



PORT OF OAKLAND

**OAKLAND INTERNATIONAL AIRPORT
TERMINAL MODERNIZATION AND
DEVELOPMENT PROJECT**

Draft Environmental Impact Report

JULY 2023

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EXECUTIVE SUMMARY

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ES.1 BACKGROUND

The purpose of this Draft Environmental Impact Report (EIR) is to analyze the potential environmental impacts of the implementation of the Terminal Modernization and Development Project (Proposed Project) at Oakland International Airport (OAK or Airport).

ES.2 PROJECT OBJECTIVES

In compliance with Section 15124(b) of the California Environmental Quality Act (CEQA) Guidelines, the Port of Oakland (Port) is required to identify its objectives associated with the Proposed Project. As the project proponent, the Port has identified five project objectives for the implementation of the Proposed Project:

- Objective 1: Modernize existing terminal facilities to optimize safety and security for passengers and workers.
- Objective 2: Provide replacement and new terminal facilities that are sized to efficiently accommodate the market-based passenger demand at industry standard levels of service and designed to improve the passenger experience.
- Objective 3: Modify and replace existing non-terminal facilities at OAK to accommodate the market-based demand.
- Objective 4: Provide adequate aircraft gates, aircraft parking, and terminal facilities that are sized and configured to accommodate the larger-sized aircraft fleet forecast at the Airport.

ES.3 PROPOSED PROJECT

The Proposed Project includes modernizing Terminals 1 and 2, consolidating passenger processing functions (e.g., ticketing, baggage check-in, baggage claim, security screening), constructing expanded international arrival facilities, constructing a new terminal, relocating existing cargo and support facilities, and improving the terminal area roadway, parking areas, and support facilities.

The Proposed Project would incorporate 37 project components that are grouped into six categories. **Table ES-1** identifies the project components that would be implemented by the Proposed Project.

TABLE ES-1
PROJECT COMPONENTS

Component	Activity
Demolition Project Components	
D-1	Demolition of Catering Building and Removal of Associated Parking
D-2	Removal of Employee Parking in Neil Armstrong Lot (Portion)
D-3	Demolition of Terminal 1 Ticketing and Baggage Claim
D-4	Demolition of Offices and Storage Buildings
D-5	Removal of Fuel Rack and Below-Grade Fuel Systems
D-6	Removal of Remote and Cargo Aircraft Parking Positions and Existing Taxilanes

D-7	Removal of Employee Parking
D-8	Demolition of Multi-Tenant Cargo / Support Building and Removal of Associated Parking
D-9	Removal of Economy Parking
D-10	Demolition of Provisioning Building and Removal of Associated Parking
D-11	Demolition of OMC Hangar and Related Structures, and Removal of Associated Parking
D-12	Demolition of Storage Building
D-13	Removal of Park and Call Lot
D-14	Removal of Main Parking Lot (Portion)
Passenger Terminal Project Components	
B-1	Construction of New Terminal
B-2	Modernization of Existing Terminals 1 and 2
Airfield Project Components	
A-1	Construction of New Terminal Apron
A-2	Improvements to Existing Airfield (Adjacent to New Terminal)
A-3	Improvements to Existing Airfield (Adjacent to Replacement Remote and Cargo Aircraft Parking Positions)
Landside Project Components	
L-1	Replacement of Employee Parking – North Field Lot
L-2	Replacement of Employee Parking – Golf Course Lot
L-3	Expansion of Employee Parking – Neil Armstrong Lot
L-4	Replacement of Employee Parking – Terminal Approach Lot
L-5	Expansion of Employee Parking – Terminal Infill Lot
L-6	Replacement of Public Parking – Ron Cowan Lot
L-7	Replacement of Public Parking – Maitland Lot
L-8	Extension of Terminal Curbside
L-9	Construction of BART Access Covered Walkway
L-10	Construction of Return to Terminal Connection
Airport Support Facilities Project Components	
S-1	Construction of Replacement Cargo Building and Associated Parking
S-2	Construction of Replacement Remote and Cargo Aircraft Parking Positions
S-3	Construction of Replacement Airline and Airport Support Building and Associated Parking
S-4	Construction of Replacement Belly Cargo Building and Associated Parking
Utility Project Components	
U-1	Expansion of Central Utility Plant
U-2	Replacement of Fuel Rack and Below-Grade Fuel Systems
U-3	Upgrade of Fuel System
U-4	Relocation and Upgrade of Utility Systems

ES.4 ALTERNATIVES

As required under Section 15126(d) of the CEQA Guidelines, an EIR must discuss a range of reasonable alternatives to the Proposed Project that potentially would feasibly attain most of the basic objectives of the project while avoiding or lessening significant environmental effects. The Port considered other potential project alternatives, as discussed in **Chapter 4**; however, the Proposed Project was determined to be the Environmentally Superior Alternative.

ES.5 ENVIRONMENTAL IMPACTS

The environmental impact analysis is based on changes that could occur as a result of implementation of the Proposed Project. The impacts analyzed are based on the future levels of aviation activity that are forecast to occur at OAK. The OAK aviation activity projected in these forecasts would occur regardless of whether the Proposed Project is implemented. To provide a conservative analysis, the Port has elected in this Draft EIR to compare the aviation activity-based impacts of the Proposed Project in 2028 and 2038 to the 2019 OAK aviation activity level conditions, thus overstating the Proposed Project's actual impacts.

Table ES-2 presents the results of the environmental consequences analyses for the Proposed Project. For each environmental impact category, the table identifies whether any significant impacts would occur as a result of the Proposed Project. With implementation of mitigation measures, three impacts would be considered significant and unavoidable.

TABLE ES-2
SUMMARY OF ENVIRONMENTAL IMPACT LEVELS OF SIGNIFICANCE AND MITIGATION MEASURES

Section of Draft EIR	Impact	Level of Significance	Mitigation Measure(s)
Aesthetics			
3.2.3.1	A substantial adverse effect on a scenic vista	Construction and Operation: Less than significant	None
3.2.3.2	Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway	Construction and Operation: No impact	None
3.2.3.3	Conflict with applicable zoning and other regulations governing scenic quality	Construction and Operation: No impact	None
3.2.3.4	Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area	Construction and Operation: Less than significant	None
Air Quality			
3.3.3.3	Conflict with or obstruct implementation of the applicable air quality plan	Construction and Operation: Less than significant	None
3.3.3.3	Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard	Construction: Less than significant Operation: Potentially significant and unavoidable	The majority of ROG and NOx emissions result from aircraft operations, which the Port does not have the authority to regulate. The Port has provided electrical infrastructure throughout the terminals and cargo areas for use by commercial and cargo airlines and would install this electrical infrastructure in the new terminal and relocated cargo area. However,

Section of Draft EIR	Impact	Level of Significance	Mitigation Measure(s)
			this would not reduce impacts to less-than-significant levels.
3.3.3.3	Expose sensitive receptors to substantial pollutant concentrations	Construction: Less than significant Operation: Potentially significant and unavoidable	The majority of ROG and NOx emissions result from aircraft operations, which the Port does not have the authority to regulate. The Port has provided electrical infrastructure throughout the terminals and cargo areas for use by commercial and cargo airlines and would install this electrical infrastructure in the new terminal and relocated cargo area. However, this would not reduce impacts to less-than-significant levels.
3.3.3.3	Localized Impacts Carbon Monoxide	Construction and Operation: Less than significant	None
3.3.3.3	Toxic Air Contaminants	Construction: Less than significant Operation: Potentially significant and unavoidable	The majority of 8-hour non-cancer and acute (1-hour) non-cancer human health hazard effects for on-Airport workers would result from aircraft operations, which the Port does not have the authority to regulate. The Port has provided electrical infrastructure throughout the terminals and cargo areas for use by commercial and cargo airlines and would install this electrical infrastructure in the new terminal and relocated cargo area. However, this would not reduce impacts to less-than-significant levels.
<i>Biological Resources</i>			
3.4.3.1	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	Construction: Less than significant with mitigation incorporated	<u>Worker Environmental Awareness Training:</u> Prior to the start of construction, a California Department of Fish and Wildlife- (CDFW-) and U.S. Fish and Wildlife Service- (USFWS-) approved biologist (Biological Monitor) will provide a training session for all work

Section of Draft EIR	Impact	Level of Significance	Mitigation Measure(s)
	regional plans, policies, or regulations, or by the CDFW or USFWS	Operation: No impact	<p>personnel to identify any sensitive species that may be in the area, their basic habits, how they may be encountered in their work area, and procedures to follow when they are encountered. Any personnel joining the work crew later shall receive the same training before beginning work. Upon completion of the education program, employees shall sign a form stating they attended the program and understand all protection measures. A pamphlet, prepared by the Port, that contains images of sensitive species that may occur within the Proposed Project, identifies environmentally sensitive areas (ESAs) within the detailed study area, and notes key avoidance measures, as well as employee guidance shall be given to each person who completes the training program. These forms shall be made available to the resource agencies upon request.</p> <p><u>Mark Environmentally Sensitive Areas (ESAs):</u> Before construction begins, ESAs shall be clearly delineated using high visibility orange fencing, flagging, or similar marking to delineate sensitive habitats. The ESA marking shall remain in place throughout construction. It may be removed during the wet season (and subsequently re-installed) if needed to prevent materials from being washed away. Particular attention shall be focused on ESAs adjacent to or nearby Northern Coastal Salt Marsh or other tidally influenced wetlands that may provide potentially suitable habitat for the California Ridgway's rail and salt marsh harvest mouse. The</p>

Section of Draft EIR	Impact	Level of Significance	Mitigation Measure(s)
			<p>final Proposed Project plans shall depict all locations where ESA markings shall be installed and how the markings would be installed. The bid solicitation package special provisions would clearly describe acceptable marking material and prohibited construction-related activities, vehicle operation, material and equipment storage, and other surface-disturbing activities within ESAs. ESA markings shall be maintained in good repair throughout construction of the Proposed Project when there is potential for ESAs to be affected by nearby construction activities.</p> <p><u>Preconstruction Surveys for Special-status Plant Species:</u> Preconstruction surveys for the long-styled sand spurrey shall be conducted in accordance with CDFW (2018) protocols during the blooming season (February through May). If special-status plants are identified during the surveys, and impacts to the species are considered significant in the context of the status of the special-status plant species and the number of populations and individuals known, the following actions shall be undertaken:</p> <ul style="list-style-type: none"> •Avoid Rare Plants. The construction area of a project component that could affect a rare plant shall be adjusted, if practicable, to completely or partially avoid affecting special-status plant species. •Minimize Disturbance to Rare Plants. If complete or partial avoidance is not practicable, mitigation measures shall be implemented to reduce the severity of the impact to the special-status plant species. These actions could include one or a

Section of Draft EIR	Impact	Level of Significance	Mitigation Measure(s)
			<p>combination of the following: 1) collection of special-status plant seeds, bulbs, other propagules, or topsoil prior to construction for use in future onsite restoration or enhancement actions; 2) restoration or enhancement of suitable special-status plant habitat onsite; or 3) restoration or enhancement of suitable special-status plant habitat offsite.</p> <p><u>Biological Monitoring:</u> If special-status species plants are found during surveys, then a CDFW- and USFWS-approved Biological Monitor shall be on site during all vegetation removal and work within 100 feet of where the plants were found. The Biological Monitor shall have authority to stop work that may result in unauthorized take through communication with the Port. The USFWS and/or CDFW shall be notified by telephone and electronic mail within one working day if the Biological Monitor exercises this authority.</p> <p><u>Work in Dry Weather Only When in Sensitive Habitats:</u> Work in any bed, bank, channel, and any associated riparian habitat shall be conducted during periods of dry weather. Forecasted precipitation shall be monitored. When 0.25 inch or more of precipitation is forecasted to occur, work in sensitive habitats shall stop before precipitation commences. No construction activities shall be started if erosion control measures cannot be completed prior to the onset of precipitation. After any storm event, all sites currently under construction and all sites scheduled to begin construction within the 72 hours</p>

Section of Draft EIR	Impact	Level of Significance	Mitigation Measure(s)
			<p>of the storm event shall be inspected for erosion and sediment problems and corrective action will be taken as needed; 72-hour weather forecasts from the National Weather Service shall be consulted and work shall not start back up until runoff ceases and there is less than a 50 percent forecast for precipitation for the following 24-hour period.</p> <p><u>Construction Site Best Management Practices (BMPs):</u> The following site restrictions shall be implemented to avoid or minimize potential impacts on sensitive biological resources:</p> <ul style="list-style-type: none"> • Enforcing a speed limit of 15 miles per hour for construction and Port vehicles in unpaved portions of the site to reduce dust and excessive soil disturbance. • Locating construction access, staging, storage, and parking areas outside of any designated ESA to the extent practicable. Access routes, staging and storage areas, and contractor parking shall be limited to the minimum necessary to construct the Proposed Project. Routes and boundaries of roadwork shall be clearly marked before initiating construction. • Enclosing food and food-related trash items in sealed trash containers and removing them from the site at the end of each day. • Prohibiting pets from entering the construction sites. • Prohibiting firearms, except for those carried by authorized security personnel or local, state, or federal law enforcement officials.

Section of Draft EIR	Impact	Level of Significance	Mitigation Measure(s)
			<p><u>Stormwater BMPs as identified in the Storm Water Pollution Prevention Plan (SWPPP)</u></p> <p><u>Preconstruction Nesting Bird Surveys:</u> If construction activities occur between February 1 and September 30, then a pre-construction survey(s) shall be conducted within 500 feet of the construction areas for nesting birds no more than 3 days before construction. If active nests are found, then an appropriate buffer shall be established, and the nest shall be monitored for compliance with the MBTA and Fish and Game Code (F.G.C.) Section 3503.</p> <p><u>Active Nest Buffers:</u> If an active bird nest is found during construction activities, then species-appropriate ESA buffers based on Pacific Gas & Electric Company's (2015) recommended nesting buffers shall be implemented to avoid affecting the young until they have fledged, or as otherwise determined by consultation with USFWS and CDFW regarding appropriate action to comply with the MBTA and F.G.C. Section 3503.</p> <p><u>Western Burrowing Owl Pre-Construction Surveys:</u> Pre-construction surveys shall be conducted where Western burrowing owl nesting habitat has potential to occur within 500 feet of work. The survey protocol shall be as follows:</p> <ul style="list-style-type: none"> a) Conduct four survey visits.

Section of Draft EIR	Impact	Level of Significance	Mitigation Measure(s)
			<p>b) An initial visit must occur between February 15 and April 15.</p> <p>c) A minimum of three subsequent surveys shall be conducted, each survey at least three weeks apart, and at least one visit occurring after June 15.</p> <p>d) Conduct an additional take avoidance survey no less than 14 days prior to initiating ground-disturbing activities where work would occur.</p> <p><u>Western Burrowing Owl Nest Avoidance:</u> If a Western burrowing owl active nest is discovered during pre-construction surveys or biological monitoring, the following initial buffers will be implemented:</p> <p>a) From April 1 through October 15, establish a 660-foot (200-meter) no-work buffer from the active nest site.</p> <p>b) From October 16 through March 31, establish a 164-foot (50 meter) no-work buffer from the active nest site.</p> <p>c) Buffers and minimization measures (e.g., blinds and screens) may be adjusted or implemented after coordination with CDFW.</p> <p><u>California Ridgway's Rail and California Black Rail Pre-Construction Survey:</u> If California Ridgway's rail or California black rail suitable habitat is present within 700 feet of the immediate construction area and work would occur during the rail nesting season (February 1 through August 31), a pre-construction survey by a USFWS 10(a)1(A) permit holder for California Ridgway's rail will be conducted per the</p>

Section of Draft EIR	Impact	Level of Significance	Mitigation Measure(s)
			<p>2015 USFWS survey protocol to determine whether the species are present. If nesting California Ridgway's rail and/or California black rail are detected during pre-construction surveys, then construction activities shall not occur within 700 feet of an identified detection (or smaller distance if approved by USFWS and CDFW) during the rail nesting season. If rail activity is detected within the 700-foot buffer, immediate consultation with USFWS and CDFW is required.</p> <p><u>California Ridgway's Rail and California Black Rail Monitoring:</u> The following monitoring protocols for California Ridgway's rail and California black rail shall be implemented, where appropriate:</p> <ul style="list-style-type: none"> a) A USFWS- and CDFW-approved Biological Monitor will be present onsite to monitor for presence of California Ridgway's rail and California black rail during the operation of large equipment within 300 feet of salt marsh areas. b) The Biological Monitor shall be onsite at the proposed North Field Lot employee parking area on Old Earhart Road during construction in that location and shall periodically inspect the site to verify that habitat protection measures remain effective. <p><u>Vegetation Removal by Hand:</u> The contractor shall use non-motorized equipment to remove pickleweed, salt-grass, and other vegetation in the marked ESAs. Vegetation removal in the ESAs shall proceed away from the work areas and toward contiguous areas of</p>

Section of Draft EIR	Impact	Level of Significance	Mitigation Measure(s)
			<p>suitable habitat, to allow any salt marsh harvest mice within the exclusion area to passively relocate into adjacent habitat.</p> <p><u>Wildlife Exclusion Fencing:</u> A Biological Monitor shall be available during the placement and removal of a wildlife exclusion fencing (WEF) or as determined by the Port. The WEF shall be installed prior to the start of construction and in areas where wildlife could enter a construction area from adjacent or nearby ESAs. WEF locations shall be identified during the design phase of the Proposed Project, which shall include a description of the locations where WEF shall be installed, acceptable WEF material, and proper WEF installation and maintenance. The WEF shall remain in place throughout the duration of construction near ESAs while construction activities are ongoing and shall be regularly inspected for stranded animals. The WEF shall be removed following completion of construction activities or when construction is completed at that location at the discretion of the Biological Monitor.</p>
3.4.3.2	A substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFW or USFWS	<p>Construction: Less than significant with mitigation incorporated</p> <p>Operation: Less than significant</p>	<p><u>Offsetting Project Impacts to Protected Natural Resources:</u> Prior to affecting waters of the U.S./waters of the State, the Port shall compensate for the permanent impacts at an appropriate ratio determined in coordination with USACE and the RWQCB that may include any one or combination of the following approaches: offsite mitigation through purchase of credits at an approved conservation bank(s); onsite restoration; and/or development of a</p>

Section of Draft EIR	Impact	Level of Significance	Mitigation Measure(s)
			<p>compensation plan that shall provide in-lieu funding to a nearby restoration program or restoration project that shall create, restore, or enhance resources adversely affected by the Proposed Project. Compensation for temporary impacts to protected natural resources shall be achieved through onsite in-kind habitat restoration to pre-disturbance conditions. In 2013, 2014, and 2015, the Port purchased credits from the San Francisco Wetland Mitigation Bank at Redwood City. The Port has sufficient credits and intend to use those credits, as needed, to offset the impacts resulting from the Proposed Project.</p> <p>Compensation for temporary impacts to protected natural resources will be achieved through onsite in-kind habitat restoration to pre-disturbance conditions.</p>
3.4.3.3	A substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means	<p>Construction: Less than significant with mitigation incorporated</p> <p>Operation: Less than significant</p>	Same mitigation measures as previously identified for 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 CDFW or USFWS.
3.4.3.4	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	<p>Construction: Less than significant</p> <p>Operation: No impact</p>	None

Section of Draft EIR	Impact	Level of Significance	Mitigation Measure(s)
3.4.3.5	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance	Construction and Operation: No impact	None
3.4.3.6	Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan	Construction and Operation: No impact	None
<i>Cultural and Tribal Resources</i>			
3.5.3.1	Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5	Construction and Operation: Potentially significant and unavoidable	<u>Historic American Building Survey (HABS) Report:</u> A HABS Report of Terminal 1 will be prepared by the Port prior to demolition. The HABS Report of Terminal 1 will focus on M101 and M102 as contributing features that would be affected by the Proposed Project and the report would be submitted to the Library of Congress and/or appropriate local repositories for access by the public. The report will be written in accordance with the current HABS standards established by the National Parks Service. Photography will be completed in a detailed format and may be completed in a high-resolution digital process if it will not be submitted to the Library of Congress but rather to local preservation entities such as the Landmarks Preservation Advisory Board (LPAB) or the Oakland History Center of the Oakland Public Library. The goal of this mitigation measure is to provide public access so one preservation entity (in addition to the Port) would provide digital copies of the HABS report (and photographs and other

Section of Draft EIR	Impact	Level of Significance	Mitigation Measure(s)
			<p>media appended to the report) online through their public website.</p> <p><u>Interpretive Exhibit in New Terminal 1:</u> Public interpretive material will be developed that are commensurate with the significance themes for the resources affected by the Proposed Project. Mitigation will present plans including the types of public and scholarly interpretation that would be implemented during and following the construction phase of the Proposed Project. Interpretive products would include brochures, signage and panels, and other appropriate media for interpretation. The interpretation will outline the Airport's history and significance with a focus on Terminal 1 and the locations where such interpretation will be installed or will take place. Examples might include, but are not limited to, photographs of the historic Terminal 1 along with brief descriptions of the photographs, reuse of physical materials removed from Terminal 1 (M101) with an explanation of the architect and design themes that place the materials in context (for example, portions of the concrete scalloped roof could be incorporated into the new design either functionally or artistically), and digital media that uses smartphone/camera technology to juxtapose old views of Terminal 1 with current views. Materials developed as a part of any interpretive exhibits will be digitized and provided to appropriate repositories (the LPAB, the Oakland History Center of the Oakland Public Library, etc.) in electronic format</p>

Section of Draft EIR	Impact	Level of Significance	Mitigation Measure(s)
			for curation and, if deemed necessary and appropriate, expansion later.
3.5.3.2	Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5	Construction and Operation: Less than significant with mitigation incorporated	<p><u>Archaeological Monitoring:</u> All site preparation (pavement and vegetation removal) and subsurface ground-disturbing activities (e.g., grading, trenching) associated with the construction of the Golf Course Lot will be monitored by a qualified archaeological monitor under the direction of an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for prehistoric archaeology, and a Native American monitor identified by the California Native American Heritage Commission as having an interest in the area within which the Proposed Project is located.</p> <p><u>Inadvertent Discovery:</u> If cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area will be halted until a qualified archaeologist assesses the nature and significance of the find. Inadvertent discovery would be required to follow the protocols in the Port of Oakland's Emergency Response Plan for Discoveries of Unknown Historic or Archaeological Resources, which says that in the event that cultural resources are uncovered during dredging and excavation, crew and equipment operators must adhere to the procedures outlined below. The following measures apply when non-isolate finds are detected:</p>

Section of Draft EIR	Impact	Level of Significance	Mitigation Measure(s)
			<p>1. Dredging and excavation work, or any other activities at the locations and within 50 yards of the finds must halt.</p> <p>2. The crew member(s) should immediately notify the Project Construction Manager and the Port Project Environmental Coordinator.</p> <p>3. In the event that the Project Construction Manager is not available, the Port Project Environmental Coordinator and/or the Port Cultural Resources Specialist should be contacted directly.</p> <p>4. Work can be shifted to other project areas to avoid loss of work time. However, work should only resume in the suspected area once the situation has been properly examined and assessed, and the Port has given notification that work may resume.</p> <p>If there is ever any doubt or confusion upon discovery of cultural materials, or if no Port representatives can be located, the contractor supervisor and crew should temporarily halt work until the proper personnel can be notified and the situation clarified.</p> <p>If resources are discovered that are considered potentially eligible for listing in the CRHR, then they must be addressed under the procedures set forth in CEQA Guidelines Section 15064.5. If significant resources are encountered and avoidance is infeasible, then data recovery through excavation will be conducted. If the cultural materials are of Native American origin, the Port will consult with the Native American monitor, and a data recovery plan will be prepared and implemented.</p>

Section of Draft EIR	Impact	Level of Significance	Mitigation Measure(s)
			If human remains are discovered, Health and Safety Code Section 7050.5 requires that further disturbances and activities must cease in any nearby area suspected to overlie remains, and the County Coroner must be contacted. Pursuant to PRC Section 5097.98, if the remains are thought to be Native American, the coroner must notify the NAHC, who must then notify the Most Likely Descendent.
3.5.3.3	<p>Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code § 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:</p> <ul style="list-style-type: none"> • Listed or eligible for listing in the CRHR, or in a local register of historical resources as defined in PRC Section 5020.1(k) • A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1. In applying the criteria set forth in subdivision (c) of PRC Section 5024.1, the lead agency shall consider 	Construction and Operation: Less than significant with mitigation incorporated	<p>Same mitigation measures as identified for "cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5."</p> <p><u>Inadvertent Discovery of Tribal Resources:</u> In the event that any tribal cultural resources are found during construction, work would be halted and the Port's Emergency Response Plan for Discoveries of Unknown Historic or Archaeological Resources would be activated, which includes reporting procedures and procedures for the work crew.</p>

Section of Draft EIR	Impact	Level of Significance	Mitigation Measure(s)
	the significance of the resource to a California Native American tribe		
<i>Geology and Soils</i>			
-	Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:	-	-
3.6.3.1	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 CGS Special Publication 42	Construction and Operation: Less than significant	None
3.6.3.2	Strong seismic ground shaking	Construction and Operation: Less than significant	None
3.6.3.3	Seismic-related ground failure, including liquefaction	Construction and Operation: Less than significant	None
3.6.3.4	Landslides	Construction and Operation: No impact	None
3.6.3.5	Result in substantial soil erosion or loss of topsoil	Construction and Operation: Less than significant	None
3.6.3.6	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	Construction and Operation: Less than significant	None

Section of Draft EIR	Impact	Level of Significance	Mitigation Measure(s)
	landslide, lateral spreading, subsidence, liquefaction or collapse		
3.6.3.7	Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property	Construction and Operation: Less than significant	None
<i>Greenhouse Gas Emissions</i>			
3.7.3.2	Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment (comparable to State CEQA Guidelines Section 15064.4(b)(1)-(2))	Construction: Less than significant Operation: Potentially Significant and Unavoidable	Similar to Air Quality. the majority of the Proposed Project's GHG emission increases would result from market-based demand and related aircraft emissions and the Port does not have the authority to mitigate air pollutant emissions associated with aircraft operations.
3.7.3.3	Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs (same as State CEQA Guidelines Section 15064.4(b)(3))	Construction and Operation: Less than significant	None
<i>Hazards and Hazardous Materials</i>			
3.8.3.1	Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials	Construction and Operation: Less than significant	None
3.8.3.2	Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely	Construction and Operation: Less than significant	None

Section of Draft EIR	Impact	Level of Significance	Mitigation Measure(s)
	release of hazardous materials into the environment		
3.8.3.3	Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school	Construction and Operation: No impact	None
3.8.3.4	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 environment	Construction and Operation: No impact	None
3.8.3.5	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 the project result in a safety hazard or excessive noise for people residing or working in the project area	Construction and Operation: Less than significant	None
3.8.3.6	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan	Construction and Operation: Less than significant	None
<i>Hydrology and Water Quality</i>			
3.9.3.2	Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality	Construction and Operation: Less than significant	None

Section of Draft EIR	Impact	Level of Significance	Mitigation Measure(s)
3.9.3.3	Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin	Construction and Operation: Less than significant	None
3.9.3.4	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces that would:	-	-
-	Result in substantial erosion or siltation on- or off-site	Construction and Operation: Less than significant	None
-	Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site	Construction and Operation: Less than significant	None
-	Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff	Construction and Operation: Less than significant	None
-	Impede or redirect flood flows	Construction and Operation: Less than significant	None

Section of Draft EIR	Impact	Level of Significance	Mitigation Measure(s)
3.9.3.5	In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation	Construction and Operation: Less than significant	None
3.9.3.6	Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan	Construction and Operation: No impact	None
<i>Land Use and Planning</i>			
3.10.3.1	Physically divide an established community	Construction and Operation: No impact	None
3.10.3.2	Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect	Construction and Operation: No impact	None
<i>Noise</i>			
3.11.3.1	Noise from on-site construction activities that exceeds the exterior ambient noise level by 5 dBA or more at a noise-sensitive use, as measured at the property line of any sensitive use	Construction: Less than significant with mitigation incorporated	<p><u>Monitor Construction Noise:</u> Continuously monitor construction noise at closest noise sensitive receptor(s) to the active construction effort. Actual construction methods may not be as intrusive as currently assumed in this analysis, but if any measurement indicates an exceedance of the City's construction noise thresholds from Proposed Project construction, measures including but not limited to those described below will be used to ensure that the significance threshold is not exceeded.</p> <p><u>Construction Scheduling:</u> The timing and/or sequence of the noisiest onsite construction activities shall</p>

Section of Draft EIR	Impact	Level of Significance	Mitigation Measure(s)
			<p>avoid noise-sensitive times of the day or week, as feasible (7:00 p.m. to 7:00 a.m. Monday–Friday; 8:00 p.m. to 9:00 a.m. on weekends and holidays).</p> <p><u>Construction Equipment:</u> Stationary source equipment that has a flexible location of use (such as generators and compressors) shall be located at the greatest distance practical from noise-sensitive land uses. “Quiet-design” air compressors and other quieter construction equipment shall be used when feasible and when such technology/equipment is commercially available.</p>
3.11.3.2	A substantial increase in aircraft noise	Operation: Less than significant	None
3.11.3.3	Noise from Proposed Project-related traffic that would cause ambient noise levels to increase by 5 dBA CNEL or more at a noise-sensitive land use	Construction and Operation: Less than significant	None
3.11.3.3	Noise from off-site construction traffic that exceeds the exterior ambient noise level by 5 dBA or more at a noise-sensitive use, as measured at the property line of any sensitive use	Construction and Operation: Less than significant	None
3.11.3.4	A substantial increase in ground-borne vibration resulting in structural damage or human annoyance	Construction: Less than significant	None
3.11.3.5	Expose people residing or working within an Airport Land Use Plan (ALUP) area to excessive noise levels	Construction and Operation: Less than significant	None
Public Services			

Section of Draft EIR	Impact	Level of Significance	Mitigation Measure(s)
-	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:	-	-
3.12.3.1	Fire protection	Construction and Operation: Less than significant	None
3.12.3.2	Police protection	Construction and Operation: Less than significant	None
3.12.3.3	Schools	Construction and Operation: No impact	None
3.12.3.4	Parks	Construction and Operation: No impact	None
3.12.3.5	Other public facilities	Construction and Operation: Less than significant	None
Transportation			
3.13.4.1	Conflict with a program, plan, ordinance, or policy addressing the	Construction and Operation: Less	<u>Maintain Pedestrian and Bicycle Access:</u> The Proposed Project will maintain pedestrian and bicycle access

Section of Draft EIR	Impact	Level of Significance	Mitigation Measure(s)
	circulation system, including transit, roadway, bicycle, and pedestrian facilities	than significant with mitigation incorporated	during construction and ensure that the pedestrian and bicycle connection between Ron Cowan Parkway and the Proposed Project are made upon project completion to replace the connection lost by the removal of part of John Glenn Drive.
3.13.4.2	Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b) (VMT)	Construction and Operation: Less than significant	None
3.13.4.3	Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)	Construction and Operation: Less than significant	None
3.13.4.4	Result in inadequate emergency access	Construction and Operation: Less than significant	None
<i>Energy, Utilities, and Service Systems</i>			
3.14.3.1	Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation	Construction and Operation: Less than significant	None
3.14.3.2	Conflict with State or Local Plan for Renewable Energy or Energy Efficiency	Construction: Less than significant Operation: No impact	None

Section of Draft EIR	Impact	Level of Significance	Mitigation Measure(s)
3.14.3.4	Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects	Construction and Operation: Less than significant	None
3.14.3.5	Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years	Construction and Operation: Less than significant	None
3.14.3.6	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	Construction and Operation: Less than significant	None
3.14.3.7	Generate solid waste in excess of State or local standards, or in excess of the capacity to serve the project's projected demand in addition the provider's existing commitments	Construction and Operation: Less than significant	None
3.14.3.8	Comply with federal, state, and local management and reduction statutes and regulations related to solid waste	Construction and Operation: No impact	None

CHAPTER 1

INTRODUCTION

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1.1 PURPOSE OF THE EIR

The Port of Oakland (Port), as the Lead Agency under the California Environmental Quality Act (CEQA), has prepared this Draft Environmental Impact Report (EIR) for the Terminal Modernization and Development Project (Proposed Project) at Oakland International Airport (OAK or Airport) in compliance with CEQA and CEQA Guidelines. Because the Proposed Project would require discretionary approvals by the Port, the Proposed Project is subject to CEQA. Based on the preparation of the Notice of Preparation (NOP) in May 2021, it was determined that the Proposed Project may have a significant effect on the environment and that an EIR should be prepared pursuant to CEQA.

The Port, which owns and operates the Airport, has commissioned the EIR for the following purposes:

- To evaluate the environmental effects associated with implementation of the Proposed Project, as required by CEQA;
- To inform the general public, the local community, and responsible federal, state, and local agencies of the nature of the Proposed Project, its potentially significant environmental effects, feasible mitigation measures to mitigate those effects, and its potentially reasonable and feasible alternatives;
- To enable the Board of Port Commissioners to consider the environmental consequences of the Proposed Project; and
- To facilitate responsible agencies in issuing permits and approvals for the Proposed Project.

As described in CEQA and the CEQA Guidelines, public agencies are charged with the duty to avoid or substantially lessen significant environmental impacts where feasible. Where impacts cannot be mitigated to less-than-significant levels, public agencies have an obligation to balance a project's significant impacts on the environment against other factors, including economic, social, technological, legal, and other benefits.

This Draft EIR is an informational document, and it identifies potentially significant impacts of the Proposed Project on the environment, the manner in which those significant impacts can be avoided or significantly lessened, any significant and unavoidable impacts that cannot be mitigated, and a range of reasonable alternatives to the Proposed Project that potentially would feasibly attain the project objectives, but which would avoid or substantially lessen any of the significant environmental effects of the project.

CEQA requires the Lead Agency to consider the information in an EIR, along with any other relevant information, in making its decision on a project. Although this EIR does not determine the ultimate decision (i.e., approval) regarding implementation of the Proposed Project, the Port is required to consider the information in this EIR and to make findings regarding each significant effect that is identified in this EIR.

The Port must certify the EIR before approving the Proposed Project. This Draft EIR was prepared in accordance with Section 15151 of the CEQA Guidelines, which defines the standards for EIR adequacy as follows:

An EIR should be prepared with a sufficient degree of analysis to provide decision-makers with information which enables them to make a decision which intelligently

takes account of environmental consequences. An evaluation of the environmental effects of a project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts. The courts have looked not for perfection but for adequacy, completeness, and good faith effort at full disclosure.

1.2 ENVIRONMENTAL IMPACT REPORT PROCESS

1.2.1 Notice of Preparation

Comments on the scope of this EIR were solicited from identified responsible and trustee agencies, as well as interested parties, through the publication of the Notice of Preparation (NOP). The NOP was posted to the public on May 7, 2021, and circulated for a 30-day review period. The scoping period began on May 7, 2021, and comments were due to the Port on June 7, 2021, at 3 p.m. Pacific Daylight Time (PDT). A total of four virtual public scoping meetings were held—two on May 25 and two on May 26, 2021. A copy of the NOP is included as **Appendix A**. A summary scoping report was prepared to categorize and respond to general comments received and was posted on the Port’s website in January 2022. A more detailed scoping report that includes the comments received during the public scoping period and responses to these comments are provided in **Appendix B**.

1.2.2 Draft Environmental Impact Report and Public Review

Publication of this Draft EIR will begin a public review and comment period. The Port recognizes the document may take some time to review. Therefore, the Port is voluntarily extending the public review period to 60 days, which is longer than the 45-day review period required by Section 15105(a) of the CEQA Guidelines. Upon publication, the Draft EIR will be available to federal, state, and local agencies as well as to interested organizations and members of the public for review. The Port will hold a total of four public meetings, two virtual and two in-person, to allow agencies, organizations, and the public to voice their opinions regarding the adequacy of the Draft EIR. Notice of the times and location(s) will be published prior to the public meetings. All written comments or questions about the Draft EIR should be addressed to:

Mail:
 Port of Oakland
 Environmental Programs and Planning Division
 Attention: Colleen Liang
 Address: 530 Water Street, Oakland, California 94607
 Email: TermDev@portoakland.com
 Website form: www.oaklandairport.com/terminaldevelopment

1.2.3 Responses to Comments; Final Environmental Impact Report, Project Approval

After the extended 60-day public comment period closes, the Port will respond to all written comments received, as well as oral comments received at the public meetings described

above, regarding the Proposed Project’s environmental impacts in the Final EIR. The Response to Comments will be prepared as a separate document from the EIR. The Final EIR will consist of the EIR and the Response to Comments document. The Final EIR will be considered by the Board of Port Commissioners during at least one public hearing and will be certified if it is found to comply with CEQA. After certification of the Final EIR, the Port will consider the merits of the Proposed Project for approval.

1.2.4 Notice of Determination

If the Proposed Project is approved, the Port will file a Notice of Determination (NOD) within five business days, which will be available to the public and posted within 24 hours of receipt at the Alameda County Clerk-Recorder’s Office for 30 days. The filing of the NOD starts a 30-day statute of limitations on court challenges to the approval of the Proposed Project under CEQA Guidelines Section 15094(g).

1.2.5 CEQA Findings and Mitigation Monitoring

CEQA requires that when a public agency approves a project and finds that changes or alterations have been incorporated into the project in order to mitigate or avoid significant environmental effects identified in the EIR, the agency must also adopt a reporting or monitoring program for those measures that it has adopted or made a condition of project approval. Findings explain the connection between the analysis in the environmental document and the decisions by the decision-makers. The reporting or monitoring program must be designed to ensure compliance during project implementation. The mitigation monitoring and reporting program (MMRP) for this EIR will be prepared at the time the Final EIR is prepared and must be adopted concurrently with the certification of the Final EIR.

1.2.6 Proposed Project Overview

The Proposed Project would modernize existing Terminals 1 and 2, construct an expanded Customs and Border Protection (CBP) facility for international arrivals, reconfigure and relocate existing cargo and support facilities, improve the terminal area roadway, parking areas, and support facilities, and construct a new terminal. A detailed description of the Proposed Project is presented in **Chapter 2**.

1.3 INITIAL STUDY FINDINGS

An Initial Study was prepared and included with the NOP in May 2021 (see **Appendix A**). Based in part on the Initial Study, the Port found that preparation of the Draft EIR was required because the Proposed Project could have potentially significant impacts associated with the topics of air quality, cultural resources, greenhouse gas emissions, hazardous materials, and traffic and transportation. As more fully explained therein, the Initial Study concluded that the following topics did not require further analysis in the Draft EIR:

- Agriculture / Forestry Resources;
- Mineral Resources;
- Population / Housing;
- Recreation; and
- Wildfires.

1.4 AGENCIES THAT MAY USE THIS EIR

The EIR is a public information document used in the planning and decision-making process. CEQA requires that all state and local agencies consider the environmental consequences of projects over which they have discretionary authority. The EIR is a public information document used in the planning and decision-making process. CEQA requires that all federal, state, and local agencies consider the environmental consequences of projects over which they have discretionary authority. The following agencies may use this EIR in connection with their decision-making on issuing discretionary approvals for this Proposed Project. The agencies and approvals for which these agencies are responsible are listed in **Table 1-1**.

TABLE 1-1
ANTICIPATED PROJECT APPROVALS

Agency(ies)	Approvals
Alameda County Airport Land Use Commission (ALUC)	Consistency Determination
Bay Area Air Quality Management District (BAAQMD)	Authority to Construct and Permit to Operate
California Department of Fish and Wildlife (CDFW)	Informal consultation under the California Endangered Species Act (CESA)
City of Oakland	Building Permit
East Bay Municipal Utility District (EBMUD)	Wastewater Discharge Permit
San Francisco Bay Conservation and Development Commission (BCDC)	Permit Amendment
San Francisco Bay Regional Water Quality Control Board (SFBRWQB)	Industrial General Permit Section 401 Water Quality Certification under the Clean Water Act <i>NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities, Order No. 2009-0009-DWQ, (CGP) identified as NPDES No. CAS000002</i> <i>General Permit for Storm Water Discharges Associated with Industrial Activities, (IGP) identified as NPDES No. CAS000001</i>
State Historic Preservation Officer (SHPO)	Finding of Effect (FOE) and Memorandum of Agreement (MOA) per Section 106 of the National Historic Preservation Act
United States Army Corps of Engineers (USACE)	Section 404 Clean Water Act Permit
U.S. Fish and Wildlife Service (USFWS)	Informal consultation under Section 7

1.5 RELATED NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) REVIEW

The Proposed Project would result in a change to the Airport Layout Plan (ALP) and may involve use of either Airport Improvement Program (AIP) and/or Passenger Facility Charge (PFC) funds (or other funds with federal oversight), which would require approval from the Federal Aviation Administration (FAA). As such, the Proposed Project also requires compliance with federal environmental laws and regulations. A separate environmental review document will be prepared in accordance with the National Environmental Policy Act of 1969 (NEPA) (42 U.S. Code [USC] §4321 et seq.); FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*; FAA Order 5050.4B, *National Environmental Policy Act of 1969 (NEPA) Implementing Instructions for Airport Actions*; and the Council on Environmental Quality (CEQ) Regulations (40 Code of Federal Regulations [CFR] 1500-1509). This separate environmental review document will be available for public review.

1.6 ORGANIZATION OF THIS DRAFT EIR

This Draft EIR is organized into the following chapters:

Executive Summary. This section provides an overview of the contents of the Draft EIR.

Chapter 1: Introduction. This chapter provides an overview of the purpose of the Draft EIR, a description of the intended uses of this Draft EIR, the review and certification process, and a description of the organization of this Draft EIR.

Chapter 2: Project Description. This chapter presents the objectives of the Proposed Project, a detailed description of the Proposed Project, and a listing of the permits and approvals required prior to the start of construction.

Chapter 3: Existing Conditions, Environmental Impacts, and Mitigation Measures. This chapter provides a description of the existing environmental conditions at the Airport and the environmental effects associated with the implementation of the Proposed Project. This chapter also presents an overview of the background and analytical methodology used in the analysis, provides the regulatory context for the condition or resource, and identifies the thresholds of significance used to determine the level of potential impacts, if any. In addition, if the analysis indicates that a significant impact would occur, mitigation measures are identified to reduce the impact to a non-significant level, if possible. Graphics and tables are included to clarify the analysis presented in this chapter.

Chapter 4: Alternatives. This chapter presents a description of the Proposed Project alternatives that were considered. A brief overview of the impacts associated with alternatives is included in this chapter.

Chapter 5: Impact Overview. This chapter identifies the significant and unavoidable adverse impacts, the significant irreversible environmental changes, and any growth-inducing impacts that might occur as a result of the implementation of the Proposed Project.

Chapter 6: Public Outreach and Coordination. This chapter identifies the public outreach efforts that were conducted for this Draft EIR.

Chapter 7: Glossary and Abbreviations. This chapter provides a list of terms and abbreviations that are used in this Draft EIR.

Chapter 8: References. This chapter identifies the reference materials that have been used to prepare this Draft EIR.

Chapter 9: List of Preparers. This chapter presents the names and qualifications of persons who assisted in the preparation of this Draft EIR.

Appendices. These sections present relevant material and technical reports that were used as a basis for or developed as part of the preparation of this Draft EIR.

CHAPTER 2

PROJECT DESCRIPTION

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2.1 INTRODUCTION

This chapter of the Draft Environmental Impact Report (EIR) presents a general description of the Proposed Project. It also describes the existing Oakland International Airport (OAK or Airport), outlines the objectives of the Proposed Project, presents a detailed description of each component of the Proposed Project, and lists the discretionary approvals required to implement the Proposed Project.

2.2 PROJECT LOCATION

OAK is a primary¹ commercial service airport owned and operated by the Port of Oakland (Port). OAK is located in the city of Oakland, about 6.5 miles southeast of downtown Oakland in Alameda County along San Francisco Bay (see **Figure 2-1**). Cities in the immediate vicinity of OAK include Alameda (to the northwest), Oakland (to the north), and San Leandro (to the southeast).

2.3 EXISTING AIRPORT

OAK property consists of approximately 2,600 acres and includes South Field, which primarily accommodates the commercial passenger and cargo activity, and North Field, which primarily serves corporate and general aviation purposes and other supporting facilities (see **Figure 2-2**).

2.3.1 Airfield Description

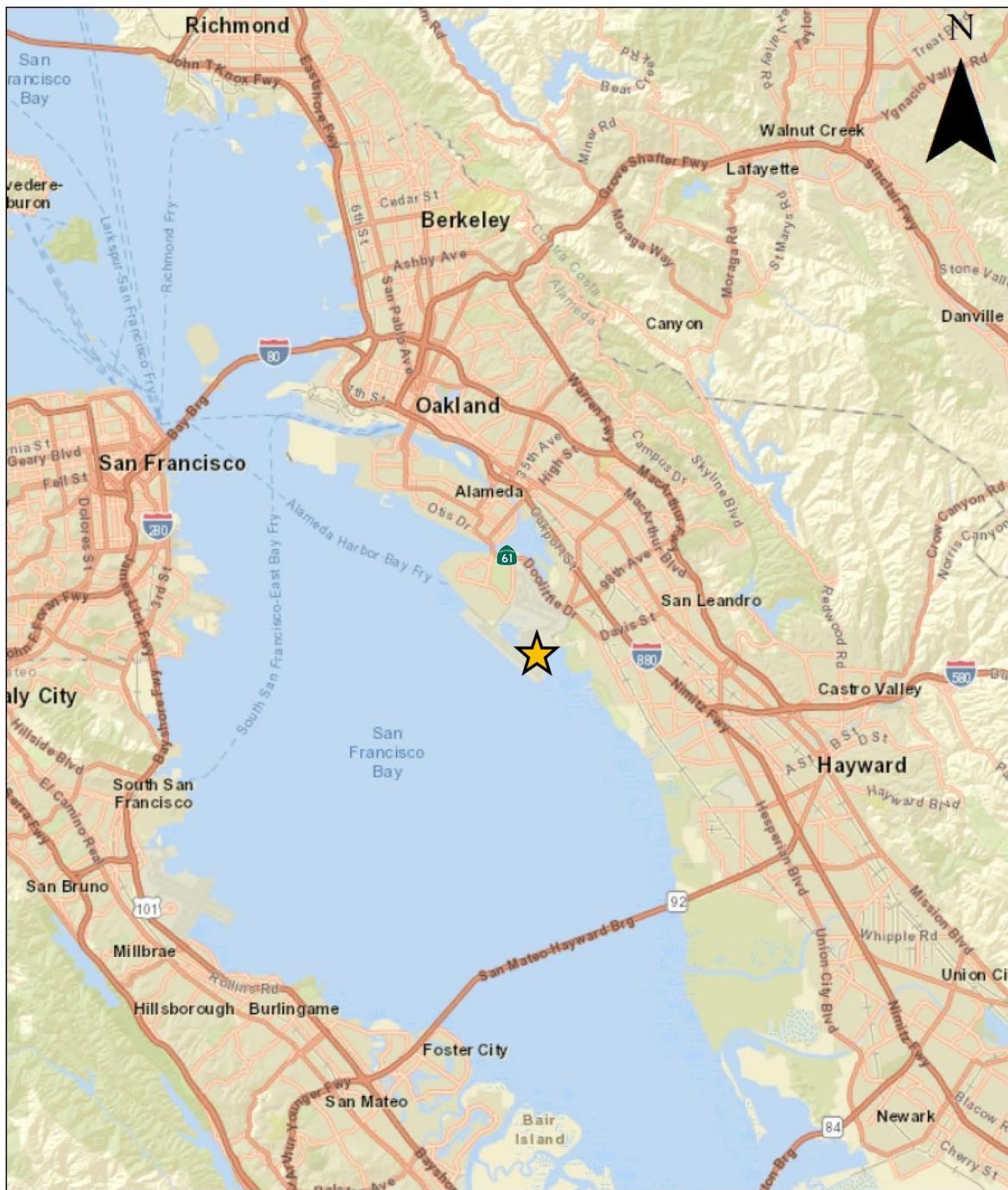
OAK has four runways: one primary air carrier runway at South Field (Runway 12-30) and three runways at North Field (Runway 10R-28L, Runway 10L-28R, and Runway 15-33). The runways are served by multiple taxiways and taxilanes that provide access to and from the runways and aircraft parking positions. The existing runways and taxiways are shown on **Figure 2-2**.

2.3.2 Passenger Terminals Description

The Airport has 29 passenger gates in two terminals located in South Field: Terminal 1 and Terminal 2. Each of the terminals includes a check-in hall, a concourse with holdrooms and concessions, outbound baggage makeup areas, domestic baggage claim, baggage service offices, passenger airline operations space, a passenger security checkpoint area, Transportation Security Administration (TSA) checkpoint support, TSA baggage screening areas, commercial support space, public restrooms, offices, loading docks, public and non-public circulation, maintenance and storage areas, and mechanical, electrical, and plumbing facilities. The International Arrivals Building (IAB) is connected to Terminal 1 and includes U.S. Customs and Border Protection (CBP) inspection and support facilities and international baggage claim. **Figure 2-3** shows the locations of the gates within Terminals 1 and 2.

¹ A primary airport is defined by the Federal Aviation Administration as a commercial service airport that has more than 10,000 passenger boardings each year. See https://www.faa.gov/airports/planning_capacity/categories/#:~:text=Primary%20Airports%20are%20Commercial%20Service,of%20the%20current%20fiscal%20year.

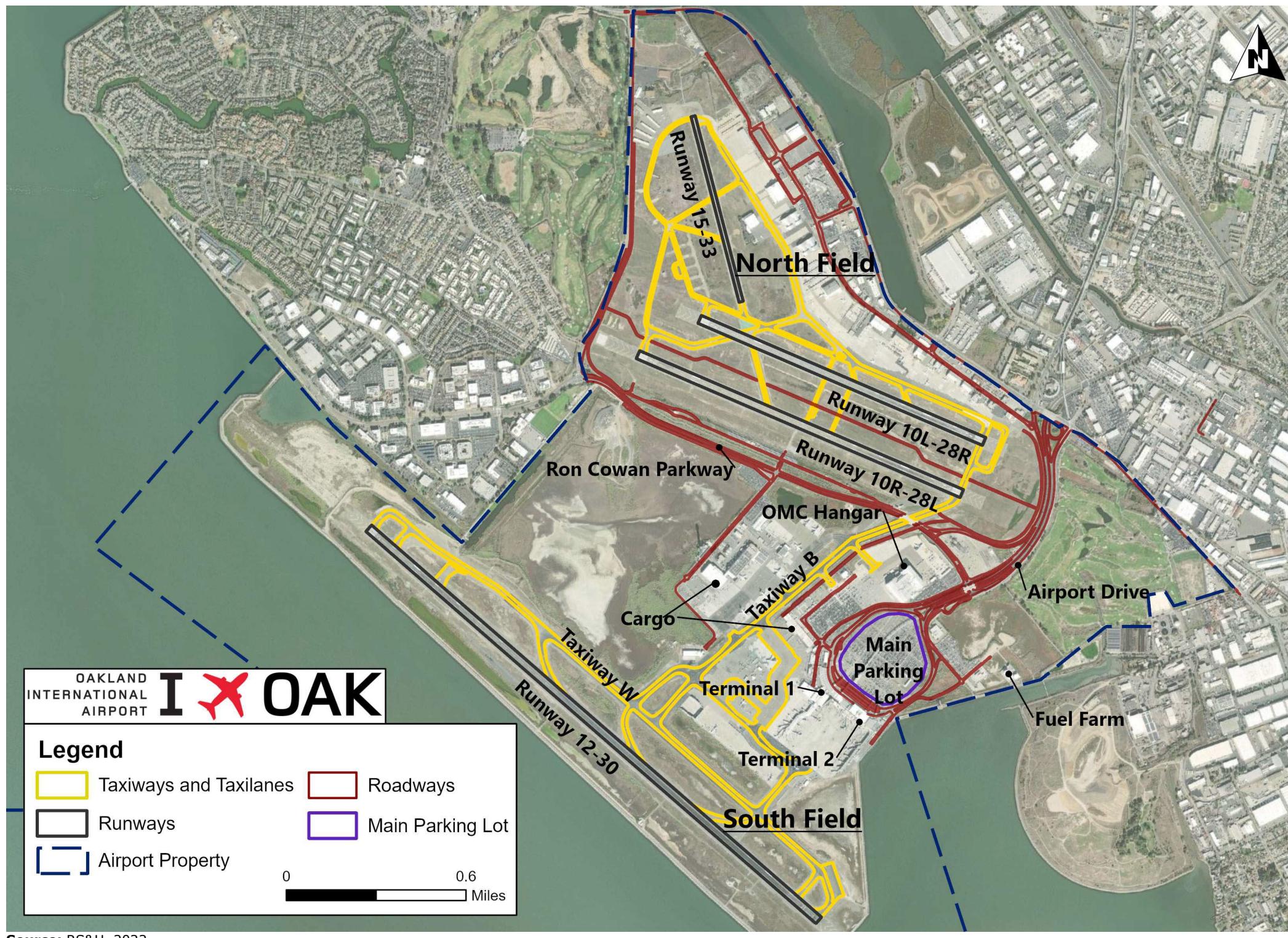
FIGURE 2-1
REGIONAL LOCATION



3.5 1.75 0 3.5 Miles

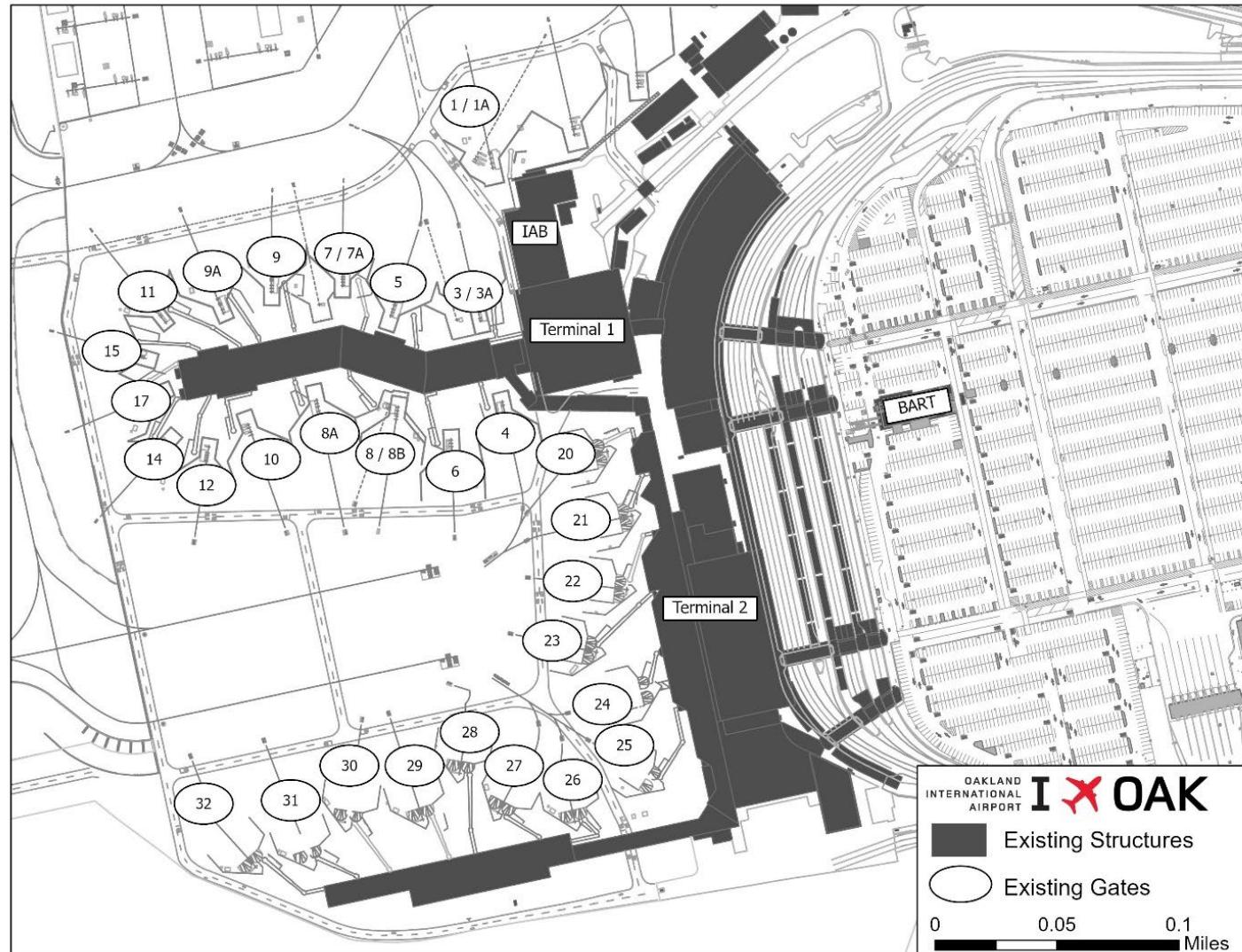
OAKLAND INTERNATIONAL AIRPORT OAK

FIGURE 2-2
EXISTING FACILITIES AT OAK



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FIGURE 2-3
EXISTING TERMINALS 1 AND 2 AT OAK



Source: RS&H, 2022

2.3.3 Landside and Support Facilities Description

Access to OAK is provided primarily by Interstate Highway 880, Hegenberger Road, and 98th Avenue to Airport Drive/Bessie Coleman Drive. Other major roadways serving OAK include Doolittle Drive/State Route 61, Harbor Bay Parkway, Ron Cowan Parkway, and Davis Street/State Route 61. Terminals 1 and 2 are accessed via Airport Drive, which is a single-level loop roadway (see **Figure 2-2**). The curbside and parallel islands in front of Terminals 1 and 2 provide for private vehicles and commercial operators (shuttle buses, transit, taxicab, and transportation network companies) to drop off and pick up departing and arriving passengers. The main parking lot is in the center of the loop roadway. Additional public parking facilities are located off John Glenn Drive. Employee parking lots for South Field are located off Air Cargo Way, Edward White Way, Neil Armstrong Way, and John Glenn Drive. Employee parking for North Field is located off Earhart Road.

The Bay Area Rapid Transit (BART) system is connected to the Airport via a station that is directly across Airport Drive from the terminals, and a track system that provides access to the BART Coliseum Station.

The Airport also includes cargo facilities, which are located on both sides of Taxiway B to the north of the existing terminals (see **Figure 2-2**). Cargo airlines (FedEx and UPS) and passenger airlines carrying belly cargo² operate out of these facilities.

Other support facilities at the Airport include the fuel farm, an airline provisioning building, a catering building, storage facilities, offices, hangars, a rental car facility, general aviation facilities, and other support functions such as aircraft and ground service equipment maintenance.

2.3.4 Airport Operations

In 2019, OAK accommodated about 6.7 million enplanements, or about 13.4 million annual passengers (MAP) including both arriving and departing passengers, and about 242,000 total aircraft operations (takeoffs and landings). These included operations by passenger airlines, cargo airlines, general aviation aircraft, and military (see **Table 2-1**). Most of the operations were by passenger airlines (about 46.7 percent) and general aviation (about 44.4 percent).

In 2019, OAK accommodated approximately 642,000 annual tons of air cargo. This included belly cargo carried in passenger aircraft and freighter cargo carried in cargo aircraft.

2.4 FORECASTS

This section provides details regarding the future levels of aviation activity that are forecast to occur at OAK. The OAK aviation activity projected in these forecasts would occur regardless of whether the Proposed Project is implemented. To provide a conservative analysis, the Port has elected in this Draft EIR to compare the aviation activity-based

² Belly cargo is the freight that passenger airlines transport on scheduled passenger flights.

TABLE 2-1
FORECAST SUMMARY FOR OAK

	Forecast in Calendar Years		
	2019 (Base Year)	2028 (Planning Activity Level 1)	2038 (Planning Activity Level 2)
Passenger Activity			
Passenger Enplanements	6,689,457	8,792,855	12,342,518
Million Annual Passengers (MAP)	13.4	17.6	24.7
Cargo Tonnage			
Belly Cargo (US Tons)	9,678	16,905	24,650
Freighter Cargo (US Tons)	632,727	757,987	859,437
Total Air Cargo Tonnage (US Tons)	642,405	774,892	884,087
Aircraft Operations			
Passenger Airline Operations	113,272	132,830	181,270
Cargo Airline Operations	20,698	23,200	24,800
Business/General Aviation	107,861	110,758	116,431
Military	926	1,000	1,000
Total Aircraft Operations	242,757	267,788	323,501

Source: InterVISTAS - Oakland International Airport Comprehensive Aviation Activity Forecast Report (2019-2038), July 28, 2020, updated June 2021 ([Appendix C](#)).

impacts of the Proposed Project in 2028 and 2038 to the 2019 OAK aviation activity level conditions, thus overstating the Proposed Project's actual impacts.

To assist the Airport's planning efforts, an aviation activity forecast was developed that includes passenger and operations activity for commercial airline, cargo, and general aviation at OAK. The following three primary factors were considered to prepare the aviation activity forecast:

- Historic aviation traffic in the Bay Area region and at OAK;
- Current and future activity from commercial airlines; and
- Economic data for the region.

Annual and peak hour forecasts were originally prepared through 2035 and were subsequently adjusted to 2038 as described further below.

The forecasts were developed to quantify future facility requirements based on demand for passengers, aircraft operations, and cargo tonnage at two planning activity levels (PALs) within a reasonable planning horizon. The forecast demand for PAL 1 is 17.6 MAP; 267,788 aircraft operations; and 774,892 tons of cargo (see **Table 2-1**). The forecast demand for PAL 2 is 24.7 MAP; 323,501 aircraft operations; and 884,087 tons of cargo.

The forecasts presented are long-term forecasts. The effects of the COVID-19 pandemic are not expected to substantially alter passenger or cargo demand at OAK over the longer-term horizon of planning forecasts (see **Appendix C**). Consistent with other shocks to passenger demand in the past, passenger numbers are forecast to recover to pre-pandemic levels at OAK in the 2023-2024 timeframe. Passenger aircraft operations are forecast to recover to pre-pandemic levels at OAK in 2025.

For purposes of this Draft EIR, the forecasts were adjusted by three years to account for the COVID-19 pandemic. Because planning activity levels are defined by demand levels rather than specific years, the shift of associated years demonstrates the ability of the planning activity level to be responsive to changes in aviation demand, in this case caused by the COVID-19 pandemic. Therefore, PAL 1 was adjusted to occur in 2028 instead of 2025 and PAL 2 was adjusted to occur in 2038 instead of 2035.

2.5 PROJECT OBJECTIVES

In compliance with Section 15124(b) of the California Environmental Quality Act (CEQA) Guidelines, the Port is required to identify its objectives associated with the Proposed Project. The Port has identified four objectives to be achieved through the implementation of the Proposed Project.

- Objective 1: Modernize existing terminal facilities to optimize safety and security for passengers and workers.
- Objective 2: Provide replacement and new terminal facilities that are sized to efficiently accommodate the market-based passenger demand at industry standard levels of service³ and designed to improve the passenger experience.
- Objective 3: Modify and replace existing non-terminal facilities at OAK to accommodate the market-based demand.
- Objective 4: Provide adequate aircraft gates, aircraft parking, and terminal facilities that are sized and configured to accommodate the larger-sized aircraft fleet forecast at the Airport.

The section below provides a detailed description of how the Port proposes to meet the project objectives.

2.5.1 Objective 1 Criteria

Terminal 1 is facing challenges posed by aging and obsolete building systems and the resulting degradation of passenger experience and operational efficiency. Terminal 1 was opened in 1962 and has been retrofitted over time. However, the Terminal 1 ticketing and

³ To identify industry standard levels of service, the Port used the following sources: International Air Transport Association (IATA), *Airport Development Reference Manual* (ADRM), 11th edition, March 2019; Transportation Research Board (TRB), *Airport Passenger Terminal Planning and Design, Volume 1: Guidebook*, 2010; U.S. Customs and Border Patrol, *Airport Technical Design Standards: Passenger Processing Facilities*, 2006; Transportation Security Administration (TSA), *Planning Guidelines and Design Standards for Checked Baggage Inspection Systems*, 2017; Transportation Security Administration (TSA), Recommended Security Guidelines for Airport Planning, Design, and Construction, 2011; and TSA, *Checkpoint Design Guide, Revision 4.0*, 2012.

baggage claim building does not meet current seismic⁴ and fire protection requirements and is not configured to accommodate new technologies and passenger airline operational needs. Thus, the Terminal 1 ticketing and baggage claim building is at the end of its useful life and needs to be replaced. The modernization and expansion of existing terminal facilities and the construction of a new terminal building would facilitate the relocation of the ticketing and baggage claim functions to areas with improved safety, security, and efficiency. The Terminal 1 ticketing and baggage claim building would be demolished after construction of replacement facilities.

2.5.2 Objective 2 Criteria

The existing terminals at OAK were designed to accommodate an estimated 8 to 10 million annual passengers. However, in 2019, more than 13 million annual passengers traveled through the Airport. This means that the existing terminal facilities (gates, holdrooms, ticketing/check in, passenger security screening checkpoint, baggage makeup, baggage claim, and CBP area) at OAK already do not meet industry standard levels of service (see **Table 2-2**). New and modernized terminal facilities would be sized to accommodate the market-based passenger demand at industry standard levels of service, including peak-hour domestic and international flights. New and modernized terminal facilities would improve the passenger experience by providing improved processing facilities and holdrooms, and modernized amenities and concessions choices, with a design that is sustainable and fiscally responsible.

2.5.3 Objective 3 Criteria

Modifying and relocating non-terminal facilities at the Airport would be necessary to support the new terminal and the modernization of existing terminals. These cargo and support facilities need to be relocated to service passenger airline and cargo aircraft and provide adequate passenger and employee parking.

2.5.4 Objective 4 Criteria

The existing terminals are experiencing operational constraints because the existing terminals were designed to accommodate aircraft that were in the fleet at the time the terminals were designed. Passenger airlines now use larger aircraft, which means that some existing aircraft parking positions cannot operate independently of an adjacent aircraft gate.⁵ The aircraft fleet forecast is based on anticipated international and domestic service routes, industry trends, evolving technologies, operational flexibility required in a multi-airline setting, and projected passenger airline fleet acquisitions, including current and anticipated use of larger aircraft. New and modernized terminal facilities would be sized and

⁴ California Code of Regulations, Title 24. (2016). California Building Code, § 2, Volume 2, Chapter 16, *Structural Design*, Section 1613, *Earthquake Loads*. Retrieved May 2023 from International Code Council: https://codes.iccsafe.org/content/chapter/1832/?site_type=public.

⁵ For example, if a widebody aircraft is parked at Gate 3, it may not be possible for another aircraft to park at Gate 5 because the wing tip from the aircraft parked at Gate 3 penetrates the area where an aircraft would park at Gate 5.

configured to support the aircraft fleet forecast to operate at OAK by providing each gate with sufficient terminal frontage and apron area so that all gates can operate independently.

2.6 PROPOSED PROJECT

The Proposed Project includes modernizing Terminals 1 and 2, consolidating passenger processing functions (e.g., ticketing, baggage check-in, baggage claim, security screening), constructing expanded international arrival facilities, constructing a new terminal, relocating existing cargo and support facilities, and improving the terminal area roadway, parking areas, and support facilities. The project components that involve demolition of existing facilities are depicted on **Figure 2-4** and the project components that involve development of new facilities are depicted on **Figure 2-5**. The following is a list of each of the components of the Proposed Project.

2.6.1 Demolition of Existing Facilities

To accommodate the construction of new facilities at OAK, some existing facilities would be demolished and most of those facilities would be relocated at the Airport (see **Figure 2-4**). The existing Oakland Maintenance Center (OMC) Hangar would be demolished and would not be replaced. Facilities that would be demolished and relocated include freighter and belly cargo, ground service equipment maintenance and support functions, passenger airline provisioning, catering, offices, storage, public parking, and employee parking. The Terminal 1 ticketing and baggage claim building would be demolished after its functions are relocated to other buildings.

Project Component D-1: Demolition of Catering Building and Removal of Associated Parking

The demolition of the existing approximately 27,600-square-foot catering building and its associated parking spaces would enable the development of an approximately 43,000-square-foot replacement airline and airport support building (Project Component S-3). The functions of the existing catering building would be accommodated in the replacement airline and airport support building and would include parking spaces.

Project Component D-2: Removal of Employee Parking in Neil Armstrong Lot (Portion)

The removal of a portion of the existing Neil Armstrong Lot to the east of the Catering Building would enable the development of an approximately 43,000-square-foot replacement airline and airport support building and its associated parking spaces (Project Component S-3).

Project Component D-3: Demolition of Terminal 1 Ticketing and Baggage Claim

The existing Terminal 1 ticketing and baggage claim building would be demolished because it does not meet current seismic and fire protection requirements and is not configured to accommodate new technologies and passenger airline operational needs. Replacement and relocated ticketing and baggage claim functions and associated systems would be provided in the new terminal (Project Component B-1) and in the Modernization of Terminals 1 and 2 (Project Component B-2).

TABLE 2-2
GAP ANALYSIS FOR EXISTING TERMINAL 1 AND TERMINAL 2 FACILITIES AT OAK

Facility	Facility Needs/Gap Analysis Compared to Industry Standards^{/a/}								
	Existing Terminal 1	Existing Terminal 2	Existing Total	13.4 MAP (2019) Requirements	13.4 MAP (2019) Gap	17.6 MAP (PAL 1) Requirements	17.6 MAP (PAL 1) Gap	24.7 MAP (PAL 2) Requirements	24.7 MAP (PAL 2) Gap
Total Aircraft Gates	16	13	29	29	0	33	(4)	45	(16)
Check-In Facilities (sq ft)	10,800	6,000	16,800	21,200	(4,400)	27,600	(10,800)	34,600	(17,800)
Holdroom Areas (sq ft)	38,400	28,800	67,200	87,500	(20,300)	102,500	(35,300)	139,000	(71,800)
Outbound Baggage Makeup (sq ft)	17,200	21,100	38,300	43,700	(5,400)	60,500	(22,200)	74,400	(36,100)
Domestic Baggage Claim (sq ft)	11,500	22,500	34,000	43,200	(9,200)	50,400	(16,400)	64,900	(30,900)
Security Screening Checkpoint (lanes)	6	10	16	15	1	18	(2)	22	(6)
Security Screening Checkpoint (sq ft)	7,500	12,700	20,200	35,700	(15,500)	42,900	(22,700)	52,300	(32,100)
Baggage Screening (bags/hr)	1,600 ^{/b/}	1,800	3,375	1,900	1,475	2,600	775	3,300	75
Baggage Screening (sq ft)	10,100	15,400	25,500	27,300	(1,800)	45,500	(20,000)	58,500	(33,000)
Customs and Border Protection (sq ft)	20,600	0	20,600	30,900	(10,300)	33,700	(13,100)	46,200	(25,600)
Total Building Area (sq ft) ^{/c/}			640,000	832,900	(192,900)	1,042,600	(402,600)	1,386,700	(746,700)

MAP: million annual passengers

PAL: planning activity level

sq ft: square feet

hr: hour

/a/ International Air Transport Association (IATA), *Airport Development Reference Manual*, 11th edition, March 2019; Transportation Research Board (TRB), *Airport Passenger Terminal Planning and Design, Volume 1: Guidebook*, 2010; U.S. Customs and Border Patrol, *Airport Technical Design Standards: Passenger Processing Facilities*, 2006; BNP Associates, *Planning Guidelines and Design Standards for Checked Baggage Inspection Systems*, 2017; Transportation Security Administration (TSA), Recommended Security Guidelines for Airport Planning, Design, and Construction, 2011; and TSA, *Checkpoint Design Guide, Revision 4.0*, 2012.

/b/ Baggage screening equipment in Terminal 1 includes nine independent, manually loaded Reveal CT-80DR+ EDS machines in mini-inline configurations. Inefficiencies caused by the decentralized location and manual, staff-intensive operations result in a lower collective throughput for the nine units than individual machines are capable of providing. The Reveal CT-80DR+ EDS machines in Terminal 1 have a throughput of approximately 175 bags per hour each. This number was rounded up to the nearest hundred.

/c/ This number is the square footage of a building and not the square footage of the building footprint. In addition, this number does not represent a summation of the square footage above. The square footage associated with the total building area includes all components of the terminal building, including bathrooms, office space, concession space, hallways, etc.

Source: Port of Oakland – Oakland International Airport, Terminal Modernization and Development Project, Project Criteria Document (Section 5)

FIGURE 2-4
PROPOSED PROJECT – DEMOLITION PROJECT COMPONENTS

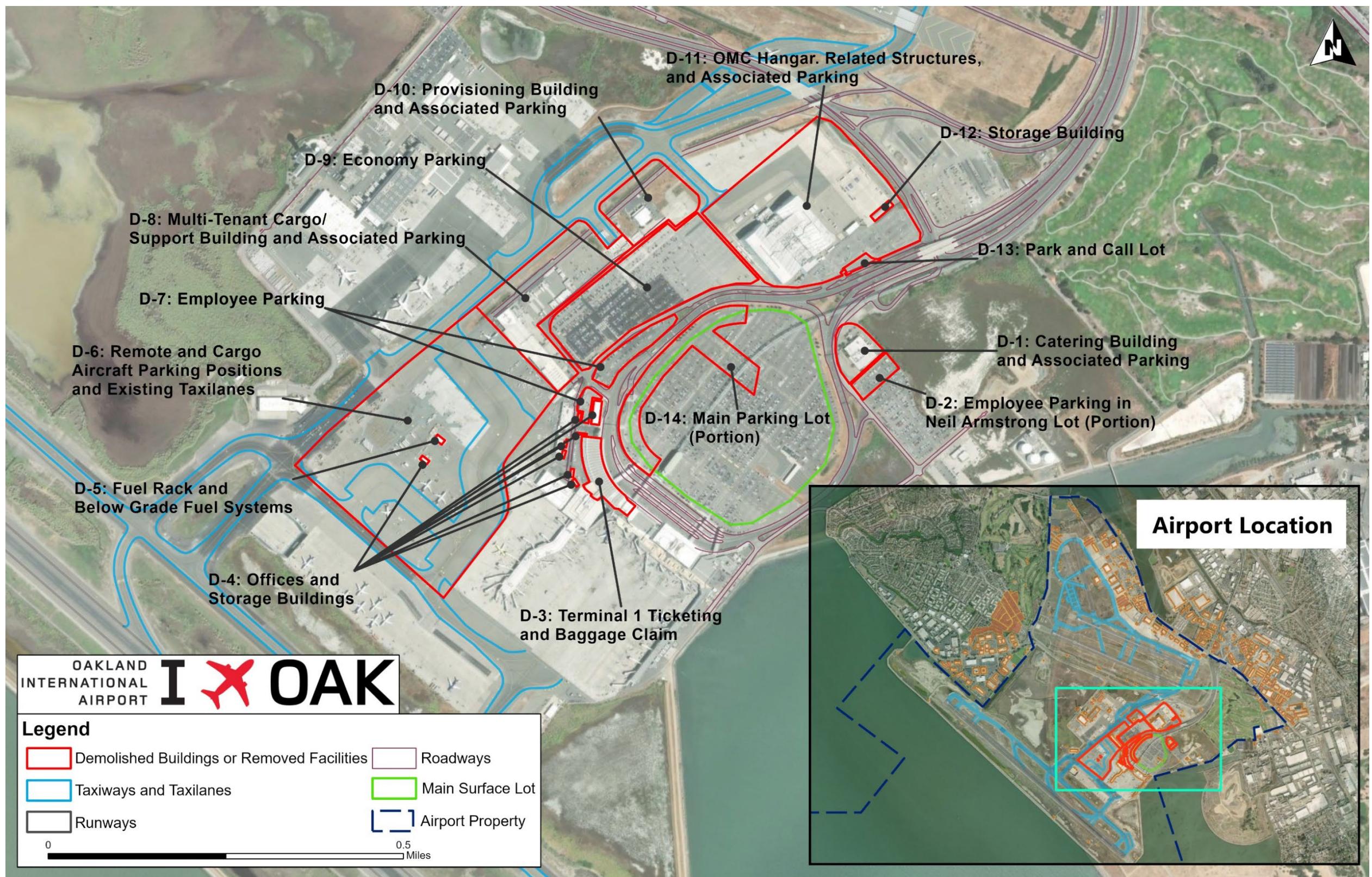
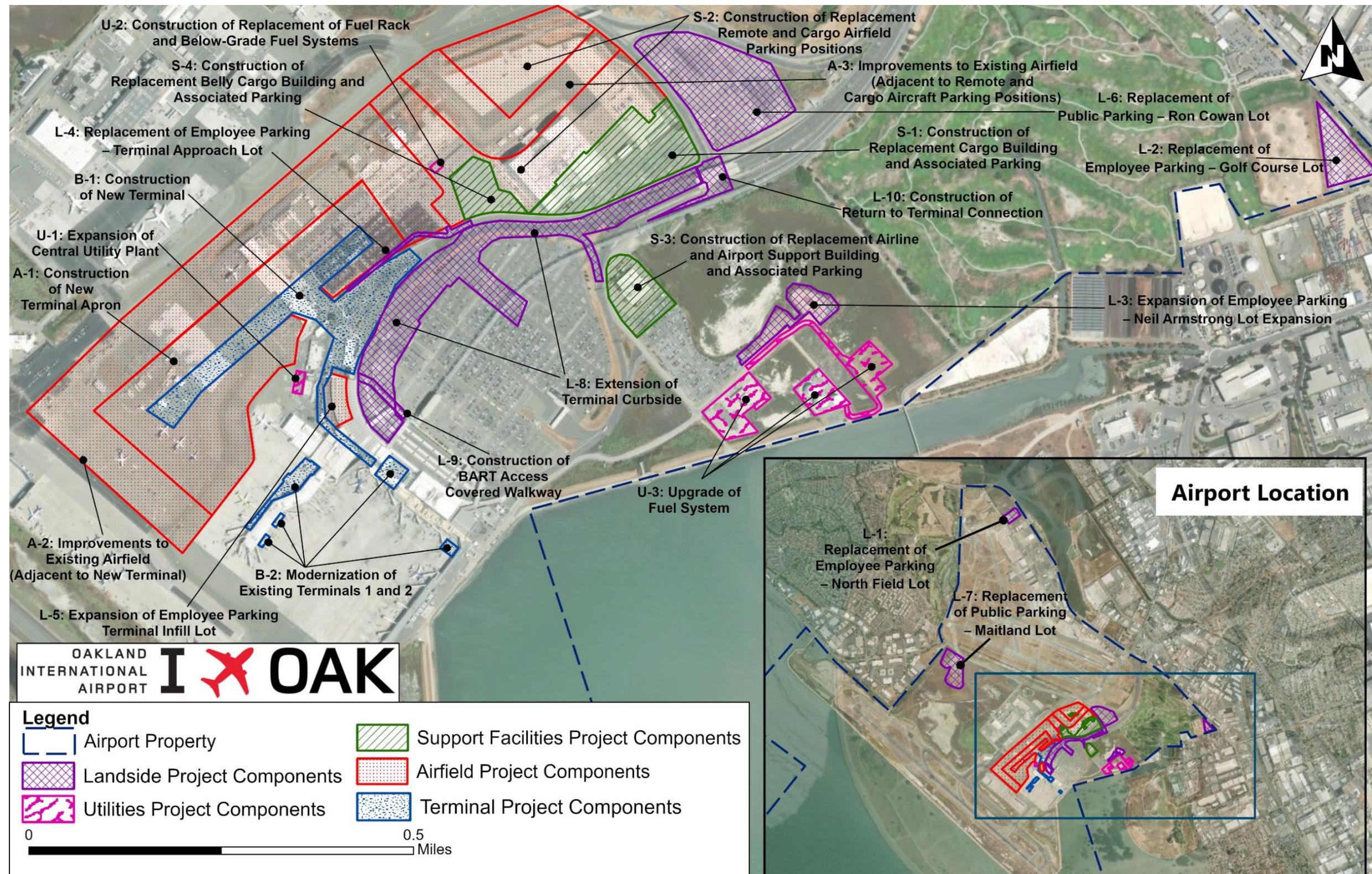


FIGURE 2-5
PROPOSED PROJECT – DEVELOPMENT PROJECT COMPONENTS



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Project Component D-4: Demolition of Offices and Storage Buildings

The demolition of multiple offices and storage buildings that total approximately 30,000 square feet would enable the construction of the new terminal (Project Component B-1), the new terminal apron (Project Component A-1), the expansion of the central utility plant (Project Component U-1), and the expansion of the employee parking terminal infill lot (Project Component L-5). The new terminal (Project Component B-1) would include approximately 50,000 square feet for offices and storage facilities.

Project Component D-5: Removal of Fuel Rack and Below-Grade Fuel Systems

The removal of the fuel rack and below-grade fuel systems would enable the construction of the new terminal (Project Component B-1) and the new terminal apron (Project Component A-1). A replacement airside fuel rack and below-grade fuel systems (Project Component U-2) would be included adjacent to the replacement belly cargo building and associated parking (Project Component S-4).

Project Component D-6: Removal of Remote and Cargo Aircraft Parking Positions and Existing Taxilanes

The removal of 24 remote aircraft parking positions and nine cargo aircraft parking positions as well as taxilanes adjacent to these remote and cargo aircraft parking positions would enable the development of the new terminal (Project Component B-1), the new terminal apron (Project Component A-1), and the improvements to the existing airfield (Project Component A-2). Some aircraft parking positions would be relocated as part of Project Component S-2.

Project Component D-7: Removal of Employee Parking

The removal of the secure management and non-secure management employee parking lots would enable the construction of the new terminal (Project Component B-1). Replacement employee parking is included as Project Components L-1 through L-5.

Project Component D-8: Demolition of Multi-Tenant Cargo / Support Building and Removal of Associated Parking

The demolition of the approximately 75,625-square-foot multi-tenant cargo / support building⁶ and removal of its associated parking spaces would enable construction of the new terminal (Project Component B-1) and construction of the new terminal apron (Project Component A-1), and the improvements to the existing airfield (Project Component A-2). A replacement cargo building with associated parking spaces is included as Project Component S-1. A replacement belly cargo building with associated parking is included as Project Component S-4.

Project Component D-9: Removal of Economy Parking

The removal of the economy parking lot would enable construction of the new terminal (Project Component B-1), construction of the new terminal apron (Project Component A-1), the improvements to existing airfield (Project Component A-2), construction of replacement remote and cargo aircraft parking positions (Project Component S-2), construction of the

⁶ In addition to the approximately 75,625-square-foot building, this area also includes outdoor space used for sorting and other cargo-related functions.

replacement belly cargo building and associated parking (Project Component S-4), and construction of replacement of fuel rack and below-grade fuel systems (Project Component U-2). Replacement public parking is included as Project Components L-6 and L-7.

Project Component D-10: Demolition of Provisioning Building and Removal of Associated Parking

The demolition of the approximately 11,500-square-foot Provisioning Building and its associated 40 parking spaces would enable development of the improvements to the existing airfield (Project Component A-2) and construction of replacement remote and cargo aircraft parking positions (Project Component S-2) that are needed in conjunction with the new terminal (Project Component B-1). The functions of the existing Provisioning Building would be accommodated in the approximately 43,000-square-foot replacement airline and airport support building and associated parking (Project Component S-3).

Project Component D-11: Demolition of OMC Hangar and Related Structures, and Removal of Associated Parking

The demolition of the approximately 304,000-square-foot OMC Hangar, its related structures, and its associated employee parking spaces would enable the development of the replacement cargo building and associated parking (Project Component S-1), the replacement remote and cargo aircraft parking positions (Project Component S-2), and improvements to existing airfield adjacent to remote and cargo aircraft parking positions (Project Component A-3). Replacement employee parking is included as Project Components L-1 through L-5.

Project Component D-12: Demolition of Storage Building

The demolition of a storage building near the existing OMC Hangar would enable the development of the replacement cargo building and associated parking (Project Component S-1). Replacement storage would be incorporated into the terminals.

Project Component D-13: Removal of Park and Call Lot

The removal of the public park and call lot at the northeast corner of Airport Drive and Ron Cowan Parkway would enable the development of the replacement cargo building and associated parking (Project Component S-1). Replacement public parking is included as Project Components L-6 and L-7.

Project Component D-14: Removal of Main Parking Lot (Portion)

A portion of the main parking lot inside the Airport Drive loop would be removed to enable the extension of the terminal curbside (Project Component L-8). This would result in the loss of parking spaces in the main parking lot. Replacement public parking is included as Project Components L-6 and L-7.

2.6.2 Passenger Terminal Improvements

The Proposed Project includes construction of a new passenger terminal as well as improvements to the existing passenger terminals (see **Figure 2-5**), including the demolition of the Terminal 1 ticketing and baggage claim building. Upon the completion of these passenger terminal project components, OAK would have a total of up to 45 aircraft gates, which is a total net increase of 16 over the number of existing aircraft gates.

Project Component B-1: Construction of New Terminal

This project component would result in the construction of an approximately 830,000-square-foot new terminal north of the existing Terminal 1 with a connector building between the existing terminals and the new terminal. Demolition of the multi-tenant cargo and support building and associated parking (Project Component D-8), the fuel rack and below-grade fuel systems (Project Component D-5), some offices and storage buildings (Project Component D-4), a portion of the remote and cargo aircraft parking positions and existing taxilanes (Project Component D-6), employee parking (Project Component D-7), and economy parking (Project Component D-9) would be required for the construction of the new terminal. The new terminal would include up to 25 aircraft gates, holdrooms, concessions, ticketing/check-in, baggage claim, passenger security screening, baggage screening, public restrooms, public circulation, and other support functions.

Project Component B-2: Modernization of Existing Terminals 1 and 2

Existing Terminals 1 and 2 would be renovated to maximize efficiencies within the terminals, to provide functional areas that provide acceptable levels of service, and to expand the existing international arrivals facilities in Terminal 1. The modernization would result in a total of approximately 722,000 square feet, an increase of approximately 81,600 square feet in Terminals 1 and 2.⁷

Terminal 2 facilities would be modernized to accommodate the multiple domestic and international passenger airline functions currently being served in the Terminal 1 ticketing and baggage claim building and would support the existing Terminal 1 and Terminal 2 concourses. Key elements of the modernization of Terminals 1 and 2 include the following:

- optimization of existing aircraft gates from 29 to 20 gates to allow each gate to operate independently;
- expansion of Terminal 2 ticketing/check-in area;
- reconfiguration of Terminal 2 baggage screening area;
- development of a new Terminal 2 outbound baggage makeup area;
- development of a new Terminal 2 remote screening room;
- extension and reconfiguration of the Terminal 2 inbound baggage area;
- development of additional passenger airline baggage service support offices in Terminal 2;
- renovation and expansion of Terminal 1 and Terminal 2 concourses to increase the size of holdrooms, restrooms, and concessions;
- expansion of Terminal 1 international baggage claim;
- addition of sterile corridors and vertical circulation in the Terminal 1 concourse; and
- expansion of the international arrivals facilities in Terminal 1, including new areas for international primary and secondary passenger screening.

⁷ The existing Terminals 1 and 2 is approximately 640,400 square feet. This project component would demolish approximately 73,600 square feet and construct approximately 155,200 square feet, which would result in a total of approximately 722,000 square feet. This would result in an overall increase of approximately 81,600 square feet.

2.6.3 Airfield Improvements

These project components would be implemented to provide areas required for safe movement and parking of aircraft and related service equipment associated with the Proposed Project.

Project Component A-1: Construction of New Terminal Apron

This project component would develop an aircraft apron to provide areas for parking, loading, unloading, and servicing aircraft and equipment at the new terminal (Project Component B-1). Demolition of some offices and storage buildings (Project Component D-4), the fuel rack and below-grade fuel systems (Project Component D-5), the remote and cargo aircraft parking positions and existing taxilanes (Project Component D-6), the multi-tenant cargo and support building and associated parking (Project Component D-8), and the public parking spaces in economy parking (Project Component D-9) would be required for the construction of the new terminal apron.

Project Component A-2: Improvements to Existing Airfield (Adjacent to New Terminal)

This project component includes the development of new taxilanes and/or taxiways on all sides of the new terminal apron (Project Component A-1), new or relocated connections to existing taxiways, and reconfiguration of existing taxilanes. Demolition of the remote and cargo aircraft parking positions and existing taxilanes (Project Component D-6), the multi-tenant cargo and support building and associated parking (Project Component D-8), the Provisioning Building and associated parking (Project Component D-10), and the public parking spaces in economy parking (Project Component D-9) would be required for the improvements to existing airfield.

Project Component A-3: Improvements to Existing Airfield (Adjacent to Replacement Remote and Cargo Aircraft Parking Positions)

This project component includes the development of new taxilanes adjacent to the replacement remote and cargo aircraft parking positions (Project Component S-2). Demolition of the Provisioning Building and associated parking (Project Component D-10) and the OMC Hangar, related structures, and associated parking (Project Component D-11) would be required for the improvements to the existing airfield.

2.6.4 Landside Improvements

A variety of improvements are required to support the construction of the new terminal and to provide access to the new terminal. To offset the removal of employee parking spaces (Project Component D-7) to enable the construction of the new terminal (Project Component B-1) and to accommodate the increase in employees that is commensurate to the forecast increase in passengers, replacement employee parking spaces would be developed (see Project Components L-1 through L-5). **Table 2-3** provides a summary of the change in employee parking spaces at OAK that would occur with the Proposed Project. **Figure 2-6** shows the location of the removed employee parking spaces. These landside improvements also include replacement of public parking spaces (see Project Components L-6 and L-7) to offset the removal of public parking spaces (Project Components D-9, D-13, and D-14). **Table 2-4** provides a summary of the change in public

TABLE 2-3
PROPOSED CHANGES TO EMPLOYEE PARKING AT OAK

	Number of Employee Parking Spaces		
	Existing	Proposed	Change
Remove Catering Building Associated Parking (Project Component D-1)	21	0	-21
Remove Portion of Neil Armstrong Lot (Project Component D-2)	656	557	-99
Remove Secure Management Employee Parking (Project Component D-7)	60	0	-60
Remove Non-Secure Management Employee Parking (Project Component D-7)	186	0	-186
Remove Multi-Tenant Cargo / Support Building Associated Parking (Project Component D-8)	236	0	-236
Remove Provisioning Building Associated Parking (Project Component D-10)	40	0	-40
Remove OMC Hangar Associated Parking (Project Component D-11)	864	0	-864
Add Replacement Cargo Building Associated Parking (Project Component S-1)	0	260	260
Add Replacement Airline and Airport Support Building Associated Parking (Project Component S-3)	0	105	105
Add Replacement Belly Cargo Building and Associated Parking (Project Component S-4)	0	62	62
Add Employee Parking – North Field Lot (Project Component L-1)	0	1,020	1,020
Add Employee Parking – Golf Course Lot (Project Component L-2)	0	625	625
Add Employee Parking – Expansion of Neil Armstrong Lot (Project Component L-3)	0	375	375
Add Employee Parking – Terminal Approach Lot (Project Component L-4)	0	45	45
Add Expansion of Terminal Infill Lot (Project Component L-5)	19	80	61
Total	2,082	3,129	1,047

Source: Port of Oakland, 2020.

TABLE 2-4
PROPOSED CHANGES TO PUBLIC PARKING AT OAK

	Number of Public Parking Spaces		
	Existing	Proposed	Change
Remove Economy Parking (Project Component D-9)	1,933	0	-1,933
Remove Park and Call Lot (Project Component D-13)	29	0	-29
Remove Portion of Main Parking Lot (Project Component D-14)	4,986	4,449	-537
Add Public Parking – Ron Cowan Lot (Project Component L-6)	0	1,461	1,461
Add Public Parking – Maitland Lot (Project Component L-7)	0	2,075	2,075
Total	6,948	7,985	1,037

Source: Port of Oakland, 2020.

parking spaces at OAK that would occur with the Proposed Project. **Figure 2-7** shows the locations of the proposed public parking spaces.

Project Component L-1: Replacement of Employee Parking – North Field Lot

This project component would result in the development of employee parking at the North Field Lot, which would be accessed from Old Earhart Road.

Project Component L-2: Replacement of Employee Parking – Golf Course Lot

This project component would result in the development of employee parking at the Golf Course Lot, which would be accessed from Eden Road.

Project Component L-3: Expansion of Employee Parking – Neil Armstrong Lot

This project component would result in the expansion of the employee parking at the existing Neil Armstrong Lot, which would be accessed from Edward White Way.

Project Component L-4: Replacement of Employee Parking – Terminal Approach Lot

This project component would result in the development of employee parking at the Terminal Approach Lot, which would be accessed from John Glenn Drive.

Project Component L-5: Expansion of Employee Parking – Terminal Infill Lot

This project component would result in the development of employee parking by expanding the existing CBP parking lot, which would be accessed from Airport Drive.

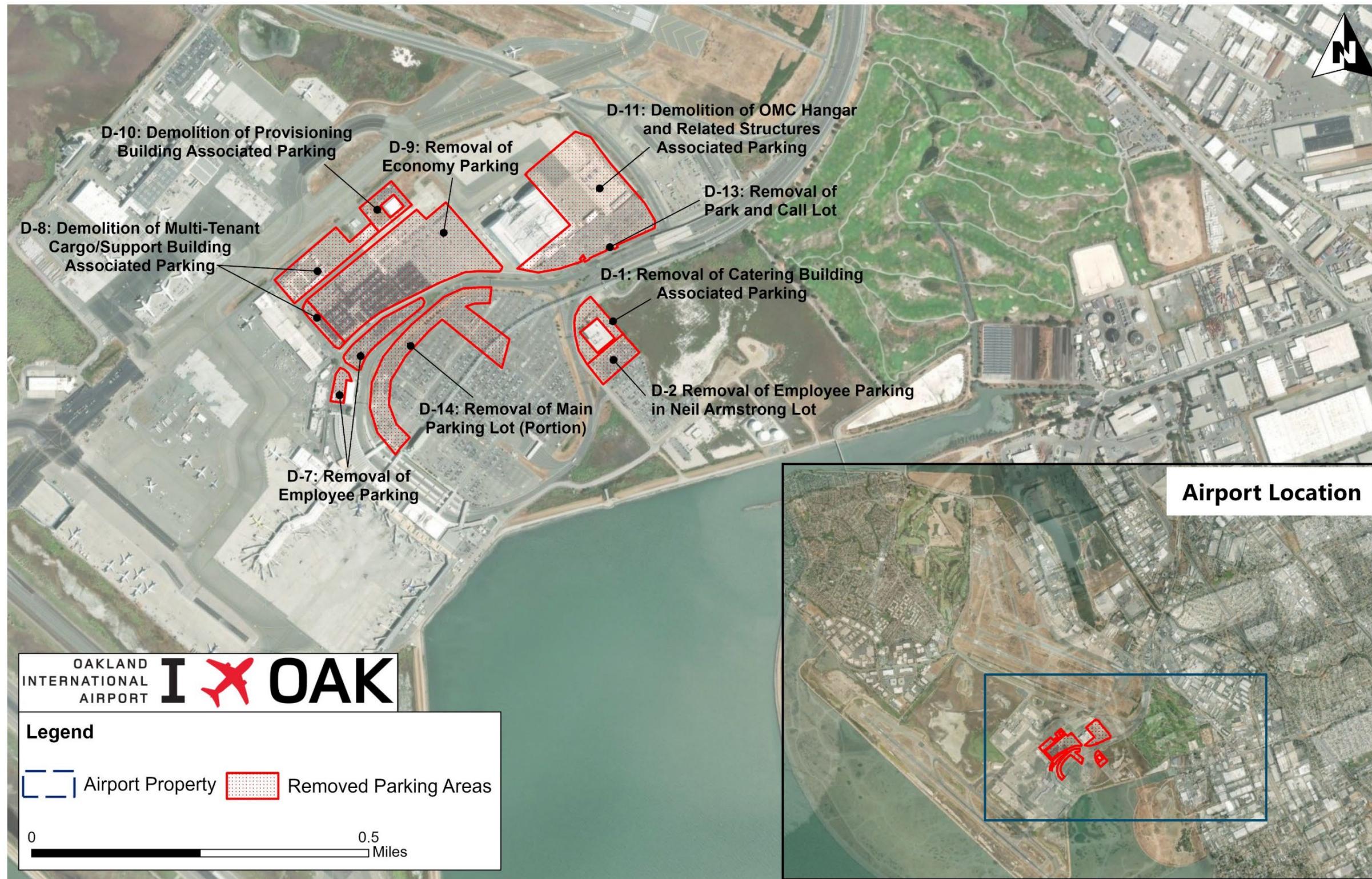
Project Component L-6: Replacement of Public Parking – Ron Cowan Lot

This project component includes the development of public parking spaces, including Park and Call, at the Ron Cowan Lot, which would be accessed from Ron Cowan Parkway.

Project Component L-7: Replacement of Public Parking – Maitland Lot

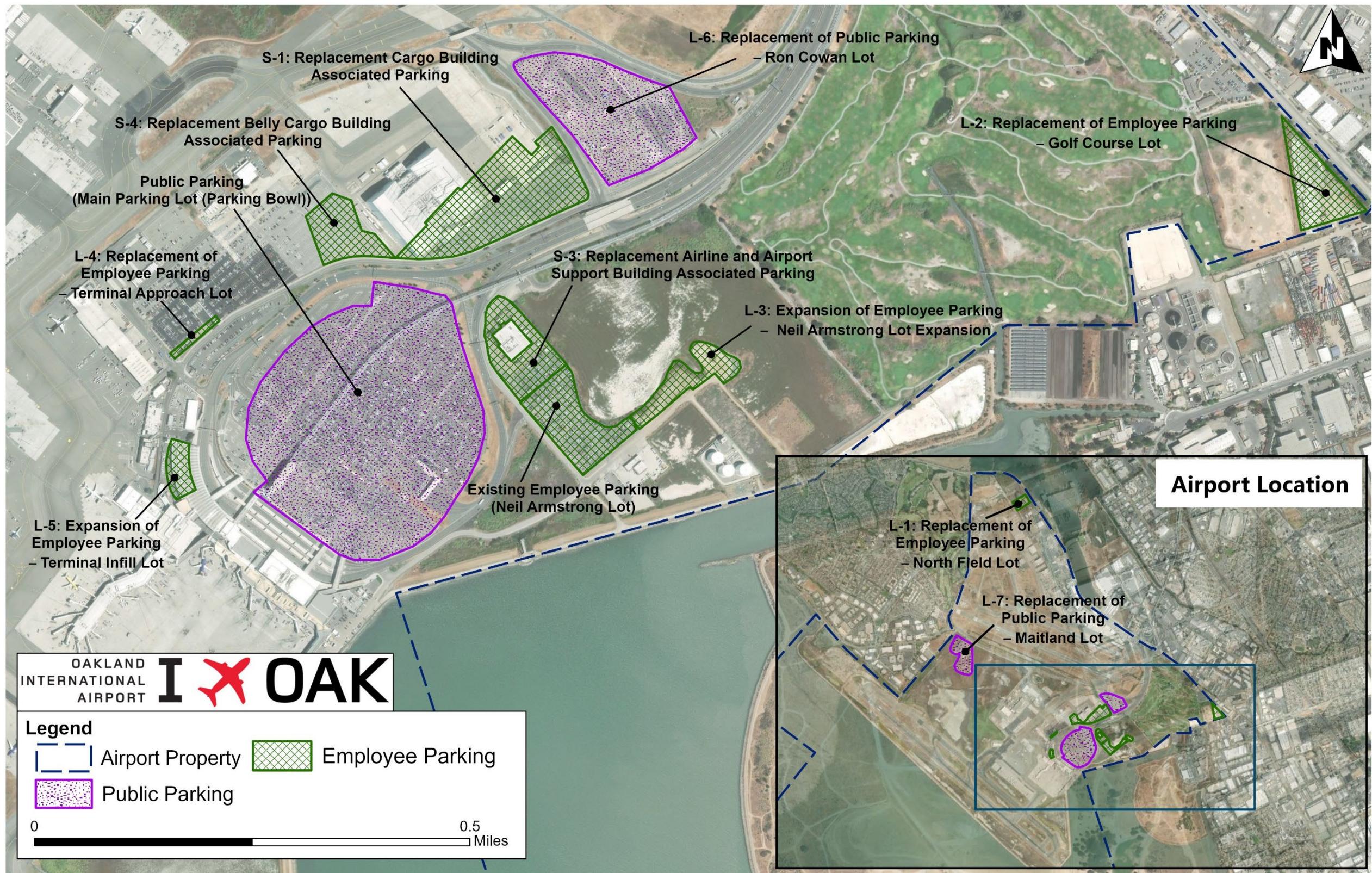
This project component includes the development of public parking spaces at the Maitland Lot, which would be accessed from Ron Cowan Parkway.

FIGURE 2-6
REMOVED PARKING AREAS



Source: RS&H, 2022.

FIGURE 2-7
PROPOSED PARKING AREAS



Source: RS&H, 2022

Project Component L-8: Extension of Terminal Curbside

Portions of the terminal curbside would be extended to provide new passenger loading and unloading curbs in front of the new terminal (Project Component B-1), as well as new entrances to the main parking lot. This curbside would total about 3,500 linear feet in front of the new terminal. This project component would result in the loss of public parking spaces in the main parking lot.

Project Component: L-9: Construction of BART Access Covered Walkway

This project component would construct a new covered walkway between the existing BART Connector station and the new terminal (Project Component B-1). The new covered walkway would provide comfort to passengers with shade and coverage when using BART to access the new terminal.

Project Component: L-10: Construction of Return to Terminal Connection

The extended terminal curbside (Project Component L-8) would result in motorists not having enough linear distance on Airport Drive to safely cross multiple lanes to access the terminal curbside associated with the new terminal if using the existing terminal return roadway. The construction of a second terminal return roadway would eliminate this unsafe condition and allow for motorists who need to return to the terminal to do so safely.

2.6.5 Airport Support Facilities

A variety of improvements are required to provide space for functions that support the entire Airport.

Project Component S-1: Construction of Replacement Cargo Building and Associated Parking

This project component, which includes the construction of an approximately 100,000-square-foot replacement cargo building, would replace the approximately 75,625-square-foot multi-tenant cargo/support building, trailers, and usable outdoor space that would be removed as part of Project Component D-8. Project Component S-1, along with Project Component S-4, would accommodate the forecast increase in air cargo tonnage.

Project Component S-2: Construction of Replacement Remote and Cargo Aircraft Parking Positions

The removal of remote and cargo aircraft parking positions (Project Component D-6) to accommodate the new terminal (Project Component B-1) requires the replacement of some of the remote and cargo aircraft parking positions near the northwest corner of Airport Drive and Ron Cowan Parkway and off John Glenn Drive. Depending on the final layout and aircraft size, up to 25 remote and cargo aircraft parking positions would be accommodated at Project Component S-2.

Project Component S-3: Construction of Replacement Airline and Airport Support Building and Associated Parking

The approximately 43,000-square-foot replacement airline and airport support building would be constructed in the location of the existing catering building, which is removed as part of Project Component D-1. This replacement airline and airport support building would provide the same functions as the existing catering building and the existing Provisioning

Building and would add a consolidated receiving and distribution center. In addition, Project Component S-3 would include associated parking spaces.

Project Component S-4: Construction of Replacement Belly Cargo Building and Associated Parking

This project component, which includes the construction of an approximately 30,800-square-foot belly cargo building, would provide replacement space to offset the space removed as part of Project Component D-8. The belly cargo building also would include space for maintenance of ground service equipment and other support functions. Project Component S-4, along with Project Component S-1, would increase the square footage associated with air cargo to accommodate the forecast in air cargo tonnage.

2.6.6 Utility Improvements

A variety of improvements would be made to the existing utility systems at the Airport to accommodate the increase in square footage, the increase in the number of aircraft gates, and the relocation and reconfiguration of existing aircraft positions.

Project Component U-1: Expansion of Central Utility Plant

The existing central utility plant adjacent to Terminal 1 houses boilers, chillers, and supporting equipment. An expansion and upgrades to the existing central utility plant would be required to support the net increase in the square footage from the Proposed Project.

Project Component U-2: Replacement of Fuel Rack and Below-Grade Fuel Systems

The removal of the fuel rack and below-grade fuel systems (Project Component D-5) would require the development of a replacement fuel rack and below-grade fuel systems near the proposed replacement belly cargo building and associated parking (Project Component S-4).

Project Component U-3: Upgrade of Fuel System

The existing fuel system at OAK, which includes the fuel farm and below-grade fuel distribution, would require expansion, relocation, and upgrades to support the net increase in the number of aircraft gates and the relocation of gates, remote and cargo aircraft parking positions. In addition, a roadway would be constructed to provide access to the expanded fuel farm. The fuel system would be designed to provide a loop in the system to increase reliability of fuel delivery to commercial and cargo aircraft. Technical capacity studies would be completed to determine the extent of the modifications, expansions, relocations and upgrades.

Project Component U-4: Relocation and Upgrade of Utility Systems⁸

Existing utility systems at OAK, which include, but are not limited to, electrical, sewer, stormwater, telephone, and data, would require relocation, expansion, and upgrade to support the new terminal and relocated facilities. For example, utilities that are under Airport Drive would need to be relocated along with that section of Airport Drive, so that the

⁸ Project Component U-4 is not shown on Figure 2-5.

utilities are not under the new terminal. Technical capacity studies would be completed to determine the extent of the modifications, expansions, relocations, and upgrades.

2.7 STAGING OF THE PROPOSED PROJECT

The Proposed Project would be implemented in six proposed stages between 2025 and 2030 (see **Table 2-5**). The stages are general in nature and could be modified once approval for the Proposed Project is provided and detailed design of project components occurs.

TABLE 2-5
PROPOSED STAGING OF THE PROPOSED PROJECT

STAGE	ACTIVITIES	PROJECT COMPONENTS
Stage 1 – (2025)		
Stage 1	Demolish Catering Building and Associated Parking	D-1
Stage 1	Remove Portion of Employee Parking in Neil Armstrong Lot	D-2
Stage 1	Demolish OMC Hangar and Related Structures and Remove Associated Parking	D-11
Stage 1	Demolish Storage Building	D-12
Stage 1	Remove Park and Call Lot	D-13
Stage 2 – (2025-2026)		
Stage 2	Construct Replacement Employee Parking – North Field Lot	L-1
Stage 2	Construct Replacement Employee Parking – Golf Course Lot	L-2
Stage 2	Construct Expansion Employee Parking – Neil Armstrong Lot)	L-3
Stage 2	Construct Replacement Public Parking – Ron Cowan Lot	L-6
Stage 2	Construct Replacement Public Parking – Maitland Lot	L-7
Stage 2	Construct Replacement Cargo Building and Associated Parking	S-1
Stage 2	Construct Replacement Remote and Cargo Aircraft Parking Positions	S-2
Stage 2	Construct Replacement Airline and Airport Support Building and Associated Parking	S-3
Stage 2	Construct Replacement Belly Cargo Building and Associated Parking	S-4
Stage 2	Construct Improvements to Existing Airfield (Adjacent to Remote and Cargo Aircraft Parking Positions	A-3
Stage 2	Construct Replacement of Fuel Rack and Below-Grade Fuel Systems	U-2
Stage 2	Upgrade Fuel System	U-3
Stage 2	Relocate and Upgrade Utility Systems	U-4

Stage 3 – (2025-2026)		
Stage 3	Demolish Offices and Storage Buildings	D-4
Stage 3	Remove Fuel Rack and Below-Grade Fuel Systems	D-5
Stage 3	Remove Remote and Cargo Aircraft Parking Positions and Existing Taxilanes	D-6
Stage 3	Remove Employee Parking	D-7
Stage 3	Demolish Multi-tenant Cargo / Support Building and Associated Parking	D-8
Stage 3	Remove Economy Parking	D-9
Stage 3	Demolish Provisioning Building and Associated Parking	D-10
Stage 3	Remove Main Parking Lot (Portion)	D-14
Stage 4 – (2026-2028)		
Stage 4	Construct New Terminal	B-1
Stage 4	Construct New Terminal Apron	A-1
Stage 4	Construct Improvements to Existing Airfield (Adjacent to New Terminal)	A-2
Stage 4	Construct Replacement Employee Parking – Terminal Approach Lot)	L-4
Stage 4	Construct Extension of Terminal Curbside	L-8
Stage 4	Construct BART Access Covered Walkway	L-9
Stage 4	Construct Return to Terminal Connection	L-10
Stage 4	Construct Expansion of Central Utility Plant	U-1
Stage 4	Construct Expansion of IAB in Terminal 1	B-2
Stage 4	Relocate and Upgrade Utility Systems	U-4
Stage 5 – (2028-2030)		
Stage 5	Construct Modernization of Existing Terminals 1 and 2	B-2
Stage 6 – (2030)		
Stage 6	Demolish Terminal 1 Ticketing and Baggage Claim Building	D-3
Stage 6	Construct Expansion of Employee Parking – Terminal Infill Lot	L-5

Source: Port of Oakland, 2020.

CHAPTER 3

EXISTING CONDITIONS,

ENVIRONMENTAL IMPACTS, AND

MITIGATION MEASURES

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3.1 INTRODUCTION

This chapter presents the existing conditions, environmental impacts, and mitigation measures for each of the following environmental resource categories:

- Aesthetics
- Air Quality
- Biological Resources
- Cultural and Tribal Resources
- Energy
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Noise
- Public Services
- Transportation
- Utilities and Service Systems

As previously mentioned, it is anticipated that the Proposed Project would not result in the need for review, per CEQA Guidelines Section 15162, for some environmental resource categories, which therefore are not examined in this Draft EIR (refer to **Appendix A** for further detail). These resource categories include:

- Agriculture / Forest Resources
- Mineral Resources
- Population / Housing
- Recreation
- Wildfire

Each section provides the background and methodology (including the regulatory context, and significance thresholds for the environmental resource), a description of the existing conditions for that environmental resource at the Airport or in the Airport vicinity, a discussion of the environmental impacts that could occur as a result of implementation of the Proposed Project, a determination of whether the impact is considered to be significant, and any mitigation measures that would reduce the magnitude of an identified significant impact. Each impact and subsequent mitigation measure, if applicable, is identified separately.

This chapter analyzes the impacts associated with the future levels of aviation activity that are forecast to occur at OAK. The OAK aviation activity projected in these forecasts would occur regardless of whether the Proposed Project is implemented. To provide a conservative analysis, the Port has elected in this Draft EIR to compare the aviation activity-based impacts of the Proposed Project in 2028 and 2038 to the 2019 OAK aviation activity level conditions, thus overstating the Proposed Project's actual impacts.

Two study areas were developed for use in this Draft EIR, a general study area (see **Figure 3-1**) for analysis of impacts that could extend beyond Airport property, and a detailed study area (see **Figure 3-2**) for impacts that would be more likely to occur within the direct footprint of the Proposed Project. Unless otherwise stated, these study areas were used in the analyses throughout **Chapter 3**.

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FIGURE 3-1
GENERAL STUDY AREA



FIGURE 3-2
DETAILED STUDY AREA



3.2 AESTHETICS

This section describes existing aesthetic resources as a basis for the discussion of potential impacts and proposed mitigation measures for the Proposed Project at OAK.

3.2.1 Background and Methodology

3.2.1.1 Regulatory Context

STATE

The California Environmental Quality Act (CEQA) establishes that it is the policy of the state to take all action necessary to provide the people of this state with "...enjoyment of aesthetic, natural, scenic, and historic environmental qualities" (CA PCR 21001[b]).

REGIONAL

Alameda County

The 2010 *Oakland International Airport Land Use Compatibility Plan*⁹ includes references to the City of Oakland General Plan - Land Use and Transportation Element (LUTE),¹⁰ described below, for guidance on development on lands in and around the Airport.

Oakland General Plan

The *City of Oakland General Plan* includes goals, policies, and programs related to aesthetic resources generated by land uses within the city of Oakland. The General Plan designates land uses in the vicinity of the Airport as commercial, light industrial, hotel, and office uses. The plan's LUTE and Open Space Conservation and Recreation (OSCAR) Element¹¹ both contain policies related to land use, and the OSCAR contains policies regarding visual, open space, and aesthetic resources. The LUTE identifies the area around the Airport as the Airport Gateway Showcase District, and contains the following relevant elements:

- **Policy W3.4:** Buildings and facilities should respect scenic viewsheds and enhance opportunities for visual access to the waterfront and its activities.

The OSCAR contains the following applicable policies regarding scenic and visual resources and open space:

- **Policy OS-10.1:** "Protect the character of existing scenic views in Oakland, paying particular attention to (a) views of the Oakland Hills from the flatlands; (b) views of downtown and Lake Merritt; (c) views of the shoreline; and (d) panoramic views from Skyline Boulevard, Grizzly Peak Road, and other hillside locations."

⁹ Alameda County Community Development Agency. (2012, December 15). *Oakland International Airport—Airport Land Use Compatibility Plan*. Retrieved from:

https://www.acgov.org/cda/planning/generalplans/documents/OAK_ALUCP_122010_FULL.pdf.

¹⁰ City of Oakland. (1998, March). *Oakland General Plan—Land Use and Transportation Element (LUTE)*. Retrieved from: <https://www.oaklandca.gov/resources/land-use-and-transportation-element>.

¹¹ City of Oakland. (1996, June). *Oakland General Plan—Open Space, Conservation, and Recreation (OSCAR) Element*. Retrieved from: <https://www.oaklandca.gov/resources/download-the-open-space-conservation-and-recreation-oscar-element>.

- **Policy OS-10.2** calls for minimizing adverse visual impacts of new development through effective site planning.
 - **Action OS-10.2.1** notes that a visual analysis is required for “new developments which could significantly impact views and vistas.”

Other OSCAR policies specific to the Airport contain open space recommendations such as protecting Airport wetlands and the shoreline path. The Airport shoreline path is a short path that travels parallel to the northern edge of the main runway along the Airport dike and is accessible from Harbor Bay Parkway.

City of Oakland Municipal Code

Title 17 of the City of Oakland’s Planning Code contains regulations that address the aesthetic considerations of development. However, the City of Oakland Municipal Code does not impose specific written regulations for the Airport.

Other

The Airport is not located in a Dark Sky Place as designated by the International Dark-Sky Association.¹²

3.2.1.2 Significance Thresholds

Significant impacts would occur to aesthetics if implementation of the Proposed Project would result in any of the following:

- a) Have a substantial adverse effect on a scenic vista.
- b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.
- c) Conflict with applicable zoning and other regulations governing scenic quality.
- d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

The Proposed Project is not located in a nonurbanized area and therefore would not substantially degrade the existing visual character or quality of public views of the site and its surroundings.

3.2.2 Existing Conditions / Environmental Setting

The Airport totals approximately 2,600 acres within the City of Oakland’s general industrial/transportation zoning district, which consists of aviation-related commercial, industrial, and public uses. The OSCAR describes the Airport Planning Area as “completely flat” and consisting primarily of landfill, wetlands, and open land around the Airport, access to which is restricted.

The Airport is divided into North Field and South Field. North Field primarily accommodates corporate and general aviation purposes and other supporting facilities, including three runways served by multiple taxiways and taxilanes, fixed based operators (FBOs), general

¹² International Dark-Sky Association. (2022). *Find a Dark Sky Place*. Retrieved from <https://www.darksky.org/our-work/conservation/idsp/finder/>.

aviation and corporate aircraft hangars, rental car facilities, and airport maintenance facilities. To the north of North Field is San Leandro Bay, the Martin Luther King, Jr. Regional Shoreline Park, and Arrowhead Marsh. **Figure 3.2-1** shows the location of the viewpoint photos shown in **Figure 3.2-2** through **Figure 3.2-11** to capture the existing views. **Figure 3.2-2** shows a view looking west toward North Field from Doolittle Drive between Hiller Street and Sikorsky Street. **Figure 3.2-3** shows a view looking northwest toward the north end of North Field at a proposed new parking area from the entrance to the Martin Luther King Jr. Shoreline Center on Doolittle Drive. **Figure 3.2-4** shows the view from the intersection of Harbor Bay Parkway and Ron Cowan Parkway looking south toward proposed parking. **Figure 3.2-5** shows the view from John Glenn Drive looking west towards the existing economy parking lot.

South Field, which is defined as the area south of Ron Cowan Parkway, includes two commercial passenger facilities, the airport traffic control tower, an aircraft rescue and fire fighting (ARFF) station, a the Oakland Maintenance Center (OMC) hangar, the Oakland Airport BART station and airport connector, air cargo facilities, parking areas, a fuel farm with above grade storage tanks, and other supporting facilities, including the primary commercial service runway served by multiple taxiways and taxilanes. To the southwest and east of the Airport perimeter dike is San Francisco Bay. An area of open space, which can be viewed from Ron Cowan Parkway, is in the northwest corner of South Field. **Figure 3.2-5** through **Figure 3.2-9** depict various elements of South Field, including buildings, parking areas, and roads. The only views of San Francisco Bay from within the Airport are along Airport Drive where it approaches Edward White Way (**Figure 3.2-10**). However, views of the water are mostly blocked by a berm and no changes are proposed between Airport Road and San Francisco Bay in this area. **Figure 3.2-11** is a view toward the Airport looking northwest from San Francisco Bay Trail at the north end of the Oyster Bay Regional Shoreline.

3.2.2.1 Scenic Vistas

CEQA does not specifically define scenic vistas, and definitions were not identified in local planning documents. However, scenic vistas can generally be defined as natural scenes, views, overlooks, or panoramas that provide publicly accessible and expansive views of highly valued or unique landscapes. The Oakland General Plan OSCAR element identifies scenic views as listed in **Section 3.2.1.1**. Currently, the Airport does not block views of the Oakland Hills from the flatlands, or views of downtown and Lake Merritt because the Airport is not located between these areas (**Figure 3.2-12**). Similarly, the Airport does not impact panoramic views from Skyline Boulevard, Grizzly Peak Road, and other hillside locations because the facility is located at a lower elevation. The Airport is on a similar topographical plane as several other commercial and industrial structures that block views of the Airport facilities whose heights are also attenuated by distance. Zoning height ordinances along the east side of Hegenberger Road both inhibit obstruction of shoreline views and potentially block views of some existing Airport facilities by allowing building heights up to 160 feet depending on viewing location.

Figure 3.2-1
Photo Locations and View Points



Figure 3.2-1
View Points

View Points
 Airport Property

N

0 1,500 Feet

OAKLAND
INTERNATIONAL
AIRPORT

I OAK

**FIGURE 3.2-2
DOOLITTLE DRIVE BETWEEN HILLER STREET AND SIKORSKY STREET LOOKING WEST TOWARD NORTH FIELD**



**FIGURE 3.2-3
DOOLITTLE DRIVE AT ENTRANCE TO MARTIN LUTHER KING JR. SHORELINE CENTER LOOKING NORTHWEST TOWARD NORTH FIELD**



FIGURE 3.2-4
INTERSECTION OF HARBOR BAY PARKWAY AND RON COWAN PARKWAY LOOKING SOUTH TOWARD PROPOSED PARKING



FIGURE 3.2-5
JOHN GLENN DRIVE LOOKING WEST TOWARDS ECONOMY PARKING LOT



FIGURE 3.2-6

ALAN SHEPARD WAY AND JOHN GLENN DRIVE LOOKING NORTHWEST TOWARDS AIR CARGO FACILITY



FIGURE 3.2-7

EAST APPROACH TO TERMINAL 1 LOOKING SOUTH FROM AIRPORT DRIVE



FIGURE 3.2-8

BART AIRPORT CONNECTOR STATION PLATFORM LOOKING NORTHEAST TOWARDS PUBLIC PARKING AND AIRCRAFT MAINTENANCE HANGAR

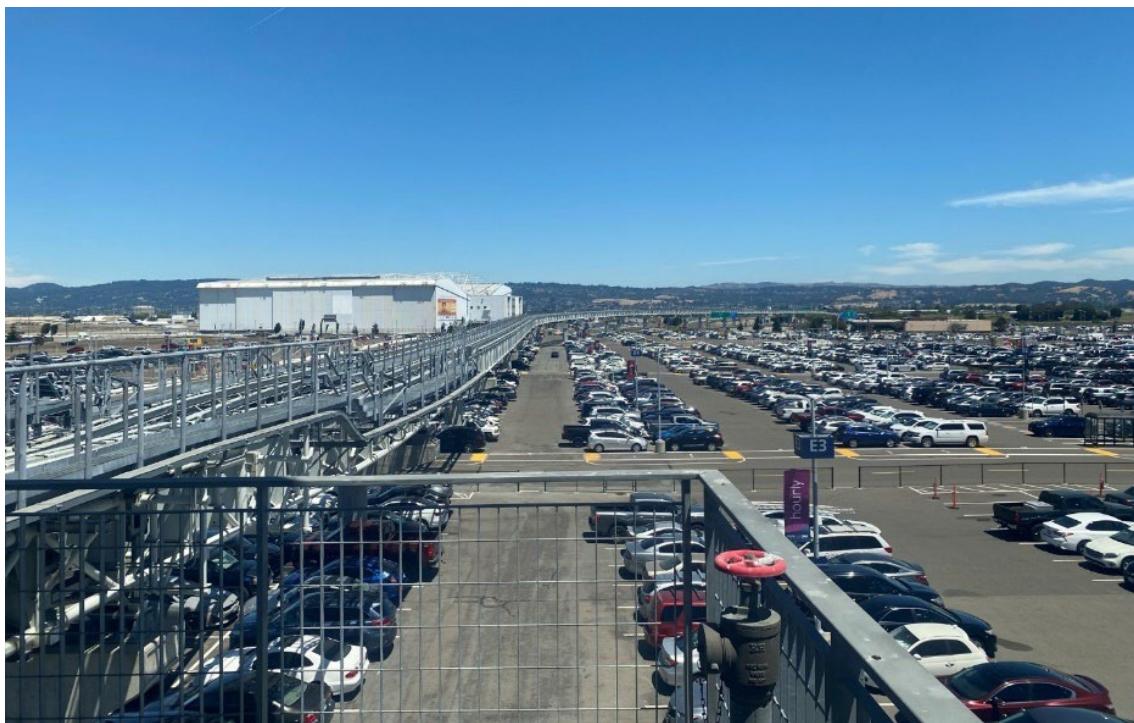


FIGURE 3.2-9

AIRPORT DRIVE LOOKING NORTHWEST TOWARD OMC HANGAR AND BART AIRPORT CONNECTOR



FIGURE 3.2-10

AIRPORT DRIVE NEAR EDWARD WHITE WAY LOOKING SOUTHEAST TOWARD SAN FRANCISCO BAY



FIGURE 3.2-11

LOOKING NORTHWEST FROM SAN FRANCISCO BAY TRAIL, NORTH END OF OYSTER BAY REGIONAL SHORELINE, TOWARD AIRPORT AND EXISTING FUEL SYSTEM



FIGURE 3.2-12
AIRPORT REGIONAL LANDSCAPE CONTEXT



Although not specifically identified as scenic vistas in local plans, the Oyster Bay Regional Shoreline and Martin Luther King Jr. Regional Shoreline Center are adjacent or close to the Airport. The Oyster Bay Regional Shoreline is southeast of the Airport at 1600 Neptune Drive. The park offers picnic areas, internal trails, disc golf, a garden, and a 2-mile segment of the San Francisco Bay Trail, which follows the perimeter of the park and “affords sweeping Bay vistas.”¹³ Views of San Francisco Bay also include views of the Airport, particularly South Field and the white storage tanks of the existing fuel farm (**Figure 3.2-11**).

