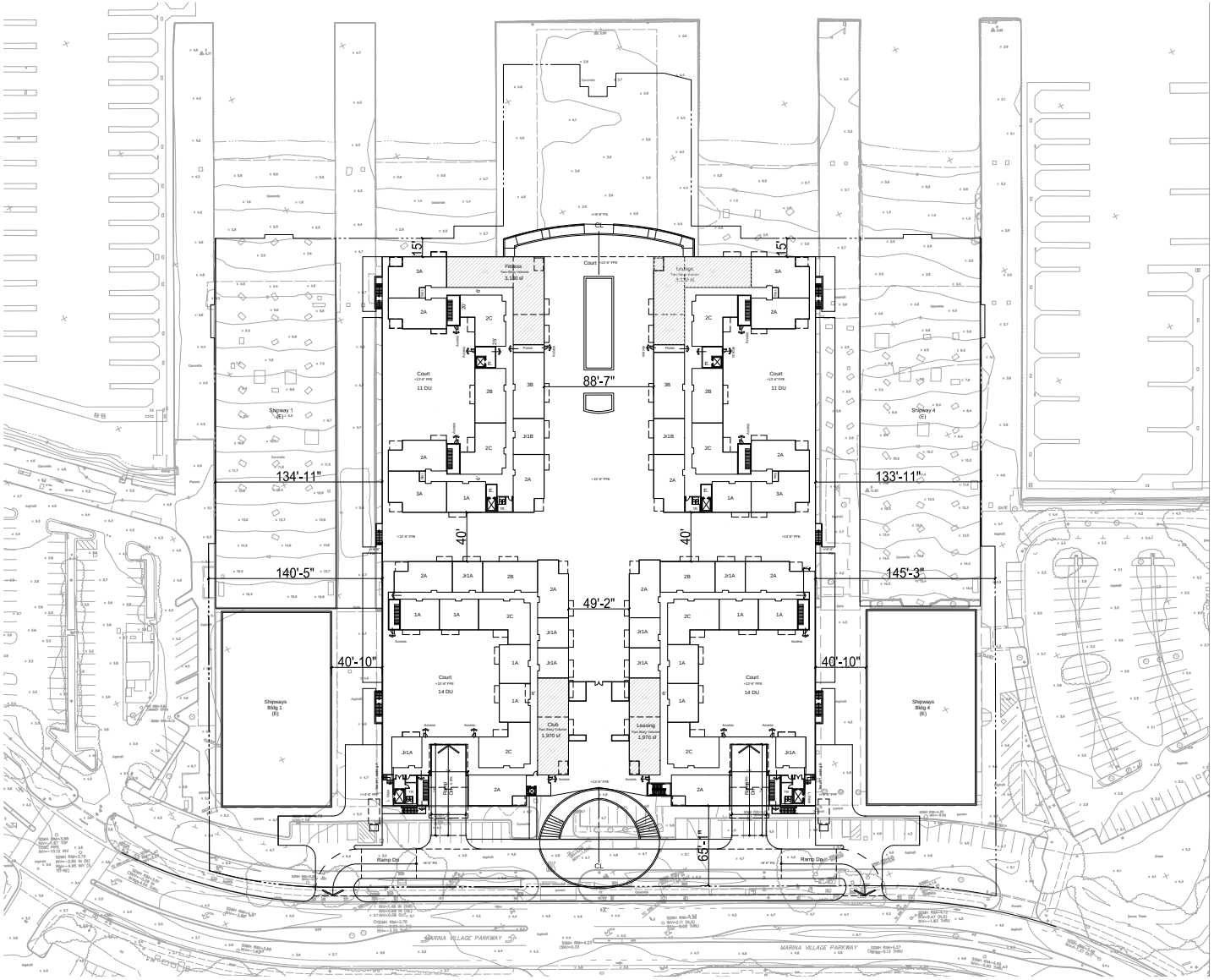

Figure 5-3. Alternative 4 Site Plan

Source: SVA Architechts

April 2018

D. Comparative Analysis of the Alternatives

This section presents an environmental assessment of each alternative by environmental topic compared to the proposed project. 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. All impacts are described after implementation of any applicable mitigation measures identified in Chapter 4.

The analysis of the alternatives is summarized and compared in **Table 5-2**, which provides a summary of impact levels within all environmental topic areas. Overall, this table shows that the various alternatives would reduce some, but not all of the project's impacts.

TABLE 5-2
SUMMARY OF IMPACTS: PROJECT AND ALTERNATIVES

	Proposed Project	No Project Alternative	Reduced Density Alternative	Multi-Structure Affordable Housing Alternative	Partial Preservation Alternative
Aesthetics	LTS	N ⇩	LTS ⇔	LTS ⇔	LTS ⇔
Agricultural, Forest, and Mineral Resources	N	N ⇔	N ⇔	N ⇔	N ⇔
Air Quality, Greenhouse Gas Emissions, and Energy	LTS w/M	N ⇩	LTS w/M ⇩	LTS w/M ⇧	LTS w/M ⇩
Biological Resources	LTS w/M	N ⇩	LTS w/M ⇔	LTS w/M ⇔	LTS w/M ⇔
Cultural Resources	SU	N ⇩	SU ⇔	SU ⇔	SU ⇩
Geology, Soils, and Geohazards	LTS	N ⇩	LTS ⇔	LTS ⇔	LTS ⇔
Hazards and Hazardous Materials	LTS w/M	N ⇩	LTS w/M ⇔	LTS w/M ⇔	LTS w/M ⇩
Hydrology and Water Quality	LTS w/M	N ⇩	LTS w/M ⇔	LTS w/M ⇔	LTS w/M ⇔
Land Use Consistency and Compatibility	LTS	N ⇩	LTS ⇔	LTS ⇔	LTS ⇔
Noise and Vibration	LTS w/M	N ⇩	LTS w/M ⇩	LTS w/M ⇧	LTS w/M ⇩
Population, Housing, and Public Services	LTS	N ⇩	LTS ⇩	LTS ⇧	LTS ⇩
Transportation and Traffic	SU	N ⇩	LTS w/M ⇩	SU ⇧	SU ⇧
Utilities and Service Systems	LTS w/M	N ⇩	LTS w/M ⇩	LTS w/M ⇧	LTS w/M ⇩

NOTES: Arrows indicate whether the impact would be marginally greater than (⇧), lesser than (⇩) or similar to (⇔) that under the proposed project. **Shaded bold** indicates an increase in significance from that under the proposed project.
N= no impact
LTS = less than significant impact
LTS w/M = significant impact reduced to less than significant with implementation of identified mitigation
SU = significant and unavoidable impact

Comparison of Impacts Identified for the Proposed Project and Alternatives

Alternative 1: No Project Alternative

The No Project Alternative assumes that the existing project site remains as it is and no development takes place. Under this alternative, the site would remain in the same state as its current condition, with the existing structures, parking areas, and deteriorating timber pile supports remaining in place. Residential units would not be constructed at the site, the proposed park would not be developed, and the new portion of the Bay Trail would not be constructed.