The Martin Luther King Jr. Regional Shoreline Center, at 7850 Doolittle Drive, is across from the proposed North Field Lot parking area at the north end of Earhart Road. This park is located on, and along, San Leandro Bay, providing views of San Leandro Bay and East Bay hills to the east, which is in the opposite direction of North Field when at the park.¹⁴ Visitors would have short-term views of the proposed North Field Lot parking area, which is currently blocked by fencing, only as they exit the park (**Figure 3.2-3**). Another section of this park is located at the northern corner of Doolittle Drive and Swan Way. No proposed changes to North Field would be visible from this area. Therefore, the Martin Luther King Jr. Regional Shoreline Center at this location was not analyzed for impacts to scenic vistas. In addition, vegetation and slightly undulating topography would block views of the proposed parking area from Arrowhead Marsh and King Fisher Picnic Area opposite San Leandro Bay and the Martin Luther King Jr. Regional Shoreline Center.

The Metropolitan Golf Links course is on Airport property, located east of Bessie Coleman Drive and south of Doolittle Drive, with views toward the Airport. Because this is not a publicly accessible site (i.e., a fee is required to use the golf course), it was not analyzed for impacts to scenic vistas.

3.2.2.2 Scenic Resources

The CEQA guidelines require analysis of scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings *within a state scenic highway*. Caltrans identifies I-580, which is approximately 3.25 miles east of the intersection of Airport Drive and Doolittle Drive, as a designated state scenic highway.¹⁵ There is no other state scenic highway near the Airport.

3.2.2.3 Zoning

The Airport is in an area zoned by the City of Oakland as “Industrial General.” The City’s zoning map does not identify height restrictions within the Airport but does along a narrow corridor along the east side of Hegenberger Road between Baldwin Street and Doolittle Drive,

¹³ East Bay Regional Park District. (2022). *Oyster Bay Regional Shoreline*. Retrieved from: <https://www.ebparks.org/parks/oyster-bay>.

¹⁴ East Bay Regional Park District. (2022). *Shoreline Center*. Retrieved from East Bay Regional Park District: <https://www.ebparks.org/rentals-and-permits/event-venues/shoreline-center>.

¹⁵ Caltrans. (2023). *Scenic Highways*. Retrieved from Caltrans: <https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways>.

where Hegenberger Road enters the Airport. Throughout most of this commercial corridor, buildings heights are restricted to 160 feet.¹⁶

3.2.2.4 Light and Glare

The area surrounding the Airport contains several existing sources of light and glare, such as streetlights along roadways and in parking lots, illuminated signs, lighted recreation facilities, landscape lighting, and light emitted from the interiors of residential and nonresidential buildings. Buildings and structures with glass, metal, and polished exterior or roofing materials contribute to localized sources of glare.

Current facilities at the Airport can produce light and glare. Interior and exterior lighting is provided by the existing terminal facilities, as well as buildings located in North Field, the ARFF facility, and the airport traffic control tower. Airfield lighting systems associated with taxiways and runways are also sources of light. The parking lots and parking structures have security lighting, and parked cars are a source of glare when sunlight reflects off the windows. Airport Drive also contributes to light sources from streetlights and from headlights from the vehicles traversing the roadway.

3.2.3 Environmental Impacts and Mitigation

3.2.3.1 Have a substantial adverse effect on a scenic vista

CONSTRUCTION

During construction, there would be minimal impacts to scenic vistas because the Proposed Project would occur within the Airport's current footprint and would not interfere with viewpoints and scenic views identified in local plans (i.e., views of Oakland Hills or from Skyline Boulevard). Construction impacts would affect views from Oyster Bay Regional Shoreline in the short term. However, the industrial nature of the surrounding facilities would visually blend with the construction activities. In addition, construction activities would occur to the northwest of the Regional Shoreline, and most views from it are to the southwest, minimizing construction-related views. As viewers move farther from the airport, the construction activities would be less noticeable. The Airport would also be obscured from view by a hill on the south side of the Oyster Bay Regional Shoreline path. The Proposed Project would not have a substantial adverse effect on a scenic vista during construction and the impact would be ***less than significant***.

OPERATION

The Proposed Project would not impact scenic vistas of specific locations or roads described under **Section 3.2.1.3**. The Proposed Project improvements would occur within the Airport's current footprint and would not interfere with viewpoints and scenic vista (i.e., views of Oakland Hills or from Skyline Boulevard) identified in local plans because the Airport is not in view of these locations, as described under **Section 3.2.1.3**. Although the overall square footage of the Airport's facilities would increase, the Proposed Project would not affect "views

¹⁶ City of Oakland Planning & Building Department. (2022, February). City of Oakland Zoning and Estuary Policy Plan Maps. City of Oakland. Retrieved 2022, from <https://cao-94612.s3.amazonaws.com/documents/Oakland-Zoning-Map-2.17.2022.pdf>.

of the shoreline” as listed under OSCAR Policy OS-10.1 because several other existing commercial and industrial structures would continue to block views of the Airport facilities and the shoreline. In addition, visibility of the new Airport structures would continue to be attenuated by distance, minimizing their perceived heights. Although not officially designated as a scenic vista, removal and addition of Airport facilities would affect views from Oyster Bay Regional Shoreline, which already include the Airport. Expansion of the fuel farm, shown as white storage tanks in **Figure 3.2-11**, would make it a more visually prominent element from this view. However, Airport activities currently occur and would continue to occur to the northwest of the Oyster Bay Regional Shoreline and most views from the San Francisco Bay Trail are to the south and southwest. Views of the Airport would diminish farther south along the trail due to distance, and Airport facilities would be obscured from view by a hill on the south side of the Oyster Bay Regional Shoreline area. For these reasons, replacing and removing facilities would not notably change existing views from the San Francisco Bay Trail or the Oyster Bay Regional Shoreline.

The Proposed Project would not conflict with LUTE Policy W3.4 requiring that buildings and facilities respect scenic viewsheds, as the Airport is not located within specific viewsheds. The Proposed Project would not “enhance opportunities for visual access to the waterfront and its activities;” it also would not inhibit such opportunities.

For the reasons described above, the Proposed Project would not have a substantial adverse effect on a scenic vista and the impact would be ***less than significant***.

3.2.3.2 Substantially damage scenic resources

CONSTRUCTION AND OPERATION

The Proposed Project is not located within or near a state scenic highway. There would be no construction and operation-related impacts to scenic resources within a state scenic highway. Therefore, the Proposed Project would not substantially damage scenic resources and there would be ***no impact***.

3.2.3.3 Conflict with applicable zoning and other regulations governing scenic quality

CONSTRUCTION

Construction impacts are temporary and, therefore, would not conflict with applicable zoning and other regulations related to scenic quality. There would be ***no impact*** to scenic quality.

OPERATION

The Proposed Project is located in an urbanized area and would not conflict with applicable zoning and other regulations governing scenic quality. The Proposed Project would remain within an area zoned by the City of Oakland as “Industrial General.” Regarding planning policies identified in **Section 3.2.1.1**, the Proposed Project would not violate any height restrictions because none are defined for the Airport. In addition, the Proposed Project would be subject to height restrictions in accordance with standards used to determine obstructions to air navigation.¹⁷ The Proposed Project would not change any existing public access opportunities to view aviation activities or prohibit establishment of vista points at

¹⁷ 14 CFR Part 77, 2010.

the Airport. Although the proposed changes would expand the Airport's facilities, they would remain within the Airport's property, which would minimize adverse visual impacts of the new development. Therefore, the Proposed Project would not conflict with applicable zoning or other regulations governing scenic quality, resulting in **no impact**.

3.2.3.4 Create a new source of substantial light or glare

CONSTRUCTION

Short-term construction impacts would introduce temporary sources of light and glare from machinery and construction traffic. Nighttime work, if required, would also introduce sources of new temporary light source. Implementing lighting best management practices (BMPs) during construction would minimize these impacts. Construction lighting BMPs could include limiting construction lighting to the area of work and would utilize directional lighting and shielding. In addition, because these impacts would be temporary, they are not expected to create a new source of substantial light or glare. Therefore, the impact would be **less than significant**.

OPERATION

The Proposed Project would create approximately 1,047 new parking spaces increasing the amount of glare from parked vehicles. Although several buildings would be demolished, the Project would expand the Airport's facilities, thereby introducing new light sources. In particular, the new terminal would be approximately 830,000 square feet and the modernization of existing Terminals 1 and 2 would result in an increase of approximately 81,600 square feet from the existing Terminals 1 and 2, and could introduce a larger expanse of windows.

New parking areas along Doolittle Drive would be screened from view by existing vegetation, fencing, or topography (see fencing, **Figure 3.2-3**). In addition, views of new parking proposed south of the intersection of Harbor Bay Parkway and Ron Cowan Parkway would be blocked by a small hill, vegetation, and fencing (**Figure 3.2-4**). Existing parking adjacent to the Airport terminals would be replaced with terminal curbside and associated canopies, minimizing glare near the terminals. The new public parking on the Ron Cowan Lot would slightly expand the source of glare along Bessie Coleman Drive / Airport Drive. However, this source of glare is already present at the Airport and the increase in parking would not result in a substantial increase in glare.

The Proposed Project design would include down-shielded apron floodlighting that would be installed to light the airside of the terminals in a manner similar to daylight without creating increased light pollution around the Airport and would adhere to the Port's Exterior Lighting Policy.

Although the Proposed Project would introduce new sources of light and glare, they would not be considered a new source of substantial light or glare. Therefore, the impact would be **less than significant**.

3.3 AIR QUALITY

This section analyzes existing and future air pollutant emissions and proposed mitigation measures to address potential project-related air quality impacts from the Proposed Project. This Draft EIR documents potential pollutant emissions during the construction years (2025 through 2030), existing conditions (2019), future year 2028, and future year 2038. The primary purpose of this air quality analysis is to examine in detail potential air quality impacts associated with the Proposed Project. This analysis incorporates detailed project-related assumptions regarding airport activity levels and construction equipment that would be utilized for the Proposed Project.

3.3.1 Background and Methodology

3.3.1.1 Regulatory Context

FEDERAL

The federal Clean Air Act of 1963 (CAA) was the first federal legislation regarding air pollution control and has been amended numerous times in subsequent years, with the most recent amendments occurring in 1990. At the federal level, the U.S. Environmental Protection Agency (USEPA) is responsible for implementing certain portions of the CAA including mobile source requirements. Other portions of the CAA, such as stationary source requirements, are implemented by state and local agencies.

The CAA establishes federal air quality standards, known as National Ambient Air Quality Standards (NAAQS) and specifies future dates for achieving compliance. The USEPA currently regulates six criteria pollutants: ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter (PM), and lead (Pb). Particulate matter is divided into two particle size categories: coarse particles with a diameter less than 10 micrometers (PM_{10}) and fine particles with a diameter of less than 2.5 micrometers ($PM_{2.5}$). The NAAQS are expressed in terms of pollutant concentration measured (or averaged) over a defined period of time and are two-tiered. The first tier (the "primary standard") is intended to protect public health; the second tier (the "secondary standard") is intended to protect public welfare and prevent further degradation of the environment.

If the air quality in a geographic area is equal to or better than the national standard, the USEPA will typically designate the region as an "attainment area." An area where air quality does not meet the national standard is typically designated by the EPA as a "non-attainment area." Once the air quality in a non-attainment area improves to the point where it meets the standards and the additional requirements outlined in the CAA, the USEPA can redesignate the area to attainment upon approval of a Maintenance Plan, and these areas are then referred to as "maintenance areas." Each state is required to prepare a State Implementation Plan (SIP) that outlines measures that regions within the state will implement to attain the applicable air quality standard in non-attainment areas for applicable criteria air pollutants, and to maintain compliance with the applicable air quality standard in maintenance areas. The status and severity of pollutant concentrations in a particular area affect the types of measures a state must take to reach attainment with the NAAQS. The USEPA must review and approve each state's SIP to ensure the proposed measures are sufficient to either attain or maintain compliance with the NAAQS within a set period of time.

The Clean Air Act Amendments (CAAA) of 1990 require states to make recommendations to the USEPA regarding the attainment status of all areas within their borders when the USEPA finalizes an update to any NAAQS. Under its CAAA authority, the USEPA further classifies non-attainment areas for some pollutants – such as O₃ – based on the severity of the NAAQS violation as marginal, moderate, serious, severe, and extreme. To further improve the nation’s air quality, the USEPA lowered the O₃ standard in 2015 to 0.070 parts per million (ppm). The area surrounding the Airport meets all ambient air quality standards with the exception of ground-level O₃, PM₁₀, and PM_{2.5}.¹⁸ **Table 3.3-2** in **Section 3.3.2.1** presents the federal and state ambient air quality standards.

STATE

The California Air Resources Board (CARB) manages air quality, regulates mobile emission sources, and oversees the activities of regional Air Quality Management Districts and county Air Pollution Control Districts. CARB also establishes California state standards for vehicle emissions, and the California Ambient Air Quality Standards (CAAQS). CARB has granted authority to the regional air quality management districts and county air pollution control districts to develop stationary source emissions standards, issue air quality permits, and enforce permit conditions.

The California Clean Air Act (CCAA), signed into law in 1988, requires all areas of the state to achieve and maintain the CAAQS by the earliest practicable date. The CAAQS are at least as stringent as, and in several cases more stringent than, the NAAQS.

REGIONAL

The Bay Area Air Quality Management District (BAAQMD) is the primary agency responsible for ensuring that the NAAQS and the CAAQS are attained and maintained in the San Francisco Bay Area Air Basin (SFBAAB), which includes all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo and Santa Clara counties, and the southern portions of Solano and Sonoma counties. BAAQMD’s responsibilities include preparing plans for attaining and maintaining air quality standards; adopting and enforcing rules and regulations; issuing permits for stationary sources of air pollutants; inspecting stationary sources and responding to citizen complaints; monitoring air quality and meteorological conditions; awarding grants to reduce mobile emissions; conducting public outreach campaigns; and assisting local governments in addressing climate change.

BAAQMD has prepared both federal and state air quality plans to bring the SFBAAB into attainment with the state and federal O₃, PM₁₀ and PM_{2.5} standards. The Bay Area is currently in nonattainment for O₃ and PM_{2.5} (both state and federal) and nonattainment for state PM₁₀ standards. Four air quality plans exist for the Bay Area to address O₃ and PM nonattainment, as follows:

- 2001 Ozone Attainment Plan, which describes the Bay Area’s strategy for compliance with the federal 1-hour O₃ standard.

¹⁸ United States Environmental Protection Agency (USEPA). (2023). *California Nonattainment/Maintenance Status for Reach County by Year for All Criteria Pollutants*. Retrieved from: https://www3.epa.gov/airquality/greenbook/anayo_ca.html.

- 2005 Bay Area Ozone Strategy, which reviews the region's progress in reducing O₃ levels. This plan describes current conditions and charts a course for future actions to further reduce O₃ and O₃ precursor levels in the Bay Area and to achieve compliance with the state 1-hour O₃ standard.
- 2010 Clean Air Plan, which provides control strategies to reduce O₃, PM, air toxics, and greenhouse gases (GHGs) from stationary and mobile sources, and specifically addresses nonattainment of the state O₃ standards in the SFBAAB.
- 2017 Clean Air Plan, which provides control strategies for O₃, PM, toxic air contaminants (TACs), and GHGs, and is aimed at reducing air pollution, protecting public health, and protecting the global climate. The 2017 Clean Air Plan includes the first ever Regional Climate Protection Strategy and has a total of 85 control measures, categorized among nine economic sectors.

In addition to the Clean Air Plans mentioned above, in 2004, BAAQMD initiated the Community Air Risk Evaluation (CARE) program. This program has helped identify communities in the Bay Area that are disproportionately impacted by local emission sources. The CARE program serves as a foundation for BAAQMD's efforts to reduce human exposure to TACs, including diesel particulate matter (DPM), in communities that experience higher than average pollution levels. These communities are generally located near sources of pollution (e.g., freeways, industrial facilities), and thus have higher levels of risk from TAC exposure. The CARE program goals are as follows: (1) identify areas where air pollution contributes most to health impacts and where populations are most vulnerable to air pollution; (2) apply sound scientific methods and strategies to reduce health impacts in these areas; and (3) engage community groups and other agencies to develop additional actions to reduce local health impacts. BAAQMD-designated CARE communities are located in Concord, Richmond/San Pablo, eastern San Francisco, western Alameda County, Vallejo, San Rafael, Pittsburg/Antioch, and San José. The Airport and its surrounding neighborhoods are located within the CARE area in western Alameda County.

In response to Assembly Bill (AB) 617, CARB established the Community Air Protection Program (CAPP or Program). The Program's focus is to reduce exposure in communities most impacted by air pollution. Communities around the State are working together to develop and implement new strategies to measure air pollution and reduce health impacts.

This first-of-its-kind statewide effort includes community air monitoring and community emissions reduction programs. In addition, the Legislature appropriated funding to support early actions to address localized air pollution through targeted incentive funding to deploy cleaner technologies in these communities, as well as grants to support community participation in the AB 617 process. AB 617 also includes new requirements for accelerated retrofit of pollution controls on industrial sources, increased penalty fees, and greater transparency and availability of air quality and emissions data, which will help advance air pollution control efforts throughout the State. This new effort provides an opportunity to continue to enhance our air quality planning efforts and better integrate community, regional, and state-level programs to provide clean air for all Californians.¹⁹

¹⁹ California Air Resources Board (CARB). (2023). *Community Air Protection Program*. Retrieved May 2023, from: <https://ww2.arb.ca.gov/capp/about>.

In 2022, East Oakland community was selected by BAAQMD to develop a Community Emissions Reduction Plan. OAK is included in the East Oakland community footprint and the Port is participating as a steering committee member of the AB 617 East Oakland Steering Committee.

3.3.1.2 Significance Thresholds

Under CEQA, significant impacts would occur to air quality if implementation of the Proposed Project would result in any of the following:

1. Conflict with or obstruct implementation of the applicable air quality plan.
2. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or State ambient air quality standard.
3. Expose sensitive receptors to substantial pollutant concentrations.
4. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

CONSISTENCY WITH AIR QUALITY PLAN

As noted above, the applicable air quality plan is BAAQMD's 2017 Air Quality Plan.

CUMULATIVELY CONSIDERABLE NET INCREASE OF CRITERIA POLLUTANTS

To address cumulatively considerable net increases of criteria pollutants, the Port applied the thresholds of significance identified by BAAQMD in its 2022 CEQA Air Quality Guidelines.

Table 3.3-1 shows BAAQMD air quality criteria and precursor pollutant CEQA thresholds of significance, which includes thresholds for construction and operational emissions.

The significance of Proposed Project operational impacts was determined based on the Proposed Project future years 2028 and 2038 net change in emissions over the 2019 existing conditions emissions.

SENSITIVE RECEPTOR IMPACTS

The potential for exposure of sensitive receptors to substantial pollutant concentrations is analyzed using the recommended thresholds and methodologies in the 2022 BAAQMD CEQA Air Quality Guidelines. BAAQMD has developed health risk and hazard significance thresholds for CEQA impact analyses. These thresholds are provided in **Table 3.3-2**.

ODOR

As identified in the Initial Study that was included with the Notice of Preparation (NOP), the Proposed Project would not result in any change in the types of aircraft operations that would occur at OAK. Therefore, the Proposed Project would not result in any odors or emissions that would affect a substantial number of people and no further analysis of this issue will be included in the Draft EIR.

TABLE 3.3-1
BAY AREA AIR QUALITY MANAGEMENT DISTRICT PROJECT-LEVEL EMISSION SIGNIFICANCE THRESHOLDS FOR CONSTRUCTION AND OPERATIONS

Criteria Air Pollutants and Precursors	Construction-Related	Operations-Related	
	Average Daily Emissions (lbs/day)	Average Daily Emissions (lbs/day)	Maximum Annual Emissions (tons/year)
NO _x	54	54	10
ROG	54	54	10
PM ₁₀ (exhaust)	82	82	15
PM _{2.5} (exhaust)	54	54	10
PM ₁₀ /PM _{2.5} (fugitive dust)	Best Management Practices ^{/a/}	None	
Local CO	None	9.0 ppm (8-hour average) 20.0 ppm (1-hour average)	

NO_x: Nitrogen Oxides

ROG: Reactive Organic Gases

PM₁₀: Particulate Matter with an aerodynamic diameter of 10 microns

PM_{2.5}: Particulate Matter with an aerodynamic diameter of 2.5 microns

CO: Carbon Monoxide

lbs: pounds

/a/ PM₁₀/PM_{2.5} (fugitive dust) is also recognized to impact local communities. The Air District strongly recommends implementing all feasible fugitive dust management practices especially when construction projects are located near sensitive communities, including schools, residential areas, or other sensitive land uses. These measures are detailed in Chapter 5, Section 5.2.2 Construction-Related Criteria Air Pollutant Emissions.

Source: Bay Area Air Quality Management District (BAAQMD). (2017, May). California Environmental Quality Act Air Quality Guidelines. Retrieved May 2023, from: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en.

TABLE 3.3-2
BAY AREA AIR QUALITY MANAGEMENT DISTRICT HEALTH RISK AND HEALTH HAZARD SIGNIFICANCE THRESHOLDS

Health Risk or Hazard	Project Incremental Significance Threshold	Cumulative Threshold ^{/a/}	Significance
Cancer Risk (MEI Resident or MEI Worker)	Maximum Incremental Cancer Risk > 10 in 1 million	Maximum Cumulative Cancer Risk >= 100 in 1 million	
Chronic Non-Cancer Hazards	Chronic Hazard Index (HIc) >= 1.0	Chronic Hazard Index (HIc) >= 10.0	
Acute Non-Cancer Hazards	Acute Hazard Index (HIa) >= 1.0	N/A	
PM _{2.5}	Annual Average Concentration > 0.3 mg/m ³	Annual Average Concentration > 0.8 mg/m ³	

MEI: maximally exposed individuals

N/A: Not applicable.

mg/m³: micrograms per cubic meter.

/a/ Cumulative includes the total impacts from all past, present, and foreseeable future sources within a 1,000-foot radius from the fence line of a source plus contribution from the project.

Source: Bay Area Air Quality Management District (BAAQMD). (2017, May). California Environmental Quality Act Air Quality Guidelines. Retrieved May 2023, from: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en.

3.3.1.3 Methodologies

Criteria air pollutant and precursor emissions were evaluated for the Proposed Project, including CO, O₃, Nitrogen Oxides (NO_x), Reactive Organic Gases (ROGs), SO₂, PM₁₀, and PM_{2.5}. Additional information regarding these criteria pollutants and precursors is presented below.

CRITERIA POLLUTANTS AND PRECURSORS OF INTEREST

Carbon Monoxide

CO is an odorless, colorless gas that is formed by the incomplete combustion of fuels. The most common source of CO is from motor vehicles. Emissions are highest during cold starts, hard acceleration, low speeds, and stop-and-go driving. When inhaled at high concentrations, CO combines with hemoglobin in the blood and lowers its oxygen-carrying capacity, resulting in reduced oxygen reaching the brain, heart, and other body tissues. This condition is especially critical for people with cardiovascular diseases, chronic lung disease, or anemia, as well as for fetuses. Even healthy people exposed to high CO concentrations can experience headaches, dizziness, fatigue, unconsciousness, and death.

Ozone

O₃, or smog, is not emitted directly; rather, it is formed in the atmosphere through complex chemical reactions between ROG and NO_x in the presence of sunlight. O₃ formation is greatest on warm, windless, sunny days. The main sources of NO_x and ROG, often referred to as O₃ precursors, are (1) combustion processes (including motor vehicle and aircraft engines); (2) the evaporation of solvents, paints, and fuels; and (3) biogenic sources. O₃ levels usually build up during the day and typically peak in the afternoon. Short-term exposure can cause eye irritation and airway constriction. In addition to causing shortness of breath, O₃ can aggravate existing respiratory diseases such as asthma, bronchitis, and

emphysema. Chronic exposure to high O₃ levels can permanently damage lung tissue. O₃ can also damage plants, trees, and materials such as rubber and fabrics.

Nitrogen Oxides

NO_x is a precursor to O₃ and is primarily emitted through the combustion of fuel by mobile sources (e.g., passenger vehicles, buses, off-road equipment). When inhaled at high concentrations, NO₂, one of the types of NO_x, can cause irritation in the respiratory system. Per the USEPA, acute exposure can aggravate existing respiratory conditions (e.g., asthma) while long-term exposure may contribute to the development of asthma and potentially increase susceptibility to respiratory infections.

Reactive Organic Gases

ROGs are a precursor to O₃ formation and are primarily emitted by industrial facilities, through combustion of fuel by mobile and stationary sources, and by use of chemical solvents. Per the USEPA, exposure to ROG emissions can cause irritation of the eyes, nose, and throat; headaches; loss of coordination; nausea; and damage to the liver, kidney, and central nervous system. Some ROGs are known to cause cancer.

Sulfur Dioxide

SO₂ is not a significant transportation related pollutant with its largest source of emissions from burning fossil fuels at power plants and other industrial facilities. With most transportation sources using unleaded gasoline and ultra-low sulfur diesel fuel, emissions of sulfur dioxide from vehicles are considerably less than other larger emitters using fossil fuels. The physical effects of sulfur dioxide include temporary breathing impairment, respiratory illness, and aggravation of existing cardiovascular disease.

Particulate Matter

PM encompasses a wide range of solid and liquid particles in the atmosphere, including smoke, dust, aerosols, and metallic oxides. Most PM stems from combustion, factories, construction, grading, demolition, agricultural activities, and motor vehicles. Wood burning in fireplaces and stoves is another large source of fine particulates. Some PM, such as pollen, is naturally occurring. The USEPA currently regulates two types of PM emissions: PM₁₀ and PM_{2.5}. PM₁₀ is also referred to as respirable particulate matter. PM_{2.5} is also referred to as fine particulate matter. PM₁₀ is of concern because it bypasses the body's natural filtration system more easily than larger particles and can lodge deep into the lungs. PM₁₀ can be emitted directly or formed in the atmosphere through complex chemical reactions from precursor pollutants such as NO_x, oxides of sulfur (SO_x), ROGs, and ammonia. PM_{2.5} poses an increased health risk relative to PM₁₀ because the particles are smaller and can deposit more deeply in the lungs, and they contain substances that are particularly harmful to human health. Exposure to PM can increase the risk of chronic respiratory disease, nonfatal heart attacks, irregular heartbeat, aggravated asthma, and decreased lung function.

TOXIC AIR CONTAMINANTS

TACs, also known under the federal programs as hazardous air pollutants (HAPs), are pollutants that result in an increase in mortality, a serious illness, or pose a present or potential hazard to human health. Health effects of TACs may include cancer, birth defects, and immune system and neurological damage. In general, air toxics that may cause cancer have no threshold concentration below which risks do not occur. However, standards for carcinogenic air toxics are established to reflect increased risks of one-in-one million to one-

in-10,000, which are the values identified as de minimis by regulatory agencies. Both the USEPA's and CARB's regulation of HAPs and TACs typically reflect the de minimis risk levels noted above, while also generally requiring the use of either the maximum available control technology or best available control technology (BACT) to limit emissions. California regulates TACs primarily through the Tanner Air Toxics Act (AB 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588). BAAQMD has regulated TACs since the 1980s. At the local level, air pollution control or management districts may adopt and enforce CARB's control measures. Under BAAQMD Regulation 2-1 (General Permit Requirements), Regulation 2-2 (New Source Review), and Regulation 2-5 (New Source Review), all nonexempt sources that possess the potential to emit TACs are required to obtain permits from BAAQMD.

A human health risk assessment (HHRA) was conducted to assess incremental changes to health impacts for people exposed to TACs during construction and operation of the Proposed Project. The HHRA is included in **Appendix E**.

EMISSION SOURCES

As discussed above, emissions of CO, NO_x, ROGs, SO₂, PM₁₀, and PM_{2.5} are primarily emitted through the combustion of fuel by mobile sources and from industrial facilities. The analysis evaluated the following emissions sources that are expected to be associated with the Proposed Project:

- **Aircraft Engines:** Aircraft engines typically represent the largest category of on-airport sources of emissions, which occur during takeoff, landing, taxiing, and idling on taxiways and aircraft apron areas.
- **Auxiliary Power Units (APUs):** APUs are small aircraft engines, incorporated into an aircraft's airframe and fueled by jet fuel, which are used while aircraft are on the ground. APUs can be used to provide electricity and heated or cooled air while passengers are enplaning or deplaning, during cargo operations, cleaning, and minor maintenance.
- **Ground Support Equipment (GSE):** GSE is categorized as off-road equipment and encompasses all equipment that is needed to service aircraft during ground operations and primarily includes baggage tractors and belt loaders. Additional GSE-types include catering trucks, pushback tractors, lavatory trucks, potable water trucks, airline support staff vehicles, portable ground power units, and fueling trucks.
- **Ground Access Vehicles (GAVs):** GAVs include licensed and private vehicles that use the roadways and parking lots around the Airport, including Port-owned and commercially operated buses and vans, and private vehicles on trips to and from the Airport. Parking facility emissions refer to emissions from vehicles in associated parking facilities.
- **Stationary Sources:** Stationary Sources include emissions associated with Port-owned natural gas boilers and emergency diesel generators.

3.3.2 Environmental Conditions / Environmental Setting

The Proposed Project is located in Alameda County and is within the boundaries of the SFBAAB. The major determinants of air pollution transport and dilution are climatic and

topographic factors such as wind, atmospheric stability, terrain that influences air movement, and sunshine. Climate and meteorological conditions such as wind speed, wind direction, and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersal of air pollutants. Wind and terrain can combine to disperse pollutants away from upwind areas, while sunlight and chemicals in the atmosphere can chemically transform pollutants in the air to create secondary photochemical pollutants such as O₃.

Oakland is within a climatological subregion that stretches from Richmond to San Leandro. The western boundary of this subregion is defined by San Francisco Bay and the eastern boundary by the Oakland-Berkeley Hills.²⁰ In this subregion, marine air traveling through the Golden Gate, as well as across San Francisco and the San Bruno Gap (a gap in the Coastal Range between the ocean and the San Francisco International Airport), is a dominant weather factor. Average wind speeds vary from season to season with the strongest average winds occurring during summer and the lightest average winds during winter. Average summer temperatures in Oakland reach a low of approximately 60 degrees Fahrenheit and a high of approximately 70 degrees Fahrenheit, while winter temperatures average at a low of approximately 45 degrees Fahrenheit and a high of approximately 60 degrees Fahrenheit. Rainfall is highly variable and confined almost exclusively to the "Wet Season" period from early November to mid-April. Oakland averages 24 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.

3.3.2.1 Local Air Quality Standards and Attainment Status

The USEPA and CARB have established health-based ambient air quality standards (NAAQS and CAAQS, respectively) for different pollutants. **Table 3.3-3** presents the attainment status of the SFBAAB compared to state and federal air quality standards. As the table shows, the area is designated nonattainment with the California standards for PM₁₀, PM_{2.5} and O₃; in nonattainment with the national standards for PM_{2.5} and O₃; and attainment for the remaining criteria pollutants.

TABLE 3.3-3
ATTAINMENT STATUS COMPARED TO STATE AND FEDERAL AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	California Standards^{/1}		National Standards^{/2}		
		Concentration	Attainment Status	Primary^{/3}	Secondary	Attainment Status
Ozone (O ₃)	8 Hour	0.070 ppm	N ^{/9}	0.070 ppm	Same as Primary Standard	N ^{/4}
	1 Hour	0.09 ppm	N	—	—	See Note #5
	8 Hour	9.0 ppm	A	9 ppm	—	A ^{/6}

²⁰ City of Oakland. (2023). *High Qulaity of Life - Climate*. Retrieved May 2023, from City of Oakland: <https://www.oaklandca.gov/topics/high-quality-of-life#:~:text=The%20Mediterranean%20climate%20in%20Oakland,the%20seventies%20during%20the%20summer>

Pollutant	Averaging Time	California Standards ^{/1/}		National Standards ^{/2/}		
		Concentration	Attainment Status	Primary ^{/3/}	Secondary	Attainment Status
Carbon Monoxide (CO)	1 Hour	20 ppm	A	35 ppm	—	A
Nitrogen Dioxide (NO ₂)	1 Hour	0.18 ppm	A	0.100 ppm ^{/11/}	—	See Note #11
	Annual Arithmetic Mean	0.030 ppm	A	0.053 ppm	Same as Primary Standard	A
Sulfur Dioxide (SO ₂) ^{/12/}	1 Hour	0.25 ppm	A	0.075 ppm	—	See Note #12
	3 Hour	—	—	—	0.5 ppm	A
	24 Hour	0.04 ppm	A	0.14 ppm	—	See Note #12
	Annual Arithmetic Mean	—	—	0.030 ppm	—	See Note #12
Particulate Matter (PM ₁₀)	Annual Arithmetic Mean	20 µg/m ³	N ^{/7/}	—	—	—
	24 Hour	50 µg/m ³	N	150 µg/m ³	Same as Primary Standard	A
Particulate Matter – Fine (PM _{2.5})	Annual Arithmetic Mean	12 µg/m ³	N ⁷	12 µg/m ³ ^{/15/}	15 µg/m ³	U/A
	24 Hour	—	—	35 µg/m ³ ^{/10/}	Same as Primary Standard	N
Lead ^{/13/}	30-day Average	1.5 µg/m ³	—	—	—	A
	Calendar Quarter	—	—	1.5 µg/m ³	—	A
	Rolling 3 Month	—	—	0.15 µg/m ³	Same as Primary Standard	See Note #14
Sulfates	24 Hour	25 µg/m ³	A	No National Standards		
Hydrogen Sulfide	1 Hour	0.03 ppm	U			
Vinyl Chloride (chloroethylene)	24 Hour	0.010 ppm	No information available			
Visibility Reducing particles	8 Hour (10:00 to 18:00 PST)	See Note #8	U			

A=Attainment N=Nonattainment U=Unclassified

mg/m ³ =milligrams per cubic meter	ppm=parts per million	µg/m ³ =micrograms per cubic meter
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NOTES:

1. California standards for O₃, carbon monoxide (except Lake Tahoe), sulfur dioxide (1-hour and 24-hour), nitrogen dioxide, suspended particulate matter – PM₁₀, and visibility reducing particles are values that are not to be exceeded. The standards for sulfates, Lake Tahoe carbon monoxide, lead, hydrogen sulfide, and vinyl chloride are not to be equaled or exceeded. If the standard is for a 1-hour, 8-hour or 24-hour average (i.e., all standards except for lead and the PM₁₀ annual standard), then some measurements may be excluded, e.g., measurements are excluded that CARB determines would occur less than once per year on the average.
2. National standards shown are the “primary standards” designed to protect public health. National standards other than for O₃, particulates and those based on annual averages are not to be exceeded more than once a year. The 1-hour O₃ standard is attained if, during the most recent three-year period, the average number of days per year with maximum hourly concentrations above the standard is equal to or less than one. The 8-hour O₃ standard is attained when the 3-year average of the 4th highest daily concentrations is 0.070 ppm (70 ppb) or less. The 24-hour PM₁₀ standard is attained when the 3-year average of the 99th percentile of monitored concentrations is less than 150 µg/m³. The 24-hour PM_{2.5} standard is attained when the 3-year average of 98th percentiles is less than 35 µg/m³.

Except for the national particulate standards, annual standards are met if the annual average falls below the standard at every site. The national annual particulate standard for PM₁₀ is met if the 3-year average falls below the standard at every site. The annual PM_{2.5} standard is met if the 3-year average of annual averages spatially averaged across officially designated clusters of sites falls below the standard.

3. National air quality standards are set by USEPA at levels determined to be protective of public health with an adequate margin of safety.
4. On October 1, 2015, the national 8-hour O₃ primary and secondary standards were lowered from 0.075 to 0.070 ppm. An area will meet the standard if the fourth-highest maximum daily 8-hour O₃ concentration per year, averaged over three years, is equal to or less than 0.070 ppm. USEPA will make recommendations on attainment designations by October 1, 2016, and issue final designations October 1, 2017. Nonattainment areas will have until 2020 to late 2037 to meet the health standard, with attainment dates varying based on the O₃ level in the area.
5. The national 1-hour O₃ standard was revoked by USEPA on June 15, 2005.
6. In April 1998, the Bay Area was redesignated to attainment for the national 8-hour carbon monoxide standard.
7. In June 2002, CARB established new annual standards for PM_{2.5} and PM₁₀.
8. Statewide VRP 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.
9. The 8-hour CA O₃ standard was approved by CARB on April 28, 2005, and became effective on May 17, 2006.
10. On January 9, 2013, USEPA issued a final rule to determine that the Bay Area attains the 24-hour PM_{2.5} national standard. This USEPA rule suspends key SIP requirements as long as monitoring data continues to show that the Bay Area attains the standard. Despite this USEPA action, the Bay Area will continue to be designated as “non-attainment” for the national 24-hour PM_{2.5} standard until such time as BAAQMD submits a “redesignation request” and a “maintenance plan” to USEPA, and USEPA approves the proposed redesignation.

11. To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 0.100ppm (effective January 22, 2010).
12. On June 2, 2010, the USEPA established a new 1-hour SO₂ standard, effective August 23, 2010, which is based on the 3-year average of the annual 99th percentile of 1-hour daily maximum concentrations. The existing 0.030 ppm annual and 0.14 ppm 24-hour SO₂ NAAQS however must continue to be used until one year following USEPA initial designations of the new 1-hour SO₂ NAAQS. USEPA expects to make designation for the Bay Area by the end of 2017.
13. CARB has identified lead and vinyl chloride as ‘toxic air contaminants’ with no threshold level of exposure below which there are no adverse health effects determined.
14. National lead standard, rolling 3-month average: final rule signed October 15, 2008. Final designations effective December 31, 2011.
15. In December 2012, USEPA strengthened the annual PM_{2.5} NAAQS from 15.0 to 12.0 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$). In December 2014, USEPA issued final area designations for the 2012 primary annual PM_{2.5} NAAQS. Areas designated “unclassifiable/attainment” must continue to take steps to prevent their air quality from deteriorating to unhealthy levels. The effective date of this standard is April 15, 2015.

Source: BAAQMD Air Quality Guidelines,²¹ USEPA NAAQS Table,²² HMMH, January 2023

3.3.2.2 Regional Ambient Air Quality

BAAQMD operates a regional monitoring network that measures the ambient concentrations of the six criteria air pollutants. Existing levels of air quality in Oakland can generally be inferred from historical ambient air quality data based on measurements conducted by BAAQMD at its nearby monitoring stations. The monitoring station closest to the Proposed Project is the Oakland East station, located approximately three miles northeast of the Airport. Other nearby monitoring stations are the Oakland West station located to the north of the Airport, the Laney College station, and the San Francisco station. The Oakland East station is located 3.2 miles east of OAK and measures O₃, NO₂, CO, and PM_{2.5}.²³ The Laney College station is located 5.6 miles north of OAK and measures PM_{2.5}, NO_x, and CO. The Oakland West station is located 7.3 miles northwest of OAK and measures SO₂. The San Francisco station located 10.24 miles from OAK across San Francisco Bay to the northwest of the Airport measures PM₁₀. **Figure 3.3-1** shows the nearby BAAQMD Oakland East, Oakland West, and San Francisco BAAQMD air quality monitor stations relative to OAK.

As discussed above, the general study area is designated non-attainment for O₃ and PM₁₀ with respect to state and national standards, and PM_{2.5} with respect to state standards.

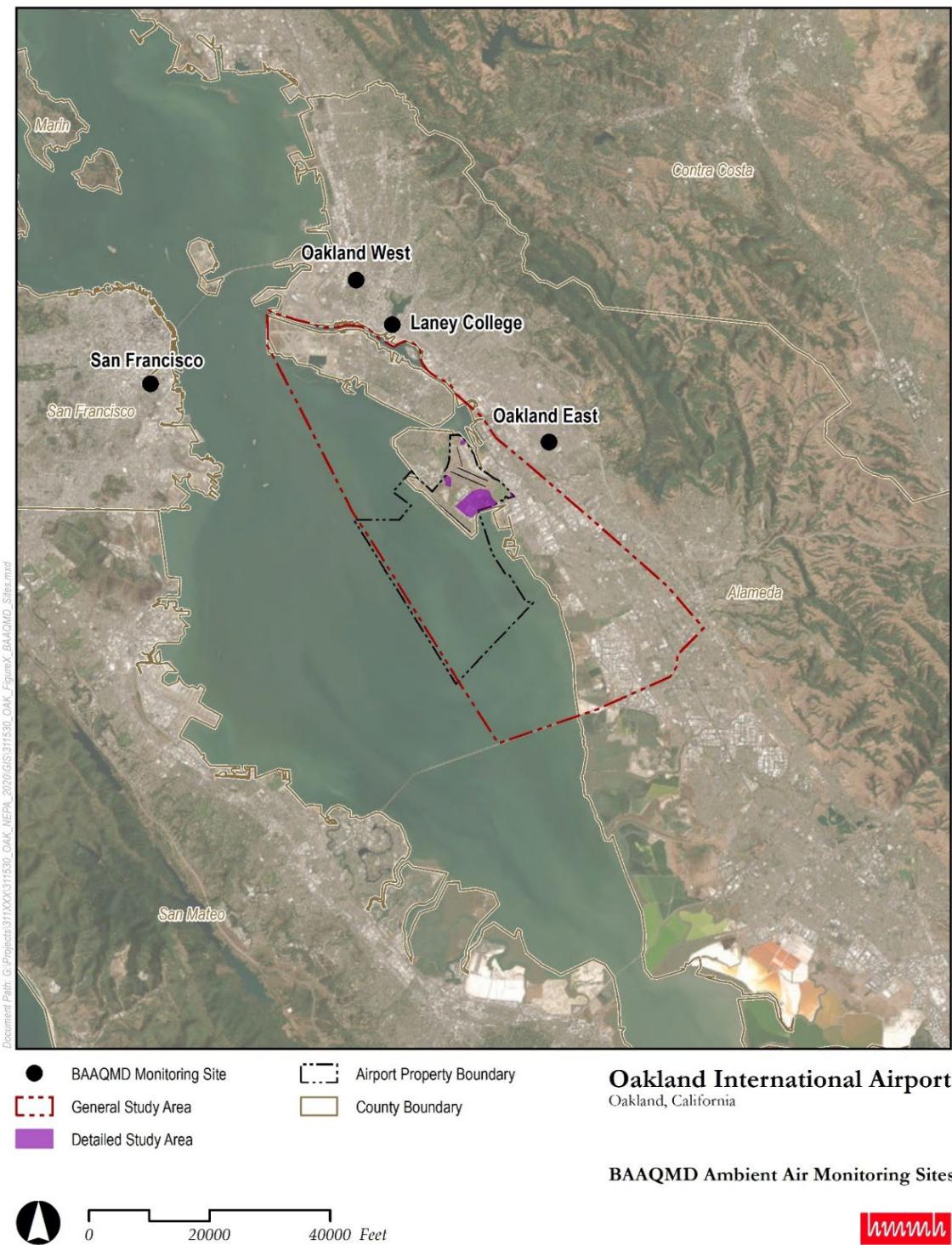
Table 3.3-4 shows a ten-year summary of monitoring data (2010 through 2019) of days over current state and national standards for all criteria pollutants including O₃, PM₁₀, and

²¹ Bay Area Air Quality Management District (BAAQMD). (2023). *Air Quality Standards and Attainment Status*. Retrieved January 2023, from: <https://www.baaqmd.gov/about-air-quality/research-and-data/air-quality-standards-and-attainment-status#twelve>.

²² United States Environmental Protection Agency (USEPA). (2023). *NAAQS Table*. Retrieved January 2023, from: <https://www.epa.gov/criteria-air-pollutants/naaqs-table#1>.

²³ Bay Area Air Qualiy Management District (BAAQMD). (2021). *Interactive Data Maps*. Retrieved July 2021, from: <https://www.baaqmd.gov/about-air-quality/interactive-data-maps>.

FIGURE 3.3-1
NEARBY BAAQMD MONITORING SITES RELATIVE TO OAKLAND INTERNATIONAL AIRPORT



Source: HMMH March 2023

TABLE 3.3-4
TEN-YEAR BAY AREA AIR QUALITY SUMMARY DAYS OVER CURRENT STANDARDS AT ALL BAAQMD MONITOR LOCATIONS

Year	National						California							
	O ₃	CO		NO ₂	SO ₂	PM ₁₀	PM _{2.5}	O ₃		CO		NO ₂	SO ₂	PM ₁₀
	8-hr	1-hr	8-hr	1-hr	1-hr	24-hr	24-hr	1-hr	8-hr	1-hr	8-hr	1-hr	24-hr	24-hr
2010	11	0	0	0	0	0	6	8	11	0	0	0	0	2
2011	9	0	0	0	0	0	8	5	10	0	0	0	0	3
2012	8	0	0	1	0	0	3	3	8	0	0	0	0	2
2013	3	0	0	0	0	0	13	3	3	0	0	0	0	6
2014	9	0	0	0	0	0	3	3	10	0	0	0	0	2
2015	12	0	0	0	0	0	9	7	12	0	0	0	0	1
2016	15	0	0	0	0	0	0	6	15	0	0	0	0	0
2017	6	0	0	1	0	0	18	6	6	0	0	0	0	6
2018	3	0	0	0	0	1	18	2	3	0	0	0	0	6
2019	9	0	0	0	0	0	1	6	9	0	0	0	0	5

This table shows exceedance days for all monitors within the Bay Area, including the North Counties, Coast and Central Bay, Eastern District, South Central Bay, Santa Clara Valley, and Bethel Island. **Table 3.3-5** shows exceedance days for monitors near the project site (i.e., the Coast and Central Bay area).

O₃: Ozone

CO: Carbon Monoxide

NO₂: Nitrogen Dioxide

SO₂: Sulfur Dioxide

PM₁₀: Particulate Matter with an aerodynamic diameter of 10 microns

PM_{2.5}: Particulate Matter with an aerodynamic diameter of 2.5 microns

Source: BAAQMD, "Bay Area Air Pollution Summary-2019"²⁴; HMMH, January 2023

PM_{2.5} from all monitors within the Bay Area, including the North Counties, Coast and Central Bay Area, Eastern District, South Central Bay, and Santa Clara Valley regions.

Table 3.3-5 shows a summary of the available monitoring data for the existing conditions year (2019) for each of the criteria pollutants from nearby BAAQMD monitoring stations in the Coast and Central Bay region that were selected to be representative of the general study area. It should be noted that since the Oakland East monitoring site does not measure PM₁₀ or SO₂, measurement data for these two pollutants were obtained from the nearby San Francisco and Oakland West monitoring stations, respectively. Given the distance from the detailed study area, the measurements at the Oakland East, Oakland West, Laney College, and San Francisco monitoring locations are the closest and most representative monitoring stations where data are available and were used to represent the regional air quality for the general study area. The summary in **Table 3.3-5** shows that in general, 2019 monitored data at these locations are below the NAAQS for most pollutants, except O₃ and PM_{2.5}. There were two days where O₃ was above the state and national 8-

²⁴ Bay Area Air Quality Management District (BAAQMD). (2023). *Bay Area Air Pollution Summary - 2019*. Retrieved January 2023, from: <https://www.baagmd.gov/~/media/files/communications-and-outreach/annual-bay-area-air-quality-summaries/pollsum2019-pdf.pdf>.

TABLE 3.3-5
2019 BAY AREA MONITORING DATA SUMMARY FOR NEARBY PROJECT-AREA MONITORS

Ozone (O₃) Measured at Oakland East	Max. 1-hour Concentration (ppb)	98
	Days over State 1-hour Standard (90 ppb)	1
	Max. 8-hour Concentration (ppb)	73
	Days over National 8-hour Standard (70 ppb)	2
	Days over State 8-hour Standard (70 ppb)	2
	Design Value/ ^{a/} (8-hour period)	49
Carbon Monoxide (CO) Measured at Oakland East	Max. 1-hour Concentration (ppm)	3.3
	Days over National 1-hour Standard (35 ppm)	0
	Days over State 1-hour Standard (20 ppm)	0
	Max. 8-hour Concentration (ppm)	1.1
	Days over National 8-hour Standard (9 ppm)	0
	Days over State 8-hour Standard (9 ppm)	0
Nitrogen Dioxide (NO₂) Measured at Oakland East	Max. 1-hour Concentration (ppb)	62
	Annual Average (ppb)	9
	Days over National 1-hour Standard (100 ppb)	0
	Days over State 1-hour Standard (180 ppb)	0
Sulfur Dioxide (SO₂) Measured at Oakland West	Max. 1-hour Concentration (ppb)	19
	Max. 24-hour Concentration (ppb)	2.7
	Days over National 1-hour Standard (75 ppb)	0
	Days over State 24-hour Standard (40 ppb)	0
Respirable Particulate Matter (PM₁₀) Measured at San Francisco	Max. 24-hour Concentration (µg/m ³)	42
	Annual Average (µg/m ³)	14.7
	Days over National 24-hour Standard (150 µg/m ³)	0
	Days over State 24-hour Standard (50 µg/m ³)	0
Fine Particulate Matter (PM_{2.5}) Measured at Oakland East	Max. 24-hour Concentration (µg/m ³)	24.7
	Days over National 24-hour standard (35 µg/m ³)	0
	Design Value/ ^{b/} (24-hour period) (µg/m ³)	44 ^{d/}
	Annual Average (µg/m ³)	6.7
	Design Value/ ^{c/} (annual) (µg/m ³)	9.3

This table shows exceedance days for monitors nearest to the project site in the Coast and Central Bay Area.

/a/ The O₃ design value is the 3-year average of the fourth highest 8-hour average O₃ concentrations

/b/ The design value for 24-hour PM_{2.5} is the 3-year average of the annual 98th percentiles of the individual 24-hour concentrations of PM_{2.5}.

/c/ The design value for annual PM_{2.5} is the 3-year average of the quarterly averages of PM_{2.5}.

/d/ This value is driven by exceptional wildfire activity. Without smoke impacts, the 3-year design value would be 20 µg/m³ for PM_{2.5} at the Oakland East monitor²⁵

Source: BAAQMD, "Bay Area Air Pollution Summary-2019,"²⁶ HMMH, January 2023

hour standard of 70 ppb, and one day where O₃ values were above the state 1-hour standard of 90 ppb. Despite these exceedances, there was no violation of the O₃ standard since the 3-year average of the fourth-highest 8-hour average was 49 ppb, which is well below the 70-ppb standard. No other pollutant had any days which exceeded state or

²⁵ Bay Area Air Quality Management District (BAAQMD). (2020, October). *Preliminary Analysis of PM2.5 Values With and Without Wildfire Smoke Episodes in 2017 and 2018*. Retrieved January 2023, from: https://www.baaqmd.gov/~/media/files/technical-services/pm-2-5-design-values-re-wildfires/wildfire_pm_impacts_20201006-pdf.pdf?la=en.

²⁶ Bay Area Air Quality Management District (BAAQMD). (2023). *Bay Area Air Pollution Summary - 2019*. Retrieved January 2023, from: <https://www.baaqmd.gov/~/media/files/communications-and-outreach/annual-bay-area-air-quality-summaries/pollsum2019-pdf.pdf>.

national standards. Although the PM_{2.5} 24-hour design value for 2019 was above the 35 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) threshold, this value resulted from exceptional wildfire activity in November of 2018 and is an outlier and should not be considered representative of typical air quality in the Bay Area.²⁷

3.3.2.3 Existing Emissions Associated with the Airport Proposed Project

This section summarizes the emissions of criteria and precursor air pollutants for existing conditions (2019).

EMISSIONS ESTIMATING METHODOLOGY

Emissions from construction and operational sources are estimated differently, as described in the following sections. Additional information regarding technical assumptions, methodologies, databases, and models used to conduct the air quality impact analysis and to develop the emission inventory is documented in more detail in the Air Quality Protocol (Protocol), included in **Appendix F**. The Protocol was developed in coordination with BAAQMD to identify data collection and analysis needs, and to document the analysis assumptions and methodology for conducting the air quality assessment.

The air quality assessment was conducted in accordance with FAA guidelines for assessing environmental impacts²⁸ and BAAQMD 2017 CEQA Guidelines.²⁹

The primary emission models used to develop criteria air pollutant inventories for existing conditions (2019) include:

- FAA's Aviation Environmental Design Tool (AEDT), Version 3e, for aircraft engine and APU emissions was used as it was the most current version when the analysis began and is consistent with the noise analysis.
- CARB's OFFROAD2017 model for GSE and construction equipment engine exhaust emissions.
- CARB's EMFAC2021 (v1.0.2 or later), model for on-road motor vehicles engine exhaust, tire wear, brake wear, and evaporative emission, including on-road paved dust.
- USEPA's AP-42 Compilation of Air Pollutant Emission Factors for estimating PM₁₀/PM_{2.5} fugitive dust Chapter 13 and referenced in FAA Aviation Emissions and Air Quality Handbook Section A6.2.4.
- California Air Pollution Control Officers Association's (CAPCOA's) California Emissions Estimator Model (Caleemod), Version 2022.1 for supplementing input data used in

²⁷ Bay Area Air Quality Management District (BAAQMD). (2020, October). *Preliminary Analysis of PM_{2.5} Values With and Without Wildfire Smoke Episodes in 2017 and 2018*. Retrieved January 2023, from: https://www.baaqmd.gov/~/media/files/technical-services/pm-2-5-design-values-re-wildfires/wildfire_pm_impacts_20201006-pdf.pdf?la=en.

²⁸ Federal Aviation Administration (FAA). (2022, March). *Aviation Emissions and Air Quality Handbook*. Retrieved from: https://www.faa.gov/regulations_policies/policy_guidance/envir_policy/airquality_handbook.

²⁹ Bay Area Air Quality Management District (BAAQMD). (2023, April). *CEQA Thresholds and Guidelines Update*. Retrieved from: <https://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines>.

the emissions models for such parameters as default trip lengths for construction haul trips, haul truck capacities, concrete truck capacities, and truck travel speeds.

- Airport Cooperative Research Board's (ACRP) Airport Construction Emissions Inventory Tool (ACEIT).³⁰ Used to generate construction schedules only for airport specific sources which are not included in the CalEEMod. California emission factors were applied to ACEIT construction schedules for estimating annual emissions.

These emission models and programs were supplemented with emission factors and emission estimates from BAAQMD emission factors and applicable limits and/or the CalEEMod program for miscellaneous area and stationary sources that are found to be Proposed Project-related. Existing conditions construction modeling input and output and spreadsheet calculations are presented in **Appendix F**.

3.3.2.4 2019 Airport Emissions

Aircraft operations were derived from the 2019-2038 Comprehensive Aviation Activity Forecast Report prepared by InterVISTAS Consulting, Inc., and Landrum & Brown, Inc., dated July 28, 2020, and updated in June 2021.

Existing conditions emissions from the Airport were estimated for 2019 for the following activities:

- Aircraft
- Auxiliary Power Units
- Ground Service Equipment
- Ground Access Vehicles; and
- Stationary Sources

A description of the assumptions and methodology for estimating Airport emissions are discussed in **Section 3.3.1.3** and below.

AIRCRAFT ENGINES

Aircraft engine emissions were estimated using FAA's AEDT (Version 3e). Aircraft emissions are primarily dependent on:

- Aircraft airframe and engine combinations, including number of engines for each airframe;
- Aircraft engine emissions for each operational mode;
- Number of operations by each airframe/engine combination for a given scenario (scenario fleet mix); and
- Time spent in each operational mode (approach, landing, taxi-in, taxi-out, takeoff, climb out) for each aircraft/engine combination.

In AEDT, the operating modes are defined differently than in previous airport air quality models. The modes of interest for air quality impacts include:

- Startup (only used to determine VOC emissions for initial 60 seconds of engine on time)
- Taxi Out

³⁰ Airport Cooperative Research Program (ACRP). (2014). *ACRP Report 102: Guidance for Estimating Airport Construction Emissions*. Transportation Research Board (TRB).

- Climb Below Mixing Height³¹
- Descend Below Mixing Height
- Taxi in

AIRFRAME/ENGINE TYPES AND NUMBER OF OPERATIONS

The aircraft flight tracks were based on 2019 data from the Port's Airport Noise and Operations Monitoring System (ANOMS) database. Aircraft operations, fleet mix and engine type for the existing conditions and future years conditions were derived from the 2019-2038 Comprehensive Aviation Activity Forecast Report prepared by InterVISTAS Consulting, Inc., and Landrum & Brown, Inc., dated July 28, 2020, and updated in June 2021.

TIME IN MODE

The time aircraft spend ascending to and descending from the cruise height were estimated by AEDT using flight tracks based on the Port's ANOMS data. The time spent taxiing between the gates and runways for the existing conditions was established using 2019 operations data provided by the Port. The time spent taxiing in future years was established through aircraft movement modeling accounting for modifications and/or ground delays in a future with and without the project. The takeoff/climb out and approach time-in-mode was based on an annual average mixing height, assumed to be 3,000 feet, per the AEDT default value. The mixing height is the top atmosphere in which pollutant mixing occurs and affects ground level concentrations. Above this height, pollutants that are released generally do not mix with ground level emissions and do not have an effect on ground level concentrations of air pollutants in the area.³²

AIRCRAFT ENGINE EMISSION FACTORS

The aircraft engine emission factors are included in the AEDT and are based on the most recent version of the International Civil Aviation Organization (ICAO) Engine Emissions Databank. Therefore, through AEDT, the ICAO emission factors were used to estimate emissions from aircraft engines.

AUXILIARY POWER UNITS

APUs are small utility engines incorporated into the airframe of an aircraft that operate on jet fuel and are used to provide power for lights and navigational equipment and heated/cooled air to the passenger areas of the aircraft while it is parked on the ground. To avoid emissions and fuel burn from APUs many airports, including OAK, provide electric substitutes at passenger boarding bridges, with 400 hertz (Hz) ground power converter units (converter units) supplying power to the aircraft and preconditioned air (PCA) units providing heated/cooled air to the aircraft (together referred to as "gate electrification equipment").

Emissions of criteria pollutants and GHGs from APUs were estimated using the FAA's recommended APU time for each aircraft operation being modeled.

³¹ Mixing height is approximately 3,000 feet above field elevation (AFE).

³² Federal Aviation Administration (FAA). (2023). *Guidance on Using the Aviation Environmental Design Tool (AEDT) to Conduct Environmental Modelling for FAA Actions Subject to NEPA*. Retrieved May 2023, from: https://a edt.faa.gov/Documents/guidance_aedt_nepa.pdf.

FAA recommends modeling APU time as 7 minutes per aircraft ground operation, or 3.5 minutes per arrival and 3.5 minutes per departure³³ wherever gate electrification equipment is being utilized (i.e., if gate electrification equipment is available, APU emissions still occur, but only briefly before or after the electrified equipment is connected or disconnected). Aircraft ground operations that take place where gate electrification equipment is not available will be modeled using AEDT's 26-minute default APU time, or 13 minutes per arrival and 13 minutes per departure. For this analysis, "not available" refers to operations that do not take place at passenger jet bridges, such as cargo and unscheduled general aviation flights.

GROUND SUPPORT EQUIPMENT

GSE at airports include baggage tractors, belt loaders, aircraft pushback tractors, catering trucks, lavatory trucks, and other off-road equipment that support the servicing of aircraft while they are on the ground being loaded with passengers and cargo.

GSE emissions were estimated using emission factors from CARB's OFFROAD2017 model for 2019. GSE population, approximate age, and fuel type, were provided by the Port from their 2019 GSE fleet inventory. Activity data (i.e., number of units and hours per unit), load factor, and horsepower were extracted from the default values in AEDT for 2019 and modeled using OFFROAD.

GROUND ACCESS VEHICLES

GAVs include on-road vehicle activity associated with passengers, air cargo, tenant operations, and Port and tenant employees' travel to and from the Airport. The existing vehicle traffic data were obtained from the traffic analysis prepared for the Draft EIR to determine existing vehicle trips and vehicle miles traveled (VMT). The EMFAC model was used to estimate criteria and precursor pollutant emission factors for 2019 vehicle traffic. Emissions were estimated for both daily and annual periods. The mileage used for estimating emissions was based on the VMT obtained from the traffic analysis prepared for this Draft EIR (**Appendix N**). To estimate GAV emissions for the existing conditions (2019) at OAK, the EMFAC model was used (assuming inputs consistent for the San Francisco Bay Area air basin including vehicle categories, vehicle speeds, and fleet mix) to develop emission factors (gram/mile) and multiplied by the VMT to obtain emissions for each pollutant.

STATIONARY SOURCES

Stationary combustion source emissions were estimated from the heating and emergency backup generators from Terminal 1 and Terminal 2 based on the 2019 BAAQMD emission report. Where data were not available, BAAQMD emission limits and applicable emission factors data were used. Boilers and generator emissions assigned to Terminal 2 were estimated based on the 2019 BAAQMD emission report which included daily emissions. Stationary sources attributed to Terminal 2 consist of emergency generators of various sizes, above ground storage tanks and two natural gas boilers, each rated at 250 boiler

³³ Federal Aviation Administration (FAA). (2015, January). A2.3 Computing APU Emissions with EDMS/AEDT. In *Aviation Emissions and Air Quality Handbook Version 3 Update 1*. Retrieved April 2023, from:
https://www.faa.gov/regulations_policies/policy_guidance/envir_policy/airquality_handbook.

horsepower (BHP). It should be noted that these two boilers were replaced in 2022 with five new natural gas boilers, each rated at 2.0 million British thermal units per hour (MMBtu/hr), which is accounted for in the future years 2028 and 2038 operations inventory as described later in **Section 3.3.3.2**.

For Terminal 1, there were four natural gas boilers, each rated at 3 MMBtu/hr. Unlike Terminal 2 boiler data, 2019 BAAQMD emissions data were not available for these units, therefore conservative assumptions were used to estimate emissions from these boilers. Hours of operation for these boilers were unknown, therefore, emissions for these boilers assumed a worst-case scenario of 8,760 hours (or 24 hours per day every day for a year) of operation as a conservative assumption. Pollutant-specific emission factors for these boilers are also unknown, and no emissions factors (i.e., pounds per million British thermal units [lbs/MMBTu] or pounds per Therms) are cited in BAAQMD's regulations. BAAQMD regulations only provide emission limits for NOx (30 ppm) and CO (400 ppm). The Massachusetts Department of Environmental Protection (MassDEP) Boiler Environmental Certification Workbook does have emission factors for boilers less than 10 MMBtu. These factors were used to estimate criteria pollutant emissions (lbs/MMBTu) for these boilers. The emission factors from the MassDEP workbook are at or below BAAQMD emission limits for NOx (30 ppm) and CO (400 ppm) for boilers of this size and applicable for use in estimating emissions from Terminal 1 boilers.

The existing conditions aircraft, GSE, GAV, and stationary source criteria and precursor emissions for the Airport are presented in **Table 3.3-6** in tons per year and average pounds per day.

TABLE 3.3-6
2019 AIRCRAFT, GROUND SERVICE EQUIPMENT, GROUND ACCESS VEHICLES, AND STATIONARY SOURCE EMISSIONS (TONS PER YEAR)

	CO	ROG	NO_x	SO₂	PM₁₀	PM_{2.5}
Aircraft Emissions below Mixing Level^{/a/}	1,092.0	123.0	772.0	66.0	8.1	8.0
Ground Service Equipment	451.0	8.2	52.9	0.09	1.6	1.4
Ground Access Vehicles	553.61	29.04	55.31	1.06	0.72	0.67
Stationary Sources	4.4	1.8	2.6	0.53	0.55	0.55
Total (tons/year)	2,101.0	162.1	882.8	67.7	11.0	10.6
Total (Average lbs/day)	11,512.6	888.1	4,837.2	370.9	60.1	58.2

NO_x: Nitrogen Oxides

ROG: Reactive Organic Gases

CO: Carbon Monoxide

SO₂: Sulfur Dioxide

PM₁₀: Particulate Matter with an aerodynamic diameter of 10 microns

PM_{2.5}: Particulate Matter with an aerodynamic diameter of 2.5 microns

lbs: pounds

/a/ AEDT aircraft emissions consist of Startup, Taxi Out, Climb from ground up to Mixing Height, Descent from Mixing Height to ground, Taxi In, an APU. GSE emissions were estimated separately using CARB's OFFROAD2017 emission factors.

Source: HMMH, January 2023

3.3.3 Environmental Impacts and Mitigation Measures

3.3.3.1 Construction Emissions

Construction emissions come from on- and off-road equipment used in construction activities during the year(s) leading up to full operation of the Proposed Project.

Construction emissions include those from (1) off-road construction equipment, such as dozers and pavers; and (2) on-road vehicles, such as worker trips, supply deliveries, and equipment hauling (such as but not limited to soil removal, demolitions materials, etc.).

Construction activities are estimated to take place over five years, with the project components scheduled in six stages. Construction emissions modeling input and output and spreadsheet calculations are presented in **Appendix F**.

CONSTRUCTION SCHEDULE

Based on an anticipated construction schedule, equipment inventory and activity information were derived using CalEEMod, which includes a database of equipment and activity levels, by project category, for off-road equipment typically used on projects in California. Additional assumptions regarding the equipment inventory, such as model year, speed, fuel type, and VMT were deduced from the construction schedule using CalEEMod.

For aviation-specific projects that have no similar project types in CalEEMod, the Airport Cooperative Research Board's (ACRP) Airport Construction Emissions Inventory Tool (ACEIT)³⁴ was used to generate a construction schedule of activity. The model is able to generate assumed construction schedules for a variety of standard airport construction projects including the associated activity and the equipment used for the Proposed Project. The ACEIT model was only used to generate construction schedules, equipment type, and activity data (i.e., horsepower, hours or miles of use) for airside projects. Once the construction schedules and equipment type were generated in ACEIT, CalEEMod was used for emission factors and to generate final emission totals.

For each project component, average daily emissions that would occur throughout the entire construction period were calculated based on the number of workdays for that period and added to emissions from other project components that are anticipated to overlap in the construction schedule.

The number of construction workdays was developed in CalEEMod and ACEIT when generating the construction schedule, depending on the type of construction activity.

Table 3.3-7 presents the project components of the Proposed Project, including anticipated year of construction (start and end time periods), which were entered into CalEEMod to generate emission factors and emissions for construction activity. Similarly, aviation specific project information from **Table 3.3-7** was also used to generate construction schedules for aviation specific activities in ACEIT which were then entered into CalEEMod to generate emissions. The dates and the sizes of the project components included in **Table 3.3-7** are estimates only and were created for the purpose of analysis. The stages in **Table 3.3-7** directly reference the construction schedule in **Chapter 2**.

³⁴ Airport Cooperative Research Program (ACRP). (2014). *ACRP Report 102: Guidance for Estimating Airport Construction Emissions*. Transportation Research Board (TRB).

EMISSION FACTORS

As discussed above, CalEEMod was used to estimate off-road emissions for all construction equipment, using the equipment inventory generated by ACRP's ACEIT model. All off-road construction emissions were estimated using emission factors from CARB's OFFROAD2017. CARB's EMFAC model was used to generate all on-road (vehicles that use gasoline, diesel, and other fuels)³⁵ and off-road (all internal-combustion engines except motor vehicle engines used for construction activities) vehicle emission factors. GSE emissions were calculated using CARB's EMFAC off-road model.

Construction Dust

Fugitive dust is an additional source of PM₁₀ and PM_{2.5} emissions associated with construction activities. Fugitive dust includes re-suspended dust from both on- and off-road vehicles and equipment, and dust from grading, loading unloading, hauling, and storage activities. Fugitive dust emissions (PM₁₀ and PM_{2.5}) from these activities were estimated using AP-42 Chapter 13 as referenced in the FAA Aviation Emissions and Air Quality Handbook Section A6.2.4 for PM₁₀ and PM_{2.5} emissions. Fugitive dust emissions were calculated for all project components in CalEEMod. Fugitive dust associated with airside construction components ran in ACEIT were calculated using CARB's EMFAC off-road model.

3.3.3.2 Operational Emissions

An emissions inventory of operational emissions for the future years 2028 and 2038 was calculated. As previously discussed, operational emissions include aircraft, APUs, GSE, GAVs, and stationary sources, which are anticipated to occur continuously throughout the Proposed Project's lifetime. Operational emissions modeling input and output and spreadsheet calculations are presented in **Appendix F**.

As described in **Chapter 2, Project Description**, the OAK aviation activity projected in the forecasts would occur regardless of whether the Proposed Project is implemented. To provide a conservative analysis, the Port has elected in this Draft EIR to compare the aviation activity-based impacts of the Proposed Project in 2028 and 2038 to the 2019 OAK aviation activity level conditions, thus overstating the Proposed Project's actual impacts.

AIRCRAFT

Aircraft operations for the future years were derived from the 2019-2038 Comprehensive Aviation Activity Forecast Report prepared by InterVISTAS Consulting, Inc., and Landrum & Brown, Inc., dated July 28, 2020, and updated June 2021. For forecast years, the airframe types eliminate aircraft that are assumed to be decommissioned by 2028, and the increased use of newly certified aircraft. APU times for future conditions were based on the assumptions discussed in **Section 3.3.2.3** using default values for gates with and without gate electrification.

GROUND SERVICE EQUIPMENT

Similar to the existing (2019) conditions, GSE emissions were estimated using emission factors from CARB's OFFROAD2017 model for 2028 and 2038. GSE activity levels and

³⁵ These sources include light duty and heavy-duty vehicle emissions from operation on roads, highway ramps, and during idling.

TABLE 3.3-7
PROPOSED CONSTRUCTION COMPONENTS ANTICIPATED START AND END TIMES

Stage	Activities	Project Components	Building Size (Sq. Ft.)	Parking Spaces (#)	Time (Months)	Timeframe Modeled
Modeling Year 1 - (2025)						
Stage 1	Demolish Catering Building and Associated Parking	D-1	34,000	21	2.5	January 1, 2025- March 15, 2025
Stage 1	Remove Portion of Employee Parking in Neil Armstrong Lot	D-2	***	656	0.5	January 1, 2025- January 17, 2025
Stage 3	Demolish Offices and Storage Building	D-4	30,000	***	2.5	January 1, 2025- March 15, 2025
Stage 3	Remove Employee Parking	D-7	***	60	2.5	January 1, 2025- March 15, 2025
Stage 1	Demolish OMC Hangar and Related Structures and Remove Associated Parking	D-11	252,000	***	12	January 1, 2025- December 31, 2025
			***	864	3	January 1, 2025- March 31, 2025
Stage 2	Construct Replacement Airline and Airport Support Building and Associated Parking	S-3	43,000	***	5	April 1, 2025- August 31, 2025
			***	105	2	April 1, 2025- May 31, 2025
Stage 2	Construct Replacement Parking- Ron Cowan Lot	L-6	***	1461	3	April 1, 2025- June 30th 2025
Stage 1	Demolish Storage Building	D-12	***	30,000	1	January 1, 2025- February 1, 2025
Stage 1	Remove Park and Call Lot	D-13	***	29	1.5	January 1, 2025- February 15, 2025
Stage 2	Construct Replacement Public Parking- Maitland Lot	L-7	***	2075	3	January 1, 2025- April 1, 2025
Stage 3	Remove Main Parking Lot (Portion)	D-14	***	437	4	January 1, 2025- May 1, 2025
Modeling Year 2 - (2026)						
Stage 3	Construct New Terminal Apron (Year 1 of 3)	B-1	830,000	***	12 (36 Total)	January 1, 2026-December 31, 2026
Stage 2	Construct Replacement Employee Parking – North Field Lot	L-1	***	21	2.5	January 1, 2026- March 15, 2026
Stage 2	Construct Replacement Employee Parking – Golf Course Lot	L-2	***	625	2.5	January 1, 2026- March 15, 2026
Stage 3	Remove Economy Parking	D-9	***	1933	9	April 1, 2026- December 31, 2026
Stage 2	Construct Expansion Employee Parking- Neil Armstrong Lot	L-3	***	375	3	January 1, 2026- April 1, 2026
Stage 2	Construct Replacement Cargo Building	S-1	100,000	***	12	January 1, 2026- Dec 31, 2026
	Associated Cargo Building Parking		***	260	5	January 1, 2026- May 31, 2026
Stage 2	Construct Replacement Remote and Cargo Aircraft Parking Positions	S-2	L:1925 W: 375	***	8	January 1, 2026- August 31, 2026
Stage 3	Demolish Provisioning and Associated Parking	D-10	11500	40	2.5	January 1, 2026- March 15, 2026
Stage 2	Construct Replacement Belly Cargo Building and Associated Parking	S-4	38,000	62	7	January 1, 2026- July 31, 2026
Stage 2	Construct Improvements to Existing Airfield (Adjacent to Remote and Cargo Aircraft Parking Positions)	A-3	L: 2293 W: 250	***	7	January 1, 2026- July 31, 2026
Stage 4	Remove Remote and Cargo Aircraft Parking Positions and Existing Taxilanes (Year 1 of 2)	D-6	L:1800 W:1000	***	5 (12 Total)	August 1, 2026- December 31, 2026
Stage 2	Construct Replacement of Fuel Rack and Below- Grade Fuel Systems	U-2	***	***	2	January 1, 2026- March 1, 2026
Stage 2	Upgrade Fuel System	U-3	***	***	9	January 1, 2026- September 1, 2026
Stage 2	Remove Fuel Rack and Below- Grade Fuel Systems	D-5	10,000	***	2	January 1, 2026- March 1, 2026
Stage 2	Relocate and Upgrade Utility Systems (Year 1 of 2)	U-4	***	***	12 (24 Total)	January 1, 2026-December 31, 2026

Modeling Year 3 - (2027)						
Stage 3	Construct New Terminal (Year 2 of 3)	B-1	830000	***	12 (36 Total)	January 1, 2027-December 31, 2027
Stage 2	Relocate and Upgrade Utility Systems (Year 2 of 2)	U-4	***	***	12 (24 Total)	January 1, 2027-December 31, 2027
Stage 4	Construct New Terminal Apron (Year 1 of 2)	A-1	L: 4887 W: 250	***	12 (24 Total)	January 1, 2027-December 31, 2027
Stage 4	Remove Remote and Cargo Aircraft Parking Positions and Existing Taxilanes (Year 2 of 2)	D-6	L:1800 W:1000	***	7(12 Total)	January 1, 2027- July 31, 2027
Stage 3	Demolish Multi-tenant Cargo / Support Building and Associated Parking	D-8	76,625	150	3	January 1, 2027- March 31, 2027
Stage 4	Construct Improvements to Existing Airfield (Adjacent to New Terminal)	A-2	L: 5250 W: 260	***	12	January 1, 2027-December 31, 2027
Stage 4	Construct Replacement Employee Parking- (Terminal Approach Lot)	L-4	***	45	2.5	January 1, 2027- March 15, 2027
Stage 4	Construct Extension of Terminal Curbside (Year 1 of 2)	L-8	L: 3500 W: 20	***	12 (24 Total)	January 1, 2027- December 31, 2027
Stage 4	Construct BART Access Covered Walkway	L-9	***	***	3	January 1, 2027- April 1, 2027
Stage 3	Remove Economy Parking	D-9	***	1933	9	January 1, 2027- September 30, 2027
Stage 4	Construct Return to Terminal Connection	L-10	***	***	1	January 1, 2027- February 1, 2027
Modeling Year 4 - (2028)						
Stage 3	Construct New Terminal (Year 3 of 3)	B-1	830000	***	12 (36 Total)	January 1, 2028-December 31, 2028
Stage 4	Construct Extension of Terminal Curbside (Year 2 of 2)	L-8	L: 3500 W: 20	***	12 (24 Total)	January 1, 2028-December 31, 2028
Stage 4	Construct New Terminal Apron (Year 2 of 2)	A-1	L: 4887 W: 250	***	12 (24 Total)	January 1, 2028-December 31, 2028
Stage 4	Construct Expansion of Central Utility Plant	U-1	10,000	***	6	January 1, 2028- June 30, 2028
Stage 4	Construction of IAB in Terminal 1 (Year 1 of 2)	B-2	123,000	***	12 (21 Total)	January 1, 2028-December 31, 2028
Modeling Year 5 - (2029)						
Stage 4	Construction of IAB in Terminal 1 (Year 2 of 2)	B-2	123000	***	9 (21 Total)	January 1, 2029-December 31, 2029
Stage 5	Construct Modernization of Existing Terminals 1 and 2 (Year 1 of 2)	B-2	91,000	***	12 (16 Total)	September 1, 2029- December 31, 2029
Modeling Year 6 - (2030)						
Stage 5	Construct Modernization of Existing Terminals 1 and 2 (Year 2 of 2)	B-2	91,000	***	4 (16 Total)	January 1, 2030- April 30, 2030
Stage 6	Demolish Terminal 1 Ticketing and Baggage Claim	D-3	73,000	***	12	January 1, 2030- December 31, 2030
Stage 6	Parking Lot Construction	L-5	19	***	2.5	January 1, 2030- March 15, 2030

Sq. Ft: square feet

L: length

W: width

Source: RS&H, HMMH, and Port of Oakland

equipment type selection in future years were modified based on forecast aircraft operations for the Proposed Project consistent with the noise analysis and fleet mix. Activity data (i.e., number of units and hours per unit), load factor, and horsepower were extracted from the default values in AEDT for 2028 and 2038.

GROUND ACCESS VEHICLES

GAVs include on-road vehicles associated with passengers, air cargo, tenant operations, and Port and tenant employees' travel to and from the Airport. Future GAVs emissions were estimated consistent with the methodology discussed in **Section 3.3.1.3** including running EMFAC for 2028 and 2038 conditions. The future vehicle traffic and VMT were based on the traffic analysis prepared for the EIR (**Appendix N**) using expected VMT for the Proposed Project.

STATIONARY SOURCES

The Proposed Project includes adding new boilers, as well as emergency generators to support heating/cooling and electrical needs during power outages for the net increase in the square footage at the Airport. Emissions and fuel usage for the existing boilers and generators were based on the methodology discussed in **Section 3.3.1.3**. Although the Port plans to electrify all new boilers, the Proposed Project assumed five new natural gas fired boilers in this analysis, each rated at 2.0 MMBtu/hr, and four new emergency generators each rated at 175 kilowatts (kW). As discussed earlier, two 250 BHP boilers were replaced in 2022 with five new natural gas-fired boilers, each rated at 2.0 MMBtu/hr. The five new boilers are included in the 2028 and 2038 operations inventories along with the existing boilers and emergency generators from Terminal 1 and Terminal 2. The emissions from the new boilers and emergency generators were based on current BAAQMD permitted emission factors and methodology discussed in **Section 3.3.1.3** in lieu of specific emission factors and fuel usage.

3.3.3.3 Project Impact Assessment

When calculating emissions to compare to the thresholds of significance, the Port has accounted for reductions that would result from state, regional, and local rules and regulations. Additionally, the Port has considered project design features to be part of the Proposed Project design and not as mitigation measures.

The sum of emissions estimates from each source for each pollutant for construction and 2028 and 2038 operational activities were compared to BAAQMD thresholds of significance for each criteria pollutant and its precursors.

CONSTRUCTION AND DEMOLITION EMISSIONS

Table 3.3-8 presents the estimated average daily emissions for construction activities by year compared to BAAQMD's thresholds of significance for construction activities. The results show that peak construction year average daily emissions are below BAAQMD's thresholds for NO_x, ROG, PM₁₀ and PM_{2.5}; therefore, the impact would be **less than significant**. The overall maximum emissions for each pollutant are denoted in bold in **Table 3.3-8** for ease of reference to the thresholds.

TABLE 3.3-8
AVERAGE DAILY CONSTRUCTION EMISSIONS ESTIMATES COMPARED TO BAY AREA AIR QUALITY MANAGEMENT DISTRICT CONSTRUCTION THRESHOLDS OF SIGNIFICANCE

Year	NO _x	ROG	CO	SO ₂	PM ₁₀	PM _{2.5}
Model Year 1-2025	33.81	6.28	33.05	0.085	1.395	1.95
Model Year 2-2026	43.897	8.25*	40.334*	0.2511*	1.9126*	3.57*
Model Year 3-2027	46.402*	2.246	36.875	0.1986	0.6907	1.0269
Model Year 4-2028	25.424	1.38	24.223	0.1166	0.38	2.7077
Model Year 5-2029	25.546	1.33	19.003	0.0496	0.495	1.0123
Model Year 6-2030	3.71	4.01	5.23	0.015	0.11	0.23
Threshold of Significance (lbs/day)	54	54	NA	NA	82	54
Below Significance Threshold?	Y	Y	NA	NA	Y	Y

NO_x: Nitrogen Oxides

ROG: Reactive Organic Gases

CO: Carbon Monoxide

SO₂: Sulfur Dioxide

PM₁₀: Particulate Matter with an aerodynamic diameter of 10 microns

PM_{2.5}: Particulate Matter with an aerodynamic diameter of 2.5 microns

NA: Not applicable as no threshold of significance has been identified

lbs: pounds

Bold Values with an asterisk (*) denote the highest emissions for each pollutant during construction

Source: HMMH, May 2023

In addition, per the latest BAAQMD guidance, for a project to have a less-than-significant criteria air pollutant impact related to construction-related fugitive dust emissions, it must implement all BAAQMD basic best management practices (BMPs) listed below.³⁶

BAAQMD Basic BMPs for Construction-Related Fugitive Dust Emissions:

1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.

³⁶ Bay Area Air Quality Management District (BAAQMD). (2017, May). *California Environmental Quality Act Air Quality Guidelines*. Retrieved May 2023, from: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en.

3. All visible mud or dirt trackout onto adjacent roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
4. All vehicle speeds on unpaved roads shall be limited to 15 miles per hour (mph).
5. 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.
6. All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20mph.
7. All trucks and equipment, including their tires, shall be washed off prior to leaving the site.
8. Unpaved roads providing access to sites located 100 feet or further from a paved road shall be treated with a 6- to 12-inch layer of compacted wood chips, mulch, or gravel.
9. Publicly visible signs shall be posted with the telephone number and name of the person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. BAAQMD's General Air Pollution Complaints number shall also be visible to ensure compliance with applicable regulations.

In addition to the BAAQMD basic BMPs for construction-related fugitive dust emissions, the Port also would implement, to the extent feasible and applicable, the following enhanced BMPs for construction-related fugitive dust emissions:

1. Limit the simultaneous occurrence of excavation, grading, and ground-disturbing construction activities.
2. Install wind breaks (e.g., trees, fences) on the windward side(s) of actively disturbed areas of construction. Wind breaks should have at maximum 50 percent air porosity.
3. Plant vegetative ground cover (e.g., fast-germinating native grass seed) in disturbed areas as soon as possible and watered appropriately until vegetation is established.
4. Install sandbags or other erosion control measures to prevent silt runoff to public roadways from sites with a slope greater than one percent.
5. Minimize the amount of excavated material or waste materials stored at the site.
6. Hydroseed or apply non-toxic soil stabilizers to construction areas, including previously graded areas, that are inactive for at least 10 calendar days.

OPERATIONAL EMISSIONS

Table 3.3-9 and **Table 3.3-10** present the estimated tons per year (TPY) and average daily operational emissions (lbs/day) for future years 2028 and 2038, respectively, which include aircraft, ground service equipment, ground access vehicles, and stationary sources.

Table 3.3-11 and **Table 3.3-12** present the net change in 2028 and 2038 operational emissions estimates, respectively, from the 2019 operational emissions estimate compared to BAAQMD Thresholds of Significance for each pollutant. The results in the tables show that the net changes in emissions, for both PM₁₀ and PM_{2.5} are below the daily and annual

TABLE 3.3-9
YEAR 2028 OPERATIONS EMISSIONS ESTIMATES

	CO	ROG	NO_x	SO₂	PM₁₀	PM_{2.5}
Aircraft Emissions below Mixing Level^{/a/} (tons/year)	1,070.3	133.1	1,037	78.6	10.8	10.7
Ground Service Equipment (tons/year)	692.6	7.91	50.65	0.117	0.996	0.78
Ground Access Vehicles (tons/year)	361.46	15.99	26.83	1.05	0.50	0.46
Stationary Sources (tons/year)	12.46	4.76	7.61	1.49	1.52	1.52
Total (tons/year)	2,136.82	161.76	1,122.09	81.26	13.81	13.46
Total (Average lbs/day)	11,708.61	886.37	6,148.45	445.27	75.70	73.75

NO_x: Nitrogen Oxides

ROG: Reactive Organic Gases

CO: Carbon Monoxide

SO₂: Sulfur Dioxide

PM₁₀: Particulate Matter with an aerodynamic diameter of 10 microns

PM_{2.5}: Particulate Matter with an aerodynamic diameter of 2.5 microns

lbs: pounds

/a/ AEDT aircraft emissions consist of Startup, Taxi Out, Climb from ground up to Mixing Height, Decent from Mixing Height to ground, Taxi In, and APU. GSE emissions were estimated separately using CARB's OFFROAD2017 emission factors.

Source: HMMH, January 2023

thresholds of significance for both 2028 and 2038. However, the net changes in emissions for both ROG and NO_x are above the daily and annual threshold of significance for both 2028 and 2038. The daily average and annual Proposed Project emissions for both ROG and NO_x would exceed their respective thresholds of significance and this is considered a **significant impact** for these two pollutants.

TABLE 3.3-10
YEAR 2038 OPERATIONAL EMISSIONS ESTIMATES

	CO	ROG	NO_x	SO₂	PM₁₀	PM_{2.5}
Aircraft Emissions below Mixing Level^{/a/}	1,162.5	155.4	1367	98.5	13.2	13.1
Ground Service Equipment (GSE)	505.51	6.24	42.47	0.11	0.83	0.64
Ground Access Vehicles (GAV)	369.96	12.88	24.39	1.23	0.37	0.34
Stationary Sources	12.46	4.76	7.61	1.49	1.52	1.52
Total (tons/year)	2,050.43	179.28	1,441.47	101.33	15.92	15.60
Total (Average lbs/day)	11,235.23	982.37	7,898.47	555.25	87.22	85.46

NO_x: Nitrogen Oxides

ROG: Reactive Organic Gases

CO: Carbon Monoxide

SO₂: Sulfur Dioxide

PM₁₀: Particulate Matter with an aerodynamic diameter of 10 microns

PM_{2.5}: Particulate Matter with an aerodynamic diameter of 2.5 microns

lbs: pounds

/a/AEDT aircraft emissions consist of Startup, Taxi Out, Climb from ground up to Mixing Height, Descent from Mixing Height to ground, Taxi In, and APU. GSE emissions were estimated separately using CARB's OFFROAD2017 emission factors.

Source: HMMH, January 2023

MITIGATION MEASURES

If mitigation would not bring a project's impact below the applicable threshold of significance, the project would make a cumulatively considerable contribution to a cumulative impact, which would be significant and unavoidable. The majority of ROG and NO_x emissions result from aircraft operations, which the Port does not have the authority to regulate. The Port has provided electrical infrastructure throughout the terminals and cargo areas for use by commercial and cargo airlines and would install this electrical infrastructure in the new terminal and relocated cargo area. However, this would not reduce impacts to less-than-significant levels and the impact would be potentially **significant and unavoidable**.

TABLE 3.3-11
NET CHANGE IN 2028 AND EXISTING OPERATIONAL EMISSIONS ESTIMATES COMPARED TO
BAY AREA AIR QUALITY MANAGEMENT DISTRICT THRESHOLD OF SIGNIFICANCE

		CO	ROG	NO _x	SO ₂	PM ₁₀	PM _{2.5}
Existing	2019	11,512.6	888.1	4,837.2	370.9	60.1	58.2
2028 (lbs/day)		11,708.6	886.4	6,148.4	445.3	75.7	73.8
Net Change	lbs/day)	196.0	-1.8	1,311.3*	74.4	15.6	15.6
Threshold of Significance			54	54		82	54
Below Significance Threshold?			Yes	No*		Yes	Yes
Existing	2019	2101.0	162.1	882.8	67.7	11.0	10.6
2028 Forecast	(TPY)	2136.8	161.8	1122.1	81.3	13.8	13.5
Net Change (TPY)		35.8	-0.3	239.3*	13.6	2.8	2.8
Threshold of Significance			10	10		15	10
Below Significance Threshold?			Yes	No*		Yes	Yes

NO_x: Nitrogen Oxides

ROG: Reactive Organic Gases

CO: Carbon Monoxide

SO₂: Sulfur DioxidePM₁₀: Particulate Matter with an aerodynamic diameter of 10 micronsPM_{2.5}: Particulate Matter with an aerodynamic diameter of 2.5 microns

lbs: pounds

Red text with an asterisk (*) denotes significant impact.

Source: HMMH, January 2023

TABLE 3.3-12
NET CHANGE IN 2038 AND EXISTING OPERATIONAL EMISSIONS ESTIMATES COMPARED TO
BAY AREA AIR QUALITY MANAGEMENT DISTRICT THRESHOLD OF SIGNIFICANCE

	CO	ROG	NO _x	SO ₂	PM ₁₀	PM _{2.5}
Existing 2019 (lbs/day)	11,512.6	888.1	4,837.2	370.9	60.1	58.2
2038 Forecast (lbs/day)	11,235.2	982.4	7,898.5	555.3	87.2	85.5
Net Change lbs/day)	-277.4	94.2*	3,061.3*	184.4	27.1	27.3
Threshold of Significance		54	54		82	54
Below Significance Threshold?		No*	No*		Yes	Yes
Existing 2019 (TPY)	2101.0	162.1	882.8	67.7	11.0	10.6
2038 Forecast (TPY)	2050.4	179.3	1441.5	101.3	15.9	15.6
Net Change (TPY)	-50.6	17.2*	558.7*	33.7	4.9	5.0
Threshold of Significance		10	10		15	10
Below Significance Threshold?		No*	No*		Yes	Yes

NO_x: Nitrogen Oxides

ROG: Reactive Organic Gases

CO: Carbon Monoxide

SO₂: Sulfur Dioxide

PM₁₀: Particulate Matter with an aerodynamic diameter of 10 microns

PM_{2.5}: Particulate Matter with an aerodynamic diameter of 2.5 microns

lbs: pounds

Red text with an asterisk (*) denotes significant impact.

Source: HMMH, 2023

CONFLICT WITH OR OBSTRUCT IMPLEMENTATION OF THE APPLICABLE AIR QUALITY PLAN

The analysis includes a discussion of the Proposed Project's consistency with the latest Air Quality Plans (AQP) for the region and whether it would conflict with or obstruct the implementation of the plan. The latest AQP for BAAQMD is the *2017 Clean Air Plan: Spare the Air, Cool the Climate*. This plan focuses on protecting public health and protecting the climate. Consistent with the GHG reduction targets adopted by the State of California, the plan lays the groundwork for a long-term effort to reduce Bay Area GHG in addition to reducing ozone precursors of ROG and NO_x, and enhances efforts to reduce fine particulate matter and toxic air contaminants in the basin. To evaluate whether a project is consistent with an AQP, all three of the follow questions were addressed:

- For each applicable AQP, does the Proposed Project support the primary goals?

The primary goals of the AQP are to attain air quality standards, reduce population exposure and protect public health in the Bay Area, and reduce GHG and protect the

climate. Proposed Project impacts that are inconsistent with these goals would not be consistent with the AQP.

The Proposed Project supports the primary goals of the AQP because it would modernize existing facilities to efficiently accommodate both existing and market-based demand for passenger travel and cargo shipment at OAK. The Proposed Project would allow for more efficient movement of passengers in and around the Airport which should help reduce idling and delays at the Airport.

- For each applicable AQP, does the Proposed Project include all applicable control measures?

The AQP includes control strategies to reduce ozone precursors, protect public health and reduce GHG emissions. There are 85 control measures, as shown in **Table 3.3-13**, across a variety of source groups including the following sectors:

- Stationary Sources
- Transportation
- Energy
- Buildings
- Agriculture
- Natural and Working Lands
- Waste Management
- Water
- Super-GHG Pollutants

The Proposed Project is consistent with AQP including transportation, energy, buildings, and GHG control measures as outlined in the AQP and includes all applicable control measures consistent with the AQP.

- For each applicable AQP, does the Proposed Project disrupt or hinder implementation of any control measures?

As identified in **Table 3.3-13**, the Proposed Project would not disrupt or hinder implementation of any control measures.

TABLE 3.3-13
BAY AREA AIR QUALITY MANAGEMENT DISTRICT EMISSIONS CONTROL MEASURES

Control Measure Number	Control Measure Title	Consistency with Proposed Project
Agriculture Sector		
AG1	Agriculture Guidance and Leadership	N/A; The Proposed Project would not disrupt or hinder this measure.
AG2	Dairy Digesters	N/A; The Proposed Project would not disrupt or hinder this measure.
AG3	Enteric Fermentation	N/A; The Proposed Project would not disrupt or hinder this measure.

Control Measure Number	Control Measure Title	Consistency with Proposed Project
AG4	Livestock Waste	N/A; The Proposed Project would not disrupt or hinder this measure.
Buildings Sector		
BL1	Green Buildings	Consistent; the Proposed Project would comply with the California Green Building Standards Code—Part 11, Title 24 (CALGreen). The Proposed Project would not disrupt or hinder this measure.
BL2	Decarbonize Buildings	Consistent; the Port is proposing to develop a transition plan to convert natural gas consumption to all-electric building systems. The Proposed Project would not disrupt or hinder this measure.
BL3	Market-Based Solutions	Consistent; the Proposed Project would support market-based approaches for solution to reduce GHG emission with existing buildings, as feasible. The Proposed Project would not disrupt or hinder this measure.
BL4	Urban Heat Island Mitigation	Consistent; the Proposed Project would assess the incorporation of cool roofing and cool paving. The Proposed Project would not disrupt or hinder this measure.
Energy Sector		
EN1	Decarbonize Electricity Production	Consistent; the Port would evaluate opportunities to develop additional on-site renewable energy production. The Proposed Project would not disrupt or hinder this measure.
EN2	Decrease Electricity Demand	Consistent; the Port would review opportunities to decrease the electricity demand however the Port would also evaluate developing additional on-site renewable energy production. The Proposed Project would not disrupt or hinder this measure.
Natural and Working Lands		
NW1	Carbon Sequestration in Rangelands	N/A; The Proposed Project would not disrupt or hinder this measure.
NW2	Urban Tree Planting	N/A; The Proposed Project would not disrupt or hinder this measure.
NW3	Carbon Sequestration in Wetlands	N/A; The Proposed Project would not disrupt or hinder this measure.
Super GHGs		
SL1	Super-Greenhouse Gases (GHGs)	N/A; The Proposed Project would not disrupt or hinder this measure.
SL2	Guidance for Local Planners	Consistent; the Proposed Project would monitor any adoption and implementation of super-GHG reduction

Control Measure Number	Control Measure Title	Consistency with Proposed Project
		measures in local plans and programs. The Proposed Project would not disrupt or hinder this measure.
SL3	GHG Monitoring and Emissions Measurement Network	Consistent; the Port is participating in the Airport Council International Airport Carbon Accreditation Program that would require the Port to monitor and reduce GHG emissions from airport operations. The Proposed Project would not disrupt or hinder this measure.
Stationary Source Sector		
SS1	Fluid Catalytic Cracking Refineries	N/A; The Proposed Project would not disrupt or hinder this measure.
SS2	Equipment Leaks	N/A; The Proposed Project would not disrupt or hinder this measure.
SS3	Cooling Towers	N/A; The Proposed Project would not disrupt or hinder this measure.
SS4	Refinery Flares	N/A; The Proposed Project would not disrupt or hinder this measure.
SS5	Sulfur Recovery Units	N/A; The Proposed Project would not disrupt or hinder this measure.
SS6	Refinery Fuel Gas	N/A; The Proposed Project would not disrupt or hinder this measure.
SS7	Sulfuric Acid Plants	N/A; The Proposed Project would not disrupt or hinder this measure.
SS8	Sulfur Dioxide from Coke Calcining	N/A; The Proposed Project would not disrupt or hinder this measure.
SS9	Enhanced NSR Enforcement for Changes in Crude Slate	N/A; The Proposed Project would not disrupt or hinder this measure.
SS10	Petroleum Refining Emissions Tracking	N/A; The Proposed Project would not disrupt or hinder this measure.
SS11	Petroleum Refining Facility-Wide Emission Limits	N/A; The Proposed Project would not disrupt or hinder this measure.
SS12	Petroleum Refining Climate Impact Limits	N/A; The Proposed Project would not disrupt or hinder this measure.
SS13	Oil and Gas Production, Processing and Storage	N/A; The Proposed Project would not disrupt or hinder this measure.
SS14	Methane from Capped Wells	N/A; The Proposed Project would not disrupt or hinder this measure.

Control Measure Number	Control Measure Title	Consistency with Proposed Project
SS15	Natural Gas Processing and Distribution	N/A; The Proposed Project would not disrupt or hinder this measure.
SS16	Basin-Wide Methane Strategy	N/A; The Proposed Project would not disrupt or hinder this measure.
SS17	GHG Best Available Control Technology (BACT) Threshold	Consistent; the Proposed Project would comply with all local, state, and federal regulations. The Proposed Project would not disrupt or hinder this measure.
SS18	Basin-Wide Combustion Strategy	Consistent; the Proposed Project would comply with all local, state, and federal regulations. The Proposed Project would not disrupt or hinder this measure.
SS19	Portland Cement	Consistent; The Proposed Project would not disrupt or hinder this measure.
SS20	Air Toxics Risk Cap and Reduction from Existing Facilities	Consistent; the Proposed Project would comply with all local, state, and federal regulations. The Proposed Project would not disrupt or hinder this measure.
SS21	New Source Review for Toxics	Consistent; the Proposed Project would comply with all local, state, and federal regulations. The Proposed Project would not disrupt or hinder this measure.
SS22	Stationary Gas Turbines	Consistent; the Proposed Project would comply with all local, state, and federal regulations. The Proposed Project would not disrupt or hinder this measure.
SS23	Biogas Flares	N/A; The Proposed Project would not disrupt or hinder this measure.
SS24	Sulfur Content Limits of Liquid Fuels	Consistent; the Proposed Project would comply with all local, state, and federal regulations. The Proposed Project would not disrupt or hinder this measure.
SS25	Coatings, Solvents, Lubricants, Sealants and Adhesives	Consistent; the Proposed Project would comply with all local, state, and federal regulations. The Proposed Project would not disrupt or hinder this measure.
SS26	Surface Prep and Cleaning Solvent	Consistent; the Proposed Project would comply with all local, state, and federal regulations. The Proposed Project would not disrupt or hinder this measure.
SS27	Digital Printing	Consistent; the Proposed Project would comply with all local, state, and federal regulations. The Proposed Project would not disrupt or hinder this measure.
SS28	LPG, Propane Butane	Consistent; the Proposed Project would comply with all local, state, and federal regulations. The Proposed Project would not disrupt or hinder this measure.
SS29	Asphaltic Concrete	Consistent; the Proposed Project would comply with all local, state, and federal regulations. The Proposed Project would not disrupt or hinder this measure.

Control Measure Number	Control Measure Title	Consistency with Proposed Project
SS30	Residential Fan Type Furnaces	N/A; The Proposed Project would not disrupt or hinder this measure.
SS31	General PM Emission Limitation	Consistent; the Proposed Project would comply with all local, state, and federal regulations. The Proposed Project would not disrupt or hinder this measure.
SS32	Emergency Backup Generators	Consistent; the Proposed Project would comply with all local, state, and federal regulations. The Proposed Project would not disrupt or hinder this measure.
SS33	Commercial Cooking Equipment	Consistent; the Proposed Project would comply with all local, state, and federal regulations. The Proposed Project would not disrupt or hinder this measure.
SS34	Wood Smoke	N/A; The Proposed Project would not disrupt or hinder this measure.
SS35	Particulate Matter (PM) from Bulk Material Storage, Handling and Transport, Including Coke and Coal	Consistent; the Proposed Project would comply with all local, state, and federal regulations. The Proposed Project would not disrupt or hinder this measure.
SS36	PM from Track Out	Consistent; the Proposed Project would comply with all local, state, and federal regulations. The Proposed Project would not disrupt or hinder this measure.
SS37	PM from Asphalt Operations	Consistent; the Proposed Project would comply with all local, state, and federal regulations. The Proposed Project would not disrupt or hinder this measure.
SS38	Fugitive Dust	Consistent; the Proposed Project would comply with all local, state, and federal regulations. The Proposed Project would not disrupt or hinder this measure.
SS39	Enhanced Air Quality Monitoring	Consistent; the Proposed Project would comply with all local, state, and federal regulations. The Proposed Project would not disrupt or hinder this measure.
SS40	Odors	N/A; The Proposed Project would not disrupt or hinder this measure.
Transportation Sector		
TR1	Clean Air Teleworking	N/A; The Proposed Project would not disrupt or hinder this measure.
TR2	Trip Reduction Programs	Consistent; the Proposed Project would review Trip Reduction Programs. The Proposed Project would not disrupt or hinder this measure.
TR3	Local and Regional Bus Service	N/A; The Proposed Project would not disrupt or hinder this measure.

Control Measure Number	Control Measure Title	Consistency with Proposed Project
TR4	Local and Regional Rail Service	N/A; The Proposed Project would not disrupt or hinder this measure.
TR5	Transit Efficiency and Use	N/A; The Proposed Project would not disrupt or hinder this measure.
TR6	Freeway and Arterial Operations	N/A; The Proposed Project would not disrupt or hinder this measure.
TR7	Safe Routes to Schools and Transit	N/A; The Proposed Project would not disrupt or hinder this measure.
TR8	Ridesharing, Last Mile Connection	Consistent; as an initiative, the Port would encourage employers to promote ridesharing and carsharing to their employees. The Proposed Project would not disrupt or hinder this measure.
TR9	Bicycle Access and Pedestrian Facilities	Consistent; the Port would continue to maintain bicycle paths at the Airport. The Proposed Project would not disrupt or hinder this measure.
TR10	Land Use Strategies	Consistent; the Proposed Project would support implementation of Plan Bay Area. The Proposed Project would not disrupt or hinder this measure.
TR11	Value Pricing	N/A; The Proposed Project would not disrupt or hinder this measure.
TR12	Smart Driving	N/A; The Proposed Project would not disrupt or hinder this measure.
TR13	Parking Policies	Consistent; the Proposed Project would comply with parking regulations. The Proposed Project would not disrupt or hinder this measure.
TR14	Cars and Light Trucks	Consistent; as an initiative, the Port would promote purchasing/leasing electric/hybrid vehicles. The Proposed Project would not disrupt or hinder this measure.
TR15	Public Outreach	Consistent; the Proposed Project would comply with Spare the Air program. The Proposed Project would not disrupt or hinder this measure.
TR16	Indirect Source Review	N/A; The Proposed Project would not disrupt or hinder this measure.
TR17	Planes	Consistent; as an initiative, the Port would encourage and promote the use of alternative fuel such as sustainable aviation fuel use in aircraft. The Proposed Project would not disrupt or hinder this measure.
TR18	Goods Movement	N/A; The Proposed Project would not disrupt or hinder this measure.

Control Measure Number	Control Measure Title	Consistency with Proposed Project
TR19	Medium and Heavy Duty Trucks	Consistent; as an initiative, the Port would encourage truck drivers to convert to alternative fuel. The Proposed Project would not disrupt or hinder this measure.
TR20	Ocean Going Vessels	N/A; The Proposed Project would not disrupt or hinder this measure.
TR21	Commercial Harbor Craft	N/A; The Proposed Project would not disrupt or hinder this measure.
TR22	Construction, Freight and Farming Equipment	N/A; The Proposed Project would not disrupt or hinder this measure.
TR23	Lawn Care Equipment	N/A; The Proposed Project would not disrupt or hinder this measure.
Waste Sector		
WA1	Landfills	N/A; The Proposed Project would not disrupt or hinder this measure.
WA2	Composting and Anaerobic Digesters	N/A; The Proposed Project would not disrupt or hinder this measure.
WA3	Green Waste Diversion	Consistent; The Proposed Project would comply with local, state, and federal green waste ordinances. The Proposed Project would not disrupt or hinder this measure.
WA4	Recycling and Waste Reduction	Consistent; The Proposed Project would comply with local, state, and federal recycling and waste reduction. The Proposed Project would not disrupt or hinder this measure.
Water Sector		
WR1	Limit GHGs from POTWs	N/A; The Proposed Project would not disrupt or hinder this measure.
WR2	Support Water Conservation	Consistent; The Proposed Project would review and incorporate water conservation measures where feasible. The Proposed Project would not disrupt or hinder this measure.

GHG: greenhouse gas

BACT: Best Available Control Technology

PM: particulate matter

Source: Bay Area Air Quality Management District (BAAQMD). 2017, April. *pare the Air - Cool the Climate: Final 2017 Clean Air Plan*. Retrieved April 2023, from: <https://www.baaqmd.gov/~/media/files/planning-and-research/plans/2017-clean-air-plan/attachment-a---proposed-final-cap-vol-1-pdf.pdf>.

LOCALIZED IMPACTS CARBON MONOXIDE

Localized CO impacts can occur from motor vehicles accessing the airport via nearby intersections and roadways. CO concentrations are a function of motor vehicle activity, especially during peak hour (a.m. or p.m.) when travel is the busiest. Under certain conditions, CO emissions from vehicles could reach unhealthy levels at nearby sensitive

locations (i.e., sidewalks, schools, hospitals, playgrounds, etc.). As a result, BAAQMD recommends an analysis of potential project CO emissions at the local level.

BAAQMD provides a screening methodology³⁷ based on peak hourly traffic volumes to evaluate potential impacts of CO emissions from mobile sources as part of the CEQA Air Quality Guidelines. The screening methodology includes evaluation of intersections with vehicle trips exceeding 44,000 vehicles per hour after the Proposed Project is implemented, which could violate or contribute to an exceedance of the CO standards.

Based on forecast traffic in the area (**Appendix N**), intersections in the area near the Proposed Project would not exceed the 44,000 vehicles per hour threshold once the Proposed Project was in operation. Because traffic is expected to be below BAAQMD CO intersection vehicle trip thresholds of significance, the Proposed Project would result in a ***less-than-significant impact*** related to CO.

TOXIC AIR CONTAMINANTS – CANCER RISKS

Construction and Operation

The maximally exposed individual (MEI) cancer risks associated with TAC exposure starting during construction and continuing through operations for the remainder of each receptor's exposure period are presented in **Table 3.3-14**. Supporting risk calculations are included in **Appendix E** for all receptors.

TABLE 3.3-14
INCREMENTAL CANCER RISKS FOR MAXIMALLY EXPOSED INDIVIDUALS DURING COMBINED CONSTRUCTION AND OPERATIONAL PERIODS

Receptor Type ^{d/}	Cancer Risks ^{/a/,/b/,/c/} (per million people)	Threshold (per million people)	Equal to or Exceeds Threshold?
Adult Resident, 30 years	-0.12	10	No
Child Resident, 9 years	-0.033	10	No
School Child, 12 years	-0.17	10	No
Off-Airport Worker, 25 years	-0.033	10	No
On-Airport Worker, 25 years	-1.3	10	No

/a/ Construction of the Proposed Project is estimated to take 6 years based on the stages provided in **Chapter 2** – starting in 2025 and ending in 2030. Starting in 2028, it was assumed that portions of the Proposed Project would be in operation. Using this assumption, construction and operations would be overlapping from 2028 through 2030. After completion of construction, the remainder of the receptors' exposure periods would be from operations only. Starting in 2028, receptors' exposures to incremental Proposed Project operations-related TAC risk is based on the difference in TAC concentrations between the future project year operations and the 2019 existing conditions.

/b/ Maximally Exposed Individual (MEI) locations are shown on **Figure 3.3-2** and **Figure 3.3-3**

/c/ Negative values indicate that the combined construction and incremental operations impacts over the receptor's exposure period would be less than the impacts associated with the 2019 existing conditions exposures.

/d/ The Adult Resident Receptor is assumed to be born just as construction is starting. They live in the same house from birth through age 30. The Child resident is similar except that they are assumed to live in the same house until the age of 9. The school child is assumed to be exposed from the age of 5 though age 16.

Source: CDM Smith, 2023 (**Appendix E**)

³⁷ Bay Area Air Quality Management District (BAAQMD). (2017, May). *California Environmental Quality Act Air Quality Guidelines*. Retrieved May 2023, from Bay Area Air Quality Management District: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en.

RESIDENTS

For the purposes of evaluating MEI cancer risk, residential risks were evaluated using 1,092 representative off-Airport receptor locations identified as residential or residential/commercial (schools and hospitals). Construction of the Proposed Project is estimated to take six years based on the stages provided in **Chapter 2** – starting in 2025 and ending in 2030, with overlapping construction and incremental Proposed Project operations exposure from 2028 through 2030. Following construction, it was assumed that the TAC emissions for the given receptor's remaining years of the exposure period would be equal to the Proposed Project increment of operations-related TAC concentrations above the 2019 existing conditions concentrations. The exposure periods for each residential receptor are included in **Table 3.3-14**.

Incremental MEI cancer risks for 30-year adult residents are estimated to be -0.12 in 1 million. This value is below the threshold of significance of 10 in 1 million. The negative value indicates that compared to the 2019 existing conditions, the Proposed Project would result in decreases of some TAC concentrations (most notably diesel particulate matter [DPM]), which results in decreases in cancer risk estimates, producing beneficial impacts for adult residents. Over 80 percent of cancer risk is driven by DPM, and DPM emissions from both on-road truck and shuttle trips, as well as from Airport GSE, would be lower under the Proposed Project, resulting in a reduction in cancer risk. The MEI cancer risk location for adult residents is shown on **Figure 3.3-2**.

Incremental MEI cancer risk for child residents is estimated to be -0.033 in 1 million, which is below the threshold of significance of 10 in 1 million. Again, the negative value indicates that compared to the 2019 existing conditions, the Proposed Project would result in decreases of some TAC concentrations, which results in decreases in cancer risk estimates. The MEI cancer risk location of the child resident is also shown on **Figure 3.3-2**.

SCHOOL CHILDREN

For the purposes of evaluating MEI cancer risk, 12-year school child risks were evaluated using 17 representative off-Airport receptor locations identified as schools. Following construction, it was assumed that the remaining 6 years of their 12-year exposure period, school children would be exposed to the Proposed Project increment of the operations-related TAC concentrations compared to the 2019 existing conditions concentrations.

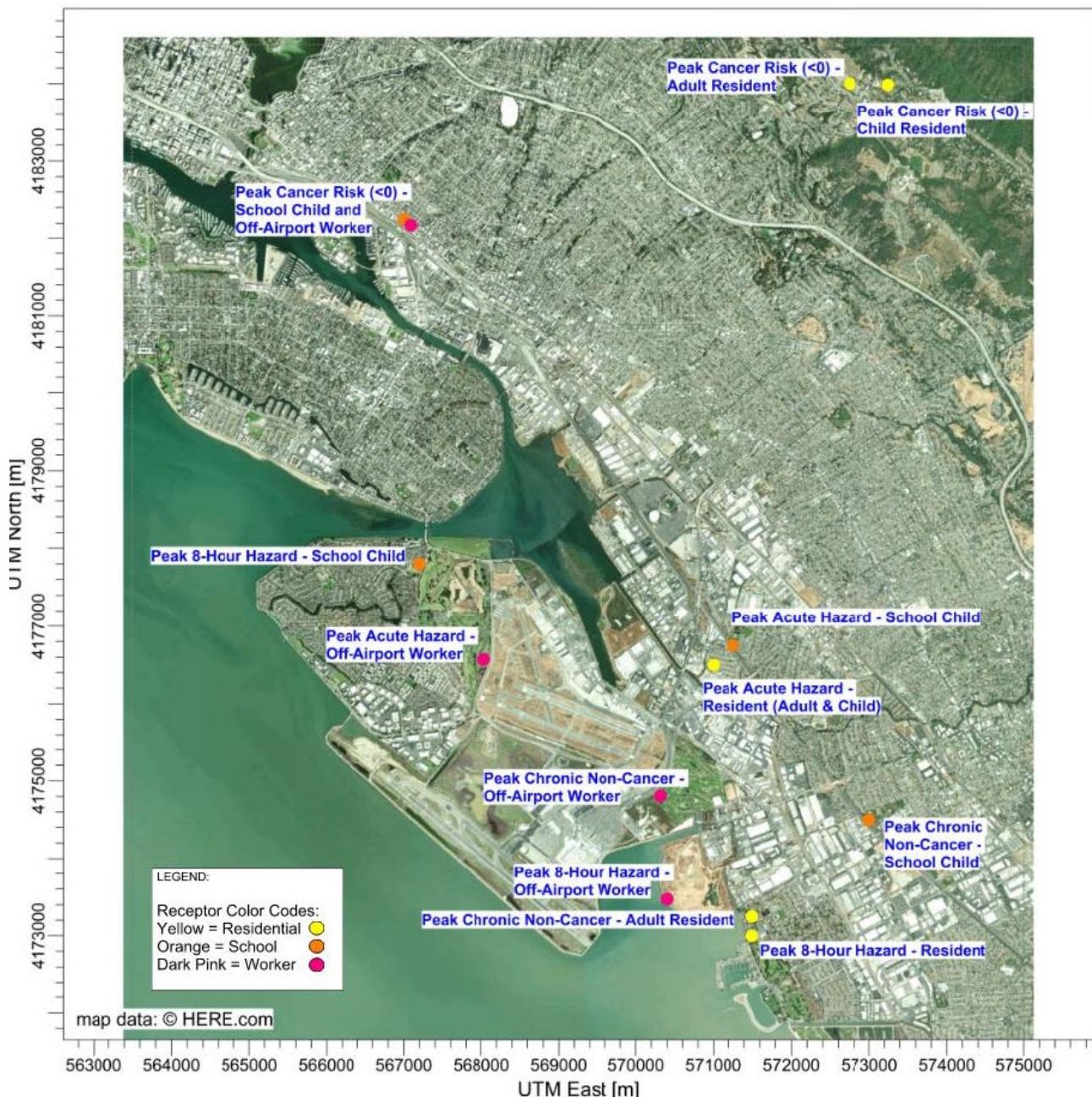
Incremental MEI cancer risk for school children is estimated to be -0.17 in 1 million, which is below the threshold of significance of 10 in 1 million. This MEI location is at the Community School for Creative Education, also shown on **Figure 3.3-2**.

OFF-AIRPORT AND ON-AIRPORT WORKERS

For the purposes of evaluating MEI cancer risk, off-Airport workers were evaluated at 1,106 representative off-Airport receptor locations identified as commercial or residential/commercial (schools and hospitals). On-airport workers were evaluated at 8 representative locations in the commercial aviation and general aviation areas of the airport. Following construction, it was assumed that the TAC emissions for the worker's 19 remaining years of the 25-year exposure period would be equal to the Proposed Project increment of the operations-related TAC concentrations above the 2019 existing conditions concentrations.

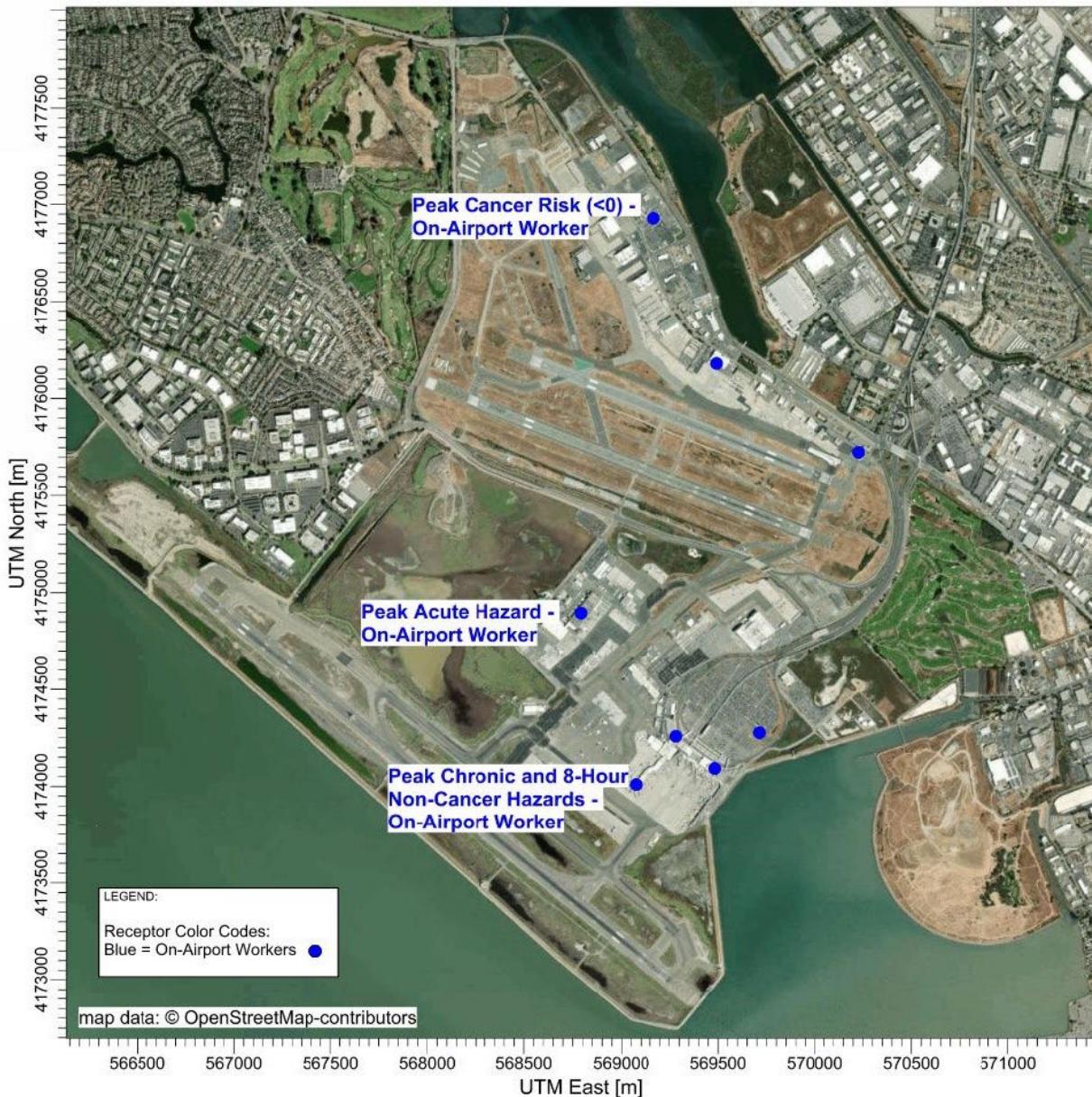
FIGURE 3.3-2

MAXIMALLY EXPOSED INDIVIDUAL LOCATIONS FOR THE ADULT RESIDENT, CHILD RESIDENT, SCHOOL CHILD, AND OFF-AIRPORT WORKER



Source: CDM Smith, 2023 ([Appendix E](#))

FIGURE 3.3-3
MAXIMALLY EXPOSED INDIVIDUAL LOCATIONS FOR THE ON-AIRPORT WORKER



Source: CDM Smith, 2023 ([Appendix E](#))

Incremental MEI cancer risk for off-Airport workers is estimated to be -0.033 in 1 million, which is below the threshold of significance of 10 in 1 million and that for the on-Airport workers was estimated to be -1.3 in 1 million. These results are less than the risk associated with exposure to the 2019 TAC concentrations. The MEI cancer risk location for off-Airport workers is shown on **Figure 3.3-2**, and the MEI location for the on-Airport workers is shown on **Figure 3.3-3**. The off-Airport worker cancer risk is driven by exposure to DPM. The DPM exposure concentrations during construction result in a contribution to worker cancer risk of approximately 0.24 per million; however, the incremental exposure concentrations during operations result in contributions to worker cancer risk ranging from -0.04 to -4.0 per million due to the decreasing DPM concentrations from on-road and non-road (primarily GSE) DPM emissions. The maximum construction cancer risk to the on-Airport workers is 1.0 per million; however, the maximum operation (and combined operations with construction) risk ranges from -1.3 to -150 per million.

As shown in **Table 3.3-14**, construction-related cancer risks would be ***less than significant*** for off-Airport workers, residents, and school children.

TOXIC AIR CONTAMINANTS – CHRONIC NON-CANCER HAZARDS

Construction and Operation

Proposed Project-related chronic non-cancer hazard indices for combined construction and operations-related TAC exposure are presented in **Table 3.3-15**. Chronic non-cancer health hazards were evaluated for all receptor locations by initially calculating maximum HI by summing the hazard quotients (HQs) for all TAC, irrespective of target organ. If the screening had resulted in an HI exceeding the HI threshold of 1, a review of the affected organ systems would be conducted to determine if a detailed analysis would be used, which would have summed the HQs of all TAC known to affect organ systems and presented the maximum HI for any organ system. The maximum chronic annual HI is less than the threshold of 1 for all receptors. However, as shown in **Table 3.3-15**, the maximum total HI for eight-hour exposure to all TAC during Proposed Project incremental operations would be greater than the threshold of 1 for on-Airport workers. These impacts are dominated by acrolein which targets the respiratory system (causing irritation) and the eyes. Acrolein is primarily emitted from jet aircraft during low engine power settings, such as idling and taxiing.

Residents

The maximum total chronic non-cancer HIs for a resident living in the HRA study area is 0.023 for annual exposure and 0.55 for 8-hour exposure. These maximum impacts are projected to occur during the operational period after completion of construction. The peak residential hazard locations are shown on **Figure 3.3-2**. As shown in **Table 3.3-15**, the peak incremental chronic non-cancer health hazards for residents would be below the significance threshold of 1.

Off-Airport Workers

The maximum total chronic non-cancer HIs for an off-Airport adult worker working in the HRA study area is 0.055 for annual exposure and 0.96 for 8-hour exposure. These impacts are projected to occur during the operational period after completion of construction. The peak off-Airport adult worker hazard locations are also shown on **Figure 3.3-2**. As shown in **Table 3.3-15**, the peak incremental chronic non-cancer health hazards for off-Airport workers would be below the significance threshold of 1.

TABLE 3.3-15**CHRONIC NON-CANCER HUMAN HEALTH HAZARDS FOR MAXIMALLY EXPOSED INDIVIDUALS DURING CONSTRUCTION AND OPERATION PERIODS COMPARED TO EXISTING CONDITIONS**

Year	Annual Resident HI^{/a/}	8-Hour Resident HI^{/a/}	Annual Off-Airport Worker HI^{/a/}	8-Hour Off-Airport Worker HI^{/a/}	Annual On-Airport Worker HI^{/a/}	8-Hour On-Airport Worker HI.	Significance Threshold	Equal to or Exceeds Threshold?
Construction Only, 2025-2030	0.0018	0.07	0.022	0.022	0.083	0.073	1	No
Incremental Operations, 2028-2038	0.023	0.55	0.055	0.96	0.89	2.0	1	Yes (on-Airport Worker)

/a/ Hazard indices (HI) are unitless.

Source: CDM Smith, 2023 ([Appendix E](#))

On-Airport Workers

The maximum total chronic non-cancer HIs for an on-Airport adult worker working in the HRA study area is 0.89 for annual exposure and 2.0 for 8-hour exposure. These impacts are projected to occur during the operational period after completion of construction. The peak on-Airport adult worker hazard locations are also shown on **Figure 3.3-3**. As shown in **Table 3.3-15**, the peak incremental eight-hour non-cancer health hazards for on-Airport workers would exceed the significance threshold of 1. The impact area would occur on the airside of the existing passenger terminals and air cargo facilities.

The chronic non-cancer human health hazards would be **less than significant** at residential locations, but would be considered **significant** at on-Airport worker locations during incremental operations of the Proposed Project.

If mitigation would not bring a project's impact below the applicable threshold of significance, the project would make a cumulatively considerable contribution to a cumulative impact, which would be significant and unavoidable. The majority of 8-hour non-cancer human health hazard effects for on-Airport workers would result from aircraft operations, which the Port does not have the authority to regulate. The Port has provided electrical infrastructure throughout the terminals and cargo areas for use by commercial and cargo airlines and would install this electrical infrastructure in the new terminal and relocated cargo area. However, this would not reduce impacts to less-than-significant levels and the impact would be potentially **significant and unavoidable**.

TOXIC AIR CONTAMINANTS – ACUTE HAZARDS

Construction and Operation

Acute non-cancer health hazards were evaluated for each year of construction (2025-2030) as well as for incremental operations from 2028 to 2038. The exposure concentrations represent the highest predicted concentrations of TAC for a 1-hour period.

Acute non-cancer health hazards were evaluated for all receptor locations by initially calculating maximum HI by summing the HQs for all TAC, irrespective of target organ and TAC location. If the screening had resulted in an HI exceeding the HI threshold of 1, a review of the affected target organ systems would be conducted to determine if a detailed analysis would be used, which would sum the HQs of all TAC known to affect the given organ systems and present the maximum HI for each affected organ system. As shown in **Table 3.3-16**, the maximum acute (1-hour) HI for exposure to all TAC during Proposed Project incremental operations would be greater than the threshold of 1 for one on-Airport worker location. This impact includes hazards associated with acrolein and 1,3-butadiene emitted from jet aircraft engines during engine idling and taxiing. Acrolein impacts the respiratory system and the eyes, while 1,3-Butadiene impacts the development system. Although these two pollutants impact different organ systems, the 1-hour hazard from each pollutant individually would also exceed the hazard threshold of 1 in the vicinity of the air cargo complex west of the passenger terminals.

Residents

For Proposed Project-related health hazards evaluated for acute 1-hour exposure, the maximum HI at the peak residential location is 0.4, which is less than the threshold of 1. The peak acute hazard locations for residents are also shown on **Figure 3.3-2**.

TABLE 3.3-16
PEAK INCREMENTAL ACUTE (1-HOUR) NON-CANCER HEALTH HAZARDS DURING CONSTRUCTION AND OPERATION PERIODS

MEI	Construction 1-Hour HI ^{a/}	Operations 1-Hour HI ^{a/}	Significance Threshold	Equal to or Exceeds Threshold?
Resident	0.0029	0.38	1	No
Off-Airport Adult Worker	0.0089	0.56	1	No
On-Airport Adult Worker	0.017	3.4	1	Yes

/a/ Hazard indices (HIs) are unitless.

Source: CDM Smith, 2023 ([Appendix E](#))

Off-Airport Workers

For Proposed Project-related health hazards evaluated for acute 1-hour exposure, the maximum HI at the peak off-Airport adult worker hazard location is 0.7, which is less than the threshold of 1. The peak acute hazard location for the off-Airport adult worker are shown on **Figure 3.3-2**.

On-Airport Workers

For Proposed Project-related health hazards evaluated for acute 1-hour exposure, the maximum HI at the peak on-Airport worker location is 3.4, which is greater than the threshold of 1. The peak acute hazard locations for off-Airport adult worker are shown on **Figure 3.3-3**.

The acute non-cancer human health hazards would be **less than significant** at residential and off-airport worker locations, but would be considered **significant** at on-Airport worker locations during incremental operations of the Proposed Project.

If mitigation would not bring a project's impact below the applicable threshold of significance, the project would make a cumulatively considerable contribution to a cumulative impact, which would be significant and unavoidable. The majority of acute (1-hour) non-cancer human health hazard effects for on-Airport workers would result from aircraft operations, which the Port does not have the authority to regulate. The Port has provided electrical infrastructure throughout the terminals and cargo areas for use by commercial and cargo airlines and would install this electrical infrastructure in the new terminal and relocated cargo area. However, this would not reduce impacts to less-than-significant levels and the impact would be potentially **significant and unavoidable**.

TOXIC AIR CONTAMINANTS – ANNUAL PM_{2.5} PROJECT CONTRIBUTION

Annual PM_{2.5} were modeled for each year of construction (2025-2030) as well as for incremental operations in 2028 to 2038. The annual concentrations for combined construction and incremental operations were also estimated for years 2028 through 2030. The maximum Proposed Project-related contribution to off-Airport PM_{2.5} concentrations is 0.26 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) which occurs on the Metropolitan Golf Links golf course near Bessie Coleman Drive. This location is used to represent the nearest off-Airport worker. The maximum PM_{2.5} concentration outside of Airport property is 0.21 $\mu\text{g}/\text{m}^3$ at the Park 'N' Fly off-Airport parking lot just east of 98th Avenue and Airport Access Road. Proposed Project-related annual PM_{2.5} concentration increments would be **less than significant** for off-Airport workers and residents.

3.4 BIOLOGICAL RESOURCES

This section describes existing biological resources as a basis for the discussion of potential impacts and proposed mitigation measures for the Proposed Project at OAK.

3.4.1 Background and Methodology

3.4.1.1 Regulatory Context

FEDERAL

Endangered Species Act

The Federal Endangered Species Act (FESA) protects plants and wildlife that are listed by the U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) as endangered or threatened. FESA Section 9 prohibits the take of endangered wildlife, where take is defined as to “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct” (Code of Federal Regulations [CFR] Title 50, Section 17.3). For plants, this statute governs removing, possessing, maliciously damaging, or destroying any endangered plant on federal land, as well as removing, cutting, digging up, damaging, or destroying any endangered plant on non-federal land in knowing violation of state law. Under FESA Section 7, agencies are required to consult with the USFWS or NMFS if their actions, including permit approvals or funding, could adversely affect a listed species (including plants) or its critical habitat.

Clean Water Act

The federal Water Pollution Control Act Amendments of 1972 (United States Code [USC], Title 33, Sections 1251– 1376), as amended by the Water Quality Act of 1987, and better known as the Clean Water Act, is the major federal legislation governing water quality. The purpose of the Clean Water Act is to “restore and maintain the chemical, physical, and biological integrity of the nation’s waters.” Discharges into waters of the United States are regulated under Clean Water Act Section 404. Waters of the United States include: (1) The territorial seas, and waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including waters which are subject to the ebb and flow of the tide; (2) Tributaries; (3) Lakes and ponds, and impoundments of jurisdictional waters; and (4) Adjacent wetlands (40 CFR 120.2). Important applicable sections of the Clean Water Act are discussed below:

- Section 303 requires states to develop water quality standards for inland surface and ocean waters and submit them to the U.S. Environmental Protection Agency (USEPA) for approval. Under Section 303(d), the state is required to list waters that do not meet water quality standards and to develop action plans to improve water quality.
- Section 304 provides water quality standards, criteria, and guidelines.
- Section 401 requires an applicant for any federal permit that proposes an activity that may result in a discharge to waters of the United States to obtain certification from the state (or Tribes that have been approved for “treatment as a State” status) that the discharge will comply with other provisions of the Clean Water Act. In California, certification is typically provided by the applicable Regional Water Quality Control Board (RWQCB). A Section 401 Water Quality Certification from the San

Francisco Bay RWQCB would be required for the Proposed Project if a Section 404 permit were required (see below for description of permitting under Section 404).

- Section 402 establishes the National Pollutant Discharge Elimination System (NPDES), a permitting program regulating the discharge of pollutants (except for dredge or fill material) into waters of the United States. The program is administered by the RWQCB.
- Section 404 provides for the issuance of dredge/fill permits by the U.S. Army Corps of Engineers (USACE). Tidally influenced waters that lie below "high tide line" and non-tidal waters that lie below "ordinary high water" would be subject to regulation under Section 404.

Migratory Bird Treaty Act

The federal Migratory Bird Treaty Act (MBTA) makes it unlawful at any time, by any means or in any manner, to pursue, hunt, take, capture, or kill migratory birds. The act applies to the removal of nests (such as swallow nests on bridges) occupied by migratory birds during the breeding season.

The MBTA states "unless permitted by regulations, it is unlawful at any time, by any means or in any manner, to pursue, hunt, take, capture, kill, attempt to take, capture, or kill, possess, offer for sale, sell, offer to barter, barter, offer to purchase, purchase, deliver for shipment, ship, export, import, cause to be shipped, exported, or imported, deliver for transportation, transport or cause to be transported, carry or cause to be carried, or receive for shipment, transportation, carriage, or export, any migratory bird, any part, nest, or egg of any such bird, or any product, whether or not manufactured, which consists, or is composed in whole or part, of any such bird or any part, nest, or egg thereof."

On January 7, 2021, the USFWS published a final rule providing that the scope of the prohibition of take under the MBTA applies "only to actions directed at migratory birds, their nests, or their eggs," and does not prohibit incidental take (i.e., take that is not the purpose of an activity) effective February 8, 2021 (86 FR 1134). However, the Interior Department rescinded this rule on March 8, 2021, and is in the process of proposing a new rule interpreting the MBTA to prohibit take of migratory birds regardless of intention.

Federal Aviation Administration Advisory – Hazardous Wildlife Attractants on or near Airports

The Federal Aviation Administration (FAA) Advisory Circulars (ACs) provide guidance on compliance with Title 14 of the Code of Federal Regulations (CFR). Title 14 CFR Part 139 Subpart D, Section 139.337 Wildlife Hazard Management defines basic requirements for hazardous wildlife management for airports that hold Airport Operating Certificates, and refers to AC 150/5200-33C *Hazardous Wildlife Attractants on or Near Airports* for "methods and procedures for wildlife hazard management at airports that are acceptable to the Administrator."³⁸ This AC is required to be followed by airports that receive funding from

³⁸ Federal Aviation Administration. (2004). Part 139.337 Wildlife Hazard Management. In *Title 14 Aeronautics and Space*. Code of Federal Regulations: Retrieved from: <https://www.govinfo.gov/content/pkg/CFR-2022-title14-vol3/pdf/CFR-2022-title14-vol3-sec139-337.pdf>.

Federal grant assistance programs (e.g., Airport Improvement Program) or the Passenger Facility Charge program, and by planners of projects or activities on or near airports.

During the past century, wildlife-aircraft strikes have resulted in the loss of hundreds of lives worldwide, as well as billions of dollars in aircraft damage. Many public-use airports have large open and undeveloped lands that can present potential hazard to aviation which may encourage wildlife (such as migratory birds) to enter an airport's approach or departure airspace or airport operations area (AOA). The FAA recommends 5 statute miles between the farthest edge of the airport's AOA and the hazardous wildlife attractant if the attractant could cause hazardous wildlife movement into or across the approach or departure airspace.

STATE

California Endangered Species Act

The California Endangered Species Act (CESA) authorizes the California Fish and Game Commission (CFGC) to designate endangered, threatened, and rare species and to regulate the taking of these species (California Fish and Game Code [F.G.C.] Sections 2050–2098). CESA defines endangered species as those whose continued existence in California is jeopardized. State-listed threatened species are those not presently facing extinction but that may become endangered in the foreseeable future. F.G.C. Section 2080 prohibits the taking of state-listed plants and animals. The California Department of Fish and Wildlife (CDFW) also designates fully protected or protected species as those that may not be taken or possessed. Species designated as fully protected or protected may or may not be listed as endangered or threatened. When a species is both state- and federally listed, an expedited request for consistency with the federal biological opinion may be issued through a request for a Section 2080.1 consistency determination. In addition, F.G.C. Section 3503 states, "It is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto."

California Fish and Game Code

The CFGC implements the F.G.C. as authorized by Article IV, Section 20, of the Constitution of the State of California. F.G.C. Sections 3503, 3503.5, 3505, 3800, and 3801.6 protect all native birds, birds of prey, and nongame birds, including their eggs and nests, that are not already listed as fully protected and that occur naturally within the state. Section 3503.5 specifically states that it is unlawful to take, possess, or destroy any raptors (e.g., hawks, owls, eagles, and falcons), including their nests or eggs. The CDFW is the state agency that manages native fish, wildlife, plant species, and natural communities for their ecological value and their benefits to people.

The F.G.C. designates certain fish and wildlife species as "fully protected" under Sections 3511 (birds), 4700 (mammals), 5050 (reptiles and amphibians), and 5515 (fish). Fully protected species may not be taken or possessed at any time, and no permits may be issued for the Proposed Project for incidental take of these species.

Porter-Cologne Water Quality Control Act

The State of California regulates activities that would involve "discharging waste, or proposing to discharge waste, within any region that could affect waters of the state" (California Water Code 13260[a]), pursuant to provisions of the Porter-Cologne Water Quality Control Act. Waters of the State are defined as "any surface water or groundwater,

including saline waters, within the boundaries of the state.”³⁹ Such waters may include waters not subject to regulation under Section 404. These waters may include other types of isolated wetlands (e.g., vernal pools) and other aquatic habitats not normally subject to federal regulation under Section 404 of the Clean Water Act.

California Native Plant Society

The California Native Plant Society (CNPS) is a non-profit conservation organization dedicated to monitoring and protecting sensitive plant species in California. The CNPS compiled the Rare and Endangered Plant Inventory, an online database containing information on rare, threatened, and endangered vascular plant species of California, including qualitative characterizations and geographic distribution of these species. The CDFW has used the inventory as a potential candidate list for plants being considered for listing as threatened or endangered. The CNPS has developed categories of rarity, referred to as California Rare Plant Ranks (CRPRs), of which CRPRs 1A, 1B, 2A, and 2B are considered particularly sensitive:

- CRPR – 1A Presumed extirpated in California and either rare or extinct elsewhere.
- CRPR – 1B Plants rare, threatened, or endangered in California and elsewhere.
- CRPR – 2A Presumed extirpated in California, but more common elsewhere.
- CRPR – 2B Plants rare, threatened, or endangered in California, but more common elsewhere.
- CRPR – 3 Plants about which we need more information – a review list.
- CRPR – 4 Plants of limited distribution – a watch list.

The CNPS appends CRPR categorizations with “threat ranks” that parallel the rankings used by the CDFW’s California Natural Diversity Database (CNDDB).⁴⁰ These threat ranks are added as a decimal code after the CRPR category as follows:

- .1 – Seriously endangered in California (over 80 percent of occurrences threatened/high degree and immediacy of threat).
- .2 – Fairly endangered in California (20 to 80 percent occurrences threatened).
- .3 – Not very endangered in California (less than 20 percent of occurrences threatened or no current threats known).

McAteer-Petris Act

The McAteer-Petris Act created the San Francisco Bay Conservation and Development Commission (BCDC) in response to public concern over the future of San Francisco Bay. It required BCDC to prepare a San Francisco Bay Plan (Bay Plan) that would serve as a “comprehensive and enforceable plan for the conservation of San Francisco Bay and the development of its shoreline.” The California Government Code and BCDC’s Bay Plan⁴¹

³⁹ California State Water Resources Control Board. (2021). Section 13040(e). In *Porter-Cologne Water Quality Control Act*.

⁴⁰ The CNDDB inventories the status and locations of rare plants and animals in California. CNDDB staff work with partners to maintain current lists of rare species as well as maintain a growing database of GIS-mapped locations for these species.

⁴¹ San Francisco Bay Conservation and Development Commission (BCDC). (2020, May). *San Francisco Bay Plan*. Retrieved from: <https://www.bcdc.ca.gov/pdf/bayplan/bayplan.pdf>.

contain sections and policies that are relevant to biological resources for the Proposed Project, including the following:

- Government Code Section 66602. Locations for Water-Oriented Land Uses. This section states, "The Legislature further finds and declares that certain water-oriented land uses along the bay shoreline are essential to the public welfare of the bay area, and that these uses include ports, water-related industries, airports, wildlife refuges, water-oriented recreation and public assembly, desalination plants, upland dredged material disposal sites, and powerplants requiring large amounts of water for cooling purposes; that the San Francisco Bay Plan should make provision for adequate and suitable locations for all these uses, thereby minimizing the necessity for future bay fill to create new sites for these uses; that existing public access to the shoreline and waters of the San Francisco Bay is inadequate and that maximum feasible public access, consistent with a proposed [p]roject, should be provided."
- Government Code Section 66610. BCDC Jurisdiction. Subpart b of this section states that BCDC's jurisdiction includes the "[s]horeline band consisting of all territory located between the shoreline of San Francisco Bay as defined in subdivision (a) of this section and a line 100 feet landward of and parallel with that line, but excluding any portions of such territory which are included in subdivisions (a), (c), and (d) of this section; provided that the commission 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." Portions of the detailed study area that lie within 100 feet of the mean high-water mark would be subject to regulation under this Act (i.e., the pump house, fuel farm, and North Field Lot parking area on Earhart Road).
- Bay Plan Part IV. Development of the Bay and Shoreline: Airports. Specific to airports, the Bay Plan states that, "Airports on the shores of the Bay should be permitted to include within their premises terminals for passengers, cargo, and general aviation; parking and supporting transportation facilities; and ancillary activities such as aircraft maintenance bases that are necessary to the airport operation. Airport-oriented industries (those using air transportation for the movement of goods and personnel or providing services to airport users) may be located within airports designated in the Bay Plan if they cannot feasibly be located elsewhere, but no fill should be permitted to provide space for these industries directly or indirectly."

LOCAL

Oakland Municipal Code

Title 12, Chapter 12.32, Street Trees and Shrubs provides protection for street trees.⁴²

Title 12, Chapter 12.36, Protected Trees provides protection for trees located on any property that includes Coast Live Oak (*Quercus agrifolia*) measuring 4 inches diameter at breast height or larger, and any other tree measuring 9 inches diameter at breast height or

⁴² City of Oakland. Chapter 12.32. Street Trees and Shrubs. *Oakland Municipal Code*. Retrieved from: http://oakland-ca.elaws.us/code/coor_title12_ch12.32.

larger except Eucalyptus and Monterey pine (*Pinus radiata*).⁴³ Monterey pine trees shall be protected only on city property and in development-related situations where more than five Monterey Pine trees per acre are proposed to be removed. If protected trees need to be removed, removal must be permitted beforehand, and replacement plantings may be required in accordance with Section 12.32.060.

Title 13, Chapter 13.16, Creek Protection, Storm Water Management and Discharge Control (Creek Protection) Ordinance provides protection to creeks, which are defined as "a watercourse that is a naturally occurring swale or depression, or engineered channel that carries fresh or estuarine water either seasonally or year around." There are four categories of creek permits (1-4).⁴⁴

A Creek Protection Plan is required for approval of a Creek Protection Permit when the work falls within Categories III and IV (Section 13.16.130). Category III includes exterior work that is located between 20 feet from the top of the Creek bank and 100 feet from the centerline of the Creek, includes earthwork involving more than 3 cubic yards of material, and is beyond 20 feet from the top of the Creek bank. Category IV includes work that is conducted from the center line of the creek to the 20-foot setback from the top of bank of the creek, that may or may not require any other development related permits including without limitation: earthwork, landscape walls, fences, patios, decks, private drainage improvements, irrigation systems, or trenching work. Categories III and IV require a Creek Protection Plan, which must include best management practices (BMPs) to protect the creek and an environmental review. Categories I and II are for work that is more than 100 feet from the center line of the creek. A Creek Protection Plan is not required for Categories I and II.

3.4.1.2 Significance Thresholds

For the purposes of this analysis, implementation of the Proposed Project would cause a significant impact on biological resources if it resulted in any of the following:

- a) 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 CDFW or USFWS.
- b) A substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFW or USFWS.
- c) A substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

⁴³ City of Oakland. Chapter 12.36. Protected Trees. *Oakland Municipal Code*. Retrieved from: http://oakland-ca.elaws.us/code/coor_title12_ch12.36.

⁴⁴ City of Oakland. Creek Protection Ordinance. *Oakland Municipal Code* Retrieved July 2023, from: <https://www.oaklandca.gov/topics/creek-protection-ordinance>.

- d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites.
- e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

The purpose of this evaluation is to identify any significant effects of the Proposed Project on biological resources. The analysis evaluates potential direct and indirect impacts from construction and operation of the Proposed Project and are defined as follows:

Direct impacts - those that could occur at the same time and place during Proposed Project implementation, including the removal of habitat from ground disturbance.

Indirect impacts - those that could occur either at a later time or at a distance from the detailed study area, but that are reasonably foreseeable, such as the loss of an aquatic species as a result of upstream effects on water quality or quantity.

The analysis evaluates the potential impacts of the Proposed Project on special-status species and their habitats, sensitive natural communities, wetlands, and wildlife corridors, using the significance criteria described above. Avoidance and minimization measures and mitigation measures are identified, as needed, to reduce impact levels to less-than-significant.

3.4.1.3 Methodologies

The evaluation of potential impacts on biological resources in the vicinity of OAK is based on information obtained from previous studies at the Airport as well as database and literature reviews, as described below. The potential for the Proposed Project to affect plant and wildlife resources was determined by reviewing applicable laws, regulations, and policies designed to protect sensitive and special-status resources.

The biological study areas (BSAs) used to evaluate impacts to special-status species with potential to occur within or near the Proposed Project encompass the detailed study area and includes two buffer areas around the detailed study area: a 100-foot buffer for special-status plant species (BSA for plants), and a 700-foot buffer for special-status wildlife species (BSA for animals). These BSAs, which include all the various non-contiguous areas that comprise the detailed study area, are collectively referred to herein as "the BSA."

DATABASE AND LITERATURE REVIEW

A review of relevant databases and literature on the biological resources in the vicinity of OAK was conducted. The following biological databases were queried for records of special-status plants, natural communities, and wildlife that might have potential to occur in the BSA:

- USFWS list of federally listed and proposed endangered, threatened, and candidate species and their designated critical habitat⁴⁵
- NMFS list of federally listed and proposed endangered, threatened, and candidate species and their designated critical habitat⁴⁶
- CNPS online Inventory of Rare and Endangered Vascular Plants of California⁴⁷
- CNDB⁴⁸

The search of the CNDB and CNPS databases for special-status species with potential to occur in the BSA included the San Leandro U.S. Geological Survey (USGS) 7.5-minute quadrangle where the detailed study area is located and the eight surrounding quadrangles (Oakland West, Oakland East, Las Trampas Ridge, Hayward, Newark, Redwood Point, San Mateo, and Hunters Point).

Other information sources consulted to determine which special-status species could potentially occur in the BSA include:

- 2012 Biological Assessment for the Runway Safety Area Improvement Project⁴⁹
- 2016 Reverification of USACE Jurisdictional Wetlands/Waters Determination⁵⁰
- 2018 Biological Assessment for the Airport Perimeter Dike Federal Emergency Management Act (FEMA) Improvements Project⁵¹
- 2022 Reverification of USACE Jurisdictional Wetlands/Waters Determination⁵²
- Natural Resources Conservation Service (NRCS) Web Soil Survey, for information about soils in the BSA⁵³

⁴⁵ U.S. Fish & Wildlife Service (USFWS). (2021). *Environmental Conservation Online System: Information for Planning and Consultation (IPaC)*. Retrieved August 4, 2021, from: <https://ecos.fws.gov/ipac/>.

⁴⁶ National Marine Fisheries Service (NMFS). (2021). *Queried for endangered and threatened species within San Leandro USFS 7.5-minute topographic quadrangle*. Retrieved August 4, 2021, from: https://archive.fisheries.noaa.gov/wcr/maps_data/california_species_list_tools.html.

⁴⁷ California Native Plant Society (CNPS). (2021). Retrieved August 4, 2021, from: <https://rareplants.cnps.org/Search/Advanced>.

⁴⁸ California Department of Fish & Wildlife. (2021). *California Natural Diversity Database*. Retrieved August 2021, from: <https://wildlife.ca.gov/data/cnddb>.

⁴⁹ URS Corporation. (2012). *Final Environmental Assessment for the Proposed Runway Safety Area Improvement Project: Appendix D-1 Biological Assessment*. Port of Oakland.

⁵⁰ Huffman-Broadway Group, Inc. (2016). *Reverification of USACE Jurisdictional Wetlands/Waters Determination for Oakland International Airport, Port of Oakland, City of Oakland, Alameda County, California. U.S. Army Corps of Engineers*.

⁵¹ AECOM. (2018). *Biological Assessment for the Airport Perimeter Dike FEMA Improvements Project*. Port of Oakland.

⁵² Huffman-Broadway Group, Inc. (2022). *Preliminary Jurisdictional Delineation Re-Verification for the Oakland International Airport, Port of Oakland, City of Oakland, Alameda County, CA. U.S. Army Corps of Engineers (USACE)*.

⁵³ Natural Resources Conservation Service (NRCS). (2021). *Web Soil Survey*. Retrieved August 2021, from: <https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>.

- USFWS National Wetlands Inventory (NWI)⁵⁴

LIKELIHOOD OF PRESENCE FOR SPECIAL-STATUS SPECIES

Using the information generated from databases and literature reviews, the list of special-status species with the potential to occur in the general vicinity was further refined to reflect the species that may occur within the BSA. (Species with potential to occur within the BSA, but not within the detailed study area itself, may still be subject to indirect Proposed Project impacts, even though they are not subject to direct impacts like species with potential to occur within the detailed study area.) A full list of the special-status species obtained from the USFWS, NMFS, CNDDB, and CNPS database searches is included in **Appendix G**. The likelihood of special-status species occurrence was determined based on previous occurrences in the area as well as each species' natural history parameters (including, but not limited to, the species' known range, habitat requirements, foraging needs, migration routes, and reproductive requirements) using the following general categories:

- *Present* – Reconnaissance-level, focused, or protocol-level surveys documented the occurrence or observation of a species in the BSA.
- *Likely to occur* (on site, or offsite where the species may be affected by the Proposed Project [e.g., from noise, dust, lighting, hydrological modifications, etc.]) – The species has a strong likelihood to be found in the detailed study area, or offsite within the BSA near enough to be potentially subject to indirect Proposed Project impacts, prior to or during construction, but has not been directly observed to date during surveys for the Proposed Project. The likelihood that a species may occur is based on the following considerations: suitable habitat that meets the life history requirements of the species is present within the BSA; migration routes or corridors are within or near the BSA; or records of sightings are documented within or near the BSA. The main assumption is that records of occurrence have been documented within or near the BSA, the BSA falls within the range of the species, suitable habitat is present, but it is undetermined whether the habitat is currently occupied.
- *Potential to occur* – There is a possibility that the species can be found in the BSA and is potentially subject to Proposed Project impacts prior to or during construction, but it has not been directly observed to date. The likelihood that a species may occur is based on the following conditions: suitable habitat that meets the life history requirements of the species is present within or near the BSA, or migration routes or corridors are near or within the BSA. The main assumption is that the BSA falls within the range of the species, and suitable habitat is present, but no records of sighting are located within or near the BSA and it is undetermined whether the habitat is currently occupied.
- *Unlikely to occur* – The species is not likely to occur in the BSA or near enough offsite to potentially be subject to Proposed Project impacts based on the following considerations: lack of suitable habitat and features that are required to satisfy the life history requirements of the species (e.g., absence of foraging habitat; lack of reproductive areas or sheltering areas); presence of barriers to migration/dispersal;

⁵⁴ U.S. Fish & Wildlife Service (USFWS). (2021). *National Wetlands Inventory*. Retrieved August 2021, from: <https://www.fws.gov/wetlands/data/Mapper.html>.

presence of predators or invasive species that inhibit survival or occupation; or lack of hibernacula, hibernation areas, or estivation areas on site.

- *Absent* – Suitable habitat does not exist in the BSA and the species is restricted to or known to be present only within a specific area outside of the BSA, or focused or protocol-level surveys did not detect the species.

3.4.2 Existing Conditions / Environmental Setting

The Airport occupies approximately 2,600 acres, including wetlands and other upland habitats comprised of non-native annual grasslands, monotypic stands of pampas grass (*Cortaderia jubata*) and iceplant (*Carpobrotus* sp.), developed areas, bare ground, and gravel.⁵⁵ **Figure 3.4-1** shows the habitat types within the BSA. Most of the detailed study area consists of upland habitats, including developed and disturbed areas. However, the BSA also includes open water, shorelines armored with riprap, and wetlands (tidal and non-tidal). Most of the wetlands within the Airport and BSA are non-tidal and occur mainly east and west of the Airport terminals and south of Runway 12-30. Tidal wetlands occur only within the BSA of the proposed North Field parking lot, adjacent to Doolittle Drive and Old Earhart Road. These wetlands are associated with the San Leandro Bay wetlands complex, which includes Arrowhead Marsh and the Martin Luther King Jr. Regional Shoreline Park.

3.4.2.1 Habitat Types

DEVELOPED AREAS

Developed areas consist of man-made structures such as runways, Airport aprons, buildings, the air traffic control tower, hangars, and paved parking lots. These areas may contain ornamental and landscape grasses, shrubs, and trees that are planted within medians, paved parking lots, and along roadways.

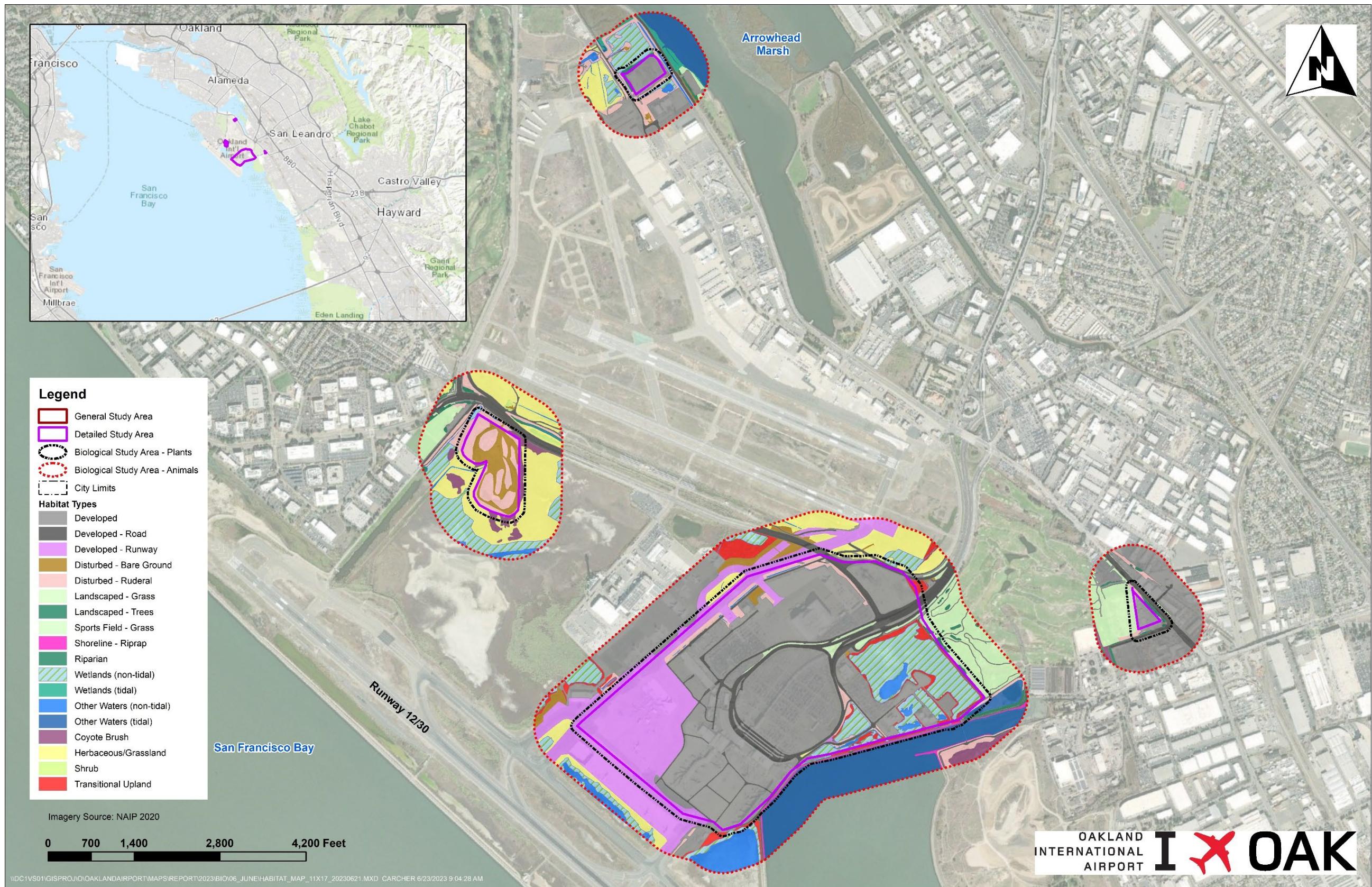
DISTURBED AREAS

Disturbed areas have been substantially affected by human activities and either support little to no vegetation or are composed of bare ground and gravel. Plants that do occur in these areas are typically ruderal non-native species. The 2018 Biological Assessment prepared for the Airport Perimeter Dike FEMA Improvements Project⁵⁶ indicated the following upland plant species occurred within that project's footprint: mustard (*Brassica nigra*), fennel (*Foeniculum vulgare*), wild radish (*Raphanus sativus*), filaree (*Erodium botrys*), bird's-foot trefoil (*Lotus corniculatus*), plantain (*Plantago* sp.), Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), common wild oat (*Avena fatua*), ripgut brome (*Bromus diandrus*), Italian ryegrass (*Festuca perennis*), foxtail (*Hordeum murinum*), Queen Anne's lace (*Daucus carota*), white sweet clover (*Melilotus albus*), bristly ox-tongue (*Helminthotheca echioides*), and purple thistle (*Cirsium vulgare*). Not all of these species may occur within the Proposed Project's detailed study area, and other species not noted above may be present.

⁵⁵ URS Corporation. (2012). *Final Environmental Assessment for the Proposed Runway Safety Area Improvement Project: Appendix D-1 Biological Assessment*. Port of Oakland.

⁵⁶ Ibid.

FIGURE 3.4-1
HABITAT TYPES IN THE BIOLOGICAL STUDY AREAS



Source: National Agriculture Imagery Program 2020. Habitat types digitized by Jacobs.

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LANDSCAPED AREAS

Landscaped areas occur throughout the detailed study area and include grasses, trees, a soccer field, and a golf course. Typical plants for these areas are maintained and include ornamental trees (e.g., London plane trees [*Platanus acerifolia*] and date palms [*Phoenix dactylifera*]) shrubs and turf grasses.

RIPRAP

Riprap occurs along the perimeter dike of the Airport and consists of rock and/or concrete rubble placed on the outboard slope to provide erosion protection. Most of the perimeter dike is devoid of vegetation, but sparse vegetative cover by species such as iceplant may occur in and around riprap.⁵⁷

RIPARIAN

Riparian habitat has been mapped⁵⁸ to the north and west of the proposed North Field parking lot, east and west of the proposed Maitland Lot, and east of the fuel farm, across the channel that connects to the San Francisco Bay. Per the Alameda and Contra Costa Enhanced Lifeform Map (Draft) data, riparian (scrub) is characterized as areas where woody riparian shrub species are at least 10 percent absolute cover and obligate riparian genera (e.g., shrubby willow trees) dominate the shrub cover (greater than 50 percent relative shrub cover).

OPEN WATER

The BSA contains tidal open waters of the San Francisco Bay located to the west and south of OAK, and to the north and east of the proposed North Field Lot. All construction activities would occur in upland areas and no work would occur within open water.

WETLANDS

Non-tidal Wetlands

The BSA includes non-tidal wetlands found mainly adjacent to the Airport terminals and facilities. The non-tidal wetlands have persistent standing water surrounding discrete shallow depressions that contain brackish water throughout most of the year.⁵⁹ These wetlands are dominated by pickleweed and saltgrass (*Distichlis spicata*), with small patches of invasive and native cordgrass (*Spartina* spp.) in a few isolated locations. Although there are non-tidal wetlands in the BSA, there are none within the detailed study area.

Tidal Wetlands

The BSA includes tidal wetlands near the proposed North Field Lot near Doolittle Drive. Tidal wetlands are characterized by slough with a marsh plain dominated by pickleweed, cordgrass, and salt grass. There are no tidal wetlands within the detailed study area.

⁵⁷ AECOM. (2018). *Biological Assessment for the Airport Perimeter Dike FEMA Improvements Project*. Port of Oakland.

⁵⁸ East Bay Regional Park District, CALFire, and Tukman Geospatial LLC. (2023, April). *Alameda and Contra Costa Counties Enhanced Lifeform Draft Map*.

⁵⁹ AECOM. (2018). *Biological Assessment for the Airport Perimeter Dike FEMA Improvements Project*. Port of Oakland.

Other Waters (Tidal and Non-Tidal)

The BSA includes non-tidal “other waters” characterized as seasonally ponded areas that lack wetland vegetation. Other non-tidal waters are present within the BSA surrounding all portions of the detailed study area except the proposed Golf Course parking lot (on Doolittle Drive just north of Eden Road). The non-tidal other waters along Taxiway B were delineated as waters of the U.S. and waters of the State. The only “other tidal waters” within the BSA are present at the proposed North Field parking lot on Earhart Road.

OTHER NATURAL AREAS

Other natural areas occur throughout the BSA and include coyote brush and vegetation associated with herbaceous/grassland, shrubs, and transitional uplands. Transitional upland areas are those that are typically adjacent to wetlands that may contain both upland and wetland vegetation but are outside of wetland boundaries.

3.4.2.2 Sensitive Biological Resources

This section describes sensitive communities and special-status species that have the potential to occur within the BSA. Special-status species that were initially identified as having some potential to occur, but were subsequently determined to be unlikely to be found in the BSA or otherwise be affected by the Proposed Project, are not discussed in this section but are included in **Appendix G**.

The CNDBB, CNPS, NMFS, and USFWS database searches identified 110 special-status species within the vicinity of the BSA, including 63 special-status plant species and 47 special-status wildlife species (**Section 3.4.1.3; Appendix G**).

SENSITIVE PLANT COMMUNITIES

There are riparian plant communities within the BSA and tidal wetlands characteristic of Northern Coastal Salt Marsh⁶⁰ are present outside the BSA. Riparian areas are transitional zones between terrestrial and aquatic systems that are typically vegetated with grasses, forbs, shrubs, and trees that are tolerant of periodic flooding and have sediments that are rich in nutrients and organic matter.⁶¹

Northern Coastal Salt Marsh is located within the San Leandro Bay wetlands complex along the east side of Doolittle Drive approximately 125 feet to the east of the proposed North Field Lot. Northern Coastal Salt Marsh occurs along the coast from the California/Oregon border south to San Luis Obispo and is found along sheltered inland margins of bays, lagoons, and estuaries on hydric soils that are subject to regular tidal inundation by salt water for at least part of each year.⁶² Species characteristic of this habitat type are salt-marsh dodder (*Cuscuta salina*), saltgrass, dwarf spikerush (*Eleocharis parvula*), alkali heath (*Frankenia grandifolia*), marsh gumplant (*Grindelia stricta* var. *angustifolia*), and pickleweed, among others.

⁶⁰ Holland, R. (1986). *Preliminary descriptions of the terrestrial natural communities of California*. California Department of Fish and Game.

⁶¹ California Wildlife Conservation Board. (2023). *California Riparian Habitat Conservation Program*.

⁶² Holland, R. (1986). *Preliminary descriptions of the terrestrial natural communities of California*. California Department of Fish and Game.

SPECIAL-STATUS PLANT SPECIES

The review of the CNDBB, USFWS, and CNPS databases indicated that 63 special-status plant species occur within the nine-quadrangle search area (refer to **Appendix G** for the full list of plant species query results). However, only one such species, long-styled sand-spurrey (*Spergularia macrotheca* var. *longistyla*), has the potential to occur in the 100-foot plant BSA due to the presence of suitable non-tidal wetland habitat in the BSA and a historical CNDBB occurrence (circa 1991) in the vicinity of OAK (the exact location is unknown). This species has been designated as a 1B.2⁶³ species by CNPS and can be found in meadows, seeps, marshes, and swamps. It grows in mesic soils and blooms from February through May. The remaining 62 species identified from the database queries were considered to be absent because the detailed study area and adjacent potentially indirectly impacted areas lack suitable habitat.

Previous rare plant and floristic surveys were conducted in 1991–1993 as part of the OAK Airport Development Program Final Environmental Impact Report (EIR).⁶⁴ Although these surveys are too old to rely on for the purposes of the Proposed Project analysis, it is worth noting that no individuals or populations of federal- or state-listed or candidate plant species were found at OAK at that time. However, several hundred salt marsh gumplants, a CNPS List 4 species (plant species of limited distribution), were observed along Doolittle Drive and San Leandro Creek (from east of 98th Street Bridge to Hegenberger Road) and at the north end of the North Field Runway 10R-28L (formerly 9R-27L).⁶⁵

SPECIAL-STATUS WILDLIFE SPECIES

The review of the CNDBB and USFWS databases for the Proposed Project indicated that 47 special-status wildlife species occur within the nine-quadrangle search area (refer to **Appendix G** for the full list of wildlife species query results). However, suitable habitat is present for only 14 of the 47 wildlife species within the 700-foot wildlife BSA. These species with potential to occur are described in **Table 3.4-1** and in **Appendix G**. The remaining species identified from the database queries were determined absent or unlikely to occur because the detailed study area and adjacent areas lack suitable habitat.

CRITICAL HABITAT

There is no designated critical habitat for federally listed species within the terrestrial areas of the BSA. However, the Airport is located within Recovery Units for the California Ridgway's rail (*Rallus obsoletus obsoletus*), western snowy plover (*Charadrius alexandrinus nivosus*), California least tern (*Sternula antillarum browni*), and salt marsh harvest mouse

⁶³ CNPS California Rare Plant Rank (CRPR): (1B) Rare, threatened, or endangered in California and elsewhere. Threat Rank:0.2 Fairly threatened in California (20 to 80 percent of occurrences threatened/moderate degree and immediacy of threat).

⁶⁴ Port of Oakland. (1997). *Airport Development Program, Oakland International Airport FEIR*.

⁶⁵ Ibid.

TABLE 3.4-1
SPECIAL-STATUS WILDLIFE SPECIES WITH POTENTIAL TO OCCUR WITHIN THE BSA

Scientific Name/ Common Name	Status^{a/}			Habitat	Potential for Occurrence within the BSA
	Federal	State	CDFW		
Fish					
<i>Acipenser medirostris</i> / green sturgeon Southern Distinct Population Segment	T CH	-	-	Abundance of this species increases northward of Point Conception. Spawns in the Sacramento River at temperatures between 8–14 degrees Celsius. Preferred spawning substrate is large cobble but can range from clean sand to bedrock.	<i>Potential to Occur.</i> There is potential for this species to occur within the BSA. Designated Critical Habitat and suitable foraging habitat are present within open water and intertidal mudflats of the BSA. However, the detailed study area is entirely inaccessible to this species and there are no anticipated impacts.
<i>Oncorhynchus mykiss</i> / steelhead, Central California Coast	T CH			Marine, estuarine, and freshwater habitats. All naturally spawned in streams from the Russian River, south to Soquel Creek and to, but not including, Pajaro River. Also San Francisco and San Pablo Bay Basins.	<i>Potential to Occur.</i> There is potential for this species to occur within the BSA. Designated Critical Habitat and suitable foraging habitat is present within open water and intertidal mudflats of the BSA. However, the detailed study area is located entirely on land and there are no anticipated impacts.
<i>Spirinchus thaleichthys</i> / longfin smelt	C	T	-	Euryhaline (able to tolerate a wide range of salinity), nektonic (active swimmers), and anadromous (migrating up rivers from the sea to spawn). Found in open waters of estuaries, mostly in middle or bottom of water column.	<i>Potential to Occur.</i> There is potential for this species to occur within the BSA due to the presence of potentially suitable habitat within open water habitat of the BSA. There is one CNDDB occurrence within the BSA. However, the detailed study area is entirely inaccessible to this species and there are no anticipated impacts.

Scientific Name/ Common Name	Status^{a/}			Habitat	Potential for Occurrence within the BSA
	Federal	State	CDFW		
Birds					
<i>Athene cunicularia/</i> western burrowing owl	-	-	SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation.	<i>Potential to Occur.</i> There is potential for this species to occur within the BSA. They have been known to nest at OAK and within the BSA. ⁶⁶ The 1997 Final EIR noted 14 burrow sites within OAK and a burrowing owl mitigation site at the end of Earhart Road near the proposed North Field Lot parking area on Earhart Road. There are two historical (circa 1983) CNDDDB occurrences within 0.6 mile of the detailed study area.
<i>Circus cyaneus/</i> northern harrier	-	-	SSC	Coastal salt and fresh-water marshes, nesting and foraging habitats in grasslands and agricultural fields.	<i>Potential to Occur.</i> There is potential for this species to occur within the BSA, which does contain suitable nesting and foraging habitat due to the presence of salt marsh. This species has been known to nest at OAK, which was noted in the 1997 Airport Development Program Final EIR. ⁶⁷ There are no CNDDDB occurrences within 2 miles of the BSA.
<i>Elanus leucurus/</i> white-tailed kite	-	-	FP	Rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland.	<i>Potential to Occur.</i> There is potential for this species to occur within the BSA, which contains suitable foraging and nesting habitat due to the presence of trees within the BSA. This species has been known to nest at OAK along the northern boundary of Bay Farm Island as noted in the 1997 Airport Development Program Final EIR. ⁶⁸ There are no CNDDDB occurrences within 2 miles of the BSA.

⁶⁶ Port of Oakland. (1997). *Airport Development Program, Oakland International Airport FEIR*.

⁶⁷ Ibid.

⁶⁸ Ibid.

Scientific Name/ Common Name	Status^{a/}			Habitat	Potential for Occurrence within the BSA
	Federal	State	CDFW		
<i>Falco peregrinus anatum</i> / American peregrine falcon	DL	DL	FP	Wetlands, lakes, rivers, or other water; on cliffs, banks, dunes, mounds; also, human-made structures. Nest consists of a scrape or a depression or ledge in an open site.	<i>Potential to Occur.</i> There is potential for this species to occur within the BSA, which contains suitable foraging and potential nesting habitat due to the presence of tall structures. There is one CNDDB occurrence of a nesting peregrine falcon in 2014 within 1,000 feet of the BSA in an urban structure.
<i>Geothlypis trichas sinuosa</i> / salt marsh common yellowthroat	-	-	SSC	Resident of the San Francisco Bay region, in freshwater and saltwater marshes. Requires thick, continuous cover down to water surface for foraging; tall grasses, tule patches, willows for nesting.	<i>Potential to Occur.</i> There is potential for this species to occur within the BSA, which does contain suitable foraging habitat due to the presence of tidal salt marsh near the proposed North Field Lot where there is nearby tidal salt marsh habitat with gumplant and pickleweed as well as adjacent upland habitats. There are no CNDDB occurrences within the BSA. However, there is one CNDDB occurrence from 1995 at Arrowhead Marsh approximately 1,000 feet to the east of the proposed North Field Lot.
<i>Melospiza melodia pusillula</i> / Alameda song sparrow	-	-	SSC	Resident of salt marshes bordering south arm of San Francisco Bay. Inhabits Salicornia marshes; nests low in Grindelia bushes (high enough to escape high tides) and in Salicornia.	<i>Potential to Occur.</i> There is potential for this species to occur within the BSA, which does contain suitable foraging and nesting habitat due to the presence of tidal salt marsh near the proposed North Field Lot where there is nearby tidal salt marsh with gumplant and pickleweed as well as adjacent upland habitats. There are four CNDDB occurrences within 2 miles of the BSA, with the most recent occurrence (circa 1946) located at OAK.

Scientific Name/ Common Name	Status^{a/}			Habitat	Potential for Occurrence within the BSA
	Federal	State	CDFW		
<i>Laterallus jamaicensis coturniculus/</i> California black rail	-	T	FP	Freshwater marshes, wet meadows, and shallow margins of saltwater marshes. Needs water depth of about 1 inch that does not fluctuate during the year, and dense vegetation for nesting habitat.	<i>Potential to Occur.</i> There is potential for this species to occur within the BSA, which contains foraging and dispersal habitat and may contain marginally suitable nesting habitat due to the presence of tidal salt marsh habitat near the proposed North Field Lot. There is one CNDDDB occurrence within the BSA; however, it is considered possibly extirpated from this location as it was last observed within the BSA in 1897 within Bay Farm Island. CNDDDB also includes an occurrence in 1995 at Arrowhead Marsh approximately 1,000 feet to the east of the proposed North Field Lot, but notes that none were detected during surveys in 2010 and 2011.
<i>Rallus obsoletus obsoletus/</i> California Ridgway's rail	E	E	FP	Salt water and brackish marshes with tidal sloughs. Associated with abundant growths of pickleweed but feeds away from cover on invertebrates from mud-bottomed sloughs.	<i>Potential to Occur.</i> There is potential for this species to occur within the BSA, which contains foraging and dispersal habitat and may contain marginally suitable nesting habitat due to the presence of tidal salt marsh near the proposed North Field Lot. This species is known to occur in tidal marsh habitat at Arrowhead Marsh located approximately 1,000 feet east from that location. There are five CNDDDB occurrences within the San Leandro Bay wetlands complex with the most recent and nearest occurring in 2015 at Arrowhead Marsh. Previous Biological Assessments ^{69⁷⁰} at OAK concluded the presence of suitable dispersal and marginal foraging habitat, but not nesting habitat – citing predation pressure and

⁶⁹ URS Corporation. (2012). *Final Environmental Assessment for the Proposed Runway Safety Area Improvement Project: Appendix D-1 Biological Assessment*. Port of Oakland.

⁷⁰ AECOM. (2018). *Biological Assessment for the Airport Perimeter Dike FEMA Improvements Project*. Port of Oakland.

Scientific Name/ Common Name	Status^{a/b}			Habitat	Potential for Occurrence within the BSA
	Federal	State	CDFW		
					the lack of suitable habitat. However, neither of these assessments included the vicinity of the proposed North Field Lot location where potentially suitable nesting habitat may be present.
<i>Rynchops niger/</i> black skimmer	-	-	SSC	Nests on gravel bars, low islets, and sandy beaches, in unvegetated sites. Nesting colonies usually less than 200 pairs.	<i>Potential to Occur.</i> There is potential for this species to occur within the BSA, which does not contain suitable nesting habitat but may contain foraging habitat. Presence within the BSA would likely be limited to foraging or flyovers. There are no CNDDDB occurrences within 2 miles of the BSA.
Mammals					
<i>Reithrodontomys raviventris/</i> salt marsh harvest mouse	E	E	FP	Only found in the saline emergent wetlands of San Francisco Bay and its estuaries. Pickleweed is primary habitat. Does not burrow, builds loosely organized nests. Requires higher areas for flood escape.	<i>Potential to Occur.</i> There is potential for this species to occur within the BSA due to the presence of tidal salt marsh habitat. However, previous studies at OAK included Biological Assessments ^{71,72} which concluded that this species is not present at OAK. Trapping surveys at OAK conducted in 1985, 1990, 1991, 2000, and 2001 did not result in any detections of the salt marsh harvest mouse. However, these assessments did not include the proposed North Field Lot. Potentially suitable habitat may be present within the BSA at this location due to the presence of nearby tidal salt marsh associated with the San Leandro Bay wetlands complex and Arrowhead Marsh where there is one historical CNDDDB occurrence (circa 1938).

⁷¹ URS Corporation. (2012). *Final Environmental Assessment for the Proposed Runway Safety Area Improvement Project: Appendix D-1 Biological Assessment*. Port of Oakland.

⁷² AECOM. (2018). *Biological Assessment for the Airport Perimeter Dike FEMA Improvements Project*. Port of Oakland.

Scientific Name/ Common Name	Status^{/a/}			Habitat	Potential for Occurrence within the BSA
	Federal	State	CDFW		
<i>Sorex vagrans halicoetes/ salt marsh wandering shrew</i>	-	-	SSC	Salt marshes of the south arm of San Francisco Bay.	<i>Potential to Occur.</i> There is potential for this species to occur within the BSA, which contains suitable habitat due to the presence of tidal salt marsh. There is one historical CNDB occurrence (circa 1985) of this species at OAK.

/a/ Status designations are as follows:

Federal Designations:

(E) Federally Endangered, (T) Federally Threatened, (C) Candidate, (DL) Federally Delisted, CH (Critical Habitat)

State Designations:

(E) State Endangered, (T) State Threatened, (DL) State Delisted

California Department of Fish and Wildlife (CDFW) Designations:

(SSC) Species of Special Concern, (FP) Fully Protected

Sources: CDFW 2021a; NMFS 2021; USFWS 2021

(*Reithrodontomys raviventris*).⁷³⁷⁴⁷⁵ Critical habitat for the Central California Coast steelhead (*Oncorhynchus mykiss*) Evolutionarily Significant Unit and the green sturgeon (*Acipenser medirostris*) southern Distinct Population Segment includes the tidal waters of San Francisco Bay. The 700-foot wildlife BSA includes the open waters of the Bay; however, no work associated with the Proposed Project would occur in the Bay.

3.4.2.3 Other Migratory Birds

Non-listed migratory bird species can establish nests in suitable habitat in the BSA. The nesting season for migratory birds is generally between February 15 and August 31.

3.4.2.4 Jurisdictional Aquatic Resources

The BSA contains jurisdictional tidal and non-tidal wetlands and other water features that are waters of the U.S. and waters of the State. These features are located south of Taxiway B near the cargo facilities and west of the proposed North Field Lot. There are 11 features with a total area of 0.62 acre (2,964 linear feet) within the BSA (see **Figure 3.4-1**).

3.4.2.5 Wildlife Movement

Stretches of wildlife habitat that join two larger, otherwise separated habitat areas often serve as important corridors for wildlife movement. Topography and other natural factors, in combination with urbanization, have fragmented or separated large open-space areas. The fragmentation of natural habitat creates isolated “islands” of vegetation that may not provide sufficient area to accommodate sustainable populations of plants or animals and can adversely affect genetic and species diversity. Areas of suitable habitat create movement corridors that minimize the effects of fragmentation by allowing animals to move between remaining habitats.

San Francisco Bay is an important stopover for migratory shorebirds along the Pacific Flyway.⁷⁶ Open water within the Bay provides congregation and foraging habitat for shorebirds, while larger stands of wetland vegetation provide habitat for many species. The Airport contains wetlands and natural areas that could be used by migrating birds and other wildlife for foraging and dispersal. Although the natural areas are fragmented and the Airport is located in an area that is heavily developed with surrounding residential neighborhoods, golf courses, and heavy vehicular and aircraft traffic, it may serve as a stop-over site during migration and contribute to the integrity of the wildlife movement functions of the area.

⁷³ U.S. Fish and Wildlife Service (USFWS). (1984). *Salt Marsh Harvest Mouse and California Clapper Rail Recovery Plan*. Portland, Oregon.

⁷⁴ U.S. Fish and Wildlife Service (USFWS). (2007). *Recovery Plan for the Pacific Coasst Population of the Wetsern Snowy Plover (Charadrius alexandrinus nivosus)*. Portland, Oregon: California/Operations Office, U.S. Fish and Wildlife Service.

⁷⁵ U.S. Fish and Wildlife Service (USFWS). (1985). *Revised California Least Tern Recovery Plan*. Portland, Oregon: U.S. Fish and Wildlife Service.

⁷⁶ Stenzel, L., Hickey, C., Kjelmyr, J., & Page, G. (2002, January). *Abundance and distribution of shorebirds in the San Fracisco Bay Area*. Western Birds, pp. 69-98.

3.4.2.6 Protected Trees

The Airport contains landscaped trees that have been planted in the developed areas within medians, paved parking lots, and along roadways. There are trees located in the BSA that fall under the definition of a protected tree as defined by the City of Oakland⁷⁷ which includes trees that have a diameter at breast height of 9 or more inches. A summary of the protected trees within the plant BSA (100-foot buffer around the detailed study area) is included in **Appendix G**.

3.4.3 Environmental Impacts and Mitigation Measures

- 3.4.3.1 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 CDFW or USFWS

CONSTRUCTION

As described in **Section 3.4.2.2**, there are 12 federal and/or state listed special-status species with potential to occur in the BSA: one plant (long-styled sand spurrey), nine bird species, and two mammal species. There is potential for special-status fish species (green sturgeon, steelhead [Central California Coast], chinook salmon [Central Valley spring run; Sacramento River winter-run], and longfin smelt) to occur in the BSA because the buffer area extends into the open waters of San Francisco Bay. However, the detailed study area is located entirely on land and is inaccessible to these species. Thus, there are no anticipated direct or indirect impacts for these aquatic species from the construction or operation of the Proposed Project.

Plant Species

There is one plant species (long-styled sand spurrey) that has potential to occur due to the presence of suitable non-tidal wetland habitat (80.7 acres) in the BSA. The potentially suitable habitat for this species is considered marginal, but its presence cannot be ruled out. Potential direct impacts to this species could include the accidental removal or trampling of individual plants during construction. Potential indirect impacts during construction activities could result from accidentally introducing contaminants such as fuels, oils, hydraulic fluids, and other chemicals/compounds into adjacent wetland areas where the long-styled sand spurrey may occur. As discussed in **Section 3.9, Hydrology and Water Quality**, construction contractors would be required to prepare a Stormwater Pollution Prevention Plan (SWPPP) in compliance with the NPDES's General Construction Permit. The SWPPP would include a list of the hazardous materials, spill prevention measures, BMPs for sediment and erosion control, and protocols for equipment inspections, fuel storage, spill response, and controlling site runoff. Although it is unlikely that the long-styled sand spurrey occurs in the detailed study area, avoidance and minimization measures would be implemented to avoid and minimize direct and indirect impacts to this species in the unlikely event that the affected habitat is occupied. These impacts to special-status plant species during construction would be **potentially significant**. However, with implementation of

⁷⁷ City of Oakland. Chapter 12.36. Protected Trees. Oakland Municipal Code: Retrieved from: http://oakland-ca.elaws.us/code/coor_title12_ch12.36.

the below mitigation measures, the impact would be reduced to ***less than significant with mitigation incorporated.***

MITIGATION MEASURES FOR IMPACTS ON PLANT SPECIES

Worker Environmental Awareness Training

Prior to the start of construction, a CDFW- and USFWS-approved biologist (Biological Monitor) will provide a training session for all work personnel to identify any sensitive species that may be in the area, their basic habits, how they may be encountered in their work area, and procedures to follow when they are encountered. Any personnel joining the work crew later shall receive the same training before beginning work. Upon completion of the education program, employees shall sign a form stating they attended the program and understand all protection measures. A pamphlet, prepared by the Port, that contains images of sensitive species that may occur within the Proposed Project, identifies environmentally sensitive areas (ESAs) within the detailed study area, and notes key avoidance measures, as well as employee guidance shall be given to each person who completes the training program. These forms shall be made available to the resource agencies upon request.

Mark Environmentally Sensitive Areas

Before construction begins, ESAs shall be clearly delineated using high visibility orange fencing, flagging, or similar marking to delineate sensitive habitats. The ESA marking shall remain in place throughout construction. It may be removed during the wet season (and subsequently re-installed) if needed to prevent materials from being washed away. Particular attention shall be focused on ESAs adjacent to or nearby Northern Coastal Salt Marsh or other tidally influenced wetlands that may provide potentially suitable habitat for the California Ridgway's rail and salt marsh harvest mouse. The final Proposed Project plans shall depict all locations where ESA markings shall be installed and how the markings would be installed. The bid solicitation package special provisions would clearly describe acceptable marking material and prohibited construction-related activities, vehicle operation, material and equipment storage, and other surface-disturbing activities within ESAs. ESA markings shall be maintained in good repair throughout construction of the Proposed Project when there is potential for ESAs to be affected by nearby construction activities.

Preconstruction Surveys for Special-status Plant Species

Preconstruction surveys for the long-styled sand spurrey shall be conducted in accordance with CDFW (2018) protocols⁷⁸ during the blooming season (February through May). If special-status plants are identified during the surveys, and impacts to the species are considered significant in the context of the status of the special-status plant species and the number of populations and individuals known, the following actions shall be undertaken:

- Avoid Rare Plants. The construction area of a project component that could affect a rare plant shall be adjusted, if practicable, to completely or partially avoid affecting special-status plant species.

⁷⁸ California Department of Fish and Wildlife (CDFW). (2018, March). *Protocols for Surveying and Evaluation Impacts to Special Status Native Plant Populations and Sensitive Natural Communities.*

- Minimize Disturbance to Rare Plants. If complete or partial avoidance is not practicable, mitigation measures shall be implemented to reduce the severity of the impact to the special-status plant species. These actions could include one or a combination of the following: 1) collection of special-status plant seeds, bulbs, other propagules, or topsoil prior to construction for use in future onsite restoration or enhancement actions; 2) restoration or enhancement of suitable special-status plant habitat onsite; or 3) restoration or enhancement of suitable special-status plant habitat offsite.

Biological Monitoring

If special-status species plants are found during surveys, then a CDFW- and USFWS-approved Biological Monitor shall be on site during all vegetation removal and work within 100 feet of where the plants were found. The Biological Monitor shall have authority to stop work that may result in unauthorized take through communication with the Port. The USFWS and/or CDFW shall be notified by telephone and electronic mail within one working day if the Biological Monitor exercises this authority.

Work in Dry Weather Only When in Sensitive Habitats

Work in any bed, bank, channel, and any associated riparian habitat shall be conducted during periods of dry weather. Forecasted precipitation shall be monitored. When 0.25 inch or more of precipitation is forecasted to occur, work in sensitive habitats shall stop before precipitation commences. No construction activities shall be started if erosion control measures cannot be completed prior to the onset of precipitation. After any storm event, all sites currently under construction and all sites scheduled to begin construction within the 72 hours of the storm event shall be inspected for erosion and sediment problems and corrective action will be taken as needed; 72-hour weather forecasts from the National Weather Service shall be consulted and work shall not start back up until runoff ceases and there is less than a 50 percent forecast for precipitation for the following 24-hour period.

Construction Site Best Management Practices

The following site restrictions shall be implemented to avoid or minimize potential impacts on sensitive biological resources:

- Enforcing a speed limit of 15 miles per hour for construction and Port vehicles in unpaved portions of the site to reduce dust and excessive soil disturbance.
- Locating construction access, staging, storage, and parking areas outside of any designated ESA to the extent practicable. Access routes, staging and storage areas, and contractor parking shall be limited to the minimum necessary to construct the Proposed Project. Routes and boundaries of roadwork shall be clearly marked before initiating construction.
- Enclosing food and food-related trash items in sealed trash containers and removing them from the site at the end of each day.
- Prohibiting pets from entering the construction sites.
- Prohibiting firearms, except for those carried by authorized security personnel or local, state, or federal law enforcement officials.

Stormwater Best Management Practices

Refer to **Section 3.9, Hydrology and Water Quality** for a list of stormwater BMPs.

Wildlife Species

SPECIAL-STATUS BIRD SPECIES

Special-status birds with the potential to occur in the BSA include Western burrowing owl, Northern harrier, white-tailed kite, American peregrine falcon, salt marsh common yellowthroat, Alameda song sparrow, California black rail, California Ridgway's rail, and black skimmer. Bird species known to nest at OAK have included Western burrowing owl, Northern harrier, and white-tailed kite. A burrowing owl mitigation site has been established at the end of Earhart Road approximately 150 feet from the proposed North Field parking lot. Therefore, suitable nesting habitat is present for this species within the BSA.

The California Ridgway's rail and California black rail, which share similar habitats, may occur within the BSA due to the presence of potential dispersal and foraging habitat; however, it is unlikely that suitable nesting habitat is present. Previous studies have noted the absence of suitable habitat and predation pressure as reasons why this species is not expected to occur.⁷⁹ However, the proposed North Field Lot, which is within 1,000 feet of Arrowhead Marsh, was not previously evaluated in those studies, and the BSA in this location may contain suitable nesting habitat. The most likely potential occurrence of this species would include juvenile migrants dispersing from nearby populations. Although it is unlikely that these species would occur in the BSA, their presence cannot be ruled out.

Although there are no known occurrences of the salt marsh common yellowthroat and Alameda song sparrow nesting within the BSA, potentially suitable nesting habitat is present due to tidal salt marsh near the proposed North Field Lot. This area includes nearby tidal salt marsh habitat with gumplant and pickleweed as well as adjacent upland habitats.

The BSA contains suitable nesting and foraging habitat for American peregrine falcon due to the presence of buildings and structures that could provide suitable nesting platforms.

The BSA does not contain suitable nesting habitat for black skimmer, but it does contain foraging habitat. The presence of this species would likely be limited to foraging or flyovers.

The BSA contains suitable nesting habitat for other bird species protected by the MBTA. Natural nesting areas could include trees, shrubs, ground cover, and bare ground. Man-made structures (e.g., buildings) could also provide nesting habitat for birds protected by the MBTA.

Potential direct impacts to special-status bird species and birds protected by the F.G.C. and MBTA include increased human presence that could result in noise, vibration, and visual disturbances in or adjacent to suitable habitats in the BSA from construction activities such as vegetation removal, earth moving, and the operation of heavy equipment. These construction-related disturbances may include alarm responses that cause the birds to flush, run away, or wait out the disturbances,⁸⁰ which could increase the risk of predation or

⁷⁹ AECOM. (2018). *Biological Assessment for the Airport Perimeter Dike FEMA Improvements Project*. Port of Oakland.

⁸⁰ Ibid.

mortality from accidentally entering construction areas and being crushed by construction equipment. Additionally, construction-related disturbances could indirectly result in nest failure (i.e., disturbance, avoidance, or abandonment that leads to unsuccessful reproduction), or cause behavior that would expose an adult or its young to predators. If nests are established prior to the start of construction, these activities could cause the birds to alter their behavior or abandon the nests. Additional indirect impacts during construction could result from accidentally introducing contaminants such as fuels, oils, hydraulic fluids, and other chemicals/compounds into sensitive areas where birds may be nesting.

These impacts to special-status bird species and birds protected by the F.G.C. and MBTA would be ***potentially significant***. However, with the implementation of the mitigation measures identified above for plant species as well as the below mitigation measures, the impact would be reduced to ***less than significant with mitigation incorporated***.

Mitigation Measures for Impacts to Special-Status Bird Species

Preconstruction Nesting Bird Surveys

If construction activities occur between February 1 and September 30, then a pre-construction survey(s) shall be conducted within 500 feet of the construction areas for nesting birds no more than 3 days before construction. If active nests are found, then an appropriate buffer shall be established, and the nest shall be monitored for compliance with the MBTA and F.G.C. Section 3503.

Active Nest Buffers

If an active bird nest is found during construction activities, then species-appropriate ESA buffers based on Pacific Gas & Electric Company's (2015) recommended nesting buffers⁸¹ shall be implemented to avoid affecting the young until they have fledged, or as otherwise determined by consultation with USFWS and CDFW regarding appropriate action to comply with the MBTA and F.G.C. Section 3503.

Western Burrowing Owl Pre-Construction Surveys

Pre-construction surveys shall be conducted where Western burrowing owl nesting habitat has potential to occur within 500 feet of work. The survey protocol⁸² shall be as follows:

- a) Conduct four survey visits.
- b) An initial visit must occur between February 15 and April 15.
- c) A minimum of three subsequent surveys shall be conducted, each survey at least three weeks apart, and at least one visit occurring after June 15.
- d) Conduct an additional take avoidance survey no less than 14 days prior to initiating ground-disturbing activities where work would occur.

⁸¹ Pacific Gas and Electric Company (PG&E). (2015). *Nesting Birds: Species Buffers for PG&E Activities*. Retrieved from: https://ia.cpuc.ca.gov/Environment/info/panoramaenv/Fulton-Fitch/Application/Appendix_E_Birds.pdf.

⁸² California Department of Fish and Game. (2012). *Staff Report on Burrowing Owl Mitigation - Appendix D: Breeding and Non-Breeding Season Survey and Reports*.

Western Burrowing Owl Nest Avoidance

If a Western burrowing owl active nest is discovered during pre-construction surveys or biological monitoring, the following initial buffers will be implemented:

- a) From April 1 through October 15, establish a 660-foot (200-meter) no-work buffer from the active nest site.
- b) From October 16 through March 31, establish a 164-foot (50 meter) no-work buffer from the active nest site.
- c) Buffers and minimization measures (e.g., blinds and screens) may be adjusted or implemented after coordination with CDFW.

California Ridgway's Rail and California Black Rail Pre-Construction Survey

If California Ridgway's rail or California black rail suitable habitat is present within 700 feet of the immediate construction area and work would occur during the rail nesting season (February 1 through August 31), a pre-construction survey by a USFWS 10(a)1(A) permit holder for California Ridgway's rail will be conducted per the 2015 USFWS survey protocol⁸³ to determine whether the species are present. If nesting California Ridgway's rail and/or California black rail are detected during pre-construction surveys, then construction activities shall not occur within 700 feet of an identified detection (or smaller distance if approved by USFWS and CDFW) during the rail nesting season. If rail activity is detected within the 700-foot buffer, immediate consultation with USFWS and CDFW is required.

California Ridgway's Rail and California Black Rail Monitoring

The following monitoring protocols for California Ridgway's rail and California black rail shall be implemented, where appropriate:

- a) A USFWS- and CDFW-approved Biological Monitor will be present onsite to monitor for presence of California Ridgway's rail and California black rail during the operation of large equipment within 300 feet of salt marsh areas.
- b) The Biological Monitor shall be onsite at the proposed North Field Lot employee parking area on Old Earhart Road during construction in that location and shall periodically inspect the site to verify that habitat protection measures remain effective.

SPECIAL-STATUS MAMMAL SPECIES

There is potential for salt marsh harvest mouse to occur within the BSA due to the presence of marginally suitable tidal salt marsh habitat. However, there are no documented occurrences of this species within OAK and previous trapping surveys conducted between 1985–2001 did not result in any detections.⁸⁴ Additionally, a habitat assessment conducted

⁸³ U.S. Fish and Wildlife Service. (2015). *California Clapper Rail Survey Protocol*. Sacramento, California: U.S. Department of the Interior. Retrieved from: <https://www.fws.gov/sites/default/files/documents/survey-protocol-for-california-ridgways-rail.pdf>.

⁸⁴ AECOM. (2018). *Biological Assessment for the Airport Perimeter Dike FEMA Improvements Project*. Port of Oakland.

in 2012 concluded that although pickleweed is present, it is generally sparse and lacks the vegetative structure and cover typical of habitats occupied by the salt marsh harvest mouse.⁸⁵ The consistent and long-term negative findings of trapping efforts is likely attributable to the absence of emigration pathways between existing populations and the habitat at OAK⁸⁶. The study indicated the presence of marginally suitable habitat throughout OAK and although the likelihood of this species occurring within the BSA is low, it cannot be ruled out. The salt marsh wandering shrew shares a similar habitat and likewise the shrew's presence also cannot be ruled out.

Construction-related, direct impacts to the salt marsh harvest mouse and salt marsh wandering shrew could include adverse impacts from vegetation removal in areas adjacent or near suitable habitat (i.e., tidal salt marsh transition areas). Direct effects could also cause mortality from accidental crushing by construction equipment. Additionally, construction activities such as earth moving, operation of heavy equipment, and increased human presence could result in noise, vibration, and visual disturbance that could indirectly cause behavior that may increase the risk of predation. These ***potentially significant*** impacts to salt marsh harvest mouse and salt marsh wandering shrew during construction would be reduced with the implementation of the mitigation measures identified above for plant species and special-status birds, as well as the mitigation measures identified below to a ***less-than-significant impact with mitigation incorporated***.

Mitigation Measures for Impacts to Special-Status Mammals

Vegetation Removal by Hand

The contractor shall use non-motorized equipment to remove pickleweed, salt-grass, and other vegetation in the marked ESAs. Vegetation removal in the ESAs shall proceed away from the work areas and toward contiguous areas of suitable habitat, to allow any salt marsh harvest mice within the exclusion area to passively relocate into adjacent habitat.

Wildlife Exclusion Fencing

A Biological Monitor shall be available during the placement and removal of a wildlife exclusion fencing (WEF) or as determined by the Port. The WEF shall be installed prior to the start of construction and in areas where wildlife could enter a construction area from adjacent or nearby ESAs. WEF locations shall be identified during the design phase of the Proposed Project, which shall include a description of the locations where WEF shall be installed, acceptable WEF material, and proper WEF installation and maintenance. The WEF shall remain in place throughout the duration of construction near ESAs while construction activities are ongoing and shall be regularly inspected for stranded animals. The WEF shall be removed following completion of construction activities or when construction is completed at that location at the discretion of the Biological Monitor.

⁸⁵ URS Corporation. (2012). *Final Environmental Assessment for the Proposed Runway Safety Area Improvement Project: Appendix D-1 Biological Assessment*. Port of Oakland.

⁸⁶ AECOM. (2018). *Biological Assessment for the Airport Perimeter Dike FEMA Improvements Project*. Port of Oakland.

OPERATIONS

Operational direct impacts to special-status species are not anticipated to occur because operation of the Proposed Project would not include additional ground disturbance beyond existing Airport activities after construction has been completed. Additionally, no significant indirect operational impacts are anticipated because the Port would continue to implement its current safety and containment measures to avoid and minimize water pollution that could impact adjacent habitat areas that could support special-status species (e.g., wetlands).

Federal Aviation Administration (FAA) wildlife strike data at OAK from 2000–2021 showed 1,408 wildlife strikes. The Port has a Wildlife Hazard Management Plan (WHMP) for the Airport, which would remain in place. Wildlife strikes could continue to occur regardless of the Proposed Project but would be minimized by the measures identified in the WHMP. There would be **no impact** from the Proposed Project.

- 3.4.3.2 A substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFW or USFWS

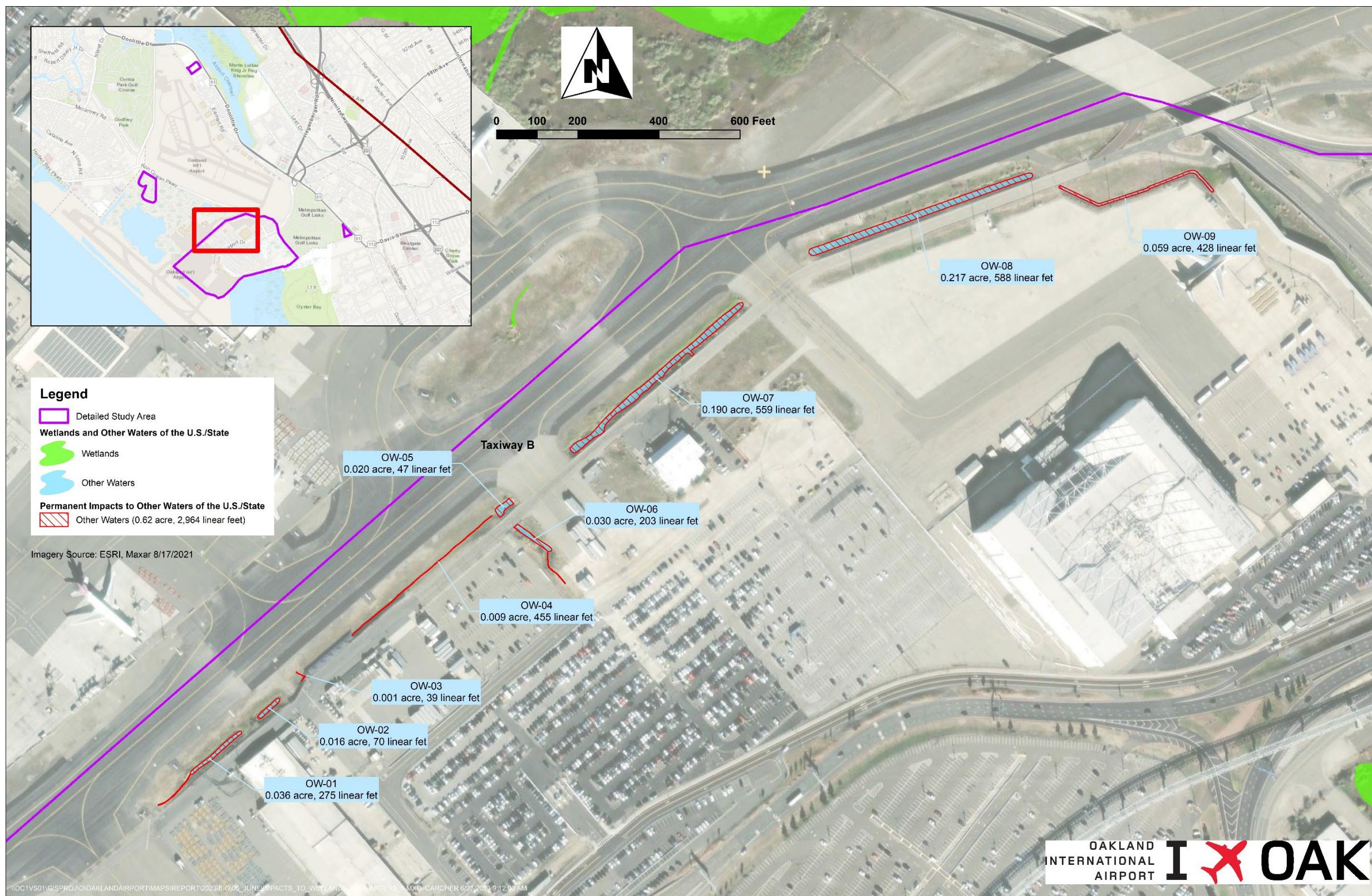
CONSTRUCTION

The BSA contains riparian areas and wetlands – including Northern Coastal Salt Marsh.⁸⁷ None of these habitats would be directly affected by construction. However, the BSA contains drainage features that are delineated as “other” waters of the U.S./waters of the State. Direct impacts to other waters (0.62 acre [2,964 linear feet]) would occur through direct removal, filling, hydrological interruption, or other means during construction. The features that would be affected are low-quality, linear drainage features located north of the terminal and adjacent to Taxiway B (see **Figure 3.4-2**) and west of the proposed North Field Lot (see **Figure 3.4-3**). Impacts to these non-wetland features would be offset through wetland credits already purchased by the Port from the San Francisco Bay Wetland Mitigation Bank.

There is potential for indirect impacts to occur from runoff during construction resulting in water pollution and erosion because of the proximity of the work areas to these sensitive communities. However, these potential impacts would be avoided or minimized through the implementation of standard water pollution and erosion control BMPs as part of the SWPPP, the construction site BMPs identified above under Mitigation Measures for Impacts to Plant Species, and the stormwater BMPs identified in **Section 3.9, Hydrology and Water Quality**. With the implementation of the below mitigation measure, **potentially significant** construction-related impacts to sensitive natural communities (i.e., other waters) would be reduced to **less than significant with mitigation incorporated**.

⁸⁷ California Department of Fish and Wildlife. (2021, August). *Natural Communities*. Retrieved January 2022, from: [Oakland International Airport – Terminal Modernization and Development Draft EIR
July 2023](https://wildlife.ca.gov/Data/VegCAMP/Natural-Communities>List.</p>
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FIGURE 3.4-2
OTHER WATERS OF THE U.S./STATE IMPACTS – TAXIWAY B CONNECTIONS



Source: Jacobs, 2022

FIGURE 3.4-3
OTHER WATERS OF THE U.S./STATE IMPACTS – NORTH FIELD LOT



Source: Jacobs, 2022

Mitigation Measures for Impacts on Riparian Habitats

OFFSETTING PROJECT IMPACTS TO PROTECTED NATURAL RESOURCES

Prior to affecting waters of the U.S./waters of the State, the Port shall compensate for the permanent impacts at an appropriate ratio determined in coordination with USACE and the RWQCB that may include any one or combination of the following approaches: offsite mitigation through purchase of credits at an approved conservation bank(s); onsite restoration; and/or development of a compensation plan that shall provide in-lieu funding to a nearby restoration program or restoration project that shall create, restore, or enhance resources adversely affected by the Proposed Project. Compensation for temporary impacts to protected natural resources shall be achieved through onsite in-kind habitat restoration to pre-disturbance conditions. In 2013, 2014, and 2015, the Port purchased credits from the San Francisco Wetland Mitigation Bank at Redwood City. The Port has sufficient credits and intends to use those credits, as needed, to offset the impacts resulting from the Proposed Project.

Compensation for temporary impacts to protected natural resources will be achieved through onsite in-kind habitat restoration to pre-disturbance conditions.

OPERATIONS

Operational direct impacts to riparian habitat or other sensitive natural communities are not anticipated to occur because the operation of the Proposed Project would not include additional ground disturbance beyond existing Airport activities after construction has been completed. Additionally, no significant indirect operational impacts are anticipated because the Port would continue to implement its current safety measures to avoid and minimize water pollution that could impact adjacent biological resource habitat areas. Thus, there are no anticipated direct or indirect operational impacts to riparian habitat or sensitive natural communities and the potential impacts from the operation of the Proposed Project would be ***less than significant***.

3.4.3.3 A substantial adverse effect on state or federally protected waters through direct removal, filling, hydrological interruption, or other means

CONSTRUCTION

The BSA contains federally protected wetlands and other waters of the United States as defined by Section 404 of the Clean Water Act. These wetland and other water features are also jurisdictional waters of the State, as defined by Section 401 of the Clean Water Act and the Porter-Cologne Act. However, no direct impacts to wetlands would occur from the Proposed Project.

There is potential for indirect impacts to occur from runoff during construction resulting in water pollution and erosion because of the proximity of the work areas to the wetlands and other waters adjacent to the study area. However, these potential impacts would be minimized through the implementation of standard water pollution and erosion control BMPs as part of the SWPPP. For these reasons, indirect impacts to wetlands during construction would be considered ***less than significant with mitigation incorporated*** through the implementation of the construction site BMPs identified above under Mitigation Measures for Impacts to Plant Species and the stormwater BMPs identified in **Section 3.9, Hydrology and Water Quality**.

OPERATIONS

Operational direct impacts to wetlands and other waters are not anticipated to occur because the operation of the Proposed Project would not include additional ground disturbance beyond existing Airport activities after construction has been completed. Additionally, no significant indirect operational impacts are anticipated because the Port would continue to implement its current safety measures to avoid and minimize water pollution that could impact adjacent biological resource habitat areas. Thus, there are no anticipated direct or indirect operational impacts to wetlands or other waters above the existing condition and the potential impacts from the operation of the Proposed Project would be ***less than significant***.

- 3.4.3.4 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

CONSTRUCTION

OAK is located within the Pacific Flyway along the eastern shoreline of San Francisco Bay and the BSA contains wetlands and natural areas that could be used by migrating birds and other wildlife for foraging and dispersal. Although the natural areas are fragmented and the Airport is heavily developed, it may serve as a stop-over site during migration and contribute to the integrity of the wildlife movement functions of the area. Construction of the Proposed Project may cause birds to avoid these areas; however, it would not result in permanent access restrictions or barriers to movement and wildlife would be able to move around the construction activities. Thus, there are no anticipated direct or indirect impacts to wildlife movement during construction above the baseline condition and the potential impacts would be ***less than significant***.

OPERATIONS

Wildlife strikes could continue to occur regardless of the Proposed Project. The Port's WHMP would remain in place to address wildlife strikes and would continue to be implemented. Therefore, there would be ***no impact*** to wildlife movement from the Proposed Project.

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

Street Trees: During the field investigation of the Airport, 13 magnolia trees were identified along West Empire Avenue (see **Figure 3.4-1**); however, because none of the project components associated with the Proposed Project would occur along Empire Avenue, these trees would not be affected. The Proposed Project would not affect any street trees in Oakland; therefore, no conflicts with local policies or ordinances would occur.

Protected Trees: The Airport contains 41 landscaped trees that have been planted in the developed areas within medians, paved parking lots, and along roadways. There are trees located in the BSA that fall under the definition of a protected tree as defined by the City of Oakland. However, no tree removal is anticipated and none of these trees would be affected by the Proposed Project. Therefore, there would be ***no impact***.

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

OAK is not within or subject to any habitat conservation plans, natural community conservation plans, or other related plans. Therefore, the Proposed Project would not conflict with the provisions of any adopted plans and there would be ***no impact***.

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3.5 CULTURAL AND TRIBAL RESOURCES

This section describes the potential for cultural and tribal cultural resources to be present within the detailed study area as a basis for the discussion of potential impacts and proposed mitigation measures for the Proposed Project at OAK.

The information in this section is based on a Cultural Resources Report prepared for the Proposed Project by Jacobs Engineering in June 2023, which is included in **Appendix H** of this Draft EIR.

3.5.1 Background and Methodology

3.5.1.1 Regulatory Context

FEDERAL

National Register of Historic Places

The National Register of Historic Places (NRHP) was established by the National Historic Preservation Act (NHPA) as "an authoritative guide to be used by Federal, State, and local governments, private groups and citizens to identify the Nation's cultural resources and to indicate what properties should be considered for protection from destruction or impairment."⁸⁸ The NRHP recognizes properties that are significant at the national, state, and/or local levels.

NRHP criteria may also be applied to determine if a resource may be listed in the California Register of Historical Resources (CRHR), and therefore significant pursuant to CEQA. Public Resources Code (PRC) Section 5024.1(c) lists the NRHP criteria that would also qualify a resource to be listed in the CRHR.

The NRHP is the nation's official list of buildings, structures, objects, sites, and districts in the U.S. that are significant in American history, architecture, engineering, archaeology, and culture. To qualify for evaluation of eligibility in the NRHP, a property must be at least 50 years old, or it must possess exceptional significance. The criteria used to evaluate historic properties for inclusion in the NRHP are summarized below:

- A. Event – Properties associated with events that have made a significant contribution to the broad patterns of our history.
- B. Person – Properties associated with the lives of persons significant in our past.
- C. Architecture/Engineering – Properties that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction.
- D. Archaeology – Properties that have yielded, or may be likely to yield, information important in prehistory or history.

In addition to meeting one of these evaluation criteria a historic property must retain integrity in order to convey its significance. Integrity is measured by seven aspects:

⁸⁸ 36 CFR Section 60.2.

- Location – The place where the historic property was constructed or where the historic event occurred.
- Design – The combination of elements that create the form, plan, space, structure, and style of the property.
- Setting – The physical environment of the historic property.
- Materials – The physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form the historic property.
- Workmanship – The physical evidence of the crafts of a particular culture or people during any given period in history or prehistory.
- Feeling – The property's expression of the aesthetic or historic sense of a particular period of time.
- Association – The direct link between an important historic event or person and a historic property.

STATE

California Register of Historical Resources

The CRHR includes resources that are listed in or formally determined eligible for listing in the NRHP, as well as some California State Landmarks and California Points of Historical Interest. Properties of local significance that have been designated under a local preservation ordinance (local landmarks or landmark districts) or that have been identified in a local historical resource inventory that may be eligible for listing in the CRHR are presumed to be significant resources for the purposes of CEQA unless a preponderance of evidence indicates otherwise (PRC 5024.1, 14 CCR 4850).

The eligibility criteria for listing in the CRHR are similar to those for the NRHP but focus on the importance of the resources to California history and heritage. A cultural resource may be eligible for listing on the CRHR if:

1. It is associated with events or patterns of events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the U.S.; or
2. It is associated with the lives of persons important to local, California, or national history; or
3. It embodies the distinctive characteristics of a type, period, or region, or method of construction, or represents the work of a master, or possesses high artistic values; or
4. It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation.

In addition to meeting one of the evaluation criteria, the resource must retain integrity. The CRHR definition of integrity is slightly different from that of the NRHP. Section 4852(c) of the CCR (Title 14, Chapter 11.5) defines integrity as "the authenticity of a historical resources' physical identity evidenced by the survival of characteristics that existed during the resource's period of significance." The regulation also states that eligible resources must "retain enough

of their historic character or appearance to be recognizable as historical resources and to convey the reasons for their significance,” and then lists the same seven aspects of integrity used for evaluating properties for the NRHP (location, design, materials, workmanship, setting, feeling, and association).

Assembly Bill 52

Assembly Bill 52 (AB 52) amended the California PRC and requires lead agencies to consult with California Native American tribes to identify, evaluate, and mitigate impacts to a new type of cultural resource called “tribal cultural resources”, if the tribes formally request consultation. A tribal cultural resource is any of the following:

- Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:
 - Included or determined to be eligible for inclusion in the CRHR.
 - Included in a local register of historical resources as defined in subdivision (k) of PRC Section 5020.1.
- A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1. In applying the criteria set forth in subdivision (c) of PRC Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

A cultural landscape that meets the criteria of PRC Section 5024.1 subdivision (a) is a tribal cultural resource to the extent that the landscape is geographically defined in terms of the size and scope of the landscape. A historical resource described in PRC Section 21084.1, a unique archaeological resource as defined in subdivision (g) of PRC Section 21083.2, or a “nonunique archaeological resource” as defined in subdivision (h) of PRC Section 21083.2 may also be a tribal cultural resource if it conforms with the criteria of subdivision (a).

LOCAL

Land use jurisdiction at the Airport is governed by the Port, which is an autonomous department of the City of Oakland. The Port has the authority to create its own land use designations within the Port jurisdiction as long as land uses remain consistent with the City of Oakland General Plan.⁸⁹ The Historic Preservation Element of the City of Oakland General Plan provides policies for the historic preservation of historic resources within the City of Oakland. Appendix B of the Element, “Existing Properties on the National Register of Historic Places, Oakland Landmarks, and S-7 Preservation Districts” lists North Field (by Ordinance 9872), as the only landmark within the Airport boundaries (as described above).⁹⁰

⁸⁹ Port of Oakland. (2003). *Supplemental Environmental Impact Report, Proposed Airport Development Program*. Oakland, California.

⁹⁰ City of Oakland. (1998). Historic Preservation Element, Appendix B: Existing Properties on the National Register of Historic Places. In *Oakland General Plan*.

3.5.1.2 Significance Thresholds

According to the CEQA Guidelines Appendix G,⁹¹ impacts on cultural resources would be considered significant if a project would result in any of the following:

- Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5.
- Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5.
- Disturb any human remains, including those interred outside of formal cemeteries.
 - As identified in the Initial Study that was included with the Notice of Preparation (NOP), the Airport was constructed on fill material and there is little to no possibility of human remains at the Airport. In addition, in the unlikely event that unknown subsurface archaeological resources are encountered during construction, the Port would implement required actions outlined in the Port's Emergency Response Plan for Discoveries of Unknown Historic or Archaeological Resources. Therefore, the Proposed Project would not have the potential to disturb any human remains and no further analysis of this issue is included in the EIR.

The CEQA Guidelines defines impacts on archaeological and historical resources as follows:

- Substantial adverse change in the significance of a historical resource by physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings as defined in Section 15064.5.
- Demolishes or materially alters those physical characteristics of a historical resource that conveys its significance and that justify its inclusion in, or eligibility for inclusion in, the CRHR, or inclusion in a local register, as defined Section 15064.5.

For tribal cultural resources, impacts would be considered significant if a project would result in any of the following:

- Cause a substantial adverse change in the significance of a tribal cultural resources, defined in PRC Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:
 - Listed or eligible for listing in the CRHR, or in a local register of historical resources as defined in PRC Section 5020.1(k), or
 - A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1. In applying the criteria set forth in subdivision (c) of PRC Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

⁹¹ Association of Environmental Professionals. (2023). Appendix G: Environmental Checklist Form. In *2023 CEQA California Environmental Quality Act: Statute and Guidelines*. Retrieved from: https://www.califaep.org/docs/CEQA_Handbook_2023_final.pdf.

3.5.1.3 Resource Types

Three broad classes of cultural resources are considered in this section: prehistoric, ethnographic, and historic. Those cultural resources determined eligible for the CRHR are called historical resources and are further defined under state law as buildings, sites, structures, objects, areas, places, records, manuscripts, and tribal cultural resources (14 CCR 4852a and 5064.5(a)(3); PRC Sections 5020.1(h,j), 5024.1[e][2, 4], and 21074).

Prehistoric archaeological resources are those materials relating to prehistoric human occupation and use of a particular environment. These resources may include sites and deposits, structures, artifacts, rock art, trails, and other traces of Native American human activity. In California, the prehistoric period began over 12,000 years ago and extended through the 18th century until 1769, when the first Europeans settled in California. The CEQA Guidelines also define “unique archaeological resources” as described by California PRC 21083.2.

Ethnographic resources are those materials important to the heritage of a particular ethnic or cultural group, such as Native Americans or African, European, or Asian immigrants. They may include traditional resource collecting areas, ceremonial sites, topographic features, value-imbued landscapes, cemeteries, shrines, or neighborhoods and structures. Ethnographic resources are variations of natural resources and standard cultural resource types. They are subsistence and ceremonial locales and sites, structures, objects, and rural and urban landscapes assigned cultural significance by traditional users. The decision to call resources ethnographic depends on whether associated peoples perceive them as traditionally meaningful to their identity as a group and the survival of their lifeways.

Historical period resources are those materials, archaeological and architectural, usually but not necessarily associated with Euro-American exploration and settlement of an area and the beginning of a written historical record. They may include archaeological deposits, sites, structures, trail and road corridors, artifacts, or other evidence of historical human activity. Under federal and state requirements, historical period cultural resources generally must be greater than 50 years old to be considered of potential historical importance. A resource less than 50 years of age may be historically significant if the resource is of exceptional importance.

3.5.1.4 Methodologies

ARCHIVAL RESEARCH

A records search that identified previously cultural resources investigations and previously recorded cultural resources in the Proposed Project vicinity was obtained from the Northwest Information Center (NWIC) at Sonoma State University in August 2021. The record search included the detailed study area and a 0.5-mile-radius buffer around the detailed study area. The results of the NWIC record search are presented in

Section 3.5.2.1. The record search included an area larger than the detailed study area in order to develop a context in which archaeological sensitivity could be assessed as well as the potential for previously unrecorded archaeological sites to be encountered in the detailed study area.

In addition to the previously recorded resources, studies, and records at the NWIC, the following sources of information were consulted as part of the records search:

- National Register of Historic Places—Listed Properties
- California Register of Historical Resources—Listed Properties
- California Inventory of Historical Resources, 1976 and updates
- California State Historical Landmarks, 1996 and updates
- California Points of Historical Interest, 1992 and updates
- The State Office of Historic Preservation’s Directory of Properties—Historical Resources Inventory, 2009
- Archaeological Determinations of Eligibility, 4-05-2012
- Directory of Properties in the Historic Resources Inventory, State of California, 2006
- Historic Spots in California (Hoover et al. 1990⁹²)
- Office of Historic Preservation, Archaeological Determinations of Eligibility
- City of Oakland Resources and Landmarks Inventory

NAHC SACRED LANDS

A request was sent to the Native American Heritage Commission (NAHC) on July 21, 2021, asking the NAHC to search its Sacred Lands File (SLF) for any Native American resources within the 0.5-mile buffer around the detailed study area and requesting a list of Native American representatives who may have knowledge of Native American cultural resources in this area.

The NAHC responded on August 18, 2021, stating that the results of SLF were negative. They also provided a list of Native American Contacts for the detailed study area, including the Amah Mutsun Tribal Band of Mission San Juan Bautista, Costanoan Rumsen Carmel Tribe, Indian Canyon Mutsun Band of Costanoan, Muwekma Ohlone Indian Tribe of the San Francisco Bay Area, North Valley Yokuts Tribe, Tamien Nation, and the Confederated Villages of Lisjan.

3.5.2 Existing Conditions / Environmental Setting

The detailed study area and surrounding vicinity consists of former bay mudflats and tidal wetlands that have been filled during modern times for the construction of the Airport, roads, and surrounding facilities. Very little original habitat and plant life remain, and the degree of development in the detailed study area means that any archaeological cultural resources that may exist in the area are not visible on the present-day ground surface. Therefore, assessing the potential for archaeological cultural resources in the detailed study area includes a broader contextual understanding of the past and present natural environment, a geoarchaeological examination of past landforms, and an archival investigation into past settlement patterns and site locations based on the known archaeological record or sites known to Native American peoples today. The detailed prehistoric context, ethnographic context, geoarchaeological context, and historical context are included in the Cultural Resources Report in **Appendix H**.

The geologic soils data for the detailed study area suggest that the sensitivity for previously unrecorded archaeological cultural resource is far less than other margins of the bay. The detailed study area consists primarily of historic era artificial fill over estuarine mud with

⁹² Hoover, M., Rensch, E., Rensch, H., & Abeloe, W. (1990). *Historic Spots in California* (Fourth ed.). Stanford, California: Stanford University Press.

small areas containing remnant Holocene/Late Pleistocene dune sand and Holocene San Francisco Bay mud. Because the detailed study area is characterized by active tidal marshland areas as sea levels rose, they are unlikely to be locations of later period archaeological sites in the past, and any evidence of early Holocene sites would likely be located beneath bay mud. One notable exception is the proposed Golf Course Lot (Project Component L-2) to be located in a triangular field at Eden Road and Doolittle Drive. This parking lot would be located along the former margin of the bay where other archaeological sites have been recorded within 2 miles of the detailed study area in similar contexts. As such there may be previously unrecorded buried archaeological sites present which could be impacted by potential ground disturbing activity associated with the construction of this parking lot.

There are no previously recorded archaeological resources within the detailed study area. Because the proposed Golf Course Lot was previously graded and regularly used for commercial and heavy equipment storage, no original ground surface is visible and an archaeological pedestrian survey was not conducted.

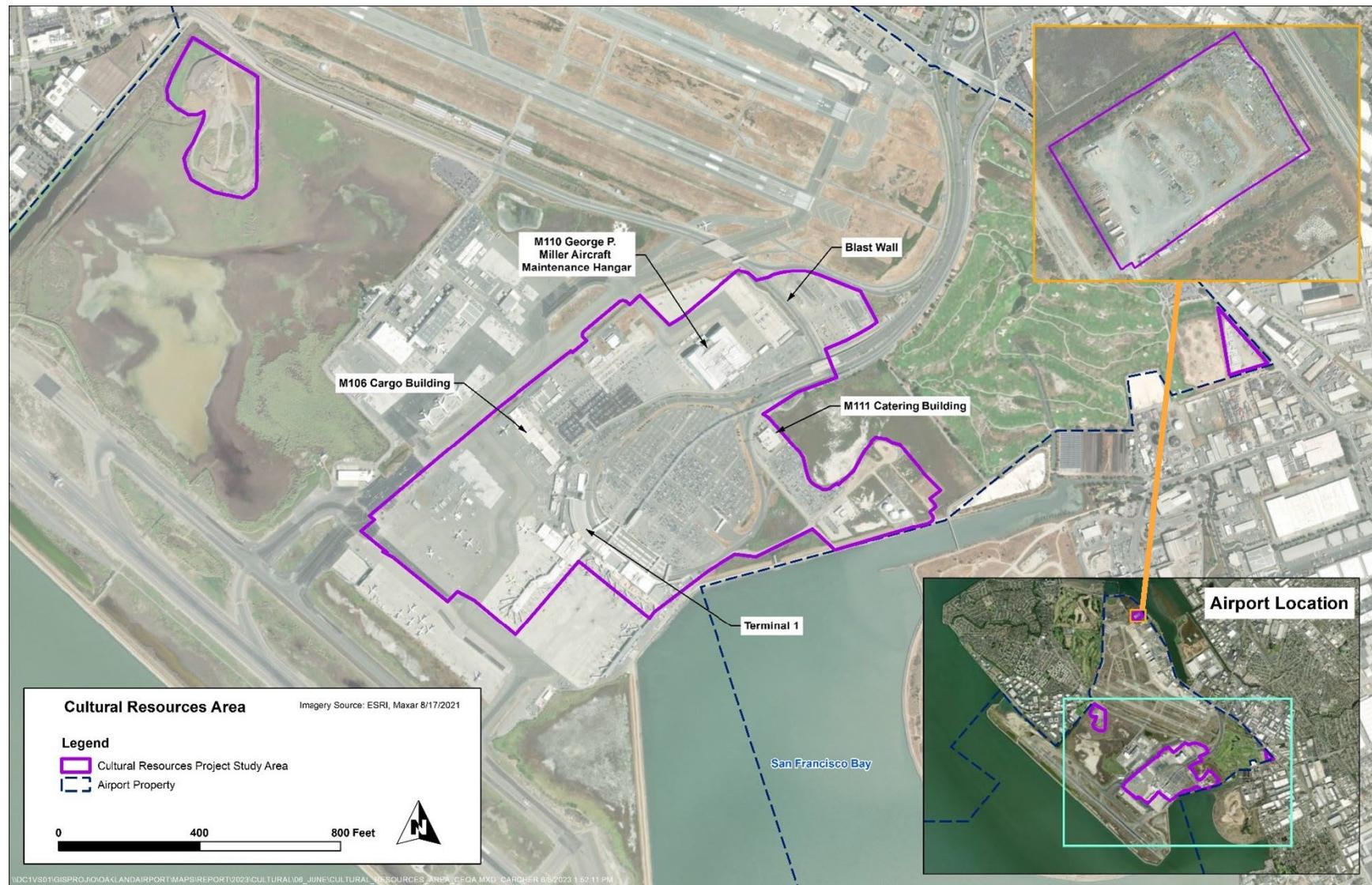
3.5.2.1 NWIC Records Search

The NWIC provided information regarding both reports and resources within the detailed study area as well as within the larger area extending 0.5 mile from the detailed study area. The records search found 12 reports that covered areas that extend into the detailed study area and 16 additional reports that covered areas outside of, but within 0.5 mile of, the detailed study area. Twenty-four "Other" informational reports that may not include surveys were noted as pertaining to the detailed study area. These "Other" reports consist of prehistoric and historic context studies and other writings that are not focused on specific resources in the area.

The records search identified only one potential resource in the detailed study area (P-01-011016, Terminal 1, Oakland International Airport) (see **Figure 3.5-1**). This resource was evaluated in 2010 and in 2012. The resource consists of the Terminal 1 facility which was originally constructed between 1960-1962 and subsequently modified multiple times. The original construction included the ticketing and baggage claim building (M101), a two-story building (M102), a 10-story control tower, and a one-story gate concourse portion of the terminal (M103). Terminal 1 was identified as meeting Criterion A and Criterion C of the NRHP for its association with the transition from early to modern air travel at the historic Oakland Airfields and use of new structural technologies and modernistic architectural forms of the mid-20th century. Using the California Historical Resource Status Codes defined by the State Office of Historic Preservation, the resource is noted as "3S: Appears eligible for NR individually through survey evaluation." While Terminal 1 did not receive formal concurrence from the State Office of Historic Preservation, Terminal 1 is considered a Historical Resource for the purposes of CEQA.

The full results of the NWIC records search are provided in **Appendix H**.

FIGURE 3.5-1
EVALUATED CULTURAL RESOURCES WITHIN THE DETAILED STUDY AREA



Source: Jacobs, 2023

3.5.2.2 Port of Oakland Materials

In December 2011, Michael Brandman Associates completed a memorandum related to the Eligibility of Oakland International Airport Terminal 1 and associated Air Traffic Control Tower (ATCT) for listing in the CRHR and the NRHP. The memorandum served as a preliminary evaluation of the Terminal 1 and South Field Air Traffic Control Tower (T1 ATCT) in preparation of a Cultural Resources Assessment to be completed in 2012 for the removal of the ATCT and reviewed by the FAA and the State Historic Preservation Officer (SHPO). The memorandum stated that Terminal 1 and the T1 ATCT appeared eligible for listing in the NRHP under Criterion A (Event), C (Architecture), and D (Information Potential). The memorandum noted that despite changes since construction in 1960-1962, both Terminal 1 and the T1 ATCT retained all seven aspects of historic integrity allowing the facility to convey and maintain its significance as a historic resource.⁹³

The Port of Oakland (Port) completed a CEQA Initial Study in 2013 that cited the 2010 evaluation of Terminal 1 and noted the Terminal 1 modifications completed through the 1980s attempted to retain the terminal's primary character-defining features. The study noted: "These features include the curved ticketing building, ATCT with cantilever, and distinctive roof structures that reflect the popular modernistic forms and aerospace themes prevalent in airport architecture of the early 1960s; the Terminal 1 core retains integrity of location, setting, design, and association, as well as some of the workmanship, materials, and feeling associated with its character defining features."⁹⁴

Three technical studies were conducted for resources within the Airport between 2013 and 2018. The earliest study was for the purposes of removal of the South Field ATCT attached to Terminal 1. The March 2013 report, prepared for CEQA compliance only, found that the ATCT met Criteria 1 and 3 of the CRHR (for its representing jet transportation improvements in the mid-20th century and its architectural merits) as well as sufficient historical integrity to warrant being a historical resource for the purposes of CEQA.⁹⁵ The results of the 2013 report were included in a 2013 focused EIR for removal of the ATCT. The EIR largely focused on the South Field ATCT as the resource being considered, although it noted: "The South Field ATCT is structurally integrated into Building M102 of Terminal 1." The EIR concluded that the impacts to the ATCT were significant and unavoidable.⁹⁶

The second report was for the proposed demolition of a shed (L-158) within North Field. The report determined that the shed did not meet the criteria for listing on the CRHR. This analysis also described that a portion of North Field is designated as an "Oakland Landmark"

⁹³ Michael Brandman Associates. (2011). *Eligibility of the Oakland International Airport Terminal 1 and Associated Air Traffic Control Tower for Listing in the California Register of Historic Resources (CR) and the National Register of Historic Places (NRHP)*. San Ramon, California: Port of Oakland.

⁹⁴ Port of Oakland. (2012). *Initial Study Checklist: Oakland International Airport (OAK or Airport) South Field Airport Traffic Control Tower (ATCT) Demolition*. Oakland, California.

⁹⁵ Michael Brandman Associates. (2013). *Cultural Resources Assessment: Oakland International Airport, South Field Air Traffic Control Tower*. San Ramon, California: Port of Oakland.

⁹⁶ Ricondo & Associates, Inc. (2013). *Oakland International Airport, South Field Airport Traffic Control Tower Demolition: Draft Environmental Impact Report*. Oakland, California: Port of Oakland.

by the City of Oakland by Ordinance 9872. The report determined that the portion of the North Field designated as a landmark does not include the buildings and structures located thereupon.⁹⁷ In 1997, the Oakland Cultural Heritage Survey identified a portion of North Field as a potential historic district and an “Area of Primary Importance,” a distinction based on North Field’s past association with World War II and early civilian and military aviation historical events. Additionally, the survey found that the former hotel, L-130, a building outside the detailed study area at 9465 Earhart Road, contributes to the historic district and is eligible for listing on its own.⁹⁸

The latest study conducted in May of 2018 was an evaluation of two built-environment resources within the detailed study area: the large Oakland Maintenance Center (OMC) Hangar and an aircraft blast wall (see **Figure 3.5-1** for the location of these resources). Both were found not to meet the criteria for listing on the NRHP or CRHR (see **Appendix H** for documentation).⁹⁹

3.5.2.3 Currently Identified Resources

For the purposes of this analysis a site visit was undertaken on October 20, 2022, to document the current condition of Terminal 1 and two buildings that are now over 50 years in age. These two buildings include the Air Cargo Terminal Building (M106/M112), which was constructed in 1968 and expanded to its current configuration between 1969 and 1985,¹⁰⁰ and the Catering Building (M111), which was constructed in 1969.¹⁰¹ Both of these buildings are shown on **Figure 3.5-1**. Neither of these two buildings appears to meet significance criteria for any city, state, or federal registers and thus are not resources for the purposes of CEQA. The Air Cargo Terminal Building is fully described, and the evaluation is explained in the Cultural Resources Inventory and Evaluation Report found in **Appendix H**.

The physical aspects of Terminal 1 were reviewed as part of the Proposed Project, and it was found that even with the previous removal of the ATCT and the related replacement of the roofing material of a key Terminal 1 component M102,¹⁰² sufficient amounts of character-defining features of the terminal remained intact to retain its ability to be a resource for the purposes of CEQA, primarily the curved ticketing building (M101) with

⁹⁷ Port of Oakland. (2017). *Historic Determinations of Minor Structures in the Port Area*. Oakland, California.

⁹⁸ CH2M HILL. (2014). *Draft Initial Study/ Mitigated Negative Declaration: Proposed Projects on Landmark Aviation Leaseholds Oakland International Airport, North Field*. Oakland, California: Landmark Aviation.

⁹⁹ Horizon Water and Environment. (2018). *Historic Resource Evaluatio: Oakland International Airport, Alameda County, California*. Oakland, California: Port of Oakland.

¹⁰⁰ Port of Oakland. (n.d.). *As Builts for M106*. Oakland, California.
On file with Port of Oakland, Oakland, CA.

¹⁰¹ Port of Oakland. (n.d.). *As Builts for Building 111*. Oakland, California.
On file with Port of Oakland, Oakland CA.

¹⁰² Terminal 1, which was previously evaluated as a historic resource, features multiple components including M102: the International Airline Ticketing, Airport Offices, and Security Checkpoint and on top of which was the former ATCT. Other key architectural components include M101: Domestic Airline Ticketing and Baggage Claim, and M103: “Finger” or Gate Concourse.

cantilever and distinctive roof structures “that reflect the popular modernistic forms and aerospace themes prevalent in airport architecture of the early 1960s.”¹⁰³ The core of the entirety of what is now “Terminal 1” that represents a historical resource is now limited to building M101, and to a lesser extent building M102. These building components of Terminal 1 (in combination) retain sufficient integrity of location, setting, design, and association, as well as workmanship, materials, and feeling associated with the terminal’s character defining features. The terminal has been subjected to many modifications, including the more recent removal of the ATCT from building M102 along with the associated roof modifications to that building. The general design and viewable presentation of M101 remains similar to that when constructed such that it does not detract from the historic integrity of Terminal 1. On balance, the substantial modifications to the aircraft gates (M103) in 1988 to add the second story and passenger boarding bridges left little of the 1960s-era gateway visible, and thus, this portion of Terminal 1 does not contribute to the overall sense of time and place. The primary remaining aspect of the 1960s airport terminal designed by the noted Oakland midcentury architecture firm Warnecke and Warnecke is the curvilinear scalloped roof along the top of Terminal 1’s ticketing area that is building M101. This highly visible roofline and remaining contemporary curved glass-fronting fenestration is a character-defining feature of the resource and remains in place after years of various modifications to the larger Terminal 1 facility to keep it operational. This prominent, distinctive, and public-facing curvilinear scalloped roof feature of Terminal 1 remains highly visible even with added seismic retrofit infrastructure and the placement of modern steel awnings to the front of the terminal. Thus, Terminal 1, more specifically building M101 (along with M102 as an associated contemporary feature), remains a historical resource for the purposes of CEQA (**Figure 3.5-2**).

FIGURE 3.5-2
VIEW OF TERMINAL 1 (M101) FACING WEST SHOWING TICKETING AND BAGGAGE CLAIM BUILDING



¹⁰³ Port of Oakland. (2012). *Initial Study Checklist: Oakland International Airport (OAK or Airport) South Field Airport Traffic Control Tower (ATCT) Demolition*. Oakland, California.

3.5.3 Environmental Impacts and Mitigation Measures

3.5.3.1 Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5

The Proposed Project would demolish the mid-century modern Terminal 1 ticketing and baggage claim building (M101) designed by noted Oakland midcentury architecture firm Warnecke and Warnecke to be replaced with a modern ticketing area building. The State CEQA Guidelines (CCR Section 15064.5) state that a project that may cause a substantial adverse change in the significance of a historical resource (such as damaging or destroying the qualities that make it significant) and may have a significant effect on the environment. Demolition constitutes a substantial adverse change in the significance of a historic resource and would be considered a potentially ***significant impact*** on a historical resource as defined in Section 15064.5.

MITIGATION MEASURES: HISTORIC AMERICAN BUILDING SURVEY AND INTERPRETIVE EXHIBIT

Historic American Building Survey (HABS) Report

A HABS Report of Terminal 1 will be prepared by the Port prior to demolition. The HABS Report of Terminal 1 will focus on M101 and M102 as contributing features that would be affected by the Proposed Project and the report would be submitted to the Library of Congress and/or appropriate local repositories for access by the public. The report will be written in accordance with the current HABS standards established by the National Parks Service. Photography will be completed in a detailed format and may be completed in a high-resolution digital process if it will not be submitted to the Library of Congress but rather to local preservation entities such as the Landmarks Preservation Advisory Board (LPAB) or the Oakland History Center of the Oakland Public Library. The goal of this mitigation measure is to provide public access so one preservation entity (in addition to the Port) would provide digital copies of the HABS report (and photographs and other media appended to the report) online through their public website.

Interpretive Exhibit in New Terminal 1

Public interpretive materials will be developed that are commensurate with the significance themes for the resources affected by the Proposed Project. Mitigation will present plans including the types of public and scholarly interpretation that would be implemented during and following the construction phase of the Proposed Project. Interpretive products would include brochures, signage and panels, and other appropriate media for interpretation. The interpretation will outline the Airport's history and significance with a focus on Terminal 1 and the locations where such interpretation will be installed or will take place. Examples might include, but are not limited to, photographs of the historic Terminal 1 along with brief descriptions of the photographs, reuse of physical materials removed from Terminal 1 (M101) with an explanation of the architect and design themes that place the materials in context (for example, portions of the concrete scalloped roof could be incorporated into the new design either functionally or artistically), and digital media that uses smartphone/camera technology to juxtapose old views of Terminal 1 with current views.

Materials developed as a part of any interpretive exhibits will be digitized and provided to appropriate repositories (the LPAB, the Oakland History Center of the Oakland Public

Library, etc.) in electronic format for curation and, if deemed necessary and appropriate, expansion later.

SIGNIFICANCE AFTER MITIGATION

Implementation of the mitigation measure to prepare a Historic American Building Survey (HABS) Report would offset the loss of features of Terminal 1 under the Proposed Project by retaining a record of the demolished resource and providing an interpretive opportunity to the public to learn about the resource. However, the mitigation would not effectively reduce the impact associated with loss of historical resources to a less-than-significant level under CEQA. Thus, implementation of the Proposed Project would result in a ***significant and unavoidable impact*** on a historical resource as defined in Section 15064.5.

3.5.3.2 Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5

The Proposed Project would not cause a substantial adverse change in the significance of a known archaeological resource pursuant to Section 15064.5 of the CEQA Guidelines. However, there is potential for the Proposed Project to affect a previously unrecorded archaeological resource through ground-disturbing activities associated with the construction of the Golf Course Lot employee parking area located in a triangular field at Eden Road and Doolittle Drive. This may cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5 and is considered to be a potentially ***significant impact***.

Implementation of Mitigation Measure: Construction Monitoring and Treatment of Potential Finds would reduce potential impacts on unrecorded archaeological resources. Therefore, the Proposed Project's effects on archaeological resources would be ***less than significant with mitigation incorporated***.

MITIGATION MEASURE: CONSTRUCTION MONITORING AND TREATMENT OF POTENTIAL FINDS

All site preparation (pavement and vegetation removal) and subsurface ground-disturbing activities (e.g., grading, trenching) associated with the construction of the Golf Course Lot will be monitored by a qualified archaeological monitor under the direction of an archaeologist meeting the Secretary of the Interior's Professional Qualifications Standards for prehistoric archaeology,¹⁰⁴ and a Native American monitor identified by the California Native American Heritage Commission as having an interest in the area within which the Proposed Project is located.

If cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area will be halted until a qualified archaeologist assesses the nature and significance of the find. Inadvertent discovery would be required to follow the protocols in the Port of Oakland's Emergency Response Plan for Discoveries of Unknown Historic or Archaeological Resources, which says that in the event that cultural resources are uncovered during dredging and excavation, crew and equipment operators must adhere

¹⁰⁴ National Park Service. (1983). *Archeology and Historic Preservation: Secretary of the Interior's Standards and Guidelines* (Vols. 48, No. 190). Federal Register.

to the procedures outlined below. The following measures apply when non-isolated finds are detected:

1. Dredging and excavation work, or any other activities at the locations and within 50 yards of the finds must halt.
2. The crew member(s) should immediately notify the Project Construction Manager and the Port Project Environmental Coordinator.
3. In the event that the Project Construction Manager is not available, the Port Project Environmental Coordinator and/or the Port Cultural Resources Specialist should be contacted directly.
4. Work can be shifted to other project areas to avoid loss of work time. However, work should only resume in the suspected area once the situation has been properly examined and assessed, and the Port has given notification that work may resume.

If there is ever any doubt or confusion upon discovery of cultural materials, or if no Port representatives can be located, the contractor supervisor and crew should temporarily halt work until the proper personnel can be notified and the situation clarified.

If resources are discovered that are considered potentially eligible for listing in the CRHR, then they must be addressed under the procedures set forth in CEQA Guidelines Section 15064.5. If significant resources are encountered and avoidance is infeasible, then data recovery through excavation will be conducted. If the cultural materials are of Native American origin, the Port will consult with the Native American monitor, and a data recovery plan will be prepared and implemented.

If human remains are discovered, Health and Safety Code Section 7050.5 requires that further disturbances and activities must cease in any nearby area suspected to overlie remains, and the County Coroner must be contacted. Pursuant to PRC Section 5097.98, if the remains are thought to be Native American, the coroner must notify the NAHC, who must then notify the Most Likely Descendent.

SIGNIFICANCE AFTER MITIGATION

Construction Monitoring and Treatment of Potential Finds would minimize potential impacts on unrecorded archaeological resources. Therefore, with the implementation of mitigation measures, the Proposed Project would not cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5 and the impact would be ***less than significant***.

3.5.3.3 Cause a substantial adverse change in the significance of a tribal cultural resources

Consistent with AB 52 requirements, the Port sent notice of the Proposed Project to the following tribes: Amah Mutsun Tribal Band of Mission San Juan Bautista, Costanoan Rumsen Carmel Tribe, Indian Canyon Mutsun Band of Costanoan, Muwekma Ohlone Indian Tribe of the San Francisco Bay Area, North Valley Yokuts Tribe, the Ohlone Indian Tribe, Wukasche Indian Tribe / Eshom Valley Band, the Confederated Villages of Lisjan, and Tamien Nation. A representative of the Confederated Villages of Lisjan responded with a request for the Sacred Land File from Native American Heritage Commission and any

additional archeological reports. These materials were sent to the representative and no further consultation was requested.