The following discussion summarizes a comparison between the potential effects of the No Project alternative and the proposed project. Because the alternative poses no changes or activity compared to existing baseline conditions, no impacts would result. The discussion does identify where beneficial effects could occur with implementation of the proposed project that would not be realized under the No Project alternative.

Aesthetics

The No Project Alternative would result in no negative impact on aesthetics, compared with the less than significant impact (no mitigation required) identified with the proposed project, but also would not increase public access to views of the Estuary. The No Project Alternative would result in no change to the existing views as discussed and evaluated in Section 4.A, Aesthetics. No visual impacts or other changes related to aesthetic resources would result from this alternative, as no changes would occur. Under the No Project Alternative, the existing structures on the site would not be demolished, and would continue to obstruct views of the shoreline from several viewpoints. The No Project Alternative would have no negative impact on aesthetics, but also would not have the beneficial impact of increasing access to views of the Estuary.

Air Quality and Climate Change

The No Project Alternative would result in no impact on air quality or related to greenhouse gas emissions, compared with the less than significant (with mitigation) impacts identified with the proposed project. No development would occur with the No Project Alternative. Therefore, none of the adverse effects related to air quality resulting from demolition, construction, or operations activities on the project site would occur with this alternative, as compared to the project. The No Project Alternative would have no impact on air quality.

The No Project Alternative would not result in construction activity or any changes to the land uses existing on the project site. Therefore, no increase in GHG emissions or energy use associated with construction and operation of the residential development would occur.

Biological Resources

The No Project Alternative would result in no impact on biological resources, compared with the less than significant (with mitigation) impacts identified with the proposed project. No development would occur with the No Project Alternative. Therefore, none of the project's impacts on biological resources would occur with this alternative.

Cultural Resources

The No Project Alternative would result in no impact on cultural resources, compared with the significant and unavoidable (with mitigation) impacts identified with the proposed project. No development would occur with the No Project Alternative. Therefore, the significant and unavoidable impacts identified under the proposed project would not occur. There would be no loss of the historic structures, nor would there be any potential degradation or loss of unknown historic or archaeological resources or human remains within the project site.

Geology, Soils, and Geohazards

The No Project Alternative would result in no impact related to geology and soils, compared with the less than significant (no mitigation required) impacts identified with the proposed project. As noted in Section 4.F of this EIR, development on the project site could be affected by seismically induced ground shaking, spreading, subsidence, liquefaction, or collapse. Under the No Project Alternative, the building code and design parameters required for modern construction, which are designed to protect against such risks, would not be employed for the existing structures on the project site, nor would any structures be removed, thereby leaving the existing older buildings subject to, and posing to people, a greater degree of risks than under the proposed project. Unlike the proposed project, this alternative would not introduce new people to the site. The No Project Alternative would have no impact related to geology and soils.

Hazards and Hazardous Materials

The No Project Alternative would result in no impact related to hazards and hazardous materials, compared with the less than significant (with mitigation) impacts identified with the proposed project. The No Project Alternative would not result in any development or changes to the project site. Under the No Project Alternative, construction excavation and demolition activities would not take place, and existing hazardous materials underground or within buildings would not be at risk of being released, but site cleanup would not occur. Overall, while certain beneficial effects that would occur with the proposed project would not occur with this alternative, the No Project Alternative would have no impacts related to hazards and hazardous materials.

Hydrology and Water Quality

The No Project Alternative would result in no impact on hydrology and water quality, compared with the less than significant (with mitigation) impacts identified with the proposed project. No development and no changes to the existing hydrologic conditions on the project site would occur under the No Project Alternative. Construction and operation activities proposed under the project would not occur, eliminating the potential for water quality impacts. Overall, while certain beneficial aspects that would occur with the proposed project would not occur with this alternative, the No Project Alternative would have no impacts on hydrology and water quality.

Land Use and Planning

The No Project Alternative would result in no impact related to land use and planning, compared with the less than significant (no mitigation required) impacts identified with the

proposed project. The No Project Alternative would not result in any changes to the existing land uses or zoning designation of the project site. However, this alternative would not support the City's Regional RHNA goals and its General Plan Housing Element goals and policies.

Noise and Vibration

The No Project Alternative would result in no impact related to noise, compared with the less than significant (with mitigation) impacts identified with the proposed project. The No Project Alternative would not result in construction activity or any changes to the land uses existing on the project site. Therefore, none of the noise and vibration effects associated with construction and operation of the project would occur.

Population, Housing, and Public Services

The No Project Alternative would result in no impact on population, housing, or public services, compared with the less than significant (no mitigation required) impacts identified with the proposed project. The No Project Alternative would not result in new development. As with the project, no displacement of housing or people would occur with the No Project Alternative. No population growth would occur under the No Project Alternative. The No Project Alternative would have no adverse impact related to population and housing. However, this alternative would not support the City's RHNA goals and its General Plan Housing Element goals and policies.

The No Project Alternative would not result in any changes to existing conditions with respect to demand for public services or recreation. Under this alternative, development of the open space areas and construction of the Bay Trail segment through the site would not occur. Overall, the No Project Alternative would have no impact on public services and recreation.

Transportation and Traffic

The No Project Alternative would result in no impact on transportation and traffic, compared with the significant and unavoidable (with mitigation) impacts identified with the proposed project. The No Project Alternative would not result in any new development or changes to the land use activity to generate new peak hour vehicle trips or affect current transportation and traffic patterns. The alternative would have no impact on transportation and traffic.

Utilities and Service Systems

The No Project Alternative would result in no impact on utilities and service systems, compared with the less than significant (with mitigation) impacts identified with the proposed project. The No Project Alternative would not result in any changes to existing conditions with respect to demand for utilities and service systems. Under this alternative, the installation and/or retrofit of utility infrastructure would not occur, and the No Project Alternative would have no impact on utilities and service systems.

Ability to Meet Project Objectives

This alternative would not meet any of the objectives of the proposed project: it would not transform the site into a new waterfront residential community with open space and public access

improvements, nor would it help fulfill the City's planning goals and vision for the site. The site would not contribute to fulfilling the goals of the City's Housing Element or help meet the City's Regional Housing Need Allocation.