No known tribal cultural resources are present at the Airport. In the event that any tribal cultural resources are found during construction, work would be halted and the Port's Emergency Response Plan for Discoveries of Unknown Historic or Archaeological Resources would be activated, which includes reporting procedures and procedures for the work crew. Additionally, with implementation of the mitigation above for construction monitoring, the Proposed Project would not cause a substantial adverse change in the significance of a tribal cultural resources and the impact would be ***less than significant with mitigation incorporated.***

CHAPTER 3 - EXISTING CONDITIONS AND ENVIRONMENTAL IMPACTS

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3.6 GEOLOGY AND SOILS

This section describes existing geological and soil conditions and associated potential geologic, seismic, and geotechnical hazards as a basis for the discussion of potential impacts and proposed mitigation measures for the Proposed Project at OAK.

Regional geologic, seismic, and soil information presented in this section was compiled from the available geotechnical reports (see **Appendix I**) provided by the Port as well as maps and reports published by the United States Geological Survey (USGS) and California Geological Survey (CGS, formerly known as the California Division of Mines and Geology).

Local geologic and geotechnical information was collected from the available geotechnical reports (see **Appendix I**) prepared by other investigators as part of previous studies at the Airport.

The data and information presented in the available geotechnical reports were used to evaluate geologic and geotechnical conditions within the detailed study area and to identify potential hazards described in this section. The current geologic and soil conditions within the detailed study area are anticipated to remain unchanged from those described in the previous studies. It should be noted that the studies and investigations presented in the available reports were conducted more than three years ago, and no data or information from more recent studies and investigations are available at the time of preparation of this Draft EIR.

3.6.1 Background and Methodology

3.6.1.1 Regulatory Context

FEDERAL

Earthquake Hazards Reduction Act of 1977

The Earthquake Hazards Reduction Act of 1977 was enacted to “reduce the risks to life and property from future earthquakes in the United States through the establishment and maintenance of an effective earthquake hazards and reduction program.” The National Earthquake Hazards Reduction Program (NEHRP) was established by the U.S. Congress when it passed the Earthquake Hazards Reduction Act of 1977 (Public Law 95–124).

NEHRP’s mission includes:

- Develop effective practices and policies for earthquake loss reduction and accelerate their implementation.
- Improve techniques for reducing earthquake vulnerabilities of facilities and systems.
- Improve earthquake hazards identification and risk assessment methods, and their use.
- Improve the understanding of earthquakes and their effects.
- Multiple programs under NEHRP help inform and guide planning and building code requirements, such as emergency evacuation responsibilities and seismic code standards.

STATE

Alquist-Priolo Special Earthquake Fault Zoning Act (now referred to as the Alquist-Priolo Act)
The Alquist--Priolo Earthquake Fault Zoning Act, passed in 1972, requires the establishment of earthquake fault zones along known active faults in California. The Alquist-Priolo Act prohibits the location of structures designed for human occupancy across the traces of active faults. The state guidelines for fault rupture hazards are explained in the CGS Special Publication 42.¹⁰⁵

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act (SHMA) of 1990 (Public Resources Code, Chapter 7.8, Section 2690-2699.6) directed the CGS to identify and map areas prone to earthquake hazards of liquefaction, earthquake-induced landslides, and amplified ground shaking. The purpose of the SHMA is to reduce the threat to public safety and to minimize the loss of life and property by identifying and mitigating these seismic hazards. The SHMA requires the State Geologists to establish regulatory zones (Zones of Required Investigation) and to issue appropriate maps (Seismic Hazard Zone maps).

California Building Code

The California Building Code (CBC) (Title 24 California Code of Regulations Part 2) provides minimum standards for building design in the state. The CBC,¹⁰⁶ published July 1, 2022, with an effective date of January 1, 2023, is based on the 2021 International Building Code. Each jurisdiction in California may adopt its own building code based on the CBC, which is permitted to be more stringent than the CBC, but at a minimum is required to meet all state standards and enforce the regulations of the CBC.

The CBC, in conjunction with American Society of Civil Engineers (ASCE) Minimum Design Loads and Associated Criteria for Buildings and Other Structures (ASCE 7-22)¹⁰⁷, establishes minimum design criteria and construction requirements including design of concrete and steel structures, buildings, excavation and shoring, grading, and foundations.

3.6.1.2 Significance Thresholds

The following are the CEQA significance criteria used for the determination of geologic and soils impacts associated with a project. A project would have a significant effect on the environment if it would:

- Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

¹⁰⁵ California Geological Survey (CGS). (2018). *Earthquake Fault Zones: A Guide for Government Agencies, Property Owners / Developers, and Geoscience Practitioners for Assessing Fault Rupture Hazards in California*. Retrieved July 26, 2021, from:
https://www.conservation.ca.gov/cgs/documents/publications/special-publications/SP_042-a11y.pdf.

¹⁰⁶ California Building Standards Commission. (2022). California Code of Regulations, Title 24, Part 2 (Volumes 1 & 2). In *California Building Code*.

¹⁰⁷ American Society of Civil Engineers (ASCE). (2022). *Minimum Design Loads and Associated Criteria for Buildings and Other Structures including Supplement 1, ASCE/SEI 7-22*.

- 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 CGS Special Publication 42.
- Strong seismic ground shaking.
- Seismic-related ground failure, including liquefaction.
- Landslides.
- Result in substantial soil erosion or 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 offsite landslide, lateral spreading, subsidence, liquefaction or collapse.
- Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), 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.
 - As identified in the Initial Study that was included with the Notice of Preparation (NOP), the Airport uses existing infrastructure to convey wastewater from Port property for treatment and disposal by East Bay Municipal Utility District (EBMUD). No septic tanks or alternative wastewater disposal systems exist at the Airport. Therefore, the Proposed Project would not use soils that would be incapable of supporting septic tanks or alternative wastewater disposal system and no further analysis of this issue is included in the Draft EIR.
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.
 - As identified in the Initial Study that was included with the NOP, the Airport was constructed on fill material, there is little to no possibility of paleontological resources or unique geologic features at the Airport. Therefore, the Proposed Project would not have the potential to disturb any paleontological resources or unique geologic features and no further analysis of this issue is included in the Draft EIR.

3.6.1.3 Methodologies

The evaluation of potential hazards related to geology and soils was based on review and analysis of the data and information presented in the geotechnical reports provided by the Port for the Airport along with published reports and maps from USGS.

3.6.2 Existing Conditions / Environmental Setting

3.6.2.1 Regional Geology

The San Francisco Bay occupies a late Pliocene structural depression (the bay block) that was drowned by rising seas during interglacial stages of the Pleistocene. The bay block is within the Coast Ranges geomorphic province, which is characterized by northwest-trending mountains and valleys, and it is dominated by northwest-trending faults and other structures. The bay block is bounded by the San Andreas fault on the west and Hayward fault on the east.

Bedrock beneath the bay consists of the late Cretaceous Franciscan Complex. Quaternary sediments deposited over the bedrock are thickest beneath the western shore of the bay, increasing from about 400 feet at Berkeley to more than 1,000 feet at the southeast end of Alameda near the Proposed Project detailed study area.

The geologic formations beneath the western margin of San Francisco Bay are described briefly below, from oldest to youngest units. **Figure 3.6-1** presents a regional geologic map of the general study area.

FRANCISCAN COMPLEX BEDROCK

The Franciscan Complex consists of a heterogeneous assemblage of deep-sea sediments and related oceanic crustal rocks of Jurassic to Cretaceous age (195 to 63 million years old). Franciscan rock consists predominantly of graywacke sandstone and interbedded shale, with lesser amounts of submarine basalt (greenstone), chert, serpentinite, and rare high-pressure metamorphic rocks known collectively as blueschist. These rocks are intensely faulted and fractured.

ALAMEDA FORMATION

Along the western margin of the bay, this unit consists of continental sediments that grade into alluvial sands and gravels eastward toward the hills and upward into an interfingering sequence of continental and estuarine deposits in the central part of the bay block. At least three and possibly four ancient San Francisco Bays can be recognized by layers of estuarine muds.

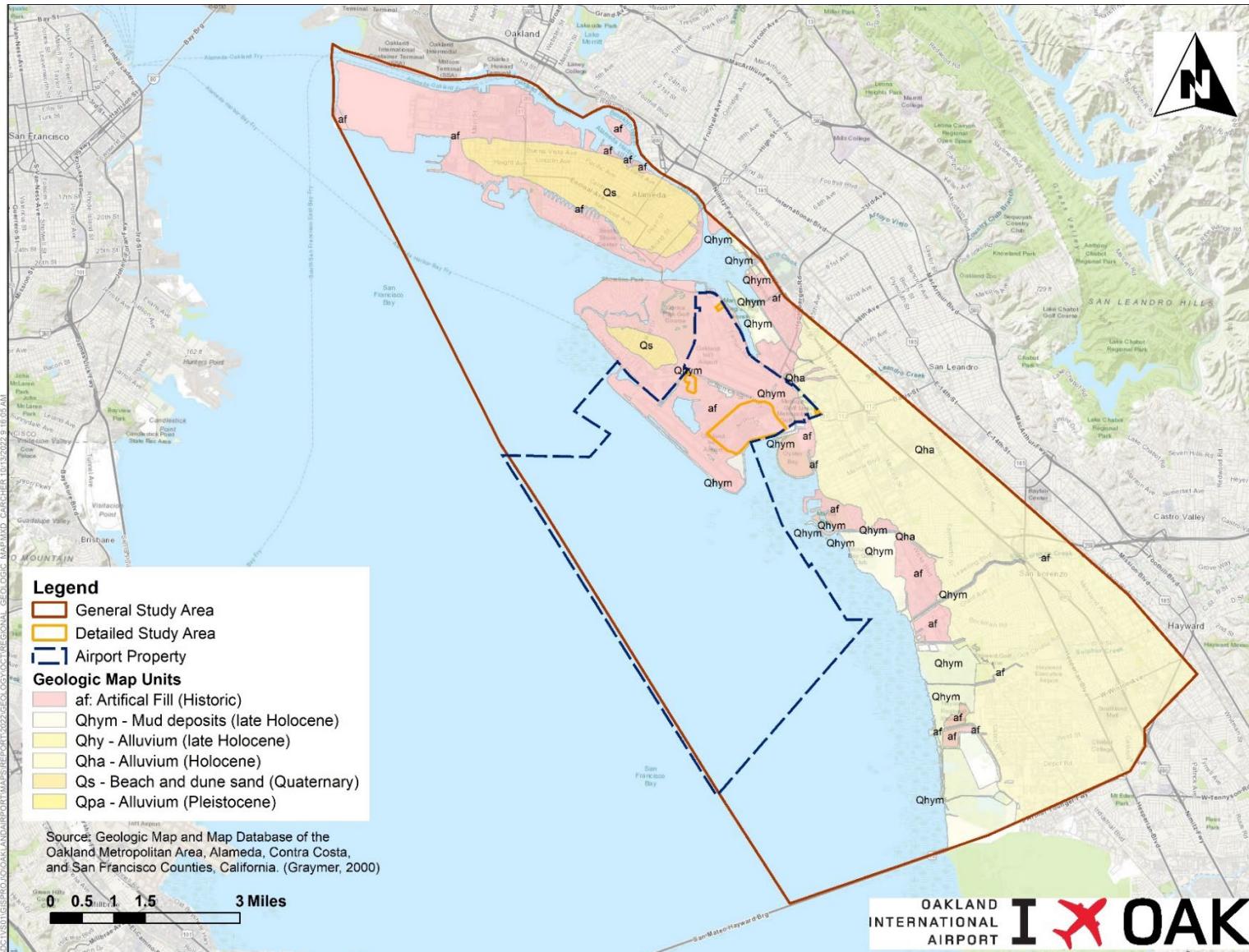
YERBA BUENA (OLD BAY) MUD

Yerba Buena Mud is a gray marine mud containing a sandy, shell-rich zone in the middle of the unit. It is similar to the current day accumulated muds in the bay. This mud is thickest (in excess of 100 feet) in broad channels that were carved into the underlying Alameda Formation during a former sea level lowstand.

SAN ANTONIO FORMATION

This thick and stratigraphically complex unit separates the Yerba Buena (Old Bay) Mud from the Young Bay Mud. Sediments of the San Antonio Formation accumulated in non-marine environments ranging from alluvial fans and floodplains to lakes, swamps, dunes, and beaches. Included within this formation are two sandy units in the Oakland area: (1) the Posey Sand, a sequence of channel fill deposits, and (2) the Merritt Sand, a clean sand and an overlying clayey sand interpreted as dunes and reworked dune deposits, respectively.

FIGURE 3.6-1
REGIONAL GEOLOGIC MAP



Source: Graymer, R. (2000). Geologic map and map database of the Oakland Metropolitan Area, Alameda, Contra Costa, and San Francisco Counties. U.S. Geological Survey Miscellaneous Field Studies MF 2342., scale 1:50,000; with modifications.

YOUNG BAY MUD

Sea level rose rapidly during the transition from glacial to nonglacial conditions that began about the beginning of Holocene time (8,000 to 11,000 years ago), and it has risen gradually to the present elevation during the past 8,000 years. During sea level rise, the river and stream valleys that had incised into the San Antonio Formation and older deposits were rapidly filled with estuarine sediments called the Young Bay Mud. These unconsolidated, fine-grained deposits (predominantly silty clay) were, and continue to be, deposited with high initial void ratios and low unit densities.

ALLUVIUM

As sea level rose throughout the last 8,000 to 11,000 years, the base levels of the streams in the bay region were raised slightly and younger alluvium sediments were deposited on the floodplains around the growing bay at the same time Young Bay Mud was deposited beneath the rising water. All these younger deposits exposed on the alluvial apron around the bay plain are less than 5,000 years old.

ARTIFICIAL FILL

Artificial fills consist of materials deposited by humans. Fills may consist of either engineered or non-engineered materials. Much of the mapped artificial fills overlies estuarine sediment and forms new land, levees, or dikes near sea level.

3.6.2.2 Site Geology and Generalized Subsurface Conditions

The Airport is located along the western boundary of the East San Francisco Bay region. The fills where the Airport is situated were developed in the 1950s by reclaiming tidal flats and areas of shallow bay water of the San Francisco Bay. Perimeter dikes were initially constructed using dredged mud, and the area within the dikes was filled with hydraulically placed sand fill. Some mud waves were created toward the northeast area during this filling process. The sand fill was underlain by the Young Bay Mud, a soft to medium stiff marine clay deposit of Holocene age.

The Young Bay Mud is in turn underlain by silty and sandy clays, sands, and gravels of the upper member of the Pleistocene-age San Antonio formation. Below the San Antonio formation are the Old Bay Mud and the Alameda formation that extends to depths of up to 550 feet, where the Franciscan bedrock is expected.

Based on a synthesis of the subsurface information obtained from the available geotechnical reports presented in **Appendix I**, the approximate thicknesses of subsurface materials underlying the Proposed Project detailed study area are summarized in **Table 3.6-1**.

TABLE 3.6-1
SUBSURFACE MATERIALS UNDERLYING THE DETAILED STUDY AREA

Material	Approximate Thickness (feet) of Subsurface Materials
Artificial Fill	1 to 25
Young Bay Mud	0 to 20
Old Bay Deposits	>100

Source: Interpretation of data from the available geotechnical reports presented in **Appendix I**.

3.6.2.3 Faulting and Seismicity

The Airport is located along the western boundary of the East San Francisco Bay region, a seismically active region that has been subjected to several strong earthquakes during the last 200 years. Numerous active and potentially active faults are mapped in the vicinity of the Airport. Many of these faults are capable of producing potentially large damaging earthquakes. The location of the Airport and the detailed study area with respect to known active or potentially active faults in Northern California is shown on **Figure 3.6-2**. Due to the proximity to the Airport and the potential for generating large earthquakes and strong ground shaking, the earthquake sources that are most relevant to the Airport and detailed study area are the Hayward fault, Calaveras fault, and San Andreas fault.

In 2014, the USGS estimated that there is a 72-percent probability of a magnitude 6.7 or greater earthquake occurring in the San Francisco Bay Area by 2043. The major contributors to the risk are the Hayward fault (33 percent), Calaveras fault (26 percent), and San Andreas fault (22 percent).

The Port is initiating improvements to address vulnerability to seismic activity. Improvements will be designed specifically to reduce the effects of seismic events on the perimeter dike and the Airport as a whole.

HAYWARD FAULT

The Hayward fault, located approximately 3 miles east of the detailed study area, is a major component of the San Andreas fault system in the San Francisco Bay Area. It is one of the most extensively studied faults in California. The Hayward fault generated large earthquakes in 1836 and 1868. Both were about Richter Magnitude (M_L) 6.8, and both produced several tens of kilometers of surface rupture.

CALAVERAS FAULT

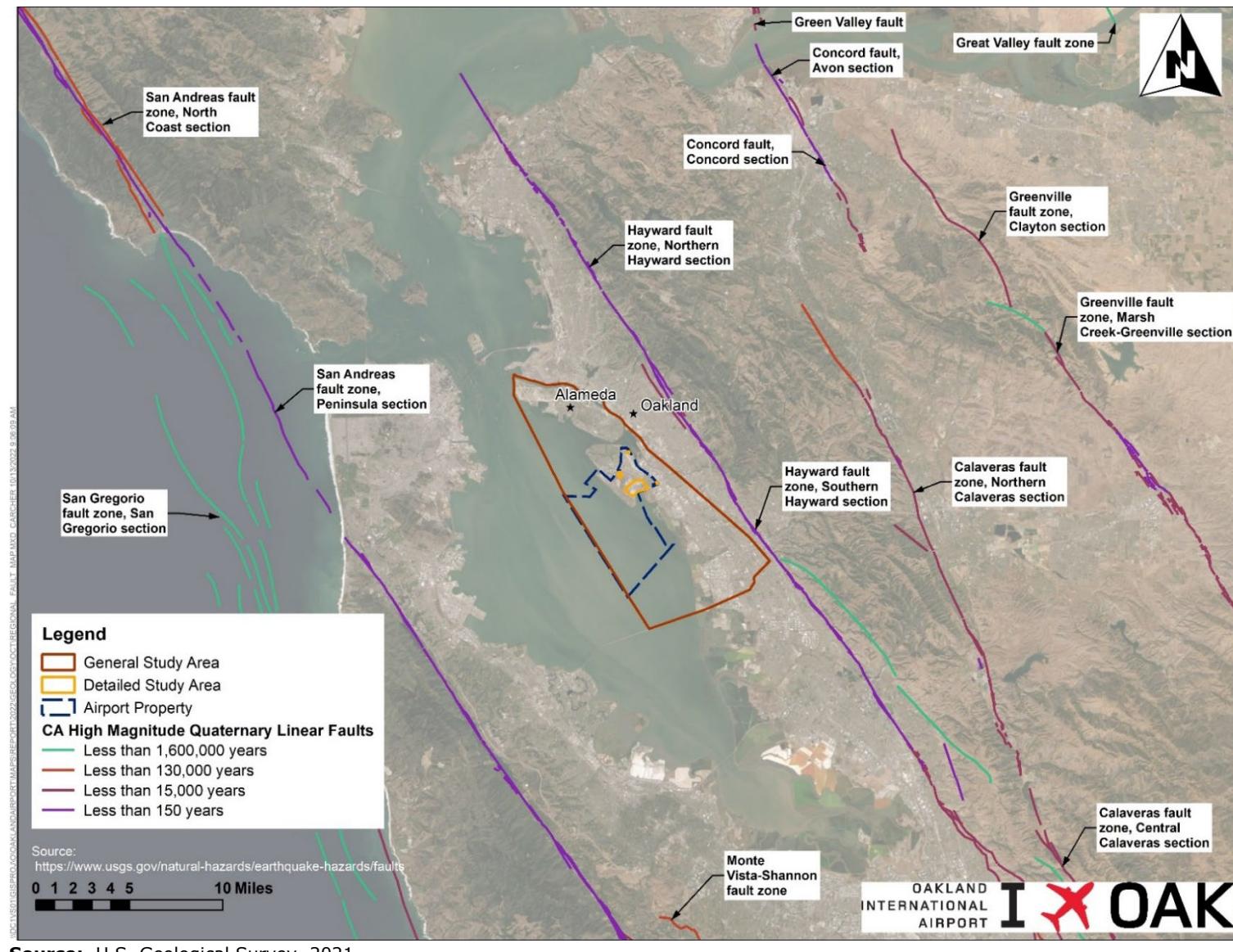
The Calaveras fault, located approximately 12 miles east of the detailed study area, is a major fault of the central San Andreas fault system. The Calaveras fault has generated several moderate earthquakes in the past (M_L 5.9 in 1864, M_L 6.2 in 1897, M_L 5.8 in 1979, and M_L 6.2 in 1984), but it has not generated a large earthquake with a moment magnitude (M_w) greater than 7 during the historical period.

SAN ANDREAS FAULT

The San Andreas fault, located approximately 13 miles west of the detailed study area, is the predominant active fault in the San Francisco Bay Area. It is one of the longest and most active faults in the world. It has generated two great earthquakes (approximately M_w = 8) in historical time: the 1857 Fort Tejon earthquake and the 1906 San Francisco earthquake. The October 17, 1989, Loma Prieta earthquake (M_w = 7.1) ruptured along the Southern Santa Cruz Mountains segment.

Table 3.6-2 summarizes the major active faults near the detailed study area, along with their distances and potential maximum magnitudes. Earthquakes occurring on these faults may generate strong ground shaking at the Airport.

FIGURE 3.6-2
REGIONAL FAULT MAP



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TABLE 3.6-2
PRINCIPAL ACTIVE FAULTS NEAR THE DETAILED STUDY AREA

Fault	Approximate Distance from Fault to Detailed Study Area (miles) ^{/a/}	Maximum Moment Magnitude (M_{max}) ^{/b/}
Hayward	3	7.3
Calaveras	12	7.0
San Andreas	13	8.2

/a/ USGS, 2021.¹⁰⁸

/b/ USGS, 2008.¹⁰⁹

3.6.2.4 Fault Rupture

According to the CGS map of Earthquake Zones of Required Investigation¹¹⁰ for San Leandro Quadrangle, the detailed study area is not located within an Earthquake Fault Zone. There are no known active faults crossing or projecting toward the detailed study area. Therefore, the potential for fault rupture in the detailed study area is remote.

3.6.2.5 Earthquake Ground Shaking

Due to the presence of active faults at close distances to the detailed study area, the potential for strong ground shaking due to large earthquakes is high. According to the Geotechnical Study for Phase 2 East Apron Construction at the Airport,¹¹¹ for an earthquake of magnitude 7.1 occurring on the Hayward Fault or San Andreas Fault, the estimated mean peak horizontal ground surface accelerations (PGAs) at the Airport were estimated to be 0.40g (g=acceleration due to gravity) and 0.21g, respectively. The estimated PGA from the M_w 7.1 earthquake on the Hayward Fault has a return period between 72 years and 475 years.

During the 2003 Site-Specific Response Spectra Study for Terminal Expansion Program,¹¹² horizontal response spectra were developed for two earthquake hazard levels: 1) a 10 percent probability of exceedance in 50 years (475-year return period) and 2) a 10 percent probability of exceedance in 100 years (950-year return period). PGAs associated with the 475-year and 950-year return periods were estimated to be 0.60g and 0.72g, respectively. It should be noted that these seismic studies are more than 3 years old, and no data or information from more recent studies are available at the time of this writing.

¹⁰⁸ U.S. Geological Survey (USGS). (2021). *Interactive Fault Map*. Retrieved 2021, from: <https://www.usgs.gov/programs/earthquake-hazards/faults>.

¹⁰⁹ U.S. Geological Survey (USGS). (2008). *Documentation for the 2008 Update of the United States National Seismic Hazard Maps*. Open-File Report 2008-1128.

¹¹⁰ California Geological Survey (CGS). (2021). *Earthquake Zones of Required Investigation*. Retrieved September 2021, from: <https://maps.conervation.ca.gov/cgs/EQZApp/app/>.

¹¹¹ AGS, Inc. (2005). *Geotechnical Study, Phase 2 East Apron Reconstruction, Oakland International Airport*. DMJM Harris.

¹¹² Geomatrix Consultants, Inc. (2003). *Final Geotechnical Report, Oakland International Airport Terminal 2 Concourse Extension, Terminal 2 Addition, and Terminal 2 Mechanical Building*. Master Architect Joint Venture.

The understanding of seismic activity near the Airport is a continually evolving process, and a site-specific seismic study is required during the detailed design process to estimate the anticipated ground shaking at the detailed study area based on the most recent understanding on the regional and site seismicity.

3.6.2.6 Liquefaction and Related Geologic Hazards

Liquefaction is a process whereby strong ground shaking causes loose, saturated, unconsolidated sediments to lose strength and to behave as a fluid. This process can cause significant ground deformations at or near the ground surface, including lateral spreading, differential compaction, or settlement and sand boils. The amounts of settlement and movement depend on ground shaking intensity and degree of soil compaction; looser soils subjected to higher ground shaking will settle or move more. Loss of bearing strength and ground movements associated with liquefaction may result in damage to structures.

Per the CGS map of Earthquake Zones of Required Investigation for San Leandro Quadrangle, the detailed study area is located within a liquefaction hazard zone (see **Figure 3.6-3**). The artificial fills and naturally deposited loose sands near the top of the Merritt sand layer would likely liquefy during strong seismic ground shaking associated with a major earthquake in the region.

3.6.2.7 Landslides

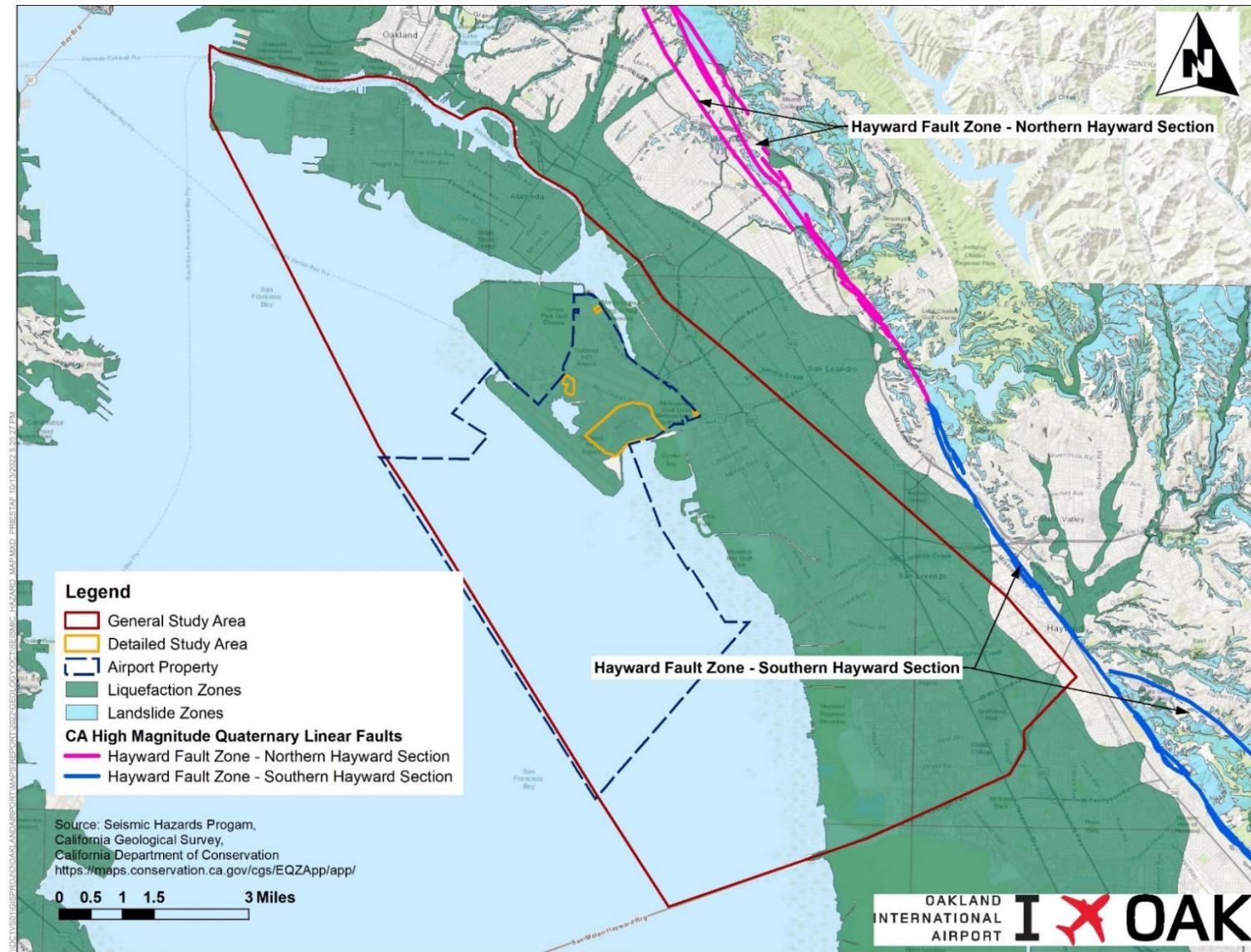
A landslide is a mass of rock, soil, and/or debris that has been displaced downslope by sliding, flowing, or falling. Landslides occur when shear stresses within a soil or rock mass exceed the available shear strength of the mass. Failure may occur when stresses acting on a slope increase, the internal strength of the slope mass decreases, or a combination of both.

Strong earthquakes often cause landslides, particularly in areas already susceptible to landslides due to other factors, including the presence of existing landslide deposits. Landslides are typically a major effect of ground shaking during earthquakes with magnitudes of 5 and greater, especially where earth materials are water-saturated. Failure of steep slopes, collapse of natural stream banks, and reactivation of existing landslides may occur during a major earthquake. Per the CGS map of Earthquake Zones of Required Investigation for San Leandro Quadrangle, the detailed study area is not located within an earthquake-induced landslide zone (see **Figure 3.6-3**). Due to the relatively flat topography at the detailed study area, landslides are not considered a potential hazard to the Proposed Project.

3.6.2.8 Expansive Soils

Expansive soils exhibit a “shrink-swell” behavior. Shrink-swell is the cyclic change in volume (expansion and contraction) that occurs in fine-grained soils from the process of wetting and drying. Expansive soils may cause differential and cyclical soil movements that can cause damage and/or distress to overlying structures and equipment. The Young and Old Bay Mud deposits encountered underlying the fills are clayey soils which are considered to have high expansion potential.

FIGURE 3.6-3
SEISMIC HAZARD MAP



Source: California Geological Survey, 2021

3.6.2.9 Subsidence and Erosion

Subsidence involves either the sudden collapse of the ground to form a depression or the slow subsidence or compaction of the sediments near the ground surface. The most common type of sudden collapse is due to erosion of underground soil or rock caused by leaking human-made sewer pipes or water mains.

Per a research study on local subsidence in San Francisco Bay Area,¹¹³ subsidence rates of less than 2 millimeters (mm)/year were observed along most of the coastal areas along San Francisco Bay. However, rates exceed 10 mm/year in some areas underlain by compacting artificial landfill and Holocene mud deposits, such as the northwest corner of Treasure Island. There is no historical information available on subsidence for the Airport. Therefore, the potential for subsidence at the detailed study area is considered low to medium because the designated study area is underlain by engineering fill.

The surficial soils within the detailed study area predominantly consist of artificial fills that were formed by hydraulically placed sand fills and compacted during placement. Also, the majority of the detailed study area is paved. Therefore, the potential for surface erosion is considered low.

3.6.2.10 Compressible / Collapsible Soils

Soft, loose, and collapsible soils may affect support of structures and excavations. Potential impacts from loose, soft, and collapsible soils include excessive settlement and low foundation bearing capacity.

Young Bay Mud is soft and highly compressible clay that is susceptible to consolidation and settlement. The amount and rate of consolidation or settlement depend on the weight of any new fill or structural loads, the thickness and depth of the Young Bay Mud deposit, the degree to which consolidation has already occurred from former and existing structures, and the presence of sand layers within the Bay Mud. Where primary consolidation is complete, ground surface settlement is still expected to occur under the existing loads due to secondary compression (or creep) of the Bay Mud soils.

3.6.2.11 Corrosive Soils

Depending on their acidity or alkalinity, some soils can be highly corrosive and result in damage to buried concrete, steel pipes, and electrical conduits.

The laboratory test results of corrosion tests on subsurface soils conducted during previous geotechnical investigations are summarized in **Table 3.6-3**. Based on these test results, artificial fill soils are considered to be mildly corrosive to severely corrosive and Young Bay Mud deposits are considered to be severely corrosive.

¹¹³ Shirzaei, M., & Burgmann, R. (2018, March 7). Global Climate Change and Local Land Subsidence Exacerbate Inundation Risk to the San Francisco Bay Area. *Science Advances*, 4(3).

TABLE 3.6-3
CORROSION TEST RESULTS OF SUBSURFACE MATERIALS UNDERLYING THE AIRPORT

Material	Range of Values			
	pH	Resistivity (ohm-cm)	Chlorides (mg/kg)	Sulfates (mg/kg)
Artificial Fill	7.1 to 8.3	450 to 15,000	ND to 810	ND to 350
Young Bay Mud	7.8 to 8.8	82 to 200	1,600 to 5,900	360 to 870

ohm-cm: ohm-centimeters

mg/kg: milligrams/kilograms

ND: None detected

Source: Interpretation of data from the available geotechnical reports presented in **Appendix I**.

3.6.3 Environmental Impacts and Mitigation Measures

3.6.3.1 Expose people or structures to loss, injury, or death involving surface rupture of an earthquake fault.

The detailed study area is located at least three miles away from the closest active fault (i.e., Hayward Fault). As stated in **Section 3.6.2.4**, the detailed study area is not located within an Alquist-Priolo Fault Zone. Therefore, surface rupture is not anticipated in the detailed study area and the potential impact from the exposure of people or structures to the risk of loss is **less than significant**.

3.6.3.2 Expose people or structures to loss, injury, or death involving strong seismic ground shaking.

Based on the activities of major regional seismic sources (see **Table 3.6-2**), the Proposed Project would experience strong seismic ground shaking from at least one moderate or greater earthquake from the nearby faults.

The greatest potential for strong seismic ground shaking within the detailed study area comes from the Hayward Fault due to its proximity to the site. Seismic waves attenuate with distance from their source resulting in higher bedrock accelerations for areas nearest to the fault zone and decrease with distance away from the fault. Local soil conditions may amplify or dampen seismic waves as they travel from underlying bedrock to the ground surface.

In addition to the Hayward Fault, the San Andreas, Concord, Greenville, and Rodgers Creek Faults also present a potential for strong ground shaking within the region.

Because the studies and investigations used to prepare this report were conducted more than three years ago, a site-specific analysis would be performed during the detailed design process to evaluate seismic ground motions and peak ground acceleration. The findings of the analysis would inform the detailed design of the Proposed Project. In addition, the Proposed Project would be designed in accordance with CBC, ASCE Minimum Design Loads and Associated Criteria for Buildings and Other Structures. Therefore, the effect of seismic ground shaking on the detailed study area would be minimized and the Proposed Project's potential to expose people or structures to loss, injury, or death from strong seismic ground shaking is **less than significant**.

3.6.3.3 Expose people or structures to loss, injury, or death involving seismic-related ground failure, including liquefaction.

Seismic-induced ground failure has the potential to distress, displace, and/or destroy buildings and facilities. The detailed study area is located within a liquefaction hazard zone. Based on previous geotechnical investigations, the artificial fill layer and naturally deposited loose sand near the top of the Merritt sand layer are highly susceptible to liquefaction during strong seismic ground shakings associated with a major earthquake.

Permanent ground displacements due to lateral spreads and differential settlement are considered significant potential hazards associated with liquefaction. During the Loma Prieta earthquake, lateral spreading movements occurred along the Runway 12 end and Taxiway W at South Field. Due to the presence of liquefiable sands and soft Bay Mud deposits, the potential hazard due to lateral spreading is considered very high.

The Proposed Project would conduct a site-specific seismic analysis prior to construction. The recommendations from the site-specific seismic analysis would be incorporated into the design of the Proposed Project. Therefore, the Proposed Project's potential to expose people or structures to loss, injury, or death involving seismic-related ground failure, including liquefaction, would be **less than significant**.

3.6.3.4 Expose people or structures to loss, injury, or death involving landslides.

Slope instability due to landslides has the potential to undermine foundations, cause distortion and distress to overlying structures, and displace or destroy Project buildings and facilities. Per the CGS map of Earthquake Zones of Required Investigation for San Leandro Quadrangle, the detailed study area is not located within an earthquake-induced landslide hazard zone. Additionally, due to minimal slopes in the detailed study area, landslides are not considered a potential hazard. Therefore, the Proposed Project's there is no potential to expose people or structures to loss, injury, or death involving landslides and **no impact** would occur.

3.6.3.5 Result in substantial soil erosion or the loss of topsoil.

Disturbance of soils during construction could result in erosion. Construction activities associated with the Proposed Project would involve ground disturbance, which could expose soils to wind or stormwater runoff which could cause erosion. An erosion and sedimentation control plan with measures to minimize erosion from wind and stormwater runoff would be prepared prior to construction. In addition, a Stormwater Pollution Prevention Plan (SWPPP) would also be prepared in compliance with regulatory permits. The SWPPP would include the implementation of Best Management Practices (BMPs) during construction to minimize erosion, such as fiber rolls or other sediment controls, wind erosion controls, and stabilized construction entrances/exits. Therefore, the Proposed Project would not result in substantial soil erosion or the loss of topsoil and the impact would be **less than significant**.

- 3.6.3.6 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 offsite landslide, lateral spreading, subsidence, liquefaction, or collapse.

Due to minimal slopes in the detailed study area, landslides are not considered a potential hazard. However, the artificial fill layer and naturally deposited loose sand near the top of the Merritt sand layer are highly susceptible to liquefaction during strong seismic ground associated with a major earthquake. Liquefaction as a result of an earthquake may also induce lateral spreading and settlement. Implementation of the recommendations in the site-specific seismic hazard analysis would be incorporated into the development of the Proposed Project reducing the potential for the soil to become unstable and potentially result in on- or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse.

Therefore, the impact is **less than significant**.

- 3.6.3.7 Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property.

Expansive soils may cause differential and cyclical foundation movements that can cause damage and/or distress to overlying structures and equipment. Potential impacts from soft clays and other potentially compressible soils include excessive settlement and low foundation bearing capacity for Proposed Project buildings and facilities.

Young and Old Bay Mud deposits in the detailed study area are clayey soils with high expansion potential.

Prior to construction, geotechnical studies would be conducted to identify appropriate design features such as excavation of potentially problematic soils and replacement with engineered backfill to minimize the effects of expansive soils on infrastructure.

Implementation of these design features would reduce the potential of creating substantial risks to life or property and the impact would be **less than significant**.

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3.7 GREENHOUSE GAS EMISSIONS

This section analyzes existing and future greenhouse gas (GHG) emissions and proposed mitigation measures to address potential GHG impacts from the Proposed Project.

3.7.1 Background and Methodology

The transportation sector accounts for 27 percent of U.S. GHG emissions, with aircraft representing 8 percent of this total.¹¹⁴ In California, however, the dominant contributor to GHG emissions is transportation (36.8 percent), underscoring the particular importance of emissions reductions in this sector.¹¹⁵ Increased efforts to mitigate GHG emissions have become prevalent both in California and globally, with efforts primarily focused on the reduction of GHG emissions generated by human activity such as carbon dioxide (CO₂), methane (NH₄), and nitrous oxides (N₂O). This section discusses certain regulations to reduce these emissions, and details the methodologies implemented to estimate the GHG emissions of the Proposed Project due to construction and operational activities.

3.7.1.1 Regulatory Context

FEDERAL

U.S. Environmental Protection Agency

The U.S. Environmental Protection Agency (USEPA) is responsible for implementing federal policies to address GHGs. These policies focus on energy efficiency, renewable energy, methane and other non-CO₂ gases, agricultural practices, and implementation of technologies to achieve GHG reductions. The USEPA implements voluntary programs that contribute to the reduction of GHG emissions. These programs (e.g., the Energy Star labeling system for energy-efficient products) play a significant role in encouraging voluntary reductions from large corporations, consumers, industrial and commercial buildings, and major industrial sectors.

In 2020, the USEPA finalized GHG emission standards for airplanes used in commercial aviation and for large business jets.¹¹⁶ This action aligns U.S. standards with the international CO₂ emissions standards set by the International Civil Aviation Organization (ICAO), keeping domestically manufactured aircraft competitive in the global marketplace. The GHG standards rely heavily on fuel efficiency as a way to assess GHG emissions and apply to new type design airplanes when this rule becomes effective, and to in-production airplanes on or after January 1, 2028. The rule requires airplane manufacturers to submit an annual production report to the USEPA for each airplane sub-model that already has a

¹¹⁴ U.S. Environmental Protection Agency (USEPA). (2022). *Fast Facts on Transportation Greenhouse Gas Emissions*. Retrieved April 2023, from: <https://www.epa.gov/greenvehicles/fast-facts-transportation-greenhouse-gas-emissions>.

¹¹⁵ California Air Resources Board (CARB). (2020). *California Greenhouse Gas Emission Inventory Program*. Retrieved April 2023, from: <https://ww2.arb.ca.gov/ghg-inventory-graphs>.

¹¹⁶ U.S. Environmental Protection Agency (USEPA). (2023). *Control of Air Pollution from Airplanes and Airplane Engines: GHG Emission Standards and Test Procedures - Final Rulemaking*. Retrieved April 2023, from: <https://www.epa.gov/regulations-emissions-vehicles-and-engines/control-air-pollution-airplanes-and-airplane-engines-ghg>.

type certificate, is subject to the GHG standards, and is designed to operate at subsonic speeds.

Federal Aviation Administration

The Federal Aviation Administration (FAA) is involved with several different projects that could help promote reductions in GHG emissions from aircraft. The FAA's Airport Sustainability Planning Program provides Airport Improvement Program (AIP) grants to certain airports for Sustainability Master Plans or Airport Sustainability Plans. Many of these plans include GHG inventories and emission reduction initiatives. The FAA's Voluntary Airport Low Emissions (VALE) and Zero Emissions Vehicle and Infrastructure Pilot (ZEV) Programs are also available to certain airports. These programs provide AIP grants for eligible and justified air quality projects.

On November 9, 2021, the FAA published the U.S. Aviation Climate Action Plan,¹¹⁷ which describes a joint-government approach to put the aviation sector on a path toward achieving net-zero emissions by 2050. The plan builds on individual and sector-wide commitments announced by the U.S. aviation industry and highlights specific actions and policy measures to foster innovation and drive change across the entire U.S. aviation sector.

The actions identified in the plan will decrease emissions through:

- Development of new, more efficient aircraft and engine technologies,
- Improvements in aircraft operations throughout the National Airspace System,
- Production and use of Sustainable Aviation Fuels (SAF),
- Electrification—and potentially hydrogen—as solutions for short-haul aviation,
- Advancements in airport operations across the United States,
- International initiatives such as the airplane CO₂ standard and the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA), and
- Support for research into climate science.

Inflation Reduction Act of 2022

The Inflation Reduction Act of 2022 (IRA),¹¹⁸ signed into law on August 16, 2022, directs new federal spending toward reducing carbon emissions, lowering healthcare costs, funding the Internal Revenue Service, and improving taxpayer compliance. The act aims to catalyze investments in domestic manufacturing capacity, encourage procurement of critical supplies domestically or from free-trade partners, and jump-start research and development and commercialization of leading-edge technologies such as carbon capture and storage and clean hydrogen.

¹¹⁷ Federal Aviation Administration (FAA). (2021). *Aviation Climate Action Plan*. Retrieved April 2023, from: <https://www.faa.gov/sustainability/aviation-climate-action-plan/>.

¹¹⁸ Clean Energy. (2023, January). *Inflation Reduction Act Guidebook*, 2. Retrieved July 2023, from: <https://www.whitehouse.gov/cleanenergy/inflation-reduction-act-guidebook/>.

STATE

California Climate Crisis Act

Enacted in 2022, Assembly Bill 1279 (AB 1279) codifies the 2045 carbon neutrality goal of Executive Order B-55-18 by declaring that it is the policy of the state to achieve net zero GHG emissions no later than 2045, to achieve and maintain net negative GHG emissions thereafter, and to ensure that by 2045 statewide anthropogenic GHG emissions are reduced to at least 85 percent below the 1990 levels. These targets amended those established in Senate Bill 32 (SB 32).

While CARB's 2022 Scoping Plan for achieving this target does not include any language, targets, or measures related to aircraft emissions, its inventory of statewide emissions and assessment of progress includes emissions from intrastate aircraft operations that involve OAK, but not interstate or international flights.

Clean Energy, Jobs and Affordability Act of 2022

Senate Bill 1020 (SB 1020) enacted the Clean Energy, Jobs and Affordability Act of 2022, which amends Section 454.53 of the Public Utilities Code to provide that "eligible renewable energy resources and zero-carbon resources supply 90 percent of all retail sales of electricity to California end-use customers by December 31, 2035, 95 percent of all retail sales of electricity to California end-use customers by December 31, 2040, 100 percent of all retail sales of electricity to California end-use customers by December 31, 2045, and 100 percent of electricity procured to serve all state agencies by December 31, 2035."

Cap-and-Trade Program

Enabled by AB 32, CARB adopted cap-and-trade regulation (CCR Title 17, Subchapter 10, Article 5). The program covers about 450 emitters in the electric and industrial sectors who produce more than 25,000 metric tons of carbon dioxide equivalents (mtCO₂e). Together they are responsible for 85 percent of the state's emissions. Entities that emit more than 10,000 mtCO₂e are required to report their emissions to CARB.

The program imposes a "cap" on the total GHG emissions from covered entities in the state, and the quantity of emissions allowed under the cap decreases each year.

To encourage emission sources to emit less as the cap decreases, "allowances," or permission to emit GHGs, are made available in decreasing quantities. The intent is to make reducing GHG emissions more financially attractive as the number of available allowances decreases, making each allowance more costly.

Low Carbon Fuel Standard

The low carbon fuel standard (LCFS) was established as one of the key Elements of AB 32 (passed in 2006) with a goal to reduce the carbon intensity of transportation fuels sold in California by at least 10 percent by 2020. In January 2019, CARB adopted amendments to the LCFS regulation to support the objectives of the state's 2017 Scoping Plan in achieving the statewide GHG target of 40 percent below 1990 levels by 2030. The amended regulation targeted a 20 percent reduction in fuel carbon intensity from a 2010 baseline by 2030. Specifically, it strengthened the carbon intensity benchmarks for gasoline, diesel,

and jet fuel substitutes from 2019 to 2030, and added new credit generating fuels and vehicle categories to incentivize further reductions, including alternative jet fuels.¹¹⁹

Senate Bill 375

SB 375 provided for a new planning process to coordinate land use planning, regional transportation plans, and funding priorities in order to help California meet the GHG reduction goals established in AB 32.¹²⁰ SB 375 requires Metropolitan Planning Organizations (MPOs), including the Association of Bay Area Governments (ABAG), to incorporate a “sustainable communities strategy” (SCS) in their regional transportation plans (RTPs) that will achieve GHG emission reduction targets set by CARB, primarily by reducing vehicle miles traveled (VMT) from light-duty vehicles through development of more compact, complete, and efficient communities.

SB 375 also required CARB to appoint a Regional Targets Advisory Committee (RTAC) to recommend factors for CARB to consider and methodologies for it to use in setting GHG emission reduction targets (Regional Targets) for each region. In 2018, CARB revised these Regional Targets to 10 percent for 2020 and 19 percent for 2035.¹²¹

On July 18, 2013, the Metropolitan Transportation Commission (MTC) and ABAG approved *Plan Bay Area 2013*, which included the Bay Area region’s first SCS as well as a new 2040 RTP and established the strategies for meeting the Bay Area’s Regional Targets.¹²² On October 21, 2021, MTC and ABAG approved *Plan Bay Area 2050*, which is the latest strategic update to *Plan Bay Area 2013*, providing a roadmap for transportation and land-use planning in the nine Bay Area counties. Plan Bay Area is a long-range plan that looks out over 20-plus years and is updated every four years.¹²³ Plan Bay Area is discussed below under regional regulations.

Zero-Emission Airport Shuttle Regulation

The Zero-Emission Airport Shuttle Regulation, adopted in June 2019 by CARB, requires airport shuttle operators to transition to 100 percent zero-emission vehicle technologies at 13 California airports, including OAK.¹²⁴ Airport shuttle operators must begin adding zero-emission shuttles to their fleets in 2027 and complete the transition to 100 percent zero-emission shuttles by the end of 2035.

¹¹⁹ California Air Resources Board (CARB). (2019, April). *Low Carbon Fuel Standard*. Retrieved April 2023, from: <https://www.arb.ca.gov/fuels/lcfs/lcfs.htm>.

¹²⁰ State of California. 2008. Senate Bill 375. Chapter 728.

¹²¹ California Air Resources Board (CARB). (2019). *Regional Plan Targets: SB 375 Regional Plan Climate Targets*. Retrieved March 2023, from: <https://ww2.arb.ca.gov/our-work/programs/sustainable-communities-program/regional-plan-targets>.

¹²² Metropolitan Transportation Commission. (2013, July). *Plan Bay Area*. Retrieved March 2023, from: <https://planbayarea.org/previous-plan/plan-bay-area>.

¹²³ Association of Bay Area Governments and Metropolitan Transportation Commission. (2021, October). *Plan Bay Area 2050*. Retrieved March 2023, from: https://mtc.ca.gov/sites/default/files/documents/2021-11/Plan_Bay_Area_2050_October_2021.pdf.

¹²⁴ California Air Resources Board (CARB). (2019). *Zero-Emission Airport Shuttle*. Retrieved March 2023 from: <https://ww2.arb.ca.gov/our-work/programs/zero-emission-airport-shuttle>.

CARB Advanced Clean Fleets

In April 2023, CARB approved the Advanced Clean Fleet Rule that requires a phased transition toward zero emission medium- and heavy-duty vehicles with the goal of achieving a zero-emission truck and bus California fleet by 2045 everywhere feasible and significantly earlier for certain market segments such as last mile delivery and drayage applications. The goal of this effort is to accelerate the number of medium and heavy-duty zero-emission vehicle purchases to achieve a full transition to zero-emission vehicles in California as soon as possible. The Advanced Clean Fleets rule includes an end to combustion truck sales in 2036.

CARB Advanced Clean Trucks

In 2020, CARB adopted the world's first zero-emission commercial truck requirement, the Advanced Clean Trucks rule. The rule requires truck makers to sell an increasing number of clean, zero-emission trucks in California in place of diesel and gasoline in an effort to cut toxic fossil fuel emissions in polluted communities throughout the state.

CARB High Global Warming Potential Refrigerant Emissions Reduction

In 2020, CARB announced its intent to reduce the impact of high-global warming potential (high-GWP) refrigerants, including all ozone-depleting substances and any refrigerant with a GWP of 150 or higher. GWP is a measure of how destructive a climate pollutant is. The refrigerants, known as hydrofluorocarbons (HFCs), are considered to be super pollutants because they trap heat in the atmosphere thousands of times more effectively than carbon dioxide, the most prevalent greenhouse gas. The rules affect commercial and industrial, stationary refrigeration units, such as those used by large grocery stores, as well as commercial and residential air conditioning units. This equipment often leaks refrigerants over time. In other cases, emissions are released when the equipment is dismantled and destroyed at the end of its useful life. The regulations are intended to help California reach the requirement to reduce HFC emissions 40 percent below 2013 levels by 2030 under Senate Bill 1383.

California Green Building Standards

Part 11 of the Title 24 Building Energy Efficiency Standards is referred to as the California Green Building Standards Code (CALGreen). CALGreen is intended to encourage more sustainable and environmentally friendly building practices, require low-pollution emitting substances that cause less harm to the environment, conserve natural resources, and promote the use of energy-efficient materials and equipment. Since 2011, the CALGreen Code has been mandatory for all new residential and non-residential buildings constructed in the state. Such mandatory measures include energy efficiency, water conservation, material conservation, planning and design and overall environmental quality. It requires new residential and non-residential construction to be pre-wired to facilitate the future installation and use of electric vehicle chargers. The CALGreen Code was most recently updated in 2022 to include new mandatory measures for residential and nonresidential uses; the new measures took effect on January 1, 2023.¹²⁵

¹²⁵ California Building Standards Commission. (2023). *CALGreen*. Retrieved March 2023, from: <https://www.dgs.ca.gov/BSC/CALGreen>.

REGIONAL

BAAQMD Regional Climate Protection Strategy Resolution

On November 6, 2013, the Bay Area Air Quality Management District (BAAQMD) Board passed a resolution adopting a regional GHG reduction target of achieving 80 percent below 1990 levels of GHG emissions by 2050. In addition, the resolution committed the BAAQMD to develop a regional climate protection strategy, including a Bay Area climate protection work program to be included as an element of the BAAQMD's Clean Air Plan.¹²⁶

BAAQMD Clean Air Plan

BAAQMD and other air districts prepare clean air plans in accordance with the state and federal clean air acts. On April 19, 2017, the BAAQMD Board of Directors adopted the 2017 Clean Air Plan, *Spare the Air, Cool the Climate*. The plan includes a wide range of control measures, including improving fossil fuel combustion efficiency at oil refineries, power plants and cement plants, reducing methane emissions from landfills and oil and gas production and distribution, advancing electrical vehicles, promoting clean fuels, supporting solar, and making new and existing buildings more energy efficient.¹²⁷

Regional Land Use and Transportation Planning

As previously mentioned, on October 21, 2021, MTC and ABAG approved *Plan Bay Area 2050*, a roadmap for transportation and land-use planning in the nine Bay Area counties. Plan Bay Area is a long-range plan that looks out over 20-plus years and is updated every four years.¹²⁸ It includes strategies for meeting the State mandate of a 19 percent reduction in per capita emissions by 2035. These strategies include expanding transportation demand management initiatives and expanding clean vehicle initiatives.

LOCAL

Alameda County Waste Reduction and Recycling Act of 1990

The Alameda County Waste Management Authority is a public agency that oversees solid waste activities in Alameda County. In 1990, Measure D, the Alameda County Waste Reduction and Recycling Act of 1990, was approved by voters. The Act created StopWaste through a Joint Exercise of Powers Agreement among the County of Alameda, each of the fourteen cities in the county, and two sanitary districts that provide reuse and recycling collection services. StopWaste is governed jointly by the Alameda County Waste Management Authority (WMA), the Alameda County Source Reduction and Recycling Board, and the Energy Council.

¹²⁶ Bay Area Air Quality Management District (BAAQMD). (2013). *Air District Board Passes Climate Protection Resolution*. Retrieved March 2023, from: <https://www.baaqmd.gov/plans-and-climate/climate-protection/climate-protection-program>.

¹²⁷ Bay Area Air Quality Management District (BAAQMD). (2017). *Spare the Air and Cool the Climate: Final 2017 Clean Air Plan*. Retrieved March 2023, from: <http://www.baaqmd.gov/~/media/files/planning-and-research/plans/2017-clean-air-plan/attachment-a -proposed-final-cap-vol-1-pdf.pdf?la=en>.

¹²⁸ Association of Bay Area Governments and Metropolitan Transportation Commission. (2021, October). *Plan Bay Area 2050*. Retrieved March 2023, from: https://mtc.ca.gov/sites/default/files/documents/2021-11/Plan_Bay_Area_2050_October_2021.pdf.

The Alameda County Waste Reduction and Recycling Act of 1990 also established a policy goal of reducing the total tonnage landfilled of materials generated in Alameda County by 75 percent along with a countywide Recycling Plan to fund and implement a proactive and comprehensive source reduction and recycling program. The Act established a \$6-per-ton surcharge on materials disposed in Alameda County landfills or incinerators with the sole purpose of financing the County's Recycling Plan. The per-ton surcharge has been set at \$8.23 since its most recent update in 2011.

Alameda County Recycling Plan

In 2010, the Alameda County Source Reduction and Recycling Board targeted the end of calendar year 2020 for achievement of the 75 percent goal set forth in the Alameda County Waste Reduction and Recycling Act. Progress toward the 75 percent goal has plateaued over the last 10 years, demonstrating that the approach of relying primarily on collection and processing is not enough to meet the 75 percent goal. Alameda County's Recycling Plan, *Beyond 75% Diversion: A Plan for Landfill Obsolescence*,¹²⁹ aims to make landfills obsolete by 2045, in favor of circular material flows, redesigned products and systems, and effective recycling and organics programs.

Alameda Countywide Integrated Waste Management Plan

The Alameda County Countywide Integrated Waste Management Plan (CoIWMP)¹³⁰ serves as a roadmap to approaching Alameda County's solid waste management and recycling issues. The CoIWMP has two components, the Countywide Siting Element and the Summary Plan. The Countywide Siting Element demonstrates the ability to provide 15 years of permitted disposal capacity for all jurisdictions within the county. The Summary Plan provides an overview of the primary waste management issues in the county and includes goals, objectives, and policies adopted by the WMA to guide decision-making and programs. The policies for County-owned projects are to follow the solid waste requirements of CALGreen.

Alameda County Green Building Ordinance

Based on studies by StopWaste.Org, construction and demolition debris comprises up to 21 percent of materials disposed in Alameda County landfills. The County's 2003 Green Building Ordinance requires that a minimum of 50 percent of construction and demolition debris at County projects be diverted from the landfill through recycling and reuse; its 2008 waste diversion resolution sets a goal of increasing that percentage to 75 percent.

Oakland Green Building Ordinance

The City of Oakland has adopted mandatory green building standards for private and civic development projects.¹³¹ All buildings or projects must comply with all requirements of the

¹²⁹ Alameda County Source Reduction and Recycling Board. (2020, December). *Beyond 75% Diversion: A Plan For Landfill Obsolescence*. Retrieved April 2023, from: https://www.stopwaste.org/sites/default/files/Recycling_Plan-20210203.1.pdf.

¹³⁰ Alameda County Waste Management Authority. (2020, April). *Alameda County Integrated Waste Management Plan: Countywide Element*. Retrieved April 2023, from: <https://www.stopwaste.org/sites/default/files/CoIWMP-Final-20220111.1.pdf>.

¹³¹ City of Oakland. (2022). Ordinance No. 13040: Green Building Ordinance for Private Development. *Oakland Municipal Code*. Retrieved June 2023, from: <https://www.oaklandca.gov/topics/2022-building-code-changes>.

2022 Building Energy Efficiency Standards, effective January 1, 2023. The Port would implement this ordinance for the Proposed Project.

Construction and Demolition Recycling Ordinance

The City of Oakland's Construction and Demolition Recycling Ordinance requires projects such as demolition, new construction, additions, and alterations, to recycle 100 percent asphalt and concrete materials and 65 percent other construction materials. The Port would implement this ordinance for the Proposed Project.

3.7.1.2 Significance Thresholds

California has adopted various administrative initiatives and enacted a variety of legislation relating to climate change, much of which sets aggressive goals for GHG emissions reductions within the state. However, the CEQA Guidelines do not require or suggest specific methodologies for performing an assessment of thresholds of significance, and do not specify GHG reduction mitigation measures. Rather, lead agencies have the discretion to establish their own significance thresholds, provided such thresholds are supported by substantial evidence.

State CEQA Guidelines Section 15064.4¹³² discusses the significance evaluation for GHG emissions. Section 15064.4(a) recognizes that the "determination of the significance calls for a careful judgment" by the lead agency that is coupled with lead agency discretion to determine whether to (1) quantify GHG emissions resulting from a project,¹³³ and/or (2) rely on a qualitative analysis or performance-based thresholds. Section 15064.4(b) states that a lead agency should focus analysis on the incremental contribution of a project's emissions to climate change, and that a project's incremental contribution may be cumulatively considerable even if it appears negligible compared to statewide, national, or global emissions. Section 15064.4(b) further states that a lead agency should consider the following, non-exclusive list of factors when assessing the significance of GHG emissions:

1. The extent to which the project may increase or reduce GHG emissions as compared to the existing environmental setting;
2. The extent to which project emissions exceed a threshold of significance that the lead agency determines applies to the project; and
3. The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. In determining the significance of impacts, the lead agency may consider a project's consistency with the State's long-term climate goals or strategies, provided that substantial evidence supports the agency's analysis of how those goals or strategies address the project's incremental contribution to climate change and its

¹³² California Natural Resources Agency (CNRA). (2018). *Title 14. Natural Resources*. Retrieved March 2023, from: http://resources.ca.gov/ceqa/docs/2018_CEQA_FINAL_TEXT_122818.pdf.

¹³³ Ibid. Section 15064.4(c) states that a lead agency may use a model or methodology of its discretion to estimate greenhouse gas emissions resulting from a project. The selection of the model or methodology must be supported with substantial evidence.

conclusion that the project's incremental contribution is not cumulatively considerable.¹³⁴

Appendix G to the State CEQA Guidelines contains two criteria for purposes of assessing GHG emissions.¹³⁵ As such, for the purposes of this Draft Environmental Impact Report (EIR), a significant impact related to GHG emissions would occur if the Proposed Project would:

1. Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment (comparable to State CEQA Guidelines Section 15064.4(b)(1)-(2)), or
2. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs (same as State CEQA Guidelines Section 15064.4(b)(3)).

In accordance with CEQA Guidelines Section 15064.4(b) and the Appendix G criteria, this Draft EIR discloses the extent to which the Proposed Project would increase emission levels relative to existing emission levels associated with operations at the Airport. This Draft EIR also assesses the significance of the Proposed Project's GHG emissions based on consistency with State, regional, and local GHG reduction plans, and with AB 1279 and its associated implementing 2022 Scoping Plan.

CONSTRUCTION

Because they are temporary and variable, BAAQMD does not recommend a quantitative threshold of significance for construction-related GHG emissions. BAAQMD instead recommends that such emissions be quantified and that projects incorporate the best management practices (BMPs) for reducing GHG emissions listed in Table 6-1 of its 2022 CEQA GHG Air Quality Guidelines:

Best Management Practices for Construction-Related GHG Emissions:

- Use zero-emission and hybrid-powered equipment to the greatest extent possible, particularly if emissions are occurring near sensitive receptors or located within a BAAQMD-designated Community Air Risk Evaluation (CARE) area or Assembly Bill 617 community.
- Require all diesel-fueled off-road construction equipment be equipped with EPA Tier 4 Final compliant engines or better as a condition of contract.
- Require all on-road heavy-duty trucks to be zero emissions or meet the most stringent emissions standard, such as model year (MY) 2024 to 2026, as a condition of contract.
- Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to no more than 2 minutes (A 5-minute limit is required by the state airborne toxics control measure [Title 13, Sections 2449(d)(3) and 2485 of the California Code of Regulations]). Provide clear signage that posts this requirement

¹³⁴ Ibid. Section 15064.4(b).

¹³⁵ Ibid. Appendix G Environmental Checklist Form.

for workers at the entrances to the site and develop an enforceable mechanism to monitor idling time to ensure compliance with this measure.

- Prohibit off-road diesel-powered equipment from being in the “on” position for more than 10 hours per day.
- Use California Air Resources Board-approved renewable diesel fuel in off-road construction equipment and onroad trucks.
- Use U.S. Environmental Protection Agency SmartWay certified trucks for deliveries and equipment transport.
- Require all construction equipment is maintained and properly tuned in accordance with manufacturer’s specifications. Equipment should be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- Where grid power is available, prohibit portable diesel engines and provide electrical hook ups for electric construction tools, such as saws, drills and compressors, and using electric tools whenever feasible.
- Where grid power is not available, use alternative fuels, such as propane or solar electrical power, for generators at construction sites.
- Encourage and provide carpools, shuttle vans, transit passes, and/or secure bicycle parking to construction workers and offer meal options onsite or shuttles to nearby meal destinations for construction employees.
- Reduce electricity use in the construction office by using LED bulbs, powering off computers every day, and replacing heating and cooling units with more efficient ones.
- Minimize energy used during site preparation by deconstructing existing structures to the greatest extent feasible.
- Recycle or salvage nonhazardous construction and demolition debris, with a goal of recycling at least 15% more by weight than the diversion requirement in Title 24.
- Use locally sourced or recycled materials for construction materials (goal of at least 20% based on costs for building materials and based on volume for roadway, parking lot, sidewalk and curb materials). Wood products used should be certified through a sustainable forestry program.
- Use low-carbon concrete, minimize the amount of concrete used and produce concrete on-site if it is more efficient and lower emitting than transporting ready-mix.
- Develop a plan to efficiently use water for adequate dust control since substantial amounts of energy can be consumed during the pumping of water.
- Include all requirements in applicable bid documents, purchase orders, and contracts, with successful contractors demonstrating the ability to supply the compliant on- or off-road construction equipment for use prior to any ground-disturbing and construction activities.

OPERATIONS

"Land Use Project" Thresholds. In April 2022, BAAQMD updated its recommended significance criteria for "land use projects" as follows, guided by the principle that such projects must contribute their "fair share" toward achieving the state's key climate goal: carbon neutrality by 2045.¹³⁶ Specifically, there is no Local GHG Reduction Strategy that meets CEQA Guidelines Section 15183(b) requirements, BAAQMD recommends that the significance of GHG emissions from "land use projects," excluding emissions from BAAQMD-permitted stationary sources, be considered less-than-significant if the below design elements are met. As stated in BAAQMD's Justification Report for the 2022 CEQA Air Quality Guidelines (Appendix B, Section 1.3), however, BAAQMD developed its project thresholds "based on typical residential and commercial land use projects ... As such, these thresholds may not be appropriate for other types of projects that do not fit into the mold of a typical residential or commercial project...." Thresholds for land use projects must include either "A" or "B" of the below.

- A. Projects must include, at a minimum, the following project design elements:
 - 1. Buildings
 - a. The project will not include natural gas appliances or natural gas plumbing (in both residential and nonresidential development).
 - b. The project will not result in any wasteful, inefficient, or unnecessary electrical usage as determined by the analysis required under CEQA section 21100(b)(3) and CEQA Guidelines section 15126.2(b).
 - 2. Transportation
 - a. Achieve a reduction in project-generated vehicle miles traveled (VMT) below the regional average consistent with the current version of the California Climate Change Scoping Plan (currently 15 percent) or meet a locally adopted Senate Bill 743 VMT target, reflecting the recommendations provided in the Governor's Office of Planning and Research's Technical Advisory on Evaluating Transportation Impacts in CEQA:
 - i. Residential projects: 15 percent below the existing VMT per capita
 - ii. Office projects: 15 percent below the existing VMT per employee
 - iii. Retail projects: no net increase in existing VMT
 - b. Achieve compliance with off-street electric vehicle requirements in the most recently adopted version of CALGreen Tier 2.
- B. Projects must be consistent with a local GHG reduction strategy that meets the criteria under State CEQA Guidelines Section 15183.5(b).

¹³⁶ Bay Area Air Quality Management District (BAAQMD). (2022). *Thresholds of Significance*. Retrieved June 2023, from: https://www.baagmd.gov/~/media/files/planning-and-research/ceqa/ceqa-guidelines-2022/ceqa-guidelines-chapter-3-thresholds_final_v2-pdf?la=en

Although the Proposed Project is not a “typical residential or commercial project,” this Draft EIR applies the significance thresholds recommended by BAAQMD to ground-based GHG emissions such as those associated with buildings and vehicle trips. As described in **Chapter 3.13 (Transportation)**, for VMT, this Draft EIR uses “no net increase in existing VMT per enplanement” as its significance threshold.

Permitted Stationary Source Thresholds. BAAQMD also recommends treating GHG emissions from stationary sources requiring BAAQMD permits separately from all other emissions, with a significance threshold of 10,000 metric tons CO₂E/year.

Aircraft GHG Emissions. Typically, aircraft operations constitute the largest source of GHG emissions associated with an airport. Aircraft emissions are not under local control and would occur in the San Francisco Bay Area Air Basin regardless of permitting and construction of the Proposed Project.

3.7.1.3 Methodologies

The evaluation of potential impacts to GHG emissions that may result from construction and long-term operation of the Proposed Project has been conducted as described below. The analysis included estimating emissions quantities in metric tons for each of three primary GHGs: carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O). IPCC 4th Assessment global warming potential (GPC) 100-year values of 28 and 265 were used for CH₄ and N₂O to translate emissions for these gases into CO₂-equivalents (CO₂-e).

CONSTRUCTION EMISSIONS

GHG emissions associated with construction of the Proposed Project were estimated using the California Emissions Estimator Model (CalEEMod) (Version 2022.1.1.9) software. This software quantifies emissions sources associated with various construction phases (e.g., demolition, site preparation, grading, building construction). A detailed construction activities schedule was developed using both CalEEMod and the Airport Cooperative Research Board’s (ACRP) Airport Construction Emissions Inventory Tool (ACEIT).

The Proposed Project was separated into modeling scenarios based on phase, timeframe, and project component, as described in **Chapter 2**. Using these factors in addition to supplemental user inputs such as land use and project size, CalEEMod generated default assumptions related to off-road equipment usage, on-road vehicle travel, material movement, demolition, architectural coating, paving, and electricity consumption. The model includes eight land use types: commercial, educational, industrial, parking, recreational, residential, retail, and linear. Land use types are further separated into 79 land use subtypes, each with an associated default trip rate critical for mobile source calculations. Both the user-selected land use type and subtype are foundational inputs as they determine many default parameters and have a great impact on GHG emissions estimations.

However, CalEEMod does not include an “airport” classification for land use type/subtype. For aviation-specific projects that have no similar project-type in CalEEMod, ACEIT was used to generate a construction schedule of activity. The ACEIT model can generate construction schedules for a variety of standard airport construction projects including the associated activity types and the equipment used for the Proposed Project. The ACEIT model was only used to provide equipment type and activity data (i.e., horsepower, hours or miles of use).

Once the activity, by equipment type, was established, the equipment was moved back to CalEEMod to utilize its assumptions for equipment age, fuel-type, and other necessary factors.

CalEEMod generates annual construction related GHG emissions of CO₂, CH₄, N₂O, and CO₂e. Daily emissions for each piece of off-road equipment were estimated using CalEEMod emissions factors. Estimated daily emissions and total emissions for each year of construction from on-road vehicles were calculated by multiplying the appropriate CARB EMFAC emissions factor. The resulting annual emissions are shown in **Table 3.7-2**.

OPERATIONAL EMISSIONS

In line with how emissions were calculated in **Section 3.3, Air Quality**, GHG emissions were calculated using:

- Airports Council International's (ACI's) Airport Carbon and Emissions Reporting Tool (ACERT) for stationary sources such as diesel emergency backup power generators and natural gas boilers used to provide heating and hot water in Airport facilities, and to estimate GHG emissions associated with offsite, third-party wastewater treatment;
- FAA's Aviation Environmental Design Tool (AEDT), Version 3e, for aircraft engine and APU emissions;
- CARB's OFFROAD2017 model for GSE and construction equipment engine exhaust emissions;
- CARB's EMFAC2021 (v1.0.2 or later), model for on-road motor vehicles engine exhaust, tire wear, brake wear, and evaporative emission, including on-road paved dust; and
- California Air Pollution Control Officers Association's (CAPCOA's) California Emissions Estimator Model (CalEEMod), Version 2022.1 for supplementing input data used in the emissions models for such parameters as default trip lengths for construction haul trips, haul truck capacities, concrete truck capacities, and truck travel speeds.

3.7.2 Existing Conditions / Environmental Setting

3.7.2.1 Aircraft Emissions below Mixing Level

Aircraft GHG emissions below mixing level were estimated for aircraft engines and auxiliary power units (APUs). Aircraft engines produce GHG emissions during landings and takeoffs, as well as while aircraft are idling and taxiing.

APUs are small engines on board aircraft used for cabin climate control and power while aircraft are on the ground. APUs burn Jet A fuel and are an inefficient engine, using more than double the amount of energy as ground power units (GPUs) or Pre-Conditioned Air (PCA) facilities, which supply electricity to the aircraft either via off-board generator or a fixed power supply connected to the terminal building. Ground power solutions and PCA are

becoming more common as they minimize the power requirements of aircraft during turnaround, resulting in an almost 50 percent reduction in APU emissions.¹³⁷

3.7.2.2 Ground Support Equipment (GSE)

GSE equipment is used to service aircraft during ground operations. GSE can include a variety of equipment types such as baggage tractors, belt loaders, catering trucks, pushback tractors, lavatory trucks, potable water trucks, airline support staff vehicles, portable ground power units, and fueling trucks. Electric GSE (eGSE) are widely available and have been adopted by airports and airlines across the country. A switch to eGSE would reduce GHG emissions and reduce air pollution.

3.7.2.3 Vehicle Trips

Ground Access Vehicles (GAVs) include licensed and private vehicles that use the roadways and parking lots around OAK, including Port-owned and commercially operated buses and vans, and private vehicles traveling to and from the Airport.

3.7.2.4 Stationary Sources

Stationary combustion source emissions were estimated from the heating and emergency backup generators from Terminal 1 and Terminal 2 based on the 2019 BAAQMD emission report.

Terminal 1 is served by four natural gas fired boilers, each rated at 3 million British thermal units per hour (MMBtu/hr.). 2019 BAAQMD emissions data was not available for these units and hours of operation are unknown, so they were assumed to operate for three 10-minute cycles per hour, or 50 percent of the time, 24 hours per day, 365 days per year. Actual operating times and associated emissions would likely be lower.

Stationary sources attributed to Terminal 2 consist of emergency generators of various sizes, above ground storage tanks (ASTs) and two natural gas fired boilers, each rated at 250 boiler horsepower (BHP). These two boilers were replaced in 2022 with five new natural gas fired boilers, each rated at 2.0 MMBtu/hr., which are accounted for in the future 2028 and 2038 operations inventory.

3.7.2.5 Indirect GHG Emissions from Electricity Use

GHG emissions resulting from electricity used to power Airport facilities and airfields occur when the electricity is generated offsite, but the Airport has control over the amount of electricity it uses and can reduce associated emissions by conserving energy.

3.7.2.6 Water Supply, Treatment, and Distribution

Water treatment emissions occur offsite in facilities not owned or operated by the Port. GHG emissions were estimated based on 2019 calculated average usage of 2.77 gallons per day (gpd) per passenger. This usage rate was assumed to remain constant while projected

¹³⁷ Transportation Research Board (TRB). (2019). *ACRP Research Report 207: Optimizing the Use of Electric Preconditioned Air (PCA) and Ground Power Systems at Airports*. Retrieved April 2023, from: <https://nap.nationalacademies.org/read/25623/chapter/3>.

passenger numbers for 2028 and 2038 were used to estimate future water/wastewater quantities. Emissions related to energy used for water treatment are de minimis at less than 0.01 percent of total Proposed Project emissions and were not included.

3.7.2.7 Solid Waste

Solid Waste GHG emissions from landfill disposal occur primarily from CH₄ produced when non-biogenic waste breaks down in a landfill. Materials diverted from the waste stream through reuse and recycling do not end up in the landfill or contribute to the GHG emissions total. The Port does not own or control the offsite disposal facilities that produce these waste emissions.

Solid waste generated at the Airport in 2019 was transported to the Davis Street Transfer Station and Recycling Center, and from there to the Altamont Landfill located at 10840 Altamont Pass Road in Livermore, CA. This facility's GHG emissions are reported to USEPA and are available through USEPA's Flightmap service. A ratio approach was used to identify the portion of the landfill's emissions contributed by the Airport based on the Airport's 2019 waste generation and diversion rates.

Projected increases in passenger numbers were applied to the Airport's per-passenger waste generation rate to Proposed Project waste disposal emissions for 2028 and 2038.

Table 3.7-1 describes the estimated quantities of criteria GHGs emitted in 2019. Aircraft GHG emissions below mixing level amounted to 154,045 mtCO₂e in 2019.

**TABLE 3.7-1
2019 OPERATIONAL GREENHOUSE GAS EMISSIONS (METRIC TONS/YEAR)**

Source	CO ₂	CH ₄	N ₂ O	CO ₂ e
Aircraft emissions below mixing level, including Auxiliary Power Units (APUs)	154,045.00	-	-	154,045.00
Ground Support Equipment (GSE)	7,109.26	-	-	7,109.26
Vehicle trips	97,440.88	5.35	4.08	98,818.80
Stationary sources	7,827.18	2.30	0.05	7,892.25
Building Energy Use	4,207.81	0.31	0.04	4,226.14
Waste	-	188.37	0.14	5,311.58
Water and Wastewater	-	-	-	115.70
<i>Total Emissions</i>	<i>270,630.13</i>	<i>196.33</i>	<i>4.31</i>	<i>277,518.73</i>

CO₂: carbon dioxide

CH₄: methane

N₂O: nitrous dioxide

CO₂e: carbon dioxide equivalent

Source: RS&H, 2023; HMMH, 2023

3.7.3 Environmental Impacts and Mitigation

3.7.3.1 Existing and Proposed Initiatives

The Port currently implements a multitude of sustainability measures that would lead to GHG emissions reductions. However, for conservative analysis purposes, none of these initiatives have been reflected in the calculations of GHG emissions.

The Port is participating in the ACI Airport Carbon Accreditation (ACA) Program and has achieved Level 1 Accreditation: Mapping.^{138,139} As part of Level 1 accreditation, the Port developed and signed a Carbon Reduction Statement.¹⁴⁰ The Port is committed to achieving subsequent levels of accreditation, which would require the Port to track GHG emissions and demonstrate further emissions reductions.

As part of the Level 2 criteria, the Port must prepare a Carbon Management Plan which includes initiatives to further reduce its carbon footprint. Some of the initiatives may include, but are not limited to:

- Conduct energy audits to identify energy conservation measures in airport facilities.
- Continue installation and upgrades to more energy efficient controls related to lighting, HVAC, and other large building loads.
- Develop energy/building systems management protocols and provide training to staff to maintain high levels of building energy performance.
- Evaluate opportunities to develop additional on-site renewable energy production by leveraging available funding sources, building partnerships, or implementing battery energy storage to overcome current capacity constraints.
- Develop a transition plan to convert natural gas consumption to all-electric building systems.
- Use LEED, Envision, or other rating systems to guide the development of OAK-specific toolkits that would help integrate operational carbon reduction measures into airport planning, design, and construction practices.
- Eliminate chlorofluorocarbon-based refrigerants.
- Incorporate green/living or white roofs (high solar reflectance index materials) to combat heat island effect.

¹³⁸ *Airport Carbon Accreditation* is the only institutionally endorsed, global carbon management certification program for airports. It independently assesses and recognizes the efforts of airports to manage and reduce their carbon emissions through 6 levels of certification: 'Mapping', 'Reduction', 'Optimization', 'Neutrality', 'Transformation' and 'Transition'.

¹³⁹ Airport Carbon Accreditation. (2023). *What is it?* Retrieved April 2023, from: <https://www.airportcarbonaccreditation.org/about/what-is-it.html>.

¹⁴⁰ Port of Oakland. (2022, May). *Carbon Reduction Statement for Oakland International Airport*. Retrieved April 2023, from: [https://www.portofoakland.com/files/PDF/2022 ACA Statement - Revised - signed \(1\).pdf](https://www.portofoakland.com/files/PDF/2022%20ACA%20Statement-Revised%20-signed%20(1).pdf).

- Monitor and promote continued success of the airport concessions composting program and ban single-use plastics in the terminals.
- Install efficient fixtures and fittings within restroom facilities and consider purple pipe application, reducing the amount of potable water used in toilets and basins, with a corresponding reduction in wastewater.
- Continue engaging with airlines and regional partnerships to promote additional Sustainable Aviation Fuel (SAF) use at OAK.
- Continue to work with airlines to encourage transition to all-electric GSE.
- Procure alternative fuel/low-emission Port-owned vehicles where technologically feasible (and install necessary charging infrastructure).
- Evaluate and provide, as feasible, electric vehicle charging infrastructure to passengers, airport employees, tenants, and ground transportation providers.

Sustainability policies developed by the Port (Board Resolution Nos. 20467 and 01346) demonstrate that the Port considers climate resiliency when planning, developing, and operating new projects.¹⁴¹ Continued implementation of the Port's emission reduction programs would significantly reduce both construction-phase and operational GHG emissions. Examples of existing measures and evidence of where these measures align with local regulations include:¹⁴²

- **Solid Waste Diversion:** Alameda County's 2003 Green Building Ordinance requires that a minimum of 50 percent of construction and demolition debris at County projects be diverted from the landfill through recycling and reuse; its 2008 waste diversion resolution sets a goal of increasing that percentage to 75 percent.
- **Construction Waste Diversion:** The City of Oakland requires projects subject to the Construction and Demolition Recycling Ordinance to recycle 100 percent of all asphalt and concrete materials, and 65 percent of all other materials. This includes all new construction, all mixed-use alterations, all historic resource removal, demolition, and additions and alterations for non-residential construction of value \$50,000 or greater. Affected projects must develop a Waste Reduction and Recycling Plan that shows how the project will meet the previously listed requirements.¹⁴³
- **Recycling Program:** The onsite recycling program at the Airport includes recycling stations in the terminals that accept paper, aluminum, and plastic products. The program's goal is to divert 50 percent of post-consumer trash from the landfill. The

¹⁴¹ Port of Oakland. (2022). *Airport Carbon Accreditation at Oakland International Airport*. Retrieved April 2023, from: <https://www.portofoakland.com/community/environmental-stewardship/airport-carbon-accreditation-at-oakland-international-airport/>.

¹⁴² Port of Oakland. (2022). *Environmental Efforts Take Flight at Oakland International Airport*. Retrieved April 2023, from: https://www.oaklandairport.com/wp-content/uploads/2016/05/Enviroreport_FINAL.pdf.

¹⁴³ City of Oakland. (2021). *Construction and Demolition Recycling Requirements*. Retrieved April 2023, from: <https://www.oaklandca.gov/resources/construction-and-demolition-recycling-requirements>.

Port also has recycling and waste diversion projects for airlines, which specifically focus on paper products, plastic bottles, and pillows. Diverting materials from the landfill leads to reductions in GHG emissions such as methane from waste breakdown.

- **LEED Design:** Terminal 2 achieved LEED Silver Certification in 2009 and featured a “cool roof,” designed to reflect more sunlight than a conventional roof, thus lowering the temperature of the building and resulting in energy savings. The FAA’s new airport traffic control tower (ATCT) at OAK achieved LEED Gold Certification in 2013. The second floor of Terminal 1, which is used for office space, achieved LEED ID+C (for Commercial Interiors) Gold Certification in 2019.¹⁴⁴ Buildings constructed at OAK must abide by CALGreen which promotes green building standards and design choices. Buildings which are designed to achieve LEED certification or incorporate low impact design or green building standards have lower construction and operational energy, waste, and water use, which reduces associated GHG emissions.
- **Alternative Fuels:** Electric vehicle charging has been implemented at Airport parking lots and would be included at any newly constructed parking lot according to City of Oakland requirements that 10 percent of new parking include electric vehicle support equipment (EVSE). Additionally, in 2022 Southwest Airlines announced that they will be using sustainable aviation fuel at OAK,¹⁴⁵ leading to lower GHG emissions.
- **Alternative Transportation:** In partnership with Bay Area Rapid Transit (BART), train-to-plane service between OAK and the Coliseum Station through the Oakland Airport Connector is available to reduce vehicle trips, traffic, and emissions.
- **Renewable Energy:** With support from SunEdison, OAK finished its 756-solar power system in 2007. Fuel cells have also been used at the OAK FedEx facilities. These systems help power infrastructure at the Airport and reduce its carbon footprint. The Port would continue to explore opportunities to install additional solar power and onsite battery storage.

3.7.3.2 Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment GHG Emissions

This section describes the estimated GHG emissions associated with construction and operation of the Proposed Project. This analysis was compared to the 2019 GHG emissions to understand Proposed Project impacts.

CONSTRUCTION EMISSIONS

GHG emissions associated with the construction of the Proposed Project were estimated for on-road and off-road vehicles and equipment. The results of the GHG emissions inventory for these construction activities from 2025 to 2030 are presented in **Table 3.7-2**. As

¹⁴⁴ U.S. Green Building Council (USGBC). (2019). *Oakland Airport Terminal 1*. Retrieved April 2023, from: <https://www.usgbc.org/projects/oakland-airport-terminal-1?view=scorecard>.

¹⁴⁵ Port of Oakland. (2022, August). *Southwest Airlines is the first commercial airline to bring sustainable aviation fuel to OAK*. Retrieved April 2023, from: <https://www.portofoakland.com/press-releases/southwest-airlines-is-the-first-commercial-airline-to-bring-sustainable-aviation-fuel-to-oak/>.

shown, the estimations for GHG emissions range from 169.9 to 3,795.5 mtCO₂e annually. These fluctuations can be attributed to the various construction phases of the Proposed Project and which demolition and/or construction activities have been anticipated to occur in each year (see **Chapter 2**). However, as required by the 2022 California Green Building Standards Code and in compliance with the Port's Materials Management Program (MMP) which focuses on diverting recyclable construction materials such as concrete, asphalt, and rebar away from landfills, a minimum of 65 percent of the solid waste generated during demolition and construction will be diverted through reuse or recycling.

**TABLE 3.7-2
PROPOSED PROJECT CONSTRUCTION RELATED EMISSIONS (METRIC TONS / YEAR)**

Year	CO ₂	CH ₄	N ₂ O	mtCO ₂ e (total)
2025	968.2	0.041	0.015	973.7
2026	2,987.0	0.039	0.138	3,030.8
2027	911.6	0.035	0.050	927.9
2028	3,775.4	0.030	0.063	3,795.5
2029	1,744.9	0.018	0.006	1,747.1
2030	168.5	0.007	0.004	169.9

Source: HMMH, 2023.

Additionally, the BMPs identified by BAAQMD for construction-related GHG emissions (**Section 3.7.1.2**) would be implemented, as feasible and applicable.

Construction emissions would occur only during construction work and would cease once work is completed. In addition, implementation of rules and initiatives that are designed to reduce air pollutant and GHG emissions, as previously described, is also expected to reduce incrementally the amount of GHGs generated by project construction. When considered in terms of a project's "fair share" of GHG emissions, Proposed Project impacts of construction GHG emissions would be **less than significant**.

OPERATIONAL EMISSIONS

Aircraft and APU GHG emissions are related to aircraft operations. These GHG emissions would result from projected demand and would occur whether the Proposed Project is constructed or not. The increase in aircraft emissions is driven by projected increases in aircraft operations at the Airport, as discussed in **Chapter 2**.

Operational GHG emissions associated with electricity use were estimated based on 2019 electricity usage and projected for 2028 and 2038 on the basis of anticipated increase in passenger enplanements.

Operational GHG emissions from the Proposed Project were estimated for future year 2028 and future year 2038. **Table 3.7-3** describes the estimated quantities of criteria GHGs emitted in 2019, 2028, and 2038 for each pollutant source. Based on projected demand levels, operational emissions estimates would reach 180,667 mtCO₂e in 2028 and 225,861 mtCO₂e in 2038. Operational emissions in 2028 are estimated to be 304,953 mtCO₂e, of which 180,667 mtCO₂e would be from aircraft emissions. Operational emissions in 2038 are estimated to be 373,500 mtCO₂e, of which 225,861 mtCO₂e would be from aircraft emissions.

As suggested by 2022 BAAQMD CEQA Air Quality Guidelines Section 6.4, stationary source emissions are not separated into BAAQMD-permitted versus non-permitted sources. BAAQMD recommends a significance threshold of 10,000 mtCO₂e per year for stationary sources that require BAAQMD permits. As shown in **Table 3.7-3**, the total GHG emissions from all stationary sources, including those requiring BAAQMD permits, in both 2028 and 2038 the total emissions from stationary sources would be 5,032.65 mtCO₂e, which does not exceed 10,000 mtCO₂e per year. In addition, stationary source emissions are reduced from 2019 (7,892.25 mtCO₂e).

TABLE 3.7-3
ESTIMATED OPERATIONAL GHG EMISSIONS IN 2019 AND FROM PROPOSED PROJECT IN 2028 AND 2038 (METRIC TONS/YEAR)

Year	Source	CO ₂	CH ₄	N ₂ O	mtCO ₂ e
2019	Aircraft emissions below mixing level, including APUs	154,045.00	-	-	154,045.00
	GSE	7,109.26	-	-	7,109.26
	Vehicle trips	97,440.88	5.35	4.08	98,818.80
	Stationary sources	7,827.18	2.30	0.05	7,892.25
	Building Energy Use	4,207.81	0.31	0.04	4,226.14
	Waste	-	188.37	0.14	5,311.58
	Water and Wastewater	-	-	-	115.70
	<i>Total Emissions</i>	<i>270,630.13</i>	<i>196.33</i>	<i>4.31</i>	<i>277,518.73</i>
2028	Aircraft emissions below mixing level, including APUs	180,667.00	-	-	180,667.00
	GSE	8,328.48	-	-	8,328.48
	Vehicle trips	96,913.89	3.65	2.98	97,912.91
	Stationary sources	5,003.57	0.11	0.09	5,032.65
	Building Energy Use	5,670.93	0.41	0.05	5,695.64
	Waste	-	253.94	0.19	7,160.74
	Water and Wastewater	-	-	-	155.90
	<i>Total Emissions</i>	<i>296,583.87</i>	<i>258.11</i>	<i>3.31</i>	<i>304,953.32</i>
2038	Aircraft emissions below mixing level, including APUs	225,861.00	-	-	225,861.00
	GSE	11,137.69	-	-	11,137.69
	Vehicle trips	112,905.25	3.18	3.23	113,973.29
	Stationary sources	5,003.57	0.11	0.09	5,032.65
	Building Energy Use	7,625.89	0.55	0.07	7,659.13
	Waste	-	341.38	0.26	9,626.29
	Water and Wastewater	-	-	-	209.70
	<i>Total Emissions</i>	<i>362,533.40</i>	<i>345.22</i>	<i>3.65</i>	<i>373,499.75</i>

Source: RS&H, 2023; HMMH, 2023.

Table 3.7-4 presents the estimated net change in operational emissions in 2028 and 2038 from 2019 with the Proposed Project. It also shows the percentage that each emissions source contributes to total operational emissions.

Outside of aircraft emissions, the incremental increase in operational GHG emissions in 2028 and 2038 would be approximately 812.59 mtCO₂e and 24,165.02 mtCO₂e respectively. Stationary source emissions would be reduced in 2028 and 2038 as a result of boiler efficiency upgrades.

TABLE 3.7-4
ESTIMATED CHANGE IN OPERATIONAL GHG EMISSIONS FROM 2019 (MTCO₂E / YEAR)

Year	Source	Existing (2019) Conditions		Proposed Project		Increase/ Decrease from Existing Conditions
		mtCO₂e	Percent of total	mtCO₂e	Percent of total	
2028	Aircraft emissions below mixing level, including APUs	154,045.00	55.51%	180,667.00	59.24%	+26,622.00
	GSE	7,109.26	2.56%	8,328.48	2.73%	+1,219.22
	Vehicle trips	98,818.80	35.61%	97,912.91	32.11%	-905.89
	Stationary sources	7,892.25	2.84%	5,032.65	1.65%	-2,859.60
	Building Energy Use	4,226.14	1.52%	5,695.64	1.87%	+1,469.50
	Waste	5,311.58	1.91%	7,160.74	2.35%	+1,849.16
	Water and Wastewater	115.70	<0.01%	155.90	<0.01%	+40.20
	<i>Total Emissions</i>	<i>277,518.73</i>	<i>100.0%</i>	<i>304,953.32</i>	<i>100.0%</i>	<i>+27,434.59</i>
2038	Aircraft emissions below mixing level, including APUs	154,045.00	55.51%	225,861.00	60.47%	+71,816.00
	GSE	7,109.26	2.56%	11,137.69	2.98%	+4,028.43
	Vehicle trips	98,818.80	35.61%	113,973.29	30.51%	+15,154.49
	Stationary sources	7,892.25	2.84%	5,032.65	1.35%	-2,859.60
	Building Energy Use	4,226.14	1.52%	7,659.13	2.05%	3,432.99
	Waste	5,311.58	1.91%	9,626.29	2.58%	+4,314.71
	Water and Wastewater	115.70	<0.01%	209.70	<0.01%	+94.00
	<i>Total Emissions</i>	<i>277,518.73</i>	<i>100.0%</i>	<i>373,499.75</i>	<i>100.0%</i>	<i>+95,981.02</i>

Source: RS&H, 2023; HMMH, 2023.

As there are no quantifiable CEQA thresholds relevant to GHG emissions, the Proposed Project GHG emissions impacts have been evaluated as to whether or not the Proposed Project would contribute its “fair share” of what is needed to achieve the State’s long term GHG reduction goals. While the Port would make efforts to include the minimum project design elements identified by BAAQMD (see **Section 3.7.1.2**), because GHG emissions related to aircraft emissions are not under the control of the Port, in future years 2028 and 2038 related to aircraft emissions would be considered **potentially significant**. With

continued implementation of the existing initiatives identified above, the impact could be reduced. Even with these efforts, as discussed in **Section 3.3, Air Quality**, the majority of the Proposed Project's GHG emission increases would result from market-based demand and related aircraft emissions and the Port does not have the authority to mitigate air pollutant emissions associated with aircraft operations. Therefore, the impact would be ***significant and unavoidable***.

3.7.3.3 Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs

CONSTRUCTION AND OPERATION

The incremental increase in GHG emissions resulting from construction and operation of the Proposed Project to accommodate market-based demand would not conflict with applicable plans, policies, or regulations adopted for the purpose of reducing GHG emissions. The Port would implement all feasible GHG reduction measures that are within its power and thus would do its fair share to help California meet its goal of carbon neutrality by 2045. The impact of the Proposed Project would be ***less than significant***.

3.8 HAZARDS AND HAZARDOUS MATERIALS

This section describes the existing setting related to hazards and hazardous materials based on the current conditions as the basis for the discussion of potential impacts and any proposed mitigation measures for the Proposed Project at OAK.

The information in this section is based on the Phase I Environmental Site Assessment (ESA) that was prepared for the Proposed Project and is included in **Appendix J** of this Draft EIR.

3.8.1 Background and Methodology

Materials and waste may be considered hazardous if they are poisonous (toxicity), can be ignited by open flame (ignitability), corrode other materials (corrosivity), or react violently, explode, or generate vapors when mixed with water (reactivity). A hazardous material is defined in the Code of Federal Regulations (CFR) as “a substance or material that ... is capable of posing an unreasonable risk to health, safety, and property when transported in commerce” (49 CFR 171.8). California Health and Safety Code Section 25501 defines a hazardous material as follows: hazardous material means any material that, because of its quantity, concentration, or physical, or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment.

Hazardous wastes are defined in California Health and Safety Code Section 25141(b) as wastes that because of their quantity, concentration, or physical, chemical, or infectious characteristics, may do either of the following:

1. Cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible illness
2. Pose a substantial present or potential hazard to human health or the environment due to factors including, but not limited to, carcinogenicity, acute toxicity, bio-accumulative properties, or persistence in the environment, when improperly treated, stored, transported, disposed of, or otherwise managed.

Airport hazards also include aircraft collisions with birds and other wildlife, which is a serious public safety problem. The Port maintains a Wildlife Hazard Management Plan (WHMP) for the Airport, which includes measures to minimize wildlife strikes. See **Section 3.4, Biological Resources** for further discussion.

3.8.1.1 Regulatory Context

The use of hazardous materials and the disposal of hazardous waste are subject to numerous federal, state, and local regulations intended to protect health, safety, and the environment. This section includes a summary of relevant regulatory background and agency involvement that may be necessary to evaluate potential environmental impacts resulting from the Proposed Project.

FEDERAL***U.S. Environmental Protection Agency***

The U.S. Environmental Protection Agency (USEPA) is the agency primarily responsible for enforcement and implementation of federal laws and regulations pertaining to hazardous materials. Applicable federal regulations pertaining to hazardous materials are contained mainly in CFR Titles 29, 40, and 49. Hazardous materials, as defined in the CFR, are listed in 49 CFR 172.101. Management of hazardous materials is governed by the following laws (which are described below):

- Resource Conservation and Recovery Act of 1976 (RCRA) (42 U.S. Code [USC] 6901 et seq.)
- Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA, also called the Superfund Act) (42 USC 9601 et seq.)
- Superfund Amendments and Reauthorization Act of 1986 (SARA) (Public Law 99-499)
- Toxic Substances Control Act (TSCA) (15 USC 2601 et seq.)

These laws and associated regulations include specific requirements for facilities that generate, use, store, treat, and/or dispose of hazardous materials. The USEPA provides oversight and supervision for federal Superfund investigation/remediation projects, evaluates remediation technologies, and develops hazardous materials disposal restrictions and treatment standards.

Resource Conservation and Recovery Act

The RCRA¹⁴⁶ establishes a framework for national programs to achieve environmentally sound management of both hazardous and nonhazardous wastes. RCRA was designed to protect human health and the environment, reduce/eliminate the generation of hazardous waste, and conserve energy and natural resources. RCRA also promotes resource recovery techniques. Waste can legally be considered hazardous if it is classified as ignitable, corrosive, reactive, or toxic. Under RCRA, the USEPA regulates hazardous waste from the time that the waste is generated until its final disposal ("cradle to grave"). The Hazardous and Solid Waste Amendments of 1984 (HSWA) both expanded the scope of RCRA and increased the level of detail in many of its provisions. The Hazardous Waste Management subchapter of the RCRA deals with a variety of issues regarding the management of hazardous materials including the export of hazardous waste, state programs, inspections of hazardous waste disposal facilities, enforcement, and the identification and listing of hazardous waste.

Underground storage tanks (USTs) are regulated under Subtitle I of RCRA and its regulations which establish construction standards for new UST installations (those installed after December 22, 1988), as well as standards for upgrading existing USTs and associated piping. Since 1998, all nonconforming tanks have been required to be either upgraded or closed.

¹⁴⁶ 42 USC Chapter 116 (1986).

Comprehensive Environmental Response, Compensation, and Liabilities Act

CERCLA provides a framework for the remediation of hazardous waste disposal sites, provides funding for remediation, and creates a list of national priority sites (i.e., Superfund sites), and provides standards and practices for conducting a Phase I ESA.¹⁴⁷

Superfund Amendments and Reauthorization Act of 1986

SARA made several important changes and additions to CERCLA including proposing permanent remedies and innovative treatment technologies in cleaning up hazardous waste sites; considering the standards and requirements found in other state and federal environmental laws and regulations; providing new enforcement authorities and settlement tools; increasing state involvement in every phase of the Superfund program; and increasing the focus on human health problems posed by hazardous waste sites.

Toxics Substances Control Act

The Toxics Substances Control Act (TSCA) addresses the production, importation, use, and disposal of specific chemicals, including polychlorinated biphenyls (PCB), asbestos containing material (ACM), radon, and lead-based paint (LBP). These regulations ban the manufacture of PCBs although the continued use of existing PCB-containing equipment is allowed. TSCA also contains provisions controlling the continued use and disposal of existing PCB-containing equipment. The disposal of PCB wastes is also regulated by TSCA,¹⁴⁸ which contains life cycle provisions like those in RCRA. In addition to TSCA, provisions relating to PCBs are contained in the Hazardous Waste Control Law (HWCL), which lists PCBs as hazardous waste. Through the authority of TSCA Section 6, the USEPA extended worker protection requirements to state and local government employees involved in asbestos work who were not previously covered by the Occupational Safety and Health Administration's (OSHA) asbestos regulations.

USEPA Council on Polyfluoroalkyl Substances (PFAS)

Aircraft rescue and firefighting (ARFF) services are required activities under Federal Aviation Administration (FAA), Title 14, Code of Federal Regulations, Part 139 for certified airports, such as OAK. Training, testing, and response to emergencies are required, including use of fire equipment with firefighting foams that contain per- and polyfluoroalkyl substances (PFAS)¹⁴⁹. Prior to the early 2000s, uncontained suppressant foam was allowed to discharge to pavement surfaces and runoff to onsite stormwater drains. In recent years, USEPA has identified PFAS as emerging contaminants of concern, because of the persistence in the environment, ready migration to and in water, and bioaccumulation in organisms. In 2019, the USEPA announced its *PFAS Action Plan* that will list perfluorooctanoic acid (PFOA) and PFAS as hazardous substances under CERCLA with the maximum contaminant level process outlined in the Safe Drinking Water Act. In April 2021, the USEPA Council on PFAS was created and will be responsible for better understanding and reducing the potential risks caused by these chemicals. In addition, the State Water Resources Control Board (SWRCB) initiated a statewide investigation of PFAS at airports, landfills, manufacturing

¹⁴⁷ 42 USC Section 96011 et seq (1980).

¹⁴⁸ 40 CFR Part 761 (1976).

¹⁴⁹ The Use of PFAS in fire suppressant foams began in the 1960s. Because of industry and regulatory concerns about environmental effects on public health, use was reduced beginning in the 2000s. Long-chain PFAS were eliminated from use in 2015.

facilities, bulk terminals, and wastewater treatment facilities. The Department of Defense (DOD) approved a new firefighting agent that is PFAS-free in January 2023. Supply for the PFAS-free firefighting agent is still not available. However, the DOD approval allows airports a path forward towards PFAS-free foam while remaining certified.

US Department of Transportation (USDOT)

The USDOT has the regulatory responsibility for the safe transportation of hazardous materials. The USDOT regulations govern all means of transportation except packages shipped by mail (49 CFR). USDOT defines a hazardous material as any item or chemical which, when being transported or moved in commerce, is a risk to public safety or the environment, and is regulated as such under its Pipeline and Hazardous Materials Safety Administration regulations (49 CFR 100-199), which includes the Hazardous Materials Regulations (49 CFR 171-180).

Emergency Planning and Community Right-to-Know Act

Authorized by Title III of SARA, the Emergency Planning and Community Right-to-Know Act (EPCRA) was enacted by Congress as the national legislation on community safety. The law is designed to help local communities protect public health, safety, and the environment from the storage and handling of toxic chemicals.¹⁵⁰ EPCRA improved community access to information regarding chemical hazards and facilitated the development of business chemical inventories and emergency response plans. EPCRA also established reporting obligations for facilities that store or manage specified chemicals.

The Occupational Safety and Health Administration Standard

The Occupational Safety and Health Administration (OSHA) Hazard Communication Standard (29 CFR 1910.1200) requires that workers be informed of the hazards associated with the materials they handle. For instance, manufacturers must appropriately label containers, material safety data sheets must be available in the workplace, and employers must properly train workers. Workers at hazardous waste sites must receive specialized training and medical supervision according to the Hazardous Waste Operations and Emergency Response (HAZWOPER) regulations (29 CFR 1910.120).

Federal Occupational Safety and Health Administration

The Federal Occupational Safety and Health Act of 1970, which is implemented by the federal OSHA, contains provisions with respect to hazardous materials handling. Federal OSHA requirements are designed to promote worker safety, worker training, and a worker's right-to-know.¹⁵¹

EPA National Emissions Standards for Hazardous Air Pollutants

Renovation and demolition of older structures and buildings increase the chances of encountering asbestos containing materials (ACM). ACMs are subject to the USEPA National Emissions Standards for Hazardous Air Pollutants (NESHAP)¹⁵² and OSHA worker health and safety regulations. The NESHAPs are stationary source standards for hazardous air pollutants (HAP), which are pollutants that are known or suspected to cause cancer or other serious health effects, or adverse environmental effects. Asbestos is the common name for

¹⁵⁰ 42 USC Chapter 116 (1986).

¹⁵¹ 29 CFR Section 1910 et seq (1970).

¹⁵² 40 CFR Part 61 (1990).

a variety of naturally occurring, fibrous silicate minerals mined for uses including thermal insulation, acoustic insulation, and fireproofing. Air toxics regulations under the Clean Air Act specify work practices for asbestos to be followed during demolitions and renovations of all facilities, including, but not limited to, structures, installations, and buildings. The regulations require a thorough inspection of facilities where the demolition or renovation operation will occur.

The EPA classifies asbestos-containing material as hazardous waste if it is "friable" and contains one percent or more asbestos as hazardous waste. EPA considers non-friable bulk ACM waste to be non-hazardous regardless of its asbestos content.

Hazardous Material Transportation Act of 1975 (HMTA)

The Hazardous Materials Transportation Act of 1975 (HMTA) empowered the Secretary of Transportation to designate as hazardous material any "particular quantity or form" of a material that "may pose an unreasonable risk to health and safety or property."

Hazardous materials regulations are subdivided by function into four basic areas:

- Procedures and/or Policies 49 CFR Parts 101, 106, and 107
- Material Designations 49 CFR Part 172
- Packaging Requirements 49 CFR Parts 173, 178, 179, and 180
- Operational Rules 49 CFR Parts 171, 173, 174, 175, 176, and 177

The HMTA is enforced by use of compliance orders [49 U.S.C. 1808(a)], civil penalties [49 U.S.C. 1809(b)], and injunctive relief (49 U.S.C. 1810). The HMTA (Section 112, 40 U.S.C. 1811) preempts state and local governmental requirements that are inconsistent with the statute, unless that requirement affords an equal or greater level of protection to the public than the HMTA requirement.

Hazardous Materials Transportation Uniform Safety Act of 1990

In 1990, Congress enacted the Hazardous Materials Transportation Uniform Safety Act (HMTUSA) to clarify the maze of conflicting state, local, and federal regulations. Like the HMTA, the HMTUSA requires the Secretary of Transportation to promulgate regulations for the safe transport of hazardous material in intrastate, interstate, and foreign commerce. The Secretary also retains authority to designate materials as hazardous when they pose unreasonable risks to health, safety, or property.

The statute includes provisions to encourage uniformity among different state and local highway routing regulations, to develop criteria for the issuance of federal permits to motor carriers of hazardous materials, and to regulate the transport of radioactive materials.

STATE

California Environmental Protection Agency

The State of California has developed the California HWCL and the USEPA has authorized RCRA enforcement to the State of California.¹⁵³ Primary authority for the statewide administration and enforcement of HWCL rests with California EPA's (CalEPA) DTSC.

¹⁵³ Health and Safety Code Section 25100 et seq. and 22 CCR Section 66260.1 et seq.

California's Hazardous Materials Release Response Plans and Inventory Law includes the development of detailed hazardous materials inventories used and stored onsite, a program of employee training for hazardous materials release response, identification of emergency contacts and response procedures, and reporting of releases of hazardous materials. Any facility that meets the minimum reporting thresholds must comply with the reporting requirements and file a plan with the California Environmental Reporting System (CERS). In California, any facility known to contain asbestos is required to have a written asbestos management plan (also known as an Operations and Maintenance Program).

Title 8, California Code of Regulations Section 1529 – Asbestos Containing Material
 Title 8, CCR Section 1529 regulates asbestos exposure in all construction work where ACM is present. ACM is defined as any material that has greater than one percent asbestos. Title 8 of the CCR Section 1735 requires a pre-demolition survey for ACM.

Title 22, California Code of Regulations, Division 4.5
 Title 22 California Code of Regulations (CCR) Section Division 4.5 defines materials containing greater than one percent asbestos as hazardous waste. Registration with Cal/OSHA is required for contractors and employers that remove asbestos having an asbestos fiber content of more than 0.1 percent and 100 square feet or more of surface area of ACM. Because EPA considers non-friable bulk ACM waste to be non-hazardous regardless of its asbestos content, it is not subject to regulation under Title 22 CCR Section Division 4.5.

CCR Title 22, Division 4.5 also contains the Environmental Health Standards for the Management of Hazardous Waste, which includes California waste identification and classification regulations. CCR Title 22, Chapter 11, Article 3, *defines the characteristics of hazardous waste*. “Soluble Threshold Limits Concentrations/Total Threshold Limits Concentration Regulatory Limits,” identifies the concentrations of various compounds at which soil and groundwater are determined to be a California hazardous waste.

Title 17, California Code of Regulations, Division 1, Chapter 8- Lead-Based Paint and Lead Hazards

Lead is regulated through several statutes, including TSCA, RCRA, and EPCRA. OSHA regulates workplace lead exposure. Title 17 CCR, Division 1, Chapter 8, provides guidance for accreditation, certification, and work practices for LBP and lead hazards. Lead-based paint (LBP) is defined in Title 17 as paint or other surface coatings that contain an amount of lead equal to, or more than, 1 milligram per square centimeter (1.0 mg/cm²); or half of one percent (0.5 percent) by weight.

Title 17 of the CCR presumes that paint on structures built before January 1, 1978, is LBP and disturbance of that structure requires use of lead-safe work practices, including containment and cleaning of the work area after the project is completed.

Porter-Cologne Water Quality Control Act (California Water Code, § 13000 et seq.)
 The Porter-Cologne Water Quality Control Act regulates water quality through the SWRCB and regional water quality control boards (RWQCBs) (San Francisco Bay Regional Water Quality Control Board [SFBRWQCB] is the RWQCB for the region that includes the Airport). It provides oversight of water monitoring and contamination cleanup and abatement.

Hazardous Materials Release Response Plans and Inventory Law (California Health and Safety Code, § 25500 et seq.)

This section of the California Health and Safety Code requires facilities using hazardous materials to prepare hazardous materials business plans.

Hazardous Waste Control Act (California Health and Safety Code, § 25100 et seq.)

This act is analogous to the federal Resource Conservation and Recovery Act in that it regulates the identification, generation, transportation, storage, and disposal of materials deemed hazardous by the State of California.

Safe Drinking Water and Toxic Enforcement Act (Proposition 65, California Health and Safety Code, § 25249.5 et seq.)

The Safe Drinking Water and Toxic Enforcement Act is similar to the federal Safe Drinking Water Act and Clean Water Act in that it regulates the discharge of contaminants to groundwater.

Cortese List Statute (California Government Code, § 65962.5)

This regulation requires the California Department of Toxic Substances Control to compile and maintain lists of potentially contaminated sites throughout the state and includes the Hazardous Waste and Substances Sites List. The overall list is called the "Cortese" list.

California Occupational Safety and Health Administration (Cal/OSHA)

The U.S. Department of Labor has delegated the authority to administer OSHA regulations to the State of California. Cal/OSHA is administered and enforced by the Division of Occupational Safety and Health.¹⁵⁴ Cal/OSHA assumes primary responsibility for developing and enforcing workplace safety regulations in California. Because California has a federally approved OSHA program, it is required to adopt regulations that are at least as stringent as those found in Title 29 of the CFR. Cal/OSHA standards are generally more stringent than federal regulations. Among other provisions, Cal/OSHA requires employers to implement a comprehensive, written Injury and Illness Prevention Program for potential workplace hazards, including those associated with hazardous materials.

Cal/OSHA has established limits of exposure to lead contained in dusts and fumes. They have established rules and procedures for conducting demolition and construction activities and established exposure limits, exposure monitoring, and respiratory protection for workers exposed to lead.¹⁵⁵

State Water Resources Control Board

Responsibility for the protection of water quality in California resides with the SWRCB and nine RWQCBs. The SWRCB establishes statewide policies and regulations for the implementation of water quality control programs mandated by federal and state water quality statutes and regulations.

The State's UST program regulations include among others, permitting USTs, installation of leak detection systems and/or monitoring of USTs for leakage, UST closure requirements, release reporting/corrective action, and enforcement. Oversight of the statewide UST

¹⁵⁴ 8 CCR Section 6300-6719 (1973).

¹⁵⁵ CCR Title 8 Section 1532.1 (1973).

program is assigned to the SWRCB, which has delegated authority to the RWQCB, and typically on the local level to the fire department.¹⁵⁶

OEHHA Safe Drinking Water and Toxic Enforcement Act

The California Office of Environmental Health Hazards Assessment (OEHHA) is the state agency for the assessment of health risks posed by environmental contaminants. The mission of OEHHA is to protect human health and the environment through scientific evaluation of risks posed by hazardous substances. The OEHHA is one of five state departments within CalEPA. OEHHA implements the Safe Drinking Water and Toxic Enforcement Act,¹⁵⁷ Proposition 65; compiles the state's list of chemicals and substances believed to have the potential to cause cancer or deleterious reproductive effects in humans; restricts the discharges of listed chemicals into known drinking water sources at levels above the regulatory levels of concern; requires public notification of any unauthorized discharge of hazardous waste; and requires that a clear and understandable warning be given prior to a known and intentional exposure to a listed substance.

REGIONAL

San Francisco Bay Area Regional Water Quality Control Board

The Airport is within the jurisdiction of the San Francisco Bay Regional Water Quality Control Board (SFBRWQCB), which develops and implements Water Quality Control Plans (Basin Plans) that consider regional beneficial uses, water quality characteristics, and water quality problems. SFBRWQCB implements a number of federal and state laws, the most important of which are the State Porter-Cologne Water Quality Control Act and the Federal Clean Water Act. The SFBRWQCB has jurisdiction in matters concerning the management of potential sources of surface and groundwater contamination, including cleanup of USTs and aboveground storage tanks (ASTs) spills.

BAAQMD Asbestos Demolition/Renovation/Water Removal – Regulation 11, Rule 2

The Bay Area Air Quality Management District (BAAQMD) regulates the removal of asbestos through Asbestos Demolition/Renovation/Water Removal – Regulation 11, Rule 2.¹⁵⁸ This regulation applies to all demolitions, even where no asbestos is present, and to renovations including ACM which includes (1) friable ACM; (2) Category I nonfriable ACM under some circumstances; and (3) Category II nonfriable ACM under some circumstances.

Unified Hazardous Waste and Hazardous Materials Management Regulatory Program

California Senate Bill 1082, passed in 1993, created the Unified Hazardous Waste and Hazardous Materials Management Regulatory Program, or "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. CalEPA and other State agencies set the standards for the programs

¹⁵⁶ California Health and Safety Code, Division 20, Chapter 6.7 and 23 CCR, Division 3, Chapter 16 and Chapter 18 (2011).

¹⁵⁷ 22 CCR Section 12000 et seq. (1986).

¹⁵⁸ Bay Area Air Quality Management District (BAAQMD). (2019, May). *Compliance and Enforcement: Policy and Procedures - Asbestos Demolition / Renovation / Waste Disposal, Regulation 11, Rule 2*.

and local governments implement the standards. The local implementing agencies are called Certified Unified Program Agencies and they regulate or oversee the following:

- Hazardous materials business plans
- California accidental release prevention plans or federal risk management plans
- Operation of USTs and ASTs
- Universal waste and hazardous waste generators/handlers
- Onsite hazardous waste treatment
- Inspections, permits, and enforcement of the permits
- Proposition 65 reporting¹⁵⁹
- Emergency response

The Alameda County Department of Environmental Health (ACDEH) is the Certified Unified Program Agency (CUPA) that coordinates and enforces numerous local, state, and federal hazardous materials management and environmental protection programs in the portions of Alameda County including the City of Oakland. The CUPA administers policies and regulations found in several local and regional plans, including general plans and municipal codes that address hazardous materials and wastes. Policies and regulations serve as guides for the appropriate use of potentially hazardous materials, the cleanup of contaminated sites, and the preparation of emergency response plans. The CUPA information required to be submitted and reported electronically to the California Environmental Reporting System (CERS) includes but is not limited to facility data regarding hazardous material regulatory activities (such as, hazardous materials business plans, site maps, and chemical inventories), USTs and ASTs, hazardous waste generation, and inspection, compliance, and enforcement actions.

Alameda County Waste Management Authority

The Alameda County Waste Management Authority operates under a joint exercise-of-powers agreement among the county, each of the 14 cities in the county—including Oakland—and two sanitary districts; also, it operates collectively as one agency with the Alameda County Source Reduction and Recycling Board. Pursuant to state law, each county is required to prepare a plan for the management of hazardous waste produced within the county. The Authority is responsible for the preparation of the Alameda County Hazardous Waste Management Plan and also provides technical assistance to its member agencies in the implementation of the plan. The primary focus of the Alameda County Hazardous Waste Management Plan is the maximum feasible reduction of hazardous waste generated in the county to minimize the number of hazardous-waste management facilities needed to manage that waste. The plan sets out goals and policies; provides a comprehensive overview of current conditions; projects future conditions based on current and expected trends; and lays out an implementation program for achieving hazardous-waste minimization.

¹⁵⁹ Proposition 65 is a California, voter-approved initiative that requires the State to publish a list of chemicals known to cause cancer or birth defects or other reproductive harm and requires businesses to notify Californians about significant amounts of chemicals in the products they purchase and use.

LOCAL

City of Oakland

The City of Oakland is responsible for preparation of a Hazard Mitigation Plan¹⁶⁰ to reduce the risks from disasters to the people, property, economy, and environment within the city. This plan complies with federal and state hazard mitigation planning requirements to establish eligibility for funding under Federal Emergency Management Agency (FEMA) grant programs.

The Hazard Mitigation Plan identifies potential hazards that the City of Oakland is most vulnerable to; assesses risks to the city's residents, buildings, and critical facilities; and develops a mitigation strategy to reduce the risk of exposure and allow a swift and organized recovery should a disaster occur.

Oakland Fire Department

The OFD provides emergency response services at the Airport, with firefighters based at the Aircraft Rescue and Fire Fighting Facility (ARFF) at OAK. The ARFF is a specialized personnel service that responds to any aircraft rescue or firefighting needs. The ARFF operates as part of the OFD and responds to emergency medical and precautionary alerts for the Airport's terminals and aircraft operations.

3.8.1.2 Significance Thresholds

The thresholds for hazards and hazardous materials impacts used in this analysis are consistent with Appendix G of the CEQA Guidelines. The effects of the Proposed Project related to hazards and hazardous materials are significant if the Proposed Project would:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely 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 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 the project result in a safety hazard or excessive noise 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.

¹⁶⁰ City of Oakland. (2016, June). *2016-2021 Local Hazard Mitigation Plan*.

- Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires.
 - As identified in the Initial Study that was included with the Notice of Preparation (NOP), the Airport is not located in an area where wildland fires occur. Therefore, the Proposed Project would not expose people or structures to wildland fires and no further analysis of this issue will be included in the Draft EIR.

3.8.1.3 Methodologies

The methodology for analyzing impacts from hazards and hazardous materials includes identifying general types of hazardous materials and activities used during Proposed Project construction and operation. Potential impacts on the environment and public health from hazards and hazardous materials were further evaluated using information on the existing uses of the project site and adjacent properties, historical uses, and known contamination to determine the likelihood of encountering hazardous materials.

3.8.2 Existing Conditions / Environmental Setting

Current and historic activities within the Airport property could potentially result in site contamination or otherwise present potential hazards to humans and the environment when new land uses are proposed on those lands. Examples of these activities include:

- *Use of firefighting foams containing PFAS* - The firefighting foams used on Airport property for both training exercises and actual fire containment commonly contain PFAS. PFAS have been identified in soil and groundwater (see **Table 3.8-1** below).
- *Landfills* – Active, abandoned, and closed landfills present potential issues related to the exposure of humans to hazards, such as landfill or groundwater gas migration, when a project is proposed on or near a landfill site. There are three former landfill sites located on Airport Property.
 - A closed landfill area was identified where the Metropolitan Golf Course (formerly Galbraith Golf Course) is located at the corner of Doolittle Drive and Bessie Coleman Drive. It was capped with dredged materials from the Oakland Inner Harbor Dredging Project. (GeoTracker Sites L10009435598, T06019772381)
 - A former landfill is also located at the corner of Harbor Bay Parkway and Doolittle Drive, known as the North Port of Oakland Refuse Disposal Site (NPORDS). It was formerly a City of Alameda landfill that received household waste during the 1950s, then was leased by the Oakland Scavenger Company that received dry demolition debris (brick, concrete, wood, and steel). (CalRecycle Site 01-CR-0034)
 - A former landfill was also discovered during the Port's North Field Runway Safety Area (NF RSA) Improvement project. The NF RSA landfill appears to have received household waste from the City of Alameda during the late 1950s. It is located near the corner of Harbor Bay Parkway and Ron Cowan Parkway. (GeoTracker Site T10000006709)

- *Use and storage of petroleum hydrocarbons* – Fuels, including aviation fuel, diesel, and gasoline have been, and continue to be, stored, transported, and used on Airport property. Historic and current tank farms and associated pipelines have been used to transfer fuel for aircraft to the airfields. Additionally, the use of oil and grease have been/are used at various locations.
 - No known operational USTs remain in the detailed study area; however, former USTs documented at several locations within the detailed study area would need to be removed. Existing ASTs would also need to be removed as part of the demolition of the OMC.
 - Known petroleum hydrocarbon contaminants on the Airport property include gasoline, diesel, aviation fuel, and oil and grease (e.g., lubricating, hydraulic, and motor) in soil and groundwater.
- *Use and Storage of other hazardous materials* – In addition to petroleum hydrocarbons, other hazardous materials have been, and continue to be, used on Airport property. These materials include but are not limited to solvents and paints.
- *Historic use of hazardous building materials including ACM, LBP, and PCBs.*
 - The presence of LBP and/or ACM has been documented at Terminal 1 and the Oakland Maintenance Center (OMC) Hangar.
 - PCBs from transformers and the OMC Hangar substation would need to be removed.

3.8.2.1 Agency-Documented Hazardous Substances Sites on Airport Property

A review of the online regulatory databases for OAK and the surrounding vicinity for a 1-mile radius was conducted, which included federal and state lists of known or suspected contaminated sites. The online databases reviewed included the SWRCB GeoTracker (GeoTracker) and the DTSC EnviroStor (EnviroStor). The GeoTracker database includes listings for Leaking USTs (LUST), Site Cleanup Programs Sites, permitted UST sites, Military Sites, and Land Fill Sites. The EnviroStor database includes listings for Voluntary Site Cleanups, State Response Sites, School Cleanup Sites, Corrective Action Sites, and Tiered Permit Sites.

Several sites both within Airport property and within 1-mile of the detailed study area are listed on the state databases. **Table 3.8-1** lists open sites within the Airport property. Sites adjoining the detailed study area may also present potential environmental concerns; however, because improvements at the perimeter of the Airport property adjacent to offsite properties only include the construction of parking, there is a low risk associated with those properties.

The listed GeoTracker and EnviroStor sites are shown in **Figure 3.8-1**. A more detailed discussion, including closed sites, is available in the Phase I ESA in **Appendix J**.

3.8.2.2 Cortese Sites Within the Detailed Study Area

Six sites on the Cortese List have been identified within the Detailed Study Area. All Cortese List sites have been closed by the RWQCB and/or ACDEH. **Table 3.8-2** lists

Cortese List sites on or immediately adjacent to the detailed study area. The Cortese List sites are shown in **Figure 3.8-2**.

TABLE 3.8-1
OPEN GEOTRACKER AND ENVIRSTOR SITES ON AIRPORT PROPERTY

Site ID	Site	Constituents of Concern - Media	Site Status
GeoTracker			
LUST Sites			
1	Rolls Royce Test Cell Facility GeoTracker - T10000017380 ACDEH - RO0003512 6701 Old Earhart Road, Oakland, CA 94621	Aviation Fuel – Soil and Groundwater	Open – Eligible for closure as of 3/17/22
RWQCB Cleanup Program Sites			
2	MOIA, National Airmotive Corporation GeoTracker - T06019775776 ACDEH - RO0002606 6701 Old Earhart Road, Oakland, CA 94621	Aviation Fuel – Soil and Groundwater	Open – Eligible for closure as of 3/17/22
3	Chevron Corporate Hangar 10 PFAS, Oakland International Airport GeoTracker - T10000017463 ACDEH - RO0002606 6701 Old Earhart Road, Oakland, CA 94621	PFAS – Soil, Sediment, Groundwater, Surface Water	Open – Assessment & Interim Remedial Action as of 10/27/2021
4	Galbraith Golf Course GeoTracker - T06019772381 ACDEH - RO0002753 10051 Doolittle, Oakland, CA 94621 <i>(address and map location corrected)</i>	Lead, Nickel, Arsenic, & Copper – Groundwater	Open – Inactive as of 1/21/2016
5	Chevron AGT Oakland Airport North Field Tank Farm GeoTracker - SL0002020084 8550 Earhart Drive, Oakland, CA 94621	Petroleum Hydrocarbons (Gasoline and Diesel) – Soil and Groundwater	Open – Site Assessment & Interim Remedial Action as of 7/28/2008
6	Hangar 5 North Field, Oakland International Airport GeoTracker - T10000005596 8517 Earhart Drive, Oakland, CA 94621	Aviation Fuel, Gasoline, Diesel, Benzene – Soil, Groundwater	Open – Verification Monitoring as of 6/1/2017
7	Oakland Airport North Field Runway Safety Area GeoTracker - T10000006709 Ron Cowan Parkway, Oakland, CA 94621	Total Petroleum Hydrocarbons (TPH), Waste Oil, Motor, Hydraulic, Lubricating – Under Investigation	Open – Verification Monitoring as of 6/30/2015

Site ID	Site	Constituents of Concern - Media	Site Status
8	MOIA, Terminal 2 Utilities Corridor GeoTracker - T06019782925 ACDEH - R00002917 0 Airport Drive, Oakland, CA 94621	Gasoline - Groundwater	Open – Eligible for Closure as of 9/11/2022
9	MOIA, United Airlines MF35/36 GeoTracker - T0600101423 ACDEH - R00002917 1100 Airport Drive, Oakland, CA 94621	Diesel - Groundwater	Open – Site Assessment as of 5/30/2003
10	Metropolitan Oakland Intl (PFAS) GeoTracker - T10000012764 1 Airport Drive, Oakland, CA 94621	PFAS - Unspecified	Open – Site Assessment as of 3/20/2019
11	Oakland International Airport, South Field Tank Farm GeoTracker - SL599992806 1 Edward White Way, Oakland, CA 94621	Aviation Fuel, Gasoline, Diesel, Benzene – Soil, Groundwater, Surface Water	Open – Remediation as of 1/27/2009
12	Swissport Fueling, Incorporation GeoTracker - T10000016422 Oakland International Airport, Oakland, CA 94621 (<i>zip code corrected</i>)	PFAS – None Specified	Open – Site Assessment as of 3/12/2021
Military – Cleanup, Privatized, UST			
13	NAS Oakland – FAA Tracon GeoTracker – T10000008550 Doolittle Drive, Oakland, CA 95621	Total Petroleum Hydrocarbons - Groundwater	Open – Eligible for Closure as of 1/22/2018
14	NAS Oakland - AOC 21 – Aviation Lube Oil Storage (Tanks 11-1 and 11-2) GeoTracker - T10000008542 Grunman Street, Oakland, CA 94621	Total Petroleum Hydrocarbons – None Specified	Open – Site Assessment as of 2/23/2016
15	NAS Oakland - AOC 7 – Maintenance Hangar (Bldg 6) GeoTracker - T10000008529 Old Earhart Road, Oakland, CA 94621	VOCs, Total Petroleum Hydrocarbons (gasoline, diesel, waste oil, waste oil) – None Specified	Open – Site Assessment as of 7/21/2016
16	NAS Oakland Facility Wide 7501 Earhart Road, Oakland, CA 94621	Aviation Fuel, Gasoline, Metals – Under Investigation	Open – Site Assessment as of 11/1/2013

Site ID	Site	Constituents of Concern - Media	Site Status
17	AOC 12 – Welding Shop (BLDG 44) Earhart Road, Oakland, CA 94621 Harbor Bay Parkway, Oakland, CA 94621	Chromium – None Specified	Open – Site Assessment as of 2/23/2016
EnviroStor			
18	NAS Oakland Oakland, CA EnviroStor - 80000788	Not Specified (TPH and related compounds, PCBs suspected) – Media Not Specified	Refer: RWQCB as of 11/4/2014
19	Oakland Municipal Airport Oakland, CA EnviroStor - 80000686	Explosives (UXO, MEC) – Media Not Specified	Refer: RWQCB as of 11/4/2014

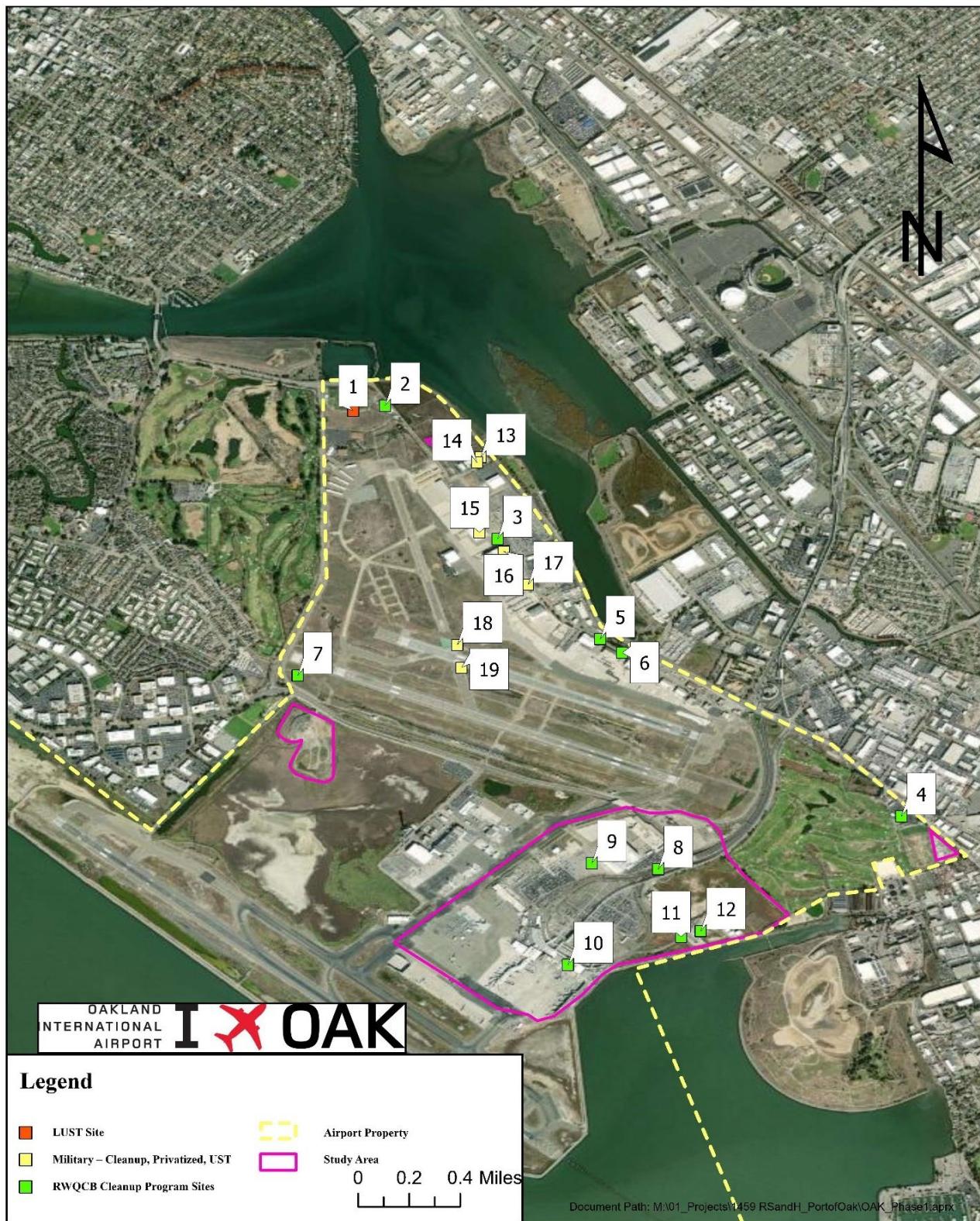
Source: State Water Resources Control Board (SWRCB). (2023). Geotracker Database.; Department of Toxic Substances Control (DTSC). (2023). EnviroStor Database.; Northgate. (2023)

TABLE 3.8-2
CORTESE LIST SITES WITHIN THE DETAILED STUDY AREA

Site ID	Site	Constituents of Concern - Media	Site Status
1	MOIA, Avis Rent-A-Car GeoTracker - T0600100133 ACDEH - RO0002891 1 Neil Armstrong, Oakland, CA 94621	Gasoline – Groundwater	Closed as of 8/18/1984
2	MOIA, Avis Rent-A-Car GeoTracker - T06019752324 ACDEH - RO0001603 1 Neil Armstrong, Oakland, CA 94621	Gasoline – Groundwater	Closed as of 4/21/2006
3	MOIA, FAA ALSF#2 GeoTracker - T0600101604 ACDEH - RO0000908 1 Airport Road, Oakland, CA 94621	Diesel – Soil	Closed as of 4/6/1994
4	MOIA, FAA BLDG M104 GeoTracker - T0600102146 ACDEH - RO0001160 51 John Glenn, Oakland, CA 94621	Diesel - Groundwater	Closed as of 6/24/1988
5	Oakland International Airport GeoTracker - SL0600130574 1 Airport Road, Oakland, CA 94621	None Specified – None Specified	Closed as of 10/10/2008
6	MOIA, Hertz Rent-A-Car GeoTracker - T0600100702 ACDEH - RO0000157 1 Airport Road, Oakland, CA 94621	Gasoline - Groundwater	Closed as of 8/30/2006

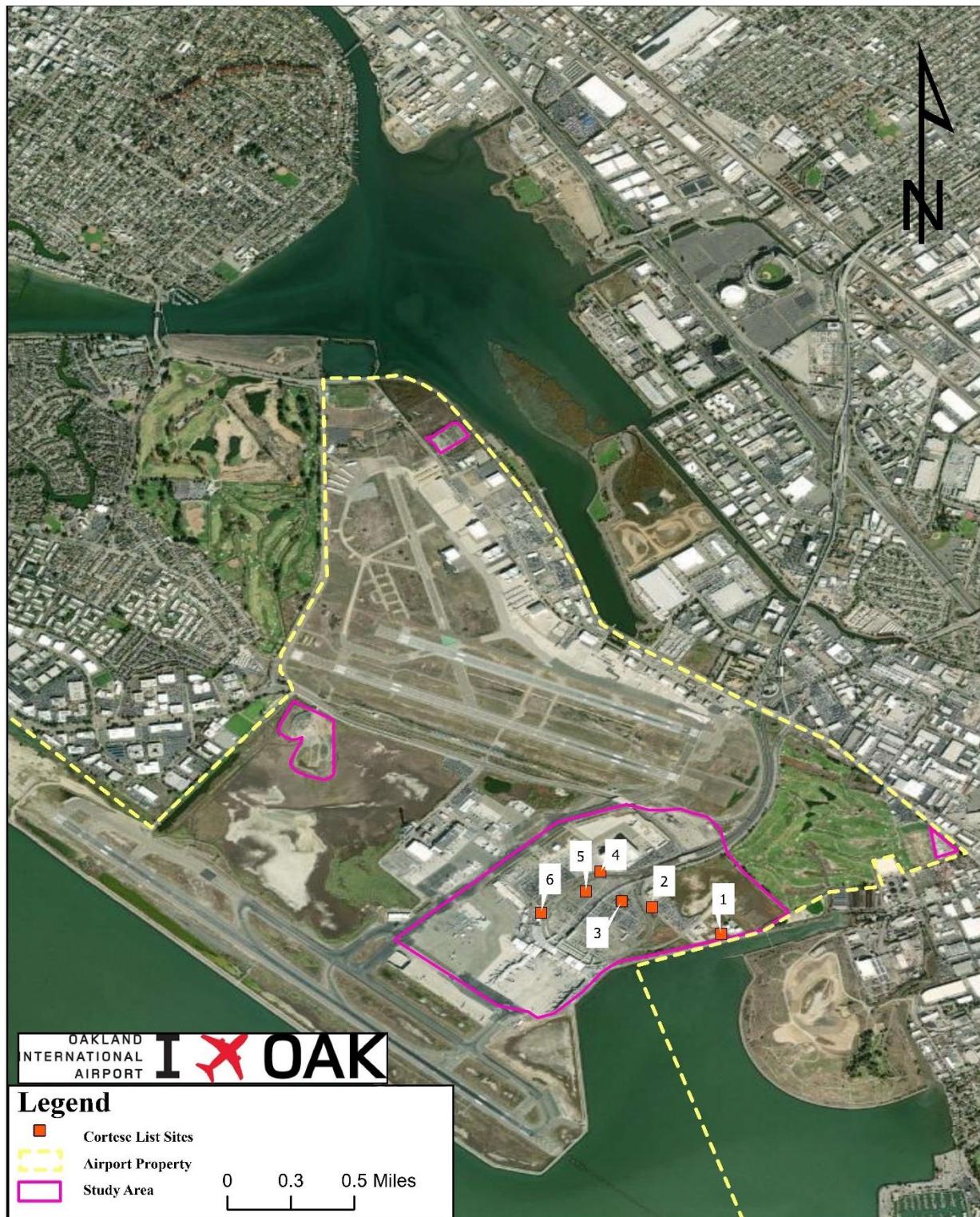
Source: State Water Resources Control Board (SWRCB). (2022). Geotracker Database; Department of Toxic Substances Control (DTSC). (2023); Northgate. (2023)

FIGURE 3.8-1
OPEN GEOTRACKER AND ENVIRSTOR SITES ON AIRPORT PROPERTY



Source: State Water Resources Control Board (SWRCB). (2022). Geotracker Database.

FIGURE 3.8-2
CORTESE LIST SITES WITHIN THE DETAILED STUDY AREA



Source: Department of Toxic Substances Control (DTSC). (2023)

3.8.2.3 Hazardous Building Materials

Implementation of certain Program components will include modifying, removing, or replacing buildings and other structures, including structures constructed prior to 1978. There is potential for buildings constructed prior to 1978 to contain building materials that consist of hazardous components such as LBP, ACM, mercury and polychlorinated biphenyls (PCBs). When these buildings or structures are demolished, these hazardous building materials can become exposed.

- LBP: Prior to the USEPA ban in 1978, lead-based paint was commonly used on interior and exterior surfaces of buildings and other structures. Old peeling paint has also been found to contaminate near-surface soil.
- ACM: Asbestos is a naturally occurring fibrous material that was extensively used as a fireproofing and insulating agent in building construction before such uses were banned by the USEPA in the 1970s. ACM is a known constituent in linoleum tiles, carpet, popcorn ceiling material, mastic, and acoustic drop-tile ceilings.
- Mercury: Spent fluorescent light tubes commonly contain mercury vapors. In February 2004, regulations took effect in California that classified all fluorescent lamps and tubes as hazardous waste. When these lamps or tubes are broken, mercury is released to the environment.
- PCBs: PCBs are organic oils that were formerly used primarily as insulators in many types of electrical equipment including transformers, electrical switches, and light ballasts, and caulking. In the mid to late 1970's, the USEPA banned PCB use in most new equipment and began a program to phase out certain existing PCB-containing equipment.

Numerous investigations documenting the presence of LBP and/or ACM have been conducted at Terminal 1 and the OMC Hangar. The Phase I ESA for the Proposed Project (see **Appendix J**) provides a summary of these investigations.

3.8.2.4 Schools within One-Quarter Mile of the Detailed Study Area

Sensitive receptors are people or other organisms that are considered to have a substantially increased sensitivity or rate of exposure to contaminants. Because of this increased sensitivity, special consideration must be given to projects located near sensitive receptors. CEQA specifically establishes that special consideration must be given to projects located near schools (i.e., within one-quarter mile) when considering hazards and hazardous materials (California Public Resources Code [PRC], Sections 21151.2 and 21151.4). This consideration allows for careful examination and disclosure of potential health effects on children associated with exposure to hazardous materials, wastes, and substances, as well as other hazards. There are no schools within one-quarter mile of the detailed study area; the closest school is located approximately 0.8 mile northeast of the proposed employee parking at the Golf Course Lot (adjacent to Metropolitan Golf Links).

3.8.3 Environmental Impacts and Mitigation

3.8.3.1 Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials

CONSTRUCTION

All program elements include the use of substances associated with construction vehicles and equipment such as lubricants and fuels. All program elements include construction activities that would involve routinely transporting, using, and storing hazardous materials such as paints, solvents, coatings, cements, glues, lubricants, and fuels. In addition, hazardous materials may be encountered during the demolition of existing buildings which may be required for the construction of some project components. Workers involved in construction and maintenance under the Proposed Project could be exposed to hazards and hazardous materials as a result of improper use, handling or disposal during construction activities. The use, storage, transport, and disposal of hazardous materials and hazardous wastes are regulated by Federal, State, regional, and local agencies as outlined in **Section 3.8.1.1, Regulatory Context**, and compliance with relevant laws is required during construction and operation under the Proposed Project.

The Port would prepare or update a Hazardous Materials Management Plan (HMMP), as appropriate, to describe the proper use, handling, and storage practices and procedures related hazardous materials management to project workers and the public from potential health and physical hazards presented by hazardous materials used during construction activities and to keep chemical exposures below specified limits. The HMMP describes ways to reduce, minimize, and/or eliminate the quantity and toxicity of hazardous materials that are used, stored, or disposed of. Construction workers would be trained in safe handling and storage of hazardous materials.

During construction, hazardous materials would be stored at identified staging areas. To minimize the potential for harmful releases of hazardous materials through spills or contaminated runoff, these substances would be stored within secondary containment areas in accordance with federal, state, and local requirements and permit conditions. Storage facilities for petroleum products would be constructed, operated, and maintained in accordance with the spill prevention control and countermeasures (SPCC) plan that would be prepared and implemented for the Proposed Project (40 CFR 112), including engineering standards (e.g., secondary containment), administrative standards (e.g., training with special emphasis on spill prevention, standard operating procedures, inspections), and best management practices (BMPs).

Implementation of the Proposed Project would comply with all applicable federal, state, regional, and local regulations, policies, and laws related to routine transport, use, disposal, of hazardous materials. Compliance with these regulations, of hazardous materials, or through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment during construction activities. Compliance with these regulations, policies, and laws would ensure that the Proposed Project would not create a significant hazard to the public or the environment through the transport, use, and disposal of hazardous materials. Therefore, construction of the Proposed Project would result in a ***less-than-significant impact***.

OPERATIONS

Hazardous materials are routinely used on or transported through the Airport. Common hazardous materials include oils, fuels, lavatory waste, lubricants, paints, etc. Additionally, existing building products may contain hazardous materials, such as fluorescent light fixtures containing mercury. Under the Proposed Project, the existing aviation-related land uses would continue as would the generation, use, and storage of hazardous materials present under existing conditions.

Use and management of hazardous materials and associated waste at the Airport complies with federal and state regulations, policies, and laws related to routine transport, use, and disposal of hazardous materials. Additionally, use and management must be in accordance with OAK's Airport Rules and Regulations Section 4.3. Once the Proposed Project is in operation, the types and amounts of hazardous materials used, stored, handled, and transported at OAK would be comparable to that of existing conditions and would continue to be managed in compliance with applicable regulations. Therefore, operation of the Proposed Project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. The impact would be ***less than significant***.

- 3.8.3.2 Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment

CONSTRUCTION

During demolition and construction, hazardous or potentially hazardous materials would be present. Although the transport and use of hazardous materials are governed by numerous regulations, there is a chance that a spill or accidental release could occur. Compliance with federal and state regulations reduces the risk of a spill or accidental release of hazardous materials that would expose persons or the environment to substantial hazards.

Hazardous Building Materials

As described in **Section 3.8.2.3, Hazardous Building Materials**, ACM, LBP, PCBs, and potentially mercury are expected to be encountered during building demolition and renovation. Prior to demolition, a pre-demolition survey would be performed to identify hazardous building materials including ACM, LBP, and PCBs. These materials would be abated prior to demolition and disposed of at a landfill authorized to accept such waste. The identification, handling, removal, and/or disposal of any potential ACMs and LBP would be under the direction and quality control of a California Certified Asbestos Consultant and Certified Lead Inspector/Assessor completed in compliance with regulatory requirements including Asbestos Hazard Emergency Response Act (AHERA) and NESHAPS. Any project-related demolition activities that have the potential to expose construction workers and/or the public to ACMs, LBP, or PCBs would be conducted in accordance with applicable regulations outlined in **Section 3.8.1.1, Regulatory Context**.

Contaminated Soil and Groundwater

Construction activities would involve the disturbance of onsite soil. As described in **Section 3.8.2.1, Agency-Documented Hazardous Substances on Airport Property**, contaminants detected in soil and/or groundwater on Airport property include petroleum hydrocarbons (aviation fuel, diesel, gasoline, oil and grease), VOCs, metals, and PFAS.

Construction activities associated with the Proposed Project may expose potentially contaminated soil and groundwater.

As recommended in the Phase I ESA, a Phase II ESA would be conducted prior to construction to assess contaminants of concern in soil, soil gas, and groundwater, as appropriate, within the detailed study area with Recognized Environmental Conditions (RECs). In areas where new buildings are planned, vapor intrusion pathways would be assessed. If the contamination encountered during the Phase II ESA is sufficient to exceed applicable regulatory thresholds, cleanup of contaminated sites, including the implementation of engineering controls if appropriate, would be completed before or during construction in the contaminated location but prior to site development. The removal, handling, storage, transport, and treatment or disposal of such soil would be subject to state and federal requirements related to hazardous waste, as identified in

Section 3.8.1.1.

Before construction begins on any site-specific program element, workers would be trained in hazardous material procedures to minimize the potential exposure of the public and site workers to potential hazardous materials. If suspected hazardous substances are unexpectedly encountered during construction activities (using indicators such as sheen, odor, and/or soil discoloration), work would be stopped until the material is properly characterized and appropriate measures are taken to protect human health and the environment. The presence of known or suspected contaminated soil requires testing and investigation procedures to be supervised by a qualified person, as appropriate, to meet state and federal regulations. Appropriate personal protective equipment would be used, and waste management would be performed in accordance with applicable regulations. If excavation of hazardous materials is required, the materials would be disposed of in accordance with applicable regulations.

Site Management Plan (SMP)

In addition, preparation of a SMP, which provides guidelines for grading and construction projects at sites with potential contamination issues, would be required for the Proposed Project due to excavation and exposure to COCs in soil. The SMP identifies requirements intended to protect human health when soil in certain areas of known or suspected areas are disturbed for any reason, including but not limited to demolition, utility installation/repair, soil excavation, drilling, grading/filling activities, stockpile generation, soil management, loading, and transportation. For the demolition, excavation, and grading activities within areas of concern (subsurface contamination confirmed), an SMP would be prepared and submitted to a regulatory agency such as SFRWQCB or ACDEH for review and approval prior to the commencement of excavation and grading activities. The SMP would be implemented during excavation and grading activities to ensure that any contaminated soils are properly identified, excavated, and disposed of offsite, as follows:

- The SMP would require the timely testing and sampling of soils so that contaminated soils can be separated from inert soils for proper disposal. The SMP would specify the testing parameters and sampling frequency.
- Soil that is excavated and stockpiled would be sprayed with water or another approved vapor suppressant or covered with sheeting during periods of inactivity of greater than one hour, to prevent contaminated soils from becoming airborne.

- Contaminated soil would be transported offsite by a licensed transporter and disposed of at a licensed storage/treatment facility.
- A qualified environmental consultant would be present onsite during grading and excavation activities in the known or suspected locations of contaminated soils and would be otherwise on-call as necessary to monitor compliance with the SMP and to actively monitor the soils and excavations for evidence of contamination.

Additional requirements of the SMP include protocols for the Health and Safety Plan (HASP), environmental monitoring, proper soil handling, fugitive dust and vapor control, excavation and stockpiling, soil monitoring, responding to unknown conditions, and imported fill and post-construction requirements.

Hazardous Materials Contingency Plan (HMCP)

Prior to commencement of any demolition or construction activities, a HMCP would be developed that address potential impacts in soil, soil vapor, and groundwater from releases on or near the Proposed Project, as well as the potential for existing hazardous materials on site (e.g., drums and tanks). The HMCP would include training procedures for identification of contamination. The HMCP would describe procedures for assessment, characterization, management, and disposal of hazardous constituents, materials, and wastes, and notification and decommissioning procedures for tanks, in accordance with all applicable state and local regulations. Contaminated soil and/or groundwater would be managed and disposed of in accordance with local and state regulations. If USTs are encountered, they would be removed under permit with, and according to the requirements of, the ACDEH CUPA.

The HMCP would include a Health and Safety Plan which (HASP) would be prepared in compliance with OSHA Safety and Health Standards (CFR 1910.120) and Cal/OSHA requirements (CCR Title 8, General Industry Safety Orders and California Labor Code, Division 5, Part 1, Sections 6300-6719) and submitted for review by ACDEH. The HASP would address, as appropriate, safety requirements that would serve to avoid significant impacts or risks to workers or the public if elevated levels of COCs are encountered during grading and excavation. The HASP would outline measures that would be employed to protect construction workers and the public from exposure to hazardous materials during demolition and construction activities. These measures could include, but would not be limited to, posting notices, limiting access to the site, air monitoring, watering, and installation of wind fences. Contractors would be required to comply with state health and safety standards for all demolition work. If applicable, this would include compliance with OSHA and Cal/OSHA requirements regarding exposure to ACM and LBP. The HASP would have emergency contact numbers, maps to the nearest hospital, allowable worker exposure times, and mandatory personal protective equipment requirements. The HASP would be signed by all workers involved in the demolition and construction activities to demonstrate their understanding of procedures during active construction. The Port or its designee would implement the HMCP during construction activities for the Proposed Project. The HMCP would be submitted to ACDEH for review.

Storm Water Pollution Prevention Plan (SWPPP)

Refer to **Section 3.9, Hydrology and Water Quality**, for information on the SWPPP.

Compliance with the above regulations, policies, and laws would ensure that the Program would not create a significant hazard to the public or the environment through the likely release of hazardous materials into the environment. Therefore, construction of the Proposed Project would result in a ***less-than-significant impact***.

OPERATIONS

During operation of the Proposed Project hazardous materials would continue to be handled, transported, and disposed of in the same manner as they are today, including the use of firefighting foam. The use of PFAS in these foams was reduced in the early 2000s and long-chain PFAS were eliminated from use in 2015. As discussed in **Section 3.8.1.1, Regulatory Context** (USEPA Council on PFAS), the DOD approved a new firefighting agent that is PFAS-free in January 2023. Supply for the PFAS-free firefighting agent is still not available, however the DOD approval allows airports a path forward towards PFAS-free foam while remaining certified. Existing regulatory requirements and safeguards related to the use of hazardous materials would continue to be in place to minimize the accidental release of hazardous substances to the environment or employees/people at the Airport. As a result, operation of the Proposed Project would not create a significant hazard to the public or the environment through the release of hazardous materials through foreseeable upset or accident conditions. Therefore, this impact would be ***less than significant***.

3.8.3.3 Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school

There are no schools within a 0.25-mile radius of OAK. The closest school is located approximately 0.8 mile northeast of the proposed employee parking lot (Golf Course Lot). Thus, the Proposed Project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school and there would be ***no impact***.

3.8.3.4 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 environment.

Six sites within the detailed study Area are included on the Cortese List and/or Historical Cortese List. However, all the sites listed in the Cortese database are completed with case closed certifications. Therefore, the Proposed Project would not 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 not create a significant hazard to the public or environment and there would be ***no impact***.

3.8.3.5 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 the project result in a safety hazard or excessive noise for people residing or working in the project area.

CONSTRUCTION

The Proposed Project consists of proposed improvements to an existing public airport. Proposed activities of demolition and construction may result in a safety or noise hazard for

people working in the vicinity of the detailed study area. Excessive noise hazards as a result of construction are addressed in **Section 3.11, Noise and Vibration**.

Following the previously identified regulations would ensure that construction of the Proposed Project would not result in a safety hazard or excessive noise for people residing or working in the project area. The impact would be ***less than significant***.

OPERATIONS

OAK operations are covered under current regulations and requirements. The Proposed Project is within an operating airport, and no additional safety hazards for people residing or working in the vicinity of the detailed study area would be of concern once the construction is completed. As discussed in **Section 3.11.3.5, Impacts Related to Excessive Noise in an Airport Land Use Plan**, noise levels would be similar to existing levels, which are typical for an active public airport. Hazards associated with bird strikes are minimized through the use of measures in the WHMP and the Proposed Project would not introduce any new wildlife hazards. The Proposed Project would not result in a safety hazard or excessive noise for people residing or working in the project area and the impact would be ***less than significant***.

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

The Proposed Project would not impair or physically interfere with emergency response plans or emergency evacuation plans. The Port maintains emergency response and evacuation plans for the Airport. The surrounding roadways would continue to provide emergency access to the detailed study area and surrounding properties during demolition and construction. The Proposed Project would be conducted while maintaining airport operations and flights, and would not result in reduced emergency access, response, or evacuation.

As discussed in **Section 3.13.4.4, Result in inadequate emergency access**, to address emergency and fire access needs, the site improvements are required to be designed in accordance with all applicable OFD design standards for emergency access. Because adequate emergency access is required per the local fire code and the site plans reviewed by the local fire officials as part of the design review, the Proposed Project would not result in inadequate emergency vehicle access. The impact would be ***less than significant***.

3.9 HYDROLOGY AND WATER QUALITY

This section describes existing hydrological and water quality conditions and associated potential water quality, storm-induced flooding, tsunami, or seiche hazards as a basis for the discussion of potential impacts and proposed mitigation measures for the Proposed Project at OAK.

The information in this section is based on regional hydrologic and water quality reports provided by the Port as well as maps and reports published by the Federal Emergency Management Agency (FEMA), State of California, and the East Bay Municipal Utility District (EBMUD). These reports are identified in **Appendix K** of this Draft EIR.

3.9.1 Background and Methodology

3.9.1.1 Regulatory Context

FEDERAL

Clean Water Act

The 1972 Clean Water Act (CWA) (United States Code Title 33, Section 1251 et seq., 1972), is the overarching federal law intended to protect, restore, and maintain the chemical, physical, and biological integrity of the nation's waters. The CWA provides the basic structure for establishing water quality standards and regulating the discharge of pollutants into waters of the United States through programs further discussed in this section.

National Pollutant Discharge Elimination System (NPDES)

The U.S. Environmental Protection Agency (USEPA) developed the National Pollutant Discharge Elimination System (NPDES), under CWA Section 402, establishing a framework for the regulation of discharges to waters of the United States to ensure water quality standards for applicable water body use designations are attained through a permitting program. NPDES requires non-stormwater discharges, such as municipal or industrial wastewaters, to be authorized by a permit containing limits on allowable pollutant quantities that can be discharged. Additionally, NPDES was expanded to include stormwater discharges from several sources including stormwater discharges from certain municipal separate storm sewer systems (MS4), construction activities that result in a land disturbance of one acre or more, including areas less than one acre if part of a larger common plan of development, and facilities discharging stormwater exposed to regulated industrial activity. In California, authority to administer the NPDES program has been delegated to the State.

Total Maximum Daily Load (TMDL)

Under Section 303(d) of the CWA, the Total Maximum Daily Load (TMDL) program establishes standards to protect water bodies based upon their designated beneficial uses (e.g., recreational use, aquatic life support, etc.). The program defines a process to designate water bodies that are impaired due to the presence of pollutants and sensitivity to disturbance. TMDLs, an estimate of the mass load of pollutants a water body can receive and still meet applicable water quality standards and designated receiving water body uses, are established for impaired water bodies. Where applicable, TMDL requirements are incorporated into NPDES permit measures and monitoring conditions issued by the State.

Spill Prevention, Control and Countermeasure Rule

The federal Oil Pollution Prevention Regulation, commonly known as the Spill Prevention, Control and Countermeasure (SPCC) rule, was promulgated in 1973 under Section 311 of the CWA with the goal to improve the nation's ability to prevent, prepare for, and respond to oil spills to protect navigable waterways. Applicable owner/operators of facilities that store and/or handle oil over aggregate bulk storage capacity threshold(s) and could reasonably be expected to have a discharge of oil in quantities that may be harmful, into or upon the navigable waters or adjoining shorelines are required to meet SPCC requirements. These include developing and implementing a facility-specific SPCC plan with measures, such as procedures, methods, and/or equipment, to prevent oil spills from occurring, prevent spills that do occur from reaching surface waters, and minimize or eliminate potential environmental impacts.¹⁶¹

National Flood Insurance Program

The Federal Emergency Management Agency (FEMA) manages the National Flood Insurance Program (NFIP), which was first established with the National Flood Insurance Act of 1968. The NFIP offers federally-backed flood insurance coverage to land owners within approximately 23,000 participating communities.¹⁶² Under the NFIP, FEMA works with the floodplain administrator in each participating community, including the City of Oakland, to establish regulatory Flood Insurance Rate Maps (FIRMs) based on Flood Insurance Studies.¹⁶³ These flood maps establish the boundaries of special flood hazard areas (SFHAs), which are areas with high risks of flooding within which floodplain management regulations are enforced and flood insurance coverage is required.¹⁶⁴ Notable flood zone designations that frequently appear on FIRMs include the following:¹⁶⁵

- Zone A: SFHA with a one percent annual chance of flooding where a detailed analysis has not been performed to establish the base flood elevation (BFE).
- Zone AE: SFHA with a one percent annual chance of flooding where a detailed analysis has been performed to establish the BFE.
- Zone B and X (shaded): Area of moderate flood hazard, between the limits of the 1 percent annual chance and 0.2 percent annual chance flood zones, or area protected by a levee from the one percent annual chance flood, or area where the flood risk is shallow or limited in extent.
- Zone C and X (unshaded): Area of minimal flood hazard above the 0.2 percent annual chance flood zone.

Federal Aviation Administration Advisory Circular 150/5200-33C

Federal Aviation Administration (FAA) Advisory Circular (AC) 150/5200-33C indicates separation distances to be maintained, where possible, between Air Operations Areas (AOAs) and potential hazardous wildlife attractants (5,000 feet for airports serving piston-powered aircraft, 10,000 feet for airports serving turbine-powered aircraft, 5 miles to protect approach and departure airspace for all airports). Additionally, this AC provides

¹⁶¹ Water Pollution Prevention and Control. 33 USC Chapter 26 (2018).

¹⁶² FEMA. (2021). *Flood Insurance*.

¹⁶³ FEMA. (2021). *Flood Maps*.

¹⁶⁴ FEMA. (2021). Special Flood Hazard Area (SFHA).

¹⁶⁵ FEMA. (2021). Definitions of FEMA Flood Zone Designations.

recommendations for a variety of land uses with the potential to attract hazardous wildlife, including waste disposal, agriculture, wetlands, wastewater facilities, and stormwater management facilities. Specific recommendations applicable to stormwater detention facilities include the following:¹⁶⁶

- Avoid aboveground standing water and design facilities to drain completely or infiltrate where feasible.
- Design detention basins to drain within a maximum of 48 hours following the design storm and remain dry in between storm events.
- Design detention basins with steep sides and a narrow linear shape.
- Line basins with riprap or concrete and eliminate vegetation that provides food or cover for hazardous wildlife.
- Employ physical barriers such as bird balls, covers, or wire grids to limit access to basins.

STATE

Porter-Cologne Water Quality Control Act

In 1969, the Porter-Cologne Water Quality Control Act (Porter-Cologne Act) (California Water Code section 13000 et seq., 1969) was passed establishing the California State Water Resources Control Board (SWRCB) as the primary agency responsible for administering and enforcing CWA requirements delegated to the state by the USEPA. The SWRCB is further divided based on hydrological barrier into nine regional water boards with delegated authority for implementing CWA Section 402 and 303(d) requirements within their respective regions. The Airport is in an area under the jurisdiction of the San Francisco Bay Regional Water Quality Control Board (SFRWQCB).

Water Quality Control Plan

The Porter-Cologne Act requires that Water Quality Control Plans, or Basin Plans, are prepared for each of the nine regions governed by regional water boards. The Basin Plans designate beneficial uses, establishes water quality objectives to protect designated water uses, consisting of both narrative and numerical water quality objectives, including TMDLs; and identifies strategies and schedules for achieving the objectives.¹⁶⁷

Construction General NPDES Permit

Under the NPDES delegated to the state, construction activities that result in a land disturbance of one acre or more, including areas less than one acre if part of a larger common plan of development, are required to obtain coverage under the *NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities, Order No. 2009-0009-DWQ*, (CGP) identified as NPDES No. CAS000002. Permit requirements include preparation of a Storm Water Pollution Prevention Plan (SWPPP), by a certified Qualified SWPPP Developer, containing measures to prevent pollutants caused by

¹⁶⁶ Federal Aviation Administration (FAA). (2020). Advisory Circular 150/5200-33C, *Hazardous Wildlife Attractants On or Near Airports*.

¹⁶⁷ California State Water Resources Control Board. (2021). *Porter-Cologne Water Quality Control Act*.

land disturbance activities (e.g., erosion and sediment) and non-stormwater discharges or spills from affecting surface water quality. Provisions for monitoring, recordkeeping, and reporting are included in the permit as well.

Industrial General NPDES Permit

Facilities discharging stormwater associated with regulated industrial activities are required by the CWA NPDES to obtain permit coverage. The SWRCB and SFRWQCB collectively issue individual permits or applicable facilities may obtain coverage under a *General Permit for Storm Water Discharges Associated with Industrial Activities* (IGP), identified as NPDES No. CAS000001. Permittees must develop and implement a facility-specific SWPPP assessing potential pollutant sources from industrial activities; establishing measures to control or prevent pollutant discharges; and detailing sampling and analysis procedures for monitoring water quality of stormwater discharged under coverage of the IGP.¹⁶⁸ Regulated industrial activities implemented by the Port and tenants at the Airport include shipping, trucking, and air transport facilities that conduct vehicle maintenance or equipment cleaning operations, and facilities where materials are stored in exposed areas. As such, the Port has obtained coverage under the IGP.¹⁶⁹ Airport tenants engaged in regulated industrial activities within the AOA and subject to IGP are included under the Port's IGP or may obtain their own IGP.

Phase II Small MS4 General NPDES Permit

As a component of the CWA NPDES permitting program, certain owner/operators of MS4s are required to obtain coverage under a permit authorizing discharge of stormwater from the MS4s. Individual permits are issued to medium and large cities or certain counties with populations of 100,000 or more under the 1990 Phase I regulations. Under the 1999 Phase II regulations, MS4 permit coverage requirements were expanded to include storm water conveyance systems not otherwise included under Phase I, including small MS4s in urbanized areas, as defined by the United States Census Bureau, as well as designated "non-traditional" small MS4s, including military bases, public campuses, sewer districts, and airports. In 2013, the SWRCB reissued the Phase II Small MS4 General Permit *General Permit for Waste Discharge Requirements for Storm Water Discharges from Small Municipal Separate Storm Sewer Systems* (MS4 Permit), identified as NPDES No. CAS000004, which included provisions for non-traditional small MS4s. Under this permit, the Port was designated as a non-traditional MS4 and obtained coverage under this general permit.¹⁷⁰

State Antidegradation Policy

In 1968, the SWRCB certified Resolution 68-16 to adopt a policy of maintaining high quality of waters in California, commonly known as the Antidegradation Policy. The policy requires that the quality of existing high-quality waters be maintained to maximum benefit of the people of the State. The policy is primarily relevant to the implementation of the state's NPDES permitting program and provides the regulatory framework for addressing a modification to an NPDES permit that would result in lower water quality but would provide socioeconomic and public benefits. The SWRCB is considering revising the policy to improve

¹⁶⁸ California Water Boards. (2021). *Stormwater*.

¹⁶⁹ Terraphase Engineering, Inc. (2020). *Industrial Activities Stormwater Pollution Prevention Plan for Oakland International Airport*.

¹⁷⁰ California Water Boards. (2018). *Municipal Stormwater Program*.

the usefulness for supporting decisions regarding discharges that affect groundwater; however, no active work on the revision is underway.¹⁷¹

California Toxics Rule

Under the CWA, states are required to have enforceable numeric water quality criteria addressing priority toxic pollutants in surface waters to protect human health and aquatic life beneficial uses. Due to a deficiency in enforceable standards, the USEPA promulgated the National Toxics Rule for several states including California in 1992, supplemented by the California Toxics Rule in 2000 for the state specifically. The rule is applicable to inland surface waters, enclosed bays, and estuaries in the state.¹⁷²

California Building Code

Title 24, Part 2 of the California Code of Regulations codifies the California Building Code (CBC), which is based on the International Building Code. The CBC defines minimum standards related to the design, construction, materials, occupancy, location, and maintenance of structures. Select requirements in the CBC relate to the construction of structures within flood hazard areas. Section 1612 specifically addresses requirements relevant to construction in flood hazard areas, and Appendix G of the CBC provides additional information on flood-resistant construction consistent with the requirements of the NFIP. Construction documents submitted with the building permit application are required to show the location of structures relative to flood hazard areas and floodways, as well as design flood elevations. Structures within flood hazard areas are required to be designed and constructed to resist flood hazards and loads, and constructed elements below the design flood elevation are required to be flood damage resistant. Prior to approving any construction or encroachment within the floodway, building officials are to require submission of a certification demonstrating that the activity will not increase the base flood level.¹⁷³

Certain projects in California must comply with the California Green Building Standards Code (CALGreen). Section 5.1 details the planning and design methods that support environmentally responsible practices required by the Code and details requirements for stormwater pollution prevention for projects that disturb one or more acres of land (5.106.2). Section 5.3 addresses Water Efficiency and Conservation and details indoor and outdoor water usage standards.¹⁷⁴

LOCAL

Port of Oakland MS4 Storm Water Program

The Port's Phase II MS4 Permit boundary permit fully encompasses the detailed study area.¹⁷⁵ The Port has developed an MS4 Storm Water Program that implements elements to

¹⁷¹ California Water Boards. (2021). *Antidegradation Policy Project: Plans and Policies*.

¹⁷² *Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California.* 65 FR 31681 (2000).

¹⁷³ *2022 California Building Code with January 2023 Errata.* 24 CCR Part 2 (2023).

¹⁷⁴ *2022 California Green Building Standards Code with January 2023 Errata.* 24 CCR Part 11 (2023).

¹⁷⁵ URS Corporation. (2013). *Port Area Covered by SWMP (Aviation Area)*.

comply with the Provisions for Non-Traditional Small MS4 Permittees, as defined in Section F of the MS4 Permit, including the following:¹⁷⁶

- Program Management Element
- Education and Outreach Program
- Public Involvement and Participation Program
- Illicit Discharge Detection and Elimination (IDDE) Program
- Construction Site Runoff Control Program
- Pollution Prevention / Good Housekeeping for Permittee Operations Program
- Post-Construction Storm Water Management Program
- Program Effectiveness Assessment and Improvement
- Total Maximum Daily Loads Compliance Requirements
- Online Annual Reporting

In accordance with several of the MS4 program elements, the Port adopted Ordinance No. 4311 (hereafter "Stormwater Ordinance"), which established the Port's legal authority to establish and enforce standards for discharges to its stormwater drainage system.¹⁷⁷

To address the post-construction program requirement, the Port developed the *Port of Oakland Post-Construction Stormwater Design Manual*, which establishes post-construction stormwater management requirements for new development and redevelopment projects. Requirements vary by project type, but include source control measures, site design measures (e.g., low-impact development), stormwater treatment measures, ongoing operations maintenance of stormwater control measures, and preparation of a *Post-Construction Stormwater Management Plan* for review and approval by the Port.

The MS4 permit also requires the Port to implement and enforce a program for development or redevelopment projects subject to the requirements of the CGP. The Port's Standard Project Contract Specifications require contractors to develop a site-specific construction SWPPP in compliance with the CGP, as well as comply with other specific requirements for construction site sediment and erosion controls. Through the Stormwater Ordinance, the Port has the authority to establish requirements for construction activities beyond the requirements of the CGP to protect water quality, as well as establish requirements for sites smaller than one acre that are otherwise not subject to the CGP.^{178,179}

City of Oakland Municipal Code

The City of Oakland Municipal Code Chapter 13.16, entitled *Creek Protection, Stormwater Management, and Discharge Control*, codifies stormwater management ordinances that are applicable to areas at OAK that do not fall within the Port jurisdiction. Other aspects of municipal code that apply to development at the Airport include amendments to the CBC, and floodplain management requirements, as the City of Oakland City Manager is the local floodplain administrator for the NFIP. Section 15.04.3.2.065 states that grading permits shall not be issued for development within a flood hazard area unless the grading plan

¹⁷⁶ California Water Boards. (2018). *Section F Provisions for Non-Traditional Small MS4 Permittees*.

¹⁷⁷ Board of Port Commissioners, City of Oakland. (2015). *Port Ordinance No. 4311*.

¹⁷⁸ URS Corporation. (2008). *Port of Oakland Stormwater Management Plan*.

¹⁷⁹ Board of Port Commissioners, City of Oakland. (2015). *Port Ordinance No. 4311*.

provides mitigation measures for the projected flood hazard.¹⁸⁰ In addition, the Port is currently drafting a Floodplain Management Ordinance for the Airport. Once adopted by the Board of Port Commissioners, the Port's Floodplain Management Ordinance will take precedence over the City's floodplain management requirement, which will no longer apply to the Airport.

The City of Oakland Municipal Code includes Green Building requirements that address the City's commitment to green building and sustainability. Specifically, the Green Building Ordinance for Civic Projects (No. 12658) addresses requirements for non-residential new construction, which requires compliance with LEED v4 checklist and CALGreen mandatory measures.

San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)

The *Basin Plan*, effective November 5, 2019, was developed by the SFRWQCB and is the current Basin Plan applicable to the Airport.

The Basin Plan provides the regulatory framework to preserve, enhance and protect surface water and groundwater quality in the region. It provides a statement of the beneficial waters that will be protected, it lists the water quality objectives to protect beneficial water uses and defines the strategies and schedules for meeting the stated objectives.¹⁸¹

The implementation of the Basin Plan involves an "integrated, comprehensive water quality control program..." that employs several approaches to surface water, groundwater, and wetland protection and management. The approaches include:

- watershed management,
- discharge prohibitions,
- point source control,
- waste discharge permitting,
- effluent limitations,
- water quality-based limitations,
- regulation of stormwater discharges,
- wet weather overflow control,
- regulation of discharge of treated groundwater,
- management of municipal facilities,
- management of industrial facilities,
- pretreatment and pollution prevention,
- urban runoff management,
- agricultural wastewater management,
- water recycling,
- municipal wastewater sludge management,
- onsite wastewater treatment and dispersal systems,
- erosion and sediment control,
- dredging and disposal of dredged sediment,
- mines and mineral producers,
- vessel wastes,
- wetland protection and management,
- oil spills, and
- groundwater protection.

Each of the approaches detailed in the Basin Plan is regulated and controlled through project specific permits.

¹⁸⁰ City of Oakland. (2019). Section 15.04.3.2.065 Grading, Excavations and Fills. *Oakland Municipal Code*.

¹⁸¹ California Regional Water Quality Control Board. (2019). *San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)*.

East Bay Plain (EBP) Subbasin Groundwater Sustainability Plan

The *Groundwater Sustainability Plan (GSP)* provides the regulatory foundation for management of groundwater in the East Bay Plain (EBP) basin. The main providers are EBMUD and the City of Hayward, and they are the exclusive agencies for development of the GSP. The GSP is required by California Code of Regulations Title 23, Section 354. The GSP is structured to manage and protect the subbasin to avoid: 1) Chronic lowering of groundwater levels, 2) reduction of groundwater storage, 3) intrusion of seawater, 4) degradation of water quality, 5) land subsidence, and 6) depletions of interconnected surface waters and groundwater.¹⁸²

City of Oakland 2021-2026 Hazard Mitigation Plan

The City of Oakland *Hazard Mitigation Plan* assesses local risks associated with a variety of potential disasters as well as mitigation actions that are intended to minimize the potential losses (e.g., human health and property damage) associated with these hazard events. Relevant risks discussed include floods, tsunami, and seiche hazards. The plan states that the region is at risk of local and distant tsunamis, although they have not been a major problem for the San Francisco Bay Area historically, and the likelihood of large-scale devastation is small due to anticipated time for evacuation. The majority of the Airport (including the detailed study area) is within the tsunami inundation area defined by the California Department of Conservation. The plan indicates that seiche hazard events have never been recorded in the San Francisco Bay Area, and such an event is considered to be very low risk.¹⁸³

3.9.1.2 Significance Criteria

California Environmental Quality Act (CEQA) Guidelines, identified in California Code of Regulations Title 14, Division 6, Chapter 3, provide baseline criteria to evaluate the environmental impacts of a project. For hydrology and water quality, a project would have a significant impact if the project would:

- Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality.
- Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces that would:
 - Result in substantial erosion or siltation on- or offsite;
 - Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;

¹⁸² East Bay Municipal Utility District (EBMUD). (2022). *East Bay Plain Subbasin Groundwater Sustainability Plan*.

¹⁸³ City of Oakland. (2021). *City of Oakland 2021-2026 Hazard Mitigation Plan*.

- Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;
- Impede or redirect flood flows.
- In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation.
- Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

3.9.1.3 Methodology

Relevant state and local plans and significance thresholds were used to conduct the analysis of the impacts of the Proposed Project on hydrology related matters. Proposed Project impacts were measured against the existing conditions of the Airport and significance thresholds to determine the level of significance of each impact. The analysis includes a review of each project component against applicable significance criteria in order to determine the level of impact associated with construction and operation. As appropriate and supported by available data/information, the analyses include a quantitative assessment of the impacts that supports the impact determination. For example, calculations were performed to evaluate the potential changes in imperviousness that could result in drainage-related impacts. Changes to imperviousness, drainage system performance, and flooding between pre-development and post-development conditions were quantified to support impact determination for the criteria.

3.9.2 Existing Conditions / Environmental Setting

3.9.2.1 Hydrology

The Airport is located on the east side of the “San Francisco Bay Estuaries” hydrologic region (12-digit Hydrologic Unit Code 180500041001), which includes land along the fringe of San Francisco Bay. The Airport is situated in the southwest portion of the city of Oakland and is bordered to the south and west by San Francisco Bay, to the northwest by Bay Farm Island in the city of Alameda, to the north by San Leandro Bay, and to the east by the city of San Leandro.

Average annual local precipitation is approximately 21.31 inches as presented in **Table 3.9-1**. Precipitation is highest during winter months and negligible during summer months. On average, annual evaporation of approximately 57 inches exceeds annual precipitation.¹⁸⁴

The Airport is relatively flat and surrounded by a perimeter dike that establishes a common catchment area and protects the Airport from tidal variations of San Francisco Bay. The Airport is generally divided into North Field, northeast of Ron Cowan Parkway, and South Field, southwest of Ron Cowan Parkway. North Field was originally established in the 1920s by constructing a perimeter dike and filling in tidal marshes and mudflats with dredged

¹⁸⁴ URS Corporation. (2008). *Port of Oakland Stormwater Management Plan*.

TABLE 3.9-1
LOCAL HISTORICAL PRECIPITATION FROM 2009 TO 2019

Criteria	Monthly												Annual
	January	February	March	April	May	June	July	August	September	October	November	December	
Mean Precipitation (inches)	2.61	3.41	3.76	1.29	0.83	0.38	0.01	0.00	0.18	1.35	2.22	4.37	21.3
Maximum Precipitation (inches and year)	7.46 2016	7.41 2009	7.69 2011	3.25 2010	2.37 2019	2.70 2011	0.06 2015	0.01 2015	0.49 2014	4.98 2009	5.04 2012	10.49 2014	30.48 2010
Minimum Precipitation (inches and year)	0.00 2015	0.49 2016	0.05 2015	0.35 2019	0.00 2014	0.00 2019	0.00 2019	0.00 2019	0.00 2018	0.00 2019	0.51 2009	0.11 2011	4.11 2013

Source: National Weather Service Forecast Office. (2021).

material from San Leandro Bay. South Field was originally established beginning in the 1950s by constructing a perimeter dike and filling shallow open bay waters and tideland with dredged material from San Francisco Bay.¹⁸⁵

Most of the Airport stormwater is generated onsite, with the exception of stormwater runoff from the Harbor Bay Business Park, which discharges into the tidal lagoon at the Runway 12 end. As identified in the Airport-specific *Industrial Activities Stormwater Pollution Prevention Plan* (SWPPP), a network of swales, channels, ditches, storm drains and connected underground stormwater drainage system piping collect stormwater within sub-basins which conveys this stormwater to retention basins that act as forebays for a series of pump houses that pump stormwater out through the perimeter dike.

The airport drainage system and watersheds with corresponding outfalls are illustrated in the SWPPP figure included in **Appendix K**. North Field consists of watersheds for Pump Houses No. 1 and 2. Pump House No. 1 Watershed collects drainage from the eastern portion of North Field. Located along Doolittle Drive, Pump House No. 1 discharges drainage north into San Leandro Bay. Pump House No. 2 Watershed collects drainage from the western portion of North Field. Located in the northwest corner of North Field, Pump House No. 2 also discharges drainage north into San Leandro Bay.

South Field consists of watersheds for Pump Houses No. 4 and 6. Pump House No. 4 Watershed collects drainage from the southeastern portion of South Field, including the terminals and immediately surrounding areas. Pump House No. 4 is located along Edward White Way east of Terminal 2, and discharges drainage south into San Francisco Bay. Pump House No. 6 Watershed collects drainage from the majority of South Field northwest of

¹⁸⁵ Kimley-Horn and Associates, Inc. (2009). *Stormwater Management Implementation Plan for Oakland International Airport*.

Basin 4. Pump House No. 6 is located at the north edge of the Airport east of Runway 12-30, and discharges drainage northwest into San Francisco Bay.

In addition to the above systems, the Airport has two pump houses serving relatively small drainage areas at roadway underpasses. Pump House No. 7 collects drainage from the underpass where 98th Avenue crosses below Doolittle Drive, and pumps to a drainage system in the Oakland Galbraith Golf Course. Pump House No. 8 collects drainage from the underpass where Ron Cowan Parkway crosses below Taxiway B, and pumps into a drainage system that drains to Pump House No. 6.¹⁸⁶

Estimated pump rates at each pump house, based on pump flow testing at Pump Houses 1, 2, 4, and 6, and based on pump manufacturer data at Pump Houses 7 and 8, are provided in **Table 3.9-2**.

TABLE 3.9-2
PUMP FLOW RATE ESTIMATES

Pump House Number	Number of Pumps	Flow Rate Per Pump (gpm)
1	2	8,150-13,496 ^{/a/}
2	2	9,115-9,407 ^{/a/}
4	2	9,954-10,145 ^{/a/}
6	2	11,098-11,224 ^{/a/}
7	3	1,660 ^{/b/}
8	3	1,840 ^{/b/}

gpm = gallon per minute

/a/ Flow rate per pump for Pump Houses 1, 2, 4, and 6 is based on pump testing conducted by Wood Rodgers in October-November 2020 and normal operating range of the pumps.

/b/ Flow rate per pump for Pump Houses 7 and 8 is based on pump manufacturer data.

Source: Wood Rodgers, 2023.

3.9.2.2 Water Quality

Airport stormwater is collected and discharged to San Francisco Bay or San Leandro Bay. As required by the SFRWQCB, the Port maintains coverage under a *General Permit for Storm Water Discharges Associated with Industrial Activities* (IGP), identified as NPDES No. CAS000001. In accordance with this General Industrial Permit, a SWPPP was developed for the Airport, which, among other requirements, includes an assessment of potential pollutant sources from industrial activities; establishes measures to control or prevent pollutant discharges; and details sampling and analysis procedures for monitoring water quality of stormwater discharged under the IGP.

Potential pollutant sources from industrial activities and associated potential pollutants identified in the SWPPP are presented in **Table 3.9-3**.

¹⁸⁶ Terraphase Engineering, Inc. (2020). *Industrial Activities Stormwater Pollution Prevention Plan for Oakland International Airport*.

TABLE 3.9-3
POTENTIAL POLLUTANT SOURCES AND POLLUTANTS FROM INDUSTRIAL ACTIVITIES

Potential Pollutant Source	Potential Pollutants
Aircraft and vehicle fueling	Jet fuel, aviation gasoline, diesel, gasoline
Aircraft and vehicle maintenance	Motor and hydraulic oils
Aircraft, vehicle and equipment washing	Detergents, suspended solids, grease, fuel, metals
Aircraft deicing	Deicing fluid
Aircraft sanitary service	Sanitary waste
Hazardous materials and waste storage	Waste oils, vehicle fluids, solvents, sludge, vehicle parts
Materials Management Site (storage and handling of concrete, asphalt, and soil)	Sediment, petroleum
Chemical and fuel storage	Cleaners, paint, gasoline, diesel, jet fuel, aviation gasoline
Vehicle and equipment storage	Oil, grease, brake fluid, diesel, gasoline
Soil erosion	Sediment

Source: Terraphase Engineering, Inc., 2020.

Stormwater treatment best management practices (BMPs) are employed at the Airport to improve water quality discharges to receiving waters as detailed in the SWPPP. These BMPs include:

- Infiltration areas/basins
- Retention basins
- Vegetated swales
- Media filters
- Vegetated buffer strips
- Bioretention

Under the Clean Water Act, Section 303(d) TMDLs are established for pollutants discharged into water bodies designated as impaired. The Central and Lower San Francisco Bay are both included on the 2018 California Section 303(d) list of impaired waters.¹⁸⁷ Monitoring requirements are included in the IGP.

The following water quality parameters are routinely monitored at the Airport in accordance with the IGP:

- pH
- Total Petroleum Hydrocarbons (TPH)
- Total Suspended Solids
- Nitrate as Nitrogen
- Copper
- Zinc¹⁸⁸

Results from testing in 2019, 2020, and 2021 indicated no exceedance above numeric action levels (NALs). Two instances in which the TPH values exceeded aquatic habitat freshwater environmental screen levels occurred at the Materials Management Site, a location used for storing and handling asphalt, concrete and soil presented on the SWPPP

¹⁸⁷ California Water Boards. (2018). *California 2018 Integrated Report*.

¹⁸⁸ Terraphase Engineering, Inc. (2020). *Industrial Activities Stormwater Pollution Prevention Plan for Oakland International Airport*.

figure in **Appendix K**; however, the report notes that the values are likely of biogenic origin (i.e., from living organisms and not from diesel or gasoline).¹⁸⁹

The following water quality parameters are routinely monitored at the Airport and reported annually:

- Ammonia-Nitrogen
- Diazinon
- Dieldrin
- Dioxin compounds (including 2,3,7,8-TCDD)
- Organic enrichment / low dissolved oxygen
- Escherichia coli and Enterococcus
- Furan compounds
- Hydrogen sulfide Mercury
- Zinc
- Nickel
- Selenium
- Polycyclic aromatic hydrocarbons
- Polychlorinated biphenyls
- Total dichlorodiphenyltrichloroethane (including DDD, DDE and DDT)
- Chlordane

Results from the 2018-2019 and 2019-2020 Annual Reports indicate no presence above the detection limit of the above listed compounds during annual sampling at the Airport.^{190,191}

3.9.2.3 Floodplains

The Airport is included on FEMA FIRMs 06001C0251H, 06001C0252H, 06001C0253H, and 06001C0254H. There are no regulatory floodways near the Airport property. Flood hazard areas are presented on **Figure 3.9-1**. The majority of North Field is located within a FEMA special flood hazard area Zone AE, which is defined by FEMA as an “area subject to inundation by the one-percent-annual-chance flood event [100-year floodplain] determined by detailed methods.”

South Field falls within FEMA moderate flood hazard area Zone X, which is defined by FEMA as an area protected by a levee that is “between the limits of the base flood and the 0.2-percent-annual-chance (or 500-year) flood.”¹⁹² The levee referred to in this FEMA flood hazard area classification is a perimeter dike on the southwest and southeast sides of South Field along San Francisco Bay that provides protection from a 100-year flood event. Improvements to the perimeter dike were completed in 2022 in response to FEMA requirements for Airport certification. The perimeter dike improvements are designed to reduce the vulnerability of the perimeter dike to flood events and future sea level rise. The location of the perimeter dike is presented on **Figure 3.9-1**.

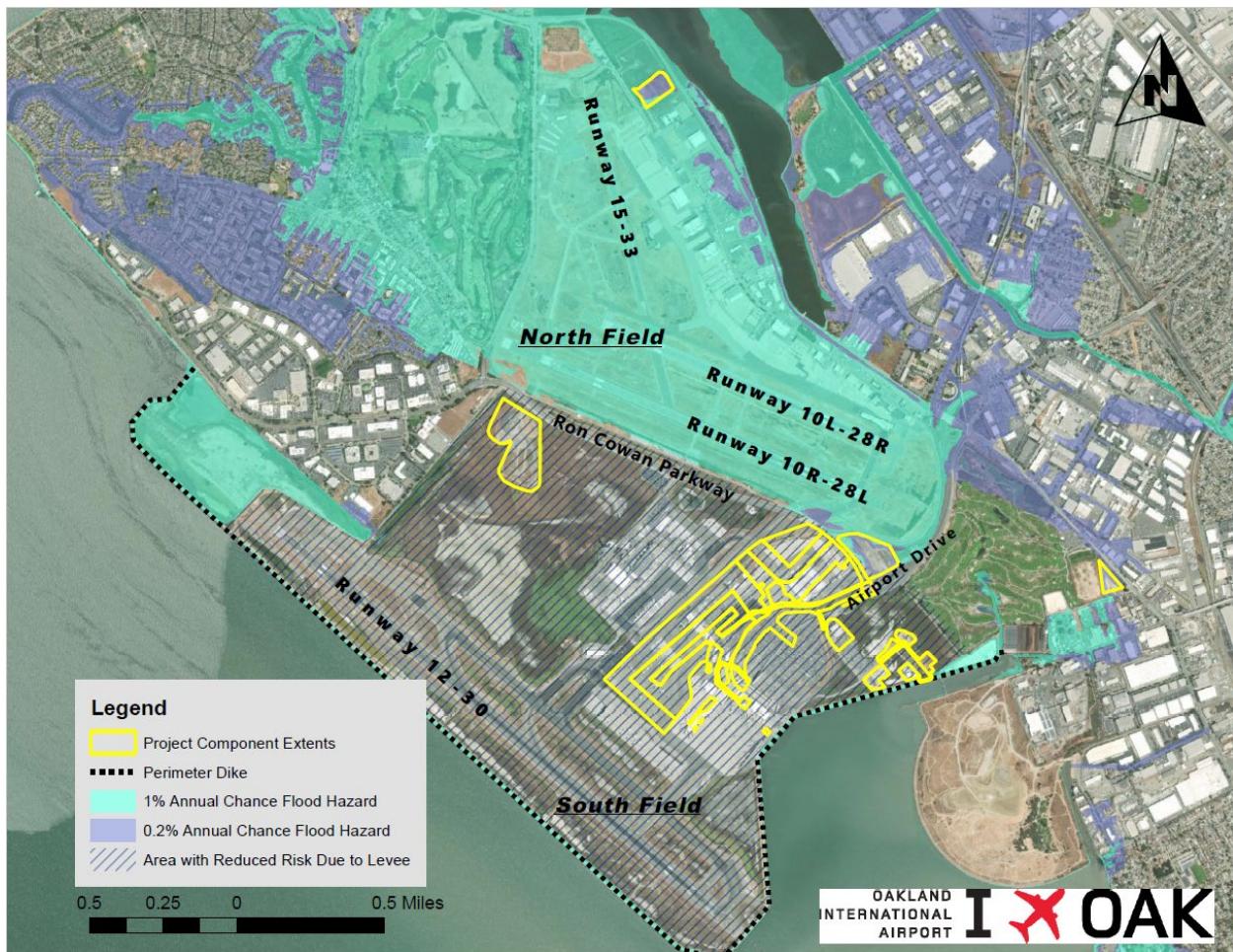
¹⁸⁹ Terraphase Engineering, Inc. (2019). *Oakland International Airport Industrial Stormwater Sample Results February 26, 2019*.

¹⁹⁰ Port of Oakland. (2019). *2018-2019 Annual Report for Storm Water Discharges Associated with Industrial Activities*.

¹⁹¹ Port of Oakland. (2020). *2019-2020 Annual Report for Storm Water Discharges Associated with Industrial Activities*.

¹⁹² FEMA. (2021). *National Flood Hazard Layer*.

FIGURE 3.9-1
FLOOD HAZARD AREAS



Sources: Federal Emergency Management Agency, 2021; URS Corporation, 2015.

The Airport is located within a tsunami hazard zone identified by the California Department of Conservation as being an area exposed to a hazard during a tsunami event, based on modeled inundation limits from a 975-year average return period tsunami event.¹⁹³

3.9.2.4 Groundwater

The Airport is located in the groundwater sub-basin identified by the California Department of Water Resources (DWR) as the East Bay Plain number 2-009.04 of the Santa Clara Valley basin. The East Bay Plain is a northwest trending alluvial plain, bounded by San Pablo Bay to the north, Franciscan Basement Rock to the east, and the Nile Cones sub-basin to the south, extending beneath San Francisco Bay to the west. Groundwater resources within the East Bay Plain sub-basin are managed jointly by EBMUD, for the portion of the sub-basin that underlies EBMUD's water service area and the city of Hayward.¹⁹⁴

¹⁹³ State of California. (2021). *Tsunami Hazard Area Map*.

¹⁹⁴ East Bay Municipal Utility District (EBMUD). (2021). *Urban Water Management Plan 2020*.

The East Bay Plain contains an upper and lower aquifer system. The upper system extends to depths of 250 feet below land surface and the lower system is at depths of more than 650 feet. Calcium bicarbonate type waters occur in the upper system and sodium bicarbonate waters occur in the lower system. Water from wells in the East Bay Plain ranges from fresh to saline with salinity levels highest in shallow estuarine deposits near the Bay.¹⁹⁵

Groundwater at the Airport is shallow and occurs as a perched water zone above native clay layer. Groundwater levels range from 2 to 7 feet below ground surface. Groundwater flow direction is not clear. A deeper groundwater zone exists below the shallow groundwater zone.¹⁹⁶ Inspection of the groundwater in 1999 noted that a pervasive gradient could not be determined due to the nature of the construction of the site (e.g., dredged fill) and that depth to groundwater varied significantly over the Airport. At some locations, tidal influence was evident, but negligible at approximately 0.1 inch. At other locations, the groundwater elevation was found to intercept the surface, resulting in standing water.¹⁹⁷

The California Water Boards' Groundwater Ambient Monitoring and Assessment Program (GAMA) Groundwater Information System provides information on groundwater quality for wells throughout California. Within the Airport property, there are no wells categorized as domestic, municipal, irrigation, or water supply. Within the detailed study area, there are 22 groundwater monitoring wells associated with Cleanup Program Sites, defined as non-federally owned sites regulated under the SWRCB's Site Cleanup Program or similar program implemented by the SFRWQCB. The well locations within the detailed study area are identified on **Figure 3.9-2**. Water from these wells is tested for a wide range of analytical parameters but mostly toxic pollutants, as defined by 40 CFR Chapter I Subchapter N Part 401 Section 401.15. **Figure 3.9-2** label GW-1 consists of four monitoring wells associated with an open cleanup program dating from May 30, 2003, identified as United Airlines M35/36. GW-2 consists of three monitoring wells that were part of a cleanup program identified as East Apron Phase 3 that was closed on June 20, 2017. GW-3, GW-4, and GW-5 collectively consist of 15 monitoring wells part of an open remediation project identified as being associated with the Tank Farm on January 27, 2009.¹⁹⁸

¹⁹⁵ California Water Boards. (2004). Santa Clara Valley Groundwater Basin, East Bay Plain Subbasin. *California's Groundwater Bulletin 118*.

¹⁹⁶ Terraphase Engineering, Inc. (2020) *Industrial Activities Stormwater Pollution Prevention Plan for Oakland International Airport*.

¹⁹⁷ Huffman-Chow. (2000). *Stormwater Management Plan for Oakland International Airport*.

¹⁹⁸ California Water Boards. (2021). *Groundwater Ambient Monitoring and Assessment Program (GAMA) Groundwater Information System*.

FIGURE 3.9-2
GROUNDWATER WELL LOCATION AREAS WITHIN THE DETAILED STUDY AREA



Source: California Water Boards. (2021). *Groundwater Ambient Monitoring and Assessment Program*.

3.9.3 Environmental Impacts and Mitigation Measures

3.9.3.1 Regulatory Compliance

The Proposed Project would be subject to and would meet existing regulations that govern environmental protection at the Airport. Specifically, the following permits and standards will apply:

- NPDES General Permit for Stormwater Discharges Associated with Industrial Activities – NPDES No. CAS000001 (IGP)
- NPDES General Permit for Stormwater Discharges Associated with Construction or Land Disturbance – NPDES No. CAS000002 (CGP)
- NPDES General Permit for Storm Water Discharges from Small Municipal Separate Storm Sewer Systems- NPDES No. CAS000004 and associated Port MS4 Storm Water Program
- Port of Oakland Development Permit (to be issued)
- Port of Oakland Industrial Activities Stormwater Pollution Prevention Plan – Waste Discharger Identification (WDID) 201002822

- Oakland International Airport Spill Prevention, Control and Countermeasure (SPCC) Plan
- Port of Oakland Ordinance No. 4311 ("Stormwater Ordinance")
- Port of Oakland Post-Construction Stormwater Design Manual (PCSDM)
- City of Oakland Municipal Code, where applicable, including amendments to the CBC and floodplain management requirements
- San Francisco Bay Basin Water Quality Control Plan
- EBP Subbasin Groundwater Sustainability Plan

Each permit and standard cover specific environmental protection measures that are broadly, if not specifically, applicable to the construction and operation of each of the project components.

3.9.3.2 Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality

CONSTRUCTION

The Proposed Project would disturb more than one acre of soil and would be required to obtain coverage under the NPDES CGP¹⁹⁹. The CGP requires that dischargers determine the receiving waters affected by construction activity and comply with applicable water quality standards. Moreover, the General Permit requires the development of a site-specific SWPPP that provides necessary information to comply with the CGP. The SWPPP must be certified by a Qualified SWPPP Developer (QSD) and overseen by a Qualified SWPPP Practitioner (QSP).

Specific to the CGP is a prohibition of discharges that violate Basin Plans or statewide quality control plans. The CGP prohibits the discharge of non-storm water discharges that are not otherwise authorized. Discharge of water related to flushing, testing, dust control, and dewatering can be authorized under the CGP. Discharge of hazardous materials is prohibited unless covered by the NPDES permit. Finally, the CGP establishes NALs that dictate corrective action requirements by the permittee. The NALs are based on risk levels determined by the QSD and can include control measures based on pH and turbidity levels in the storm water runoff.

Beyond management of storm water runoff associated with normal construction activity, the Proposed Project includes Project Component D-5: Removal of Fuel Rack and Below-Grade Fuel Systems. The work under this component would be regulated under Underground Storage Tank Closure Requirements that are established to protect water quality²⁰⁰. The regulations require that the owner/operator demonstrate that no unauthorized release has occurred, which includes soil and water sample analysis during tank closure. The regulation also covers corrective action requirements for detected and confirmed unauthorized releases.

¹⁹⁹ State Water Resources Control Board. (2022). *NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Order No. 2009-0009-DWQ)*.

²⁰⁰ Permanent Closure Requirements. 23 CCR Article 7 Section 2672 (2022).

The project components would not result in impacts to water quality during construction. Construction is regulated with permits that cover pollution of stormwater, accidental spills, and the storage and handling of oil-containing liquids. With compliance in accordance with the regulations listed under **Section 3.9.3.1**, the Proposed Project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality. The impact would be **less than significant**.

OPERATIONS

The Proposed Project includes multiple components that would potentially affect stormwater at the Airport, which is regulated by an NPDES IGP. Under the IGP, the Port must maintain a current industrial SWPPP, which documents Port and tenant responsibilities for stormwater pollution prevention, sources of pollutants, BMPs, and monitoring implementation plan for facility compliance. The SWPPP also supports the Port's pollution prevention element of their MS4 program. The SWPPP would be reviewed with considerations for the planned industrial activity locations and pollutants of concern, and would be updated as needed to reflect any required modifications to the Port and tenant pollution prevention approach to maintain IGP compliance.

This would include revisions as needed to the Monitoring Implementation Plan to support comparison to applicable NALs associated with Storm Water Discharges Associated with Industrial Activities. TPH tests would be screened against Aquatic Habitat Freshwater Final Environmental Screening Levels.

The Proposed Project is also required to comply with the Port's *Post-Construction Stormwater Design Manual*, which addresses the post-construction requirements of the Port's MS4 Permit. Projects that create or replace 5,000 square feet or more of impervious surfaces are required to install stormwater treatment facilities to treat stormwater runoff from the project. Compliance with these requirements would effectively prevent, manage, and treat pollutant runoff from the Proposed Project during operation.

Additional requirements of the Port's MS4 program that would protect against operational water quality impacts include IDDE and TMDL compliance.

The replacement of the fuel rack and upgrade of the fuel system would be completed in accordance with California's Aboveground Petroleum Storage Act and the Airport's SPCC Plan, which cover the operations of the fuel rack and fueling system including proper storage and handling of oil-containing liquids.

The project components would not result in impacts to water quality during operation. Operation of the Proposed Project is subject to regulations relevant to stormwater pollution prevention, stormwater discharges, spill control and response, and the storage and handling of oil-containing liquids. With compliance in accordance with the regulations listed under **Section 3.9.3.1**, including the implementation of BMPs and stormwater controls as required to comply with these requirements, the Proposed Project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality. The impact would be **less than significant**.

- 3.9.3.3 Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin

CONSTRUCTION

Due to the shallow depth of the groundwater table at the Airport, short-term dewatering would likely be necessary for excavation. Dewatering would occur only as needed to allow construction to proceed, and over pumping would not occur, so dewatering activities are not expected to interfere with groundwater supplies. Dewatering discharges would be filtered or treated onsite in accordance with NPDES CGP requirements. As noted in **Section 3.14, Energy, Utilities, and Service Systems**, water supply needs to support construction activities are expected to be met using recycled water from the San Leandro Recycled Water Facility (if determined to be feasible through coordination with EBMUD), and groundwater would not be used as a water supply. Additionally, construction activities associated with the Proposed Project are not expected to substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin. The impact would be **less than significant**.

OPERATION

The GSP²⁰¹ sets goals to avoid the following undesirable results in the basin:

- Chronic lowering of groundwater levels,
- Reduction of groundwater storage,
- Seawater intrusion,
- Degradation of water quality,
- Land subsidence, and
- Depletion of interconnected water bodies.

The Proposed Project would not adversely affect groundwater levels, groundwater storage, or related land subsidence due to over-pumping, as no long-term ground water pumping is proposed to occur with the Proposed Project. Additionally, no inelastic subsidence associated with excessive groundwater pumping is foreseen.

The GSP provides a program to track seawater intrusion by monitoring the inland movement of the shallow aquifer five-foot groundwater elevation contour. The intent of the program is to track and prevent migration of saline Bay water into existing freshwater aquifers that would affect current or future water supplies. The Airport is within the demarcated onshore area between the five-foot mean sea level contour line and the Bay margin. The Proposed Project does not include components that would result in movement in the contour line and would not result in an impact for this specific criterion.

The GSP established numerical water quality thresholds that include nitrates, arsenic, total dissolved solids, and chlorides. These parameters are surrogates for evaluating the groundwater quality for drinking water. The Proposed Project includes no components that

²⁰¹ East Bay Municipal Utility District (EBMUD). (2022). *East Bay Plain Subbasin Groundwater Sustainability Plan*.

would quantitatively affect these parameters as the groundwater is not a source for drinking water and no impact would occur.

The final criterion addresses the potential impacts that pumping would have on interconnected surface water (e.g., streams). No long-term ground water pumping would occur and no streams or other interconnected waterbodies within the Airport would be affected by pumping.

The Proposed Project does not have components that would affect groundwater during operation and would have negligible impacts, if any impact at all, to the criteria laid out in the GSP to support the sustainability of the quality and quantity of groundwater in the East Bay Plain Subbasin. The Proposed Project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin and the impact would be ***less than significant***.

- 3.9.3.4 Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces

EVALUATION OF IMPERVIOUS AREA CHANGES

The drainage-related significance criteria covers potential drainage impacts associated with the addition of impervious surfaces. Changes to impervious surfaces were evaluated in order to determine the potential for impacts associated with erosion and siltation, flooding, drainage capacity, and flood flows, as detailed in the following impact analyses. This particular subheading within **Section 3.9.3.4** is focused on the characterization of these impervious area changes. Refer to additional subheadings below within **Section 3.9.3.4** for a summary of the impacts of impervious area changes in comparison to drainage-related significance criteria.

Land use characteristics from the stormwater GIS geodatabase developed for the Airport's *Stormwater Management Implementation Plan*²⁰² (SWMIP) were used as the basis for pre-development impervious surfaces. The basis for post-development impervious surfaces was the combination of pre-development impervious surfaces and project components, which were assumed to be fully impervious as a conservative assumption for purposes of this analysis. In reality, the ultimate development is expected to have an imperviousness that is less than 100 percent, because a small percentage of the total development area may include vegetated medians or infiel areas, as well as low-impact development features and stormwater treatment measures. As the project components have only been defined to a conceptual level at this time, the precise percentage of pervious area is not currently known, so a conservative assumption of 100 percent imperviousness was made.

The majority of project components are located in areas that are highly developed and impervious, such as the area surrounding the existing terminals, and primarily involve the redevelopment or replacement of existing impervious surfaces. Many of these project components would result in negligible changes in impervious surface area compared to existing conditions. The following project components involving the redevelopment of

²⁰² Wood Rodgers. (2023). *Stormwater Management Implementation Plan*.

existing surfaces may result in minor increases in impervious surface area due to expansion of the development footprint or infill of existing pervious medians or infield areas:

- Project Component A-1: Construction of New Terminal Apron
- Project Component A-2: Improvements to Existing Airfield Adjacent to New Terminal
- Project Component A-3: Improvements to Existing Airfield Adjacent to Replacement Remote and Cargo Aircraft Parking Positions
- Project Component B-1: Construction of New Terminal
- Project Component L-1: Replacement of Employee Parking – North Field Lot
- Project Component L-3: Expansion of Employee Parking – Neil Armstrong Lot
- Project Component S-1: Construction of Replacement Cargo Building and Associated Parking
- Project Component S-2: Construction of Replacement Remote and Cargo Aircraft Parking Positions
- Project Component S-3: Construction of Replacement Airline and Airport Support Building and Associated Parking
- Project Component U-2: Replacement of Fuel Rack and Below-Grade Fuel Systems

The following two project components are sited in areas that are currently pervious under existing conditions, and would involve the addition of new impervious surfaces under post-development conditions:

- Project Component U-3: Upgrade of Fuel System
- Project Component L-7: Replacement of Public Parking - Maitland Lot.

Figure 3.9-3 illustrates approximate extents for redeveloped impervious surfaces in yellow and added impervious surfaces in red. Please note that this graphic is an approximation based on the geographic information systems (GIS) analysis described above. New impervious areas may not be visibly apparent for small pervious area regions that were already classified as impervious under pre-development conditions within the SWMIP GIS geodatabase. All areas classified as either redevelopment or added impervious surfaces were accounted for as post-development impervious surfaces for purposes of the stormwater impacts analysis described below.

Overall changes to the area of impervious surfaces are summarized in **Table 3.9-4**. The overall increase in Airport-wide impervious surface area is less than three percent.

RESULT IN SUBSTANTIAL EROSION OR SILTATION ON- OR OFFSITE

In accordance with regulations listed under **Section 3.9.3.1**, compliance with the NPDES CGP would occur during the construction phase. The NPDES CGP requires preparation of a construction SWPPP that identifies specific measures and BMPs to minimize the potential for erosion as well as capture sediment from construction runoff. These practices would limit the potential for substantial impacts to erosion and siltation during the construction phase.

FIGURE 3.9-3
IMPERVIOUS SURFACE CHANGES ASSOCIATED WITH PROJECT COMPONENTS



Source: Gresham Smith, 2022

TABLE 3.9-4
SUMMARY OF CHANGES TO IMPERVIOUS SURFACE AREAS BY WATERSHED

Pump House Watershed	Total Drainage Area (ac)	Pre-Development Impervious Area (ac)	Post-Development Impervious Area (ac)	Change in Impervious Area (ac)	Percent (%) Change in Impervious Area
1	124	98	98	0	0.0%
2	604	265	265	0	0.0%
4	396	195	197	2	1.2%
6	1,337	423	447	25	5.8%
7	56	50	50	0	0.0%
8	7	6	6	0	0.1%
Overall	2,523	1,037	1,063	27	2.6%

ac: acres

Source: Gresham Smith, 2023

The Port's *Post-Construction Stormwater Design Manual* (where applicable) is not specifically focused on construction-phase runoff, but compliance with this manual is also required and would limit the potential for erosion and siltation to occur under post-construction conditions. This manual requires that projects be designed to manage or convey flows under post-construction conditions in a manner that minimizes the potential for erosion issues to be created. Sediment is identified as a pollutant of concern that is required to be addressed under post-development conditions through the implementation of appropriate low impact site design measures, structural and non-structural source controls, and treatment measures (where applicable). These design measures would help to reduce flow rates and volumes leaving the site (through infiltration, evapotranspiration, and detention), which will reduce the potential for downstream erosion, as well as capture sediment from post-construction site runoff. The Proposed Project would not result in substantial erosion or siltation on- or offsite and the impact would be **less than significant**.

SUBSTANTIALLY INCREASE THE RATE OR AMOUNT OF SURFACE RUNOFF IN A MANNER WHICH WOULD RESULT IN FLOODING ON- OR OFFSITE

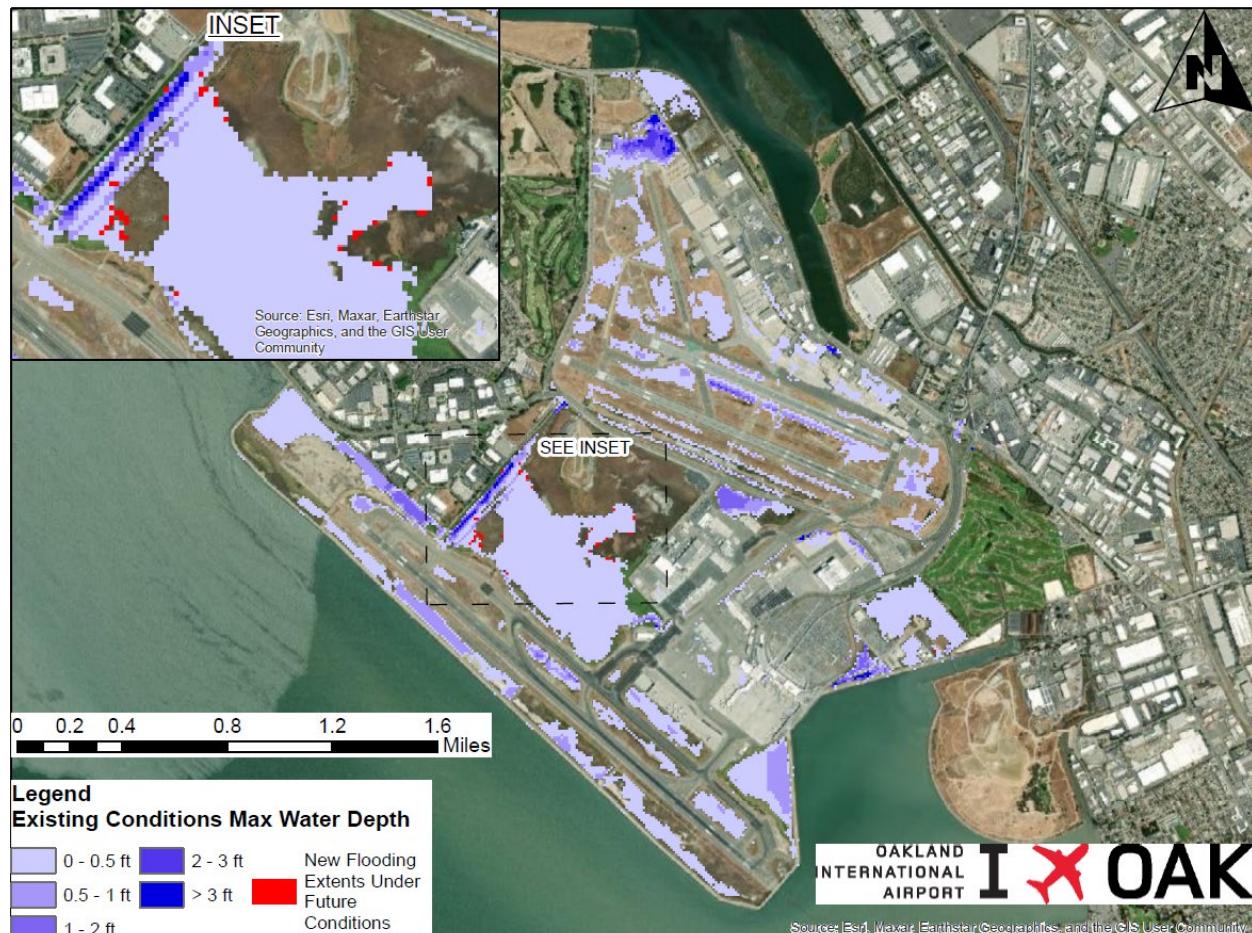
Numerous areas exist at the Airport where ponding occurs at least on a temporary basis under existing conditions. These include areas where water builds up temporarily upstream of drainage bottlenecks, as well as larger contiguous ponding areas and detention basin "forebays" upstream of existing pump houses. Areas that are low in elevation are also subject to influence from a shallow groundwater table that results in standing water under dry weather conditions.

A hydrologic and hydraulic (H&H) modeling analysis was performed to evaluate changes to onsite ponding extents associated with the Proposed Project. The analysis was based on a one dimensional/two dimensional (1D/2D) XPSWMM model representing pre-development drainage conditions at the Airport that was developed for the SWMIP. A post-development model was developed by incorporating changes in imperviousness (as quantified above), and flooding extents were compared between the pre-development (existing conditions) and post-development (Proposed Project) models.

Based on the H&H analysis, **Figure 3.9-4** illustrates the change in onsite ponding during the 100-year storm between existing conditions and future conditions with the Proposed Project. Expanded ponding areas are shown in red and include the minor increases in ponding within the large open field east of Pump House 6. This change amounts to a 0.4 percent overall increase in ponding areas at the Airport during the 100-year storm. The expansion in ponding is fully contained within the open field and would not affect existing roads, airfield, aprons, or buildings, or pose a safety risk.

The expansion in ponding is attributable to Project Component L-7, which involves the addition of an impervious parking lot, and an increase in runoff volume draining to the ponding area upstream of Pump House 6. The change in post-development runoff volume at each pump house watershed is summarized in **Table 3.9-5**. For most watersheds, the change in runoff volume is generally under one percent, but the change in the Pump House 6 watershed is approximately five percent. The overall airport-wide change in runoff volume is 1.5 percent.

FIGURE 3.9-4
CHANGE IN ONSITE PONDING EXTENTS ASSOCIATED WITH PROJECT COMPONENTS



Source: Gresham Smith, 2022

TABLE 3.9-5
SUMMARY OF CHANGES TO RUNOFF VOLUMES FOR 100-YEAR STORM

Pump House Watershed	Pre-Development 100-Year Storm Runoff Volume (cubic feet)	Post-Development 100-Year Storm Runoff Volume (cubic feet)	Percent (%) Change in 100-Year Storm Runoff Volume
1	790,909	790,909	0.0%
2	2,130,055	2,130,701	0.0%
4	611,726	618,025	1.0%
6	1,281,469	1,350,524	5.4%
7	369,788	369,788	0.0%
8	15,332	15,349	0.1%
Overall	5,222,800	5,298,818	1.5%

Source: Gresham Smith, 2023

Compliance in accordance with the regulations listed under **Section 3.9.3.1**, including the Port's *Post-Construction Stormwater Design Manual*, would reduce runoff volumes and ponding. Projects that create or replace at least 2,500 square feet of impervious surface are required to comply with Port post-construction stormwater requirements. Low impact site design measures are required to be implemented to the extent technically feasible, and regulated projects creating or replacing 5,000 square feet or more of impervious surfaces are required to implement stormwater treatment measures such as bioretention facilities. These project-specific measures were not simulated in the H&H model but would provide increased opportunities for peak flow attenuation and runoff volume reduction and reduce the potential increase in ponding.

The existing pump houses at the Airport are used to pump stormwater runoff into drainage ditches and channels leading to an outfall (conveyance infrastructure) that drains into San Francisco Bay and San Leandro Bay. The Proposed Project does not involve changes to pump rates that would affect the performance of conveyance infrastructure downstream of the pump houses. This conveyance infrastructure drains to San Francisco Bay and San Leandro Bay, so the minor increase in runoff volume is not expected to affect offsite flooding. Therefore, the Proposed Project would not substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite and impacts would be **less than significant**.

CREATE OR CONTRIBUTE RUNOFF WATER WHICH WOULD EXCEED THE CAPACITY OF EXISTING OR PLANNED STORMWATER DRAINAGE SYSTEMS OR PROVIDE SUBSTANTIAL ADDITIONAL SOURCES OF POLLUTED RUNOFF

The Proposed Project would modify existing local drainage infrastructure and tie into existing stormwater conveyance systems downstream. Proposed new or replacement drainage infrastructure that is implemented with the Proposed Project would be designed to provide the required flow capacity without resulting in flooding or drainage capacity shortfalls.

Project components that primarily involve redevelopment of existing impervious surfaces, with only minor changes in impervious surface area, would not result in a substantial alteration of drainage patterns, increase in runoff flows, or drainage capacity issues. Project components that primarily involve the conversion of pervious surface area to impervious surface area (e.g., Project Components U-3 and L-7, as shown on **Figure 3.9-3**) are located in areas with less concentrated development and generally drain toward existing open channels, wetlands, and ponding areas that have detention capacity to attenuate peak flows upstream of existing downstream drainage infrastructure and pump houses. Overall, the H&H analysis showed minor effects on drainage capacity associated with the increase in impervious surface area.

In accordance with the regulations listed under **Section 3.9.3.1**, projects are required to comply with the Port's *Post-Construction Stormwater Design Manual* where applicable. Projects are required to identify potential pollutants of concern associated with the existing site and proposed land uses, as well as implement structural and non-structural source control measures to minimize the potential for pollutants to mix with stormwater runoff and discharge from the site. Site design measures require the use of low-impact development techniques such as impervious area disconnection or vegetated swales where feasible. These measures would also reduce the potential for pollutant runoff. Projects that create or

replace 5,000 square feet or more of impervious surfaces are required to also implement stormwater treatment measures to capture pollutants in excess runoff up to the stormwater design volume or flow. Compliance with these requirements would effectively manage pollutant runoff from project components, as well as reduce the potential for drainage capacity issues. Overall, the Proposed Project is not expected to create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff and the impact would be ***less than significant***.

IMPEDE OR REDIRECT FLOOD FLOWS

As described in **Section 3.9.2.3**, and illustrated on **Figure 3.9-1**, no regulatory floodways exist near the Airport. However, a small portion of project components L-1 (Replacement of Employee Parking – North Field Lot) and L-6 (Replacement of Public Parking – Ron Cowan Lot) extend into the Zone AE one-percent-annual-chance flood event (100-year) regulatory floodplain. These project components are replacement at-grade parking lots and do not propose structures within the floodplain with the potential to impede or redirect flood waters. Additionally, any development within a flood hazard area is required by municipal code to provide abatement measures relative to the flood hazard, which would be subject to review and approval by the City of Oakland Planning & Building Department before a grading permit can be issued. As such, the Proposed Project would not be likely to impede or redirect flood flows, and the impact would be ***less than significant***.

3.9.3.5 In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation

CONSTRUCTION AND OPERATION

As noted under **Section 3.9.2.3**, South Field falls within FEMA moderate flood hazard area Zone X, which is defined as an area with a levee that is between the limits of the base flood and the 0.2-percent-annual-chance (or 500-year)²⁰³ flood. North Field is largely located in the 100-year floodplain, Zone AE, and is an area subject to inundation by a one-percent-annual-chance flood event. There are two project components that are partially located in Zone AE: L-6 (South Field), Replacement of Public Parking - Ron Cowan Lot, and L-1 (North Field), Replacement of Employee Parking - North Field Lot. In each project component, a small portion of the proposed improvement lies in Zone AE with the remainder area in Zone X.

The Proposed Project is located within a tsunami hazard area, which is the area with potential exposure to tsunami hazards for a 975-year average return period²⁰⁴ tsunami event.

²⁰³ FEMA. (2021). *National Flood Hazard Layer*.

²⁰⁴ In this context, the average return period is the statistical time between modeled tsunami occurrences that would inundate the hazard areas.

Seiche hazard events have not been recorded in the San Francisco Bay Area,²⁰⁵ and such an event is considered to be very low risk.

The Proposed Project would be constructed and operated in accordance with regulations pertaining to the management of pollutants. The regulations include (at a minimum) the IGP and associated SWPPP, SPCC plan, and Development Permit and each regulates the management of pollutants by the permit holder and protection from release during inundation. The project components do not present a risk of release of pollutants during a period of inundation.

Due to the minimal risk of inundation hazards and the limited risk of pollutant release associated with project components, the Proposed Project would not risk release of pollutants due to project inundation. The impact would be **less than significant**.

3.9.3.6 Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan

CONSTRUCTION AND OPERATION

The detailed study area is subject to the Basin Plan and the GSP. The Proposed Project does not conflict with or obstruct the Basin Plan's implementation. Construction and operation of the Proposed Project, as permitted, would not conflict with the water quality control program of the Basin Plan and its objectives to improve water quality for the San Francisco Bay Basin. The Proposed Project would be undertaken with all applicable permits detailed in the Basin Plan and compliance with all regulations and permits listed under **Section 3.9.3.1**.

Therefore, the Proposed Project does not conflict or obstruct the implementation of the water quality control program detailed in the Basin Plan; nor does the Proposed Project conflict with planned management actions detailed under the current GSP. The Proposed Project would have **no impact** on the implementation of the water quality control plan or the sustainable groundwater management plan that are in force at the Airport.

²⁰⁵ Port of Oakland; City of Oakland. (2004). *General Plan Update – Safety Element – Flooding Hazards*.

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3.10 LAND USE AND PLANNING

This section describes existing land uses in the general study area as a basis for the discussion of potential impacts and proposed mitigation measures for the Proposed Project at OAK.

3.10.1 Background and Methodology

3.10.1.1 Regulatory Context

This section summarizes existing land use plans, policies, and regulations that relate to the Proposed Project, including state, regional, and local plans.

STATE

California Airport Noise Standards

The California Airport Noise Standards, set forth in Title 21, California Code of Regulations (CCR), Section 5000 et seq., state that no airport shall operate "with a noise impact area based on the standard of 65 decibels (dB) Community Noise Equivalent Level (CNEL) unless the operator has applied for or received a variance" from the California Department of Transportation (Caltrans) permitting such operations.²⁰⁶ The noise impact area is defined as incompatible land use within the 65 dB CNEL contour as described in Title 21 CCR Section 5014. See **Section 3.11, Noise and Vibration** for more detail of the 65 dB CNEL contour.

California Department of Transportation

The *California Airport Land Use Planning Handbook* (Handbook), published by Caltrans, establishes statewide guidelines for carrying out airport land use compatibility planning pursuant to the State Aeronautics Act (Public Utilities Code, Section 21670 et seq.).²⁰⁷ The State Aeronautics Act promotes compatibility between airport operations and the land use and development surrounding California's public use airports.²⁰⁸

The Handbook serves to: (1) provide information to airport land use commissions, their staffs, airport proprietors, cities, counties, consultants, and the public; (2) identify the requirements and procedures for preparing effective compatibility planning documents; and (3) define exemptions where applicable. Additionally, the Handbook, which corresponds with current federal and state law regarding significance thresholds for incompatible land uses, also functions as a resource for the preparation, adoption, and amendment of airport land use compatibility plans.²⁰⁹

²⁰⁶ 21 CCR Section 5012.

²⁰⁷ California Department of Transportation (Caltrans), Division of Aeronautics. (2011, October). *California Airport Land Use Planning Handbook*.

²⁰⁸ Alameda County. (2010, December). *Oakland International Airport, Airport Land Use Compatibility Plan*.

²⁰⁹ California Department of Transportation (Caltrans), Division of Aeronautics. (2011, October). *California Airport Land Use Planning Handbook*.

REGIONAL

Alameda County Airport Land Use Commission

State law requires airport land use commissions to coordinate planning for the areas surrounding public use airports. Alameda County Planning Division established an Airport Land Use Commission (ALUC). The ALUC is responsible for the creation of the Airport Land Use Compatibility Plan (ALUCP) for OAK, as well as all other public airports in Alameda County (Public Utilities Code, Section 21675). The ALUCP was prepared in accordance with the State Aeronautics Act and serves as guidance for the ALUC and local jurisdictions in safeguarding the general welfare of the public. The State Aeronautics Act (Public Utilities Code, Section 21670 et seq.) dictates that affected counties and cities modify their general and specific plans to be consistent with the ALUCP, or to take steps to overrule the ALUC.

The ALUC prepared a specific ALUCP for OAK, which helps guide and ensure compatibility between development at OAK, its environs, and surrounding areas. The ALUCP also serves as a tool for the ALUC to review Airport and other land use development that fall within the Airport Influence Area (AIA). The AIA for OAK includes parts of the cities of Alameda, Oakland, San Leandro, Hayward, and multiple unincorporated areas within Alameda County.²¹⁰

New development within the AIA is subject to compatibility criteria established by the ALUC. The ALUC develops land use policies and plans to minimize exposure to excessive noise and safety hazards for new development, and to ensure that incompatible development does not occur on lands surrounding OAK.

Alameda County General Plan

The Alameda County General Plan expresses Alameda County's vision for the future and is the roadmap for achieving the community's desired quality of life; it is an assessment of current and future needs, and the resources needed to implement the goals and policies established.²¹¹ The countywide Housing, Conservation, Community Climate Action Plan, Open Space, Noise, Safety, and Scenic Route Elements contain goals, policies, and actions that apply to the entire unincorporated area. Countywide policies that are relevant to the Proposed Project are covered under the ALUCP.

Within the Alameda County General Plan, three area Specific Plans contain land use and circulation elements for their respective geographic areas, as well as area specific goals, policies, and actions for circulation, open space, conservation, safety, and noise.²¹² One of the area plans, the Alameda County Eden Area, is included in the study area and comprises the communities of Ashland, Cherryland, Hayward Acres, San Lorenzo, and Fairview.²¹³ However, the land use plans for the community and local government do not have authority or influence over Airport land. Goals and policies are designed to be responsive to Airport

²¹⁰ Alameda County. (2010, December). *Oakland International Airport, Airport Land Use Compatibility Plan*.

²¹¹ Alameda County. (2021). *General Plan, Specific Plans & Ordinances*. Retrieved April 2022, from: <https://www.acgov.org/cda/planning/generalplans/index.htm>.

²¹² A Specific Plan is a tool for implementing the General Plan. It provides the standards for development within sections of the unincorporated areas of Alameda County.

²¹³ Alameda County. (2010). Chapter 7: Noise. *Eden Area General Plan*. Retrieved 2022, March from: <https://www.acgov.org/cda/planning/generalplans/index.htm>.

development and operations within the city's jurisdictional boundaries and not to control Airport development or operations. Several flight paths from the Airport pass over the Eden Area.

San Francisco Bay Plan

The San Francisco Bay Conservation and Development Commission's (BCDC) San Francisco Bay Plan (Bay Plan) implements the McAteer-Petris Act (Government Code Sections 66600 to 66684) adopted by the Legislature and signed into law by the Governor. This Act designated BCDC as the agency responsible for maintaining and carrying out the provisions of the law and the Bay Plan for the maintenance and protection of San Francisco Bay.²¹⁴ 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. Under the Bay Plan, BCDC regulates the placement of new "fill" generally defined as any material placed in or over the water surface, including pilings, structures placed on pilings, and floating structures) in the Bay (Government Code Section 66605). The McAteer-Petris Act and the Bay Plan provide for the designation of priority land uses for the Bay shoreline. These uses include ports, water-related industry, airports, wildlife refuges, and water-oriented recreation. The Bay Plan includes a series of maps that identify designated shoreline priority use areas, along with policies, notes and suggestions for future development of these areas. The Airport is shown on Bay Plan Map 5, Central Bay and is identified as an "Airport" priority use area. Applicable Bay Plan policies for the Airport are:

- Further expansion into San Francisco Bay is permitted only if a clear need is shown by a regional airport system study;
- Runway approach and takeoff areas are to be kept clear of tall structures and incompatible uses; and
- Bay Trail is to be completed along an inland route.

Plan Bay Area 2050

As required by Senate Bill 375, all metropolitan regions in California must complete a Sustainable Communities Strategy (SCS) as part of a Regional Transportation Plan. In the Bay Area, the Metropolitan Transportation Commission (MTC) and the Association of Bay Area Governments (ABAG) are jointly responsible for developing and adopting a SCS that integrates transportation, land use, and housing to meet greenhouse gas reduction targets set by the California Air Resources Board (CARB). The Plan Bay Area 2050 (Plan), adopted in October 2021, serves as the SCS for the Bay Area.²¹⁵ Thirty-five strategies make up the heart of the Plan to improve housing, the economy, transportation, and the environment across the Bay Area's nine counties. As defined by the Plan, the Airport is in a Priority Production Area (PPA), which are locally identified places for job growth in middle-wage

²¹⁴ San Francisco Bay Conservation and Development Commission. (2020, May). *San Francisco Bay Plan*. Retrieved March 2022, from: <https://bcdc.ca.gov/pdf/bayplan/bayplan.pdf>.

²¹⁵ Metropolitan Transportation Commission and Association of Bay Area Governments. (2021, October). *Plan Bay Area 2050*. Retrieved March 2022, from: https://www.planbayarea.org/sites/default/files/documents/Plan_Bay_Area_2050_October_2021.pdf.

industries like manufacturing, logistics or other trades. An area must be zoned for industrial use or have a predominantly industrial use to be identified as a PPA. PPA sites play a critical role in the everyday operations of the region and losing these functions would be a major loss to the Bay Area's innovation industry and the vibrancy of its economy.

The Bay Plan 2050 contains the following policy that address issues related to land use and planning, and/or are particularly relevant to the Proposed Project:

- *Policy EC6: Retain and invest in key industrial lands.* Implement local land use policies to protect key industrial lands, identified as Priority Production Areas, while funding key infrastructure improvements in these areas.

LOCAL

Oakland International Airport Master Plan

The *Oakland International Airport Master Plan* (Master Plan) was completed in 2006 with extensive input from the OAK Aviation Stakeholder Advisory Committee.^{216,217} Following the environmental review process for the Port's Airport Development Program, the Port executed settlement agreements with the surrounding communities in which the Port agreed to prepare a 20-year master plan for OAK in accordance with Federal Aviation Administration (FAA) Advisory Circular (AC) No. 150/5070-6A.²¹⁸ The Port also agreed to create a stakeholder advisory committee that actively participated in the master planning process.

The Master Plan is a concept-level planning and feasibility study that identifies potential projects and provides guidance regarding on-Airport land use. The land use planning maps have provided the basis for the Port's on-going decision-making and project development and includes the recommended terminal area for the Proposed Project. The Master Plan recommended the continuation of the OAK Aviation Stakeholder Advisory Committee for the purpose of allowing the Port's Planning and Development staff to continue to convene multiple times a year with community stakeholders and users of the Airport in order to provide project updates and Airport activity information and receive input from the attendees/participants. The OAK Aviation Stakeholder Advisory Committee meetings have continued to be held on a quarterly basis.

City of Alameda General Plan

The city of Alameda is located directly north of OAK and portions of the city lie directly under Airport approach and departure paths. *General Plan 2040* (amended in June 2022) for the city of Alameda includes a series of elements, each of which focuses on various

²¹⁶ Port of Oakland. (2006, March). *Oakland International Master Plan*. Retrieved August 2021, from: https://www.oaklandairport.com/wp-content/uploads/2006/03/Master_Plan_2006-03_standard_noapx.pdf.

²¹⁷ Port of Oakland. *OAK Master Plan Overview*. Retrieved June 2021, from: <https://www.oaklandairport.com/development/master-plan/>.

²¹⁸ While version 6A was used as reference for this Draft EIR, the most current version of reference can be found at: Federal Aviation Administration (FAA). AC 150/5070-6B (2005). *Airport Master Plans*. Retrieved from: https://www.faa.gov/airports/resources/advisory_circulars/index.cfm/go/document.current/documentnumber/150_5070-6.

aspects of the built environment.²¹⁹ The General Plan component relevant to the Proposed Project is the Health and Safety Element, a comprehensive program for including noise control in the planning process. The Health and Safety Element identifies aircraft operations as a major contributor to noise in the city and contains policies designed to reduce land use conflicts. As the City of Alameda does not have regulatory authority over Airport land, the goals and policies are designed to be responsive to Airport development and operations.

City of Oakland General Plan

Article VII of the Charter of the City of Oakland (Oakland or City) grants the Board of Port Commissioners the authority to control and manage the Port's lands within the Airport, Seaport, Commercial Real Estate, and the Oakland Airport Business Park land use designations. However, Oakland has exclusive authority over the approval of any change to the General Plan designation for the Airport.

The Oakland General Plan establishes comprehensive, long-term land use policies for the city and provides the primary policy direction for development throughout the city and Airport. The Oakland General Plan consists of a series of elements, each of which deals with a topic and includes policies, many of which guide development citywide.²²⁰ The Oakland General Plan includes the Land Use and Transportation Element (LUTE), including the 2019 Oakland Bike Plan, and the Pedestrian Master Plan, which were adopted as part of the LUTE, the Historic Preservation Element, the Open Space, Conservation, and Recreation (OSCAR) Element; the Safety Element, the Scenic Highways Element, the Oakland *Estuary Policy Plan* (EPP),²²¹ the 2015-2023 Housing Element Update, and the Noise Element.

The EPP is a joint effort between Oakland and the Port. It has a more focused geographic scope than the General Plan and is integrated into the Oakland General Plan. The EPP's goal is to enhance and improve the future of the land uses along the Estuary shoreline in Oakland. This area is between Adeline Street, Nimitz Freeway, 66th Avenue, and the Estuary shoreline. The EPP includes plans to provide open spaces and shoreline access for recreational activity, aesthetic value, and places to gather for the public.

The Proposed Project is located within the "General Industry and Transportation" General Plan land use classification established by the LUTE. The General Industry and Transportation classification is intended to recognize, preserve, and enhance areas of the city for a wide variety of businesses and related establishments that may have the potential to create offsite impacts such as noise, light/glare, truck traffic, and odor. General Industry and Transportation areas are characterized by sites with good freeway, rail, seaport, and/or airport access.

²¹⁹ City of Alameda. (2022). *Alameda 2040 General Plan*. Retrieved March 2023, from: https://irp.cdn-website.com/f1731050/files/uploaded/AGP_Book_June2022_Amend-1.pdf.

²²⁰ City of Oakland. (1998, March). Land Use and Transportation Element. *Oakland General Plan*. Retrieved March 2022, from: <https://www.oaklandca.gov/resources/land-use-and-transportation-element>.

²²¹ City of Oakland. (1999). *Estuary Policy Plan*. Retrieved January 2023, from: <https://www.oaklandca.gov/resources/download-the-estuary-policy-plan>.

Land Use and Transportation Element

The LUTE of the Oakland General Plan contains the following land use policies that address issues related to land use and planning, and/or are particularly relevant to the Proposed Project:

Industry and Commerce Policies

- *Policy I/C4.1: Protecting Existing Activities.* Existing industrial, residential, and commercial activities and areas that are consistent with long-term land use plans for the city should be protected from intrusion of potentially incompatible land uses.
- *Policy I/C4.2: Minimizing Nuisances.* The potential for new or existing industrial or commercial uses, including seaport and airport activities, to create nuisance impacts on surrounding residential land uses should be minimized through appropriate siting and efficient implementation and enforcement of environmental and development controls.

Transportation and Transit-Oriented Development Policies

- *Policy T1.2: Improving Transportation Links.* Improve all types of transportation links including the Air BART shuttle service²²², between the Airport and business and neighborhood activity centers and the city.
- *Policy T1.3: Expanding Airport Capacity.* Expand the passenger and cargo handling capacity of Oakland International Airport.

Waterfront Policies

- *Policy W1.1: General Plan Conformance of Projects in the Seaport and Airport Areas.* The Port shall make a written determination on General Plan conformity for each project, plan, and/ or land use guideline it approves in the Port area. Prior to making such determination the Port will forward its proposed determination to the Director of City Planning, who may provide the Port with written comments within a specified time period. Any comments so provided shall be considered and responded to in writing by the Port in its conformity determination.
- *Policy W1.2: Planning with the Port of Oakland.* Plans for maritime and aviation operations as well as activities on all lands in Port jurisdiction should be coordinated with, and be generally consistent with, the Oakland General Plan.
- *Policy W1.3: Reducing Land Use Conflicts.* Land uses and impacts generated from Port or neighborhood activities should be buffered, protecting adjacent residential areas from the impacts of seaport, airport, or other industrial uses. Appropriate siting of industrial activities, buffering (e.g., landscaping, fencing, transitional uses, etc.), truck traffic management efforts, and other mitigations should be used to minimize the impact of incompatible uses.
- *Policy W2.6: Providing Maritime and Aviation Viewing Access.* Safe access to areas for viewing maritime and aviation activities without interfering with seaport and airport activities should be encouraged.

²²² Air BART shuttle service was replaced by the Oakland Airport BART Connector.

- *Policy W5.1: Conserving Land for Airport and Seaport Use.* Lands needed for maritime and aviation operations are of local, regional, national, and international importance and should be recognized as a valuable economic resource. The development of these lands to enhance maritime and aviation functions should be encouraged and uses that would impair functional operation of the airport and seaport should not be permitted.
- *Policy W5.2: Defining Seaport and Airport Uses.* Pursuant to the Port of Oakland's mission and the 'Trust Provisions' established by the State of California, Port controlled property within the Seaport and Airport areas should be used primarily for purposes that are unique to a modern seaport or airport, require water frontage or access to regional airspace, relate to port operations and expansion, or are dependent on proximity to maritime and/or aviation facilities.
- *Policy W6.1: Maintaining a Competitive Edge.* In order to maintain international stature and competitiveness, the Port should continue to develop, expand, or otherwise modernize facilities and/or support infrastructure to enhance its overall efficiency and capabilities to handle increasing amounts of cargo and passengers.

City of San Leandro General Plan

The city of San Leandro is located approximately 1.5 miles to the south/southeast of the Airport. Despite the absence of physical components of the Proposed Project being located within the city limits, there is active air traffic over the city and portions of the city lie within the existing 65 CNEL noise contours and general study area. The majority of commercial airline and cargo flights use OAK's South Field runway, the main approach to which is located west of the San Leandro shoreline, while non-scheduled general aviation flights using OAK's North Field runways fly over developed portions of San Leandro. The *San Leandro General Plan Environmental Hazards Element*, adopted in 2016, identifies flight operations at OAK as a source of noise and air pollution in the city.²²³ However, because the land use plans for the community do not have regulatory authority over Airport land, the goals and policies are designed to be responsive to Airport development and operations within the city's jurisdictional boundary and not to control Airport development or operations.

3.10.1.2 Significance Thresholds

Significant impact would occur to land use and planning if implementation of the Proposed Project results in any of the following:

- a) Physically divide an established community.
- b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

²²³ City of San Leandro. (2017, April). Chapter 7: Environmental Hazards Element. *San Leandro 2035 General Plan*. Retrieved March 2022, from: <https://www.sanleandro.org/332/General-Plan>.

3.10.1.3 Methodologies

The analysis of potential impacts related to land use and planning was performed by reviewing regulations, policies, maps, and plans to determine land use consistency. Although the general plans of local jurisdictions other than the City of Oakland do not apply to OAK, this review included the State Aeronautics Act, Oakland International Airport Master Plan, OAK ALUCP, Alameda County General Plan including specific plan for the Eden Area, City of Alameda General Plan, City of Oakland General Plan and the Oakland EPP, and the City of San Leandro General Plan.

3.10.2 Existing Conditions / Environmental Setting

The general study area for the Proposed Project (see **Figure 3-1**) encompasses land that falls under the jurisdiction of multiple incorporated cities and unincorporated communities within Alameda County. The incorporated cities that fall within the general study area include Alameda, Hayward, Oakland, and San Leandro. The unincorporated communities that fall within the general study area are San Lorenzo, Cherryland, and Ashland (this grouping is also known as the Eden Area of Alameda County). Each individual city or community has their own general plan or specific plan, which includes each jurisdiction's land use designations. Due to multiple jurisdictions within the general study area, there are also multiple land use designation groupings represented.

The Airport encompasses a variety of aviation-related land uses on approximately 2,600 acres of land. South Field (defined as the area south of Ron Cowan Parkway) includes passenger terminals (Terminal 1 and Terminal 2), parking facilities, air cargo facilities (FedEx and UPS), and airport and airline support facilities. North Field (defined as the area north of Ron Cowan Parkway) includes general aviation (GA) facilities including hangars, ramps, two fixed base operators (FBOs) Kaiser Air and Signature Flight Support, rental car facilities, and airport and airline support facilities. The Airport is bordered by San Francisco Bay to the west and south.

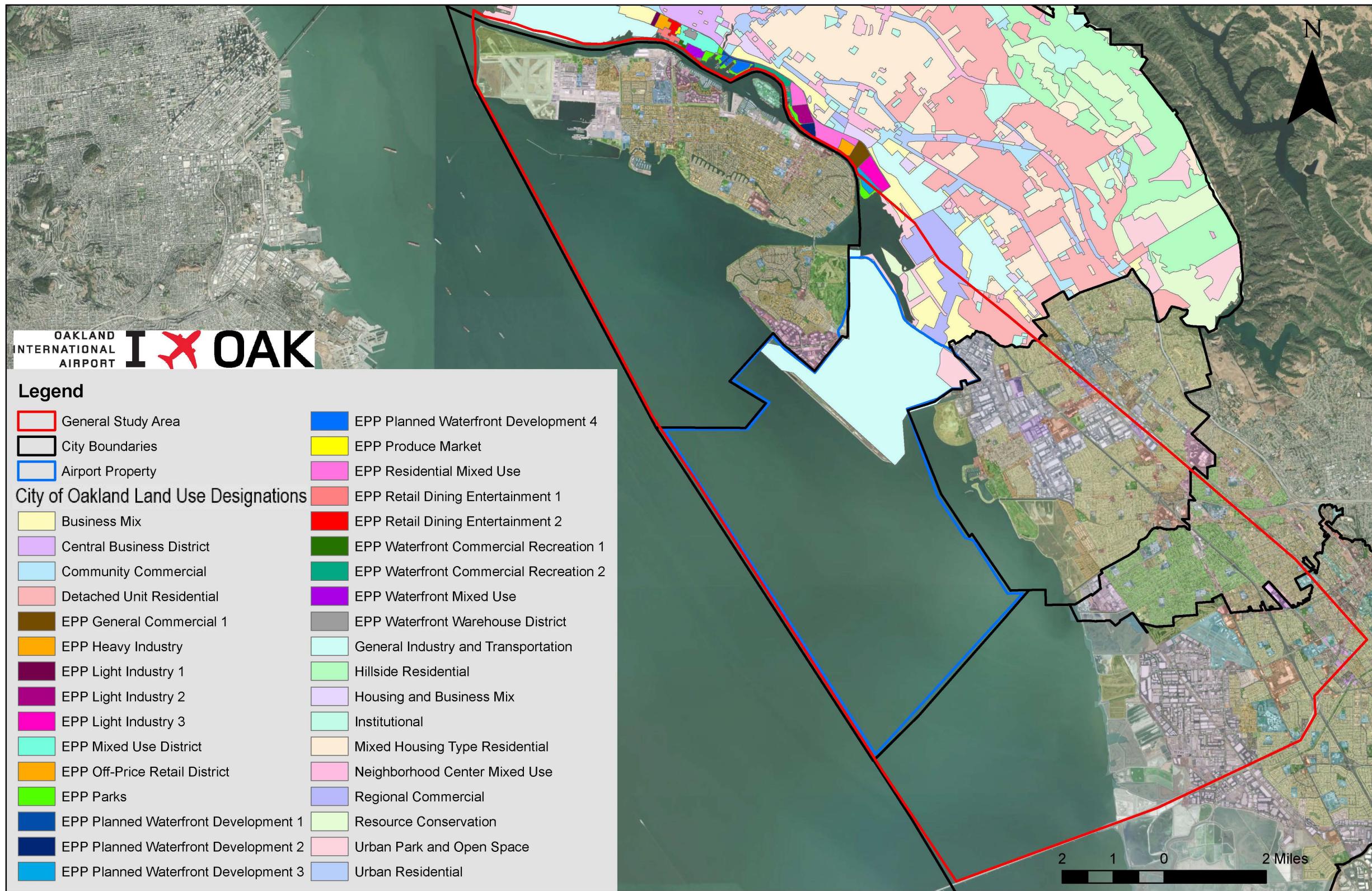
3.10.2.1 City of Oakland Land Use

Based on the City of Oakland General Plan, the predominant existing land uses within the general study area under the jurisdiction of the City of Oakland include regional commercial, business mix, urban park and open space, and resource conservation. As shown in **Figure 3.10-1**, existing land uses adjacent to the north and northeast boundary of the Airport in the city of Oakland (across San Leandro Bay) include business mix, open space, regional commercial, and detached unit residential.²²⁴

The regional commercial land use area closest to the Airport includes RingCentral Coliseum (commonly known as the Oakland Coliseum), the Coliseum BART station, and the Oakland Coliseum/Airport Amtrak station. The urban park and open space land use areas include Metropolitan Golf Links golf course, Sandy Beach, MLK Jr Shoreline Center, and Oak Port

²²⁴ City of Oakland. (1998, March). Land Use and Transportation Element (LUTE). *Envision Oakland*. Retrieved 2021 June from: <https://www.oaklandca.gov/resources/land-use-and-transportation-element>.

FIGURE 3.10-1
CITY OF OAKLAND LAND USE DESIGNATIONS



Source: City of Oakland, 2018; RS&H, 2021.

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Field. The resource conservation land use area includes the location of Arrowhead Marsh. The business mix land use area includes retail establishments, offices, restaurants, etc. The detached unit residential land use designation area is primarily comprised of single-family homes. The Airport itself is classified as general industry and transportation land use. A visual representation of land encompassed by the EPP within the City of Oakland General Plan can be found in **Figure 3.10-1** and is identified in the legend with "EPP" before the land use.

3.10.2.2 City of San Leandro Land Use

The city of San Leandro is located to the south and southeast of the Airport. For the purposes of this Draft EIR, the *San Leandro 2035 General Plan* was used for gaining insight into the city's land use information.²²⁵ As shown in **Figure 3.10-2**, the land use designations that occupy the most space within the general study area include general industrial, light industrial, low density residential, low-medium density residential, garden density residential, general commercial, parks and recreation, and resource conservation.²²⁶

Existing land uses adjacent to the south and southeast boundary of the Airport in the city of San Leandro include general industrial, light industrial, public/institutional, and parks and recreation. Oyster Bay Regional Shoreline is located adjacent to the southern boundary of the Airport, on the shore of the San Francisco Bay, within the parks and recreation land use designation. San Leandro Water Treatment and Waste Management is located adjacent to the southern boundary of the Airport, within the public/institutional land use designation. Various manufacturers and wholesale activity retailers are in the general industrial and light industrial land use designations, adjacent to the Airport's southeast boundary.

3.10.2.3 City of Alameda Land Use

The city of Alameda is located adjacent to the north and northwest boundary of the Airport and is entirely within the general study area. As shown in **Figure 3.10-3**, the land use designations that occupy the most space within the general study area include business and employment, commercial mixed use, low density residential, public parks and open space, and wildlife habitat. The existing land uses adjacent to the north and northwest boundary of the Airport within the jurisdiction of the City of Alameda include parks and public open space, open space/habitat, commercial recreation, and business and employment.