Alternative 2: Reduced Density Alternative

The Reduced Density Alternative assumes the same development footprint across the site, including both residential development and the proposed waterfront park, but with substantially fewer residential units and lower height than under the proposed project. The Reduced Density Alternative would include 146 units—a 50% reduction in residential units from the proposed project.

The following discussion summarizes impacts that would occur under the Reduced Density Alternative in comparison to the impacts that would occur under the proposed project.

Aesthetics

The Reduced Density Alternative would result in less than significant (no mitigation required) impacts on aesthetics, the same as identified with the proposed project. Development under this alternative would be similar to that proposed under the project, but with a 50% reduction in residential units that would alter the overall size and height of the development. The existing structures would be demolished and replaced with this new development. As with the proposed project, new development on the site would be subject to City Design Review, which would ensure continuity of quality design. Based on these considerations, this alternative would result in a less than significant impact, similar to the proposed project.

Air Quality and Climate Change

The Reduced Density Alternative would result in less than significant (with mitigation) impacts related to air quality and greenhouse gas emissions, and to a lesser degree than those identified with the proposed project. Residential development under this alternative would be reduced by 50% when compared with the proposed project, although the overall development footprint would remain the same across the site. The construction period would be shorter under the Reduced Density Alternative as 146 fewer residential units would be constructed. The overall intensity of use on the site would be less than that envisioned under the proposed project. Accordingly, the quantities of air quality and greenhouse gas emissions associated with the project would also be reduced. Based on these considerations, the Reduced Density Alternative, similar to the proposed project would result in a less than significant impact with mitigation.

Biological Resources

The Reduced Density Alternative would result in less than significant (with mitigation) impacts on biological resources, the same as identified with the proposed project. Under this alternative, the existing structures on the site would be demolished, which would create similar impacts as that of the proposed project to nesting birds that could use the buildings or surrounding areas for nesting or roosting. Mitigations for nesting bird avoidance prescribed for the proposed project would also be applicable to this alternative. Similarly, mitigations to protect against avian collisions would also be applicable under the Reduced Density Alternative. As such, impacts in

this regard would be less than significant, with mitigation. Impacts on biological resources under this alternative would be similar to the proposed project.

Cultural Resources

The Reduced Density Alternative would result in significant and unavoidable impacts on cultural resources, the same as identified with the proposed project. As discussed in Section 4.E, Cultural Resources, of this EIR, the proposed project would result in the following significant and unavoidable cultural resources impact:

> **Impact 4.E-1:** Project implementation would cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines, Section 15064.5.

Residential development under the Reduced Density Alternative would be reduced by 50% when compared with the proposed project, although the overall development footprint would remain the same across the site. The existing historic structures would be demolished and replaced with new development. Impacts on these historic structures would therefore be similar to the impacts assumed for the proposed project, and would remain significant and unavoidable.

The same mitigations prescribed for the proposed project to avoid subsurface archaeological resources and buried human remains would also be required under this alternative. As with the proposed project, implementation of these measures would effectively mitigate potential impacts on these resources.

Geology, Soils, and Geohazards

The Reduced Density Alternative would result in less than significant (no mitigation required) impacts related to geology and soils, the same as identified for the proposed project. As with the proposed project, compliance with applicable building codes and site-specific design requirements would reduce or avoid potential impacts related to seismically-induced ground shaking, lateral spreading, subsidence, liquefaction, collapse, and expansive soils. Overall, this alternative would result in less than significant geology and soils impacts associated with construction and operation, similar to the proposed project.

Hazards and Hazardous Materials

The Reduced Density Alternative would result in less than significant (with mitigation) impacts related to hazard and hazardous materials, the same as identified with the proposed project. Similar to the proposed project, the Reduced Density Alternative would result in extensive demolition across the site, and therefore many of the same hazardous materials impacts associated with demolition (e.g., disturbance of asbestos containing materials, lead-based paint) would still occur, at similar levels as the proposed project. Likewise, similar quantities of ground disturbance would occur under this alternative, and as a result, disturbance of potentially contaminated soils would be similar to that of the proposed project. Regardless, this alternative would be subject to the same regulatory requirements and mitigation measures as the proposed project. As with the proposed project, with mitigation, the alternative would reduce the significance of hazards and hazardous materials impacts.

Hydrology and Water Quality

The Reduced Density Alternative would result in less than significant (with mitigation) impacts on hydrology and water quality, the same as identified with the proposed project. The Reduced Density Alternative would involve construction and earthmoving activities that could affect water quality and alter drainage patterns in a similar fashion as the proposed project. Adherence to the same project design features, mitigations, and regulatory requirements would ensure the alternative would have less than significant impacts to hydrology and water quality.

Land Use and Planning

The Reduced Density Alternative would result in less than significant (no mitigation required) impacts related to land use and planning, the same as identified for the proposed project. As with the proposed project, this alternative would be consistent with existing land use and zoning designations for the project site. Overall, the alternative would result in less than significant land use and planning impacts similar to those identified for the project. However, this alternative would not be as supportive toward meeting the City's RHNA goals and its General Plan Housing Element goals and policies since the alternative would have substantially fewer units and less density when compared with the project.

Noise and Vibration

The Reduced Density Alternative would result in less than significant (with mitigation) impacts related to noise, and to a lesser degree than those identified with the proposed project. Because this alternative would contain substantially fewer residential units and thus would generate fewer vehicular trips than the proposed project, reductions in area roadway noise could result from implementation of the alternative. Demolition activity would be the same as for the proposed project, although construction activity could be slightly less, resulting in a potentially shorter duration of construction noise as compared with the project. With mitigation, the Reduced Density Alternative would reduce the significance of construction and operational noise impacts, similar to the proposed project.

Population, Housing, and Public Services

The Reduced Density Alternative would result in less than significant (no mitigation required) impacts on population, housing, and public services, and to a lesser degree than identified with the proposed project. As with the project, no displacement of housing or people would occur with this alternative. Population growth under this alternative would be substantially less than with the project (a residential population of 362 people compared to the proposed project residential population of 724). Less population growth typically results in reductions in other effects. Also, no aspect of the alternative would result in undue growth associated with infrastructure improvements that would induce growth, similar to the proposed project. Because this alternative would have 50% fewer residential units than the proposed project, it would not be able to meet the City's RHNA and the City's Housing Element goals.

The reduction in population associated with the reduced development density would result in lower demand for police, fire and emergency services, schools, and parks and recreation. A somewhat greater total area of open space area could be provided under this alternative, given the

lower housing density. Overall, this alternative would result in less than significant impacts on public services, similar to the proposed project.