Corica Park Golf Course is immediately north of the Airport and has a land use designation of parks and public open space. Also, to the north of the Airport and southwest of the golf course, there is an area of land designated as the Harbor Bay Business Park, which mainly consists of large office buildings. The Alameda County Environmental Health building is located nearby in the land use area designated as business and employment.

3.10.2.4 City of Hayward Land Use

The city of Hayward is located to the south of the Airport, south of the city of San Leandro and the Eden Area, adjacent to the San Francisco Bay. For the purposes of this Draft EIR,

²²⁵ City of San Leandro. (2017, April). Chapter 3: Land Use Element. *San Leandro 2035 General Plan*. Retrieved October 2021, from: <https://www.sanleandro.org/332/General-Plan>.

²²⁶ Ibid.

the *Hayward 2040 General Plan*, specifically the Land Use and Community Character Element, was used to gather land use information for the city of Hayward.²²⁷ As shown in **Figure 3.10-4**, the City of Hayward land uses nearest to the Airport within the general study area are Baylands, public & quasi-public, and parks and recreation. Hayward Regional Shoreline and Skywest Golf Course are both located in the parks and recreation land use areas. Hayward Regional Shoreline is located near the coast of the San Francisco Bay, and the Skywest Golf Course is located along the northern boundary of the city of Hayward. The Hayward Executive Airport is located in public & quasi-public land use, immediately south of Skywest Golf Course. San Lorenzo Community Center Park is also located in public & quasi-public land use, immediately northwest of the Skywest Golf Course, along the northern boundary of the city of Hayward.

3.10.2.5 Alameda County Eden Area Land Use

The Alameda County Eden Area (Eden Area) is located south of the City of San Leandro, and north of the City of Hayward. The Eden Area encompasses several unincorporated areas of Alameda County, including Ashland, Cherryland, and San Lorenzo. For the purposes of this Draft EIR, the *Eden Area General Plan* was used to gather land use information for the Eden Area.²²⁸ As shown in **Figure 3.10-5**, the land uses nearest to the Airport within the general study area in the Eden Area are low density residential, low-medium density residential, medium density residential, school, light industrial and research & development/office, and public. Along the shore of the San Francisco Bay, on the western boundary of the Eden Area, a portion of the Hayward Regional Shoreline (including its designated parking area) is located in the public land use designation. Directly adjacent to the public land use area is the light industrial and research and development/office land use area, which encompasses various manufacturers, offices, and retailers. KIPP King Collegiate and Arroyo High School are located in the school land use designation along the northwest boundary of the Eden Area. Various retailers are located in general commercial land use designation along the northern boundary of the Eden Area.

3.10.3 Environmental Impacts and Mitigation Measures

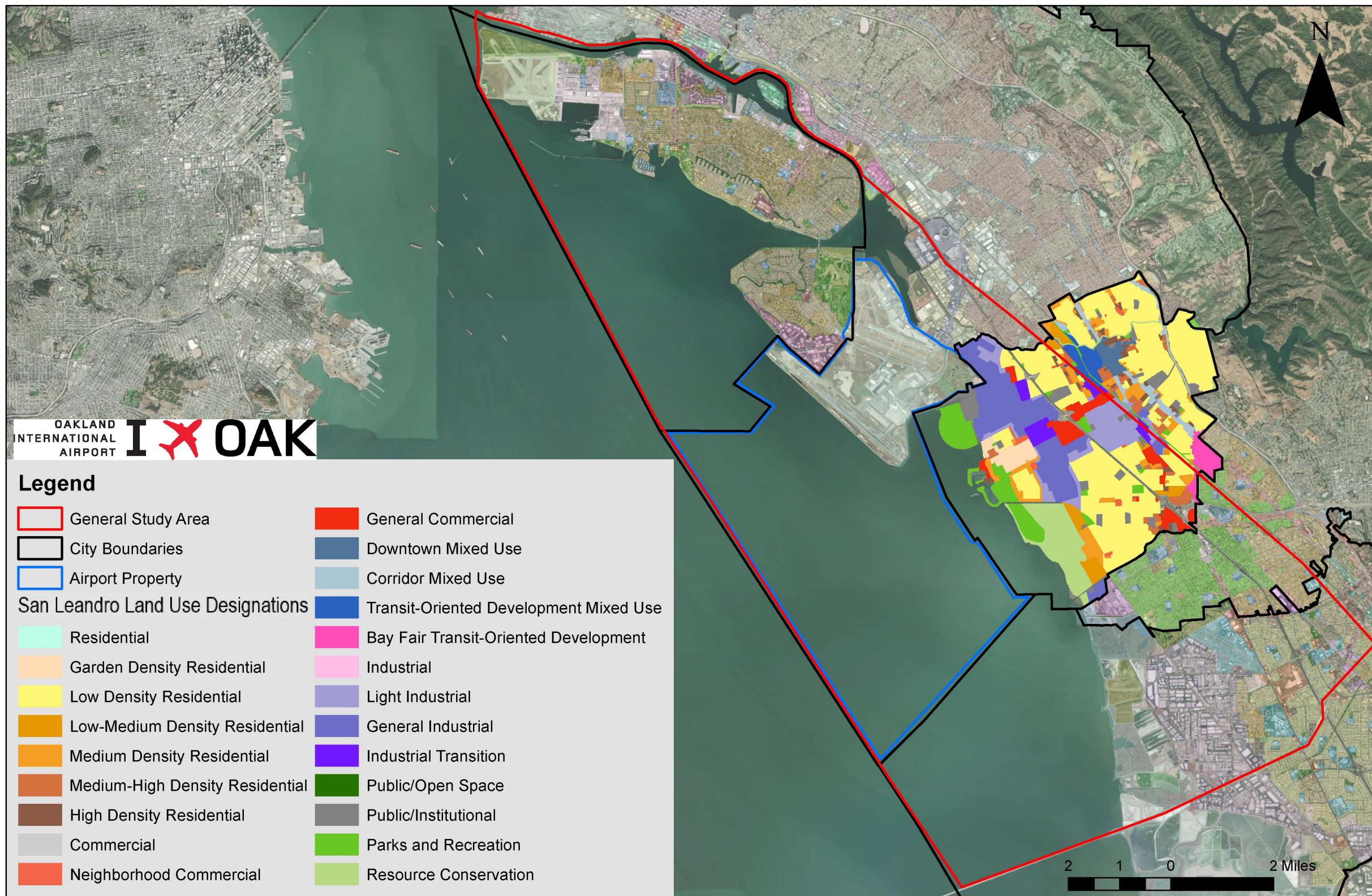
3.10.3.1 Physically divide an established community

The Proposed Project would be implemented entirely on existing Airport property. Therefore, implementation of the Proposed Project would not physically divide an established community or affect the physical arrangement of the community and would continue to be compatible with adjacent land uses. The Proposed Project would not change any land use or development patterns in the Airport vicinity and ***no impact*** would occur.

²²⁷ City of Hayward. (2013). Land Use and Community Character Element. *Hayward 2040 General Plan*. Retrieved October, 2021 from: <https://www.hayward2040generalplan.com/land-use>.

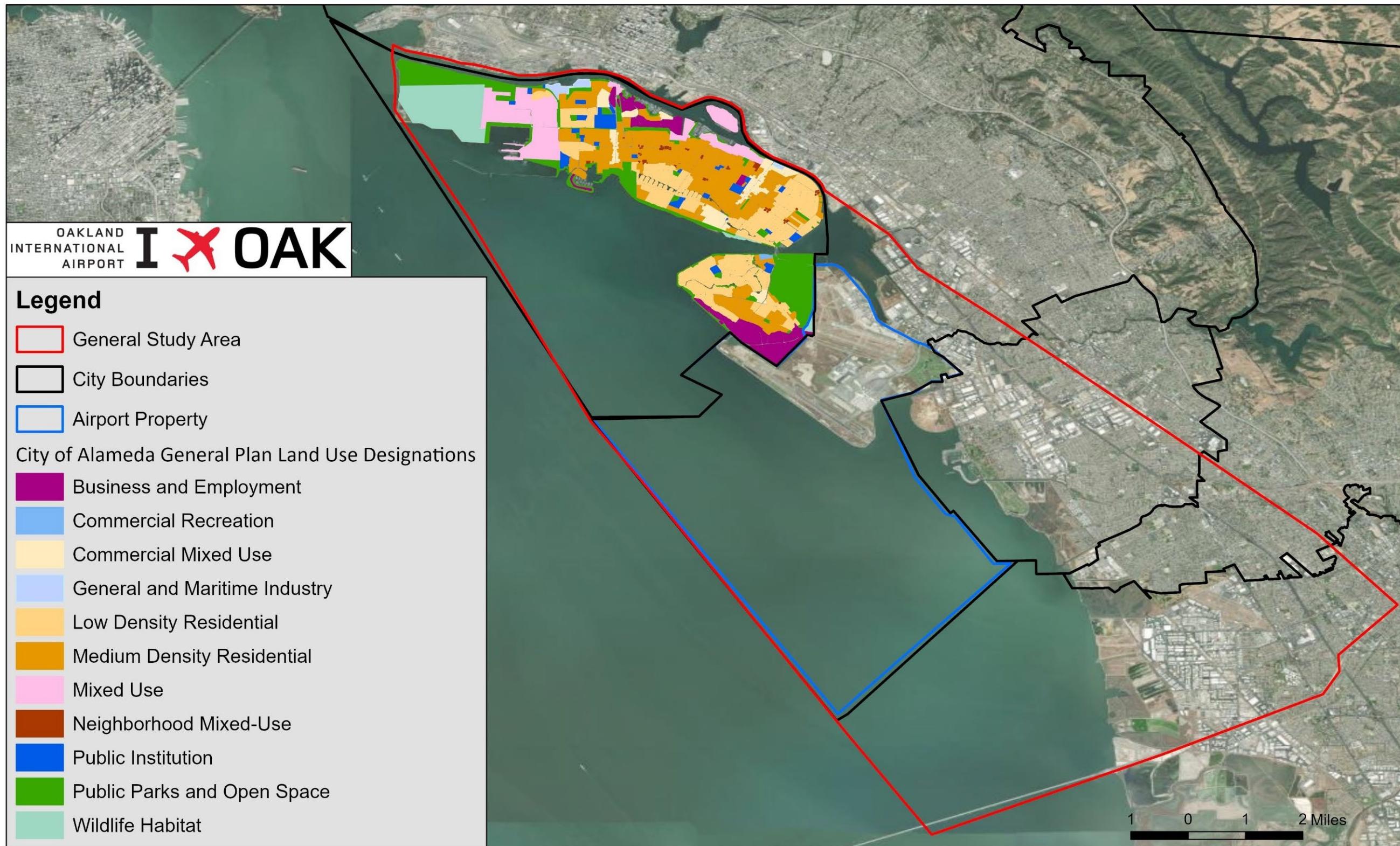
²²⁸ Alameda County. (2010). Chapter 3: Land Use. *Eden Area General Plan*. Retrieved October 2021, from: <https://www.acgov.org/cda/planning/generalplans/index.htm>.

FIGURE 3.10-2
CITY OF SAN LEANDRO LAND USE DESIGNATIONS



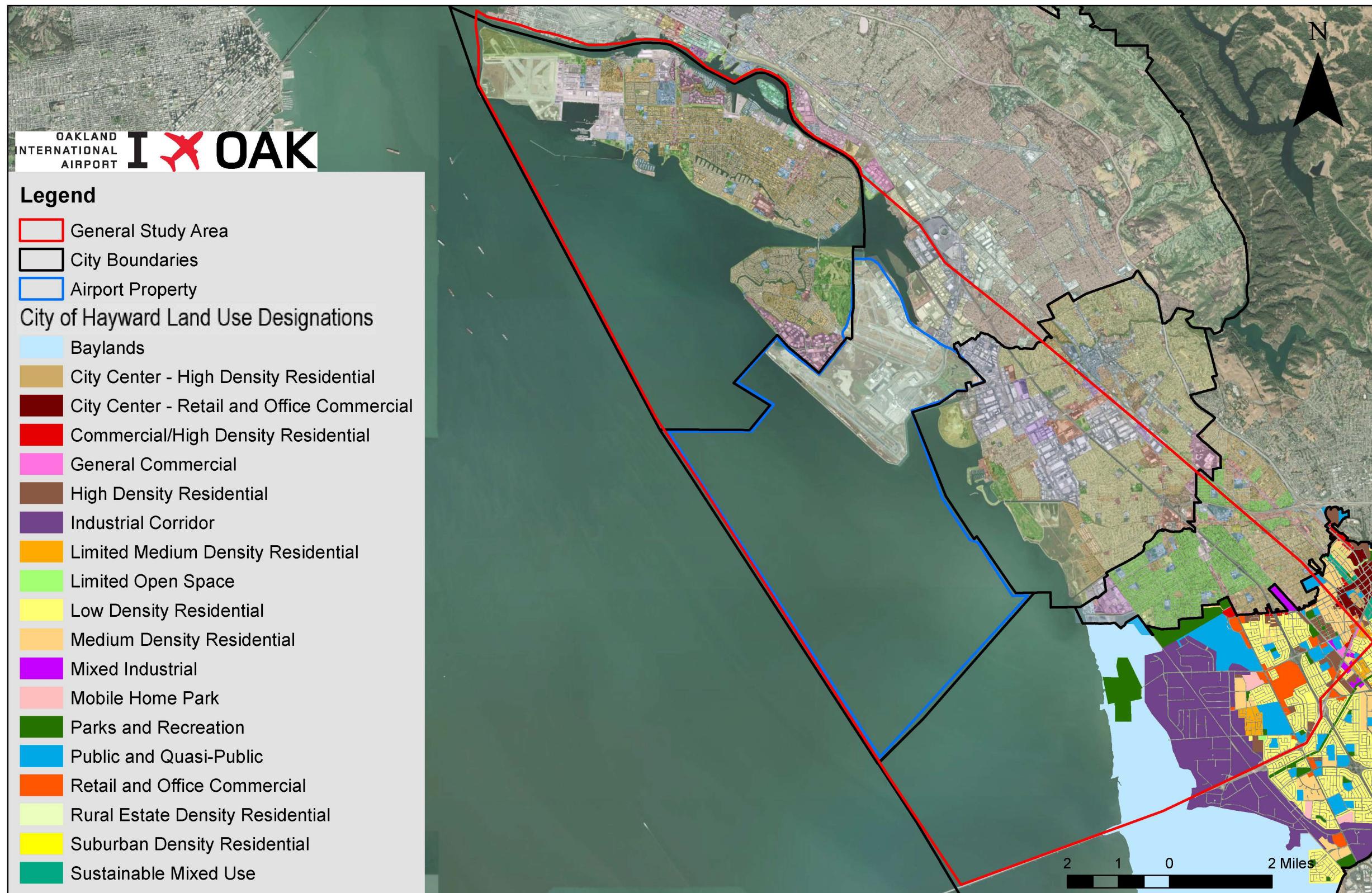
Source: City of San Leandro, 2017; RS&H, 2021.

FIGURE 3.10-3
CITY OF ALAMEDA LAND USE DESIGNATIONS



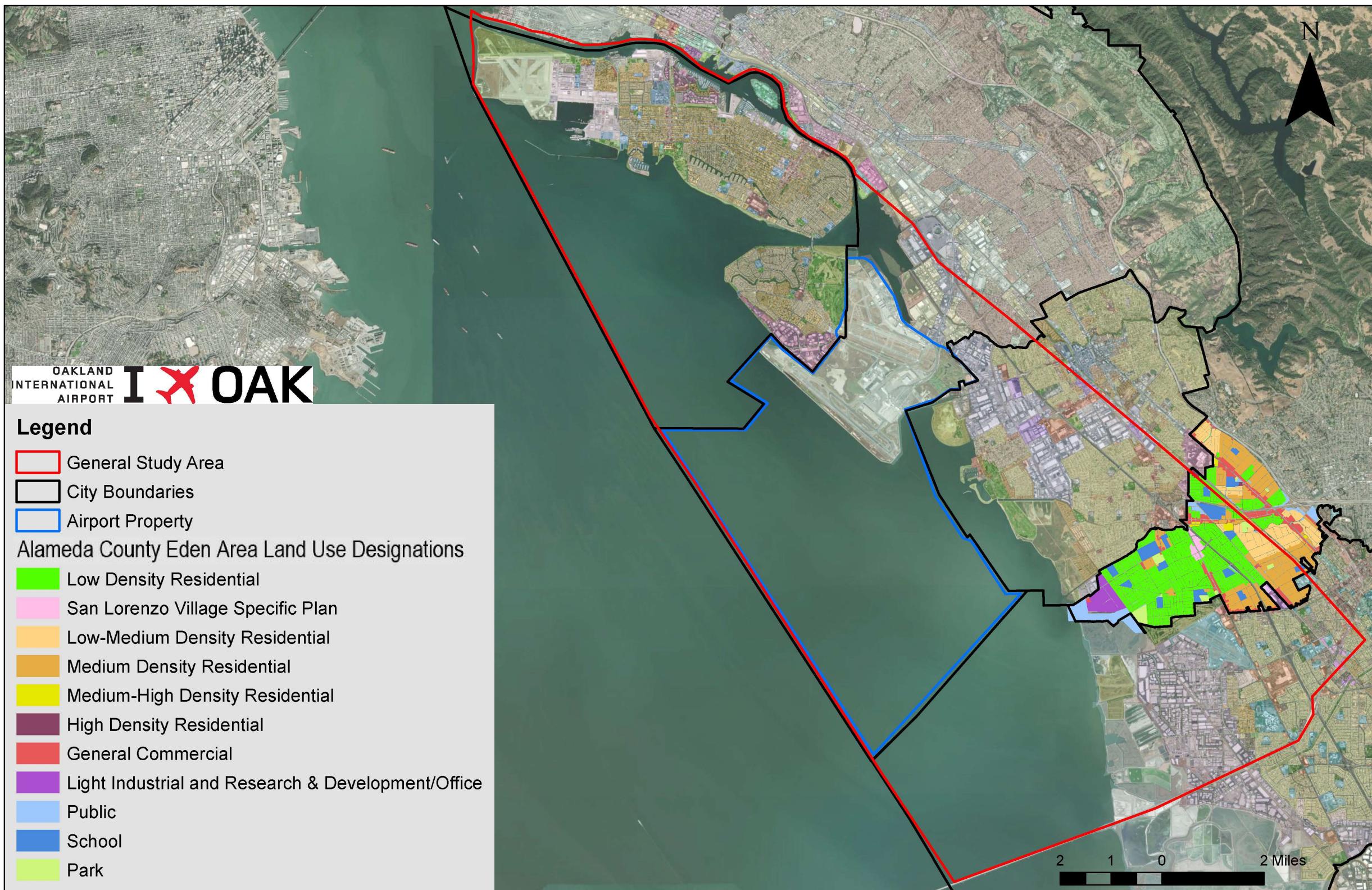
Source: City of Alameda, 2021; RS&H, 2022.

FIGURE 3.10-4
CITY OF HAYWARD LAND USE DESIGNATIONS



Source: City of Hayward, 2013; RS&H, 2021.

FIGURE 3.10-5
ALAMEDA COUNTY EDEN AREA LAND USE DESIGNATIONS



Source: Alameda County, 2010; RS&H, 2021.

- 3.10.3.2 Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect

ALAMEDA COUNTY AIRPORT LAND USE COMPATIBILITY PLAN

The Proposed Project would be developed within the existing Airport property and would not result in changes to the noise contours that would alter the compatibility of any land uses surrounding the Airport. Therefore, the Proposed Project is compatible with the ALUCP.

SAN FRANCISCO BAY PLAN

Within Airport property, BCDC is the state agency responsible for regulating development activities in and adjacent to San Francisco Bay. Since BCDC has no management authority over the area of its regulatory jurisdiction of the Bay, it must rely upon permit decisions to convey the mandate set forth in the McAteer-Petris Act and the San Francisco Bay Plan. While portions of the Airport property would be subject to the permit requirements of the BCDC (land within the 100-foot shoreline band), the Proposed Project would not affect coastal resources (no fill) and is consistent with the Bay Plan conclusion that states, "... shoreline areas suitable for priority uses—ports, water-related industry, airports, wildlife refuges, and water-related recreation exist only in limited amount and should be reserved for these purposes." Therefore, the Proposed Project would be consistent with the San Francisco Bay Plan and no land use impact would occur.

PLAN BAY AREA 2050

Plan Bay Area integrates transportation, land use, and housing to meet greenhouse gas reduction targets for the San Francisco Bay Area region. Regarding land use, Plan Bay Area 2050 focuses growth and development in PPAs, which are served by public transit and have been identified as appropriate for additional compact development. Plan Bay Area recognizes that the Airport plays a critical role in the everyday operations of the region and losing these functions would be a major loss to the Bay Area. *Policy EC6* of Plan Bay Area focuses on the retainment and investment of the Airport property. The Proposed Project is consistent with the land uses envisioned for the PPA in *Plan Bay Area 2050* as an existing airport.

OAKLAND INTERNATIONAL MASTER PLAN

The OAK Master Plan analyzed three terminal development areas to determine which area should be further developed into a terminal development plan that would accommodate forecast passenger demand (see **Chapter 4, Alternatives** for further discussion). Of the three terminal development areas identified in the Master Plan, Terminal Development Area B was further studied and eventually became the Proposed Project. As such, the Proposed Project is consistent with the OAK Master Plan.

CITY OF OAKLAND

The Proposed Project is located within the "General Industry and Transportation" Oakland General Plan land use classification established by the LUTE. The Proposed Project uses would be consistent with the existing Oakland General Plan land use designation for the Airport.

The LUTE includes primary land use objectives that accommodate land use decisions that support existing and future business needs of the city and plan for the provision of adequate supporting transportation infrastructure. The Proposed Project is intended to support and accommodate the business and transportation needs of the City of Oakland. The Proposed Project is supportive of the policies in the LUTE by maintaining the basic relationship among land use districts and expanding transportation infrastructure at OAK in an environmentally sound manner.

The Proposed Project would be consistent with the Oakland General Plan and would not require amendments to the Oakland General Plan.

CONSISTENCY WITH PLANS OF OTHER JURISDICTIONS WITHIN THE GENERAL STUDY AREA

The Proposed Project would not be located within the boundaries of other jurisdictions or communities and therefore is not subject to the requirements of the respective land use plans (i.e., the Eden Area Specific Plan, City of Alameda General Plan, and City of San Leandro General Plan). New development in the areas surrounding OAK is subject to compatibility criteria established by the ALUCP to minimize exposure to excessive noise and safety hazards for new development, and to ensure that incompatibility does not occur on lands surrounding the airports.

CONCLUSION

The Proposed Project is consistent with all existing plans and zoning; there would be ***no impact***.

3.11 NOISE AND VIBRATION

This section describes the existing noise condition, including aircraft noise, vehicle noise (e.g., roadway noise), temporary construction-related noise, or temporary construction ground-borne vibration, as a basis for discussion of potential impacts and proposed mitigation.

The noise and vibration analysis in this section focuses on potential noise impacts resulting from construction, aircraft operations, roadway traffic, vibration, and whether excessive noise would occur in an Airport Land Use Plan (ALUP) area.

3.11.1 Background and Methodology

3.11.1.1 General Characteristics of Noise and Terminology

Information presented in this section is based on the characteristics of noise (i.e., unwanted sound), the effects noise has on persons and communities, and the metrics or descriptors most commonly used to quantify environmental noise from aircraft and road traffic. Sound consists of minute vibrations (waveforms) that travel through a medium such as air. Noise is sound that is unwelcome because of its undesirable effects on persons (e.g., speech interference, sleep disturbance) or on entire communities (annoyance).

Noise metrics are measures of noise levels or noise exposure. There are two main categories of metrics to describe noise: (1) noise events (single-event noise metrics) and (2) noise experienced over durations (cumulative noise metrics). Single-event noise metrics are indicators of the intrusiveness, loudness, or noisiness of individual events. Cumulative noise metrics are indicators of community annoyance. Unless otherwise noted, all noise metrics presented in this document are reported in terms of the A-weighted decibel (dBA).

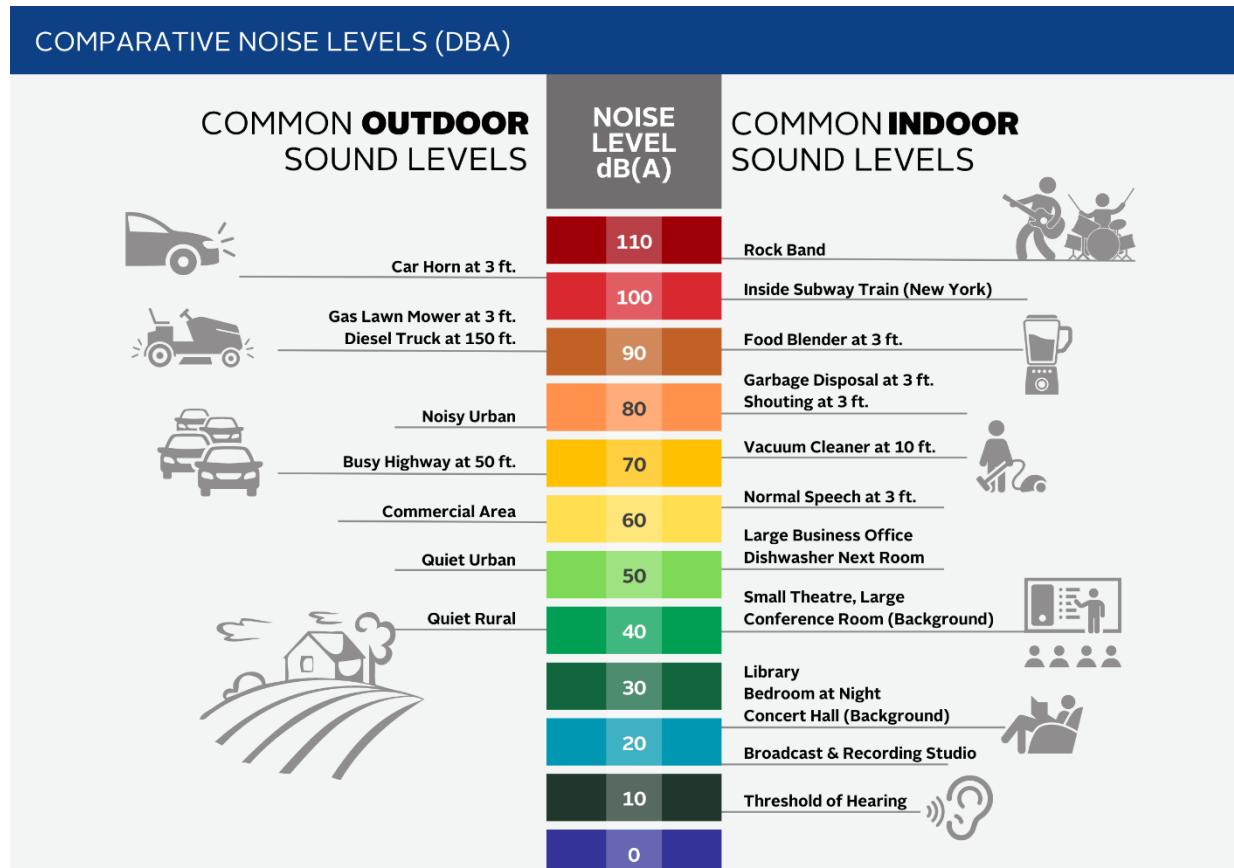
In general, humans find a change in sound level of 3 decibels (dB) as “just perceptible,” a change of 5 dB as “clearly perceptible,” and a change of 10 dB is perceived as twice (or half) as loud.²²⁹ Because of the logarithmic scale of the decibel units, two sounds of equal physical intensity will result in the sound level increasing by 3 dB, regardless of the initial sound level. For example, 60 dB plus 60 dB equals 63 dB, and 80 dB plus 80 dB equals 83 dB.

Maximum sound level (L_{max}) is the maximum or peak sound level during a noise event. This metric accounts for the instantaneous peak intensity of the sound, and not for the duration of the event. As a vehicle or aircraft passes by an observer, the sound level increases to a maximum level and then decreases. Ambient noise in metropolitan, urbanized areas typically varies within a range of 60 to 70 dB while quiet, suburban neighborhoods typically experience ambient noise levels within a range of 45 to 50 dB. The contribution of outdoor noise to indoor noise levels is usually small. That part of a sound level within a building caused by an outdoor source depends on the source's intensity and the sound level reduction afforded by the building; the sound level reduction of a building is largely

²²⁹ Murphy, E. and King, E. (2014). *Environmental Noise Pollution - Chapter 2 - Principles of Environmental Noise*. San Diego, CA. Retrieved from: <https://www.sciencedirect.com/book/9780124115958/environmental-noise-pollution>.

determined by whether its windows are open or closed.²³⁰ **Figure 3.11-1** displays common environmental sound levels from a variety of sources in dB.

FIGURE 3.11-1
COMMON ENVIRONMENTAL SOUND LEVELS



dBA: A-weighted decibel

Source: HMMH, 2023

Single Event Noise Exposure Level (SENEL) and Sound Exposure Level (SEL) are frequently reported noise metrics at OAK for aircraft flyovers and are essentially equivalent metrics. SEL is a time integrated measure, expressed in dB, of the sound energy of a single noise event at a reference duration of one second. The sound level is integrated over the period that the level exceeds the ambient sound level.²³¹ Therefore, SEL accounts for both L_{max} and the duration of the sound. Speech and sleep interference research can be assessed relative to SEL.

²³⁰ U.S. Environmental Protection Agency (EPA). (1978, November). *Protective Noise Levels: Condensed Version of EPA Levels Document, EPA 550 / 9-79-100*. Retrieved from: <https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=20012HG5.txt>.

²³¹ SENEL is a very slight variation on SEL. Just like SEL, SENEL is the one-second-long steady-state level that contains the same amount of energy as the actual time-varying level. However, unlike SEL, SENEL is calculated only over the period when the level exceeds a selected threshold. The threshold for SENEL is 10 dB less than the event's maximum sound level.

Cumulative noise metrics assess community response to noise by including loudness, duration, time of day a noise event occurs, and the total number of noise events in one single number rating scale. The Day-Night Average Sound Level (DNL or L_{dn}) represents the noise energy present during a 24-hour period. Weighting is applied to noise events occurring at night (10:00 p.m. to 7:00 a.m.), with 10 dB added to the actual nighttime sound level. This 10-decibel weighting accounts for greater sensitivity to nighttime noise, and the fact that events at night are often perceived to be more intrusive than daytime events.

The Community Noise Equivalent Level (CNEL) is the standard metric used in California to represent cumulative noise exposure. The metric provides a single-number description of the weighted sound energy to which a person or community is exposed over a period of 24 hours, like DNL. However, CNEL includes weighting applied to noise events occurring during the evening hours between 7:00 p.m. and 10:00 p.m., with 4.8 dB added to the actual sound level in addition to the nighttime events occurring between 10:00 p.m. and 7:00 a.m. The evening weighting is the only difference between CNEL and DNL. For purposes of aircraft noise analysis in the state of California, the FAA recognizes the use of CNEL.

The CNEL metric is used for this aircraft noise analysis based on an Average Annual Day (AAD) of aircraft operations, generally derived from data for a calendar year. An AAD activity profile is computed by adding all aircraft operations occurring during the course of a year and dividing the result by 365. As such, AAD does not reflect activities on any one specific day but represents average conditions as they occur during the course of the year.

3.11.1.2 Regulatory Context

FEDERAL

Federal Aviation Regulations, Part 36

Federal Aviation Regulations (FAR), Part 36, "Noise Standards: Aircraft Type and Airworthiness Certification," sets noise standards for issuance of new aircraft type certificates. Aircraft are certified as Stage 1 through Stage 5 depending on their noise level, weight, and number of engines. Stage 1 and Stage 2 aircraft, which are the noisiest aircraft, are no longer permitted to operate in the continental United States. Although aircraft meeting Part 36 standards are noticeably quieter than many of the older aircraft, the regulations make no determination that such aircraft are acceptably quiet for operations at any given airport.

Federal Aviation Noise Abatement Policy

The Federal Aviation Noise Abatement Policy establishes the noise abatement authority and responsibilities of the federal government, airport proprietors, state and local governments, air carriers, air travelers, shippers, and airport area residents and prospective residents. It emphasizes that the FAA's role is primarily one of regulating noise and its source (the aircraft), plus supporting local efforts to develop airport noise abatement plans. The FAA gives high priority in the allocation of Airport Development Aid Program (ADAP) funds to projects designated to ensure compatible use of land near airports, but it is the role of state and local governments and airport proprietors to undertake the land use and operational actions necessary to promote compatibility.

Aviation Safety and Noise Abatement Act of 1979

The Aviation Safety and Noise Abatement Act of 1979 establishes funding for noise compatibility planning and sets the requirements by which airport operators can apply for funding. This is also the law by which Congress mandated that the FAA develop and airport community noise metric to be used by all federal agencies assessing or regulating aircraft noise. The result was DNL. Because California already had a well-established airport community noise metric in CNEL, and because CNEL and DNL are so similar, the FAA expressly allows CNEL to be used in lieu of DNL in noise assessments performed for California airports. The Aviation Safety and Noise Abatement Act does not require an airport to develop a noise compatibility program, rather, that is accomplished through the Code of Federal Regulations (CFR) Part 150. CFR Part 150 sets forth standards for airport operators to use when documenting noise exposure around airports and for establishing programs, subject to FAA approval, to reduce noise-related noncompatible land use.

Airport Noise and Capacity Act of 1990

The Airport Noise and Capacity Act of 1990 (ANCA) sets forth several provisions related to the regulation of aircraft activities at airports. One of the most notable aspects of ANCA is that it precludes the local imposition of noise and access restrictions that are not otherwise in accordance with the national noise policy unless the restrictions are "grandfathered" under ANCA, in which case the restrictions are free from the limits that ANCA otherwise would impose. ANCA established two broad directives to the FAA: (1) establish a method to review aircraft noise, airport use, or airport access restrictions proposed by airport proprietors; and (2) institute a program to phase-out Stage 2 aircraft over 75,000 pounds by December 21, 1999. ANCA applies to all new local noise restrictions and amendments to existing restrictions proposed after October 1990.

Federal Highway Administration, 23 CFR 772

The FAA requires the use of AEDT to identify potential noise impacts; however, AEDT is not capable of analyzing noise that would result from surface transportation sources such as roadway traffic.

Title 23 of the CFR, Part 772 (23 CFR 772) provides the framework and establishes the standards for the assessment and abatement of highway traffic noise in the United States.²³² The Federal Highway Administration (FHWA) published revised noise regulations on July 13, 2010, which then became effective on July 13, 2011. FHWA has also published a guidance document to support the new regulations.²³³ The FHWA regulations in 23 CFR 772 apply to all federal or federal-aid highway projects authorized under Title 23, United States Code.

The FHWA established the Noise Abatement Criteria (NAC) shown in **Table 3.11-1** for different categories of land use activity to assess the degree of impact of highway traffic and

²³² Federal Highway Administration, U.S. Department of Transportation. (2010, July 13). 75 Fed. Reg. 39,820. *Procedures for Abatement of Highway Traffic Noise and Construction Noise*. Retrieved from: http://www.fhwa.dot.gov/environment/noise/regulations_and_guidance/.

²³³ Federal Highway Administration, U.S. Department of Transportation. (2010, December). FHWA-HEP-10-025. *Highway Traffic Noise: Analysis and Abatement Guidance*. Retrieved from: http://www.fhwa.dot.gov/environment/noise/regulations_and_guidance/analysis_and_abatement_guidance/revguidance.pdf.

TABLE 3.11-1
FEDERAL HIGHWAY ADMINISTRATION NOISE ABATEMENT CRITERIA

Activity Category	$L_{eq(h)}$ ^{a/}	Description of Activity Category
A	57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose
B/b/	67 (Exterior)	Residential
C/b/	67 (Exterior)	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings
D	52 (interior)	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios
E/b/	72 (exterior)	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A-D or F
F	--	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing
G	--	Undeveloped lands that are not permitted (without building permits)

$L_{eq(h)}$: peak hourly equivalent sound level

/a/ Hourly equivalent A-weighted sound level (dBA).

/b/ Includes undeveloped lands permitted for this activity category.

Source: Federal Highway Administration, 2010.

noise on human activity. The NAC are given in terms of A-weighted decibel (dBA) peak hourly equivalent sound level ($L_{eq(h)}$). The A-weighted sound level is commonly used when measuring environmental noise to provide a single number descriptor that correlates with human subjective response to noise because the sensitivity of human hearing varies with frequency. The A-weighted sound level is widely accepted by acousticians as a proper unit for describing environmental noise. Most environmental noise (and the A-weighted sound level) fluctuates from moment to moment, and it is common practice to characterize the fluctuating level by a single number, the Equivalent Sound Level, abbreviated L_{eq} . The L_{eq} is the value or level of a steady, non-fluctuating sound that represents the same sound energy as the actual time-varying sound evaluated over the same time period. For traffic noise assessment, L_{eq} is typically evaluated over a one-hour period and may be denoted as $L_{eq(h)}$.

Traffic noise impacts under federal guidelines (23 CFR 772.5) would occur for a particular activity category when predicted exterior noise levels approach or exceed the FHWA NAC during the loudest hour of the day for that category or when project-related noise creates a

substantial noise increase over existing noise levels. With respect to the first criterion, residential land use is defined as Activity Category B, which has an NAC of 67 L_{eq(h)}. Therefore, under this criterion, a traffic noise impact would occur where predicted exterior sound levels approach or exceed 67 dBA L_{eq(h)}. FHWA requires state highway agencies to establish an approach level that is at least 1 dB less than the NAC for Activity Categories A to E in **Table 3.11-1**. California Department of Transportation (Caltrans) defines the word "approach" in "approach or exceed" as within 1 dB.²³⁴ Therefore, for residential land use in Activity Category B, the threshold for traffic noise impact is where exterior noise levels are within 1 dB of 67 dBA L_{eq(h)}, or 66 dBA. Under the second criterion, a traffic noise impact would occur when future build noise levels cause a substantial increase over existing noise levels. Caltrans defines a substantial increase of 12 dBA as being a significant impact. Whenever the traffic noise levels approach or exceed the NAC during the loudest hour of the day or cause a substantial increase in existing noise, consideration of traffic noise abatement measures is warranted.

Vibration: Federal Transit Administration

The Federal Transit Administration (FTA) has developed ground-borne vibration criteria based on land use and building use. These criteria, shown in **Table 3.11-2** and **Table 3.11-3**, are based on vibration levels expressed in peak particle velocity in inches per second (PPV in/sec) and vibration decibels (VdB) for construction to assess the level of potential annoyance. Because construction activities would be temporary but could occur on a daily basis over the duration of construction of the Proposed Project, the threshold of significance would be 72 VdB for frequent events and 80 VdB for infrequent events.²³⁵ The most vibration intensive piece of equipment, an impact pile driver, would be considered an infrequent event, whereas use of a vibratory roller for ground compaction would be considered a frequent event.

TABLE 3.11-2
FEDERAL VIBRATION DAMAGE THRESHOLDS OF SIGNIFICANCE FOR LAND USE

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	0.2
IV. Buildings extremely susceptible to vibration damage	0.12

PPV in/sec: peak particle velocity in inches per second

Source: Federal Transit Administration, 2018.

²³⁴ Division of Environmental Analysis, California Department of Transportation. (2020, April). *Traffic Noise Analysis Protocol for New Highway Construction, Reconstruction, and Retrofit Barrier Projects*. Retrieved from: <https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/traffic-noise-protocol-april-2020-a11y.pdf>.

²³⁵ Federal Transit Administration (FTA). (2018, September). *Transit Noise and Vibration Impact Assessment Manual*. FTA Report No. 0123. Retrieved from: https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf.

TABLE 3.11-3
FEDERAL VIBRATION ANNOYANCE THRESHOLDS OF SIGNIFICANCE FOR LAND USE

Land Use Category	Vibration Impact Level for Frequent Events (VdB)	Vibration Impact Level for Infrequent Events (VdB)
Category 1: Buildings where low ambient vibration is essential for interior operations	65	65
Category 2: Residences and buildings where people normally sleep	72	80
Category 3: Institutional land uses with primarily daytime use	75	83

VdB: vibration decibels

Source: Federal Transit Administration, 2018.

STATE

California Department of Transportation (Caltrans)

California's State Aeronautics Act, at Division 9, titled "Regulation of Airports," provides in part that "The department [of Transportation] shall adopt noise standards governing the operation of aircraft and aircraft engines for airports operating under a valid permit issued by the department to the extent not prohibited by federal law. The standard shall be based upon the level of noise acceptable to a reasonable person residing in the vicinity of the airport."²³⁶ In turn, Caltrans Division of Aeronautics has adopted Noise Standards at Title 21 California Code of Regulations (CCR), section 5000 et seq. Those "regulations establish to the extent not prohibited by Federal law a mandatory procedure which is applicable to all airports in California that are required to operate under a valid permit issued by the department. These regulations are applicable (to the extent not prohibited by Federal law) to all operations of aircraft and aircraft engines which produce noise."²³⁷ The Noise Standards mandate the use of CNEL as the required noise metric, which is also accepted by the FAA for airport noise studies in California.²³⁸ The Noise Standards set the airport noise standard at 65 CNEL, and require airports designated as "noise problem" airports such as the Airport to undertake certain reporting requirements. The regulations also state that "No airport proprietor of a noise problem airport shall operate an airport with a noise impact area based on the standard of 65 dB CNEL unless the operator has applied for or received a variance as prescribed in Article 5 of this subchapter."²³⁹ The "Noise Impact Area" in turn is defined as "the area within the noise impact boundary [65 CNEL] that is composed of incompatible land use," and incompatible land uses, such as dwellings or schools (with certain exceptions such as if they are acoustically treated to an interior CNEL of 45 dB or less or are subject to an aviation easement) are described in the Noise Standards.²⁴⁰

²³⁶ California Public Utilities Code § 21669.

²³⁷ 21 CCR § 5005.

²³⁸ Federal Aviation Administration (FAA). (2006, April 28). Order 5050.4B. *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Projects*. Ch.1(9)(n).

²³⁹ 21 CCR § 5012.

²⁴⁰ 21 CCR § 5001(k), 5014.

The FHWA regulations in 23 CFR 772 require state highway agencies to prepare updated state-specific policies and procedures for applying the regulation in their state. Caltrans policies and procedures for implementing 23 CFR 772 are contained in *Traffic Noise Analysis Protocol for New Highway Construction, Reconstruction, and Retrofit Barrier Projects* (the Protocol) in the state of California.²⁴¹ Caltrans has published a guidance document that supplements the Protocol and serves to assist highway noise analysts with the technical aspects of traffic noise analysis.²⁴² According to the Caltrans Protocol and consistent with 23 CFR 772, a traffic noise impact occurs when future project noise levels cause a substantial noise increase over existing noise. Specifically, a substantial increase occurs when a project's predicted worst-hour design-year noise level exceeds the existing worst-hour noise level by 12 dBA or more. Additionally, an impact would occur if peak hour traffic noise levels approach (within 1 dB) or exceed the FHWA noise abatement criteria, see **Table 3.11-1**.

LOCAL

City of Oakland General Plan Noise Element

The City of Oakland has developed a Noise Element of the City of Oakland General Plan. The Noise Element analyzes noise sources and measurement standards in an effort to guide determination of appropriate land uses in comparison with existing or anticipated ambient noise levels.²⁴³ The CNEL standard is used to determine guidelines for whether new construction or development in a particular land use category will be acceptable. CNEL guidelines for specific land uses are classified into (1) normally acceptable, (2) conditionally acceptable, (3) normally unacceptable, and (4) clearly unacceptable.²⁴⁴ The CNEL guidelines are consistent with the standards promulgated by the California Department of Health Services (see **Figure 3.11-2**).²⁴⁵ A CNEL value of 65 dB is the upper limit of what is

²⁴¹ Division of Environmental Analysis, California Department of Transportation. (2020, April). *Traffic Noise Analysis Protocol for New Highway Construction, Reconstruction, and Retrofit Barrier Projects*. Retrieved from: <https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/traffic-noise-protocol-april-2020-a11y.pdf>.

²⁴² Division of Environmental Analysis, California Department of Transportation. (2013, September). *Technical Noise Supplement to the Caltrans Traffic Noise Analysis Protocol – A Guide for the Measuring, Modeling, and Abating Highway Operation and Construction Noise Impacts*. Report No. CT-HWANP-RT-13-069.25.2. Retrieved from: <http://www.dot.ca.gov/env/noise/docs/tens-sep2013.pdf>.

²⁴³ City of Oakland. (2005, June). Noise Element. *Oakland General Plan*.

²⁴⁴ "Normally Acceptable" means that a specified land use is satisfactory based upon the assumption that buildings involved are of normal conventional construction without special noise insulation requirements. "Conditionally Acceptable" means that new construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features are included in the design. "Normally Unacceptable" means that new construction or development should generally be discouraged, and a detailed noise analysis must be made if new construction or development proceeds. "Clearly Unacceptable" means new construction or development should generally not be undertaken. Noise Element of the City of Oakland General Plan.

²⁴⁵ Noise Element of Oakland General Plan. See California Department of Health Services. (1999). *Guidelines for the Preparation and Content of the Noise Element of the General Plan*. Appendix C, pp. 244- 254

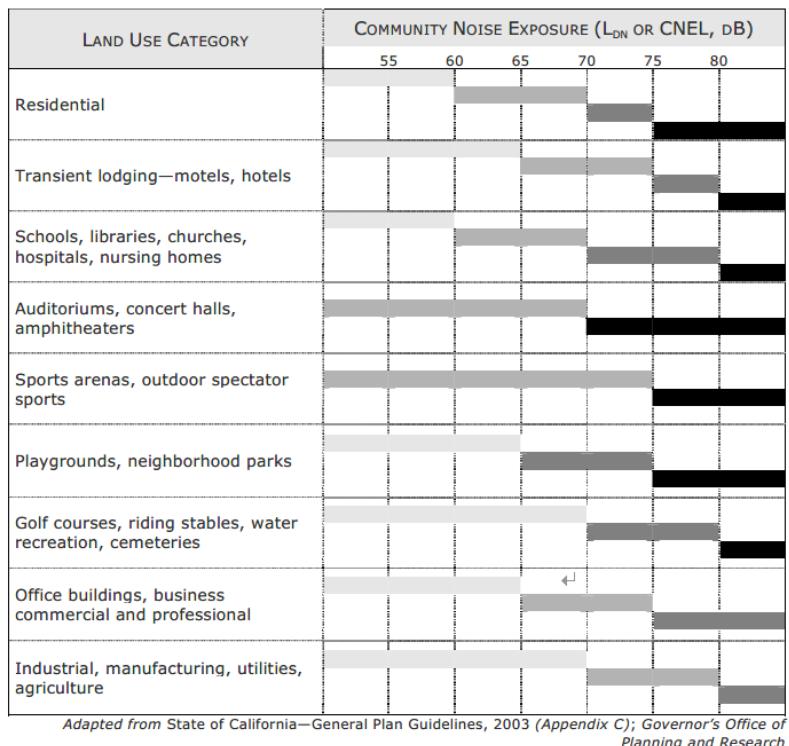
considered a “normally acceptable” noise environment for transient lodging uses (e.g. hotels), although a CNEL up to 75 dB is considered “conditionally acceptable.” A CNEL value of 60 dB is the upper limit of what is considered “normally acceptable” for residential uses, and a CNEL range of 60 dB to 70 dB is considered “conditionally acceptable” for residential uses.²⁴⁶

City of Oakland Construction Noise Limits

The City of Oakland municipal code includes noise level limits for construction efforts. The limits vary based on time of day, weekday or weekend, and duration of the construction effort. The weekday and weekend daytime limits are provided in **Table 3.11-4**. If nighttime construction is required, the limits provided in **Table 3.11-5** for operational sources would apply during the applicable time periods (i.e., 7 p.m. to 7 a.m. on weekdays and 8 p.m. to 9 a.m. on weekends and holidays).

FIGURE 3.11-2

NOISE STANDARDS PROMULGATED BY THE CALIFORNIA DEPARTMENT OF HEALTH SERVICES



Source: Governor’s Office of Planning and Research, 2020

INTERPRETATION ↗

NORMALLY ACCEPTABLE: Development may occur without an analysis of potential noise impacts to the proposed development (though it might still be necessary to analyze noise impacts that the project might have on its surroundings). ↗

CONDITIONALLY ACCEPTABLE: Development should be undertaken only after an analysis of noise-reduction requirements is conducted, and if necessary noise-mitigating features are included in the design. Conventional construction will usually suffice as long as it incorporates air conditioning or forced fresh-air-supply systems, though it will likely require that project occupants maintain their windows closed. ↗

NORMALLY UNACCEPTABLE: Development should generally be discouraged; it may be undertaken only if a detailed analysis of the noise-reduction requirements is conducted, and if highly effective noise insulation, mitigation or abatement features are included in the design. ↗

CLEARLY UNACCEPTABLE: Development should not be undertaken. ↗

²⁴⁶ California Department of Health Services. (1999). *Guidelines for the Preparation and Content of the Noise Element of the General Plan*. Appendix C, pp. 250.

TABLE 3.11-4
CITY OF OAKLAND CONSTRUCTION NOISE LIMITS

Receiving Land use	Weekdays 7 a.m.-7 p.m.	Weekends 9 a.m.-8 p.m.
<i>Less than 10 days</i>		
Residential	80	65
Commercial, Industrial	85	70
<i>More than 10 days</i>		
Residential	65	55
Commercial, Industrial	70	60

Source: City of Oakland, 2022.

TABLE 3.11-5
CITY OF OAKLAND OPERATIONAL NOISE STANDARDS

Receiving Land Use	Cumulative No. of Minutes in a 1-hour Period	Maximum Allowable Noise Level (dBA)	
		Daytime 7 a.m. to 10 p.m.	Nighttime 10 p.m. to 7 a.m.
Residential and Civic	20 (L_{33})	60	45
	10 ($L_{16.7}$)	65	50
	5 ($L_{8.3}$)	70	55
	1 ($L_{1.7}$)	75	60
	0 (L_{max})	80	65
Anytime			
Commercial	20 (L_{33})	65	
	10 ($L_{16.7}$)	70	
	5 ($L_{8.3}$)	75	
	1 ($L_{1.7}$)	80	
	0 (L_{max})	85	
Manufacturing, Mining, and Quarrying	20 (L_{33})	70	
	10 ($L_{16.7}$)	75	
	5 ($L_{8.3}$)	80	
	1 ($L_{1.7}$)	85	
	0 (L_{max})	90	

No.: number

dBA: A-weighted decibel

L_{max} : maximum sound level

Source: City of Oakland, 2022.

City of Alameda General Plan Noise Element

The City of Alameda updated of the Alameda General Plan 2040 in November 2021.²⁴⁷ This document references airport noise within Section 7 Health and Safety. Specifically, this plan includes goals and policies to protect Alameda residents from the harmful effects of exposure to excessive noise from aircraft, buses, boats, trucks and automobiles, and adjacent land uses. For transportation sources this means the City of Alameda supports state and federal guidelines and regulations used to reduce the effects of transportation noise on surrounding communities.

Alameda County General Plan Noise Element

Chapter II of the Alameda County General Plan addresses noise.²⁴⁸ The countywide Noise Element established interior and exterior noise average noise levels (Ldn) of 45 dBA and 55 dBA, respectively, for residential land uses based on federal noise level standards. The Noise Element also references noise compatibility standards developed by the Association of Bay Area Governments (ABAG), which identified a CNEL of 65 dBA or less as a basis for finding little noise impact on residential land uses, 65 to 70 dBA as a moderate impact, and any level above 70 dBA as a significant impact. The County General Plan includes the unincorporated area of San Lorenzo.

City of San Leandro Plan Noise Element

The City of San Leandro's General Plan addresses noise.²⁴⁹ Policies and actions under Goals EH-7, EH-8, and EH-9²⁵⁰ set forth a coordinated program to address stationary, transportation, and aircraft noise issues in the future.²⁵¹ The City of San Leandro follows California Building Codes, which includes noise insulation standards to limit the extent of noise transmitted into habitable spaces. These standards indicate the extent to which walls, doors, floors, and ceilings must block or absorb sound between exterior and interior spaces. An interior standard of 45 dBA CNEL is required for any habitable room. The City of San Leandro requires an acoustical analysis to demonstrate how dwelling units have been designed to meet this standard on sites where the ambient exterior noise level exceeds 60 dBA CNEL.²⁵²

Alameda County Airport Land Use Commission

The State Aeronautics Act (Public Utilities Code [PUC] Section 21670 et seq.) requires the preparation of an Airport Land Use Compatibility Plan (ALUCP) for nearly all public-use airports in California. The Alameda County Airport Land Use Commission (ALUC) has developed land use and noise compatibility policies for OAK and other airports in Alameda

²⁴⁷ City of Alameda. *The City of Alameda Housing Element Update*. Retrieved from: <https://www.alameda2040.org/>.

²⁴⁸ Alameda County Planning Commission. (1975, July 31). *Noise Element of the Alameda County General Plan*. Retrieved from: https://www.acgov.org/cda/planning/generalplans/documents/Noise_Element_1994.pdf.

²⁴⁹ City of San Leandro. *General Plan*. Retrieved from: <https://www.sanleandro.org/332/General-Plan>.

²⁵⁰ City of San Leandro. *General Plan*. Chapter 7. pp. 61-68

²⁵¹ City of San Leandro. *General Plan*. Chapter 7. pp. 30

²⁵² City of San Leandro. *General Plan*. Chapter 7. pp. 7

County.²⁵³ The OAK ALUCP states that “the maximum CNEL considered acceptable for new residential uses in the vicinity of OAK is anything less than 65 CNEL contour,” and also establishes the maximum, aircraft-related interior noise levels which shall be considered acceptable for land uses within the airport influence area (AIA) are 45 dB CENL, or 50 dB CNEL depending on land use type as defined in Section 3.3.1.6 of the ALUCP and provided in Table 3-1 of the OAK ALUCP.²⁵⁴

3.11.1.3 Significance Thresholds

For purposes of this analysis, implementation of the Proposed Project may result in a significant noise impact if it results in:

- A substantial increase in aircraft noise.²⁵⁵ For purposes of this Draft EIR, a substantial increase is:
 - An increase in the Noise Impact Area described under State law – e.g., an increase in incompatible land uses within the 65 dB Community Noise Exposure Level (65 CNEL) noise contour as a result of the Proposed Project.
 - A noise sensitive land use within the existing 65 CNEL (or higher) noise contour that experiences an increase of CNEL 1.5 dB as a result of the Proposed Project.
 - A noise-sensitive land use outside the existing 65 CNEL that experiences an increase of CNEL 1.5 dB that results in exposure to noise of 65 CNEL (or higher).
- Sleep disturbance from aircraft noise does not currently have a significance threshold but is reported in **Appendix M** of this Draft EIR for supplemental information.
- Noise from Proposed Project-related vehicle traffic that would cause ambient noise levels to increase by 5 dBA CNEL or more at a noise-sensitive land use.
- Noise from on-site construction that exceeds the City of Oakland construction noise limits.
- Noise from off-site construction traffic that exceeds the exterior ambient noise level by 5 dBA or more at a noise-sensitive use, as measured at the property line of any sensitive use.
- A substantial increase in ground-borne vibration resulting in structural damage or human annoyance.²⁵⁶ For purposes of this Draft EIR, the Caltrans construction vibration guidance thresholds are used, and a substantial increase is:

²⁵³ Alameda County. (2021). *General Plan, Specific Plans & Ordinances*. Retrieved from: <https://www.acgov.org/cda/planning/generalplans/index.htm>.

²⁵⁴ Alameda County. (2010, December). *Oakland International Airport, Airport Land Use Compatibility Plan*. Retrieved from: http://www.acgov.org/cda/planning/generalplans/documents/OAK_ALUCP_122010_FULL.pdf.

²⁵⁵ FAA Order 1050.1F, Exhibit 4-1.

²⁵⁶ Caltrans. (2020). *Transportation and Construction Vibration Guidance Manual*. Retrieved May 2023, from: <https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/tcvgm-apr2020-a11y.pdf>.

- Vibrations exceeding 80 VdB (vibration decibels) on residential land uses or sustained vibrations meeting or exceeding 68 VdB.
- A transient PPV of 0.5 or a continuous PPV of 0.25 on historic structures.
- Proposed Project construction and operation activities cause ground-borne vibration levels to exceed 0.035-inch-per-second PPV at nearby residential uses.

To determine if a project would generate “excessive ground-borne vibration or ground-borne noise levels,” Caltrans has developed the *Transportation and Construction Vibration Guidance Manual*, which contains State thresholds of significance for vibration. Vibration is measured using PPV (in/sec), which determines the effect vibration can have on structures. Sources of ground-borne vibration can be broken into two categories, transient sources and continuous sources. Continuous sources of vibration include vibratory compaction and other types of construction activities that occur continuously while active. There are no permanent continuous vibration sources, such as new transit lines, included in the Proposed Project. Transient sources of vibration are those that occur on a pronounced or single-event basis such as impact pile driving. Each type of vibration has a Caltrans threshold of significance associated with it. **Table 3.11-6** presents the Caltrans thresholds of significance associated with two types of vibration. Because construction activities associated with the Proposed Project would result in vibration, but the buildout development option would not include the introduction of new sources of operational vibration sources, construction vibration activities are the only type of project related vibration analyzed in this Draft EIR.

TABLE 3.11-6
CALTRANS STRUCTURAL VIBRATION THRESHOLDS OF SIGNIFICANCE

	Transient Source	Continuous Source
Extremely fragile historic buildings, ruins, ancient monuments	0.12 PPV	0.08 PPV
Fragile buildings	0.2 PPV	0.1 PPV
Historic and Some Old Buildings	0.5 PPV	0.25 PPV
Older Residential Buildings	0.5 PPV	0.3 PPV
New Residential Buildings	1 PPV	0.5 PPV
Modern Industrial/Commercial Buildings	2 PPV	0.5 PPV

PPV: peak particle velocity

Source: Caltrans, 2020.

3.11.1.4 Methodologies

The methodology for analyzing noise is dependent on the different types of noise and the methods of measuring that noise. The following provides the specific methodologies used for each of the different types of noise.

CONSTRUCTION NOISE

The analysis of noise from construction activities such as paving, excavation, pile driving, and hauling develops estimates of noise exposure at nearby noise-sensitive land uses as follows:

- Identifying the construction phases, construction schedule, equipment by phase, quantities of equipment, durations of equipment during each phase to calculate noise levels.
- Using industry accepted data sources to determine the noise and vibration levels of each type of equipment.
- Determining the location of the noise-sensitive land uses or receptors nearest to the construction area.
- Applying standard noise attenuation factors (i.e., 6 dB per doubling of distance from stationary noise sources) to determine potential impact conditions at sensitive receptors.²⁵⁷
- Comparing the resulting noise levels to applicable guidelines and regulations.
- Including multiple construction equipment at the same time throughout each year.

AIRCRAFT OPERATIONS

The methodology for analyzing noise from aircraft operations follows a generally accepted process that includes the application of a computer model to estimate noise levels associated with a project, and comparison of the results to noise levels of existing conditions. Modeled aircraft CNEL noise exposure maps are used as planning tools to allow the comparison of different scenarios of operations over a broad geographical area. The aircraft noise modeling analysis methodology outlined in FAR Part 150, *Airport Noise Compatibility Planning*,²⁵⁸ and FAA's *1050.1F Desk Reference, Version 2* (Chapter 11, Sections 11.1 through 11.3),²⁵⁹ was followed, where applicable.

Aircraft noise is estimated using the latest version of the Federal Aviation Administration's (FAA's) Aviation Environmental Design Tool (AEDT) Version 3e, which is a software system that models aircraft performance in space and time.²⁶⁰ The FAA's AEDT Version 3e is used to identify the aircraft noise levels associated with the existing conditions as well as in 2028 and 2038. AEDT requires the input of the physical and operational characteristics of the airport. Physical characteristics include runway coordinates, airport altitude, temperature, and optionally, topographical data. Operational characteristics include various types of aircraft data. This includes not only the aircraft types and flight tracks, but also departure procedures, arrival procedures, and stage lengths (flight distance) that are specific to the

²⁵⁷ A noise-sensitive receptor is defined as a location where noise can interrupt on-going activities which can result in community annoyance especially in residential areas. The noise-sensitive receptors used in this analysis were selected by taking locations used in the Part 150 analysis and locations directly in the approach and departure path of aircraft.

²⁵⁸ 14 CFR Part 150. *Airport Noise Compatibility Planning*. Retrieved from: <https://www.ecfr.gov/cgi-bin/text-idx?SID=f8e6df268e3dad2edb848f61b9a0fb51&mc=true&node=pt14.3.150&rqn=div5>.

²⁵⁹ U.S. Department of Transportation, Federal Aviation Administration. (2020, February). *1050.1F Desk Reference, Version 2*. Retrieved from: https://www.faa.gov/about/office_org/headquarters_offices/apl/environ_policy/guidance/faa_nepa_order/desk_ref/.

²⁶⁰ Federal Aviation Administration (FAA). (2021, March 29). *Aviation Environmental Design Tool (AEDT) Version 3d*. Retrieved from: https://aedt.faa.gov/3d_information.aspx.

operations at the airport. **Appendix L** describes the AEDT modeling parameters and input data used in this analysis.

Utilizing the FAA's AEDT Version 3e, CNEL contours for annual average daily aircraft operations were developed for (1) existing conditions in 2019, (2) conditions in 2028 due to forecasted growth, and (3) conditions in 2038 due to forecasted growth. As described in **Chapter 2, Project Description**, the OAK aviation activity projected in these forecasts would occur regardless of whether the Proposed Project is implemented. To provide a conservative analysis, the Port has elected in this Draft EIR to compare the aviation activity-based impacts of the Proposed Project in 2028 and 2038 to the 2019 OAK aviation activity level conditions, thus overstating the Proposed Project's actual impacts. In other words, the Proposed Project itself would have no effect on noise levels associated with aircraft operations, rather, the change in noise levels from 2019 to 2028 and 2038 aircraft operations is entirely attributable to market-based demand that would occur with or without the Proposed Project. Because of this, estimated aircraft noise levels in 2028 and 2038 with implementation of the Proposed Project are the same as estimated aircraft noise levels in each respective year without the Proposed Project.

The noise modeling conducted with AEDT took the effects of terrain into account. Terrain data were obtained from the U.S. Geological Survey (USGS) National Map Viewer. This is a user selection within AEDT, and AEDT uses terrain data to adjust the ground level under the flight path. Terrain data affects the vertical distance between aircraft and a "receiver" on the ground. This, in turn, affects assumptions about how noise propagates over ground.

The noise associated with aircraft operations are modeled using AEDT based on the following input parameters (**Appendix L** describes these parameters and how they were derived in greater detail):

- The number of arrivals (landings) and departures (takeoffs) during an annual average day. The annual average day represents the number of operations during the year divided by 365/366.²⁶¹
- The types of aircraft (or fleet mix) operating at the Airport over the course of the year.
- The distance that aircraft taking off will fly as it affects the amount of fuel carried and, therefore, the weight of the aircraft.
- The runways used for landing or takeoff.
- The flight paths or tracks the aircraft fly to or from the runway ends.
- The time of day during which each operation occurs. The CNEL noise metric adds a 4.8-decibel weighting to events occurring between the evening hours of 7:00 and 10:00 PM and a 10-decibel weighting to events occurring between 10:00 PM and 7:00 AM (nighttime).

²⁶¹ 365 days is included as a non-leap year number of days and 366 days is included as a leap year number of days. Future year 2028 is a leap year.

ROADWAY TRAFFIC NOISE

The evaluation of project-related noise levels related to traffic on the off-airport roadway network includes traffic noise predictions using the latest version of the SoundPLAN noise model implementing the FHWA Traffic Noise Model.

Traffic noise levels for existing conditions (2019) and future years (2028 and 2038) were computed in SoundPLAN using average daily traffic (ADT) and a roadway time histogram that was processed for use in the model. The roadway time histogram is based on traffic counts and proportions the ADT across all hours of the day for the vehicle types being analyzed, specifically passenger vehicles, medium trucks (i.e., two axles and six tires), heavy trucks (three axles or more), buses, and motorcycles. This traffic data was assigned to the off-airport roadway network and traffic noise levels calculated for the Leq(h) and the CNEL in dBA. Shielding of traffic noise from buildings and effects from intervening terrain were included in the assumptions. A default ground absorption consistent with a paved environment was used to be conservative. Traffic noise predictions were calculated at noise-sensitive land uses near (within approximately 500 feet) of busy roadways in the noise analysis area.

GROUND-BORNE VIBRATION

The analysis of ground-borne vibration is as follows:

- Identifying the most vibration-intensive types of construction equipment used in a particular type of construction activity (i.e., demolition, building construction, roadway construction, etc.) and calculating PPV from the operation of that equipment at the closest sensitive receptor(s).
- Using industry accepted data sources to determine the vibration levels of each type of equipment.
- Determining the location of the vibration-sensitive land uses or receptors nearest to the construction area.
- Applying standard noise attenuation factors (i.e., 6 dB per doubling of distance from stationary noise sources) to determine potential impact conditions at sensitive receptors.²⁶²
- Comparing the resulting vibration levels to applicable guidelines and regulations.

EXCESSIVE NOISE IN AN ALUP AREA

The significance thresholds associated with aircraft operations also would be applicable to whether noise in an ALUP area is considered to be excessive.

3.11.2 Existing Conditions / Environmental Setting

The section summarizes the variety of urban land uses of varying levels of sensitivity to noise. Typical noise-sensitive land uses include residential development, schools, and

²⁶² A noise-sensitive receptor is defined as a location where noise can interrupt on-going activities which can result in community annoyance especially in residential areas. The noise-sensitive receptors used in this analysis were selected by taking locations used in the Part 150 analysis and locations directly in the approach and departure path of aircraft.

places of worship. This section explains the aircraft noise exposure greater than or equal to 65 CNEL associated with existing conditions (2019).

3.11.2.1 Existing Aircraft Noise Exposure

Using the FAA's AEDT Version 3e, CNEL contours were developed for noise levels associated with existing aircraft operations at OAK. **Figure 3.11-3** delineates the 65, 70, and 75 CNEL aircraft noise contours for the existing conditions.

As shown in the 2019 noise contours, the 65 CNEL contour primarily extends north-west and south-east of South Field, along the aircraft approach and departure paths to and from Runway 12-30. The 2019 65 CNEL contours shown encompass approximately 5.28 square miles (3,380.9 acres). For informational purposes, 2.10 square miles (1,342.0 acres) of the 65 CNEL contour is over land while most of the contour, 3.19 square miles (2,038.9 acres), is over water. The 65 to 70 CNEL contour interval covers 3.30 square miles (2,113.1 acres), the 70 to 75 CNEL contour includes 1.25 square miles (800.8 acres), and the 75+ CNEL contour level encompasses 0.70 square miles (467.0 acres). As shown, the 65 CNEL contour primarily extends north-west and south-east of South Field over San Francisco Bay, along the aircraft approach and departure paths to and from Runway 12-30. On North Field, the 65 CNEL contour primarily extends to the east staying over Airport property, as well as the Metropolitan Golf Links Golf Course where Project Component L-2, Replacement of Employee Parking – Golf Course Lot, would be located.

3.11.2.2 Population, Housing, and Acreage

Table 3.11-7 provides the estimated population, housing units, and acreage within the 65-70 CNEL, 70-75 CNEL, and 75+ CNEL contours under existing conditions. As shown, there is no population or housing within the noise contours listed.

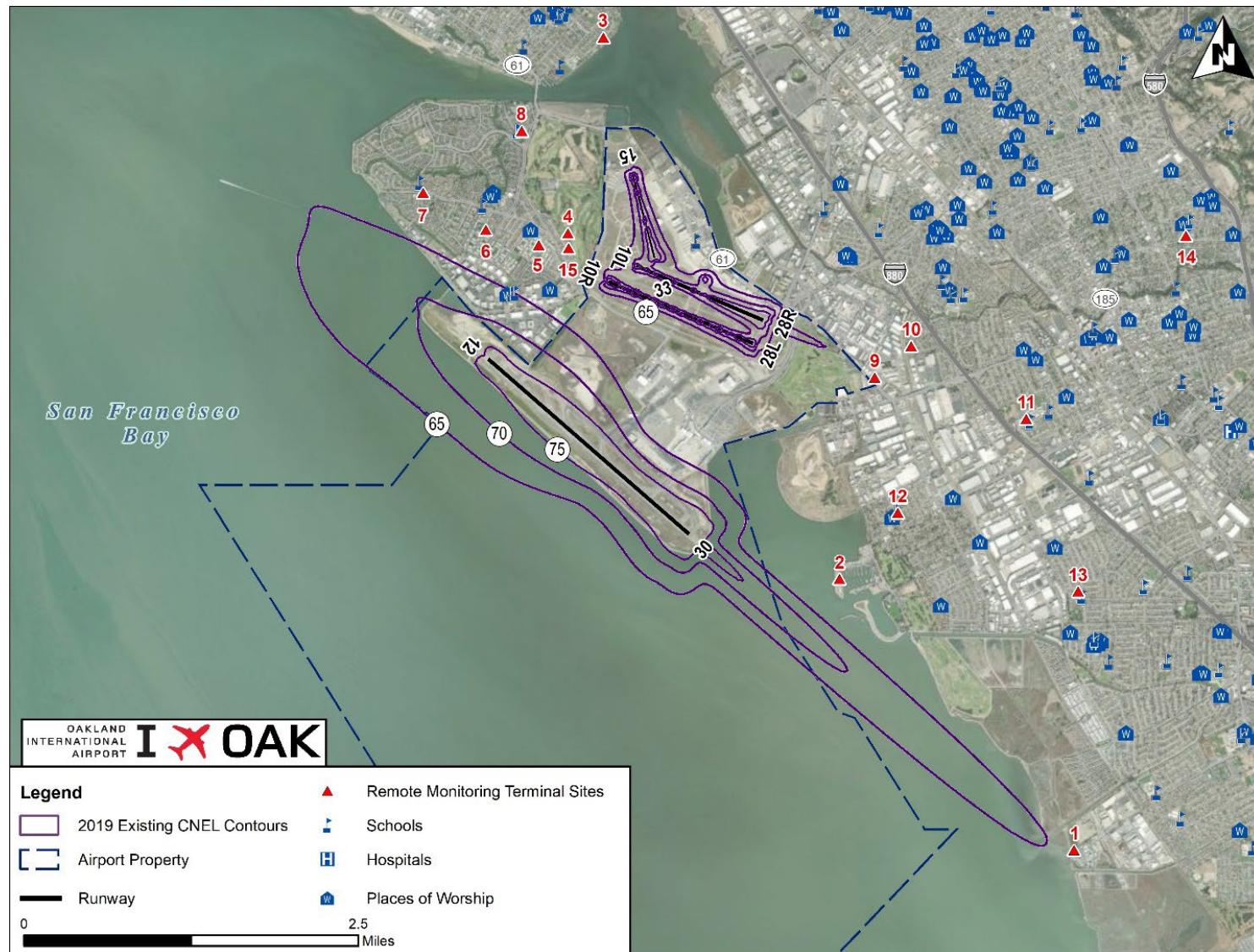
TABLE 3.11-7
ESTIMATED POPULATION, HOUSING UNITS, AND ACREAGE WITHIN THE AIRCRAFT NOISE CONTOURS UNDER EXISTING CONDITIONS

Population				Housing Units				Acreage			
65-70 CNEL	70-75 CNEL	75+ CNEL	Total	65-70 CNEL	70-75 CNEL	75+ CNEL	Total	65-70 CNEL	70-75 CNEL	75+ CNEL	Total
0	0	0	0	0	0	0	0	2113.1	800.8	467.0	3380.9

CNEL: Community Noise Equivalent Level

Source: HMMH, 2022

FIGURE 3.11-3
OAKLAND INTERNATIONAL AIRPORT 2019 EXISTING COMMUNITY NOISE EQUIVALENT LEVEL (CNEL) CONTOURS



Source: HMMH, 2023

3.11.2.3 Other Noise-Sensitive Uses

Table 3.11-8 provides the number of noise sensitive land uses within the 65–70 CNEL, 70-75 CNEL, and 75+ CNEL contours under existing conditions.

There are six noise-sensitive land uses within the listed noise contours. These sites were selected using a combination of previously studied sites and additional sites directly in the approach/departure path that would experience the greatest potential for noise-related changes. These six sites currently experience aircraft noise levels between 65 and 75 CNEL.

TABLE 3.11-8

OTHER NOISE-SENSITIVE USES WITHIN THE AIRCRAFT NOISE CONTOURS UNDER EXISTING CONDITIONS

	65 – 70 CNEL	70 – 75 CNEL	75+ CNEL	Total
House of Worship	1	0	0	1
School	2	0	0	2
Library	0	0	0	0
Hospital	0	0	0	0
College	0	0	0	0
Transient Lodging / Hotel	3	0	0	3
Total	6	0	0	6

CNEL: Community Noise Equivalent Level

Source: HMMH, 2022

3.11.3 Environmental Impacts and Mitigation Measures

This section summarizes the evaluation of noise impacts generated by the Proposed Project.

3.11.3.1 Construction Noise Impacts

Noise impacts from construction equipment expected to be used for the Proposed Project were evaluated by considering the different types of construction activities and calculating construction-related noise levels at nearby noise-sensitive receptor locations. To be conservative, all construction equipment was assumed to be operating at the closest location within each construction stage area to each noise-sensitive receptor.

Construction activities for the Proposed Project would occur during daytime hours (7:00 a.m. to 7:00 p.m. weekdays and 9:00 a.m. to 8:00 p.m. on weekends and holidays); however, the specific construction schedule is not known at this time, and it is possible that some construction activities would be scheduled during nighttime hours. Examples of possible nighttime construction activities may include those that cannot stop until completion, such as large concrete pours, or when it is safer and more efficient to complete airfield improvement work late at night when aircraft activity levels are low. Should construction occur at night the contractor would need to comply with the City's nighttime construction noise limits, see **Table 3.11-4**. **Table 3.11-9** provides a summary of the construction noise levels by construction year and indicates that exceedances of the City of Oakland's limits would occur at receptors R4, R8, and R16 in 2025, all receptors except for R4, R5, and R6 in 2026, and at R16 in 2027. See construction schedule for details on the

duration of construction activities in each of these years. The receptor locations in **Table 3.11-9** are shown in **Figure 3.11-4**. The construction stages and years are identified in Chapter 2.

Off-site construction noise is not anticipated to result in an increase of 5 dB or greater since project construction traffic would not result in a significant increase on area roadways. Specifically, for a 3 dB increase to occur a doubling of roadway traffic would be needed. While there will be some off-site construction traffic the project would not double the traffic; therefore, there would be no significant impact from off-site construction noise.

The Proposed Project would result in a ***potentially significant*** impact from on-site construction noise and the following mitigation measures would be incorporated.

MITIGATION MEASURES

Monitor Construction Noise: Continuously monitor construction noise at the closest noise sensitive receptor(s) to the active construction effort. Actual construction methods may not be as intrusive as currently assumed in this analysis, but if any measurement indicates an exceedance of the City's construction noise thresholds from Proposed Project construction, measures including but not limited to those described below will be used to ensure that the significance threshold is not exceeded.

Construction Scheduling: The timing and/or sequence of the noisiest onsite construction activities shall avoid noise-sensitive times of the day or week, as feasible (7:00 p.m. to 7:00 a.m. Monday–Friday; 8:00 p.m. to 9:00 a.m. on weekends and holidays).

Construction Equipment: Stationary source equipment that has a flexible location of use (such as generators and compressors) shall be located at the greatest distance practical from noise-sensitive land uses. “Quiet-design” air compressors and other quieter construction equipment shall be used when feasible and when such technology/equipment is commercially available.

SIGNIFICANCE AFTER MITIGATION

If noise monitoring determines that mitigation measures are necessary, implementation of the construction scheduling and construction equipment mitigation measures would be expected to effectively reduce the effects of construction noise on sensitive receptors to less than a 5-dBA CNEL increase. Additional or different measures are available and if necessary, construction scheduling could be revised to ensure the threshold is not exceeded. As such, the impact would be ***less than significant with mitigation incorporated.***

TABLE 3.11-9
SUMMARY OF CONSTRUCTION NOISE LEVELS (A-weighted decibel [dBA])

Receptor	City of Oakland Construction Noise Limit (dBA Leq)		Combined Construction Noise Levels (dBA)																				
			2025			2026			2027			2028			2029			2030					
	Weekday	Weekend	Leq	Weekday Impact	Weekend Impact	Leq	Weekday Impact	Weekend Impact	Leq	Weekday Impact	Weekend Impact	Leq	Weekday Impact	Weekend Impact	Leq	Weekday Impact	Weekend Impact	Leq	Weekday Impact	Weekend Impact	Leq	Weekday Impact	Weekend Impact
R1	70	60	59	No	No	65	No	Yes*	59	No	No	56	No	No	54	No	No	47	No	No	47	No	No
R2	70	60	60	No	No	65	No	Yes*	59	No	No	56	No	No	54	No	No	47	No	No	47	No	No
R3	70	60	59	No	No	65	No	Yes*	59	No	No	56	No	No	54	No	No	47	No	No	47	No	No
R4	70	60	60	No	Yes*	60	No	Yes*	56	No	No	52	No	No	50	No	No	43	No	No	43	No	No
R6	70	60	58	No	No	57	No	No	55	No	No	51	No	No	49	No	No	43	No	No	43	No	No
R7	70	60	59	No	No	58	No	No	55	No	No	52	No	No	50	No	No	43	No	No	43	No	No
R8	70	60	67	No	Yes*	60	No	Yes*	58	No	No	54	No	No	52	No	No	45	No	No	45	No	No
R9	70	60	59	No	No	64	No	Yes*	59	No	No	56	No	No	54	No	No	47	No	No	47	No	No
R10	70	60	59	No	No	64	No	Yes*	59	No	No	55	No	No	54	No	No	47	No	No	47	No	No
R12	70	60	58	No	No	64	No	Yes*	58	No	No	55	No	No	53	No	No	47	No	No	47	No	No
R13	70	60	57	No	No	63	No	Yes*	57	No	No	54	No	No	52	No	No	45	No	No	45	No	No
R14	70	60	57	No	No	63	No	Yes*	57	No	No	54	No	No	52	No	No	45	No	No	45	No	No
R15	70	60	57	No	No	62	No	Yes*	57	No	No	54	No	No	52	No	No	45	No	No	45	No	No
R16	65	55	66	Yes*	Yes*	60	No	Yes*	57	No	Yes*	53	No	No	51	No	No	44	No	No	44	No	No

Bold and with asterisk (*) indicates exceedance of the CEQA ambient degradation significance criteria.

dBA: a-weighted decibel

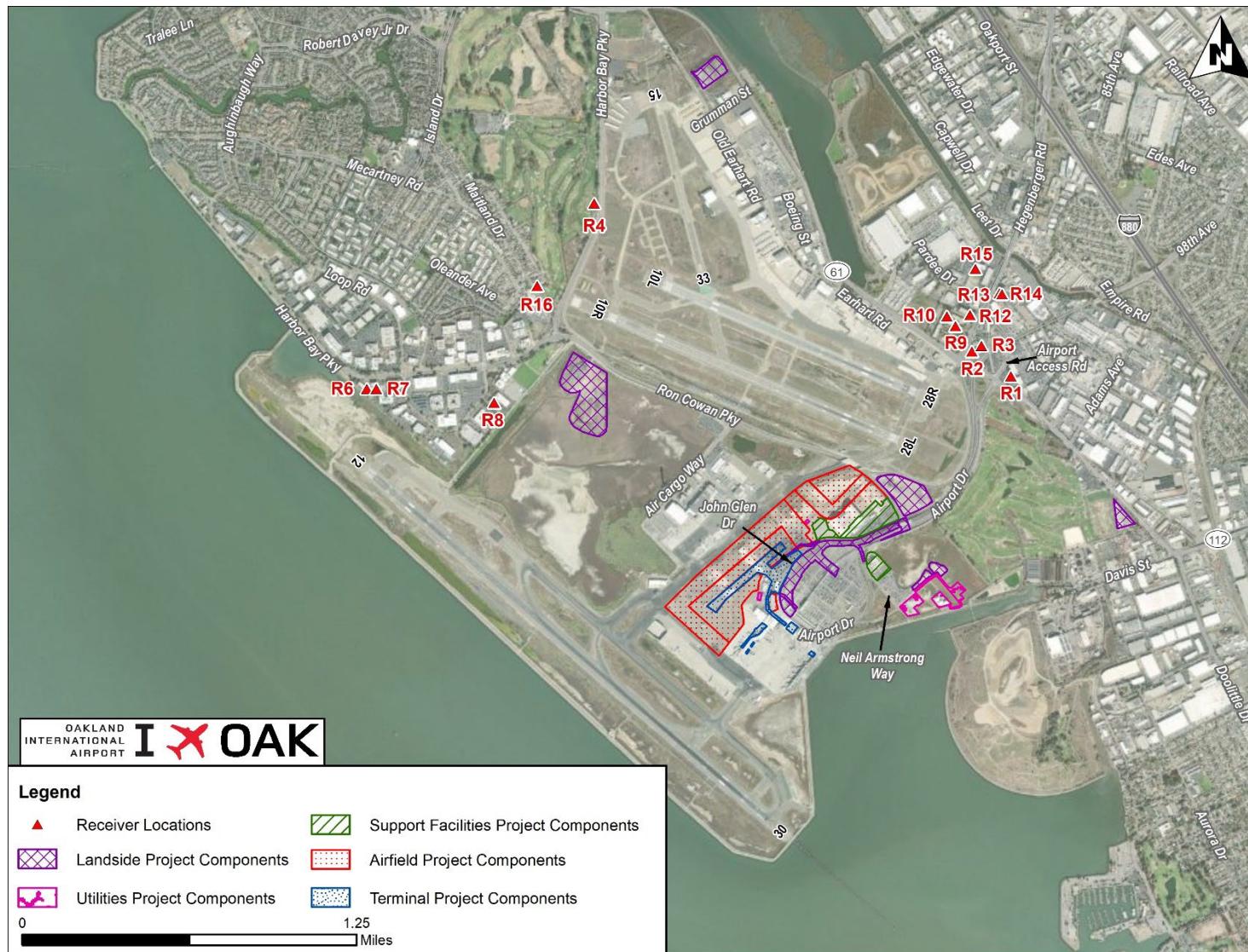
Leq: Equivalent Sound Level

/a/ If nighttime construction is required, the limits provided in **Table 3.11-5** for operational sources would apply during the applicable time periods (i.e., 7 p.m. to 7 a.m. on weekdays and 8 p.m. to 9 a.m. on weekends).

Source: HMMH, 2023

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FIGURE 3.11-4
CONSTRUCTION AREAS AND AREA ROADWAYS



Source: HMMH, 2023

3.11.3.2 Aircraft Operations Noise Impacts

Table 3.11-10 provides the area within the 65 CNEL contours for existing conditions (2019) as well as future years (2028 and 2038). **Table 3.11-11** provides the CNEL reported at each of the fourteen Remote Monitoring Terminals (RMT) dispersed in the communities surrounding OAK for existing conditions (2019) as well as future years (2028 and 2038). CNELs at these locations were determined using the noise grid values generated in AEDT for each scenario.

TABLE 3.11-10
AVERAGE ANNUAL AIRCRAFT OPERATIONS AT OAK

Year	Area of Contour (Acres)		
	2019	2028	2038
Total area within 65 CNEL or greater contour	3,380.9	3,524.9	3,731.3

CNEL: Community Noise Equivalent Level

Source: HMMH, 2022

TABLE 3.11-11
COMMUNITY NOISE EQUIVALENT LEVEL AT REMOTE MONITORING TERMINALS FOR EXISTING AND FUTURE CONDITIONS WITH THE PROPOSED PROJECT

ID	Existing Conditions (2019)	Future Year 2028	Change from Existing to Future Year 2028	Future Year 2038	Change from Existing to Future Year 2038
RMT 1	64.0	64.1	0.1	64.7	0.7
RMT 2	56.3	56.4	0.1	56.7	0.4
RMT 3	52.5	52.2	-0.3	52.1	-0.4
RMT 4	61.2	61.0	-0.2	60.9	-0.3
RMT 5	61.1	61.1	0.0	61.0	-0.1
RMT 6	60.9	60.8	-0.1	60.7	-0.2
RMT 7	61.3	61.2	-0.1	61.1	-0.2
RMT 8	55.8	55.4	-0.4	55.3	-0.5
RMT 9	61.5	62.0	0.5	62.6	1.1
RMT 10	53.8	54.1	0.3	54.5	0.7
RMT 11	55.5	55.9	0.4	56.6	1.1
RMT 12	51.7	51.8	0.1	51.8	0.1
RMT 13	46.4	46.3	-0.1	46.5	0.1
RMT 14	43.4	43.6	0.2	43.7	0.3

RMT: Remote Monitoring Terminals

Source: HMMH, 2022

To evaluate aircraft operations noise impacts, noise levels associated with the Proposed Project in 2028 and 2038 were compared to the aircraft operations noise levels associated with existing conditions (2019). As also previously described, the change in future aircraft operations noise conditions in the future (2028 and 2038) compared to existing conditions is attributable to forecasted passenger activity and aircraft operations that are anticipated to occur at OAK with or without the Proposed Project. Refer to **Section 2.4** and **Attachment C** for additional forecast information.

Figure 3.11-5 delineates the 65, 70, and 75 CNEL aircraft operations noise contours for the future conditions in 2028. As shown, the 65 CNEL contour primarily extends northwest and southeast along the aircraft approach and departure paths to and from Runway 12-30. The 2028 CNEL contours shown encompass approximately 5.51 square miles (3,524.9 acres). For informational purposes, 2.10 square miles (1,341.5 acres) of the 65 CNEL contour is over land while most of the contour, 3.46 square miles (2,183.4 acres), is over San Francisco Bay. The 65 to 70 CNEL contour interval covers 3.42 square miles (2,187.6 acres), the 70 to 75 CNEL contour includes 1.31 square miles (845.4 acres), and the 75+ CNEL contour level encompasses 0.77 square miles (491.9 acres). On North Field, the 65 CNEL contour primarily extends to the east staying over Airport property as well as the Metropolitan Golf Links Golf Course where Project Component L-2, Replacement of Employee Parking – Golf Course Lot, would be located.

Table 3.11-12 identifies the population, number of housing units, and acreage within the 65+ CNEL contours under existing conditions and 2028 conditions. As shown, there is no population or housing units within the 65+ noise contours in 2028.

Table 3.11-13 provides similar information for other noise-sensitive uses, such as houses of worship, schools, libraries, hospitals, and colleges with a comparison between 2028 and existing conditions.

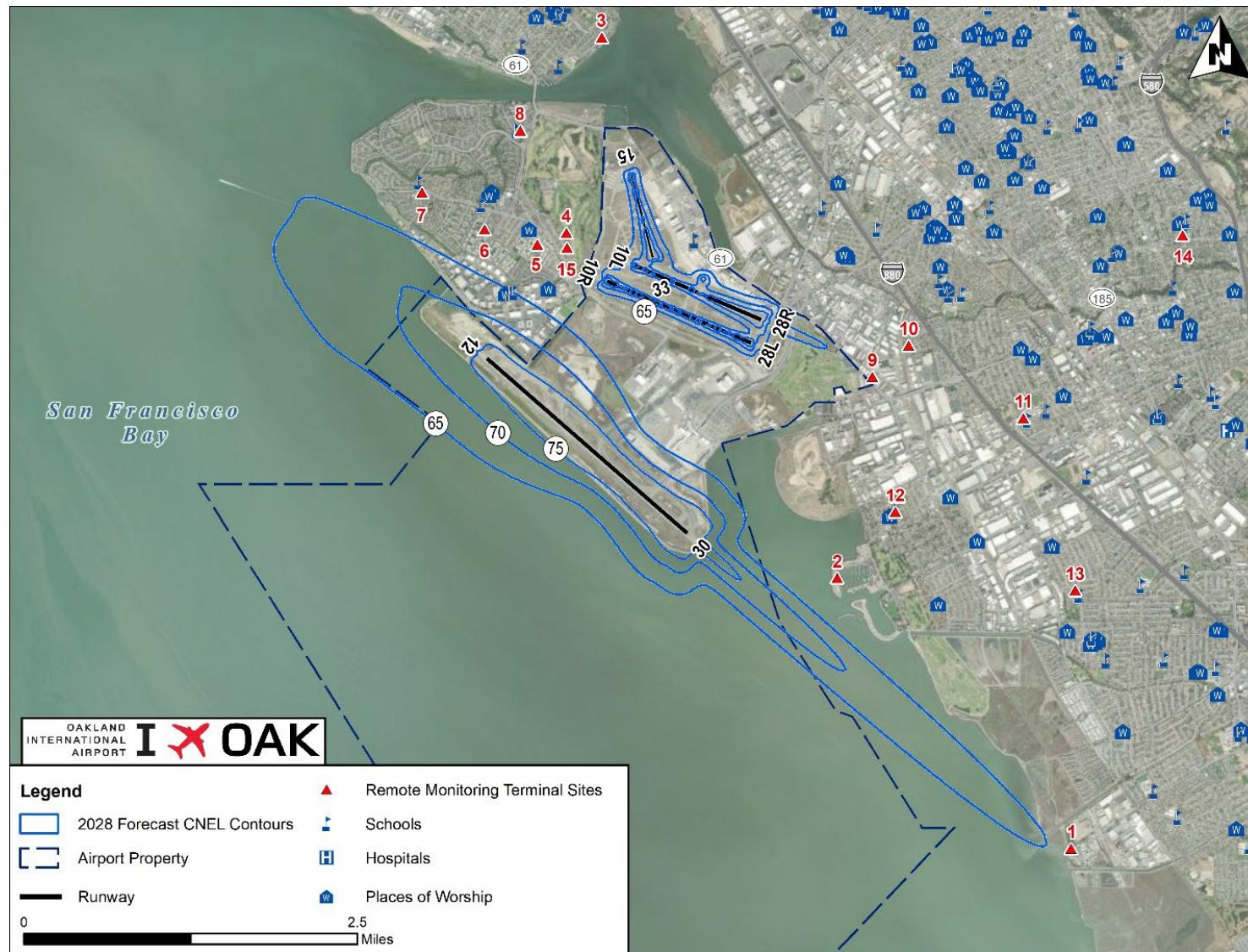
Figure 3.11-6 delineates the 65, 70, and 75 CNEL aircraft operations noise contours for the future conditions in 2038. As shown, the 65 CNEL contour primarily extends northwest and southeast along the aircraft approach and departure paths to and from Runway 12-30. The 2038 65 CNEL contours shown encompass approximately 5.83 square miles (3,731.3 acres). For informational purposes, 2.12 square miles (1,357.2 acres) of the 65 CNEL contour is over land and most of the contour, 3.71 square miles (2,374.1 acres), is over San Francisco Bay. The 65 to 70 CNEL contour interval covers 3.63 square miles (2,323.3 acres), the 70 to 75 CNEL contour includes 1.39 square miles (889.8 acres), and the 75+ CNEL contour level encompasses 0.81 square miles (518.2 acres). On North Field, the 65 CNEL contour primarily extends to the east staying over airport property as well as the Metropolitan Golf Links Golf Course where Project Component L-2, Replacement of Employee Parking – Golf Course Lot, would be located.

Table 3.11-14 identifies the population, number of housing units, and acreage within the 65+ CNEL under existing conditions and 2038 conditions. As shown, there is no population or housing within the 65+ CNEL contours in 2038.

Table 3.11-15 provides similar information for other noise-sensitive uses, such as houses of worship, schools, libraries, hospitals, and colleges with a comparison between 2038 and existing conditions.

Table 3.11-16 identifies the CNEL value at the noise-sensitive uses with a comparison between the existing conditions and the future years of 2028 and 2038.

FIGURE 3.11-5
OAKLAND INTERNATIONAL AIRPORT 2028 COMMUNITY NOISE EQUIVALENT LEVEL (CNEL) CONTOURS



Source: HMMH, 2023

TABLE 3.11-12

ESTIMATED POPULATION, HOUSING UNITS, AND ACREAGE WITHIN THE AIRCRAFT NOISE CONTOURS UNDER EXISTING AND FUTURE 2028 CONDITIONS WITH THE PROPOSED PROJECT

Population				Housing Units				Acreage			
65-70 CNEL	70-75 CNEL	75+ CNEL	Total	65-70 CNEL	70-75 CNEL	75+ CNEL	Total	65-70 CNEL	70-75 CNEL	75+ CNEL	Total
Existing Conditions											
0	0	0	0	0	0	0	0	2,113.1	800.8	467.0	3,380.9
2028 Conditions with the Proposed Project											
0	0	0	0	0	0	0	0	2,187.7	845.4	491.9	3,524.9
Difference between Existing Conditions and 2028 Conditions with the Proposed Project											
0	0	0	0	0	0	0	0	74.6	44.6	24.9	144.0

CNEL: Community Noise Equivalent Level

Source: HMMH, 2022

TABLE 3.11-13

ESTIMATED NOISE-SENSITIVE LAND USES WITHIN THE AIRCRAFT OPERATIONS NOISE CONTOURS UNDER EXISTING (2019) AND FUTURE (2028) CONDITIONS WITH THE PROPOSED PROJECT

House of Worship				School				Library			Hospital			College			Transient Lodging / Hotel			Total of All Uses				
65-70 CNEL	70-75 CNEL	75+ CNEL	Total	65-70 CNEL	70-75 CNEL	75+ CNEL	Total	65-70 CNEL	70-75 CNEL	75+ CNEL	Total	65-70 CNEL	70-75 CNEL	75+ CNEL	Total	65-70 CNEL	70-75 CNEL	75+ CNEL	Total	65-70 CNEL	70-75 CNEL	75+ CNEL	Total	
Existing Conditions																								
1	0	0	1	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	6
2028 Conditions with the Proposed Project																								
1	0	0	1	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	6
Difference between Existing Conditions and 2028 Conditions with the Proposed Project																								
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

CNEL: Community Noise Equivalent Level

Source: HMMH, 2022

FIGURE 3.11-6
OAKLAND INTERNATIONAL AIRPORT 2038 COMMUNITY NOISE EQUIVALENT LEVEL (CNEL) CONTOURS



SOURCE: HMMH, 2023

TABLE 3.11-14

ESTIMATED POPULATION, HOUSING UNITS, AND ACREAGE WITHIN THE AIRCRAFT NOISE CONTOURS UNDER EXISTING AND FUTURE 2038 CONDITIONS WITH THE PROPOSED PROJECT

Population				Housing Units				Acreage			
65-70 CNEL	70-75 CNEL	75+ CNEL	Total	65-70 CNEL	70-75 CNEL	75+ CNEL	Total	65-70 CNEL	70-75 CNEL	75+ CNEL	Total
Existing Conditions											
0	0	0	0	0	0	0	0	2,113.1	800.8	467.0	3,380.9
2038 Conditions with the Proposed Project											
0	0	0	0	0	0	0	0	2,323.3	889.8	518.1	3,731.3
Difference between Existing Conditions and 2038 Conditions with the Proposed Project											
0	0	0	0	0	0	0	0	210.2	89.0	51.1	350.3

CNEL: Community Noise Equivalent Level

Source: HMMH, 2022

TABLE 3.11-15

ESTIMATED NOISE-SENSITIVE LAND USES WITHIN THE AIRCRAFT OPERATIONS UNDER EXISTING (2019) AND FUTURE (2038) CONDITIONS WITH THE PROPOSED PROJECT

House of Worship				School				Library				Hospital				College				Transient Lodging / Hotel				Total of All Uses				
65-70 CNEL	70-75 CNEL	75+ CNEL	Total	65-70 CNEL	70-75 CNEL	75+ CNEL	Total	65-70 CNEL	70-75 CNEL	75+ CNEL	Total	65-70 CNEL	70-75 CNEL	75+ CNEL	Total	65-70 CNEL	70-75 CNEL	75+ CNEL	Total	65-70 CNEL	70-75 CNEL	75+ CNEL	Total					
Existing Conditions																												
1	0	0	1	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	6	0	0	6
2038 Conditions with the Proposed Project																												
1	0	0	1	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	6	0	0	6
Difference between Existing Conditions and 2038 Conditions with the Proposed Project																												
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

CNEL: Community Noise Equivalent Level

Source: HMMH, 2022

TABLE 3.11-16

COMMUNITY NOISE EQUIVALENT LEVEL (CNEL) AT NOISE-SENSITIVE RECEPTORS FOR EXISTING AND FUTURE CONDITIONS WITH THE PROPOSED PROJECT

ID	Existing Conditions (2019)	Future Year 2028	Change from 2019 to 2028	Future Year 2038	Change from 2019 to Future Year 2038
Coastline Christian Schools – Alameda	64.7	64.7	0.0	64.7	0.0
Extended Stay America – Oakland – Alameda Airport	66.1	66.1	0.0	66.2	0.1
Hampton Inn & Suites Oakland Airport – Alameda	69.9	70.3	0.4	70.4	0.5
Home2 Suites by Hilton Alameda Oakland Airport	69.7	70.0	0.3	70.1	0.4
Bay Area Chinese Bible Church	65.7	65.8	0.1	65.7	0.0
Tiny Treasures Preschool	65.1	65.2	0.1	65.1	0.0

Source: HMMH, 2022

Figure 3.11-7 shows the noise-sensitive uses within the 65+ CNEL aircraft noise contours. The area where there would be a 1.5-decibel increase in the noise level within the 65 CNEL or greater noise contour in 2028 and 2038 falls within compatible land uses. There are no noise-sensitive uses in 2028 or 2038 where a 1.5-decibel increase occurs. Therefore, aircraft noise impacts to noise-sensitive areas related to a 1.5-decibel increase within the 65 CNEL contour as a result of aircraft operations associated with the Proposed Project would be **less than significant**.

3.11.3.3 Roadway Traffic Noise Impacts

The computed dBA CNELs at noise sensitive land uses, which were identified based on FHWA and Caltrans regulations, along roadways identified in **Section 3.13, Transportation**, are presented in **Table 3.11-17** and show that there would be minimal effects to noise sensitive land uses from Proposed Project traffic. The receptor locations listed in **Table 3.11-17** are shown in **Figure 3.11-4**. Changes in roadway traffic noise levels with the Proposed Project would range from a decrease of 2.5 dB to an increase of 1 dB in 2028 and a decrease of 1.3 dB to an increase of 2.8 dB in 2038. These changes are reflective of the different traffic patterns that are anticipated with the Proposed Project and are primarily due to parking lot relocations. The Proposed Project would result in a **less-than-significant impact** from roadway noise.

FIGURE 3.11-7
NOISE-SENSITIVE RECEPTORS



Source: HMMH, 2023

3.11.3.4 Vibration Impacts

Vibration impacts from the construction equipment expected to be used for the Proposed Project were evaluated using the same construction inputs as the noise analysis, calculating construction-related vibration levels at nearby sensitive land uses, and comparing these construction-related vibration levels to applicable thresholds of significance. The nearest receptor to construction activities is the Econo Lodge (Receptor ID R2) at 3,258 feet from the detailed study area. The most vibration-intensive piece of equipment is anticipated to be a pile driver, which is estimated to have a source vibration level of 0.644 PPV in inches per second at 25 feet according to FTA.²⁶³ Assuming the Econo Lodge is an engineered

²⁶³ Federal Transit Administration (FTA). (2018, September). *Transit Noise and Vibration Impact Assessment Manual*. FTA Report No. 0123. Retrieved from: https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf.

TABLE 3.11-17
SUMMARY OF ROADWAY NOISE LEVELS (A-WEIGHTED DECIBEL [dBA])

Receptor ID	Name	Existing (2019)	Future Year 2028		Future Year 2038	
		CNEL	CNEL	CNEL Change /a/	CNEL	CNEL Change /a/
R1	Holiday Inn Express & Suites Oakland-Airport	59.6	60.6	1	61.8	2.2
R2	Econo Lodge Inn & Suites Oakland Airport	67.7	68.5	0.8	69.7	2.0
R3	Pool, Econo Lodge Inn & Suites Oakland Airport	59.5	60.4	0.9	61.6	2.1
R4	Corica Park Golf Course	54.9	52.4	-2.5	53.6	-1.3
R6	Hampton Inn	35.3	35.5	0.2	36.7	1.4
R7	Home2 Suites by Hilton	35.7	35.9	0.2	37.1	1.4
R8	Extended Stay America	39.6	39.4	-0.2	40.6	1
R9	Hilton Oakland Airport	58.9	59.7	0.8	60.8	1.9
R10	Hilton Oakland Airport Pool	58.5	59.4	0.9	60.6	2.1
R12	Holiday Inn & Suites Oakland Airport Pool	65.3	66.2	0.9	67.5	2.2
R13	Oakland Airport Executive Hotel	54.9	55.9	1	57.7	2.8
R14	Oakland Airport Executive Hotel Pool	59.2	60.1	0.9	61.6	2.4
R15	SpringHill Suites by Marriott	53.7	54.7	1	55.9	2.2
R16	Single Family Residential	46.3	44.6	-1.7	45.7	-0.6

dBA: A-weighted decibel

CNEL: Community Noise Equivalent Level

/a/ CEQA significance threshold for a change in traffic noise is 5 dBA.

Source: HMMH, 2022

concrete and masonry building, the impact criterion would be 0.3 PPV inches per sec. No construction vibration damage impact is predicted since vibration from the pile driver would attenuate to 0.3 PPV at 55 feet, and the distance to the Econo Lodge is greater than 55 feet. Similarly, vibration annoyance impacts are not anticipated because the source level of the pile driver is 104 VdB according to FTA at 25 feet and it would attenuate to the annoyance impact criterion level of 72 VdB at 291 feet. Because the Econo Lodge is further away than this no impact is predicted.

The Proposed Project would result in a **less-than-significant impact** from construction vibration.

3.11.3.5 Impacts Related to Excessive Noise in an Airport Land Use Plan Area

The Proposed Project consists of improvements to an existing public airport. As shown in **Table 3.11-7**, **Table 3.11-12**, and **Table 3.11-14**, there are no residences located within the existing or future noise contours.

Operation of the Proposed Project would not result in changes to the existing noise contours that would result in any new noise sensitive land uses falling within the noise contours. Noise levels would be similar to existing levels, which are typical for an active public airport. The impact would be ***less than significant***.

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3.12 PUBLIC SERVICES

This section describes the existing conditions, potential impacts and, where appropriate, proposed mitigation measures related to public services, specifically airport security, law enforcement, fire protection, parks, and public kindergarten through 12th grade schools as a result of the Proposed Project at OAK.

Information presented in this section was compiled from previous studies of Airport public services prepared by the Port, interviews of and data collection from Airport operations staff, and data from local fire and police station websites.

3.12.1 Background and Methodology

3.12.1.1 Regulatory Context

FEDERAL

FAR Title 14, Part 139: Certification of Airports

Under Federal Aviation Regulations (FAR) Title 14, Part 139 certification, airports must maintain aircraft rescue and firefighting (ARFF) capabilities on airport property. As described in FAR Part 139, the Federal Aviation Administration (FAA) classifies airports by an Index Level "A" through "E" ranking system; each classification rank has different ARFF requirements that must be met. The index is determined by a combination of length of air carrier and average daily departures of air carrier aircraft. The Airport is classified as Index Level "D" because it includes aircraft at least 159 feet but less than 200 feet in length.²⁶⁴

FAR Title 49, Part 1540: Civil Aviation Security

FAR Title 49, Part 1540 establishes the Transportation Security Administration (TSA), which has the responsibility to serve as the authority over civil aviation security for all aviation-related activities. Part 1540 identifies TSA's role in airport security that may work in conjunction with the responsibilities of an airport's law enforcement authority. FAR Part 1540 requires passenger and baggage screening for certified airports of OAK's size. TSA, under the authority of the Department of Homeland Security, provides oversight compliance in airport security screening measures for the Airport.

FAR Title 49, Part 1542: Airport Security

The FAA establishes requirements for airports to maintain an Airport Security Program (ASP) under FAR Title 49, Part 1542.²⁶⁵ The ASP outlines the safety and security of persons and property against acts of criminal violence, aircraft piracy, and the introduction of unauthorized weapons, explosives, or incendiaries onto an aircraft. Oversight compliance is the responsibility of the TSA.

STATE AND LOCAL

California Fire Code and Uniform Fire Code

The City of Oakland Municipal Code has adopted the 2019 California Fire Code and California Code of Regulations (CCR), Title 24, Part 9 2013 Edition, which is based on the 2018

²⁶⁴ 14 CFR Part 139.315. *Certification of Airports*.

²⁶⁵ 49 CFR Part 1542. (2014). *Airport Security*.

International Fire Code and compiled by the California Building Standards Commission.²⁶⁶ These codes prescribe regulations consistent with nationally recognized standard practices safeguarding life, health, property, and public welfare to a reasonable degree from the hazards of fire and explosion.

City of Oakland Municipal Code

Oakland Municipal Code Title 15.12, Oakland Fire Code, identifies the requirements for structures within the city of Oakland to meet fire requirements as well as other environmental protection considerations.²⁶⁷ *Oakland Municipal Code Title 8, Commercial Building Security Requirements*, establishes the responsibilities of the Oakland Police Department (OPD) and the Chief of Police to administer and enforce the provisions of this code relating to physical security requirements for commercial buildings in the city.²⁶⁸

3.12.1.2 Significance Thresholds

Implementation of the Proposed Project would result in a significant impact related to public services 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
- Other public facilities

3.12.1.3 Methodologies

The evaluation of potential impacts related to public services is based on comparisons of levels of service currently provided to projected service needs anticipated at OAK. A comparable methodology to evaluate school services is not available. The public services analyses focus on the potential need for additional staff and equipment, as applicable to each function, and whether such need would in turn necessitate construction of new or physically altered governmental facilities. For each public service department serving the Airport, facilities and staffing were analyzed as well as response times.

3.12.2 Existing Conditions / Environmental Setting

3.12.2.1 Fire Protection Services and Emergency Medical Aid

Fire protection services and emergency medical aid for the Airport are provided by the onsite ARFF facility, the City of Oakland, the City of Alameda, and Alameda County.

²⁶⁶ 24 CCR Part 9. (2019). *Fire Code*.

²⁶⁷ City of Oakland. (2021). Title 15.12. Oakland Fire Code. *Oakland Municipal Code*.

²⁶⁸ City of Oakland. (2021). Title 8. Commercial Building Security Requirements. *Oakland Municipal Code*.

AIRCRAFT RESCUE AND FIREFIGHTING FACILITY

The Airport is served by the ARFF facility located in a building north of the intersection of Taxiways B and T in South Field. Due to the ARFF facility being located within the Airport Operations Area (AOA), obstructions from public roadways and intersection levels of service along travel routes are not an issue. The ARFF facility is staffed by the Oakland Fire Department (OFD) 24 hours a day by at least five firefighters and one supervisor (captain) per shift. The ARFF and equipment are maintained by the Port. As previously stated, under FAR Part 139, the Airport has an index rating based on the types of aircraft that serve the Airport that determines the minimum level of staff and equipment required for the ARFF facility. The FAR Part 139 rating for the Airport is Index D, which requires a minimum of three ARFF engines. In total, ARFF has six engines, and adequate staffing to operate them concurrently. The equipment and staff levels exceed FAA requirements for an airport of OAK's size.

ARFF is primarily responsible for responding to onsite aircraft crashes, accidents, and related incidents. Other ARFF staff responsibilities include responding to onsite hazardous materials releases, spills, bomb threats, structural fires, and emergency medical service calls. In addition, ARFF personnel respond to vehicle fires and accidents, both in the airside operations and landside areas of the Airport.

FAR Part 139 operational requirements establish performance criteria for accidents that stipulate at least one ARFF engine must be able to respond to the midpoint of the furthest air carrier runway within 3 minutes of the time of alarm and all other ARFF vehicles must respond within 4 minutes.²⁶⁹

ARFF personnel are provided by OFD as part of a Memorandum of Understanding (MOU) with the Port (effective February 1, 1997). ARFF personnel provide primary emergency medical services to the entire Airport. Most ARFF personnel are qualified emergency medical technicians. Response time throughout the Airport is typically less than four minutes. Medical response throughout the Airport is augmented by nearby fire stations located offsite (as described in the next section), and OFD dispatch can also call on the Alameda County Central Medical Emergency Dispatch for assistance and response from a paramedic ambulance crew. Alameda County medical emergency response time varies with the type of response code requested and the availability of an ambulance (refer to descriptions of OFD and Alameda County services provided in the following sections).

ARFF has no formalized mutual aid agreements to fight fires in neighboring communities but can respond to requests from other agencies if staffing permits and if approved by the Port.

CITY OF OAKLAND FIRE DEPARTMENT

OFD has 29 stations staffed by 508 full-time firefighters²⁷⁰ that provide fire protection service to the City of Oakland. The fire station closest to the Airport is Station 27, located

²⁶⁹ 14 CFR Part 139.319(h)(2)(ii). *Aircraft Rescue and Firefighting: Operational Requirements*.

²⁷⁰ Firedepartment.net. (2021). *Oakland Fire Department*. Retrieved July 2021, from: <https://www.firedepartment.net/directory/california/alameda-county/oakland/oakland-fire-department>.

on Pardee Drive (see **Table 3.12-1**). Response time to the Airport is typically less than four minutes.

TABLE 3.12-1
FIRE STATIONS SERVING OAKLAND INTERNATIONAL AIRPORT

Fire Station	Location	Equipment	Staff (per shift)	Response Time
Aircraft Rescue and Firefighting Facility (ARFF)	North of intersection of Taxiways B and T	6 ARFF Engines	6	Less than 4 minutes
Oakland Fire (OFD) Station 27	8501 Pardee Drive, Oakland	1 Engine	4	Less than 4 minutes
Alameda Fire Department (AFD) Station 4	2595 Mecartney Road, Alameda	1 Engine, 1 Ambulance	5	4 minutes
Alameda County Fire Station 10	2194 Williams Street, San Leandro	1 Engine, 1 Rigid Hull Boat, 1 Inflatable Rescue Boat, 1 Mud Boat	3	5 minutes
Alameda County Fire Station 11	14903 Catalina Street, San Leandro	1 Engine, 1 Rigid Hull Boat	3	5 minutes

Sources:

City of Oakland Fire Department. Retrieved August 2021, from:

<https://www.firedepartment.net/directory/california/alameda-county/oakland/oakland-fire-department>.

City of Alameda Fire Department. Retrieved August 2021, from: <https://www.alamedaca.gov>.

Alameda County Fire Department. Retrieved November 2022, from: <https://fire.acgov.org/stations-and-facilities/>.

Alameda County Fire Department. Retrieved November 2022, from: <https://fire.acgov.org/faqs/>.

City of Oakland emergency medical services are provided by Alameda County through the 9-1-1 emergency response system. More information is provided in the following subsections.

Alameda County uses a tiered-response system for emergency medical responses: for "Non-Life-Threatening Emergencies" (Code 2), a paramedic ambulance responds; for "Life-Threatening Emergencies (Code 3), the local fire department is the first responder and a paramedic ambulance provides secondary response.

Alameda County contracts with Falck, which provides paramedic ambulance service to Alameda County, as well as the Airport. Alameda County mandates a maximum limit for ambulance response time to targeted destinations of 8 minutes. Falck also provides medical aid and transport. Alameda County also has a disaster plan that includes the Airport. Should a mass-casualty or disaster situation occur near or at the Airport, and Falk is unable to fulfill all requests for service, the Alameda County Emergency Medical Services Agency would be the responsible agency in charge of coordinating additional emergency services.²⁷¹

²⁷¹ Port of Oakland. (1997, December). *Proposed Airport Development Program Final Environmental Impact Report*.

ALAMEDA COUNTY FIRE DEPARTMENT

Due to the proximity of the Airport to San Francisco Bay, the Port, pursuant to 14 Code of Federal Regulations (CFR) 139.325, must possess a water rescue plan for the Airport. The Port accomplishes this with agreements and an MOU (dated May 8, 2018) with Alameda County Fire Department, which coordinates and responds to in-water accidents. The Port has provided Alameda County Fire Department with multiple vessels that are currently housed in Alameda County Fire Stations 10 and 11, and the Alameda County Fire Department augments this response with additional vessels and through coordination with other agencies such as the U.S. Coast Guard.

CITY OF ALAMEDA FIRE DEPARTMENT

The City of Alameda Fire Department (AFD) is housed in four stations within the city and is part of the Alameda County Mutual Aid Plan that would enable it to respond to emergencies at the Airport and areas adjacent to Doolittle Drive and Hegenberger Road.

FIRE FLOW REQUIREMENTS AND CONDITIONS

Potable and non-potable water infrastructure on Airport property is maintained by the East Bay Municipal Utility District (EBMUD). The Port consults with EBMUD for input regarding the size of water lines for fire suppression and relative pressure for those lines; the factors for determining such requirements include the size, structure, layout, and occupancy of a facility.

A minimum residual water pressure of 20 pounds per square inch is required to remain in the water system in order to be considered adequate by the California Department of Public Health and the California Fire Code while the required gallons per minute (gpm) are flowing. According to EBMUD, the Airport is served by an EBMUD 20-inch water main that is then distributed throughout the Airport via a pipe distribution network. The existing water flow conveyance system at the Airport delivers a range of 650 gpm to 1130 gpm depending on the location of the fire hydrant.

ARFF engines do not require fire hydrants for fire suppression activities. Four of the six ARFF engines are equipped with storage for 3,000 gallons of water and the other two are equipped with storage for 1,500 gallons of water.

3.12.2.2 Police Services

Airport security needs are provided by staff in the Port's Aviation Security Department. Per 40 CFR 1542, the Airport is required to have a Transportation Security Administration (TSA)-approved Airport Security Program (49 CFR 1542) and the law enforcement personnel to support this program. Police services at the Airport are provided by the Alameda County Sheriff's Office under contract with the Port.

OAKLAND AIRPORT SECURITY

In compliance with FAR Part 139 and the TSA-approved Airport Security Program, airport security fencing separates public areas from all secure AOAs at both North Field and South Field. Other than fencing, the Airport perimeter is also secured by buildings (e.g., hangars at North Field), as well as natural barriers, such as San Francisco Bay. All Airport fuel facilities are secured by perimeter fencing. For vehicular access to the AOA, gates with security/access controls are located at both North Field and South Field.

Security checkpoints operated by TSA for screening passengers are located in each terminal building. TSA also screens passenger checked-baggage. Airport security checkpoints are located between the ticketing areas and all air carrier and international aircraft gates to ensure the security of all Airport gate holding areas.²⁷²

ALAMEDA COUNTY SHERIFF

The Alameda County Sheriff's Office provides police services at the Airport under contract to the Port, as managed by the Aviation Security Department. Law enforcement staffing levels at the Airport are considered Sensitive Security Information regulated by 49 CFR 1520.

3.12.2.3 Schools

OAKLAND UNIFIED SCHOOL DISTRICT

The Oakland Unified School District (OUSD) provides kindergarten through 12th grade educational services in the Airport vicinity. OUSD is a public education school district that operates 53 elementary schools (K-5), 18 middle and junior high schools (6-8), and twelve senior high schools (9-12) as well as 32 District-authorized charter schools. Current enrollment in OUSD is 50,900 students. OUSD also operates four adult education schools and 35 child development centers and/or pre-schools that serve approximately 26,000 students.²⁷³ OUSD does not currently have an established student-teacher ratio capacity. The closest Oakland school to the Airport (within 1.6 miles) is the Lighthouse Community Charter School located at 444 Hegenberger Road, which is a kindergarten through 12th grade school.

ALAMEDA UNIFIED SCHOOL DISTRICT

The Alameda Unified School District (AUSD) also provides kindergarten through 12th grade educational services in the Airport vicinity. Currently, AUSD operates two high schools, one continuation high school, four middle schools, nine elementary schools, and one preschool serving a total of approximately 9,500 students. AUSD maintains a maximum student-teacher ratio of 29:1 and with current staffing, has the capacity to serve 11,000 students.²⁷⁴ The closest Alameda schools to the Airport (within 2 miles) are the Bay Farm School located at 200 Aughinbaugh Way, which is a kindergarten through 8th grade school, and Earhart Elementary School located at 400 Packet Landing, which is a kindergarten through 5th grade school.

3.12.2.4 Parks

Parks and recreational facilities in the immediate Airport vicinity are maintained by the City of Alameda, East Bay Regional Park District (EBRPD), or private organizations. Parks near the Airport that are managed by the City of Alameda include Godfrey Park and Leydecker

²⁷² Port of Oakland. (1997, December). *Proposed Airport Development Program Final Environmental Impact Report*.

²⁷³ Oakland Unified School District. Retrieved July 2021, from: <https://ousd.org>.

²⁷⁴ Alameda Unified School District. Retrieved July 2021, from: <https://alameda.k12.ca.us>.

Park.^{275,276} Nearby parks that are managed by EBRPD include the Martin Luther King Jr. Regional Shoreline and Oyster Bay Regional Shoreline.^{277,278} Private facilities include the Corica Park Golf Course and the Metropolitan Golf Links.

3.12.3 Environmental Impacts and Mitigation Measures

3.12.3.1 Fire Protection Services

CONSTRUCTION

The Port would implement the Fire Prevention Practices listed below to minimize the potential for an accidental fire in the construction area. This would further minimize the demand for fire protection services. Fire Prevention Practices include measures such as training construction personnel in fire safety and equipping internal combustion engines with spark arrestors. The implementation of Fire Prevention Practices would minimize the potential increase in demand for fire services during construction.

Fire Prevention Practices: During construction, the Port or its contractor would implement fire prevention practices such as:

- Internal combustion engines, stationary and mobile, would be equipped with spark arrestors. Spark arrestors would be in good working order.
- Contractor would keep all construction sites and staging areas free of flammable materials.
- Personnel would be trained in the practices of the fire safety plan relevant to their duties.
- Construction and maintenance personnel would be trained and equipped to extinguish small fires.
- Work crews would have fire-extinguishing equipment on hand, as well as OAK emergency numbers.
- Smoking would be prohibited while operating equipment and would be limited to paved or graveled areas or areas cleared of all vegetation. Smoking would be prohibited within 30 feet of any combustible material storage area (including fuels, gases, and solvents).

In the event of a fire, ARFF personnel would respond concurrently with offsite OFD stations in less than 4 minutes. As discussed in **Section 3.12.2.1**, FAR Part 139 requires that the

²⁷⁵ City of Alameda. (2002). *Godfrey Park*. Retrieved October 2022, from: <https://www.alamedaca.gov/Departments/Recreation-Parks/Leydecker-Park>.

²⁷⁶ City of Alameda. (2002). *Leydecker Park*. Retrieved October 2022, from: <https://www.alamedaca.gov/Departments/Recreation-Parks/Leydecker-Park>.

²⁷⁷ East Bay Regional Park District (EBRPD). (2022). *Martin Luther King Jr. Regional Shoreline*. Retrieved October 2022, from: <https://www.ebparks.org/parks/martin-luther-king>.

²⁷⁸ East Bay Regional Park District (EBRPD). (2022). *Oyster Bay Regional Shoreline*. Retrieved October 2022, from: <https://www.ebparks.org/parks/oyster-bay>.

Airport have at least three engines onsite and the Port exceeds this requirement by having six engines at the Airport, and personnel always onsite to respond to a fire emergency.

While ARFF personnel provide fire response at OAK, fire response is led by the OFD offsite fire stations with support from other local fire agencies, as needed, through the County Mutual Aid Plan. Together, ARFF, OFD, and mutual aid partners would provide fire protection services during construction of the Proposed Project and no increases in staff would be required. Therefore, the Proposed Project would not require construction of new or expanded physical facilities and the impact would be ***less than significant***.

OPERATION

As noted in **Chapter 2**, market-based demand would result in an increase in enplanements and operations. This would not result in an increase in demand for fire protection services as fire protection services requirements at airports are based on FAA-defined index levels. An increase to Index E would be triggered if a sufficient number of operations of widebody aircraft were added at OAK. FAR 139 requires designated Index E airports to have a total of three vehicles, similar to Index D. The difference is that under Index D an airport must have two vehicles with a carrying water capacity of 4,000 gallons. Under Index E, an airport must have two vehicles with a carrying water capacity of 6,000 gallons. However, as noted previously, the Port currently exceeds Index D requirements by having an extra three vehicles. Therefore, there would be no increase in demand for fire protection services. In addition, the Port would continue to comply with FAR safety and security requirements to maintain its Airport Operating Certificates. Further, the new Airport facilities would be built in accordance with California Fire Code, Uniform Fire Code, and Oakland Municipal Code all of which establish standard requirements to safeguard life, health, property, and public welfare to a reasonable degree from hazards of fire.

In the event of a fire emergency, ARFF would respond concurrently with offsite OFD stations and would respond in less than 4 minutes. The response to a fire would be led by nearby fire stations and supported by ARFF. OFD dispatch can also call upon the OFD, AFP, and Alameda County Fire Department for assistance, as needed.

With the existing ARFF engines and facilities at the Airport, which exceed FAR 139 requirements, and compliance with state and local fire codes, the Proposed Project would not result in an increase in demand for fire protection services that would necessitate the construction of new or expanded physical facilities; therefore, the impact would be ***less-than-significant***.

3.12.3.2 Police Protection Services

CONSTRUCTION

During construction, there could be a temporary increase in persons onsite performing construction activities. The increase in persons at the Airport could result in a temporary increase in demand for police protection services. However, as described in

Section 3.12.2.2, in compliance with 40 CFR 1542 the Airport would continue to have the necessary law enforcement onsite available to respond to police protection needs at the Airport. In addition, the Port can also request support from the Alameda County Sheriff's, as needed. Therefore, the potential temporary increase in police demand would not result in an increase in demand for police protection services or construction of new or expanded

physical facilities to house police protection services. The impact would be ***less than significant.***

OPERATION

The Proposed Project would modernize existing terminal facilities and relocate existing functions within the Airport boundaries. As noted in **Chapter 2**, passenger activity is forecast to increase from 13.4 MAP in 2019 to 24.7 MAP in 2038. This increase in passenger activity could increase the demand for police protection services at OAK. However, in compliance with 40 CFR 1542 the Airport would update the Airport Security Program and increase Airport law enforcement onsite. In the event of an incident requiring additional law enforcement, the Alameda County Sheriff's Office personnel would respond to the scene. The required increase in Airport onsite law enforcement to accommodate forecast increase in passenger activity would offset the increased demand for public police protection services. Therefore, there would be no increase in demand from police service and no offsite construction of physical facilities for police services. The Proposed Project would not result in an increase in demand for police protection services that would necessitate construction of new or expanded offsite police facilities and the impact would be ***less than significant.***

3.12.3.3 Schools

CONSTRUCTION AND OPERATION

The Proposed Project does not include any residential uses and would not induce demand for public schools in OUSD or AUSD during construction or operation. Given the labor market in the Bay Area, it is assumed that construction and operations workers would be pulled from the local workforce. As a result, the Proposed Project would not cause an increase in the local population with a resulting increase in demand for school services, and therefore there would be ***no impact*** with respect to need for new or expanded school facilities.

3.12.3.4 Parks

CONSTRUCTION AND OPERATION

The Proposed Project would not directly or indirectly induce the demand for public parks in the Airport vicinity during construction or operation and would not create demand for the construction of new parks or the expansion of an existing park. There would be ***no impact*** to parks.

3.12.3.5 Demand for Other Public Facilities

CONSTRUCTION AND OPERATION

The Proposed Project would not directly or indirectly contribute to an increase of local residents during construction and operation; therefore, the Proposed Project would not directly or indirectly affect other government services so as to necessitate the construction of new or expanded public facilities.

Similar to fire protection services, the primary emergency medical services would be provided by ARFF personnel. During construction, the medical response throughout the Airport would be augmented as needed by Alameda County and OFD. Operation of the

Proposed Project would accommodate market-based demand at OAK. In compliance with FAR 139, the Airport would have the necessary ARFF personnel onsite to respond to a medical emergency. The Airport would rely on the Alameda County medical emergency services as needed for more critical emergency services. Therefore, the Project would have a ***less-than-significant*** impact with respect to need for new or expanded physical facilities for emergency services.

3.13 TRANSPORTATION

This section describes traffic and transportation conditions as a basis for the discussion of potential impacts and proposed mitigation measures for the Proposed Project at OAK.

The information in this section is based on a Transportation Report prepared for the Proposed Project in July 2023, which is included in **Appendix N** of this Draft EIR.

3.13.1 Background and Methodology

3.13.1.1 Regulatory Context

Since the Proposed Project is within the city of Oakland (Oakland), Oakland's adopted plans and policies shape the transportation analysis framework. The overall goals of these policies are to achieve an effective, sustainable, multi-modal transportation system for Oakland. Additionally, there are state and regional policies that provide a regulatory setting that further shapes the transportation infrastructure. This section discusses the Proposed Project's conformance with applicable plans and policies.

STATE

Senate Bill 743

State Senate Bill (SB) 743²⁷⁹ was signed into law in September 2013 and was fully implemented as of July 1, 2020. SB 743 required changes to the CEQA Guidelines regarding the analysis of transportation impacts. Historically, CEQA transportation analyses of individual projects determined impacts in the circulation system in terms of roadway delay and/or capacity at specific locations. SB 743 changes include the elimination of auto delay, Level of Service (LOS), and other similar measures of vehicular capacity or traffic congestion as a basis for determining significant impacts. Instead, SB 743 identifies vehicle miles traveled (VMT)²⁸⁰ as the most appropriate metric to evaluate a project's transportation impacts. Since the bill has gone into effect, automobile delay, as measured by LOS and other similar metrics, no longer constitutes a significant environmental impact under CEQA. LOS may continue to be a measure for planning purposes only.

In December 2018, the California Governor's Office of Planning and Research (OPR) and the State Natural Resources Agency submitted updated CEQA Guidelines to the Office of Administrative Law for final approval to implement SB 743. The Office of Administrative Law approved the updated CEQA Guidelines, thus implementing SB 743 and making VMT the primary metric used to analyze transportation impacts for all projects starting July 1, 2020.

REGIONAL

Congestion Management Program (CMP)

Alameda County Transportation Commission (Alameda CTC) acts as the Congestion Management Agency for Alameda County. Alameda CTC develops and updates its

²⁷⁹ SB 743. Chapter 386. (2013).

²⁸⁰ VMT is a measure of total vehicular travel that accounts for the number of vehicle trips and the length of those trips (SB 743).

mandated Congestion Management Program (CMP) every two years to describe strategies to “assess, monitor, and improve the performance of the county’s multimodal transportation system; address congestion and ultimately protect the environment with strategies to help reduce greenhouse gas (GHG) emissions.”

Oakland’s Transportation Impact Review Guidelines (TIRG) outlines CMP requirements for transportation impact analyses. As discussed in Section 3 of the TIRG, a CMP analysis is required if a project generates 100 or more net new p.m. peak hour vehicle trips on a roadway segment designated as part of the CMP Network. This analysis is conducted at the road segment level for existing and future years.

Alameda County Transportation Commission Goods Movement Plan

The Alameda CTC Goods Movement Plan, prepared in February 2016, explores opportunities and strategies Alameda County may pursue to reach goals related to goods movement, including economic prosperity, quality of life, interconnectedness and multimodal operations, safety and reliability, and innovation. The Goods Movement Plan outlines a long-range strategy for how to move goods efficiently, reliably, and sustainably within, to, from, and through Alameda County by roads, rail, air, and water.

Plan Bay Area 2050

The Metropolitan Transportation Commission (MTC) and Association of Bay Area Governments (ABAG) adopted the Bay Area’s long-range Regional Transportation Plan (RTP) and Sustainable Communities Strategy (SCS) in October 2021. The document describes growth and development in the region over a 20-year horizon and identifies transportation and land use strategies to enable a more sustainable, equitable, and economically vibrant future.

Plan Bay Area 2050 recommends increasing non-auto travel mode share and reducing VMT per capita and per employee by promoting transit-oriented development, transit improvements, and active transportation modes including walking and bicycling.

San Francisco Bay Plan

The San Francisco Bay Plan was completed and adopted by the San Francisco Bay Conservation and Development Commission (BCDC) in 1968 and was transmitted to the California Legislature and the Governor in 1969. Since its adoption, several amendments to the policies have been adopted and incorporated into the plan. Policies pertinent to the transportation analysis for this Proposed Project include:

- **Transportation Policy 4:** Transportation projects on the Bay shoreline and bridges over the Bay or certain waterways should include pedestrian and bicycle paths that will either be a part of the Bay Trail or connect the Bay Trail with other regional and community trails. Transportation projects should be designed to maintain and enhance visual and physical access to the Bay and along the Bay shoreline.
- **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 of access at another location, preferably near the project, should be provided. If in lieu public access is required and cannot be provided near the project site, the required access should be located preferably near identified vulnerable or disadvantaged communities lacking well-maintained and convenient public access to foster more equitable public access around the Bay Area.

- **Public Access Policy 10:** 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.

LOCAL

City of Oakland General Plan

Oakland's General Plan (General Plan) is a comprehensive plan for growth and development of the city. The General Plan includes policies related to land use and transportation; open space, conservation, and recreation; housing; historic resources; noise; and bikes and pedestrians. These topics are addressed within individual elements of the General Plan.

The General Plan contains many policies, which may in some cases address different goals; thus, some policies may compete or conflict with each other.

Land Use and Transportation Element (1998)

The Land Use and Transportation Element (LUTE) was adopted by the City of Oakland in March 1998 and addresses land use and transportation issues. In order to accomplish a more integrated planning process that incorporates city-wide infrastructural needs with neighborhood decision-making, the LUTE includes general development policies for Oakland, in addition to district-specific policies. The overriding vision for Oakland that is outlined in the LUTE involves creating "clean and attractive neighborhoods rich in character and diversity, each with its own distinctive identity, yet well-integrated into a cohesive urban fabric" in addition to "a diverse and vibrant downtown with around-the-clock activity." The LUTE includes land use designations for all land within Oakland. Policies in the LUTE applicable to this Proposed Project include:

- **Policy T3.5, Including Bikeways and Pedestrian Walks:** The City should include bikeways and pedestrian walks in the planning of new, reconstructed, or realized streets, wherever possible.
- **Policy T3.6, Encouraging Transit:** The City should encourage and promote use of public transit in Oakland by expediting the movement of and access to transit vehicles on designated "transit streets" as shown on the Transportation Plan. (Policies T3.6 and T3.7 are based on the City Council's passage of a "Transit First" policy in October 1996.)
- **Policy T3.7, Resolving Transportation Conflicts:** The City, in constructing and maintaining its transportation infrastructure, should resolve any conflicts between public transit and single occupant vehicles in favor of the transportation mode that has the potential to provide the greatest mobility and access for people, rather than

vehicles, giving due consideration to the environmental, public safety, economic development, health and social equity impacts.

- **Policy T4.1, Incorporating Design Features for Alternative Travel:** The City will require new development, rebuilding, or retrofit to incorporate design features in their projects that encourage use of alternative modes of transportation such as transit, bicycling, and walking.
- **Policy W6.3, Enhancing Intermodal Transportation:** Transportation corridors which serve the harbor/airport terminals should be preserved and enhanced to accommodate higher capacities, service, and safety levels, and intermodal connections.

Bicycle Master Plan (2019)

The current Bicycle Master Plan, *Let's Bike Oakland!*, was adopted by the City of Oakland in June 2019 as an update to the 2007 plan. The Bicycle Master Plan is the official policy document addressing the development of facilities and programs to enhance the role of bicycling as a viable transportation choice in Oakland. The Bicycle Master Plan is part of the LUTE of the General Plan and defines new Oakland policies and recommends actions that would encourage and support bicycle travel improvements. The goals of the Bicycle Master Plan include the following:

- **Access:** Support increased access to neighborhood destinations such as grocery stores, libraries, schools, recreation centers, bus stops, and BART.
- **Health and Safety:** Empower Oaklanders to live a more active lifestyle by providing a network of safe and comfortable bikeways for everyone to enjoy.
- **Affordability:** Work to reduce the burden of housing and transportation costs on households.
- **Collaboration:** Foster an increased role for the community in the planning process and impressed trust that the city will fulfill its promises.

Pedestrian Master Plan (2017)

The Pedestrian Master Plan (PMP), *Oakland Walks!*, was adopted by the City of Oakland in June 2017. The vision of the PMP is to make Oakland "a place where vibrant, safe and attractive streets give everyone the opportunity to walk to their destinations and to enjoy the convenience and health benefits of walking." The four goals identified in the PMP are:

- **Equity:** Recognizing a historical pattern of disinvestment, focus investment and resources to create equitable, accessible walking conditions to meet the needs of Oakland's diverse communities.
- **Holistic Community Safety:** Make Oakland's pedestrian environment safe and welcoming.
- **Vitality:** Ensure that Oakland's pedestrian environment is welcoming and well connected, supports the local economy, and sustains healthy communities.
- **Responsiveness:** Develop and provide tools to ensure that Oakland creates and maintains a vibrant pedestrian environment.

The PMP outlines an action plan to invest in and improve safety in the high injury network²⁸¹ and to implement the key policy and programmatic improvements that will make streets safer and more inviting for walking throughout the city. The PMP identifies a targeted set of improvements (38 recommended actions) that can be accomplished in five years.

City of Oakland Complete Streets Policy

The Complete Streets Policy (Resolution No. 84204 C.M.S.), adopted by the City of Oakland in February 2013, recognizes the necessity of providing safe and convenient pedestrian, bicycle, and public transportation travel options. As such, the City of Oakland will plan, design, construct, operate, and maintain appropriate facilities for pedestrians, bicyclists, transit users of all abilities, children, elderly, and people with disabilities as a routine component of new construction, reconstruction, retrofit, and maintenance projects (subject to some exceptions).

3.13.1.2 Significance Thresholds

The following are the CEQA significance criteria used for the determination of impacts associated with a project. A project would have a significant effect on the environment if it would:²⁸²

- Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities; or
- Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b) (VMT); or
- Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment); or
- Result in inadequate emergency access.

The Port has not established thresholds of significance for VMT. Guidance on VMT thresholds can be found in documents published by the State of California Office of Planning and Research (OPR) and the adopted guidelines of other jurisdictions in the Bay Area. These guidelines adopt thresholds for retail, residential, and commercial development. These guidelines for other types of land uses, such as airports, do not have a specific threshold for VMT. This requires a customized VMT metric to be developed for environmental documents such as EIRs that study land uses that are not explicitly retail, residential, or commercial.

A review of relevant EIRs was conducted to identify the metrics being applied at other California airports. The Norman Y. Mineta San José International Airport Master Plan, adopted in 2020, provides a recent example of an EIR for an airport project. The

²⁸¹ The high injury network identifies the most dangerous streets in the city. The network was identified was identified by analyzing seven years of pedestrian crashes (2008-2014) as well as the physical characteristics of the roadway. This analysis identified 34 high-injury corridors and 37 high-injury intersections.

²⁸² The project is subject to Senate Bill (SB) 743, which provides that “aesthetics and parking impacts of a residential, mixed-use residential, or employment center project on an infill site within a transit priority area shall not be considered significant impacts on the environment”. (CEQA Update: *Aesthetics, Parking and Traffic*. SB 73 Summary. [2013 November 26])

significance threshold for VMT in the San José analysis was defined as no net increase in VMT per total passenger compared to existing conditions. A similar metric has been applied to the Proposed Project, but it has been adjusted to specifically focus on enplanements because the available data is specific to enplanements. Therefore, for this Draft EIR the Proposed Project's impact would be considered significant if VMT per enplanement increases compared to the existing conditions (2019).

3.13.1.3 Methodologies

This section documents the methodology for the analyses of VMT for the Proposed Project. VMT for an airport is not a simple calculation based on a published rate. It is determined using a combination of metrics i.e., vehicle trip generation, alternative mode trip generation (transit, bicycle, and pedestrians), passenger enplanements, potential mode shift, and average trip lengths] to appropriately represent the overall trip generation and VMT for OAK. These inputs were used to calculate VMT for existing conditions (2019) and two future years (2028 and 2038) with the Proposed Project and, for comparison purposes, without the Proposed Project.

VEHICLE TRIP GENERATION

Vehicle trip generation was estimated for existing conditions (2019) and two future years (2028 and 2038) for all parts of OAK accessible by vehicle (passenger terminal, public and employee parking, North Field, rental car center, etc.). Details of how the trip generation was estimated and how the underlying data were collected are discussed in this section. The following section describes how data collected in 2021 were adjusted to represent 2019 base year conditions.

Data Collection

Data were collected from a variety of sources, including pneumatic tube counts, parking activity data from the Port, StreetLight Data,²⁸³ and video camera data. The first step in determining the vehicle trip generation of OAK was the collection of vehicle counts for all areas of OAK that are accessed by vehicle. These data were collected over either a seven-day period between December 3 and December 9, 2021, or a three-day period between December 7 and December 9, 2021, and differentiated between automobiles, trucks (including cargo trucks), and buses. OAK vehicle trip generation comes from passenger and employee activity, as well as tenants and support activities. These activities and how they generate vehicle trips were collected and split into six categories of trip types. These types include:

- Vehicle Trip Generation Category A: Non-Parking Vehicle Trips (Airport pick-up, drop-off, cargo and service/deliveries)
- Vehicle Trip Generation Category B: Employee Parking (employees)
- Vehicle Trip Generation Category C: On-Airport Passenger Parking (passengers)
- Vehicle Trip Generation Category D: Off-Airport Passenger Parking (passengers)
- Vehicle Trip Generation Category E: Rental Car Center (passengers)
- Vehicle Trip Generation Category F: North Field (passengers and employees)

²⁸³ StreetLight Data indexes and processes transportation location data from connected devices. This information is used to assess origin-destination data and relative vehicle volumes.

VEHICLE TRIP GENERATION CATEGORY A: NON-PARKING VEHICLE TRIPS

The primary source of vehicle trip generation with about 50 percent of total trip generation is vehicles that do not park at OAK. These vehicle trips are primarily passengers or employees being picked up or dropped off at the terminals via personal vehicle, taxicab, bus, or transportation network company (e.g., Uber/Lyft) vehicle. This trip type also includes cargo truck trips, bus trips, and service/deliveries.

Vehicle trip generation and vehicle class (e.g., passenger, bus, truck) for non-parking trips was determined using seven-day pneumatic tube counts placed on John Glenn Drive, Airport Drive inbound/outbound, and on Neil Armstrong Way (the access road between Airport Drive and Ron Cowan Parkway), which are roadways or “screen lines” that all vehicles accessing OAK use. However, these screen lines also contain vehicle trip generation associated with employee parking lots and on-airport passenger parking lots. Therefore, the collected data was adjusted to remove the vehicles that were parking in either the employee or passenger parking lots since trip generation for these parking areas was collected separately as described in the next sections.

VEHICLE TRIP GENERATION CATEGORY B: EMPLOYEE PARKING

There are several parking lots for Airport and tenant employees located throughout OAK. To understand employee parking activity, data were collected to capture inbound and outbound employee trips at the various parking facilities in early December 2021. These employee parking facilities and how the inbound and outbound trips were calculated are described below:

- **FedEx, Airport Traffic Control Tower, and Oakland Fire Station No. 22** – These facilities are accessed from Air Cargo Way. A pneumatic tube counter that can differentiate between trucks and passenger vehicles (two axle cars and pickup trucks) was placed on Air Cargo Way near Ron Cowan Parkway over a seven-day period. Any passenger vehicles passing over this tube counter were assumed to be associated with an employee of one of these facilities.
- **Southwest, SwissPort, and Edward White Way parking near Terminal 2** – These parking facilities are accessed using Neil Armstrong Way. A pneumatic tube counter was set up on Neil Armstrong Way near Edward White Way to capture trucks and passenger vehicles. Any passenger vehicles passing over these counters were assumed to be either employee vehicles or OAK service vehicles accessing the gate at the end of Edward White Way near Terminal 2, which separates public areas of OAK from airside operations. Using counts from this gate’s entries and exits supplied by the Port, which are assumed to represent only OAK service vehicles, OAK service vehicles were removed from the tube count data leaving just counts of Southwest or Swissport employee vehicles or Port service vehicles parking in the three parking lots noted.
- **UPS and Southwest Provisioning** – Employee parking for these two facilities is located north of Air Cargo Road, which is accessed via Alan Shepard Way. A pneumatic tube counter was placed on Air Cargo Road near Alan Shepard Way to capture both trucks and passenger vehicles over a seven-day period. All passenger vehicles passing over the tube counter during this time were assumed to be employees entering or leaving a parking facility. The employee parking for UPS and Southwest Provisioning were further separated in the analysis by splitting them

between UPS and Southwest Provisioning proportional to the number of parking spaces in each facility's parking lot.²⁸⁴

- **Non-Secure Airport Employee** – Located between John Glenn Drive and Airport Drive, the non-secure employee parking was captured using pneumatic tube counters placed at parking lot driveways over a seven-day period. All vehicles entering and departing this facility were assumed to be employee trips.
- **Secure Airport Employee** – These parking facilities are accessed via John Glenn Drive through a security gate. A camera was placed to observe the security gate over a three-day period. The data were reduced to differentiate between personal vehicles and other vehicles such as trucks. All personal vehicles were assumed to be employees parking over the three-day period. These three-day counts were adjusted to seven-day counts by using data from the nearby non-secure employee parking facility, which had seven-day tube counts. These seven-day counts were used to develop a factor to account for the four days not collected via video. This assumes the vehicles for the missing four days are in the same relative proportion to the other parking facilities as the three days of collected data.
- **Other Airport Tenant Employee** – Parking for most non-Southwest Airline tenant employees occurs in the lot referred to as the Oakland Maintenance Center (OMC) lot, located near the intersection of John Glenn Drive and Ron Cowan Parkway. This parking lot was observed via video over a three-day period to capture entering and leaving vehicles. These counts were used to determine the trip generation of this parking lot. The three-day counts were adjusted to seven-day counts as described for the secure employee parking.

VEHICLE TRIP GENERATION CATEGORY C: ON-AIRPORT PASSENGER PARKING

On-airport parking is for passengers who wish to park their vehicles in the premier, hourly, daily, or economy parking lots that are owned and operated by the Port. To determine vehicle trip generation of these facilities, parking activity data were requested from the Port for the early December 2021 data collection period when tube counts were collected. These data were provided as hourly counts differentiating between the economy parking lot and the premier/hour/daily lot as well as entering versus exiting vehicles.

VEHICLE TRIP GENERATION CATEGORY D: OFF-AIRPORT PASSENGER PARKING

In addition to the on-Airport parking, there are several off-Airport lots that provide public parking for OAK passengers. These off-Airport lots include the following:

- Park 'N Fly (82 98th Avenue, Oakland, CA 94603)
- Park 'N Travel (10001 Doolittle Drive, Oakland, CA 94603)
- VIP Airport Parking (50 Airport Access Road, Oakland, CA 94603)
- Airpark Oakland Airport Parking (111 98th Avenue, Oakland, CA 94603)
- FastTrack Airport Parking (195 98th Avenue, Oakland, CA 94603)
- Fly N Save OAK Airport Parking (250 Hegenberger Road, Oakland, CA 94621)

²⁸⁴ Southwest Provisioning has 40 parking spaces and UPS has 206.

StreetLight Data²⁸⁵ was used to estimate the vehicle trip generation of these lots. StreetLight Data tracks mobile device information and allows for a determination of relative vehicle trip activity between different geographic areas. An analysis “zone” for each of these off-Airport lots and the on-Airport economy lot was created. StreetLight Data provided the relative vehicle trip activity for each of these off-Airport parking facilities and the on-Airport economy lot. Since the trip generation for the on-Airport parking lot is known from parking data from 2019 provided by the Port, it can be used in combination with the relative trip generation metrics from StreetLight to estimate the amount of vehicle trip generation for the off-Airport parking facilities. For example, if the vehicle activity at the Fly N Save OAK Parking lot in 2019 had a relative difference of 80 percent compared to the economy parking lot, then the vehicle trip generation of that off-Airport parking lot was assumed to be 80 percent of the economy lot.

VEHICLE TRIP GENERATION CATEGORY E: RENTAL CAR CENTER

The rental car center (RAC) is in North Field and provides a shuttle service to and from the OAK terminals. Vehicle trip generation for the RAC was collected using a combination of pneumatic tube counts and video camera data. Pneumatic tube counts were collected over a seven-day period on Cessna Street and Sikorsky Street to capture most of the vehicles entering and leaving the RAC. In addition to the two pneumatic tube count locations, there are two additional driveways serving rental cars at the RAC. These driveways, one on Earhart Road and one on Langley Street, were surveyed using a video camera over a three-day period. The three-day counts were adjusted to seven-day counts by assuming the traffic on the remaining four days was proportional to the pneumatic tube counts collected over the seven-day period.

VEHICLE TRIP GENERATION CATEGORY F: NORTH FIELD

North Field is accessed primarily via Doolittle Drive and includes uses such as general/corporate aviation, Airport maintenance facilities, aviation support facilities, and hangars. Vehicle trip generation was collected using pneumatic tube counters placed to capture inbound vehicles at Langley Street and Swan Way off Doolittle Drive and inbound vehicles on Earhart Road off Hegenberger Road over a seven-day period. Outbound trips from North Field were estimated using StreetLight Data and the collected inbound traffic count data. StreetLight Data provides the proportion of inbound versus outbound trips by each hour of the day. This proportion was used to estimate the outbound volumes based on the inbound volumes collected using pneumatic tube counts so that both inbound and outbound volumes by time of day are known. These volumes were further adjusted to remove the trips accessing the RAC so that vehicle trips are not double counted.

Vehicle Trip Generation Adjustment

Data collection for OAK vehicle trip generation elements occurred in December 2021. The base year for existing conditions in the EIR is 2019. Therefore, an adjustment was made to the 2021 data collection to represent 2019 conditions. The adjustment was based on using 2019 and 2021 StreetLight Data to compare 2019 versus 2021 volumes. The relative volumes from late 2021 for each type of vehicle trip generation were compared to typical

²⁸⁵ StreetLight Data indexes and processes anonymous transportation location data from connected devices. This information is used to assess origin-destination data and relative vehicle volumes between zones defined by the user.

conditions in 2019 which is defined as the 50th percentile day for overall trip generation at OAK during 2019. The trip generation estimates were then adjusted based on the relative volume changes between 2019 and 2021. For example, if the on-Airport parking facilities were found to be 30 percent higher in terms of vehicle trip generation in 2019 compared to December 2021 conditions, the 2021 data were increased by 30 percent. On average, the typical day 2019 traffic volumes were 17.5 percent higher than the December 2021 traffic volumes. Typical conditions (i.e., 50th percentile from 2019) were used for the impact assessment rather than a peak day.

Existing Conditions 2019 Trip Generation

Based on the collected vehicle count data from December 2021, on-Airport parking data provided by the OAK for December 2021, and the adjustment using StreetLight to compare December 2021 data to a typical day in 2019, the resulting trip generation for OAK on a typical day in 2019 is shown in **Table 3.13-1**. As shown, trip generation is broken down into trucks, buses, cars, and total for a typical day. The resulting total trip generation is about 46,315 vehicle trips per day.

TABLE 3.13-1
EXISTING CONDITIONS (2019) TRIP GENERATION

2019 Total Trips			
Trucks	Buses	Cars	Total
3,401	948	41,966	46,315

Source: Kittelson & Associates, Inc., 2022

Forecast OAK Trip Generation

Vehicle trip generation was calculated for the two future years 2028 and 2038. The resulting calculations for these future years was based on the market-based demand for OAK including passenger activity, cargo tonnage, and aircraft operations. **Table 3.13-2** shows the anticipated demand for these elements of OAK.

Vehicle trip generation for OAK in 2019 was divided into 18 distinct zones. Each one of these zones was tied to one element of the aviation activity forecast demand provided in Chapter 2 and shown in **Table 3.13-2** for easy reference. **Table 3.13-3** shows the 18 zones for OAK and the element of the aviation activity forecast with which its demand is associated. The reasoning behind the various aviation activity forecast associations with the various zones includes:

- Freighter Cargo (US Tons)
 - The freighter cargo forecast is used to estimate the growth in demand for both FedEx and UPS since freighter cargo is the primary operation in the future at those facilities.

TABLE 3.13-2
AVIATION ACTIVITY FORECAST GROWTH FOR OAK BETWEEN 2019 AND 2038

	Forecast in Calendar Years		
	2019 (Existing Conditions)	2028 (Planning Activity Level 1)	2038 (Planning Activity Level 2)
Passenger Activity			
Passenger Enplanements	6,689,457	8,792,855	12,342,518
Million Annual Passengers (MAP)	13.4	17.6	24.7
Cargo Tonnage			
Belly Cargo (US Tons)	9,678	16,905	24,650
Freighter Cargo (US Tons)	632,727	757,987	859,437
Total Air Cargo Tonnage (US Tons)	642,405	774,892	884,087
Aircraft Operations			
Passenger Airline Operations	113,272	132,830	181,270
Cargo Airline Operations	20,698	23,200	24,800
Business/General Aviation	107,861	110,758	116,431
Military	926	1,000	1,000
Total Aircraft Operation	242,757	267,788	323,501

Source: Port of Oakland. (2020, July 28). *Oakland International Airport Comprehensive Aviation Activity Forecast Report (2019-2038)*. Updated June 2021 ([Appendix C](#)).

- Passenger Airline Operations
 - The Neil Armstrong parking lot, Southwest Provisioning, and the Oakland Maintenance Center (OMC) Employee parking lot are primarily used by employees of the various airlines, Transportation Security Administration (TSA) staff, and concessions staff. It was assumed that the demand in these areas relates to the number of passenger airline operations.
- Total Aircraft Operations
 - Both the non-secure and secure employee parking lots are used by Port management and operations staff at OAK. Therefore, it was assumed that demand for these positions relates to the total number of aircraft operations.
- Corporate/General Aviation Aircraft Operations
 - The corporate/general aviation area of OAK is in North Field and is separate from the passenger terminal in South Field. It was assumed that the growth in demand for this area could be represented by the growth in the total number of general aviation aircraft operations, although there are some activities at North Field that are not specifically general aviation.

TABLE 3.13-3
ZONE AND AVIATION ACTIVITY FORECAST ELEMENT USED FOR FUTURE TRIP GENERATION ESTIMATES

Zone	Description	Aviation Activity Forecast Element
1	FedEx	Freighter Cargo
2	Neil Armstrong	Passenger Aircraft Operations
3	UPS (Employee)	Freighter Cargo
4	SW Provisioning	Passenger Aircraft Operations
5	Non-secure Employee	Total Aircraft Operations
6	Secure Employee	Total Aircraft Operations
7	OMC Employee Parking	Passenger Aircraft Operations
8	Rental Car Center	Passenger Enplanements
9	North Field/Corporate/General Aviation	General Aviation Aircraft Operations
10	Parking Bowl	Passenger Enplanements
11	Economy	Passenger Enplanements
12	Park 'N' Fly	Passenger Enplanements
13	Park 'N' Travel	Passenger Enplanements
14	VIP Airport Parking	Passenger Enplanements
15	Airpark Oakland	Passenger Enplanements
16	FastTrack	Passenger Enplanements
17	Fly N Save	Passenger Enplanements
18	Non-Parking	Passenger Enplanements

Source: Kittelson & Associates, Inc., 2022

- Passenger Enplanements
 - This metric captures the total number of commercial aviation passengers that will board an aircraft. It was assumed that all passenger parking areas, both on-Airport and off-Airport, as well as the rental car center and pick up/drop off/other trips will have a demand level associated with passenger enplanements.

The forecast demand in **Table 3.13-2** can be used directly to increase or decrease the 2019 vehicle trip generation to future years. However, this would assume that travel behavior and mode choice (transit and vehicle) would not change between 2019 and future conditions meaning passengers taking transit or taking a vehicle to OAK would remain in the same relative proportion in the future as it occurs today.

To determine whether mode choice may change in the future, the Alameda County Transportation Commission's countywide travel demand model was used. This model relies on land use growth assumptions and future transportation network improvements for both transit and vehicles to determine mode choice. Based on analysis of the travel demand model, the mode choice for passengers taking transit would grow by about 2.9 percent between 2019 and 2038. Employee mode choice for transit is anticipated to increase by 0.8 percent over the same period. Mode shifts for 2028 were estimated based on a linear interpolation between 2019 and 2038. These increases in transit mode share correspond to

a reduction in vehicle mode share. Therefore, the demand levels from **Table 3.13-2** were adjusted to account for the forecast mode shift from vehicles to transit.

Table 3.13-4 provides the compound annual growth rate between 2019 and both 2028 and 2038 for each of the 18 zones used to define the OAK trip generation based on the aviation activity forecasts (**Table 3.13-2**) and the adjustments based on mode choice.

The growth rates shown in **Table 3.13-4** were applied to the 2019 vehicle trip generation to determine the estimated trip generation of OAK in both 2028 and 2038. The resulting daily trip generation for cars, buses, and trucks on a typical day is shown in **Table 3.13-5**.

TABLE 3.13-4
CALCULATED COMPOUND ANNUAL GROWTH RATE FOR EACH ANALYSIS ZONE AT OAK

Zone	Description	Compound Annual Growth Rate (percent)	
		2019 to 2028	2019 to 2038
1	FedEx	2.0%	1.6%
2	Neil Armstrong and SwissPort	1.7%	2.5%
3	UPS (Employee)	2.0%	1.6%
4	SW Provisioning	1.7%	2.5%
5	Non-secure Employee	1.1%	1.5%
6	Secure Employee	1.1%	1.5%
7	OMC Employee Parking	1.7%	2.5%
8	Rental Car Center	2.9%	3.1%
9	Corporate/General Aviation	0.3%	0.4%
10	Parking Bowl	2.9%	3.1%
11	Economy	2.9%	3.1%
12	Park 'N Fly	2.9%	3.1%
13	Park 'N Travel	2.9%	3.1%
14	VIP Airport Parking	2.9%	3.1%
15	Airpark Oakland	2.9%	3.1%
16	FastTrack	2.9%	3.1%
17	Fly N Save	2.9%	3.1%
18	Non-Parking	2.9%	3.1%

Source: Kittelson & Associates, Inc., 2022

TABLE 3.13-5
OAK TRIP GENERATION IN 2019, 2028, AND 2038

Year	Total Vehicle Trips			
	Trucks	Buses	Cars	Total
2019	3,401	948	41,966	46,315
2028	3,917	1,247	52,500	57,664
2038	4,971	1,744	70,182	76,897

Source: Kittelson & Associates, Inc., 2022

PASSENGER ENPLANEMENTS

For environmental analyses, VMT is typically evaluated as an efficiency metric such as VMT per capita (residential) or VMT per employee (office). There is no official VMT metric for airport operations and it is up to individual agencies to determine one. Since airport VMT is primarily a function of passenger volume, using a per capita or per employee metric does not capture most of the travel to an airport. To be consistent with recent VMT studies of airports such as Norman Y. Mineta San Jose International Airport, a VMT per passenger enplanement efficiency metric was used for OAK for this analysis. This requires that the number of passengers boarding airplanes be identified for existing conditions (2019) and future years (2028 and 2038).

2019 Passenger Enplanements

To determine the number of enplanements at OAK for a typical day in 2019, data on the number of people transiting security at OAK in early December 2019 was used. The 2019 data were adjusted from the December 2019 data collection period to a typical day in 2019 using StreetLight Data which indicated December has about 93 percent of the total trip generation compared to a typical day in 2019. Therefore, the data collected in December increased by about 7 percent to represent the 50th percentile day in 2019. The total number of enplanements with this adjustment in 2019 on a typical day was 16,516.

Forecast Passenger Enplanements

Forecast passenger enplanements were based on the aviation activity forecasts (see **Table 3.13-2**). These forecasts show that air carrier passenger enplanements are anticipated to grow by a compound annual growth rate of 3.1 percent between 2019 and 2028 and 3.3 percent between 2019 and 2038 resulting in the passenger enplanements on a typical day shown in **Table 3.13-6**.

TABLE 3.13-6
ESTIMATED PASSENGER ENPLANEMENTS ON A TYPICAL DAY IN 2019, 2028, AND 2038

Year	Typical Day Enplanements
2019	16,516
2028	21,709
2038	30,473

Source: Kittelson & Associates, Inc., 2022

AVERAGE TRIP LENGTH

A key component in the calculation of VMT is to determine the average trip length for vehicles accessing OAK for existing conditions (2019) and future years (2028 and 2038).

2019 Average Trip Length

To determine the average trip length in 2019, StreetLight Data, which provides average trip length for various zones, was used. StreetLight Data is one of the best available tools for estimating actual trip length between zones and has been used on other environmental documents in the area such as the Oakland Waterfront Ballpark District at Howard Terminal. Many of the zones described in **Table 3.13-4** were consolidated into the following six groups to ensure a large enough sample size for an accurate estimation of average trip length:

- Trip Length Group 1: FedEx:
 - FedEx, Airport Traffic Control Tower, and Oakland Fire Station No. 22
- Trip Length Group 2: Employee Parking:
 - Neil Armstrong and Nearby Parking (Southwest, SwissPort, and Edward White Way parking near Terminal 2)
 - UPS
 - Southwest Provisioning
 - Non-Secure Airport Employee
 - Secure Airport Employee
 - General Airport Employee Parking (OMC)
- Trip Length Group 3: Rental Car Center
- Trip Length Group 4: Corporate/General Aviation
- Trip Length Group 5: Passenger Parking (On- and Off-Airport):
 - Hourly, Premier, and Daily Parking
 - Economy Lot
 - Park 'N Fly (82 98th Ave, Oakland, CA 94603)
 - Park 'N Travel (10001 Doolittle Dr, Oakland, CA 94603)
 - VIP Airport Parking (50 Airport Access Rd, Oakland, CA 94603)
 - Airpark Oakland Airport Parking (111 98th Ave, Oakland, CA 94603)
 - FastTrack Airport Parking (195 98th Ave, Oakland, CA 94603)
 - Fly N Save OAK Airport Parking (250 Hegenberger Rd, Oakland, CA 94621)
- Trip Length Group 6: Non-Parking:
 - Private auto pickup/drop-off, TNC²⁸⁶ vehicles, taxis, cargo, service/deliveries, etc.

Table 3.13-7 shows the average trip length in and out of OAK for each of these trip length groups in 2019. As shown, the average trip length ranges from about 14.4 miles to 23.2 miles.

**TABLE 3.13-7
AVERAGE TRIP LENGTH IN 2019 TO EACH TRIP LENGTH GROUP**

Trip Length Group	Description	2019 Average Trip Length (miles)
1	FedEx	16.2
2	Employee Parking	19.9
3	Rental Car Center	14.7
4	Corporate/General Aviation	14.4
5	Passenger Parking	23.2
6	Non-Parking	17.3

Source: Kittelson & Associates, Inc. Based on StreetLight Data from 2019.

²⁸⁶ Transportation Network Companies (Uber, Lyft, etc.)

Forecast Average Trip Length

Average trip length in the future can be affected by land use and other changes. For example, densification in nearby cities may lead to a decrease in average trip length as customers of OAK do not have to travel as far to access OAK. There is also continued development on the periphery of the urban area, which can cause an increase in average trip length. To estimate how average trip length may change between 2019 and future years, the Alameda County Transportation Commission's countywide travel demand model was used similar to how the mode choice adjustment was made.

The travel demand model estimates that the average passenger trip length for OAK is anticipated to decrease by 0.5 percent while the average employee trip length is anticipated to increase by 2.5 percent between 2019 and 2038. These factors were applied to estimate the average trip length in 2038 for each of the 18 zones used to represent OAK. Average trip length for 2028 was determined as an interpolation between 2019 and 2038. Applying these factors results in the estimated average inbound and outbound trip lengths in

Table 3.13-8 for each of the six trip length groups. As shown, there is a mix with some trip lengths increasing and others decreasing.²⁸⁷

**TABLE 3.13-8
AVERAGE INBOUND AND OUTBOUND TRIP LENGTH BY TRIP LENGTH GROUP AND YEAR**

Trip Length Group	Description	Average Trip Length (miles)		
		2019	2028	2038
1	FedEx	16.2	16.3	16.6
2	Employee Parking	19.9	20.1	20.4
3	Rental Car Center	14.7	14.7	14.6
4	North Field	14.4	14.6	14.8
5	Passenger Parking	23.2	23.1	23.0
6	Non-Parking	17.3	17.3	17.3

Source: Kittelson & Associates, Inc., 2022

3.13.2 Existing Conditions / Environmental Setting

3.13.2.1 Roadway Network

The roadway network surrounding the Proposed Project consists of freeways, arterials, and collector roadways. The following describes the major roads within the transportation study area as shown in **Figure 3.13-1**. The transportation study area was chosen to encompass the local street network that provides vehicle access along arterial and collectors between OAK and the freeway. Therefore, the area extends to just past the I-880 freeway to the east, San Leandro Bay (between Alameda and Bay Farm Island) to the north, San Francisco Bay to the west, and Davis Street to the south.

²⁸⁷ The “Pick-Up and Drop-Off” trip lengths are decreasing between 2019 and 2038 but not by more than one decimal place.

FIGURE 3.13-1
TRANSPORTATION STUDY AREA



Source: Kittelson & Associates, Inc., 2022

FREEWAYS

Interstate 880 (I-880), also known as the Nimitz Freeway, is a major north-south freeway that runs for approximately 46 miles from I-280 and SR-17 in San Jose to I-80 and I-580 in Oakland. The interchanges at Hegenberger Road, 98th Avenue, and Davis Street serve OAK.

ARTERIALS

98th Avenue is a four- to six-lane arterial roadway with a posted speed limit of 35 miles per hour (mph). 98th Avenue features ramps in both directions to I-880 and is one of the three primary roadways connecting I-880 with the Airport. Generally, there are sidewalks on both sides of the street between Airport Access Road and I-880 and to the east of the I-880 overcrossing. However, the I-880 / 98th Avenue interchange overcrossing only has sidewalk facilities along the north side of the road. There are no designated bicycle facilities along 98th Avenue in the vicinity of the Proposed Project. 98th Avenue becomes Bessie Coleman Drive just west of Doolittle Drive. 98th Avenue is served by Alameda-Contra Costa Transit District (AC Transit) Route 98 (Eastmont-98th Avenue-Edgewater) and Route 1T (International-East 14th Street).

Hegenberger Road is a six-lane arterial roadway with a posted speed limit of 35 mph. Hegenberger Road features a full access interchange to I-880 and is one of the three primary roadways connecting I-880 with the Airport. There are sidewalks on both sides of the street between I-880 and Doolittle Drive but no marked bicycle facilities. Hegenberger Road is served by AC Transit Route 73 (73rd Avenue-Coliseum-Airport) and Route 805 (MacArthur-Airport All Nighter).

Doolittle Drive/State Route (SR) 61 is a four-lane arterial with a posted speed limit of between 35 and 45 mph. Doolittle Drive runs north south and connects Bay Farm Island to San Leandro. There are sidewalks on both sides of Doolittle Drive between Davis Street and Airport Access Road. West of Airport Access Road, the sidewalk is only present along the north side of Doolittle Drive to about Swan Way. North of Swan Way, there are no sidewalks until after Harbor Bay Parkway. Doolittle Drive has bicycle lanes in both directions between Davis Street and Swan Way which contains a section of the Bay Trail, but bicycle lanes are not present elsewhere on the arterial. Doolittle Drive close to the Airport is served by AC Transit Route 73 (73rd Avenue-Coliseum-Airport) and Route 805 (MacArthur-Airport All Nighter).

Davis Street/SR 61 is a four-lane arterial with a posted speed limit of 35 mph. Davis Street serves as the connection of SR 61 between the I-880 interchange and Doolittle Drive and is one of the three primary roadways connecting I-880 with the Airport. There are sidewalks on both sides of Davis Street between Doolittle Drive and I-880.

Bessie Coleman Drive is a six- to nine-lane arterial roadway with a posted speed limit of 45 mph. Bessie Coleman Drive is a continuation of 98th Avenue and provides direct access to the Airport. There are no sidewalks on either side of the street and no designated bicycle facilities.

Airport Access Road is a five-lane divided arterial with a speed limit of 35 mph. It serves as a connecting roadway between Hegenberger Road, 98th Avenue, and Doolittle Drive.

Sidewalks are present on both sides of the road but marked bicycle facilities are not provided.

Ron Cowan Parkway is a four-lane arterial roadway with a posted speed limit of 45 mph. Ron Cowan Parkway provides a connection through the Airport's North and South Fields to connect Bessie Coleman Drive and Harbor Bay Parkway on Bay Farm Island. There is a Class 1 Bicycle Path along the south side of Ron Cowan Parkway serving both pedestrians and bicyclists between Harbor Bay Parkway and Bessie Coleman Drive.

Harbor Bay Parkway is a four-lane divided arterial roadway with a posted speed limit of between 35 and 45 mph. Harbor Bay Parkway is a continuation of Ron Cowan Parkway and connects to the northwest portion of Bay Farm Island in the city of Alameda. It also provides a connection between Ron Cowan Parkway and Doolittle Drive between the Corica Park Golf Course and the Airport. Sidewalks are generally present on both sides of the street west of Ron Cowan Parkway and only on the west side for the part of Harbor Bay Parkway that connects Ron Cowan Parkway to Doolittle Drive. There are no marked bicycle facilities on Harbor Bay Parkway but there is an off-street path along the west side of the road.

COLLECTORS

John Glenn Drive is a two-lane roadway that provides a connection between Ron Cowan Parkway and the air cargo and provisioning facilities at the Airport. It also serves the park and call lot, the OMC employee parking lot, the economy parking lot, the non-secure and secure employee parking lots, and the Terminal 1 loading dock. The speed limit is set at 25 mph. A sidewalk is present along the north side of the street and the street is striped as a Class 3 bicycle facility.

Airport Drive is a one-way loop roadway of four lanes that connects Bessie Coleman Drive with the public parking facilities at the Airport and the pick-up/drop-off area for the Airport terminals. Sidewalks are not present along this roadway except near the Airport terminals. No bicycle facilities are provided.

LOCAL STREETS

Local streets serving vehicle movements within OAK include Air Cargo Way, Alan Shepard Way, Edward White Way, Neil Armstrong Way in the main terminal area; and Cessna Street, Earhart Road, Hiller Street, Langley Street, Old Earhart Road, and Sikorsky Street in the North Field area.

3.13.2.2 Transit Facilities

The Airport is served by two public transportation agencies: AC Transit and Bay Area Rapid Transit (BART). **Figure 3.13-2** provides the locations of routes serving the transportation study area.

BAY AREA RAPID TRANSIT (BART)

BART is a heavy-rail rapid public transit system that connects the San Francisco Peninsula with cities across the East Bay and South Bay. BART operates 131 miles of track and averaged approximately 418,000 trips per weekday in 2019. BART operations are similar today as before the pandemic operating between 5 a.m. and midnight on weekdays, 6 a.m. and midnight on Saturdays, and 8 a.m. and 9 p.m. on Sundays.

FIGURE 3.13-2
EXISTING TRANSIT FACILITIES



Source: AC Transit, BART, Kittelson & Associates, Inc., 2022

The BART station that directly serves the Airport is the Coliseum Station (located on San Leandro Street at 73rd Avenue). This BART station provides direct access to three BART lines. These lines include: the Blue Line, which operates between Dublin/Pleasanton and Daly City; the Orange Line, which operates between Berryessa/North San José and Richmond; and the Green Line, which operates between Berryessa/North San José and Daly City. Service frequency on each of these lines is 30 minutes or less.

The Coliseum Station features a pedestrian bridge to the Oakland Coliseum and Oakland Arena, and it also serves as the transfer point from BART to the Airport via a people mover connection, which opened in November 2014. The people mover is known as the Oakland Airport Connector and provides a connection to the Airport, taking about eight minutes. The people mover departs every six minutes and has service hours between 5 a.m. to midnight on weekdays, 6 a.m. to midnight on Saturday, and 8 a.m. to 9 p.m. on Sunday.²⁸⁸

ALAMEDA-CONTRA COSTA TRANSIT DISTRICT (AC TRANSIT)

AC Transit provides local fixed-route service, bus rapid transit, regional “transbay” service, and school service for the East Bay and greater Bay Area. AC Transit operates 158 bus lines and maintains approximately 5,400 bus stops. Seven routes serve the transportation study area, including six local lines and one all-nighter. **Table 3.13-9** provides a description of these routes. Three of these seven routes directly serve OAK including Route 21, Route 73, and the All Nighter Route 805.

3.13.2.3 Bicycle and Pedestrian Facilities

Bicycle and pedestrian facilities are a component of the transportation network surrounding the Airport. These facilities offer non-vehicular options for commuting and recreational uses, as well as connections to local and regional transit.

Bicycle facilities are classified as one of the following types consistent with Oakland’s Bikeway Network:²⁸⁹

- **Class 1 Bicycle Paths** (bike paths) are paved rights-of-way completely separated from streets. Bike paths are often located where there are a limited number of cross streets and driveways along waterfronts, creeks, railroad rights-of-way, or freeways. These paths are typically shared with pedestrians and often called mixed-use paths.
- **Class 2 Bicycle Lanes** (bike lanes) are on-street facilities designated for bicyclists using stripes and stencils. Bike lanes are a preferred treatment for all arterial and collector streets on the bikeway network and are not typically installed on low-volume, low-speed residential streets.
- **Class 2B Buffered Bicycle Lanes** are bike lanes that include buffer striping to provide greater separation between bicyclists and parked or moving vehicles.

²⁸⁸ Service hours based on BART website data accessed on September 22, 2021.

²⁸⁹ City of Oakland. *Bikeway Types*. Retrieved from: <https://www.oaklandca.gov/resources/bikeway-types>

TABLE 3.13-9
AC TRANSIT ROUTES

Route	Route Type	Serving	Day	Times		Frequency
21	Local Line	Runs between Oakland International Airport and the Dimond District via Fruitvale Avenue	Weekday	6:30 a.m.	10:00 p.m.	Every 30 minutes
			Weekend	6:30 a.m.	10:00 p.m.	Every 30 minutes
45	Local Line	Eastmont Transit Center to Foothill Square via Hillmont Avenue, Seminary Avenue, and Edes Avenue	Weekday	6:00 a.m.	11:00 p.m.	Every 20 minutes
			Weekend	6:00 a.m.	11:00 p.m.	Every 40 minutes
46L	Local Line	Coliseum BART to Grass Valley via 81st Avenue, Fontaine Street, Mountain Boulevard, and Golf Links Road	Weekday	6:45 a.m.	7:30 p.m.	Hourly
73	Local Line	Eastmont Transit Center to Oakland International Airport via 73rd Avenue, Coliseum BART, and Hegenberger Road	Weekday	1:45 a.m.	12:15 a.m.	Every 15 minutes
			Weekend	1:45 a.m.	12:15 a.m.	Every 15 minutes
90	Local Line	Coliseum BART to Foothill Square via San Leandro Street, 85th Avenue, International Boulevard, 90th Avenue, and MacArthur Boulevard	Weekday	6:00 a.m.	11:15 p.m.	Every 20 minutes
			Weekend	6:00 a.m.	10:15 p.m.	Every 30 minutes
98	Local Line	Coliseum BART to Eastmont Transit Center via Oakport Street, Edgewater Drive, 98th Avenue, and MacArthur Boulevard	Weekday	6:00 a.m.	11:20 p.m.	Every 20 minutes
			Weekend	6:00 a.m.	10:20 p.m.	Every 30 minutes
805	All Nighter Line	Downtown Oakland to Oakland International Airport via Grand Avenue, MacArthur Boulevard, and Coliseum BART	Weekday	12:40 a.m.	6:30 a.m.	Hourly
			Weekend	12:40 a.m.	6:30 a.m.	Hourly

Source: AC Transit. (2019).

- **Class 3 Bicycle Routes** (bike routes) are streets designated for bicycle travel and are shared with motor vehicles. Streets are designated as bike routes because they are suitable for sharing with motor vehicles and/or provide better (or needed) connectivity compared to other streets. Routes are marked with signs and/or pavement markings.
- **Class 3B Neighborhood Bicycle Routes**, also known as Bike Boulevards, are bike routes on residential streets that prioritize through trips for bicyclists. Traffic calming is included as needed to discourage drivers from using the street as a through route and to keep streets comfortable for bicyclists. Oakland's Bike Boulevards are marked with shared lane bicycle markings (i.e., "sharrows") and signage.
- **Class 4 Protected Bicycle Lanes**, also known as cycle tracks, provide space that is for bicyclists and physically separated from motor vehicle travel lanes, parking lanes, and sidewalks. Parked cars, curbs, bollards, or planter boxes provide physical separation between bicyclists and moving cars. Where on-street parking is allowed, it is placed between the bikeway and the travel lanes (rather than between the bikeway and the sidewalk, as is typical for Class 2 bike lanes).

EXISTING BICYCLE FACILITIES

The following bicycle facilities are within the transportation study area:

- Class 1 bike path along Ron Cowan Parkway from Harbor Bay Parkway to Bessie Coleman Drive.
- Class 1 bike path connecting Bessie Coleman Drive near Ron Cowan Parkway with the city of San Leandro through the Oyster Bay Regional Shoreline and Bay Trail.
- Class 1 bike path connecting Ron Cowan Way with Doolittle Drive.
- Class 2 bike lanes on Doolittle Drive from Swan Way to Davis Street.
- Class 3 bike lanes on John Glenn Drive from the Airport to Ron Cowan Parkway.

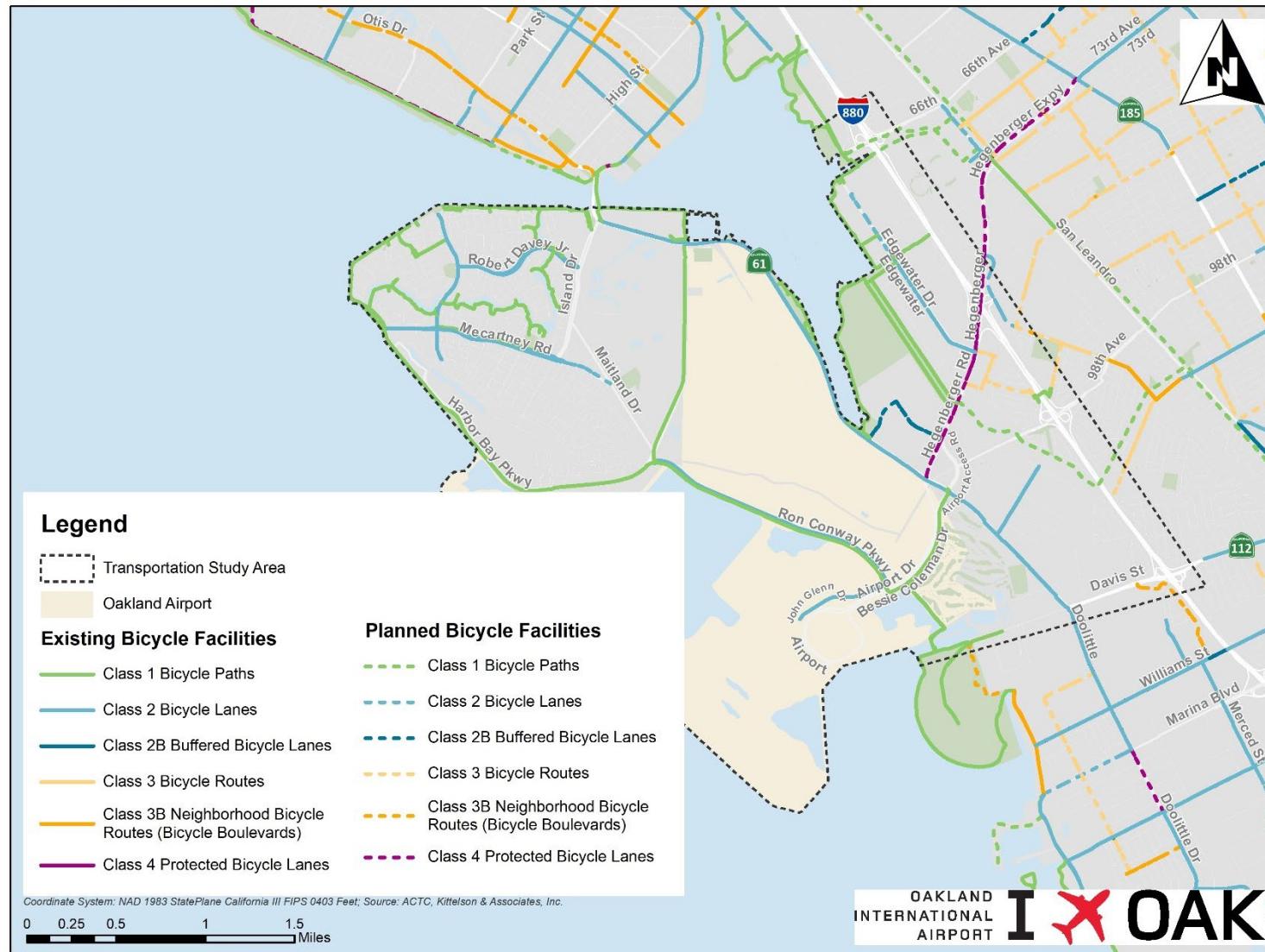
PROPOSED BICYCLE FACILITIES

Oakland's 2019 Bike Plan, *Let's Bike Oakland!*, proposes the following bicycle facilities near the Airport:

- Class 1 bike path along San Leandro Creek from Hegenberger Road to I-880 near 105th Avenue.
- Class 4 protected bike lane on Doolittle Drive from Davis Street to Harbor Bay Parkway.
- Class 4 protected bike lane on Hegenberger Road from Airport Drive to the Coliseum BART Station.

Figure 3.13-3 provides the locations of existing and proposed bicycle facilities in the transportation study area.

FIGURE 3.13-3
EXISTING AND PROPOSED BICYCLE FACILITIES



Source: Oakland Pedestrian Plan (Oakland Walks) and Bicycle Plan (Bike Oakland), Kittelson & Associates, Inc., 2022

EXISTING PEDESTRIAN FACILITIES

Sidewalks are not provided along roadways in the immediate vicinity of the Airport. However, the Airport is connected to the area around Hegenberger Road and 98th Avenue via a multiuse path along Bessie Coleman Drive between Doolittle Drive and Ron Cowan Parkway and a sidewalk along John Glenn Drive between Ron Cowan Parkway and the terminals. A Class 1 Bicycle Path along Ron Cowan Parkway also connects John Glenn Drive to Harbor Bay Parkway. Consistent sidewalks become present on major roadways between Doolittle Drive and I-880 and along Harbor Bay Parkway on Bay Farm Island.

PROPOSED PEDESTRIAN FACILITIES

Oakland Walks!, Oakland's pedestrian master plan, identifies Hegenberger Road from Hegenberger Loop to Hegenberger Plan (approximately 1,000 feet) as a high injury corridor in the vicinity of the Airport.

3.13.2.4 2019 VMT

The 2019 VMT was determined based on the vehicle trip generation, passenger enplanements, and average trip length described in the methodology section, and is calculated for a typical day. The total VMT generated by the Airport (passengers, employees, deliveries, etc.) for a typical day in 2019 was calculated using a combination of traffic counts at key vehicle access points adjusted to 2019 and total trip length tracking information from mobile sources such as cell phones. The total VMT for a typical day is divided by the total number of passenger enplanements for a typical day to determine the VMT per passenger enplanement, which is 46.4 miles for the base year 2019. A summary of these calculations is shown in **Table 3.13-10**.

TABLE 3.13-10
TOTAL VEHICLE MILES TRAVELED (VMT) AND VMT PER ENPLANEMENT ON TYPICAL DAY IN 2019

	2019
Total VMT on a Typical Day	765,882
Enplanements on a Typical Day	16,516
VMT/Enplanement	46.4

Source: Kittelson & Associates, Inc., 2022

CEQA Section 15064.3, subdivision (a), states, "[f]or the purposes of this section, 'vehicle miles traveled' refers to the amount and distance of automobile travel attributable to a project." Here, the term "automobile" refers to on-road passenger vehicles, specifically cars and light trucks. Based on this, the cargo truck VMT from **Table 3.13-10** will not be used in the calculation of VMT for the Proposed Project and only car (which includes light trucks). For conservative analysis purposes, given that buses are utilized primarily for transport of passengers and employees, bus VMT will be included in the calculation of VMT. However, cargo truck trips were included in the air quality analysis (**Section 3.3**).

3.13.3 Proposed Project VMT Assessment

The Proposed Project would affect two components of the VMT calculation including trip generation and average trip length.

3.13.3.1 Proposed Project Trip Generation

OAK trip generation is not anticipated to change because of the Proposed Project since the passenger forecasts shown in **Table 3.13-2** would occur whether the Proposed Project is constructed or not. Based on discussions with the Port, the potential change to vehicle trip generation would be from two sources:

- Additional employees who would be needed to operate and maintain the new facilities; and who would not be needed if the Proposed Project were not constructed; and
- Additional buses that would be needed to service the relocated parking areas; and that would not be needed if the Proposed Project were not constructed.

In addition to estimated employee growth from market-based demand, the Port has estimated the potential need for approximately 70 additional employees on a typical day.²⁹⁰ These new employees are expected to park in both the secure parking lot and the future employee lots. The resulting additional trip generation (approximately 70 inbound and 70 outbound trips or about 140 total trips) is anticipated to correspond to the increase in new employees beyond the market-based growth.

As a result of the Proposed Project, the existing economy lot for passengers, and the OMC and non-secure parking lots for employees would be relocated. The employee parking lots would be relocated to two lots including the North Field lot located off Earhart Road north of the RAC and the Golf Course lot located at the intersection of Doolittle Drive and Eden Road. The economy parking lot would be relocated to two lots including the Maitland lot, located near the intersection of Ron Cowan Parkway and Harbor Bay Parkway, and the Ron Cowan lot, located near the intersection of Ron Cowan Parkway and John Glenn Drive. These new parking facilities are shown in **Figure 2-7**.

The relocation of the parking areas as part of the Proposed Project would affect the vehicle trips associated with each parking lot and the buses that serve them since these new parking lots would require additional buses to maintain the same bus frequencies for passengers, similar to the existing economy lot bus, and for employees, similar to the existing OMC bus. Data provided by the Port showing the route and number of bus trips per day that serviced the three parking lots in 2019 (passenger economy lot, employee OMC lot, and employee Neil Armstrong lot) was used to estimate that buses at OAK generate 558 VMT on a typical day under 2019 conditions (see **Table 3.13-11**).

Based on the location of the proposed replacement parking lots for the passenger economy lot and the employee OMC lot, the roundtrip loop distance a bus would travel for each trip between these parking lots and OAK was estimated. After assuming the same number of bus trips would be performed each day, **Table 3.13-12** shows the VMT for buses with the Proposed Project. As shown, the Proposed Project would add 237 additional bus trips per day (570 – 333) resulting in an increased VMT of 1,430 miles (1,988 – 558).

²⁹⁰ There will be additional employees resulting from the growth in passenger volume, but this increase would occur even without the project. Therefore, this growth is not attributable to the project.

TABLE 3.13-11
2019 OAK SHUTTLE BUS VEHICLE MILES TRAVELED (VMT)

2019 Shuttle Bus VMT			
Bus Route	Loop Distance (Miles)	Trips Per Day	VMT
Economy Lot	2.13	117	249
OMC Lot	1.86	120	223
Neil Armstrong Lot	0.89	96	86
	Total:	333	558

VMT: vehicle miles traveled

Source: Kittelson & Associates, Inc., 2022

TABLE 3.13-12
PROPOSED PROJECT OAK SHUTTLE BUS VEHICLE MILES TRAVELED (VMT)

Proposed Project Shuttle Bus VMT			
Parking Lot	Loop Distance	Trips Per Day	VMT
Neil Armstrong Lot	0.89	96	85
North Field Lot (OMC)	5.9	120	708
Golf Course Lot (OMC)	4.4	120	528
Maitland Lot (Economy)	4.1	117	480
Ron Cowan Lot (Economy)	1.6	117	187
	Total:	570	1,988

VMT: vehicle miles traveled

Source: Kittelson & Associates, Inc., 2022

3.13.3.2 Proposed Project Average Trip Length

As a result of the relocation of certain parking areas, the average trip length for certain zones would change as vehicles accessing the new parking areas (**Figure 2-7**) travel either longer or shorter distances. Parking area changes include the following based on the description of the Proposed Project:

- Approximately 40 percent of the employees parking in the Neil Armstrong lot in 2019 would be relocated to the North Field parking area.
- The management secure parking area would be relocated to two new parking areas with about 54 percent being relocated to the secure infill lot and 46 percent relocated to the secure approach lot.
- The OMC employee parking lot would have about 49 percent of its parking relocated to the North Field lot and 51 percent relocated to the golf course lot.
- Approximately 7 percent of the parking bowl (daily, hourly, premier parking) would be relocated to the Ron Cowan lot.
- The economy parking lot would be relocated to both the Maitland lot (62 percent) and the Ron Cowan lot (38 percent).

A total of five origin/destination locations for how vehicle trips would arrive to and depart from OAK within the transportation study area were identified and the average trip length

from each origin/destination location may change because of the relocation of the parking areas was calculated. These five origin/destination locations included:

1. Harbor Bay Parkway at Ron Cowan Parkway
2. Doolittle Drive at Harbor Bay Parkway
3. Hegenberger Road at Doolittle Drive
4. 98th Avenue at Airport Access Road
5. Doolittle Drive at Davis Street

The difference in distance between each of these origin/destination locations and the parking areas to be relocated was determined using Google Maps. For example, a vehicle traveling between Harbor Bay Parkway at Ron Cowan Parkway and the UPS parking area would travel 0.7 miles less with the Proposed Project compared to 2019 conditions because the UPS parking lot is moving closer to the entrance to OAK. Conversely, an employee traveling to the Neil Armstrong parking lot with the Proposed Project from Harbor Bay Parkway and Ron Cowan Parkway would travel 1.3 miles farther to access the relocated parking in the North Field area compared to 2019 conditions.

Based on the changes in distance to each parking area from the five origin/destinations, the change to average trip length for each of the 18 zones was calculated and is shown in **Table 3.13-13**. The resulting changes to average trip length for the Proposed Project is compared to 2019 conditions average trip length in **Table 3.13-14**.

TABLE 3.13-13
TRIP LENGTH ADJUSTMENT APPLIED TO 2019 CONDITION AVERAGE TRIP LENGTH FOR EACH ZONE

Zones	Proposed Project Trip Length Adjustment (miles)
1	FedEx
2	Neil Armstrong
3	UPS (Employee)
4	SW Provisioning
5	Non-Secure
6	Secure
7	OMC
8	Rental Car Center
9	Corporate/General Aviation
10	Parking Bowl
11	Economy
12	Park 'N Fly
13	Park 'N Travel
14	VIP
15	Airpark Oakland
16	FastTrack
17	Fly N Save
18	Non-Parking

Source: Kittelson & Associates, Inc., 2022

TABLE 3.13-14
AVERAGE TRIP LENGTH COMPARISON BY ZONE

Zone	Description	Average Trip Length			Proposed Project Average Trip Length		
		2019	2028	2038	2019	2028	2038
1	FedEx	16.2	16.3	16.6	16.2	16.3	16.6
2	Neil Armstrong	19.9	20.1	20.4	20.0	20.2	20.5
3	UPS (Employee)	19.9	20.1	20.4	19.2	19.4	19.7
4	SW Provisioning	19.9	20.1	20.4	19.3	19.5	19.8
5	Non-Secure	19.9	20.1	20.4	19.9	20.1	20.4
6	Secure	19.9	20.1	20.4	19.9	20.1	20.4
7	OMC	19.9	20.1	20.4	20.2	20.4	20.7
8	Rental Car Center	14.7	14.7	14.6	14.7	14.7	14.6
9	North Field	14.4	14.6	14.8	14.4	14.6	14.8
10	Parking Bowl	23.2	23.1	23.0	23.1	23.1	23.0
11	Economy	23.2	23.1	23.0	23.4	23.4	23.3
12	Park 'N Fly	23.2	23.1	23.0	23.2	23.1	23.0
13	Park 'N Travel	23.2	23.1	23.0	23.2	23.1	23.0
14	VIP	23.2	23.1	23.0	23.2	23.1	23.0
15	Airpark Oakland	23.2	23.1	23.0	23.2	23.1	23.0
16	FastTrack	23.2	23.1	23.0	23.2	23.1	23.0
17	Fly N Save	23.2	23.1	23.0	23.2	23.1	23.0
18	Non-Parking	17.3	17.3	17.3	17.3	17.3	17.3

Source: Kittelson & Associates, Inc., 2022

3.13.3.3 Proposed Project VMT

The changes to trip generation for the new employees and additional buses along with the adjustments to average trip length²⁹¹ were used to calculate the VMT with the addition of the Proposed Project. A comparison between the Proposed Project VMT and 2019 condition VMT is shown in **Table 3.13-15**. As shown, the VMT per enplanement with the Proposed Project in 2028 and 2038 would be less than the VMT per enplanement under 2019 conditions. Since the 2028 and 2038 VMT with the Proposed Project is less than 2019 condition VMT, no significant VMT impacts are anticipated based on the significance criteria.

²⁹¹ Trip length estimation for the new shuttle bus routes was estimated using Google Maps as the roundtrip distance between the terminal boarding/alighting area and the proposed parking lot location.

TABLE 3.13-15
VEHICLE MILES TRAVELED (VMT) PER ENPLANEMENT FOR 2019, 2028, AND 2038 WITH THE PROPOSED PROJECT

	2019	2028	2038
Car VMT	749,445	943,094	1,264,780
Bus VMT	16,437	23,011	31,533
VMT	765,882	966,105	1,296,314
Enplanements	16,516	21,709	30,473
VMT/Enplanement	46.4	44.5	42.5

VMT: vehicle miles traveled

Source: Kittelson & Associates, Inc., 2022

3.13.4 Environmental Impacts and Mitigation

3.13.4.1 Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities

The Proposed Project and its effects were compared against local, regional, and state programs, plans, ordinances, and policies addressing the circulation system, as described previously. The ordinances and policies addressing the circulation system in the area and a discussion of whether the Proposed Project would conflict with them include:

- Alameda County Transportation Commission Goods Movement Plan
 - The Goods Movement Plan outlines a long-range strategy for how to move goods efficiently, reliably, and sustainably within, to, from, and through Alameda County by roads, rail, air, and water. The new facilities at OAK would include new facilities for airplane freighter cargo and belly cargo for passenger planes. These new facilities would improve the efficiency of air goods movement in Alameda County resulting in the Proposed Project assisting in meeting the goods movement plans' long-term strategy.
- Plan Bay Area 2050
 - This document recommends increasing non-auto travel mode share and reducing VMT per capita and per employee. As shown in the VMT section, the VMT per enplanement in 2028 and 2038 with the Proposed Project is less than the 2019 VMT. Additionally, the proportion of passengers and employees taking transit to OAK is anticipated to increase between 2019 and future years (2028 and 2038). Therefore, the Proposed Project meets the recommendation to increase non-auto travel.
- San Francisco Bay Plan
 - **Transportation Policy 4:** Transportation projects should include bicycle and pedestrian paths. OAK contains separated bicycle and pedestrian pathways connecting OAK to Doolittle Drive and running along Ron Cowan Parkway to connect at Harbor Bay Parkway. The Proposed Project would not affect the

non-auto facilities on Doolittle Drive and Ron Cowan Parkway resulting in no conflict with this policy.

- **Public Access Policy 2:** Maximum feasible access should be provided to the waterfront. Given security and safety concerns surrounding OAK, public access to the waterfront is primarily provided near the golf course and connections to Oyster Bay Regional Shoreline via the Bay Trail and the Bill Lockyer Bay Trail Bridge. The Proposed Project would not alter these access points, so no conflict is anticipated.
- **Public Access Policy 10:** Access to the waterfront should be provided by walkway and trails to connect public thoroughfares where convenient parking and public transit are available. OAK has extensive parking and a BART station which can provide access to the Bay Trail and unrestricted waterfront locations. The Proposed Project would not alter these connections and no adverse effect on this policy is anticipated.
- Land Use and Transportation Element of Oakland's General Plan
 - **Policy T3.5, Including Bikeways and Pedestrian Walks:** No new streets are proposed as part of the Proposed Project. The terminal access area would be modified with realigned pick-up/drop-off areas. However, these would be designed to accommodate pedestrians and incorporate appropriate pedestrian connections to the various terminals and BART station.
 - **Policy T3.6, Encouraging Transit:** OAK has a dedicated BART station providing connections to the rest of BART's network. No changes to the BART station are anticipated that would discourage transit.
 - **Policy T3.7, Resolving Transportation Conflicts:** BART currently operates in its own right-of-way and has no transportation conflicts with vehicles. The Proposed Project would not introduce any new conflicts between transportation modes.
 - **Policy T4.1, Incorporating Design Features for Alternative Travel:** The Proposed Project would continue to provide direct access to an existing BART station, and would not impact existing bicycle and pedestrian facilities.
 - **Policy W6.3, Enhancing Intermodal Transportation:** Transportation corridors serving airport terminals should be preserved and enhanced. The Proposed Project would not alter access to the airport. It is only modifying the pickup/drop off area to accommodate the proposed new facilities.
- Bicycle Master Plan
 - There are currently separated bicycle pathways along Bessie Coleman Drive and Ron Cowan Parkway. There is an existing Class 3 bicycle route on John Glenn Drive providing access to the airport terminal. The Proposed Project would not change the bicycle pathways, but would remove part of John Glenn Drive, which would also potentially affect the bicycle access to the terminals.

- Pedestrian Master Plan
 - Pedestrian access to OAK is provided along the same facilities as bicycles with pathways along Bessie Coleman Drive and Ron Cowan Parkway and a sidewalk connection along John Glenn Drive. The Proposed Project would remove a portion of John Glenn Drive and potentially affect pedestrian access to the terminals.

The Proposed Project would remove a portion of the existing John Glenn Drive, which provides pedestrian and bicycle connections between OAK terminals and the surrounding transportation infrastructure. Removing this connection conflicts with both the bicycle and pedestrian master plans for the City of Oakland and is considered a potentially ***significant impact***.

MITIGATION MEASURE

The Proposed Project will maintain pedestrian and bicycle access during construction and ensure that the pedestrian and bicycle connection between Ron Cowan Parkway and the Proposed Project are made upon project completion to replace the connection lost by the removal of part of John Glenn Drive.

Implementing the proposed mitigation would reduce the impact of the Proposed Project to ***less than significant with mitigation incorporated***.

3.13.4.2 Conflict with CEQA Guidelines Section 15064.3 (b)

The VMT per enplanement for existing conditions is 46.4 miles in 2019. VMT per enplanement in 2028 and 2038 with the Proposed Project is projected to be less at 44.5 miles and 42.5 miles, respectively. The decrease in VMT per enplanement is the result of increases in transit access to OAK and increased average vehicle occupancy for people traveling to OAK. Since the VMT per enplanement in 2028 and 2038 with the Proposed Project is less than the VMT per enplanement in 2019, the project does not result in a significant impact based on VMT and no mitigation measures are required. The impact would be ***less than significant***.

3.13.4.3 Substantially increase hazards due to a geometric design feature or incompatible uses

The Proposed Project would not substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment). This would be considered a less than significant impact.

The Proposed Project does not represent an incompatible use since the site is currently an airport and the project involves modernizing and constructing new facilities for existing land use.

The design of the revised circulation system and parking facilities for the Proposed Project is also not anticipated to substantially increase hazards since the circulation changes would be required to adhere to Oakland Fire Department's design standards, which are imposed by the State and Oakland's Fire Department during the building plan check and development review process. These reviews would ensure that hazards due to design features would not

occur and that the placement of the circulation improvements would not create a conflict for motorists, pedestrians, or bicyclists traveling within or around the project site.

Since the Project is not incompatible with surrounding land uses, there are no offsite improvements, and all onsite improvements would be made adhering to the latest design standards for Oakland, the impact would be ***less than significant***.

3.13.4.4 Result in inadequate emergency access

Emergency response requires a balance of emergency response time and evacuation needs with other community concerns, such as urban design and traffic calming. To address emergency and fire access needs, the site improvements are required to be designed in accordance with all applicable Oakland Fire Department design standards for emergency access (e.g., minimum lane width and turning radius). Since adequate emergency access will be required per the local fire code and the site plans would be reviewed by the local fire officials as part of the design review, the Proposed Project would not result in inadequate emergency vehicle access. Therefore, the Proposed Project would have a ***less than significant*** impact.

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3.14 ENERGY, UTILITIES, AND SERVICE SYSTEMS

This section describes the existing conditions, potential impacts and, where appropriate, proposed mitigation measures related to energy use, water, wastewater utilities and services, stormwater drainage, electric power, natural gas, and telecommunications facilities, as well as the sufficiency of water supplies, wastewater treatment capacity and solid waste disposal.

The information in this section is based on information compiled from utilities and service systems reports provided by the Port, as well as reports published by the East Bay Municipal Utility District (EBMUD), and supplementary information supplied by the Port. These reports are included in **Appendix 0**. Because the analysis in this Draft EIR is based on conceptual design, EBMUD has not been contacted directly in support of this Draft EIR, nor has a detailed engineering analysis or formal water supply assessment been performed for the Proposed Project. These are steps that would occur once the Proposed Project is defined in further detail in the design phase.

3.14.1 Background and Methodology

3.14.1.1 Regulatory Context

This section identifies regulations and policies related to energy use. Additional regulations and policies that focus on GHG emissions but are also relevant to energy use are included in **Section 3.7, Greenhouse Gas Emissions**.

FEDERAL

Energy Policy and Conservation Act

The Energy Policy and Conservation Act of 1975 was established in response to the oil crisis of 1973, which increased oil prices due to a shortage of reserves. The Act required that all vehicles sold in the U.S. meet certain fuel economy goals, known as the Corporate Average Fuel Economy standards. The Corporate Average Fuel Economy standards seek to reduce energy consumption by increasing the fuel economy of passenger cars and light-duty trucks. The National Highway Traffic Safety Administration (NHTSA) administers the Corporate Average Fuel Economy program, and the United States Environmental Protection Agency (USEPA) provides the fuel economy data.

In April 2010, the USEPA and NHTSA issued a Final Rulemaking establishing new federal fuel economy standards for model years 2012 to 2016 passenger cars and light-duty trucks. In addition, on August 9, 2011, the USEPA and NHTSA finalized regulations to reduce greenhouse gas (GHG) emissions and improve fuel efficiency of medium- and heavy-duty vehicles, including large pickup trucks and vans, semi-trucks, and all types and sizes of work trucks and buses. For model year 2012, the fuel economy standards for passenger cars, light trucks, and combined cars and trucks were 33.3 miles per gallon (mpg), 25.4 mpg, and 29.7 mpg, respectively.²⁹² These standards increased progressively up to 37.8 mpg, 28.8 mpg, and 34.1, respectively, for model year 2016. In subsequent

²⁹² United States Environmental Protection Agency (USEPA) and United States Department of Transportation (USDOT). (2010). *Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards. Final Rule.* 75 Fed. Reg. 25324-25728.

rulemakings, the agencies extended the national program of fuel economy standards to passenger vehicles and light-duty trucks of model years 2017 to 2025, culminating in fuel economy of 54.5 mpg by model year 2025,²⁹³ as well as to medium- and heavy-duty vehicles of model years 2014 to 2018, including large pickup trucks and vans, semi-trucks, and all types and sizes of work trucks and buses.²⁹⁴

In August 2016, the USEPA and NHTSA adopted the next phase (Phase 2) of the fuel economy and GHG standards for medium- and heavy-duty trucks, which apply to vehicles with model year 2018 and later.²⁹⁵ These federal Phase 2 standards were built on the improvements in engine and vehicle efficiency required by the Phase 1 emission standards and represent a significant opportunity to achieve further GHG reductions for 2018 (2020 in California) and later model year heavy-duty vehicles, including trailers. In response to the USEPA's adoption of the Phase 2 standards, California Air Resources Board (CARB) staff is aligning the federal Phase 2 standards in structure, timing, and stringency, with some minor California differences.²⁹⁶

In 2022, the NHTSA announced new Corporate Average Fuel Economy standards require an industry-wide fleet average of approximately 49 mpg for passenger cars and light trucks in model year 2026, the strongest cost savings and fuel efficiency standards to date. The new standards will increase fuel efficiency 8 percent annually for model years 2024-2025 and 10 percent annually for model year 2026. They will also increase the estimated fleetwide average by nearly 10 miles per gallon for model year 2026, relative to model year 2021.²⁹⁷

Energy Policy Act of 2005 and Energy Independence and Security Act of 2007

The Energy Policy Act of 2005 seeks to reduce reliance on non-renewable energy resources and provide incentives to reduce current demand on these resources. For example, under the Energy Policy Act, consumers and businesses can attain federal tax credits for purchasing fuel-efficient appliances and products. Because driving fuel-efficient vehicles and installing energy-efficient appliances can provide many benefits, such as lower energy bills, increased indoor comfort, and reduced air pollution, businesses are eligible for tax credits for buying hybrid vehicles, building energy-efficient buildings, and improving the energy efficiency of commercial buildings. Additionally, tax credits are given for the

⁴ United States Environmental Protection Agency (USEPA) and United States Department of Transportation (USDOT). (2012). *2017 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions and Corporate Average Fuel Economy Standards; Final Rule.* 77 Fed. Reg. 62623.

²⁹⁴ United States Environmental Protection Agency (USEPA) and United States Department of Transportation (USDOT). (2011). *Greenhouse Gas Emissions Standards and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles.* 76 Fed. Reg. 57106.

²⁹⁵ United States Environmental Protection Agency (USEPA). (2016, October). *Rules and Regulations.* 81 Fed. Reg. 206. Retrieved July 2021, from: <https://www.govinfo.gov/content/pkg/FR-2016-10-25/pdf/2016-21203.pdf>.

²⁹⁶ California Air Resources Board (CARB). (2021). *California Phase 2 Greenhouse Gas Standards.* Retrieved July 2021, from: <https://ww2.arb.ca.gov/our-work/programs/greenhouse-gas-standards-medium-and-heavy-duty-engines-and-vehicles/phase2>.

²⁹⁷ National Highway Traffic Safety Administration. (2022). *USDOT Announces New Vehicle Fuel Economy Standards for Model Year 2024-2026.* Retrieved July 2023, from: <https://www.nhtsa.gov/press-releases/usdot-announces-new-vehicle-fuel-economy-standards-model-year-2024-2026>.

installation of qualified fuel cells, stationary microturbine power plants, and solar power equipment.

The Energy Policy Act of 2005 also established the first renewable fuel volume mandate in the United States. The original Renewable Fuel Standard program required 7.5 billion gallons of renewable fuel to be blended into gasoline by 2012. Under the Energy Independence and Security Act of 2007, the Renewable Fuel Standard program was expanded to include diesel and to increase the volume of renewable fuel required to be blended into transportation fuel from 9 billion gallons in 2008 to 36 billion gallons by 2022. In December 2019, USEPA finalized volume requirements for cellulosic biofuel, biomass-based diesel, advanced biofuel, and total renewable fuel for 2020, and developed a requirement for biomass-based diesel for 2021. The rule became effective on April 6, 2020.²⁹⁸

American Recovery and Reinvestment Act

The American Recovery and Reinvestment Act of 2009 was passed in response to the economic crisis of the late 2000s, with the primary purpose of maintaining existing jobs and creating new jobs. Among the secondary objectives of the American Recovery and Reinvestment Act was investment in “green” energy programs, including funding the following through grants, loans, or other funding: private companies developing renewable energy technologies; local and state governments implementing energy efficiency and clean energy programs; research in renewable energy, biofuels, and carbon capture; and development of high efficiency or electric vehicles (EVs).²⁹⁹

Inflation Reduction Act of 2022

Refer to **Section 3.7, Greenhouse Gas Emissions** for a discussion on the Inflation Reduction Act of 2022.

Clean Water Act

For a discussion of the 1972 Clean Water Act, including the National Pollutant Discharge Elimination System (NPDES), see **Section 3.9, Hydrology and Water Quality**.

Safe Drinking Water Act

The Safe Drinking Water Act (SDWA) was established to protect the quality of drinking water in the U.S. This law focuses on all waters designed for drinking use and authorizes the USEPA to establish minimum standards to protect tap water and requires all owners or operators of public water systems to comply with these primary (health-related) standards. Under SDWA, the USEPA also establishes minimum standards for state programs to protect underground sources of drinking water from endangerment by underground injection of fluids.

²⁹⁸ U.S. Environmental Protection Agency (USEPA). (2020). *Renewable Fuel Standard Program: Standards for 2020 and Biomass-Based Diesel Volume for 2021 and Other Changes*. Retrieved July 2022, from: <https://www.govinfo.gov/content/pkg/FR-2020-02-06/pdf/2020-00431.pdf>.

²⁹⁹ *American Recovery and Reinvestment Act of 2009*. H.R. 1. 111 Cong. (2009). Retrieved July 2023, from: <https://www.govinfo.gov/content/pkg/BILLS-111hr1enr/pdf/BILLS-111hr1enr.pdf>.

STATE

California Public Resources Code Section 21100(b)

California Public Resources Code (PRC) Section 21100(b), directs all State agencies, boards, and commissions to assess the environmental impacts of projects for which they are a lead agency under the California Environmental Quality Act (CEQA) to determine whether a project would result in significant effects on the environment, including effects from the wasteful, inefficient, and unnecessary consumption of energy, and to identify mitigation measures to minimize any such effects.³⁰⁰

Assembly Bill 117

In 2002, the State of California passed legislation (Assembly Bill 117) that permits local agencies to form community choice energy (CCE) programs for their communities. Under a CCE program, the utility company (in this case PG&E) continues to operate and service the transmission and delivery system and provides billing and customer service.

2021 Integrated Energy Policy Report Update

The 2021 Integrated Energy Policy Report (IEPR) Update provides an assessment of major energy trends and issues for a variety of energy sectors, as well as policy recommendations to address these concerns as required by Senate Bill 1389.³⁰¹ Prepared by the California Energy Commission (CEC), this report details the key energy issues and develops potential strategies to address these issues. The 2021 IEPR Update includes a discussion of several strategies to reduce climate change impacts and address 2021 challenges, including the COVID-19 pandemic, electricity outages, and statewide wildfires. Examples include a discussion of zero-emission vehicles (ZEVs) deployment, an analysis of plug-in electric vehicles (PEVs), fuel cells, and hydrogen fueling for medium- and heavy-duty applications, and a discussion of microgrids. The assessments and forecasted energy demand within the IEPR will be used by the CEC to develop future energy policies. As of April 2023, CEC is developing the 2023 IEPR, which will continue to expand on efforts to decarbonize California's energy system and address topics such as energy reliability over the next five years, natural gas outlook, building decarbonization, and energy efficiency and demand.³⁰²

California Energy Efficiency Standards (Title 24, Part 6)

The Energy Efficiency Standards for Residential and Nonresidential Buildings, as specified in CCR Title 24, Part 6, were established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods for building features such as space conditioning, water heating, lighting, and whole

³⁰⁰ California Legislative Information. (1994). Division 13: Environmental Quality, Chapter 3: State Agencies, Boards and Commissions. *Public Resources Code*. Retrieved July 2021, from: https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?sectionNum=21100.&lawCode=PRC.

³⁰¹ California Energy Commission (CEC). (2021). *2021 Integrated Energy Policy Report*. Retrieved April 2023, from: <https://www.energy.ca.gov/data-reports/reports/integrated-energy-policy-report/2021-integrated-energy-policy-report>.

³⁰² California Energy Commission (CEC). (2023). *2023 Integrated Energy Policy Report*. Retrieved April 2023, from: <https://www.energy.ca.gov/data-reports/reports/integrated-energy-policy-report/2023-integrated-energy-policy-report>.

envelope. The 2005, 2008, 2013 and 2019 updates to the efficiency standards included provisions such as cool roofs on commercial buildings, increased use of skylights, and higher efficiency lighting, heating, ventilation and air conditioning (HVAC), high performance attic and walls, and high efficiency air filters. The 2019 updates to the efficiency standards included indoor and outdoor lighting making maximum use of LED technology for nonresidential buildings. The 2022 updates encourage efficient electric heat pumps, establish electric-ready requirements for new homes, expands solar photovoltaic and battery storage standards, and strengthens ventilation standards. Additionally, the 2022 standards introduced new requirements for low-rise multi-family buildings and includes the registration of new compliance documents. Overall, the 2022 amendments are expected to reduce electricity and fossil fuel natural gas usage when compared to continued compliance with the 2019 Energy Code requirements. Under the 2022 amendments, California buildings would consume approximately 198,600 GWh of electricity and 6.14 billion therms of fossil fuel natural gas in 2023 compared to approximately 199,500 GWh and 6.17 billion therms of electricity and fossil fuel natural gas, respectively, under the 2019 Energy Code.³⁰³ The current standards (2022 standards) became effective on January 1, 2023. Title 24, Part 6 is updated approximately every three years.

California Green Building Standards Code (CALGreen, or Title 24 Part 11)

Refer to **Section 3.7, Greenhouse Gas Emissions** for a discussion on CALGreen.

California Climate Crisis Act

Refer to **Section 3.7, Greenhouse Gas Emissions** for a discussion on the California Climate Crisis Act.

Senate Bill 100

Enacted in 2018, SB 100,³⁰⁴ or "The 100 Percent Clean Energy Act of 2018," increases the renewable energy and zero-carbon resources procurement target for retail electricity to 100 percent by 2045. The bill also revises the goals established by SB 350 to increase the renewable energy resource procurement target for retail electricity from 50 percent to 60 percent by 2030 and further establishes incremental goals of 33 percent by 2020, 44 percent by 2024, and 52 percent by 2027. SB 100 further directs the State Energy Resources Conservation and Development Commission, the California Public Utilities Commission (CPUC), and CARB to incorporate the 2045 target into all relevant planning and report on implementation every four years beginning on January 1, 2021.

Renewables Portfolio Standards

SB 1078 (Chapter 516, Statutes of 2002) required retail sellers of electricity, including investor-owned utilities and community choice aggregators, to obtain 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 extended the target to 33 percent renewable power

³⁰³ California Energy Commission (CEC). (2021). *Draft Environmental Impact Report*. Retrieved April 2023, from:
file:///C:/Users/BurnamJM/Downloads/TN237853_20210519T132156_Draft%20Environmental%20Impact%20Report%20Amendments%20to%20the%20Building%20Energy%20Efficiency.pdf.

³⁰⁴ De León. (2018). *SB 100 Joint Agency Report*. Retrieved July 2021, from:
<https://www.energy.ca.gov/sb100>.

by 2020. In September 2009, then-Governor Schwarzenegger continued California's commitment to the Renewable Portfolio Standard by signing Executive Order S-21-09, which directed 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. In April 2011, Governor Brown signed SB 2X, which legislated the prior Executive Order S-14-08 renewable standard. SB 350 further increases the RPS goals to 50 percent renewables by 2030.

In April 2015, Governor Brown issued Executive Order B-30-15, which established a GHG reduction target of 40 percent below 1990 levels by 2030. SB 350 (Chapter 547, Statutes of 2015) advanced these goals through two measures. First, the law increases the renewable power goal from 33 percent renewables by 2020 to 50 percent by 2030. Second, the law requires the CEC to establish annual targets to double energy efficiency in buildings by 2030. The law also requires the CPUC to direct electric utilities to establish annual efficiency targets and implement demand-reduction measures to achieve this goal. As described above, SB 100 sets more aggressive targets that supersede the earlier requirements.

Executive Order B-16-12

In March 2012, Governor Brown issued an executive order stating a goal of 1.5 million ZEVs on California roads by 2025. In addition to the ZEV goal, Executive Order (EO) B-16-12 stipulated that by 2015 all major cities in California will have adequate infrastructure and be 'zero-emission vehicle ready'; that by 2020 the state will have established adequate infrastructure to support 1 million ZEVs; and that by 2050, virtually all personal transportation in the state will be based on ZEVs, and GHG emissions from the transportation sector will be reduced by 80 percent below 1990 levels.

Executive Order B-48-18

On January 26, 2018, Governor Brown issued an executive order stating a goal of 5 million ZEVs on California roads by 2030 and the installation and construction of 250,000 plug-in electric vehicle chargers, including 10,000 direct current fast chargers, and 200 hydrogen refueling stations by 2025.

Executive Order N-79-20

On September 23, 2020, Governor Newsom issued an executive order stating a goal of 100 percent of new passenger cars and trucks to be zero-emission by 2035. Additionally, EO N-79-20 stipulated that by 2045 100 percent of medium- and heavy-duty vehicles will be zero-emission for all operations where feasible, and that by 2035, all drayage trucks and off-road vehicles and equipment will be zero-emission where feasible.

SB 743 (Updates to CEQA Guidelines)

Refer to **Section 3.13, Transportation** for information on SB 743.

SB 375 (Land Use Planning)

Refer to **Section 3.7, Greenhouse Gas Emissions** for a discussion on SB 375.

Low Carbon Fuel Standard

Refer to **Section 3.7, Greenhouse Gas Emissions** for a discussion on the Low Carbon Fuel Standard.

CARB Advanced Clean Fleet

Refer to **Section 3.7, Greenhouse Gas Emissions** for a discussion on CARB's Advanced Clean Fleet.

Commercial Motor Vehicle Idling Regulation

On July 22, 2004, CARB initially adopted an Airborne Toxic Control Measure (ATCM) to limit idling of diesel-fueled commercial motor vehicles (idling ATCM) and subsequently amended it on October 20, 2005, October 19, 2009, and December 12, 2013. This ATCM is set forth in Title 13, (CCR), Section 2485, and requires, among other things, that drivers of diesel-fueled commercial motor vehicles with gross vehicle weight ratings greater than 10,000 pounds, including buses and sleeper berth equipped trucks, not idle the vehicle's primary diesel engine longer than five minutes at any location. This anti-idling regulation helps to reduce fuel consumption by reducing engine usage. The ATCM also requires owners and motor carriers that own or dispatch these vehicles to ensure compliance with the ATCM requirements. The regulation consists of new engine and in-use truck requirements and emission performance requirements for technologies used as alternatives to idling the truck's main engine. Under the new engine requirements, 2008 and newer model year heavy-duty diesel engines need to be equipped with a non-programmable engine shutdown system that automatically shuts down the engine after five minutes of idling or optionally meet a stringent oxides of nitrogen idling emission standard.

In-Use Off-Road Diesel Fueled Fleets Regulation

On May 16, 2008, CARB approved the In-Use Off-Road Diesel Fueled Fleets Regulation (Off-Road Regulation), which was later amended on December 31, 2009, July 16, 2010, and December 14, 2011. The overall purpose of the Off-Road Regulation is to reduce emissions of NOx and particulate matter (PM) from off-road diesel vehicles operating within California. The regulation applies to all self-propelled off-road diesel vehicles 25 horsepower (hp) or greater used in California and most two-engine vehicles. The Off-Road Regulation:

- Imposes limits on idling (i.e., fleets must limit unnecessary idling to 5 minutes), requires a written idling policy, and requires a disclosure when selling vehicles;
- Requires all vehicles to be reported to CARB (using the Diesel Off-Road Online Reporting System (DOORS) and labeled;
- Restricts the adding of older vehicles into fleets starting on January 1, 2014; and
- Requires fleets to reduce their emissions by retiring, replacing, or repowering older engines, or installing Verified Diesel Emission Control Strategies (VDECS; i.e., exhaust retrofits).

The anti-idling component of this Off-Road Regulation helps to reduce fuel consumption by reducing engine usage.

Zero-Emission Airport Ground Support Equipment Measure

Airport Ground Support Equipment (GSE) provides power to aircraft, transport cargo and baggage to aircraft, and support aircraft maintenance and fueling. The zero-emission airport GSE measure, currently under consideration by CARB, will help CARB achieve the

emission reduction strategies laid out in the Mobile Source Strategy, State Implementation Plan and Sustainable Freight Action Plan.³⁰⁵

Zero-Emission Airport Shuttle Regulation

Refer to **Section 3.7, Greenhouse Gas Emissions** for a discussion on the Zero-Emission Airport Shuttle Regulation.

Porter-Cologne Water Quality Control Act

For a discussion of the Porter-Cologne Water Quality Control Act, see **Section 3.9, Hydrology and Water Quality**.

Urban Water Management Planning Act

The Urban Water Management Planning Act, as amended, was enacted as part of the California Water Code, Section 10610 in 1983 with the purpose of achieving efficient use of urban water supplies, given that water resources are limited and subject to increasing demands in the state. The Act provides a framework for urban water suppliers to assess water resource needs and supplies under multiple hydrologic conditions. It requires development and implementation of an Urban Water Management Plan (UWMP) that includes demand management measures, water shortage contingency plans, and planned uses for recycled water. The California Division of Water Resources (DWR) enforces the act and provides guidance to applicable water utilities.³⁰⁶ The East Bay Municipal Utility District (EBMUD) is the water supplier for the Airport. More information is provided below under the **LOCAL** regulatory context section.

Sustainable Groundwater Management Act

The Sustainable Groundwater Management Act (SGMA) of 2014, in California Water Code Section 10720, creates a framework and authority for local water agencies to form Groundwater Sustainability Agencies (GSAs) for developing and implementing Groundwater Sustainability Plans (GSPs) at the local level.³⁰⁷ EBMUD and the City of Hayward are the exclusive agencies for development of the GSP in the East Bay Plain that underlies the Airport. More information is provided below under the **LOCAL** regulatory context section.

Statewide General Waste Discharge Requirements for Sanitary Sewer Systems

In accordance with State Water Resources Control Board (SWRCB) Order No. 2022-0103-DWQ *Statewide Waste Discharge Requirements General Order for Sanitary Sewer Systems*, Sewer System Management Plans (SSMP) must be prepared and implemented by public operators of wastewater collection systems with more than one mile of pipes. The Order requires that dischargers ensure adequate capacity, report on sanitary sewer overflows, prevent sewer overflows where feasible, and address system deficiencies.³⁰⁸ The Port owns and operates the wastewater collection system for the Airport. EBMUD is the wastewater

³⁰⁵ California Air Resources Board (CARB). (2023). *Zero-Emission Airport Ground Support Equipment*. Retrieved July 2023, from: <https://ww2.arb.ca.gov/our-work/programs/zero-emission-airport-ground-support-equipment/about>.

³⁰⁶ California Water Code. (1983). *Section 10610 Urban Water Management Planning Act*.

³⁰⁷ California Water Code. (2015). *Section 10720 Sustainable Groundwater Management*.

³⁰⁸ State Water Resource Control Board (SWRCB). (2006). *Statewide General Waste Discharge Requirements for Sanitary Sewer Systems*.

collection and treatment provider for the Port. Information on their approaches to the requirements is provided below in the **LOCAL** regulatory context section.

Water Recycling in Landscaping Act

The California Government Code Section 65601, *Water Recycling in Landscaping Act*, promotes the efficient use of water through development of recycling facilities and states that landscape projects should be water efficient. The Act requires local agencies to adopt ordinances that provide general rules and regulations governing the use and distribution of recycled water.³⁰⁹

California Integrated Waste Management Act

The California Integrated Waste Management Act of 1989 (CIWMA) (Assembly Bill [AB] 939, Statutes of 1989) was passed, effective January 1990, to minimize the amount of solid waste that must be disposed of by transformation and land disposal. According to CIWMA, all cities, counties, and solid waste management authorities were required to divert 25 percent of all solid waste from landfill facilities by January 1, 1995, and 50 percent by January 1, 2000. To help in the increase of diversion rates, each jurisdiction is required to create an integrated waste management plan. The plan must promote (in order of priority) source reduction, recycling and composting, and environmentally safe transformation and land disposal. Elements of the plan must be updated every five years.

AB 939 also established the California Integrated Waste Management Board (CIWMB) to oversee integrated waste management planning and compliance. The passage of AB 939 led to the refinement of a statewide system of permitting, inspections, maintenance, and enforcement for waste facilities in California and also required the CIWMB to adopt minimum standards for waste handling and disposal to protect public health and safety and the environment. In 2009, CIWMB was realigned and is currently titled the California Department of Resources Recycling and Recovery (CalRecycle). CalRecycle is responsible for approving permits for waste facilities, approving local agency diversion rates, and enforcing the planning requirements of the law through local enforcement agencies (LEA). LEAs are responsible for enforcing laws and regulations related to solid waste management, issuing permits to solid waste facilities, ensuring compliance with State-mandated requirements, coordinating with other government agencies on solid waste related issues, and overseeing corrective actions at solid waste facilities. LEAs inspect facilities, respond to complaints, and conduct investigations into various aspects of solid waste management.

Commercial Organic Waste Recycling Law

The Commercial Organic Waste Recycling Law (AB 1826)³¹⁰ became effective on January 1, 2016, and requires businesses and multi-family complexes (with five or more units) that generate specified amounts of organic waste (compost) to arrange for organics collection services. As of January 1, 2022, the requirements of AB 1826 were eclipsed by those of SB 1383. This new law expands upon the requirements of AB 341, the Mandatory Commercial Recycling Law that focuses on increased commercial waste diversion as a method to reduce GHG emissions, and AB 1826; however, SB 1383 is unique in that it affects property managers, property owners, and businesses. It also requires some

³⁰⁹ California Government Code. Section 65601. *Water Recycling in Landscaping Act*. (2000).

³¹⁰ AB 1826. *Solid Waste: Organic Waste*. (2014, September 28). Retrieved from: https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201320140AB1826.

businesses to donate excess edible food to feed people while diverting compost materials from the garbage.

Assembly Bill 1276

Assembly Bill 1276, which took effect on January 1, 2022, changes the Public Resource Code in the area of single-use food accessories and standard condiments. AB 1276 expands the requirement that the retail food industry only provide plastic straws to consumers upon request³¹¹ to include any single-use foodware or standard condiment. AB 1276 also requires that all packaging in California to be recyclable or compostable by 2032, cutting plastic packaging by 25 percent and requiring 65 percent of all single-use plastics to be recycled.

2022 California Green Building Standards Code

As amended, California's Green Building Standards Code (CALGreen; CCR Title 24, Part 11) requires that nonresidential building projects recycle and/or salvage for reuse a minimum of 65 percent of the nonhazardous construction and demolition waste or meet a local construction and demolition waste management ordinance, whichever is more stringent (CCR, Title 24, Section 5.408.1). Additionally, 100 percent of trees, stumps, rocks, and associated vegetation and soils resulting primarily from land clearing must be reused or recycled unless contaminated by disease or pest infestation (CCR, Title 24, Section 5.408.3).

REGIONAL

Alameda County Waste Reduction and Recycling Act of 1990

The Alameda County Waste Management Authority is a public agency that oversees solid waste activities in Alameda County. In 1990, Measure D, the Alameda County Waste Reduction and Recycling Act of 1990, was approved by voters. The Act created StopWaste through a Joint Exercise of Powers Agreement among the County of Alameda, each of the fourteen cities in the county, and two sanitary districts that provide reuse and recycling collection services. StopWaste is governed jointly by the Alameda County Waste Management Authority (WMA), the Alameda County Source Reduction and Recycling Board, and the Energy Council.

The Alameda County Waste Reduction and Recycling Act of 1990 also established a policy goal of reducing the total tonnage landfilled of materials generated in Alameda County by 75 percent along with a countywide Recycling Plan to fund and implement a proactive and comprehensive source reduction and recycling program. The Act established a \$6-per-ton surcharge on materials disposed in Alameda County landfills or incinerators with the sole purpose of financing the County's Recycling Plan. The per-ton surcharge has been set at \$8.23 since its most recent update in 2011.

Alameda County Recycling Plan

In 2010, the Alameda County Source Reduction and Recycling Board targeted the end of calendar year 2020 for achievement of the 75 percent goal set forth in the Alameda County Waste Reduction and Recycling Act. Progress toward the 75 percent goal has plateaued over the last 10 years, demonstrating that the approach of relying primarily on collection and processing is not enough to meet the 75 percent goal. Alameda County's Recycling

³¹¹ AB 1884. (2019, January 19)

Plan, *Beyond 75% Diversion: A Plan for Landfill Obsolescence*,³¹² aims to make landfills obsolete by 2045, in favor of circular material flows, redesigned products and systems, and effective recycling and organics programs.

Alameda Countywide Integrated Waste Management Plan

The Alameda County Countywide Integrated Waste Management Plan (CoIWMP)³¹³ serves as a roadmap to approaching Alameda County's solid waste management and recycling issues. The CoIWMP has two components, the Countywide Siting Element and the Summary Plan. The Countywide Siting Element demonstrates the ability to provide 15 years of permitted disposal capacity for all jurisdictions within the county. The Summary Plan provides an overview of the primary waste management issues in the county and includes goals, objectives, and policies adopted by the WMA to guide decision-making and programs. The policies for County-owned projects are to follow the solid waste requirements of CALGreen.

Alameda County Green Building Ordinance

Based on studies by StopWaste.Org, construction and demolition debris comprises up to 21 percent of materials disposed in Alameda County landfills. The County's 2003 Green Building Ordinance requires that a minimum of 50 percent of construction and demolition debris at County projects be diverted from the landfill through recycling and reuse; its 2008 waste diversion resolution sets a goal of increasing that percentage to 75 percent.

LOCAL

BAAQMD Climate Protection Strategy

Refer to **Section 3.7, Greenhouse Gas Emissions** for a discussion on the Regional Climate Protection Strategy.

City of Oakland Municipal Code for Plug-in Electric Vehicle Charging Stations

As of March 2017, Chapter 15.04, Article II, Part 11 of the City's Municipal Code requires all new multifamily and non-residential buildings to include full circuit infrastructure for plug-in electric vehicle (PEV) charging stations for at least 10 percent of the total parking spaces. In addition, inaccessible conduits for future expansion of PEV spaces must be installed for the remaining 90 percent of the total parking at multi-family buildings and ten percent of the total parking at non-residential buildings. The new requirements are designed to accelerate the installation of vehicle chargers to address demand.

City of Oakland Ordinance Requiring All-Electric Construction in Newly Constructed Buildings

On December 1, 2020, the City of Oakland adopted Ordinance 13632 prohibiting newly constructed buildings (both residential and commercial) from connecting to natural gas or propane. Newly constructed buildings must use a permanent supply of electricity as the source of energy for all space heating, water heating, cooking appliances, and clothes drying appliances. The prohibition does not affect existing buildings, renovations or additions made

³¹² Alameda County. (2020, December). *Beyond 75% Diversion: A Plan for Landfill Obsolescence*. Retrieved April 2023 from: <https://www.stopwaste.org/sites/default/files/Recycling%20Plan-20210203.1.pdf>.

³¹³ Alameda County. (2020, April). *Alameda County Integrated Waste Management Plan, Countywide Element*. Retrieved April 2023 from: <https://www.stopwaste.org/sites/default/files/CoIWMP-Final-20220111.1.pdf>.

to a structure. The ban includes a waiver for developers who can demonstrate that it is not feasible for a new building to go 100 percent electric.

City of Oakland Green Building Ordinance

Refer to **Section 3.7, Greenhouse Gas Emissions** for a discussion on the City of Oakland Green Building Ordinance.

City of Oakland Municipal Code

The City of Oakland Municipal Code Title 13 - Public Services includes chapters relevant to Sewer Systems (specifically 13.02, 13.04, 13.08, and 13.12). Chapter 13.02, entitled *Sewer Systems*, regulates the design, construction, operation, maintenance, and abandonment of City sewer systems and Chapter 13.08 regulates the size, extent, use, construction, maintenance, and abandonment of building sewers.³¹⁴

Port Ordinance 4113

Port Ordinance 4113 states that the Board of Port Commissioners authorizes the Chief Engineer to develop, publish, and enforce standards for design, construction, inspection, testing, and abandonment of the sanitary sewer system. It also states that wastewater may be discharged into the Port sanitary sewer system so long as it meets the criteria outlined in the ordinance. The Ordinance prohibits discharge of wastewater that results in contamination, pollution, or nuisance.

Port Ordinance 4474

Port Ordinance 4474 requires Port tenants to comply with private sewer lateral regulations as referenced in City of Oakland Municipal and Planning Codes sections 13.08.590 through 13.08.620. This ordinance also gives directive for assessing and repairing Port-owned private sewer laterals and requires Port staff to prepare a Port-wide Condition Assessment Plan to assess the condition of sewer pipes and follow up with a Corrective Action Work Plan to bring all defective sewer pipes into compliance with the standards set forth in the EBMUD Regional Private Sewer Lateral Ordinance and City of Oakland Municipal Codes Section 13.08.610.

Port Ordinance 4691

Port Ordinance 4691 amends and restates Port of Oakland Environmental Ordinance 4345 and restates Ordinance 4345 as Chapter 9.01 of the Port of Oakland Administrative Code. Chapter 9.01 Environmental Provisions prohibits the release of toxic materials at, on, or under Port property. It also prohibits the installation, operation, or removal of any storage tank on Port property without prior written consent of the Port. Chapter 9.01 enforces compliance with Environmental Laws, Port entry and inspection rights, Port authority to require an environmental audit, and responsibility for management plans regarding toxic materials as well as conducting response actions in the event of release or contamination.

Hydrology and Water Quality Regulations

For a discussion of the applicable NPDES permits, Basin Plan, and other water quality regulations, see **Section 3.9, Hydrology and Water Quality**.

³¹⁴ City of Oakland. (2022). Title 13 Public Services. *Oakland Municipal Code*.

EBMUD Urban Water Management Plan and Water Shortage Contingency Plan

As a municipal water supplier, EBMUD developed and implemented an UWMP, in accordance with the state Urban Water Management Planning Act. A *Water Shortage Contingency Plan* (WSCP) was also prepared as a component of the UWMP. The UWMP and WCSP collectively provide an assessment of the needs and supplies of water resources within the EBMUD, during regular and shortage hydrologic conditions, and describe measures to manage water demand efficiently. Required measures applicable to customers are enacted into EBMUD regulations.³¹⁵

EBMUD Water Use Restriction Regulations

To meet objectives of the UWMP and WSCP, EBMUD established *Regulations Governing Water Service to Customers* that include restrictions on water use and prohibitions on wasting water. Section 28, *Water Use During Water Shortage Emergency Conditions*, is implemented when a water shortage emergency is declared by the EBMUD Board of Directors or when the state mandates water use reductions to address statewide short-term water shortages. Section 28 includes water use rules and guidance for reducing water use based on specific drought stages. Section 29, *Water Use Restrictions*, includes ongoing qualitative requirements for customers. Section 30, *Non-potable Water Service*, requires that customers use recycled water and other nonpotable water sources for non-domestic purposes when it is of adequate quality and quantity, available at reasonable cost, not detrimental to public health, and not injurious to fish, plants, or wildlife. Under Section 31, *Water Efficiency Requirements*, customers applying for increased or expanded services are required to implement water efficiency measures for new facilities or retrofit existing facilities to meet EBMUD'S water efficiency requirements. The regulation includes measures for both indoor and outdoor water use facilities.³¹⁶

EBMUD East Bay Plain Groundwater Sustainability Plan

In 2016, EBMUD was designated as a GSA for the portion of the East Bay Plain Subbasin that underlies the EBMUD service area. As a GSA and because the East Bay Plain Subbasin was designated as a medium-priority groundwater basin by DWR, EBMUD was responsible for completing a GSP, in coordination with the City of Hayward. The GSP was issued January 2022 with the purpose of characterizing groundwater conditions with the East Bay Plain Subbasin and establishing goals with corresponding actions to be taken by the district to ensure the subbasin is sustainable within 20 years of implementation.³¹⁷

EBMUD Wastewater Control Ordinance

As a special wastewater district designated under the state Municipal Utility District Act, EBMUD may make and enforce regulations for the control of quantity, quality, and flow of wastewater within the boundaries of the service area, known as Special District No. 1 (SD-1), within which the Airport is located. EBMUD's *Wastewater Control Ordinance* establishes the regulations for the collection, treatment, and disposal of wastewater including: prohibition of certain discharges into the wastewater system; numeric discharge limits or

³¹⁵ East Bay Municipal Utility District (EBMUD). (2021). *Urban Water Management Plan*.

³¹⁶ East Bay Municipal Utility District (EBMUD). (2021). *Regulations Governing Water Service to Customers*.

³¹⁷ East Bay Municipal Utility District (EBMUD). (2022). *East Bay Plain Subbasin Groundwater Sustainability Plan*.

requirement of best management practices (BMPs); limitations on quantity and rate of flow; and enforcement of a pretreatment program where applicable.³¹⁸

EBMUD Recycled Water Master Plan

The 2019 EBMUD *Recycled Water Master Plan* guides the use of recycled water for future projects. Specifically, the program is focused on planning, development and implementation of projects that utilize recycled water with EBMUD's service area. The program is primarily driven by water resiliency and environmental goals.³¹⁹

EBMUD Regional Private Sewer Lateral Ordinance

The EBMUD *Consolidated Regional Private Sewer Lateral Ordinance* No. 359-13 has been effective since May 24, 2019. The ordinance covers the regulation of private sewer laterals that are connected to the EBMUD sewer system with an aim to keep the sewer system reliable and maintainable with minimal introduction of inflow and infiltration. As part of the ordinance, the property owner must submit a Condition Assessment Plan that addresses a schedule for the performance of testing to assess conditions of sewer laterals on the property. Subsequently, the property owner is required to submit a *Corrective Action Work Plan* that addresses improvements needed to comply with standards of the ordinance.³²⁰

Sewer System Management Plans

In accordance with SWRCB Order No. 2022-0103, *Statewide General Waste Discharge Requirements General Order for Sanitary Sewer Systems*, the Port and EBMUD have developed SSMPs to manage, operate, and maintain their respective wastewater collection systems. The SSMPs contain goals and corresponding regulations, programs, and plans to ensure adequate capacity to convey flows within the respective sewer systems including requirements for operations and maintenance; design and performance; overflow reporting and response; control of fats, oils, and grease; and system evaluation and capacity assurance.^{321,322}

3.14.1.2 Significance Thresholds

CEQA Guidelines, identified in California Code of Regulations Title 14, Division 6, Chapter 3, specifically Appendix G, provide baseline criteria to evaluate the environmental impacts of a project. For purposes of this analysis, consistent with the Appendix G of the State CEQA Guidelines, impacts associated with energy would be considered significant if the Proposed Project would:

- Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation; or

³¹⁸ East Bay Municipal Utility District (EBMUD). (2013). *Wastewater Control Ordinance*.

³¹⁹ East Bay Municipal Utility District (EBMUD). (2019). *Updated Recycled Water Master Plan*.

³²⁰ East Bay Municipal Utility District (EBMUD). (2019). *Consolidated Regional Private Sewer Lateral Ordinance*.

³²¹ East Bay Municipal Utility District (EBMUD). (2021). *Sewer System Management Plan*.

³²² Port of Oakland. (2020). *Sewer System Management Plan*.

- Conflict with or obstructs a state or local plan for renewable energy or energy efficiency.

For utilities and service systems, the Proposed Project would have a significant impact if it would:

- Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects.
- Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years.
- 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.
- Generate solid waste in excess of State or local standards, or in excess of the capacity to serve the project's projected demand in addition the provider's existing commitments.
- Comply with federal, state, and local management and reduction statutes and regulations related to solid waste.

3.14.1.3 Methodologies

ENERGY

The energy analysis is based on projected demand associated with electricity, natural gas, water, and fuel use, as well as an evaluation of the project components relative to energy conservation through the wise and efficient use of energy, as identified in Appendix F of the CEQA Guidelines.

Construction

The methodology for estimating construction equipment usage and worker, vendor, and haul trips is provided in **Section 3.3, Air Quality**. Fuel usage was derived from the estimated construction GHG emissions discussed and analyzed in **Section 3.7,**

Greenhouse Gas Emissions. Fuel consumption was estimated by converting the carbon dioxide equivalent (CO₂e) emissions from diesel fuel consumption for each phase of construction to gallons using established conversion factors for CO₂e to gallons of diesel fuel.³²³ The conversion factors used for gasoline was 112.52 gallons of gasoline per metric ton of CO₂e and the conversion factor used for diesel was 98.23 gallons of diesel per metric ton of CO₂e.

Operation

Similar to construction methodology, the methodology for estimating operation emissions from aircraft, GSE, ground access vehicles, and stationary sources is provided in

³²³ Conversion data from: U.S. Environmental Protection Agency (EPA). *Greenhouse Gases Equivalencies Calculator - Calculations and References*. Retrieved April 2023, from: www.epa.gov/energy/greenhouse-gases-equivalencies-calculator-calculations-and-references.

Section 3.3, Air Quality. Fuel usage consumption was estimated by converting the CO₂e emissions from gasoline, diesel fuel, and aviation gas consumption for each fuel type using established conversion factors for CO₂e to gallons of gasoline, diesel or aviation fuel.³²⁴

Typically, aircraft operations constitute the largest source of an airport's CO₂e emissions. However, aircraft emissions are not under OAK's control and would occur in the San Francisco Bay Area Air Basin regardless of the Proposed Project due to market-based demand. For this reason, aircraft operations emissions were calculated but not included in the energy usage totals evaluated for significance.

The Proposed Project would result in changes to mobile and transportation-related fuel consumption during operations resulting from increases in annual passengers and aircraft operations. Gasoline and diesel would be consumed by privately-owned vehicles; commercially-owned ground transportation vehicles, auxiliary power units (APUs), and GSE. Operational fuel use was determined by applying the USEPA carbon content factors to the estimated GHG emissions for corresponding fuel type.³²⁵ The same conversion factors identified for construction would be used for operations.

UTILITIES AND SERVICE SYSTEMS

Relevant state and local plans and significance thresholds were used to conduct the impact analysis of the Proposed Project on utilities and service systems, including water, wastewater, and solid waste. Proposed Project impacts were measured against the existing conditions of the Airport and significance thresholds to determine the level of significance of each impact.

3.14.2 Existing Conditions / Environmental Setting

3.14.2.1 Energy

Within Alameda County, Pacific Gas & Electric Company (PG&E) is the primary supplier of electricity and natural gas to businesses and residents of the area. Electricity production facilities include natural gas-fired, nuclear, and hydroelectric plants. PG&E obtains its energy supplies from power plants and natural gas fields in Northern California as well as from electricity and natural gas purchased outside its service area and delivered through high-voltage transmission lines of the power grid and gas pipelines. Of the 2019 electric power mix delivered to retail customers, PG&E reported 34.2 percent of electricity was generated by natural gas-fired power plants, 9 percent by nuclear power plants, 14.6 percent by large hydroelectric, and 31.7 percent by RPS-eligible renewables.³²⁶

The Port provides electrical utility services that serve the Airport and the majority of the Oakland Seaport. For the areas served by the Port as a municipal utility, the Port's Utilities Department purchases and manages the delivery of electricity to the Port's customers in

³²⁴ Ibid.

³²⁵ Ibid.

³²⁶ California Energy Commission (CEC). (2020). *2019 Power Content Label, Pacific Gas and Electric Company*. Retrieved July 2021, from: <https://www.energy.ca.gov/filebrowser/download/3245>.

compliance with state regulations. PG&E provides utility services to all other areas of the Port not served by the Port's Utilities Department.³²⁷

TRANSPORTATION FUELS SUPPLY AND CONSUMPTION

Most petroleum fuel refined in California is for use in on-road motor vehicles and is refined within California to meet state-specific formulations required by CARB. The major categories of petroleum fuels are gasoline and diesel (for passenger vehicles, transit vehicles, rail, and aircraft) and fuel oil (for industry and emergency electrical power generation). Other liquid fuels include kerosene, jet fuel, and residual fuel oil for marine vessels.

Transportation fuel sources also include electricity. Conventional gasoline and diesel vehicles consume gasoline or diesel fuel, whereas electric vehicles consume electricity that can be sourced by fossil fuels or renewables. EVs, including battery-electric vehicles and plug-in hybrid electric vehicles, comprise a growing fraction of the passenger vehicles on the roads in California, and EV adoption is expected to increase over the upcoming decades due in part to improvements in battery technology and public initiatives and goals.

Other transportation fuel sources are alternative fuels, such as methanol and denatured ethanol (alcohol mixtures that contain no less than 70 percent alcohol), natural gas (compressed or liquefied), liquefied petroleum gas (LPG), hydrogen, and fuels derived from biological materials (i.e., biomass). Gasoline and diesel fuel are by far the largest transportation fuels used by volume in Alameda County. The total estimated 2019 retail gasoline sales in California was 15,365 million gallons. Of this total, 591 million gallons were Alameda County retail gasoline sales. The total estimated 2019 retail diesel fuel sales in California was 1,756 million gallons. Of this total, Alameda County had 55 million gallons. For diesel fuel, 52.8 percent of all sales are comprised by non-retail sales, which are not accounted for in the totals mentioned above.³²⁸ Regarding jet fuel, California consumed 106,268 thousand barrels in 2019, which is about 16.7 percent of the total jet fuel consumption within the United States of 636,335 thousand barrels.³²⁹

AIRCRAFT

Existing (2019) gasoline and diesel fuel consumption at the Airport was calculated utilizing CO₂e emissions provided in **Section 3.7, Greenhouse Gas Emissions**. Using the established conversion factors for CO₂e coefficients for aviation fuel of 18.33 pounds of CO₂ per gallon of aviation gasoline, the Airport emitted approximately 154,045 metric tons of CO₂e, which converts to approximately 18.5 million gallons of aviation fuel in 2019.

³²⁷ Port of Oakland. (2021). *Port Utilities*. Retrieved July 2021, from: <https://www.portofoakland.com/business/port-utilities/>.

³²⁸ California Energy Commission (CEC). (2020). *California Retail Fuel Outlet Annual Reporting (CEC-A15) Results*. Retrieved July 2021, from: <https://www.energy.ca.gov/data-reports/energy-almanac/transportation-energy/california-retail-fuel-outlet-annual-reporting>.

³²⁹ U.S. Energy Information Administration. *Jet fuel consumption, price, and expenditure estimates, 2021*. Retrieved April 2023, from: https://www.eia.gov/state/seds/data.php?incfile=/state/seds/sep_fuel/html/fuel_jf.html&sid=CA.

OPERATIONAL VEHICLES AND EQUIPMENT

Table 3.14-1 provides an estimate of the annual operational fuel consumption of GSE, vehicle trips, and stationary sources for the existing conditions (2019). The existing consumption is an estimated annual average of 1.47 million gallons of diesel fuel and 11.12 million gallons of gasoline.

TABLE 3.14-1
EXISTING (2019) ANNUAL FUEL CONSUMPTION

	Overall CO₂e (metric tons/year)	Diesel Fuel Consumption (gallons)	Gasoline Consumption (gallons)
Ground Support Equipment	7,109.26	698,356	--
Vehicle Trips	98,818.80	--	11,119,091
Stationary Sources	7,827.18	775,270	--
Total Fuel Consumed		1,473,626	11,119,091

CO₂e: carbon dioxide equivalent

Gasoline and diesel fuel conversion factors used to convert CO₂e emissions to gasoline and diesel fuel consumed:
112.52 gallons of gasoline/metric ton of CO₂e

98.23 gallons of diesel/metric ton of CO₂e
CO₂e: carbon dioxide equivalent
tons/yr: tons per year

Source: Conversion data from: U.S. Environmental Protection Agency (EPA). *Greenhouse Gases Equivalencies Calculator - Calculations and References*. Retrieved 2023 April from: www.epa.gov/energy/greenhouse-gases-equivalencies-calculator-calculations-and-references.