Transportation and Traffic

The Reduced Density Alternative would result in less than significant (with mitigation) impacts related to transportation and traffic, which represents a reduction of the significant and unavoidable impact identified with the proposed project. Since the alternative would have less development, it would generate fewer trips and therefore not result in significant impacts at the Park Street/Blanding Avenue and Marina Square Drive/Constitution Way intersections. As discussed in Section 4.L, Transportation and Traffic, of this EIR, the proposed project would result in the following significant and unavoidable transportation and traffic impact:

> **Impact 4.L-2:** The proposed project would increase traffic volumes such that traffic conditions at the Park Street/Blanding Avenue intersection would degrade from LOS D to LOS E under Existing Plus Project conditions and at the Marina Square Drive/ Constitution Way intersection would degrade LOS E to LOS F and the proposed project could increase traffic volumes by three percent or more under Cumulative (2040) conditions.

VMT per capita under this alternative would remain similar as the proposed project because both the Reduced Density Alternative and the proposed project would have the same use and the project residents would make the same types and numbers of trips per capita under either scenario. Thus, the impact on VMT would remain less than significant.

As shown in **Table 5-3**, the Reduced Density Alternative would generate about 58 percent fewer peak hour trips than the proposed project. Since the Reduced Density Alternative would generate fewer peak hour trips than the proposed project, the magnitude of the impacts at the study intersections would be reduced.

TABLE 5-3
ALTERNATIVE 2 (REDUCED DENSITY ALTERNATIVE) – VEHICLE TRIP GENERATION

Land Use	ITE Code	Size	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Apartments	220[a]	146 DU	15	59	74	59	32	91
Existing Offices[b]		*56.5 KSF*[c]	*-17*	*-4*	*-21*	*-10*	*-15*	*-25*
Total Alternative 2 Project Trips			**-2**	**55**	**53**	**49**	**17**	**66**
Proposed Project			**13**	**115**	**128**	**108**	**48**	**156**
Difference			**-15**	**-60**	**-75**	**-59**	**-32**	**-90**

NOTES:
[a] The following ITE trip generation rates were used (ITE Code 220 – Apartments):
AM: T=0.51 * X; Enter=20%, Exit=80%
PM: T=0.62 * X; Enter=65%, Exit=35%
Where X=number of dwelling units (DU), T=number of vehicle trips
Where X=number of dwelling units (DU), T=number of vehicle trips
[b] The trip generation of the existing uses on site is based on counts at the existing site driveways in March 2017
[c] At the time of the count approximately 41 percent of the office space was occupied (23.4 ksf)

SOURCE: Fehr & Peers, 2018; Trip Generation Manual (9th Edition), ITE, 2012

The Reduced Density Alternative would eliminate the Significant and Unavoidable impacts at the Park Street/Blanding Avenue and Marina Square Drive/Constitution Way intersections (Impact 4.L-2) that the proposed project would cause under Existing and Cumulative (2040) conditions, respectively. Although the Marina Square Drive/Constitution Way intersection would continue to operate at LOS F during the AM peak hour, the Alternative would increase the intersection traffic volumes by less than three percent, which would reduce the impact to less than significant.

All other less than significant impacts identified for the proposed project would remain under the Reduced Density alternative. Overall, the Reduced Density alternative would have less than significant (with mitigation) impacts related to transportation and traffic.

Utilities and Service Systems

The Reduced Density Alternative would result in less than significant (with mitigation) impacts on utilities and service systems, and to a lesser degree than identified for the proposed project. As noted above, this alternative would result in fewer overall residential units and a reduced residential population increase when compared with the proposed project. As such, the demand for water, wastewater treatment, stormwater treatment, and solid waste disposal would be reduced, when compared with the project. Mitigation for reduced infiltration and inflow into onsite sewer infrastructure would be required regardless of alternative. Overall, the Reduced Density alternative would have less than significant (with mitigation) impacts related to utilities and services systems, but to a lesser degree than under the proposed project.

Ability to Meet Project Objectives

The Reduced Density Alternative would meet some but not all of the objectives of the proposed project. This alternative would transform the site into a new waterfront residential community and provide private and public open space amenities to include an extension of the Bay Trail; however, it would not help fulfill the City's planning goals and vision for the site. The site would not contribute to fulfilling the goals of the City's Housing Element or help meet the City's Regional Housing Need Allocation.

Alternative 3: Multi-Structure Affordable Housing Alternative

The Multi-Structure Affordable Housing Alternative assumes the site could be developed with residential units as allowable under the state's affordable housing density bonus, which would result in a total of 329 units. This alternative includes the same waterfront park as proposed under the project. Additionally, the massing of the residential structures would be different than under the project to include multiple buildings and views between the buildings from the roadway to the Estuary.

The following discussion summarizes impacts that would occur under the Multi-Structure Affordable Housing Alternative in comparison to the impacts that would occur under the proposed project.

Aesthetics

The Multi-Structure Affordable Housing Alternative would result in less than significant (no mitigation required) impacts on aesthetics, the same as identified with the proposed project. Development under this alternative would be similar to that proposed under the project, but with a increase in residential units facilitated by the increase in size and number of structures associated with the development. The existing structures would be demolished and replaced with this new development. As with the proposed project, new development on the site would be subject to City Design Review, which would ensure continuity of quality design. Based on these considerations, this alternative would result in a less than significant impact, similar to the proposed project.

Air Quality and Climate Change

The Multi-Structure Affordable Housing Alternative would result in less than significant (with mitigation) construction and operational impacts related to air quality, similar to that identified with the proposed project. Development under this alternative would be greater than under the proposed project. The construction period would increase as 37 additional residential units (329 total) would be constructed. The overall intensity of use on the site would be similar to but greater than that envisioned under the proposed project. Accordingly, the quantities of air quality and greenhouse gas emissions associated with the project would also be greater, though the population would increase proportionally, making for a similar per capita calculation. Based on these considerations, the Multi-Structure Affordable Housing Alternative, similar to the proposed project would result in a less than significant impact with mitigation.

Biological Resources

The Multi-Structure Affordable Housing Alternative would result in less than significant (with mitigation) impacts on biological resources, the same as identified with the proposed project. Under this alternative, the existing structures on the site would be demolished, which would create similar impacts as that of the proposed project to nesting birds that could use the buildings or surrounding areas for nesting or roosting. Mitigations for nesting bird avoidance prescribed for the proposed project would also be applicable to this alternative. Similarly, mitigations to protect against avian collisions would also be applicable under the Multi-Structure Affordable Housing Alternative. As such, impacts in this regard would be less than significant, with mitigation. Impacts on biological resources under this alternative would be similar to the proposed project.

Cultural Resources

The Multi-Structure Affordable Housing Alternative would result in significant and unavoidable impacts on cultural resources, similar to the proposed project. As discussed in Section 4.E, Cultural Resources, of this EIR, the proposed project would result in the following significant and unavoidable cultural resources impact:

> **Impact 4.E-1:** Project implementation would cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines, Section 15064.5.

Development under the Reduced Density Alternative would be mostly the same as for the proposed project, with an increase in the number of residential units (37 additional units) and total

number of buildings. The existing historic structures would be demolished and replaced with new development. Impacts on these historic structures would therefore be similar to the impacts assumed for the proposed project, and would remain significant and unavoidable.

The same mitigations prescribed for the proposed project to avoid subsurface archaeological resources and buried human remains would also be required under this alternative. As with the proposed project, implementation of these measures would effectively mitigate potential impacts on these resources.

Geology, Soils, and Geohazards

The Multi-Structure Affordable Housing Alternative would result in less than significant (no mitigation required) impacts related to geology and soils, the same as identified for the proposed project. As with the proposed project, compliance with applicable building codes and site-specific design requirements would reduce or avoid potential impacts related to seismically-induced ground shaking, lateral spreading, subsidence, liquefaction, collapse, and expansive soils. This alternative would require less excavation of soils on-site than under the proposed project. Overall, this alternative would result in less than significant geology and soils impacts associated with construction and operation, similar to the proposed project.

Hazards and Hazardous Materials

The Multi-Structure Affordable Housing Alternative would result in less than significant (with mitigation) impacts related to hazard and hazardous materials, the same as identified with the proposed project. Similar to the proposed project, the Multi-Structure Affordable Housing Alternative would result in extensive demolition across the site, and therefore many of the same hazardous materials impacts associated with demolition (e.g., disturbance of asbestos containing materials, lead-based paint) would still occur, at similar levels as the proposed project. Likewise, similar quantities of ground disturbance would occur under this alternative, and as a result, disturbance of potentially contaminated soils would be similar to that of the proposed project. Regardless, this alternative would be subject to the same regulatory requirements and mitigation measures as the proposed project. As with the proposed project, with mitigation, the alternative would reduce the significance of hazards and hazardous materials impacts.

Hydrology and Water Quality

The Multi-Structure Affordable Housing Alternative would result in less than significant (with mitigation) impacts on hydrology and water quality, the same as identified with the proposed project. The Multi-Structure Affordable Housing Alternative would involve construction and earthmoving activities that could affect water quality and alter drainage patterns in a similar fashion as the proposed project. Adherence to the same project design features, mitigations, and regulatory requirements would ensure the alternative would have less than significant impacts to hydrology and water quality.

Land Use and Planning

The Multi-Structure Affordable Housing Alternative would result in less than significant (no mitigation required) impacts related to land use and planning, the same as identified for the

proposed project. As with the proposed project, the Multi-Structure Affordable Housing Alternative would be consistent with existing land use and zoning designations for the project site. Overall, the alternative would result in less than significant land use and planning impacts similar to those identified for the project. This alternative would be more supportive toward meeting the City's RHNA goals and its General Plan Housing Element goals and policies since the alternative would have an increase in residential units/density, as compared to the project.

Noise and Vibration

The Multi-Structure Affordable Housing Alternative would result in less than significant (with mitigation) construction and operational noise impacts, similar to the proposed project. Because this alternative would contain additional residential units (37 more than the proposed project) and thus would generate more vehicular trips than the proposed project, an increase in area roadway noise could result from implementation of the Multi-Structure Affordable Housing Alternative. Demolition activity would be the same as for the proposed project, although construction activity could be slightly greater, resulting in a longer duration of construction noise as compared with the project. With mitigation, the Multi-Structure Affordable Housing Alternative would reduce the significance of construction and operational noise impacts, similar to the proposed project.

Population, Housing, and Public Services

The Multi-Structure Affordable Housing Alternative would result in less than significant (no mitigation required) impacts on population, housing, and public services, similar to the proposed project. As with the project, no displacement of housing or people would occur with this alternative. Population growth under this alternative would be greater than with the project (a residential population of 816 people compared to the proposed project residential population of 724). The increase in population growth would not result in a substantial increase in other effects. Also, no aspect of the alternative would result in undue growth associated with infrastructure improvements that would induce growth, similar to the proposed project. As this alternative would add 92 residential units over the proposed project, it would be able to meet the City's RHNA and the City's Housing Element goals to a greater extent.

The increase in population associated with the increased development density would result in higher but not substantial demand for police, fire and emergency services, schools, and parks and recreation than under the proposed project. Overall, this alternative would result in less than significant impacts on public services, similar to the proposed project.

Transportation and Traffic

The Multi-Structure Affordable Housing Alternative would result in significant and unavoidable (with mitigation) impacts related to transportation and traffic, but with marginally greater impacts than identified for the proposed project. Since the alternative would have more development than proposed under the project, it would generate more trips and therefore result in significant impacts at the Park Street/Blanding Avenue and Marina Square Drive/Constitution Way intersections. As discussed in Section 4.L, Transportation and Traffic, of this EIR, the

proposed project would result in the following significant and unavoidable transportation and traffic impact:

> **Impact 4.L-2:** The proposed project would increase traffic volumes such that traffic conditions at the Park Street/Blanding Avenue intersection would degrade from LOS D to LOS E under Existing Plus Project conditions and at the Marina Square Drive/Constitution Way intersection would degrade LOS E to LOS F and the proposed project could increase traffic volumes by three percent or more under Cumulative (2040) conditions. This is a significant and unavoidable impact.

VMT per capita under this alternative would remain similar as the proposed project because both the Multi-Structure Affordable Housing Alternative and the proposed project would have the same use and the project residents would make the same types and numbers of trips per capita under either scenario. Thus, the impact on VMT would remain less than significant.

As shown in **Table 5-4**, the Multi-Structure Affordable Housing Alternative would generate about 15 percent more peak hour trips than the proposed project. Since the Multi-Structure Affordable Housing Alternative would generate more peak hour trips than the proposed project, the magnitude of the impacts at the study intersections would increase. The identified Significant and Unavoidable impact at the Park Street/Blanding Avenue and Marina Square Drive/Constitution Way intersections (Impact 4.L-2) would remain Significant and Unavoidable under the Multi-Structure Affordable Housing Alternative.

TABLE 5-4
ALTERNATIVE 3 (MULTI-STRUCTURED AFFORDABLE HOUSING ALTERNATIVE) – VEHICLE TRIP GENERATION

Land Use	ITE Code	Size	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Apartments	220[a]	329 DU	34	134	168	133	71	204
Existing Offices[b]		*56.5 KSF*[c]	*-17*	*-4*	*-21*	*-10*	*-15*	*-25*
Total Alternative 3 Project Trips			**17**	**130**	**147**	**123**	**56**	**179**
Proposed Project			**13**	**115**	**128**	**108**	**48**	**156**
Difference			**4**	**15**	**19**	**15**	**8**	**23**

NOTES:
[a] The following ITE trip generation rates were used (ITE Code 220 – Apartments):
AM: T=0.51 * X; Enter=20%, Exit=80%
PM: T=0.62 * X; Enter=65%, Exit=35%
Where X=number of dwelling units (DU), T=number of vehicle trips
[b] The trip generation of the existing uses on site is based on counts at the existing site driveways in March 2017
[c] At the time of the count, approximately 41 percent of the office space was occupied (23.4 ksf)

SOURCE: Fehr & Peers, 2018; Trip Generation Manual (9th Edition), ITE, 2012

The Alternative is not expected to cause significant impacts at any other study intersections because it would not cause any study intersections that operate at LOS D or better under the proposed project to degrade to LOS E or LOS F under the Multi-Structure Affordable Housing Alternative. The Alternative would also not increase the intersection traffic volume by three

percent or more at study intersections that would operate at LOS E or LOS F regardless of the project.

Similar to the proposed project, the Alternative would also not increase the peak hour travel time along the study corridors by 10 percent or more.

Utilities and Service Systems

The Multi-Structure Affordable Housing Alternative would result in less than significant (with mitigation) impacts on utilities and service systems, similar to the proposed project. As noted above, this alternative would result in an increase in overall residential units and residential population when compared with the proposed project. As such, the demand for water, wastewater treatment, stormwater treatment, and solid waste disposal would also increase in comparison to the project. Mitigation for reduced infiltration and inflow into onsite sewer infrastructure would be required regardless of alternative. Overall, the Multi-Structure Affordable Housing Alternative would have less than significant (with mitigation) impacts related to utilities and services systems, similar to the proposed project.

Ability to Meet Project Objectives

The Multi-Structure Affordable Housing Alternative would generally meet all of the objectives of the proposed project in that it would transform the site into a new waterfront residential community, provide affordable housing, and provide private and public open space amenities to include an extension of the Bay Trail.

Alternative 4: Partial Preservation Alternative

The Partial Preservation Alternative would include the preservation of Shipways 1 and 4, including the existing office space in the head houses, with residential development between, amounting to 272 units. The residential development would include multiple structures with views between buildings form the street to the Estuary, but no public waterfront park would be built. The Bay Trail would extend in a small strip along the waterfront around the site.

The following discussion summarizes impacts that would occur under the Partial Preservation Alternative in comparison with the impacts that would occur under the proposed project.

Aesthetics

The Partial Preservation Alternative would result in less than significant (no mitigation required) impacts on aesthetics, the same as identified with the proposed project. Development under this alternative would be mostly similar to that proposed under the project, but would include the preservation of Shipways 1 and 2, as well as reductions in residential units and open space. Shipways 3 and 4 would be the only existing structures demolished under this alternative to make way for the new development. As with the proposed project, new development on the site would be subject to City Design Review, which would ensure continuity of quality design. Based on these considerations, the Partial Preservation Alternative would result in a less than significant impact, similar to the proposed project.

Air Quality and Climate Change

The Partial Preservation Alternative would result in less than significant (with mitigation) impacts related to air quality and greenhouse gas emissions, similar to those identified with the proposed project. Demolition, construction, and overall development under this alternative would be less than under the proposed project. Demolition and construction activities would occur over a somewhat abbreviated period than under the proposed project due to the preservation of Shipways 1 and 2, as well as reductions in residential units and open space proposed for development. The overall intensity of use on the site would be similar to but less than that envisioned under the proposed project. Accordingly, the quantities of air quality and greenhouse gas emissions associated with new uses at the site would also be slightly less. Based on these considerations, the Partial Preservation Alternative, similar to the proposed project would result in a less than significant impact with mitigation.

Biological Resources

The Partial Preservation Alternative would result in less than significant (with mitigation) impacts on biological resources, the same as identified with the proposed project. Under this alternative, two of the four existing structures on the site would be demolished, which would create similar impacts as that of the proposed project to nesting birds that could use the buildings or surrounding areas for nesting or roosting. Mitigations for nesting bird avoidance prescribed for the proposed project would also be applicable to this alternative. Similarly, mitigations to protect against avian collisions would also be applicable under the Partial Preservation Alternative. As such, impacts in this regard would be less than significant, with mitigation. Impacts on biological resources under this alternative would be similar to the proposed project.

Cultural Resources

The Partial Preservation Alternative would result in significant and unavoidable impacts on cultural resources, but to a lesser degree than identified with the proposed project. As discussed in Section 4.E, Cultural Resources, of this EIR, the proposed project would result in the following significant and unavoidable cultural resources impact:

> **Impact 4.E-1:** Project implementation would cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines, Section 15064.5.

Development under the Partial Preservation Alternative would include preservation of Shipways 1 and 4, including approximately 28,300 square feet of existing office space in the head houses and the entire shipways structures that slope down to the water.

Overall impacts on the historic structures would be reduced through the preservation of two of the four shipways, but would nonetheless remain significant and unavoidable with the demolition of the other two shipways.

The same mitigations prescribed for the proposed project to avoid subsurface archaeological resources and buried human remains would also be required under this alternative. As with the proposed project, implementation of these measures would effectively mitigate potential impacts on these resources.

Geology, Soils, and Geohazards

The Partial Preservation Alternative would result in less than significant (no mitigation required) impacts related to geology and soils, the same as identified for the proposed project. As with the proposed project, compliance with applicable building codes and site-specific design requirements would reduce or avoid potential impacts related to seismically-induced ground shaking, lateral spreading, subsidence, liquefaction, collapse, and expansive soils. Overall, the Partial Preservation Alternative would result in less than significant geology and soils impacts associated with construction and operation, similar to the proposed project.

Hazards and Hazardous Materials

The Partial Preservation Alternative would result in less than significant (with mitigation) impacts related to hazard and hazardous materials, similar to the proposed project. The Partial Preservation Alternative would result in the demolition of two of the four existing shipways. Many of the same hazardous materials impacts associated with demolition (e.g., disturbance of asbestos containing materials, lead-based paint) would occur, but at reduced levels when compared with the proposed project. Likewise, similar quantities of ground disturbance would occur under this alternative, and as a result, disturbance of potentially contaminated soils would be similar to that of the proposed project. Regardless, this alternative would be subject to the same regulatory requirements and mitigation measures as the proposed project. As with the proposed project, with mitigation, the alternative would reduce the significance of hazards and hazardous materials impacts.

Hydrology and Water Quality

The Partial Preservation Alternative would result in less than significant (with mitigation) impacts on hydrology and water quality, the same as identified with the proposed project. The Partial Preservation Alternative would involve construction and earthmoving activities that could affect water quality and alter drainage patterns in a similar fashion as the proposed project. Adherence to the same project design features, mitigations, and regulatory requirements would ensure the alternative would have less than significant impacts to hydrology and water quality.

Land Use and Planning

The Partial Preservation Alternative would result in less than significant (no mitigation required) impacts related to land use and planning, the same as identified for the proposed project. As with the proposed project, this alternative would be consistent with existing land use and zoning designations for the project site. Overall, the alternative would result in less than significant land use and planning impacts similar to those identified for the project. However, the Partial Preservation Alternative would not be as supportive toward meeting the City's RHNA goals and its General Plan Housing Element goals and policies since the alternative would have fewer units/less density, as compared to the project.

Noise and Vibration

The Partial Preservation Alternative would result in less than significant (with mitigation) impacts related to noise, the similar to those identified with the proposed project. Demolition and construction activity would be less than under the proposed project, due to the preservation of

Shipways 1 and 2 and the reduction in open space development. This reduction in activity would result in a shorter duration of construction noise as compared with the project. Because this alternative would contain slightly fewer residential units and thus would generate fewer vehicular trips than the proposed project, reductions in area roadway noise could result from implementation of the alternative. With mitigation, the Partial Preservation Alternative would reduce the significance of construction and operational noise impacts, similar to the proposed project.

Population, Housing, and Public Services

The Partial Preservation Alternative would result in less than significant (no mitigation required) impacts on population, housing, and public services, similar to the proposed project. As with the project, no displacement of housing or people would occur with this alternative. Population growth under this alternative would be slightly less than with the project (a residential population of 675 people compared to the proposed project residential population of 724). Less population growth typically results in reductions in other effects. Also, no aspect of the alternative would result in undue growth associated with infrastructure improvements that would induce growth, similar to the proposed project. Although this alternative would have 20 fewer residential units than the proposed project, it would be able to meet the City's RHNA and the City's Housing Element goals insofar as the reductions do not affect the number of affordable units.

The reduction in population associated with the reduced development density would result in slightly lower demand for police, fire and emergency services, schools, and parks and recreation. The Partial Preservation Alternative would not include public open space and would not meet the City's General Plan standard of 2.3 acres of open space per 1,000 new residents. Payment of a development impact fee would therefore be required under this alternative. Overall, the Partial Preservation Alternative would result in less than significant impacts on public services, similar to the proposed project.

Transportation and Traffic

The Partial Preservation Alternative would result in significant and unavoidable (with mitigation) impacts related to transportation and traffic, but with marginally greater impacts than identified for the proposed project. As discussed in Section 4.L, Transportation and Traffic, the proposed project would result in the following significant and unavoidable transportation and traffic impact:

> **Impact 4.L-2:** The proposed project would increase traffic volumes such that traffic conditions at the Park Street/Blanding Avenue intersection would degrade from LOS D to LOS E under Existing Plus Project conditions and at the Marina Square Drive/Constitution Way intersection would degrade LOS E to LOS F and the proposed project could increase traffic volumes by three percent or more under Cumulative (2040) conditions. This is a significant and unavoidable impact.

VMT per capita under this alternative would remain similar as the proposed project because the residential component of the Partial Preservation Alternative and the proposed project would have

the same use and the project residents would make the same types and numbers of trips per capita under either scenario. Thus, the impact on VMT would remain less than significant.

This alternative would have a reduction in residential units, and therefore a reduction in residential traffic from that under the proposed project. However, because half of the existing office uses and office traffic would be retained, this alternative would actually result in a greater net increase in trips than would the proposed project. As shown in **Table 5-5**, the Partial Preservation Alternative would generate about eight percent more net AM peak hour trips and nine percent more net PM peak hour trips than the proposed project. Since the Partial Preservation Alternative would generate more peak hour trips than the proposed project, the magnitude of the impacts at the study intersections would increase. **Impact 4.L-2** would remain Significant and Unavoidable under the Partial Preservation Alternative.

TABLE 5-5
ALTERNATIVE 4 (PARTIAL PRESERVATION ALTERNATIVE) – VEHICLE TRIP GENERATION

Land Use	ITE Code	Size	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Apartments	220[a]	272 DU	28	111	139	110	59	169
Total Alternative 4 Project Trips			**28**	**111**	**139**	**110**	**59**	**169**
Proposed Project			**13**	**115**	**128**	**108**	**48**	**156**
Difference			**15**	**-4**	**11**	**2**	**11**	**13**

NOTES:
[a] The following ITE trip generation rates were used (ITE Code 220 – Apartments):
AM: T=0.51 * X; Enter=20%, Exit=80%
PM: T=0.62 * X; Enter=65%, Exit=35%
Where X=number of dwelling units (DU), T=number of vehicle trips

SOURCE: Fehr & Peers, 2018; Trip Generation Manual (9th Edition), ITE, 2012

The Alternative is not expected to cause significant impacts at any other study intersections because it would not cause any study intersections that operate at LOS D or better under the proposed project to degrade to LOS E or LOS F under the Partial Preservation Alternative. The Alternative would also not increase the intersection traffic volume by three percent or more at study intersections that would operate at LOS E or LOS F regardless of the project.

Similar to the proposed project, the Alternative would also not increase the peak hour travel time along the study corridors by 10 percent or more.

Utilities and Service Systems

The Partial Preservation Alternative would result in less than significant (with mitigation) impacts on utilities and service systems, similar to the proposed project. As noted above, this alternative would result in fewer overall residential units and a reduced residential population increase when compared with the proposed project. As such, the demand for water, wastewater treatment, stormwater treatment, and solid waste disposal would be slightly reduced, when compared with the project. Mitigation for reduced infiltration and inflow into onsite sewer infrastructure would be required regardless of alternative. Overall, the Partial Preservation

Alternative would have less than significant (with mitigation) impacts related to utilities and services systems, similar to the proposed project.

Ability to Meet Project Objectives

The Partial Preservation Alternative would generally meet most of the objectives of the proposed project in that it would transform the site into a new waterfront residential community, provide affordable housing, and support an extension of the Bay Trail.

E. Environmentally Superior Alternative

Based on the evaluation described in this section, the No Project Alternative would be the environmentally superior alternative with the fewest environmental impacts. However, the No Project Alternative would not meet any of the basic objectives of the project.

CEQA requires that that a second alternative be identified when the "No Project" alternative is the environmentally superior alternative (CEQA Guidelines, Section 15126.6(e)). Therefore, the Reduced Density Alternative would be the Environmentally Superior Alternative for the purpose of this analysis, even though it would still result in one of the significant and unavoidable impacts associated with the proposed project. The Reduced Density Alternative would meet some but not all of the objectives of the proposed project. Under the Reduced Density Alternative, the remaining significant and unavoidable impact would be as follows:

> **Impact 4.E-1:** Project implementation would cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines, Section 15064.5. Under the proposed project, this impact would be significant and unavoidable, and is generally driven by the demolition of the existing historic buildings. Under the Reduced Density Alternative, demolition of these building would still occur, and loss of these historic resources would not be avoided. The impact would remain significant and unavoidable, the same as for the proposed project.

The Multi-Structure Affordable Housing Alternative would generally meet all of the objectives of the proposed project, but would not be considered the environmentally superior alternative because it does not reduce or avoid the significant and unavoidable impacts (Impacts 4.E-1 and 4.L-2) of the proposed project and would represent a marginal increase in the degree of Impact 4.L-2. Similarly, the Partial Preservation Alternative would generally meet most of the objectives of the proposed project, but would not be the environmentally superior alternative because it does not reduce or avoid the significant and unavoidable impacts (Impact 4.E-1 and 4.L-2) of the proposed project.

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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. Significant and Unavoidable Environmental Impacts

In accordance with CEQA Section 21083, and with CEQA Guidelines Sections 15064 and 15065, an EIR must 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. Potentially significant environmental impacts that would result from the proposed project are evaluated in Chapter 4, Environmental Setting, Impacts, and Mitigation Measures of this EIR. With implementation of the project design features, standard conditions and requirements, and mitigation measures identified for each resource area significantly impacted, many of the potentially significant impacts resulting from the proposed project would be reduced to a less than significant level. The proposed project impacts listed below would remain significant and unavoidable even after mitigation.

- **Impact 4.E-1**: Project implementation would cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines, Section 15064.5. (Significant and Unavoidable with Mitigation)
- **Impact 4.E-5**: The project, in combination with past, present, and probable future projects, would substantially contribute to cumulative adverse historic architectural resources impacts. (Significant and Unavoidable with Mitigation)
- **Impact 4.L-2**: The proposed project could increase traffic volumes such that traffic conditions at the Park Street/Blanding Avenue intersection would degrade from LOS D to LOS E under Existing Plus Project conditions and at the Marina Square Drive/Constitution Way intersection would degrade LOS E to LOS F and the proposed project could increase traffic volumes by three percent or more under Cumulative (2040) conditions. (Significant and Unavoidable with Mitigation)

B. Significant Irreversible Environmental 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, 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 park uses would not involve the routine use, transport, storage, or disposal of hazardous wastes other than small amounts of construction chemicals and non-acute hazardous materials such as household cleaners by residents of the site. As stated in Section 4.G, Hazardous and Hazardous Materials, these materials are regulated through a series of federal, state, and local laws and regulations. Compliance with these existing requirements would ensure that 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 primarily through release of the materials during construction activities. Implementing mitigation measures contained in Section 4.G, Hazardous and Hazardous Materials, to properly handle any potentially hazardous materials encountered during project construction would minimize the potential for significant impacts to less than significant.

C. 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 general plans define the location, type and intensity of growth, they are the primary means of regulating development and growth in California.

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).

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. Hence, the proposed project would be infill development within an existing urban area.

Extension of Transportation Corridor

The project site is surrounded by urban development and an adjacent street system. As an infill development, the project would not extend transportation corridors into undeveloped areas resulting in growth inducing impacts.

Removal of Obstacles to Population Growth

Section 15126.2(d) of the CEQA Guidelines states that an EIR should discuss "the ways in which the project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment." Growth can be induced in a number of ways, including through the elimination of obstacles to growth, through the stimulation of economic activity within the region, or through precedent-setting action. CEQA requires a discussion of how a project could increase population, employment, or housing in the areas surrounding the project as well as an analysis of the infrastructure and planning changes that would be necessary to implement the project.

Projects that are characterized as having significant impacts associated with the inducement of growth are frequently those that would remove obstacles to additional growth, such as the expansion of sewer or water facilities that would permit construction of more development in the service area covered by the new facilities. The project would not remove obstacles to additional growth in this manner, as it would be undertaken in a developed urban area that currently is served by all utilities and services. Similarly, if a project would overburden existing infrastructure so as to require construction of new facilities that could result in significant impacts, then the project may be deemed to have a significant growth-inducing impact. As discussed in the Section 4.M, Utilities and Service Systems, the project would not require such additional public service facilities.

The project involves redevelopment of an underutilized site. The project would demolish the existing structures and provide residential units and park use on the site. The site is fully bound by developed properties and the Alameda Estuary, and the redevelopment of the site would not facilitate population growth on any other property.

Section 4.K, Population, Housing, and Public Services, analyzes the project's overall effect on population and housing, including growth-inducing considerations. The project would result in the addition of up to 292 new residential units. Assuming an average of 2.48 persons per unit, consistent with persons per household in the City as a whole, the project could result in an increase in residential population of about 724 people. The population growth resulting from the proposed project is generally consistent with the population growth projections in the City's General Plan Housing Element, which are based on those estimates provided by the ABAG RHNA. The projections are also consistent with the Alameda County Transportation Commission's population growth projections for the City. The growth in population that would occur with implementation of the proposed project was planned for in the City's General Plan.

The project would result in the construction of new housing in the Bay Area where regionally housing growth is outpaced by job and population growth, resulting in a housing shortage. As

such, the project would not adversely impact the jobs/housing imbalance at a regional level (ABAG, 2015).

The proposed project includes affordable housing, which is an identified need in Alameda and the region. The proposed project site is located in an area with available public transit options, which is consistent with population, housing, transportation, and GHG reduction (global warming) policies established by the State of California (most recently by SB 375 and AB 32), the Metropolitan Transportation Commission, and ABAG.

The project would constitute infill development within a developed urban area, and new roads and infrastructure would not be extended into an undeveloped area. For the above-described reasons, the project would not cause a new impact related to a substantial increase in population growth, and would be in line with the projected growth planned for the area. Therefore, the effects of the proposed project related to removal of obstacles to Population Growth would not be a significant environmental effect.

D. 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 cultural resources and transportation impacts were identified in the analysis. These cumulative analyses assumed that the project-required mitigation measures identified in this EIR would be implemented. Nonetheless, these identified impacts would be cumulatively considerable and not fully mitigable. No other cumulative impacts were determined to be significant after mitigation.

References

ABAG, 2014. ABAG Projections 2009 Housing Element Data Profiles.

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CHAPTER 7
Report Preparation

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