3.14.2.2 Water

EBMUD collects, treats, and supplies water to a 332-square-mile service area east of the San Francisco Bay. The service area encompasses incorporated and unincorporated portions of Alameda and Contra Costa counties, including the Airport, as defined by the sphere of influence established by the Local Agency Formation Commissions. Approximately 1.4 million people are served by EBMUD's water system. Uses include agriculture, fisheries, hydropower, recreation, and industry.

Approximately 90 percent of the EBMUD water supply is sourced from the Mokelumne River in the Sierra Nevada Mountain Range and conveyed via aqueducts from the Pardee Reservoir across the Sacramento-San Joaquin River Delta to local facilities for storage and treatment prior to distribution. The watershed of the Mokelumne River above Pardee Reservoir consists of nearly 627 square miles of largely protected and undeveloped land. The secondary source of the EBMUD's water supply is comprised of local runoff from protected watershed lands, the availability of which is dependent on hydrologic conditions and available storage capacity. Water is collected and stored within storage reservoirs in the service area. In a year of normal precipitation, the reservoirs provide 23 million gallons per day (mgd) of water for the EBMUD service area. In dry years, water loss through evaporation can offset water gained through local runoff. Total operational storage of the water supply system is 227,274 million gallons (MG) with 49,422 MG available in East Bay reservoirs.

Through agreements with numerous entities, EBMUD has water rights to 325 mgd, contingent upon flow release obligations and Mokelumne River runoff availability. In addition, EBMUD has a contract with the U.S. Bureau of Reclamation for water rights from the Central Valley Project by diverting water from the Sacramento River, conveyed through the Freeport Regional Water Facility. The agreement applies to dry years, when EBMUD's projection of total water stored on October 1 is less than 140 MG. The agreement allows EBMUD to receive up to 43,338 MG of water in a single year, not to exceed 53,765 MG in three consecutive years.³³⁰

EBMUD completed a supply and demand assessment, as part of the WSCP, to evaluate the availability of water supply in a normal year, a single dry year, and multiple dry years. In a normal water year, EBMUD service area demands are met without additional measures taken. In a single dry year, EBMUD implements additional measures identified in the Drought Management Program, including obtaining water deliveries from the Central Valley Project and setting a voluntary rationing goal up to 10 percent. In multiple dry years, the rationing goal is made mandatory at 10 to 15 percent.³³¹ Results of the assessment are summarized in **Table 3.14-2**.

TABLE 3.14-2
EBMUD SUPPLY AND DEMAND ASSESSMENT

Planning Level Year		2020	2030	2040	2050
Planning Level of Demand (mgd)		181	190	201	218
Normal Year	Total Supplies (mgd)	>181	>190	>201	>218
	Need for Water (MG)	0	0	0	0
Single Dry Year	Total Supplies (mgd)	181	189	198	211
	Need for Water (MG) ^{/a/}	0	0	0	0
Second Dry Year	Total Supplies (mgd)	156	164	172	185
	Need for Water (MG) ^{/b/}	0	0	0	0
Third Dry Year	Total Supplies (mgd)	153	158	144	117
	Need for Water (MG) ^{/b/}	0	0	9.12	24.4

mgd: Million Gallons per Day

MG: Million Gallons

/a/ Voluntary rationing implemented.

/b/ Mandatory rationing implemented.

Source: East Bay Municipal Utility District (EBMUD). (2020). *Water Shortage Contingency Plan*.

Water is supplied to the Airport by EBMUD under an agreement made on October 17th, 1960, between the Port and EBMUD that dictates the terms and conditions of domestic water and fire services. Water usage is charged under EBMUD's standard schedule of rates and charges and is metered at the connection to the EBMUD network. The remainder of the water supply system for OAK does not include a groundwater component, however, the Oakland Metropolitan Golf Links uses groundwater for irrigation.

EBMUD supplies water to the Airport from a 6-inch and a 16-inch main at the water metering station located near Airport Drive and Earhart Road and a 20-inch pipe routed from Airport Drive to Ron Cowan Parkway which feeds the Cargo Area. A 16-inch pipe

³³⁰ East Bay Municipal Utility District (EBMUD). (2021). *Urban Water Management Plan*.

³³¹ East Bay Municipal Utility District (EBMUD). (2020). *Water Shortage Contingency Plan*.

branches off the 20-inch water main with a 12-inch pipe that feeds the cargo and Terminal 1 areas from Taxiway B to Taxiway T. A second supply branch is a 16-inch water main that runs along Airport Drive to the southern portion of the parking lot following Airport Drive that feeds Terminal 2. This includes an 8-inch branch feeding the Oakland fuel farm. The two supplies are interconnected with a 12-inch loop between the 16-inch water main at Terminal 2 and the 12-inch water main at the end of Taxiway B.

Figures displaying the layout of the Airport's water distribution network is included in **Appendix O**. Water distribution for the Airport is divided between North Field and South Field. There are two separate distribution systems for North Field: one for domestic water and one dedicated for fire hydrants and sprinkler systems. South Field has one combined distribution system that serves both domestic water and fire hydrants and sprinkler system needs. Some facilities in South Field, including the Federal Express main air cargo sorting facility, Federal Express maintenance facility, ARFF, and the airport traffic control tower, are directly served by EBMUD. There are no tanks or pump stations for water distribution except for one fire pump that serves Terminal 2.

The *Oakland International Airport Water Master Plan* provides a detailed analysis of the water infrastructure capacity of the Airport. In summary, the plan found:

- EBMUD connections are hydraulically capable of providing existing and future water demands,
- The water distribution system has no existing deficiencies,
- Long term deficiencies are possible in the southwest corner of North Field near the T-hangars (related to high pipeline velocities at maximum flows), and
- The EBMUD supply is capable of supplying projected demands without issue.³³²

Because there were no major changes to the Airport water infrastructure between 2014 to 2019, the Airport Water Master Plan is considered reflective of existing conditions of water infrastructure capacity.

Based on water usage data from EBMUD, as supplied by the Port, 110.8 MG of water were used airport-wide in 2019 (over a 369-day period), equating to 300,309 gallons of water per day on average. Based on that number, the Port estimates that 65.8 MG were used in 2019 at Terminal 1 and Terminal 2 (including water usage at the Central Utility Plant (CUP) for heating and cooling of the terminals), which equates to 180,185 gpd on average. Error! Bookmark not defined.

3.14.2.3 Wastewater

EBMUD provides wastewater collection and treatment service for an 88-square-mile special district area known as SD-1. Located along the east shore of San Francisco Bay, SD-1 extends from Richmond in the north to San Leandro in the south, including the Airport, and serves approximately 740,000 people. Communities within SD-1 own and operate wastewater collection systems that discharge into the EBMUD wastewater collection system via five interceptors. EBMUD's wastewater collection system includes 29 miles of interceptor pipeline and 15 pumping stations conveying wastewater to EBMUD's Main

³³² Kennedy Jenks Consultants. (2014). *Oakland International Airport Water Master Plan*.

Wastewater Treatment Plant (MWWTP) located in Oakland near the San Francisco-Oakland Bay Bridge. The MWWTP has a primary treatment capacity of up to 320 MGD and secondary treatment up to 168 MGD. The average dry weather, non-recycled flow currently entering the plant is 54 mgd. Treated wastewater is discharged into San Francisco Bay via an outfall located 1.2 miles off the East Bay shore of San Francisco Bay.³³³

The Port owns and operates a wastewater collection system serving the Airport and other Port facilities. A figure displaying the Port collection system network at the Airport is included in **Appendix O**. A 10-inch sanitary sewer pipeline serves Terminal 1. The pipe diameter increases to 12 inches as the pipeline leaves the Terminal 1 area. A separate 8-inch sanitary sewer pipeline serves Terminal 2 and it increases to 10 inches in diameter outside of the Terminal 2 area.

Wastewater collected from the Airport property flows by gravity and forced mains to a central pump station identified as EBMUD Pump Station G located near the intersection of Doolittle Drive and Swan Way.³³⁴ Pump Station G pumps wastewater to EBMUD's South Interceptor for conveyance and treatment at the EBMUD MWWTP.³³⁵

As wastewater flow rates are not metered, wastewater engineers typically estimate wastewater rates as 60 to 85 percent of water supplied.³³⁶ For the purpose of this Draft EIR, the wastewater flows are assumed to be equal to water usage. Based on this approach, the 2019 estimated wastewater discharge would be 65.8 MG per year or 180,185 gpd, consistent with water rates. This provides a conservative estimate of wastewater flows for purposes of the Draft EIR, but is likely an overestimate of actual discharges.

3.14.2.4 Recycled Water

EBMUD established a program providing recycled water from the effluent of four wastewater treatment plants. EBMUD's San Leandro Reclamation Facility, east of the Airport, treats wastewater effluent from the San Leandro Water Pollution Control Plant for the purposes of providing recycled water to EBMUD customers. The recycled water meets secondary treatment requirements, restricting irrigation use to areas of limited public access. The nearest connection point to the Airport for recycled water is the 16-inch pipeline running from the San Leandro Water Pollution Control Plant to the Metropolitan Oakland Golf Course on Doolittle Drive.

Recycled water from the San Leandro Recycled Water Facility (see **Section 3.14.3.2**) has been used in the past to support construction at the Airport, including 3.9 MG for a construction project in 2015.³³⁷

3.14.2.5 Telecommunications

The Airport is served by a variety of telecommunications companies, which provide voice, data, and video transmission services to Port employees, tenants, and passengers. The

³³³ East Bay Municipal Utility District (EBMUD). (2021). *Urban Water Management Plan*.

³³⁴ Port of Oakland. (2020). *Sewer System Management Plan*.

³³⁵ East Bay Municipal Utility District (EBMUD). (2021). *Sewer System Management Plan*.

³³⁶ Metcalf and Eddy, Inc. (1991). *Wastewater Engineering Treatment Disposal and Reuse*.

³³⁷ East Bay Municipal Utility District (EBMUD). (2021). *Urban Water Management Plan*.

infrastructure associated with telecommunications at OAK includes, but is not limited to fixed links, radio communication transmitters, fiber cable, towers, switches, and base stations.

3.14.2.6 Solid Waste

There are three categories of landfills that are a part of a stringent classification process for non-hazardous and hazardous waste.

- Class I: A facility that accepts all types of municipal solid waste, including waste that can cause foul odors. Household waste, construction and demolition waste, household hazardous waste, special waste, and some industrial wastes.
- Class II: An un-lined landfill designed to accept putrescible and inert wastes.
- Class III: A scientifically engineered facility built into or on the ground that is designed to hold and isolate waste from the environment. Federal and state regulations strictly govern the location, design, operation, and closure of Class III landfills to protect human health and the environment.

Currently, there are two operating landfills in Alameda County: Altamont Landfill (Waste Management of Alameda County) and Vasco Road Landfill (Republic Services). Alameda County has nine transfer/processing facilities and three composting facilities as described in the Alameda County Waste Management Report.³³⁸ **Table 3.14-3** shows the currently permitted remaining capacity of the Altamont and Vasco Road landfills, the anticipated landfill closure dates, and the total capacity of each landfill. However, in 2022, Republic Services proposed a vertical expansion at Vasco Road Landfill that would extend the expected closure date to 2052³³⁹. Neither Altamont landfill nor Vasco Road landfill accept non-Resource Conservation and Recovery Act (RCRA) or RCRA hazardous waste. If these wastes are generated during construction, they will have to be sent to an appropriately permitted landfill outside of Alameda County.

ALTAMONT LANDFILL

Altamont landfill is located at 10840 Altamont Pass Road in the city of Livermore on a 2,034-acre site, of which 480 acres are permitted as a Class II and Class III landfill. Altamont landfill is managed and operated by Waste Management. The landfill has a liquified natural gas (LNG) facility that converts landfill gas to LNG for use in their fleet vehicles. Acceptable materials in the updated policy from WMA includes both friable and non-friable asbestos, automotive shredder residue, biosolids, construction and demolition

³³⁸ Alameda County. (2022). *Alameda County Integrated Waste Management Plan*. Retrieved March 2022, from: <https://www.stopwaste.org/resource/reports/countwide-integrated-waste-management-plan-coiwmp>.

³³⁹ Alvarez, Emily. (2022). *Amendment to the Alameda Countywide Integrated Waste Management Plan (CoIWMP) for Vasco Road Landfill Expansion*. Retrieved from: https://www.stopwaste.org/sites/default/files/meeting/Vasco_WMA%20CWS%20CoIWMP%20Amendment_9.28.22.pdf#:~:text=As%20of%20December%20201%2C%202021%2C%20the%20existing%20gross%29,would%20increase%20to%20approximately%2011.95%20million%20cubic%20yards.

debris, sludge, drum management (liquids/solids), industrial and specials waste, municipal solid waste, and yard waste for composting. Unaccepted materials include electrical waste,

**TABLE 3.14-3
ALAMEDA COUNTY LANDFILL CAPACITY**

Facility Name	Remaining Landfill Capacity In cubic yards (tons)	Landfill Closure Date
Altamont Landfill	65,400,000 cubic yards (91,560,000 tons)	2049
Vasco Road Landfill	6,000,000 cubic yards (8,400,000 tons)	2035
Total	71,400,000 cubic yards (99,960,000 tons)	-

Source: Waste Management, 2020

hazardous waste (except for asbestos),³⁴⁰ infectious or biohazardous waste, regulated radioactive waste, and universal waste.³⁴¹

VASCO ROAD LANDFILL

The Vasco Road landfill is located at 4001 North Vasco Road approximately three miles north of Interstate 580, northeast of the city of Livermore. The landfill is located on 246 acres of land and can be expanded to a maximum of 435 acres of land. Republic Services owns and operates this landfill under an ordinance with the City of Livermore. Landfill acceptance includes household items, industrial construction and demolition waste, clean wood waste, inert, municipal solid waste, and tires no larger than 18 inches.³⁴²

TRANSFER STATIONS

As described in Public Resource Code (PRC), Section 40200(a), a "transfer or processing station" or "station" includes those facilities utilized to receive solid wastes, temporarily store, separate, convert, or otherwise process the materials in the solid wastes, or to transfer the solid wastes directly from smaller to larger vehicles for transport, and those facilities utilized for transformation.³⁴³

Davis Street Transfer Station and Recycling Center is part of the former Davis Street Landfill and sits on a 53-acre parcel, which is allowed 5,600 tons per day (TPD) in and out of the

³⁴⁰ Asbestos is considered a hazardous waste by the State of California and requires special handling. It comes in two versions: 1) Friable, which is easily pulverized by hand, includes old insulation and some roofing tiles; and 2) Non-Friable, which cannot be readily crushed, includes old shingles, siding and floor tiles. Asbestos material should be bagged or boxed for disposal.

³⁴¹ Waste Management. *Altamont Landfill*. Retrieved February 2022, from: <https://altamontlandfill.wm.com/index.jsp>.

³⁴² City of Livermore. *Republic-Vasco Road Landfill*. Livermore, CA. Retrieved 2022 February from: <https://www.cityoflivermore.net/government/public-works/environmental-services/republic-vasco-road-landfill>.

³⁴³ CalRecycle. (2020). *Laws and regulations*. Retrieved 2022 March from: <https://www.calrecycle.ca.gov/reducwaste/packaging/lawsregs>.

facility by permit. This station is used for recyclables and green waste but includes construction and demolition waste materials (ColWMP, 2022). Data supplied by the Port indicates all solid waste generated at the Airport in 2019 was transported to this transfer station, including solid waste diverted for recycling. **Figure 3.14-1** shows the location of all transfer stations and landfills in Alameda County.

COMPOST FACILITIES

Altamont Compost Facility is a covered aerated static pile composting facility that can accept up to 500 tons of combined green waste and food waste per day. Over the course of a year, approximately 156,000 tons of materials are diverted from the Altamont Landfill to be processed into an estimated 346,7000 cubic yards of finished compost.

Davis Street Organics Facilities is a 1.4-acre indoor facility with a 5,600 tons-per-day (TPD) permit. The facility processes almost 400 tons of organics annually for composting at regional composting facilities.

Vision Compost Facility is a 3-acre facility with a maximum compost waste limit of 12,500 cubic yards per day. The facility produces various mulches, composts, and soil amendments from 100 percent green waste.

SOLID WASTE GENERATED AT OAK

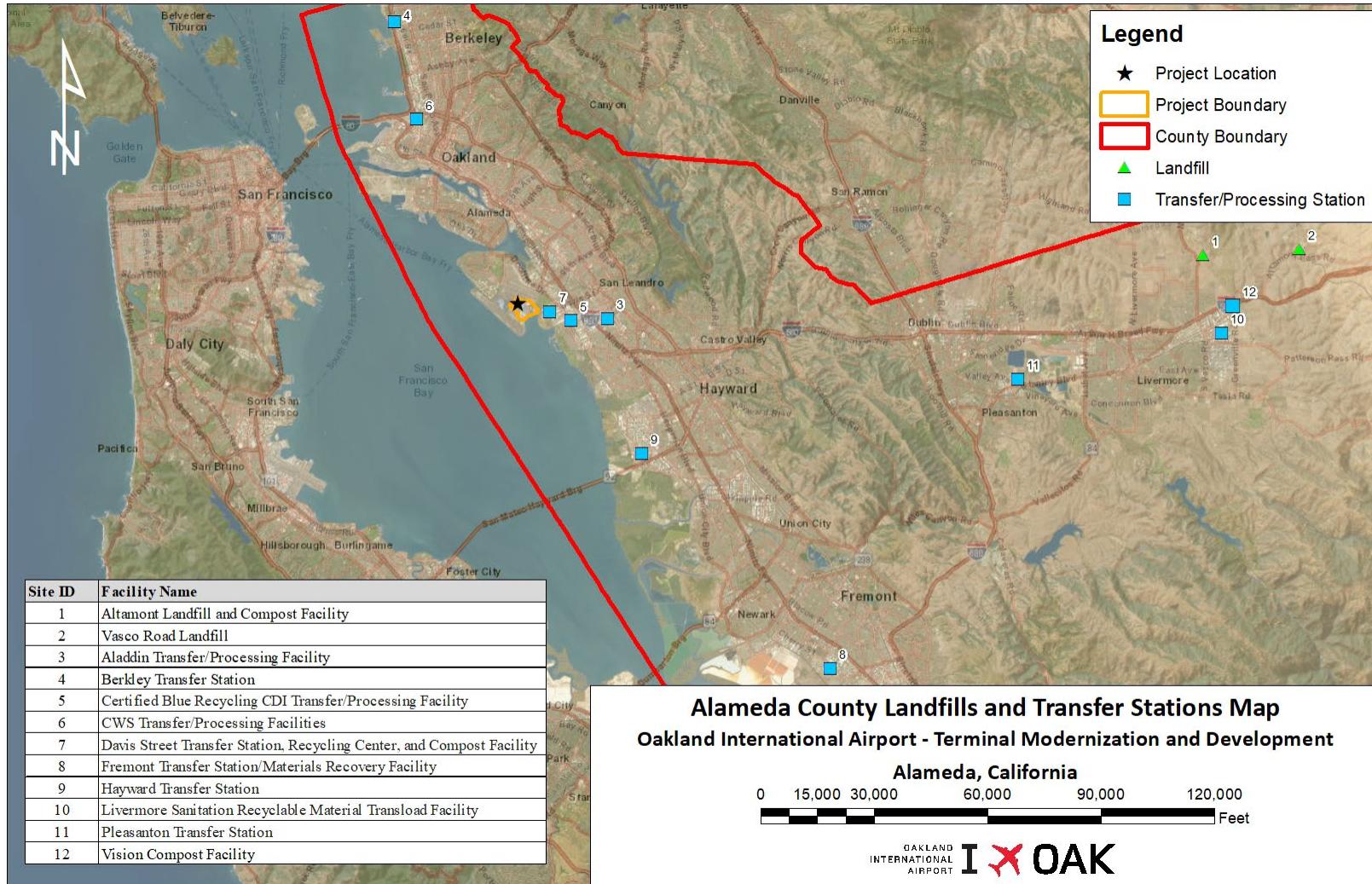
Table 3.14-4 provides a summary of solid waste generated at the Airport in 2019. The information shows monthly solid waste handling information for Terminal 1, Gate A, Gate B, and Southwest Airlines. The data also includes information regarding the amount of solid waste diverted for recycling.

**TABLE 3.14-4
2019 OAK AIRPORT SOLID WASTE GENERATION**

Source	Location		Total
	Transfer Station (Trash) (tons)	Recycling (tons)	
Terminal 1	412.83	228.97	641.80
Gate A	637.49	446.55	1,084.04
Gate A (Organics)	--	402.66	402.66
Southwest Airlines	265.71	331.14	596.85
Gate B	301.68	57.62	359.30
Total Tons per Month	1,617.71	1,466.94	3,084.65
Total Tons per Year	19,412.52	17,603.28	37,015.80

Source: Waste Management, 2019

FIGURE 3.14-1
ALAMEDA COUNTY LANDFILLS AND TRANSFER STATION MAP



Source: Flowmap. StopWaste, 2022; HDR|WRECO, 2022

OAK WASTE DIVERSION INITIATIVES

In-Terminal Recycling

With more than 8,000 airport employees and nearly 14.5 million passengers traveling through OAK annually, much of the trash generated is recyclable material. The Port's recycling program at OAK diverts discarded newspapers and magazines; office paper; aluminum and plastic beverage cans and bottles; and plastic food take-away containers from landfills. The Port has recently enhanced it further by installing 35 new recycling stations in the terminals.

These additional recycling stations are conveniently located adjacent to a trash receptacle and encourages greater recycling by identifying the types of acceptable material through visuals on the top and sides of each station. The Port is on its way to achieve its goal at the Airport of diverting over 50 percent of post-consumer trash from landfills through this enhancement.

Food Waste Recycling

In 2004, the Port added food waste to its recycling efforts at OAK. The food waste program collects pre-consumer waste such as vegetable trimmings, coffee grounds and filters, milk cartons, pizza boxes and used paper towels from airport food concessionaires for eventual use as high-nutrient fertilizer in the production of organic food and fiber.

Airline Consolidated Waste and Recycling Program

The Port has worked with the airlines to consolidate their waste and recycling into one coordinated program at OAK. Through this program, the airlines now recycle magazines, newspapers, cardboard and bottles.

3.14.3 Environmental Impacts and Mitigation Measures

Short-term energy demand would result from construction of the Proposed Project. This would include energy demand from worker, vendor, and haul vehicle trips as well as construction equipment usage. Long-term energy demand would be from electricity and diesel fuel usage, as well as energy demand related to aircraft operations. This section estimates and analyzes the energy demand generated from construction and operation of the Proposed Project.

- 3.14.3.1 Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation

CONSTRUCTION

Fuel consumption associated with construction activities would result from construction worker, vendor, and haul trips; and use of heavy equipment, water trucks, and other onsite vehicles.

The Proposed Project would be constructed in six stages over a period of approximately five years. Construction energy consumption would result primarily from transportation fuels (e.g., diesel and gasoline) used for haul trucks, heavy-duty construction equipment, and construction workers traveling to and from the site. This analysis provides the estimated maximum construction energy consumption for the purposes of evaluating the associated impacts on energy resources.

Heavy-duty construction equipment associated with demolition, grading, paving, and building construction would include dozers, pile drivers, excavators, tractors, and pavers. The majority of the equipment would likely be diesel-fueled. However, smaller equipment, such as air compressors and forklifts, may be electric-, gasoline-, or natural gas-fueled and tower cranes would likely be electric. For the purposes of this analysis, it is assumed equipment would be diesel-fueled due to the speculative nature of specifying the amounts and types of non-diesel equipment that might be used, and the difficulties in calculating the energy which would be consumed by this non-diesel equipment. This also represents a conservative worst-case scenario as diesel fuel produces the highest amount of CO₂e per gallon, which represents the maximum potential energy use during construction. Based on the number and type of construction equipment, and estimated duration of construction, GHG modeling determined the total CO₂e to be 10,644.9 metric tons. The USEPA CO₂e emissions factor of 98.23 gallons of diesel per metric ton of CO₂e was applied to the total emissions to determine the Proposed Project would use approximately 1,048,649 gallons of diesel fuel for heavy-duty construction equipment, as shown in **Table 3.14-5**. See **Section 3.7** for GHG modeling results and best management practices (BMPs) for reducing GHG emissions.

TABLE 3.14-5
ANNUAL CONSTRUCTION FUEL CONSUMPTION

Year	Overall CO ₂ e (metric tons/year)	Diesel Fuel Consumption (gallons)
2025	973.7	98,646.6
2026	3,030.8	297,715.5
2027	927.9	91,147.6
2028	3,795.5	372,832.0
2029	1,747.1	171,617.6
2030	169.9	16,689.3
Total	10,644.9	1,048,648.6

Diesel fuel conversion factor used to convert CO₂e emissions to diesel fuel consumed:

98.23 gallons of diesel/metric ton of CO₂e

CO₂e: carbon dioxide equivalent

Source: Conversion data from: U.S. Environmental Protection Agency (EPA). *Greenhouse Gases Equivalencies Calculator - Calculations and References*. Retrieved 2023 April from: www.epa.gov/energy/greenhouse-gases-equivalencies-calculator-calculations-and-references.

Based on the conservatively estimated fuel usage amounts presented above, construction of the Proposed Project would use approximately 1,048,649 gallons of diesel fuel during the construction period, assuming heavy-duty construction equipment and trucks are primarily diesel-fueled. To put these numbers into perspective, this estimated annual average construction fuel usage would represent a very small fraction of the state's retail sales volumes. In 2019, 1,756 million gallons of diesel³⁴⁴ were sold in California (about 0.0006 percent of the statewide annual diesel consumption). Construction energy consumption is

³⁴⁴ California Energy Commission (CEC). (2023). *California Retail Fuel Outlet Annual Reporting (CEC-A15) Results*. Retrieved April 2023, from: <https://www.energy.ca.gov/data-reports/energy-almanac/transportation-energy/california-retail-fuel-outlet-annual-reporting>.

short-term and relatively minor compared to long-term regional energy use. Additionally, the Port requires construction contractors to implement fuel efficient measures and encourages the use of equipment that uses renewable energy sources, as feasible. As such, construction would not result in wasteful, inefficient, or unnecessary consumption of fuel supply and the impact would be ***less than significant***.

Electricity used during construction to provide temporary power for lighting, electronic equipment (e.g., computers, etc.), and to power certain construction equipment would generally not result in a substantial increase in onsite electricity use. Certain heavy-duty construction could be electric or alternatively fueled, such as tower cranes, based on commercial availability. The Proposed Project would use electric or alternatively fueled equipment as available and as feasible, in addition to implementation of the other initiatives and BMPs identified in **Section 3.7, Greenhouse Gas Emissions**. Electricity use during construction would be variable depending on lighting needs and the use of electric-powered equipment and would be temporary for the duration of construction activities. Therefore, construction electricity use would generally be considered as temporary and negligible over the long-term. Therefore, construction would not result in wasteful, inefficient, or unnecessary consumption of electricity and the impact would be ***less than significant***.

OPERATION

The Proposed Project would result in increases in energy consumption, primarily from operation of the new passenger terminal and support facilities. New energy-consuming activities would include lighting, air circulation and cooling, heating, food and beverage concessions, passenger amenities, and use of power by aircraft at gates, and a fractional increase in the delivery and distribution of water and wastewater used and generated by the new facilities.

As discussed in **Chapter 2**, implementation of the Proposed Project would require the removal and/or replacement of a number of components in order to accommodate the proposed improvements. In some cases, this would entail the demolition of existing components that currently consume energy. This analysis does not account for the reduction in energy associated with the removal of these components. Therefore, the calculations of Proposed Project-related energy are conservative (i.e., overstate Proposed Project-related consumption).

The Proposed Project would comply with the applicable portions of CALGreen. The Proposed Project would incorporate State and local requirements to achieve the reductions in energy and water usage, as well as encourage recycling and waste diversion in compliance with State law by installing energy efficient commercial appliances that meet the USEPA ENERGY STAR rating standard.

Operation of the Proposed Project would generate additional demand for energy associated with the use of water and the conveyance, treatment, and offsite disposal of wastewater and solid waste. Based on estimates used as the basis for GHG emissions calculations, the Proposed Project would have an additional electricity use of approximately 2.6 million kilowatt-hours (kWh). To put this number into perspective, the value is compared to the 2019 electricity usage in Terminal 1 and Terminal 2. In 2019, Terminal 1 used approximately 7.1 million kWh and Terminal 2 used approximately 13.3 million kWh of

electricity. 2.6 million kWh represents an approximately 12.7 percent increase in electricity usage.

Although the Port plans to electrify all new boilers, this analysis assumes five new natural gas fired boilers would be utilized during operation of the Proposed Project. Therefore, the conservative estimate of future year 2028 natural gas use would be approximately 2.9 million kilo British thermal units (kBtu) per year. The Port's commitment to using electric boilers would not result in wasteful, inefficient, or unnecessary consumption of energy.

As stated in **Section 3.7, Greenhouse Gas Emissions**, Assembly Bill 1279 (AB 1279) codified the 2045 carbon neutrality goal of Executive Order B-55-18 by declaring that it is the policy of the state to achieve net zero GHG emissions no later than 2045, to achieve and maintain net negative GHG emissions thereafter, and to ensure that by 2045 statewide anthropogenic GHG emissions are reduced to at least 85 percent below the 1990 levels. These targets amended those established in Senate Bill 32 (SB 32).

In its Climate Change Scoping Plan, CARB acknowledged that the measures needed to meet the 2050 are too far in the future to define in detail.³⁴⁵ Although the State has yet to identify specific technologies and measures that will be utilized to meet the reduction goals, in particular for meeting the 2050 target, it is reasonable to conclude that the Proposed Project's post-2020 emissions trajectory, and associated energy use, is expected to follow a declining trend, consistent with statewide efforts to meet these future year targets. Proposed project-related electricity demand would not exceed electrical supply and distribution capabilities and would not result in wasteful, inefficient, or unnecessary consumption of energy resources. Impacts would be ***less than significant***.

Transportation Estimated Energy Consumption

Operation of the Proposed Project would result in transportation energy use. Although California plans to replace fossil fuels with other energy sources by 2045, this does not attempt to calculate the extent to which that will occur by 2028 and 2038. This analysis assumes that transportation fuels, primarily gasoline and diesel, would continue to be provided by local or regional suppliers and vendors.

Based on the Proposed Project's maximum estimated vehicle miles traveled (VMT) of 1.3 million miles per year in 2038, passenger vehicles would use approximately 29.6 million gallons of gasoline.³⁴⁶

³⁴⁵ California Air Resources Board (CARB). (2022, November 16). *2022 Scoping Plan for Achieving Carbon Neutrality*. Retrieved April 2023, from: <https://ww2.arb.ca.gov/sites/default/files/2022-12/2022-sp.pdf>.

³⁴⁶ The Proposed Project's estimated vehicle miles traveled was converted to gasoline consumed by utilizing the USEPA's average miles drive by an average gasoline-powered vehicle of 22.8 average miles per gallon (mpg) of gasoline. The same average of 22.8 mpg was used for future years as there is no reliable data on future mpg. Source: U.S. Environmental Protection Agency (USEPA). *Greenhouse Gases Equivalencies Calculator - Calculations and References*. Retrieved May 2023, from: www.epa.gov/energy/greenhouse-gases-equivalencies-calculator-calculations-and-references.

Aircraft operations and GSE consume fuel energy including jet fuel, low-lead aviation gasoline, unleaded gasoline, and diesel fuel to operate aircraft and power GSE. Based on projected demand, the number of aircraft operations (including GSE and GAVs) would increase with or without the Proposed Project. **Table 3.14-6** and **Table 3.14-7** provide an estimate of the annual operational fuel consumption of GSE, GAVs, and stationary sources for future years 2028 and 2038, respectively. The Proposed Project would consume an annual average of 1.3 million gallons of diesel fuel and 11.0 million gallons of gasoline in 2028. In 2038, the Proposed Project would consume an annual average of 1.6 million gallons of diesel fuel and 12.8 million gallons of gasoline.

TABLE 3.14-6
2028 ANNUAL PROJECT FUEL CONSUMPTION

	Overall CO₂e (metric tons/year)	Diesel Fuel Consumption (gallons)	Gasoline Consumption (gallons)
Ground Support Equipment	8,328.48	818,075	--
Ground Access Vehicles	97,912.91	--	11,017,161
Stationary Sources	5,032.65	494,401	--
Total Fuel Consumed		1,312,476	11,017,161

Gasoline and diesel fuel conversion factors used to convert CO₂e emissions to gasoline and diesel fuel consumed:
112.52 gallons of gasoline/metric ton of CO₂e

98.23 gallons of diesel/metric ton of CO₂e

CO₂e: carbon dioxide equivalent

tons/yr: tons per year

Source: Conversion data from U.S. Environmental Protection Agency (EPA). *Greenhouse Gases Equivalencies Calculator - Calculations and References*. Retrieved April 2023, from: www.epa.gov/energy/greenhouse-gases-equivalencies-calculator-calculations-and-references.

TABLE 3.14-7
2038 ANNUAL PROJECT FUEL CONSUMPTION

	Overall CO₂e (metric tons/year)	Diesel Fuel Consumption (gallons)	Gasoline Consumption (gallons)
Ground Support Equipment	11,137.69	1,094,076	--
Ground Access Vehicles	113,973.29	--	12,824,275
Stationary Sources	5,032.65	494,401	--
Total Fuel Consumed		1,588,477	12,824,275

Gasoline and diesel fuel conversion factors used to convert CO₂e emissions to gasoline and diesel fuel consumed:
112.52 gallons of gasoline/metric ton of CO₂e

98.23 gallons of diesel/metric ton of CO₂e

CO₂e: carbon dioxide equivalent

tons/yr: tons per year

Source: Conversion data from U.S. Environmental Protection Agency (EPA). *Greenhouse Gases Equivalencies Calculator - Calculations and References*. Retrieved April 2023, from: www.epa.gov/energy/greenhouse-gases-equivalencies-calculator-calculations-and-references.

Therefore, the Proposed Project would not result in wasteful, inefficient, or unnecessary consumption of energy resources and transportation-related fuels. The Proposed Project would also be well located to avoid wasteful, inefficient, or unnecessary consumption of energy resources. Whereas new development on land beyond urban/developed areas is often considered wasteful due to the high VMT associated with such development, the Proposed Project presents the opposite situation. The Proposed Project would improve an existing, centrally located airport that has high-quality transit connections, thus preserving relatively low-VMT air travel and cargo movement opportunities and low per-passenger consumption of transportation fuels. The impact would be **less than significant**.

3.14.3.2 Conflict with State or Local Plan for Renewable Energy or Energy Efficiency

CONSTRUCTION

The Proposed Project would use construction contractors who demonstrate compliance with applicable CARB regulations governing the accelerated retrofitting, repowering, or replacement of heavy-duty diesel on- and off-road equipment.

While intended to reduce construction criteria pollutant emissions, compliance with the previously identified anti-idling and emissions regulations would result in efficient use of construction-related energy and the minimization or elimination of wasteful and unnecessary consumption of energy. It is not possible to accurately quantify the amount of energy that construction of a project would save by complying with these regulations due to the difficulties in estimating idling times and technology turnovers in the absence of the regulations. However, the use of electric or alternatively fueled equipment as available and as feasible, in addition to implementation of the other initiatives and BMPs identified in **Section 3.7, Greenhouse Gas Emissions**, would result in less fuel combustion and energy consumption. Therefore, impacts would be **less than significant**.

OPERATION

The Proposed Project would comply with or exceed the applicable provisions of Title 24 and the CALGreen Code in effect at the time of building permit issuance. The Proposed Project is required to comply with applicable regulations, including those pertaining to waste reduction and recycling. Additionally, through the use of electric or alternatively fueled equipment as available and as feasible, in addition to implementation of the other initiatives and BMPs identified in **Section 3.7, Greenhouse Gas Emissions**, the Proposed Project would not result in wasteful, inefficient, or unnecessary consumption of energy resources or conflict with a state or local plan for renewable energy or energy efficiency. There would be **no impact**.

3.14.3.3 Projected Water and Wastewater Demands

Water and wastewater infrastructure for the Proposed Project is largely related to servicing the new terminal (Project Component B-1), modernization of the existing Terminals 1 and 2 (Project Component B-2), construction of support and cargo buildings (Project Components S-3 and S-4), and expansion of the Central Utility Building (Project Component U-1). Design for the infrastructure would involve a sequence of phases including: Water Supply Assessment (Water Code 10910), update to the 2014 Water Master Plan, plan for use of recycled water for irrigation, and application and agreement for expansion of services by EBMUD. Projected water and wastewater demands are provided here to support the

subsequent sections related to impacts associated with the increase to water and wastewater flows.

Water/Wastewater flows are commonly estimated on a per passenger basis³⁴⁷ with a range of 3-5 gpd/passenger and typical value of 4 gpd/passenger. In a 2018 study of 10 international airports, water consumption per passenger ranged between 2.5 – 11.3 gpd/passenger with an average of 6.0 gpd/passenger.³⁴⁸ This per-passenger approach is used to estimate the increases in water/wastewater flows at OAK in future years and provide a basis for infrastructure capacity requirements. As noted previously, the Proposed Project, by itself, would not cause an increase in passengers. However, the increase in water demands and wastewater flows related to projected passenger demand must be accommodated with an increase in system capacities.

The 2019 water usage for OAK was estimated by the Port (based on data from EBMUD) at 4.9 gpd/passenger, reflecting 65.8 MG demand from Terminals 1 and 2 (including CUP water usage for heating and cooling of the terminals) with a corresponding 13.4 MAP (see **Appendix C**). **Table 3.14-8** summarizes the estimated existing and increase in water/wastewater usage for the Airport terminals in coming years. In summary, terminal water usage is expected to increase from an average daily usage of 180,185 gpd in 2019 to 236,663 in 2028 (increase by 56,477 gpd compared to 2019), and to 332,134 in 2038 (increase by 151,949 compared to 2019).

TABLE 3.14-8
ESTIMATED INCREASE IN WATER/WASTEWATER FOR NEW TERMINAL

Year	Existing (2019)	Future Year 2028	Increase between 2019 and 2028	Future Year 2038	Increase between 2019 and 2038
Total Passengers (MAP)	13.4	17.6	4.2	24.7	11.3
Average Daily Passengers	36,712	48,219	11,507	67,671	30,959
Usage Rate (gpd/passenger)	4.9	4.9	-	4.9	-
Estimated Usage (gpd) ^{/a/}	180,185	236,663	56,477	332,134	151,949

MAP: million annual passengers

gpd: gallons per day

/a/ These estimates are based on conceptual design.

Source: Port of Oakland, 2021; Gresham Smith, 2023

³⁴⁷ Metcalf & Eddy, Inc. (1991). *Wastewater Engineering: Treatment, Disposal, and Reuse*.

³⁴⁸ Vurmaz and Boyaciaoglu. (2018). *Airport Water Consumption Footprinting*.

- 3.14.3.4 Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects.

CONSTRUCTION AND OPERATION

There are multiple project components that would require the relocation or construction of expanded utilities, and these are collectively addressed under Project Component U-4: Relocation and Upgrade of Utility Systems in **Chapter 2**. The relocation or expansion of utilities would be addressed during final design but utility routing is expected within existing utility routes that exist in the general study area.

Water storage and treatment facilities owned and operated by EBMUD that serve OAK are located off Airport property and would not be affected by the Proposed Project. Water supply pipelines and related valves and fittings would be evaluated during the design phase, supported by preliminary engineering, analysis, and water supply assessment. Expansion or improvements to the water supply infrastructure may be necessary but the work would be directed by EBMUD and the environmental impacts of the work is expected to be marginal because of the limited scope - the addition of a new tie-in and upgrade of existing pipework – and because the work would be performed in accordance with EBMUD requirements, Port ordinances, and applicable environmental regulations, as described in **Section 3.14.2**.

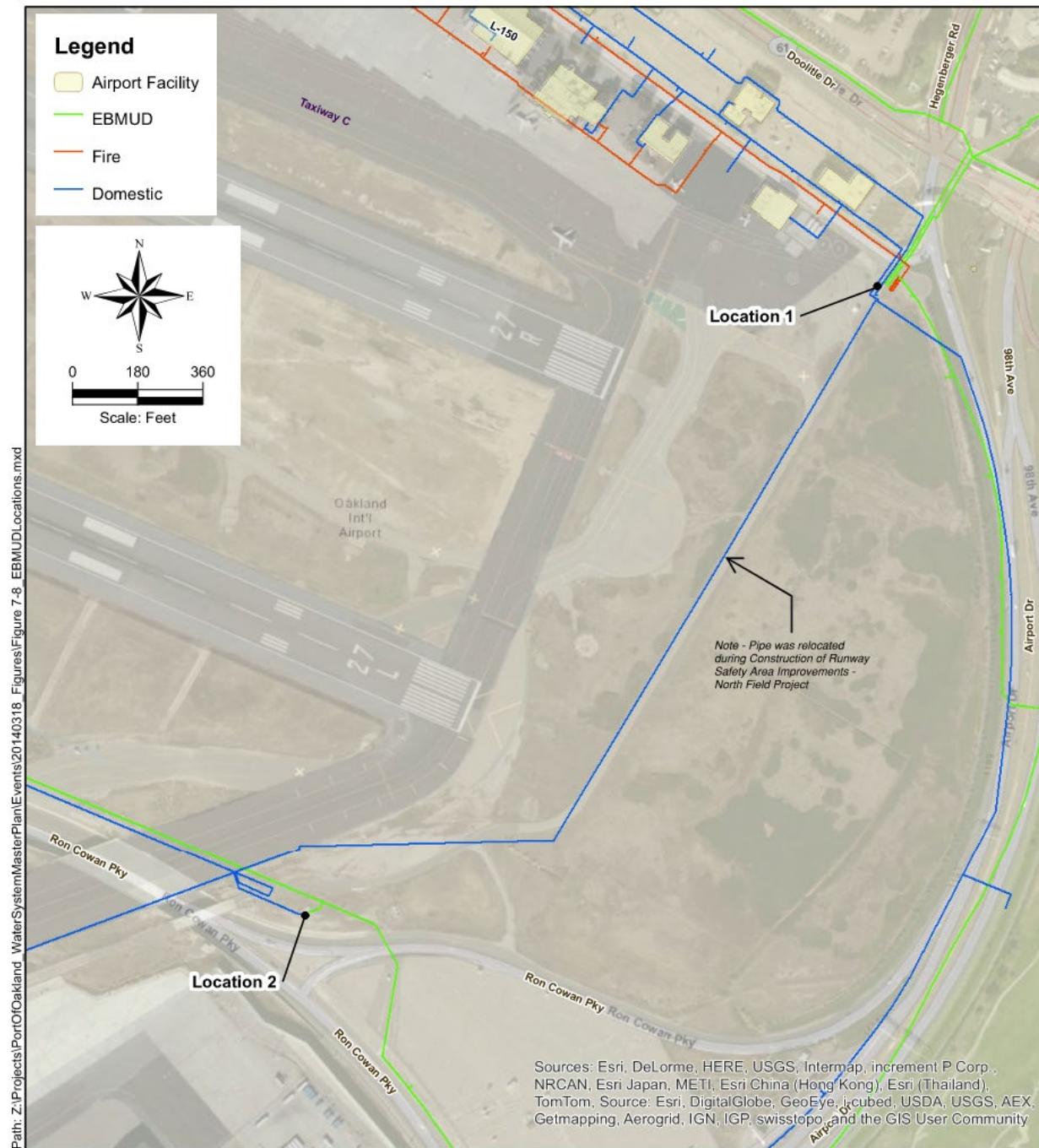
The Port is seeking to add a second water meter connection to the EBMUD water supply system solely for resiliency and redundancy purposes. The existing water meter connection near Airport Drive and Doolittle Drive is labeled as Location 1 on **Figure 3.14-2**, and the proposed connection point near Ron Cowan Parkway is labeled as Location 2.

This location was previously identified based on the close proximity between existing EBMUD and OAK water lines, and a backflow preventer assembly has been installed at this site in anticipation of a future connection, if approved by EBMUD. Based on existing infrastructure, as well as the close proximity of the water lines at this location, the anticipated impacts of establishing this connection, once approved by EBMUD, are negligible.

The wastewater conveyance and treatment facilities owned and operated by EBMUD that serve OAK are located outside of the detailed study area and would not be affected by the Proposed Project. As part of the Proposed Project, existing sanitary sewers would be evaluated for replacement and rehabilitation. The intent is compliance with EBMUD's Regional Private Sewer Ordinance and reduction goals for inflow and infiltration.

Specifically, sewer lines should be free from defects and new sanitary sewer lines should be constructed to prevent inflow and infiltration. The outcome of the evaluation would detail the need for relocation or expansion of the wastewater infrastructure. Based on the incremental increase in wastewater flows associated with the Proposed Project (56,477 gpd for 2028 and 151,949 gpd in 2038), the need for major modifications to wastewater infrastructure is unlikely. Any updates to airport wastewater infrastructure would be led by the Port. Any upgrade to Pump Station G and the interceptor system would be led by EBMUD.

FIGURE 3.14-2
CONNECTION LOCATIONS TO EBMUD WATER SUPPLY



Source: Port of Oakland, 2023; Gresham Smith, 2023

Prior to initiation of construction, the Port would develop engineering drawings that would provide details of the expanded and relocated utilities for the Proposed Project and the areas affected during construction. The Port would ensure that utilities included in the Proposed Project address the utilities' best practices for environmental compliance and are constructed in a manner to minimize environmental effects.

Water and wastewater infrastructure improvements would connect to the existing systems. The Proposed Project would be subject to regulations that govern environmental protections for existing and new utilities at the Airport. Ongoing compliance with these permits and standards establishes a baseline of environment protection that would maintain impacts at a ***less-than-significant*** level.

The Proposed Project would include an upgrade to various utility systems at OAK, including the telecommunications infrastructure. These upgrades would be coordinated with telecommunications companies to ensure that telecommunications systems would not be affected during construction and upon completion of the Proposed Project. Therefore, impacts to telecommunications would be ***less-than-significant***.

3.14.3.5 Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years

CONSTRUCTION

Prior to construction, an application to EBMUD for new water service with an existing main would be required. Among other things, the application would address:

- Required meters,
- Size of service required in gallons per minute,
- Water demand and efficiency,
- Hydrant/fire service requirements signed by local fire marshal,
- Application for dual service, and
- Water efficiency requirements checklist.

These items would then be memorialized in Agreement with EBMUD that would dictate the terms and conditions for expansion of water supply to the Proposed Project. EBMUD may require additional information after receipt of a formal application to evaluate the water supply during normal, dry, and multiple dry years so that a definitive assessment in support of a permit can be made.

Water usage during construction for dust suppression, concrete mixing, and other construction related activities is temporary and limited in nature. However, EBMUD may declare and issue prohibitions on use of potable water for construction during drought events.

The Port would work with EBMUD to identify opportunities to use recycled water during construction. EBMUD offers recycled water free of charge through their Recycled Water Truck Program³⁴⁹ that can be used for construction or other non-potable purposes. However, this program may not be feasible for projects at OAK due to hauling distance from the main wastewater treatment plant in West Oakland. Coordination is recommended with

³⁴⁹ East Bay Municipal Utility District (EBMUD). (2022). *Recycled Water Truck Program*.

EBMUD to determine if recycled water is able to be supplied from their San Leandro Recycled Water Facility, which recycles water from the City of San Leandro's Water Pollution Control Plant. The Port would require contractors to make use of recycled water during construction to the extent feasible. The impact would be ***less than significant***.

OPERATIONS

As detailed above in **Section 3.14.3.3**, annual passenger traffic is expected to increase in the future years, regardless of if the Proposed Project is implemented or not, and water demands are expected to increase proportionately. Although the water demand may increase regardless of the Proposed Project, there are project features that would be undertaken in concert with EBMUD's Water Shortage Contingency Plan 2020 that would support water usage. Old and/or impacted pipes in the OAK water distribution system would be replaced or rehabilitated, which would address uncontrolled losses from the system. The piping upgrade would result in a lower water usage on a flow/passenger basis compared to historical usage and support reduction goals.

In addition to improvements to the Airport's water supply infrastructure, the Port would evaluate opportunities and, as prudent, adopt programs for use of recycled water from the San Leandro Recycled Water Facility (as previously described), particularly for irrigation. The current Recycled Water Facility provides secondary treatment, which is adequate for irrigation. If the facility is upgraded in the future to provide tertiary treatment, there may be opportunities to consider recycled water for indoor and commercial uses for the Proposed Project, which may further reduce future water demands. Finally, the Port would conduct a comprehensive Water Master Plan for the Airport that would provide a demand analysis and quantify the conservation measures that would support achievement of the Port's requirement for water efficiency measures and sustainability goals.

EBMUD notes that water supplies can meet demands during normal and single dry years.³⁵⁰ EBMUD's Drought Management Program outlines rationing during drought periods when water supplies are limited. Specifically, water use reduction goals of 8 percent for institutional customers. The cumulative impact of infrastructure improvements, water efficiency measures, and recycling efforts would support achievement of this goal. For these reasons, it is reasonable to conclude that there are sufficient water supplies to support the Airport following implementation of the Proposed Project during normal, dry, and multiple dry years. For these reasons, the impact of the Proposed Project would be ***less than significant***.

- 3.14.3.6 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

CONSTRUCTION

The Proposed Project's wastewater infrastructure is related to collection of wastewater from the new terminal (project component B-1), modernization of existing Terminals 1 and 2 (project component B-2), construction of support and cargo buildings (project components S-3 and S-4), and expansion of the Central Utility Building (U-1). The existing wastewater

³⁵⁰ East Bay Municipal Utility District (EBMUD). (2020). *Water Shortage Contingency Plan*.

collection infrastructure would be updated to serve project components. The update would include replacement and rehabilitation of sanitary sewer and manholes that have structural defects or related to inflow and infiltration.

Prior to construction, the Port would apply for modification of the existing wastewater permit and detail the expected increase in wastewater discharge. The modification would quantify the expected increases in wastewater flows associated with the Proposed Project and include a site diagram and schematic flow diagram. Permit approval is required prior to initiation of construction.

During construction, an EBMUD Special Discharge Permit³⁵¹ for short-term, limited volume discharge or groundwater discharge may be required to comply with EBMUD's Wastewater Control Ordinance. The permits are issued to comply with disposal of construction-related wastewater (e.g. dewatering, cleaning, and spills) and waive certain Ordinance requirements and prohibitions. Complying with these permits and all previously described regulations, the impact would be **less than significant**.

OPERATIONS

As detailed in **Section 3.14.3.3**, annual passenger traffic is expected to increase in the future years, regardless of if the Proposed Project is implemented or not, and water and wastewater flows are expected to increase proportionately. By 2038, OAK water demand is expected to increase by 151,949 gpd to a total of 332,134 gpd. Although the water demand may increase regardless of the Proposed Project, the capacity of the water and wastewater infrastructure must be updated to serve the projected increases in water and wastewater flow rates.

As noted above in the Construction discussion, the Proposed Project would include an update to the existing wastewater infrastructure. The update would include pipe and manhole rehabilitation that would be designed to minimize inflow and infiltration contributions to wastewater discharged to EBMUD. In addition to "tightening" the collection system, the Proposed Project would incorporate measures that would reduce water usage that would result in related decreases to wastewater generation. The Port would coordinate with EBMUD on reduction of water usage and inflow and infiltration measures to ensure that the Proposed Project's impact to the wastewater collection and treatment infrastructure are marginal. The conservatively projected increase in wastewater flows between 2019 and 2038 is 151,949 gpd, which is 0.3 percent of the 54 mgd dry weather flow to the plant and well within the 168 mgd secondary treatment capacity. The impact would be **less than significant**.

3.14.3.7 Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals

CONSTRUCTION

The Proposed Project would result in a temporary increase in the generation of solid waste during demolition and construction of the Proposed Project. Most solid waste generation

³⁵¹ East Bay Municipal Utility District (EBMUD). (2022). *Permits and Wastewater Discharges*.

would occur during demolition activities. As shown in **Table 3.14-9**, it is estimated that a total of 3,917,525 square feet of landside elements, airside elements, and building elements would be demolished over all six stages of construction of the Proposed Project with the majority of demolition occurring in Year 2 of construction. According to the U.S. Environmental Protection Agency (USEPA), an average rate of 155 pounds (0.078 tons) of demolition debris (solid waste) is generated per square foot of building area demolished.³⁵² For the removal of paved surfaces, the rates identified by the San Diego County Regional Airport Authority in their Airport Development Plan Environmental Impact Report (EIR) were used, which are based on waste management reporting at San Diego International Airport.³⁵³ The rates used for the demolition of landside pavement (e.g., roadways and parking lots) is 92 pounds (0.048 tons) and for the demolition of airside pavement (taxiways and aircraft apron) is 184 pounds (0.096 tons) due to the thickness of airfield pavement compared to landside pavement. Using these rates, as shown in **Table 3.14-9**, the total estimated solid waste generated during demolition activities would be 289,940 tons, with 210,967 tons generated during Year 2 of construction. However, as required by the 2022 California Green Building Standards Code and in compliance with the Port's Materials Management Program (MMP) which focuses on diverting recyclable construction materials such as concrete, asphalt, and rebar away from landfills, a minimum of 65 percent of the solid waste generated during demolition and construction will be diverted through reuse or recycling. As a result, can be expected to result in approximately 101,500 tons of solid waste due to demolition, with 188,500 tons or more being reused or recycled.

The amount of debris generated during construction is substantially less than the amount generated during demolition activities. The USEPA estimates that demolition debris may be generated in quantities as much as 20 to 30 times more than construction debris.³⁵⁴ As such, the rate of demolition debris generated per square foot of construction area was estimated to be 8 pounds (0.004 tons). Minimal solid waste is anticipated to be generated during construction of landside or airside pavement. Therefore, as shown in **Table 3.14-9**, the construction of 7,352,005 square feet of landside, airside, and building elements associated with the Proposed Project would result in 4,955 tons of solid waste. However, as discussed above, a minimum of 65 percent of the solid waste generated during construction would be diverted through reuse or recycling. As a result, the Proposed Project can be expected to result in 1,735 tons of solid waste, with 3220 tons or more being reused or recycled.

³⁵² U.S. Environmental Protection Agency (USEPA). (1998, June). *Characterization of Building-Related Construction and Demolition Debris in the United States*. Retrieved April 2023, from: https://www.epa.gov/sites/default/files/2016-03/documents/charact_bulding_related_cd.pdf.

³⁵³ San Diego County Regional Airport Authority. (2019, September). *Airport Development Plan Recirculated Draft EIR*. Retrieved April 2023, from: <https://www.san.org/Airport-Projects/Environmental-Affairs#1245263-adp-draft-eir>.

³⁵⁴ U.S. Environmental Protection Agency (USEPA). (1998, June). *Characterization of Building-Related Construction and Demolition Debris in the United States*. Retrieved April 2023, from: https://www.epa.gov/sites/default/files/2016-03/documents/charact_bulding_related_cd.pdf.

TABLE 3.14-9
PROPOSED PROJECT ESTIMATED SOLID WASTE GENERATION

Stage	Project Component ^{/e/}	Component I.D.	Approximate Area (square feet) ^{/a/}	Estimated Weight of Solid Waste Generated (tons) ^{/b/,/c/}
<u>Year 1 – 2025</u>				
Year 1 Landside Pavement Removal				
1	Remove Portion of Employee Parking in Neil Armstrong Lot	D-2	257,000	12,336
1	Demolish OMC Hangar Associated Parking	D-11	339,000	16,272
1	Remove Park and Call Lot	D-13	11,300	542
3	Remove Employee Parking	D-7	23,500	1,128
3	Remove Main Parking Lot (Portion)	D-14	210,400	10,114
<i>Total Year 1 Landside Pavement Removal</i>			841,200	40,392
Year 1 Building Demolition				
1	Demolish Catering Building and Associated Parking	D-1	34,000	2,652
3	Demolish Offices and Storage Building	D-4	30,000	2,340
1	Demolish OMC Hangar and Related Structures	D-11	252,000	19,656
1	Demolish Storage Building	D-12	30,000	2,340
<i>Total Year 1 Building Demolition</i>			346,000	26,988
Year 1 Landside Pavement Construction				
2	Construct Replacement Parking – Ron Cowan Lot	L-6	571,000	-
2	Construct Replacement Public Parking – Maitland Lot	L-7	814,600	-
2	Construct Replacement Airline and Airport Support Associated Parking	S-3	40,950	-
<i>Total Year 1 Landside Pavement Construction</i>			1,426,550	-
Year 1 Building Construction				
2	Construct Replacement Airline and Airport Support Building	S-3	43,000	172
<i>Total Year 1 Building Construction</i>			43,000	172
<i>Total Year 1</i>			<i>2,656,750</i>	<i>67,552</i>
<u>Year 2 – 2026</u>				
Year 2 Landside Pavement Removal				
3	Demolish Provisioning Associated Parking	D-10	2,200	106
3	Remove Economy Parking	D-9	758,000	36,384
<i>Total Year 2 Landside Pavement Removal</i>			760,200	36,490

Stage	Project Component^{/e/}	Component I.D.	Approximate Area (square feet)^{/a/}	Estimated Weight of Solid Waste Generated (tons)^{/b/,,/c/}
Year 2 Airside Pavement Removal				
3	Remove Remote and Cargo Aircraft Parking Positions and Existing Taxilanes	D-6	1,800,000	172,800
<i>Total Year 2 Airside Pavement Removal</i>			<i>1,800,000</i>	<i>172,800</i>
Year 2 Building Demolition				
1	Demolish Provisioning Building	D-10	11,500	897
2	Remove Fuel Rack and Below- Grade Fuel Systems	D-5	10,000	780
<i>Total Year 2 Building Demolition</i>			<i>21,500</i>	<i>1,677</i>
Year 2 Landside Pavement Construction				
2	Construct Replacement Employee Parking – North Field Lot	L-1	8,300	-
2	Construct Replacement Employee Parking – Golf Course Lot	L-2	257,000	-
2	Construct Expansion Employee Parking – Neil Armstrong Lot	L-3	146,800	-
2	Construct Cargo Building Associated Parking	S-1	24,400	-
2	Construct Replacement Belly Cargo Parking	S-4	2,000	-
2	Upgrade Fuel System	U-3	276,780	-
<i>Total Year 2 Landside Pavement Construction</i>			<i>715,280</i>	<i>-</i>
Year 2 Airside Pavement Construction				
2	Construct Replacement Remote and Cargo Aircraft Parking Positions	S-2	721,875	-
2	Construct Improvements to Existing Airfield (Adjacent to Remote and Cargo Aircraft Parking Positions)	A-3	1,365,000	-
<i>Total Year 2 Airside Pavement Construction</i>			<i>2,086,875</i>	
Year 2 Building Construction				
3	Construct New Terminal	B-1	830,000	3,320
2	Construct Replacement Cargo Building	S-1	100,000	400
2	Construct Replacement Belly Cargo Building	S-4	38,000	152
2	Construct Replacement of Fuel Rack and Below- Grade Fuel Systems	U-2	3,850	15
2	Relocate and Upgrade Utility Systems ^{/d/}	U-4	-	-
<i>Total Year 2 Building Construction</i>			<i>971,850</i>	<i>3,887</i>
Total Year 2			6,355,705	214,854

Stage	Project Component^{/e/}	Component I.D.	Approximate Area (square feet)^{/a/}	Estimated Weight of Solid Waste Generated (tons)^{/b/,,/c/}
<u>Year 3 – 2027</u>				
Year 3 Building Demolition				
3	Demolish Multi-Tenant Cargo/ Support Building and Associated Parking	D-8	75,625	5,899
	<i>Total Year 3 Building Demolition</i>		<i>75,625</i>	<i>5,899</i>
Year 3 Landside Pavement Construction				
4	Construct Replacement Employee Parking – Terminal Approach Lot	L-4	17,450	-
4	Construct Extension of Terminal Curbside	L-8	70,000	-
	<i>Total Year 3 Landside Pavement Construction</i>		<i>87,450</i>	<i>-</i>
Year 3 Airside Pavement Construction				
4	Construct New Terminal Apron	A-1	1,221,750	-
4	Construct Improvements to Existing Airfield (Adjacent to New Terminal)	A-2	573,250	-
	<i>Total Year 3 Airside Pavement Construction</i>		<i>1,795,000</i>	<i>-</i>
Year 3 Building Construction				
4	Construct BART Covered Walkway ^{/d/}	L-9	-	-
4	Construct Return to Terminal Connection ^{/d/}	L-10	-	-
	<i>Total Year 3 Building Construction</i>		<i>-</i>	<i>-</i>
	<i>Total Year 3</i>		<i>1,958,075</i>	<i>5,899</i>
<u>Year 4 – 2028</u>				
Year 4 Building Construction				
4	Construction Expansion of Central Utility Plant	U-1	10,000	40
4	Construction of IAB in Terminal	B-2	123,000	492
	<i>Total Year 4</i>		<i>133,000</i>	<i>532</i>
<u>Year 5 – 2029</u>				
Year 5 Building Construction				
5	Modernization of Existing Terminals 1 and 2	B-2	91,000	364
	<i>Total Year 5</i>		<i>91,000</i>	<i>364</i>
<u>Year 6 – 2030</u>				
Year 6 Building Demolition				
6	Demolish Terminal 1 Ticketing and Baggage Claim	D-3	73,000	5,694

Stage	Project Component^{/e/}	Component I.D.	Approximate Area (square feet)^{/a/}	Estimated Weight of Solid Waste Generated (tons)^{/b/,/c/}
Year 6 Landside Pavement Construction				
6	Construct Expansion of Employee Parking – Terminal Infill Lot	L-5	2,000	-
		Total Year 6	75,000	5,694
Total Demolition – all years			3,917,525	289,940
Total Construction – all years			7,352,005	4,955
Total Estimated Solid Waste Generated – all years				294,895

/a/ Square footage of the various elements was conservatively developed for the purposes of the air quality construction emissions analysis and for estimating solid waste generation.

/b/ Solid waste generation was estimated by multiplying the approximate area by the following:

0.048 tons for demolition of landside pavement; 0.096 tons for demolition of airside pavement; 0.078 tons for demolition of buildings; and 0.004 tons for the construction of buildings.

/c/ Minimal to no solid waste is anticipated to be associated with the construction of landside and airside elements.

/d/ No area is associated with these project components because ground-disturbing work would be associated with the construction of another project component, work would be above-ground, or ground-disturbing work would be minimal.

/e/ While some project components would be constructed over more than one stage, this table only includes the project component once (in the earlier stage) so the solid waste generated does not get counted twice.

Source: USEPA. 1998; San Diego County Regional Airport Authority, 2019; HMMH, 2023; RS&H, 2023

The projected solid waste generated during construction can be accommodated at the existing landfills as shown in **Table 3.14-3**. The generation of solid waste from construction activities would result in a **less-than-significant impact**.

OPERATIONS

The amount of waste generated at the Airport in 2019 was approximately 6,170,000 pounds (3,085 tons) (see **Table 3.14-4**), which averages out to approximately 8.5 tons per day. Operation of the Proposed Project would generate similar rates of solid waste associated with users, tenants, and employees at the Airport. The amount of solid waste generated would increase in relation to the increase in passengers using the Airport and employees associated with operation of the Proposed Project. Based on generation rates from CalRecycle for public/institutional land uses, typical waste generated per day would be 0.007 pounds per square foot.³⁵⁵ The total additional building square footage would be approximately 722,725 square feet (1,238,850 square feet of building elements constructed and 516,125 square feet demolished for a total increase of 722,725 square feet), which would conservatively equal approximately 5,029 pounds (2.51 tons) of additional solid waste generated per day (722,725 multiplied by 0.007) or a total of 1,835,585 pounds (917.79 tons) of additional solid waste generated per year. This total is expected to be conservative with continued implementation of the Port's waste diversion initiatives described in **Section 3.14.2.6** as well as the implementation of AB 1276 which would reduce waste generated from non-recyclable/compostable single use foodware and

³⁵⁵ CalRecycle. (2023). *Estimated Solid Waste Generation Rates*. Retrieved April 2023, from: <https://www2.calrecycle.ca.gov/wastecharacterization/general/rates#Institution>.

condiments. The Altamont and Vasco landfills are far below their capacity and would be able to continue to accommodate projected solid waste generated at the Airport. The impact would be ***less than significant***.

3.14.3.8 Comply with federal, state, and local management and reduction statutes and regulations related to solid waste

CONSTRUCTION

As described in **Section 3.14.1.1**, CALGreen requires that nonresidential building projects recycle and/or salvage for reuse a minimum of 65 percent of the nonhazardous construction and demolition waste or meet a local construction and demolition waste management ordinance, whichever is more stringent. The Alameda County Green Building Ordinance requires that a minimum of 50 percent of construction and demolition debris be diverted from the landfill through recycling and reuse with a goal of 75 percent waste diversion. The Proposed Project would generate demolition and construction debris (solid waste), with most solid waste generation occurring during Year 2 of construction when the majority of demolition would occur. The Proposed Project would follow the Port's MMP, which aims to reduce the transport and disposal of construction materials to offsite landfills through the onsite recycling and reuse of certain construction materials. The OAK MMP allows for the recycling of construction waste at the Airport rather than transporting the material long distances.³⁵⁶ Solid waste that is not recycled or reused onsite would be transported offsite to a transfer station and then ultimately the Altamont or Vasco landfill, both of which accept construction and demolition materials and have sufficient capacity. The Proposed Project would also comply with CALGreen's requirement of 65 percent diversion and strive to achieve Alameda County's goal of 75 percent diversion of construction and demolition waste.

As discussed in **Section 3.8, Hazards and Hazardous Materials**, asbestos-containing materials (ACM) and lead-based paint would be encountered during building demolition and renovation, and hazardous materials in soil may be excavated during construction. These materials and all potentially hazardous material would be handled, transported, and disposed of in accordance with applicable laws and regulations.

The Proposed Project would comply with federal, state, and local reduction statutes and regulations related to solid waste. The Proposed Project would result in ***no impact***.

OPERATIONS

California's legally mandated requirement of 50 percent waste diversion applies to cities, counties, and solid waste management authorities and does not apply to the Airport as an entity. In 2019, both the City of Oakland and Alameda County met the 50 percent waste diversion requirement with diversion of 63 percent and 67 percent, respectively. In 2019, the Airport's waste diversion percentage was 47.5 percent. As previously discussed, the increase in solid waste generation would be partially offset through existing recycling and waste diversion programs that would continue to be implemented under the Proposed

³⁵⁶ Port of Oakland. (2007, December). *Oakland International Airport-Materials Management Program (MMP)*. Retrieved April 2023, from: https://www.oaklandairport.com/wp-content/uploads/2016/05/OAKMMPFactSheet_12_05_2007.pdf.

Project. In addition, the implementation of AB 1276, which is aimed at reducing waste associated with single use foodware and condiments, is expected to improve diversion percentages. Compliance with federal, state, and local reduction statutes and regulations related to solid waste would ensure that the increase in solid waste generation would not exceed federal, state, or local standards, or otherwise impair the attainment of solid waste reduction goals. The Proposed Project would result in ***no impact***.

CHAPTER 4

ALTERNATIVES

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4.1 INTRODUCTION

As required under Section 15126(d) of the CEQA Guidelines, an Environmental Impact Report (EIR) must discuss a range of reasonable alternatives to a project that would feasibly attain most of the basic objectives of the project while avoiding or lessening significant environmental effects. An evaluation of the comparative merits of the project alternatives also is required. This chapter provides a discussion of alternatives to the Proposed Project, including a No Project Alternative, which is considered to be an alternative to the Proposed Project in conformance with Section 15126(d) of the CEQA Guidelines. The comparison of impacts between the project alternatives and the Proposed Project is presented in this chapter and is based on the discussion of the impacts associated with the Proposed Project as presented in **Chapter 3**.

This chapter provides a description of other alternatives that were reviewed and presents the reasons each of these other alternatives was either brought forward for or screened from further study. Finally, this chapter also identifies an environmentally superior alternative, as required for CEQA analysis. The purpose of the alternatives analysis is to explore ways that the objectives of the Proposed Project could be attained while reducing or avoiding significant environmental impacts of the project as proposed. This process is intended to foster informed decision-making in the environmental process.

4.2 ALTERNATIVES SCREENING PROCESS

The alternatives were screened using three factors. The first factor considered reasonable alternatives within the context of the Port’s project objectives (Factor 1 Screening). These objectives, presented in **Chapter 2**, are repeated below to assist the reader in understanding the Factor 1 Screening.

- Objective 1: Modernize existing terminal facilities to optimize safety and security for passengers and workers.
- Objective 2: Provide replacement and new terminal facilities that are sized to efficiently accommodate the market-based passenger demand at industry standard levels of service³⁵⁷ and designed to improve the passenger experience.
- Objective 3: Modify and replace existing non-terminal facilities at OAK to accommodate the market-based demand.
- Objective 4: Provide adequate aircraft gates, aircraft parking, and terminal facilities that are sized and configured to accommodate the larger-sized aircraft fleet forecast at the Airport.

Under Factor 2 Screening, alternatives were evaluated in terms of constructability, cost, level of service, and airfield operational functionality considerations. Factor 3 Screening

³⁵⁷ To identify industry standard levels of service, the Port used the following sources: International Air Transport Association (IATA). (2019). *Airport Development Reference Manual (ADRM)*, 11th edition; Transportation Research Board (TRB). (2010). *Airport Passenger Terminal Planning and Design, Volume 1: Guidebook*; U.S. Customs and Border Patrol. (2006). *Airport Technical Design Standards: Passenger Processing Facilities*; BNP Associates. (2017). *Planning Guidelines and Design Standards for Checked Baggage Inspection Systems*; Transportation Security Administration (TSA). (2011). *Recommended Security Guidelines for Airport Planning, Design, and Construction*; and TSA. (2012). *Checkpoint Design Guide*, Revision 4.0.

evaluated alternatives based on their potential effect on specific environmental resources (air quality, greenhouse gas emissions, special-status species, historic resources, wetlands, and coastal resources) that are affected by the Proposed Project. The alternatives were evaluated using all three factors to determine if any alternative would be considered feasible to implement.

4.2.1 Factor 1 Screening: Meeting Project Objectives

The Factor 1 Screening evaluated each alternative's ability to satisfy the four project objectives identified by the Port for the Proposed Project. As part of the evaluation of these project objectives, an important consideration is the ability of the Airport to accommodate existing and future passengers and aircraft operations in keeping with industry standards. Alternatives that would substantially reduce the ability of the Airport to safely, efficiently, and effectively accommodate existing and future operations at industry standard levels of service were considered to be less viable than those alternatives having a positive effect on the long-term utility of the Airport.

4.2.2 Factor 2 Screening: Constructability, Cost, Level of Service, and Airfield Operational Functionality Considerations

The Factor 2 Screening analysis was designed to determine which alternatives would be considered reasonable in terms of constructability, cost, level of service, and operational functionality, as described below.

4.2.2.1 Constructability

Construction on and around an airport has the potential to affect airport infrastructure and operations. Consideration was given to the potential of each alternative to adversely affect Airport operations and resources due to construction-related issues. Factors considered include length of construction period, frequency, timing, and duration of Airport closures, and disruption to Airport operations. Those alternatives with higher potential for adverse effects associated with constructability are considered to be less viable than those that have the potential to result in fewer construction-related effects.

4.2.2.2 Cost

The Port studied ways to consolidate functions, re-use existing facilities, and efficiently provide essential elements to reduce costs. Each alternative was reviewed to determine whether the estimated costs of implementation of the alternative would be disproportionately greater than the costs of other alternatives.

4.2.2.3 Level of Service

This criterion considers whether or not an alternative would have a potential adverse effect on the level of service provided to the traveling public. Those alternatives that would accommodate market-based passenger demand at industry standard levels of service are considered to be more viable than those that would reduce existing or levels of service at the Airport.

4.2.2.4 Airfield Operational Functionality

This criterion assesses whether an alternative would potentially introduce airfield operational problems. The principal concern, pursuant to federal advisory circulars, orders, regulations, and design guidelines, is whether an alternative would introduce conflicts for the movement of aircraft or create safety hazards for aircraft, employees, or passengers. Alternatives that would not introduce potential conflicts or hazards are considered to be more viable than those that would.

4.2.3 Factor 3 Screening: Environmental Impacts

The Factor 3 Screening process focused on minimizing the impacts to environmental resources known to exist at the Airport. Although it is known that there may be other environmental resources that could be affected by the implementation of the Proposed Project, the six resources identified below are subject to laws and regulations that have requirements for the avoidance and minimization of project-related impacts or are known to be present at the Airport. Therefore, the focus of Factor 3 Screening is on evaluating whether an alternative would avoid these potential environmental effects.

4.2.3.1 Air Quality

The Factor 3 Screening evaluates the potential for each alternative to affect air quality standards. Those alternatives with the potential for impacts that are less than significant were considered more viable than those with the potential to violate air quality standards.

4.2.3.2 Greenhouse Gas (GHG) Emissions

The Factor 3 Screening evaluates each of the alternatives based on the potential to result in significant impacts related to GHG emissions. Those alternatives with the potential for impacts that are less than significant were considered more viable than those with the potential to generate GHG emissions above those described for the Proposed Project.

4.2.3.3 Special-Status Species

The Factor 3 Screening evaluates the potential for each alternative to affect special-status species and/or their habitat. Those alternatives with the potential for no effects or fewer effects to special-status species were considered more viable than those with the potential to generate greater effects to such species.

4.2.3.4 Historic Resources

The Factor 3 Screening evaluates each of the alternatives based on the potential to result in direct or indirect effects to historic resources. Those alternatives with the potential for no effects or fewer effects to historic resources were considered more viable than those with the potential to generate greater effects to historic resources.

4.2.3.5 Wetlands

The Factor 3 Screening evaluates each alternative based on its potential effect on wetlands and the potential magnitude of that impact. Those alternatives with the potential for no or fewer effects to wetlands were considered more viable than those with the potential to generate greater effects to wetlands.

4.2.3.6 Coastal Resources

The Factor 3 Screening evaluates the potential for each alternative to affect coastal resources under the jurisdiction of the Bay Conservation and Development Commission (BCDC). Those alternatives with the potential for no effects or fewer effects to coastal resources were considered more viable than those with the potential to generate greater effects to coastal resources.

4.3 ALTERNATIVES DEVELOPMENT AND SCREENING

A total of eight alternatives, including the No Project, were evaluated against the screening factors. These include on-Airport terminal development areas, on-Airport environmental avoidance alternatives, and off-Airport alternatives.

4.3.1 Terminal Development Area Alternatives

Three on-Airport terminal development areas,³⁵⁸ as identified in the OAK Master Plan (2006),³⁵⁹ were considered and are shown in **Figure 4-1**.

- Terminal Development Area A is located in the Central Basin, south of Ron Cowan Parkway, north of Taxiway W, and west of the existing FedEx cargo facility
- Terminal Development Area B is located between Taxiway B and the existing Terminal 1, extends from Taxiway T and Ron Cowan Parkway, and includes the Oakland Maintenance Center (OMC) Hangar area
- Terminal Development Area C is located east of the existing Terminal 2 and the main parking lot, extends from Taxiway W to the existing fuel farm, and is largely within San Francisco Bay

4.3.2 Environmental Avoidance Alternatives

Two on-Airport environmental avoidance alternatives also were considered, specifically:

- Retain Terminal 1 Ticketing and Baggage Claim Building (M101)
- Use of Hardstands with No New Terminal

4.3.3 Off-Airport Alternatives

In addition to the on-Airport alternatives, the Port considered alternatives that are outside its jurisdiction. The off-Airport alternatives include:

- Develop New Airport Site in the Region and Close OAK
- Relocate Operations to an Existing Airport and Close OAK

³⁵⁸ The terminal development areas were identified as Terminal Development Area 1, Terminal Development Area 2, and Terminal Development Area 3 in the Master Plan, but are identified as Terminal Development Area A, Terminal Development Area B, and Terminal Development Area C, respectively, in the EIR to avoid confusion with Terminal 1 and Terminal 2.

³⁵⁹ Port of Oakland. (2006. March). *Oakland International Master Plan*. Retrieved April 2023, from: <https://www.oaklandairport.com/development/master-plan/documents/>.

FIGURE 4-1
TERMINAL DEVELOPMENT AREAS



Source: Port of Oakland, 2006

TABLE 4-1
ALTERNATIVES SCREENING PROCESS

Factor		Alternatives							
		No Project Alternative	Terminal Development Area A	Terminal Development Area B (Proposed Project)	Terminal Development Area C	Retain Terminal 1 Ticketing and Baggage Claim Building (M101)	Use of Hardstands with No New Terminal	Develop New Airport Site in the Region and Close OAK	Relocate Operations to an Existing Airport and Close OAK
Factor 1: Meeting Project Objectives	Does the alternative meet the project objectives?	NO	YES	YES	YES	NO	NO	YES	NO
Factor 2: Constructability, Cost, Level of Service, and Airfield Operational Functionality	Can adverse constructability issues be avoided?	YES	NO	YES	YES	NO	YES	NO	NO
	Is the cost to implement reasonable when meeting project objectives?	YES	NO	YES	NO	NO	YES	NO	NO
	Can a potential for adverse effects to the current level of service be avoided?	NO	YES	YES	YES	NO	NO	NO	NO
	Can potential for adverse effects to the operational functionality of the Airport be avoided?	NO	NO	YES	NO	NO	NO	NO	NO
	Can potential for adverse effects to the operational functionality of the Airport be avoided?	NO	NO	YES	NO	NO	NO	NO	NO
Factor 3: Environmental Impacts (are the impacts the same or less than the Proposed Project?)	Air Quality	YES	YES	YES	YES	YES	YES	Unknown	Unknown
	GHG emissions	YES	YES	YES	YES	YES	YES	Unknown	Unknown
	Special-status species	YES	NO	YES	NO	YES	YES	Unknown	Unknown
	Historic resources	YES	YES	YES	YES	YES	YES	Unknown	Unknown
	Wetlands or other waters of the U.S.	YES	NO	YES	NO	YES	YES	Unknown	Unknown
	Coastal resources	YES	YES	YES	NO	YES	YES	Unknown	Unknown
Analyze in EIR?		YES	NO	YES	NO	NO	NO	NO	NO

All of these alternatives were evaluated as part of the screening process. **Table 4-1** provides a summary of all alternatives considered in this Draft EIR and the results of the alternatives screening process.

4.4 ALTERNATIVES CONSIDERED BUT SCREENED FROM FURTHER REVIEW

This section provides an overview of the reasons why these alternatives were screened from further consideration. The results of the screening analysis are shown in **Table 4-1**.

4.4.1 Terminal Development Area A

This alternative would include new facilities with an independent system of airside, terminal and landside infrastructure within Terminal Development Area A, which is in the Central Basin on Airport property and is currently undeveloped. The existing terminal complex could then be redeveloped. As identified in the Master Plan, development of a new terminal complex in Terminal Development Area A would involve extensive site preparation, including a large amount of fill, grading, and soil preparation; however, since the area is undeveloped, minimal disruption would occur to existing operations.

Although concepts in Terminal Development Area A could meet the project objectives outlined as Factor 1 Screening criteria, this alternative does not meet all Factor 2 Screening criteria. In terms of constructability, this alternative would raise difficult permitting issues due to the extensive wetlands fill required and would lengthen the construction period. This alternative would have high costs due to the filling of a large area of wetlands that are present in the Central Basin, the amount of fill and soil preparation required to construct in the area, the required mitigation for the impacts to the wetland, and the additional alignment that would be needed to connect to Bay Area Rapid Transit (BART) facilities. Additionally, there would be operational issues resulting from having two separate and distinct terminal operations areas, requiring duplication of services and facilities and more complicated wayfinding for airline passengers, which could have the effect of lowering the level of service.

With respect to Factor 3 Screening criteria, this alternative would have similar air quality, GHG emissions, historic resources, and coastal resources impacts as that described for the Proposed Project. However, this alternative would result in impacts to special-status species and wetlands that are of a greater magnitude than that of the Proposed Project.

Therefore, although this alternative would meet Factor 1 Screening criteria, it would not meet Factor 2 or Factor 3 Screening criteria and is screened out from further review.

4.4.2 Terminal Development Area C

The concepts within Terminal Development Area C would expand existing Terminal 2 to the south and/or east to provide additional gates and airside, terminal, and landside improvements. Concepts in this area would involve extensive site preparation, including a large amount of fill in San Francisco Bay.

The expansion of existing Terminal 2 could meet the project objectives outlined as Factor 1 Screening criteria, this alternative does not meet all Factor 2 Screening criteria. However, in order to provide additional terminal facilities, gates, taxilanes, and landside access,

development would extend into San Francisco Bay. This alternative would have high costs due to an estimated 30 acres or more of new Bay fill required to prepare the site for development. Constructing within San Francisco Bay would result in this alternative not meeting all Factor 2 Screening criteria; it is unlikely the Bay Conservation and Development Commission and the State Lands Commission would authorize Bay fill for this purpose, and if permission could be obtained, mitigation and construction costs would likely be prohibitive.

With respect to Factor 3 Screening criteria, this alternative would have similar air quality, GHG emissions, and historic resources impacts as that described for the Proposed Project. However, this alternative would result in impacts to special-status species, wetlands, and coastal resources that are of a greater magnitude than that of the Proposed Project.

Therefore, although this alternative would meet Factor 1 Screening criteria, it would not meet Factor 2 or Factor 3 Screening criteria and is screened out from further review.

4.4.3 Retain Terminal 1 Ticketing and Baggage Claim Building (M101)

This alternative is included because CEQA regulations require evaluation of an alternative that avoids identified significant impacts of the Proposed Project and this alternative avoids a potentially significant unavoidable adverse impact to historic resources. Given that the market-based demand would occur at the Airport with or without construction of the Proposed Project, there is no potential avoidance alternative for air quality and greenhouse gas (GHG) operational emissions as the emissions are result of aircraft activity. Impacts to wetlands and other waters of the U.S. would still occur as the enabling project components would still occur to accommodate relocated parking and taxiway improvements. The only other potentially significant and unavoidable impact of the Proposed Project would result from an adverse effect determination due to the demolition of Terminal 1 ticketing and baggage claim building (M101), which is eligible for listing on the NRHP. An alternative that would avoid an adverse effect determination for historic resources would maintain the historic integrity of Terminal 1, while retrofitting it to meet current seismic and fire code standards. In order to maintain the historic integrity of Terminal 1, the Terminal 1 ticketing and baggage claim building with its scalloped roof structure (M101), and the two-story portion of Terminal 1 (M102) would need to remain intact and be largely unaltered.

The Terminal 1 ticketing and baggage claim building (M101) would require retrofitting to meet current seismic and fire code standards if it is to be occupied. However, simply upgrading Terminal 1 to meet current codes would be inadequate to meet Factor 1 Screening criteria. The shallow depth of the Terminal 1 ticketing and baggage claim building (M101) does not accommodate modern passenger and airline processing areas, including airline check-in operations and in-line baggage screening system required to meet TSA standards. The option of expanding Terminal 1 toward the airside to achieve these minimum requirements of current functions would be restricted by site conditions, such as grade differences, airside operations, and other existing support facilities and operations. The option of expanding Terminal 1 toward the roadways would negatively affect roadway operations and would effectively block the visibility of the historic roofline that this option endeavors to retain. Because a retrofit and expansion cannot be accomplished in a manner that would both support operations and maintain its attributes as a historic resource, this alternative would not avoid a significant impact to historic resources. There would be an

adverse effect on the level of service provided to the traveling public and to operational functionality (Factor 2 Screening criteria).

With respect to Factor 3 Screening criteria, this alternative would have similar air quality, GHG emissions, special-status species, and wetlands impacts as the Proposed Project. However, this alternative would avoid significant impacts to historic resources.

Although this alternative would meet Factor 3 Screening criteria, it does not meet Factor 1 and Factor 2 Screening criteria and is screened out from further review.

4.4.4 Use of Hardstands with No New Terminal

The Proposed Project has been developed to meet existing and projected demand at the Airport. As shown in **Table 2-2**, the gap analysis prepared for OAK determined the need for 33 total aircraft gates in order to meet industry standards for planning activity level (PAL) 1 of 17.6 million annual passengers (MAP) and 45 total aircraft gates to meet industry standards for PAL 2 of 24.7 MAP. The Proposed Project would result in up to 45 aircraft gates to meet PAL 2 activity with adequately sized passenger and baggage processing areas.

As documented in **Appendix D**, OAK in its current layout could accommodate the projected demand through the use of remote hardstands. One or two gates of the existing terminal would be reconfigured to provide space for passengers to access a busing operation that would travel between the terminal and hardstands. However, the conditions for passengers would be congested and the operation would involve busing passengers to remote aircraft parking positions for some flights. This would increase passenger travel times and congestion in the terminals, and result in poor levels of service. This alternative would require ground loading of aircraft and would add travel time and inconvenience for passengers. It would also result in increased vehicular traffic on the apron for passenger buses and ground support equipment and would introduce additional complexities and inefficiencies to airline operations at the Airport.

Therefore, this alternative would not meet Factor 1 or Factor 2 Screening criteria because it would not provide new and modernized facilities that are sized to accommodate market-based passenger demand at industry-standard levels of service and would have an adverse effect on airfield operational functionality.

With respect to Factor 3 Screening criteria, this alternative would not have the historic resource impacts, beyond retrofitting to meet current seismic and fire code standards, described for the Proposed Project but would have similar air quality and GHG emissions impacts as the Proposed Project.

Although this alternative would meet Factor 3 Screening criteria, it does not meet Factor 1 and Factor 2 Screening criteria and is screened out from further review.

4.4.5 Develop New Airport Site in the Region and Close OAK

This alternative would develop a new airport at another location in the San Francisco Bay area and close OAK. Developing a new airport and closing OAK is only evaluated hypothetically since no location, or even the desire for such a location, has been identified by the FAA or the Association of Bay Area Governments (ABAG) / Metropolitan Transportation Commission (MTC). There is insufficient land available within the Port's

jurisdiction to develop a new airport that meets the market-based demand. In addition, this alternative would violate the conditions encumbered on the Port when accepting grant funding from the FAA for past Airport development.

While it is reasonable to assume that developing a new airport and closing OAK could meet the project objective of providing new and modernized facilities that are sized to accommodate some portion of Bay Area market-based passenger demand at industry-standard levels of service, it would be speculative to assume that the market-based passenger demand met by OAK would be met by a new airport. In addition, the constructability issues and cost of doing so would be prohibitive, resulting in this alternative not meeting Factor 2 Screening criteria.

With respect to the Factor 3 Screening criteria, this alternative would have similar air quality and GHG emissions impacts. However, without specific plans for accommodating the market-based passenger demand met by OAK, it is unknown as to whether impacts to special-status species, historic resources, wetlands, or coastal resources would be of greater magnitude than those described for the Proposed Project. In addition, development of a new airport also could have noise impacts in a community that does not currently experience aircraft overflights.

Therefore, although this alternative would meet Factor 1 Screening criteria, it would not meet Factor 2 or Factor 3 Screening criteria and is screened out from further review.

4.4.6 Relocate Operations to an Existing Airport and Close OAK

This alternative would relocate operations at OAK to other airports in the region, such as San Francisco International Airport (SFO), San José Mineta International Airport (SJC), Sacramento International Airport (SMF), and/or Stockton Metropolitan Airport (SCK). As with relocating OAK to a new location, this alternative is hypothetical because the Port does not have the ability to dictate to an airline the airport at which it operates. In addition, this alternative would violate the conditions encumbered on the Port when accepting grant funding from the FAA for past Airport development.

Since SFO, SJC, SMF, and SCK forecasts have not taken into account absorbing all of OAK's operations, it is unlikely that these airports would be able to accommodate OAK's market-based demand at the industry-standard level of service, which would result in this alternative not meeting the project objectives (Factor 1 Screening criteria). Additionally, there would likely be an adverse effect on the level of service provided to the traveling public (Factor 2 Screening criteria) resulting in this alternative being screened out. Finally, regional studies have shown that air passenger activity in Northern California needs the support of all airports (SFO, SJC, OAK, SMF, and SCK) to accommodate long-term projections.

With respect to Factor 3 Screening criteria, this alternative would have similar air quality and GHG emissions impacts. However, without specific plans for accommodating the market-based passenger demand met by OAK, it is unknown as to whether impacts to special-status species, historic resources, wetlands, or coastal resources would be of greater magnitude than those described for the Proposed Project.

Therefore, although this alternative would meet Factor 1 Screening criteria, it would not meet Factor 2 or Factor 3 Screening criteria and is screened out from further review.

4.5 ALTERNATIVES EVALUATION

The Proposed Project has been studied extensively over the past 20 years through documents such as the Airport Development Plan and associated CEQA process, terminal concept planning based on the 2006 Master Plan, and the Terminal 1 Renovation and Retrofit studies. None of the alternatives analyzed in **Section 4.4** can both meet all project objectives and reduce environmental impacts.

4.5.1 No Project Alternative

The No Project Alternative would consist of no new and modernized facilities at the Airport including no expanded facilities beyond those that currently exist or are already under construction. The Terminal 1 ticketing and baggage claim building (M101) would continue to not meet current seismic and fire protection requirements and would not be configured to accommodate new technologies and passenger airline operational needs.

Although the No Project Alternative would consist of no new, expanded, or modernized facilities, operation levels at the Airport are forecast to continue to increase above the 2019 existing conditions, as discussed in **Chapter 2**. Without any development of a new terminal, the existing terminals, gates, and aprons could accommodate the market-based demand but not at the industry-standard levels of service. Congestion during times of peak activity would degrade the passenger level of service experienced within multiple terminal functions including the check-in halls, holdrooms, baggage screening, outbound and inbound baggage handling, baggage claims, and the international arrivals facilities. Gates and aprons would operate with increasing inefficiencies due to gate constraints and changes to fleet mix. Additionally, the Terminal 1 ticketing and baggage claim building (M101) would not be upgraded to meet current seismic and fire code requirements. This alternative would fail to achieve project objectives.

4.5.1.1 Environmental Impacts

No construction as identified with the Proposed Project would occur under the No Project Alternative, so no construction-related environmental impacts would occur. Because the activity levels at the Airport would be the same under the No Project Alternative as for the Proposed Project, environmental impacts associated with aircraft operations would be similar if not identical.

AESTHETICS

The aesthetics associated with the No Project Alternative would be the same as those described for the existing conditions and no scenic vistas, scenic resources, or visual character in the Airport vicinity would be affected. The Proposed Project would result in minor temporary construction impacts to aesthetics and visual resources, but such impacts would not be significant. As discussed in **Section 3.2, Aesthetics**, the Proposed Project would not have a substantial adverse effect on a scenic vista; substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway; conflict with applicable zoning and other regulations governing scenic quality; or create a new source of substantial light or glare which would adversely affect day or nighttime views in the area. As such, implementation of the Proposed Project would result in less than significant impacts related to aesthetics.

AIR QUALITY

The majority of emissions associated with operations would result from aircraft operations and GAVs, the level of which would occur with or without implementation of the Proposed Project. The No Project Alternative could result in an additional increase in aircraft emissions due to idling while waiting for a gate to become available. Therefore, as with the Proposed Project, under the No Project Alternative impacts to air quality are considered to be significant and unavoidable (see **Section 3.3, Air Quality**). Similar to the Proposed Project, the No Project Alternative would not have any significant impacts regarding cancer or non-cancer health risks.

BIOLOGICAL RESOURCES

Under the No Project Alternative, no impacts to biological resources would occur. The No Project Alternative would avoid any potential construction effects to long-styled sand spurrey, Western burrowing owl, Northern harrier, white-tailed kite, American peregrine falcon, salt marsh common yellowthroat, Alameda song sparrow, California black rail, California Ridgway's rail, and black skimmer. The No Project Alternative would also avoid affecting wetlands and other waters of the U.S. and potential habitat for protected species under Endangered Species Act.

CULTURAL AND TRIBAL RESOURCES

Under the No Project Alternative, the Terminal 1 ticketing and baggage claim building (M101), which is eligible for listing on the NRHP, would not be demolished and parking would not be relocated to other sites. There would be no potential to unexpectedly encounter any tribal resources during construction.

GEOLOGY AND SOILS

No disturbance of soils or substantial erosion would occur under the No Project Alternative. The potential to expose people or structures to risk related to seismic hazards would be higher under the No Project Alternative than the Proposed Project because Terminal 1 ticketing and baggage claim building (M101) is not up to current seismic or fire safety standards.

GREENHOUSE GAS EMISSIONS

Similar to air quality, the No Project Alternative GHG emissions account for future growth in passenger throughput and increased aircraft operations, the level of which would occur with or without implementation of the Proposed Project. No increase in energy consumption related to stationary sources would occur because there would be no increase in square footage of the terminals.

HAZARDS AND HAZARDOUS MATERIALS

The No Project Alternative would not result in future disturbance of hazardous materials at the Airport. In addition, Terminal 1 and the OMC Hangar would not be demolished, so remediation in relation to known asbestos-containing materials (ACM) or lead based paint, both of which are known to be present in both buildings, would not be disturbed or require remediation. Existing use of petrochemical and chemical products such as avgas, Jet A, solvents, cleaning products, and other various lubricants would continue and would be the same under the No Project Alternative as under the Proposed Project due to the increase in aircraft operations under either alternative. Handling and disposal of these materials and

other potentially hazardous materials would comply with federal, county, and local regulations.

HYDROLOGY AND WATER QUALITY

Under the No Project Alternative, there would be no ground surface alterations or modifications that would change drainage patterns associated with the Airport drainage system and watersheds. In addition, the groundwater basin would not be disturbed or altered.

LAND USE AND PLANNING

As with the Proposed Project, no land use compatibility issues would occur. The Airport would continue to operate under the existing land use plans and policies.

NOISE

Under the No Project Alternative, the 65 dB Community Noise Equivalent Level (CNEL) contour from 2019 to 2028 and 2038 is projected to increase, which would occur whether the Proposed Project is constructed or not (refer to **Section 3.11, Noise and Vibration**). This projected increase is due to the volume of aircraft activity that is forecast to increase. Under the No Project Alternative for the year 2019, 3,380.9 acres would be within the 65 dB CNEL noise contour, for the year 2028, 3,524.9 acres would be within the 65 dB CNEL noise contour, and for the year 2038, 3,731.3 acres would be within the 65 dB CNEL noise contour. There are no residences inside the 65 dB CNEL contour for any of the analysis years. This impact is the same as under the Proposed Project and is less than significant. Under the No Project Alternative, there would be no construction-related noise impacts.

PUBLIC SERVICES

Under the No Project Alternative, there would be no change in demand for fire protection services or school services. Demand for police protection services under the No Project Alternative would be similar to that of the Proposed Project because both would accommodate the market-based passenger demand.

TRAFFIC AND TRANSPORTATION

Under the No Project Alternative, vehicle miles traveled (VMT) is expected to decrease in 2028 and 2038 due to increased transit access to OAK and increased average vehicle occupancy for people traveling to OAK. This reduction in VMT would be the same under the Proposed Project (see **Section 3.13, Transportation**).

UTILITIES AND SERVICE SYSTEMS

Under the No Project Alternative, new water facilities or the expansion of existing water facilities would not be needed. Water usage, wastewater generation, and solid waste generation would increase slightly due to the forecast commercial air passenger levels under either the No Project Alternative or the Proposed Project.

CUMULATIVE IMPACTS

The No Project Alternative would not contribute considerably to any cumulative impacts related to aesthetics, biological resources, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, land use and planning, noise, public services, traffic and transportation, or utilities and service systems. However, the No

Project Alternative, similar to the Proposed Project, could contribute to cumulative air quality and GHG operational emissions impacts in the Airport vicinity because of market-based demand that would occur with or without the Proposed Project.

4.5.1.2 Ability to Meet Project Objectives

The No Project Alternative would not provide new and modernized facilities that are sized to accommodate market-based passenger demand at industry-standard levels of service and would not bring Terminal 1 up to current seismic and fire protection requirements.

Therefore, the No Project Alternative does not meet the project objectives. However, this alternative is being retained for further consideration as required by CEQA to serve as the environmental baseline for the evaluation of the other alternatives.

4.5.2 Proposed Project

The concepts developed in Terminal Development Area B proposed constructing a new terminal north of existing Terminal 1. Concepts looked at various locations for the new terminal within this development area as well as explored what components of the existing terminal to relocate. These concepts eventually became the Proposed Project as described in **Chapter 2**.

The Proposed Project meets all five of the project objectives and passes the three factors of screening criteria.

4.6 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

An EIR is required to identify the environmentally superior alternative, that is, the alternative having the potential for the fewest significant environmental impacts, from among the range of reasonable alternatives that are evaluated.

The environmentally superior alternative is the No Project Alternative. It would have the fewest environmental impacts but would not meet any of the project objectives.

The CEQA Guidelines require that if the No Project Alternative is the environmentally superior alternative, another alternative must also be identified as the environmentally superior alternative. Therefore, the Proposed Project is the environmentally superior alternative. All but two of the significant impacts can be reduced to less than significant with the Proposed Project, one of which (Air Quality) would also occur under the No Project Alternative. Further, the alternatives that did meet the Factor 1 Screening criteria, specifically the Terminal Development Areas A and C, would have resulted in greater impacts to biological resources, wetlands, and/or coastal resources compared to the Proposed Project. Therefore, the Proposed Project is considered to be the environmentally superior alternative because it meets the five objectives outlined in **Chapter 2** with the least amount of environmental impact.

CHAPTER 5

IMPACT OVERVIEW

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5.1 SIGNIFICANT AND UNAVOIDABLE ADVERSE IMPACTS

As required by Section 15126.2(b) of the California Environmental Quality Act (CEQA) Guidelines, this section identifies impacts of the Proposed Project that could not be eliminated or reduced to a less-than-significant level with the incorporation of mitigation measures identified in the Draft Environmental Impact Report (EIR).

The potential impacts associated with the Proposed Project are described in detail in **Chapter 3**. The following significant and unavoidable impacts would occur with the Proposed Project:

- Operational air quality emissions (ROG and NOx) (increased aviation activity)
- Operational 8-hour chronic non-cancer human health hazard effects for on-Airport workers (increased aviation activity)
- Operational greenhouse gas (GHG) emissions (increased aviation activity)
- Demolition of Terminal 1 historic resource

Mitigation measures have been identified to reduce these impacts where feasible. However, even with the implementation of these mitigation measures, these impacts would still be considered significant and unavoidable.

All other potentially significant impacts of the Proposed Project would be reduced to a less-than-significant level with the implementation of mitigation measures identified in the EIR.

5.2 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

Section 15126.2(c) of the CEQA Guidelines requires that significant irreversible environmental changes caused by a project be addressed in an EIR. Specifically, the EIR must consider whether “uses of non-renewable resources during the construction and operational phases of the project may be irreversible since a large commitment of such resources makes removal or non-use thereafter unlikely” or whether land use changes would permanently restrict any future development. A discussion of such changes is described below.

The Proposed Project would require the use of fuels and energy resources such as electricity, natural gas, and transportation-related fuels to perform all activities associated with construction and operation of the Proposed Project (refer to **Section 3.15, Energy, Utilities, and Service Systems**, for a discussion of energy impacts). As described in **Section 3.15**, there are sufficient resources to serve the Proposed Project and existing initiatives, regulations, and sustainability measures regarding non-renewable resources would ensure that resources are used efficiently. However, the use of non-renewable resources associated with construction and operation of the Proposed Project would be considered an irreversible effect.

5.3 GROWTH-INDUCING IMPACTS

This section discusses the ways in which the Proposed Project could foster economic or population growth. Growth-inducing impacts are caused by those characteristics of a project that tend to foster or encourage population and/or economic growth. Inducements to growth include the generation of construction and permanent employment opportunities in the support sector of the economy. A project could also induce growth by lowering or

removing barriers to growth or by creating an amenity that attracts new population or economic activity.

In accordance with Section 15126.2(d) of the CEQA Guidelines, an EIR must:

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. Included in this are projects which would remove obstacles to population growth. Increases in the population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects. Also discuss the characteristics of some projects which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.

Two issues must be considered when assessing the growth-inducing impacts of the Proposed Project:

- Elimination of obstacles to population growth: The extent to which additional infrastructure capacity or a change in regulatory structure would allow additional development in the Airport vicinity; and
- Promotion of economic growth: The extent to which the Proposed Project can cause increased activity in the local or regional economy. Economic impacts can include direct effects, such as the direction and strategies implemented within the Airport vicinity, and indirect or secondary impacts, such as increased commercial activity needed to serve the additional population projected from the Proposed Project.

5.3.1 Elimination of Obstacles to Population Growth

The elimination of either physical or regulatory obstacles to population growth is considered to be a growth-inducing impact. A physical obstacle to population growth typically involves the lack of public service infrastructure. The extension of public service infrastructure, including roadways, water mains, and sewer lines, into areas not currently provided with these services is expected to support new development. Similarly, the elimination of or change to a regulatory obstacle, including existing growth and development policies, can result in new population growth.

The Proposed Project neither extends public service infrastructure into new areas nor eliminates or changes a regulatory obstacle that could result in new population growth. Current County of Alameda and local land use plans and policies are the guiding force on whether future business and residential growth can be accommodated by the existing infrastructure facilities and services within the general study area. Development at the Airport is not directly related to future development and growth potential within the general study area. The Proposed Project does not include the development of new housing or population-generating uses or infrastructure that would directly encourage such uses. Instead, Airport development, and specifically the Proposed Project, is designed to accommodate the projected demand for airline passengers up until 2038 (see **Appendix C** for forecasts).

5.3.2 Growth Inducement

Growth inducement may constitute an adverse impact if the growth is not consistent with the land use and growth management policies for the local jurisdictions. The increase in passengers could result in additional economic growth in the Airport vicinity. Because the increase in passengers would occur whether or not a replacement passenger terminal is developed, no indirect effect of growth would occur in the Airport vicinity.

The Proposed Project would create new short- and long-term employment opportunities. During construction, design, engineering, and construction-related jobs would be created. This would be a temporary situation, lasting until construction is completed. Construction workers would likely come from the existing large labor pool within the Bay Area and would not result in new workers relocating to the area.

Similarly, the increase in employment needs from operation of the Proposed Project is not expected to result in population growth or relocation because of the large size of the workforce that currently exists in the Bay Area. Given the size of the existing labor pool and the prevalence of commuting by workers between their places of work and places of residence, it is unlikely that workers would change their place of residence in response to the Proposed Project. Alameda County and other local plans already anticipate the amount of growth and development that is planned. Build out of the Proposed Project is not expected to encourage any development or growth in addition to, or in conflict with, the adopted plans.

5.4 CUMULATIVE IMPACTS

According to Section 15130 of the CEQA Guidelines, an EIR shall discuss the cumulative impacts of a Proposed Project. A cumulative impact consists of an impact that is created as a result of the combination of the Proposed Project evaluated in the EIR together with other projects causing related impacts.

There are a variety of existing and reasonably foreseeable projects in the Airport vicinity (see **Table 5-1** and **Figure 5-1**). The cumulative impact study area was determined by starting with the general study area and expanding to include East Oakland as it has been designated as a priority community under California State Assembly Bill 617 (AB 617). AB 617 was signed into law in 2017 to promote more community participation in reducing the levels of and exposure to air pollution in order to improve public health.

5.4.1 Aesthetics

The Proposed Project includes project components that would be visible from public roadways including the demolition of the OMC hangar and the construction of the new terminal and other support buildings. The general view would continue to be of an airport and of aviation activity. As a result, the Proposed Project would have a less than significant impact to scenic vistas, would not substantially damage scenic resources, would not conflict with applicable zoning and other regulations governing scenic quality, and would not create a new source of substantial light or glare. Therefore, the Proposed Project would not contribute to any cumulative impacts to aesthetics.

TABLE 5-1
CUMULATIVE PROJECTS

Figure Reference Number	Project	Project Location	Project Description	Project Type	Construction Year(s)
<i>On Airport Projects</i>					
1	Airport Perimeter Dike – Seismic	Airport Property	Seismic improvements to enhance a 4.5-mile-structure separating the airfield from San Francisco Bay waters.	Infrastructure	2025-2026
2	Curbside/Rental Car Center CCTV Install	Airport Property	Expand the Airport's video surveillance systems by installing CCTV equipment at several landside locations, including public parking lots, rental car centers, and terminal curbside areas.	Infrastructure	2025-2026
3	Main Parking Bowl Rehab	Airport Property	Rehabilitate the pavement at the existing main parking bowl, which is the primary public parking lot at the Airport.	Infrastructure	2026-2028
4	Landside/Curbside Paving	Airport Property	Repave existing curbside roadway system.	Infrastructure	2026-2028
5	Large Trash Capture Device Installation	Airport Property	Installation of large trash capture devices.	Infrastructure	2024
6	North Field Tidal Improvements	Airport Property	Connect higher ground with sheet pile flood walls to address North Field tidal flooding vulnerabilities.	Infrastructure	2026-2028
7	Taxiway W Rehabilitation	Airport Property	Mill and overlay and mark pavement on 2,700 feet of Taxiway W.	Airfield	2025-2026
8	Runway 28L Rehab	Airport Property	Rehabilitate sections of pavement on Runway 28L.	Airfield	2025-2028

Figure Reference Number	Project	Project Location	Project Description	Project Type	Construction Year(s)
9	Airfield Geometric Improvements in North Field	Airport Property	Modify and update pavement layouts for the North Field and South Field.	Airfield	2026-2028
10	M103 Roof/HVAC	Airport Property	Address air handlers and roof replacements needed at the Terminal 1 concourse (M103).	Buildings	2025
11	Terminal 1 Restroom Upgrades	Airport Property	Upgrade Terminal 1 restrooms to address the stress on aging restroom facilities and maintain restrooms to acceptable standards.	Buildings	2025
12	Passenger Boarding Bridge Replacement	Airport Property	Replace existing boarding gates that are reaching the end of their useful service life.	Buildings	2025-2030
13	Substations SS1 and S2 North Field	Airport Property	Assess, rehabilitate, and replace aging substations, switchgears, and distribution systems.	Utilities	2025-2028
14	New Substation SSEV-1, North Field	Airport Property	Upgrade aging substation and associated electrical equipment to support the expanded electric bus fleet funded by the Zero Emissions Vehicles (ZEV) grant.	Utilities	2025-2026
15	South Field, Airport Drive, and North Field Sewer Line Improvements	Airport Property	Repair and replace the aging sewer lines at the Airport in South Field, Airport Drive, and North Field.	Utilities	2025-2026

Figure Reference Number	Project	Project Location	Project Description	Project Type	Construction Year(s)
16	Post Construction Stormwater Controls	Airport Property	Construct post construction stormwater controls pursuant to National Pollutant Discharge Elimination System General Permit for Wastewater Discharge Requirements for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems	Utilities	2024-2025
17	Pump House 7 Upgrade Construction	Airport Property	Construct upgraded Pumphouse 7.	Utilities	2025-2026
18	Pump House 2 Upgrade Construction	Airport Property	Construct upgraded Pumphouse 2.	Utilities	2026-2028
19	Pump House and Sewer Work ^{a/}	Airport Property	Construct and rehabilitate existing sewer.	Utilities	2028-2030
20	Substation Construction, North Field, and South Field (New)	Airport Property	Install additional substation for electric vehicle charging (SSEV) in North Field, and an additional SSEV in the parking bowl in South Field.	Utilities	2028-2030
<i>City of Alameda Projects</i>					
21	Clement Ave Extension/Tilden Way	Clement Avenue, Alameda	Bikeway, walkway, and road diet; extend westbound Clement Avenue; develop open space and stormwater gardens; construct bus stop improvements, a dog park, and a roundabout at the Blanding/Tilden/Fernside intersection.	Infrastructure	2024-2025

Figure Reference Number	Project	Project Location	Project Description	Project Type	Construction Year(s)
22	Clement Avenue Safety Improvement	Clement Avenue, Alameda	Bikeway and curb extensions, stop signs, sidewalk / curb ramp improvements, and railroad track removal along Clement Avenue.	Infrastructure	2023-2024
23	Mecartney Road / Island Drive Improvement Project	Mecartney Road / Island Drive, Alameda	Construct roundabout at the intersection of Mecartney Road and Island Drive.	Infrastructure	In planning
24	Grand Street Pavement Resurfacing and Safety Improvements		Rehabilitate pavement along Grand Street and install safety improvements such as high visibility crosswalks, flashing beacons for pedestrians at Wood School and at the intersections of Grand Street/San Antonio Avenue and Grand/San Jose Avenue, separated bike lanes, enhanced bus stops by Shore Line Drive and Wood School, and narrower travel lanes to encourage slower vehicle speed.	Infrastructure	2023- 2023
25	Hilton Hotels	1051 Harbor Bay Parkway, Alameda	Construct a five-story, 236-room hotel on an approximately 3.7-acre site.	Buildings	Approved, construction date unknown

Figure Reference Number	Project	Project Location	Project Description	Project Type	Construction Year(s)
26	McKay Wellness Center	620 Central Avenue, Alameda	Demolish two buildings and four accessory buildings and rehabilitate another building within the 3.65-acre Alameda Federal Center in order to construct 90 units of senior housing, a 50-bed 22,950-square-foot medical respite center, a 1,000-square-foot resource center, and a 7,000-square-foot primary care clinic.	Buildings	Approved, construction date unknown
<i>City of San Leandro Projects</i>					
27	Monarch Bay Shoreline Development	Marina, San Leandro	Construct up to 500 housing units, a hotel, restaurants, small retail space, new open space, and an extension of the San Francisco Bay Trail.	Buildings	Still in design
28	Mulford Marina Branch Library Construction	13699 Aurora Dr, San Leandro, CA 94577	Construct a new 2,500-square-foot Marina Mulford branch library.	Buildings	
29	Neptune Drive Shoreline Protection	1600 Neptune Dr, San Leandro, CA 94577	Grade land west of Marina Boulevard and Neptune Drive intersection to match grades on adjacent properties and prevent the 100-year flood water from entering the neighborhood.	Infrastructure	

Figure Reference Number	Project	Project Location	Project Description	Project Type	Construction Year(s)
30	Shoreline Park at the Marina	40 Mulford Point Dr, San Leandro, CA 94577	Design and construct a passive park on the jetties that surround the Marina.	Infrastructure	
31		1091 Doolittle Drive, San Leandro	Expand metal recycler heavy processing facility.	Buildings	Permit application submitted
32		1971 Davis Street, San Leandro	Construct 13,000-square-foot Ridwell Battery Recycling and Transfer Facility.	Buildings	Permit application submitted
33		1700 Doolittle Drive, San Leandro	Construct a 48-foot-tall warehouse/distribution facility on a 3.4-acre lot.	Buildings	Application under review, height exception required
34		880 Doolittle Drive, San Leandro	Demolish existing 213,000-square-foot industrial building, construct 245,000-square-foot industrial building.	Buildings	Permit application submitted

Figure Reference Number	Project	Project Location	Project Description	Project Type	Construction Year(s)
<i>City of Oakland Projects</i>					
35	Oak Knoll Mixed Use Community	8750 Mountain Boulevard, Oakland, CA 94605	Develop Master Planned community on the former Oak Knoll Naval Medical Center, which is approximately 191 acres consisting of 918 residences, 72,000 square feet of neighborhood commercial, 14,000 square feet of civic/commercial use, open space, creek restorations, and trails	Buildings	Under development
36	Hestia, Phase 3	10500 International Boulevard, Oakland, CA 94603	Construct a five-story affordable housing project with 210 affordable homes.	Buildings	Permits approved
37	98th & San Leandro (Madison Park)	921 98th Ave, Oakland, California, 94603	Multi-phase Planned Unit Development that includes seven development parcels and includes 399 residential units and 14,156 square feet of commercial area.	Buildings	2018-ongoing
38		6733 Foothill Boulevard, Oakland, CA 94605	Construct two new, six-story buildings with 533 affordable homes and 10,980 square feet of retail.	Buildings	Approved

Figure Reference Number	Project	Project Location	Project Description	Project Type	Construction Year(s)
39	Oakport Street Project	0 Oakport St, Oakland, California, 94621	Transit-oriented, 16-acre development that would serve as a rent-stabilized hub for a variety of non-profits, a modern warehouse/distribution center with rooftop farm and solar. East Bay Municipal Utility District (EBMUD) EBMUD would use 60,000 square feet to facilitate workforce development and training, and house their 24-hour emergency operations.	Buildings	Applied
40		1100 77th Avenue, Oakland, CA 94621	Construct a new 38,825-square-foot warehouse building.	Buildings	Approved
41		3050 International Boulevard, Oakland, CA 94601	Construct a five-story mixed-use development consisting of 76 affordable units and a dedicated Native American Health and Cultural Center and commercial uses.	Buildings	Approved, building permit application submitted
42	Blossom House	9869 MacArthur Boulevard, Oakland, CA 94605	Remove all existing nursery facilities and construct 29 three-story townhomes.	Buildings	Approved

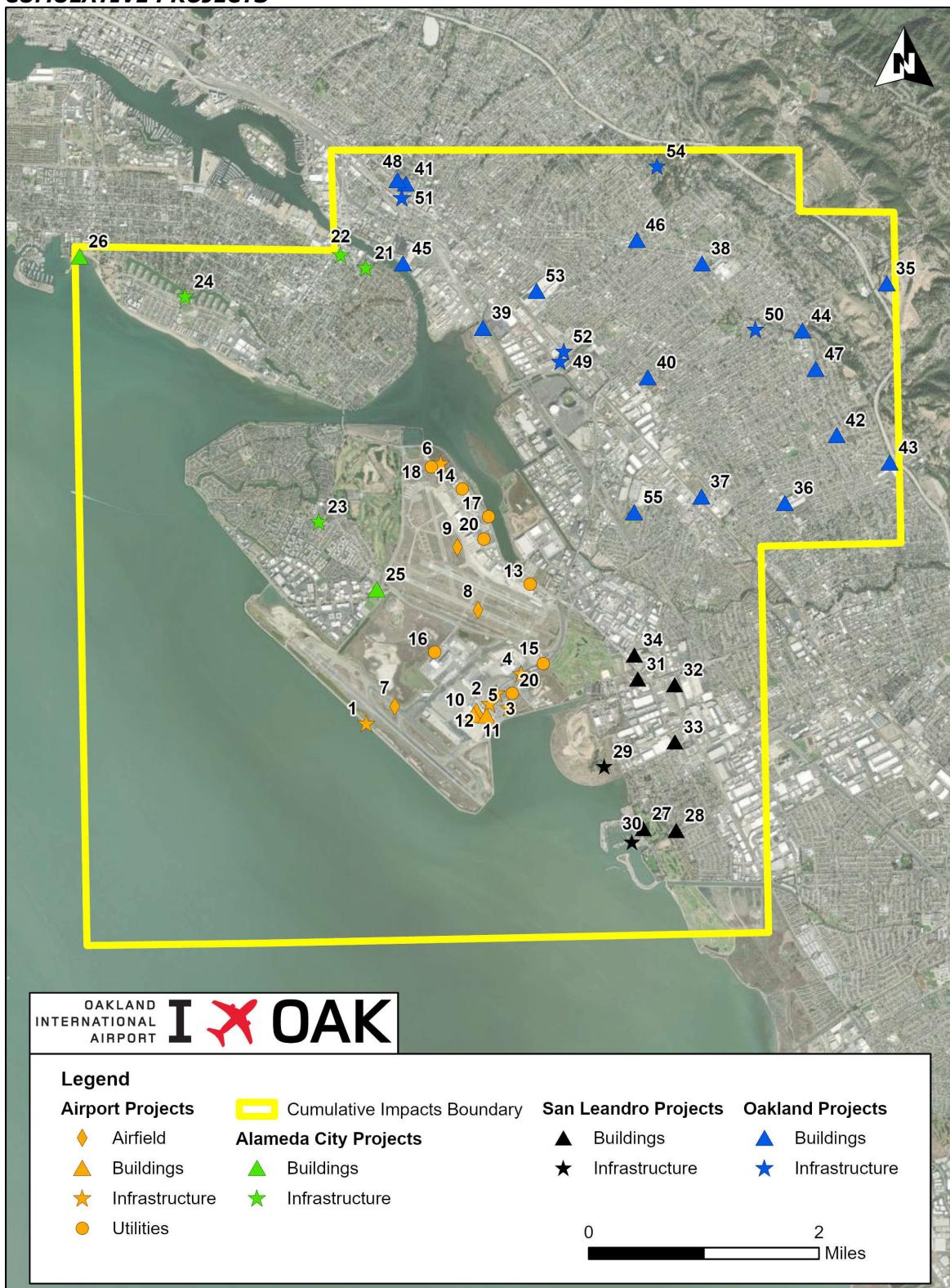
Figure Reference Number	Project	Project Location	Project Description	Project Type	Construction Year(s)
43		10605 Foothill Boulevard, Oakland, CA 94605	Construct a new three-story office building with a ground floor parking garage on a vacant lot.	Buildings	Submitted
44		8425 MacArthur Boulevard, Oakland, CA 94605	Convert an existing school structure and detached building to twenty-eight dwelling units.	Buildings	Approved
45		3600 Alameda Avenue, Oakland, CA 94601	Demolish all existing structures on a 23.9-acre site and construct an approximately 426,022-square-foot, 56-foot-tall building to serve as a distribution warehouse.	Buildings	Undergoing environmental review
46		2611 Seminary Avenue, Oakland, CA 94605	Construct a four-story building with 10,637 square feet of residential use and 1,535 square feet of commercial space.	Buildings	Approved
47		8930 MacArthur Boulevard, Oakland, CA 94605	Construct a six-story 35 residential unit and 40,422 square-foot commercial building on a vacant site.	Buildings	Under review

Figure Reference Number	Project	Project Location	Project Description	Project Type	Construction Year(s)
48		2956 International Boulevard, Oakland, CA 94601	Construct a new five-story building with 100 efficiency residential units on a vacant lot (surface parking).	Buildings	Approved
49	66th Avenue BART to Bay Trail Project	Oakland	Construct pedestrian/bicycle connection between East Oakland and the MLK Jr. Regional Shoreline/Bay Trail.	Infrastructure	In design
50	Bancroft Avenue Greenway	Bancroft Avenue, Oakland	Provide a two mile, low-stress multi-use path on the existing Bancroft Avenue median from 73rd Avenue to 103rd Avenue.	Infrastructure	2023-2030 (planned)
51	East 12th Street Bikeway Project / International Boulevard Bikeway	East 12th Street and International Boulevard, Oakland	Connect Measure DD-funded projects around Lake Merritt to Fruitvale BART and San Leandro Street. The project would occur in six phases and is connected to the AC Transit's Bus Rapid Transit Project.	Infrastructure	Ongoing
52	East Bay Greenway Phase II	San Leandro Boulevard, Oakland	Develop a new segment of the East Bay Greenway which would run parallel to San Leandro Boulevard from Seminary to 69th Avenue.	Infrastructure	2023-2023
53	GE Site Remediation and Redevelopment	5441 International Boulevard, Oakland	Demolish contaminated buildings, remediate the site, and construct a warehouse.	Buildings	Approved

Figure Reference Number	Project	Project Location	Project Description	Project Type	Construction Year(s)
54	Laurel Access to Mills, Maxwell Park and Seminary (LAMMPS)	MacArthur Boulevard, Oakland	Improve safety on MacArthur Boulevard, continue installing a Class I pathway, and extend a safe bicycle and walking trail.	Infrastructure	Planned / awaiting funding
55	Youth and Public Recreation Facilities Projects – East Oakland Aquatic, Sports and Recreation Facility	9175 Edes Ave, Oakland, CA 94603	Construct a 150,000-square-foot facility at Ira Jenkins Park in East Oakland.	Buildings	In planning

/a/ Project #19 is not included in **Figure 5-1** because it would occur throughout the Airport at various locations.

FIGURE 5-1
CUMULATIVE PROJECTS



Source: Port of Oakland, 2023; City of Alameda, 2023; City of Oakland, 2023; City of San Leandro, 2023

5.4.2 Air Quality

All projects identified in **Table 5-1** would be required to implement all Bay Area Air Quality Management District (BAAQMD) basic best management practices (BMPs) and enhanced BMPs, to the extent feasible and applicable. Therefore, construction emissions would not contribute to cumulatively considerable impact.

Operations emissions from the Proposed Project exceed BAAQMD thresholds for criteria air pollutant emissions for oxides of nitrogen (NOx) and reactive organic gases (ROG) during 2028 and 2038, and 8-hour non-cancer and acute (1-hour) non-cancer human health hazard indices (HI) for on-Airport workers would exceed the significance threshold of 1. Even with implementation of any feasible mitigation measures, the Proposed Project would have a potentially cumulatively considerable impact related to criteria air pollutant emissions.

5.4.3 Biological Resources

The Proposed Project includes measures to mitigate the impacts to biological resources. Therefore, the Proposed Project would not contribute to a substantial adverse effect on special-status species, on any riparian habitat or other sensitive natural community, or on wetlands. In addition, the Proposed Project would not contribute to any interference 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. Finally, the Proposed Project would not conflict with any local policies or ordinances protecting biological resources or with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan, any cumulative impacts to biological resources.

5.4.4 Cultural and Tribal Resources

For the Proposed Project, the regional resource base for archaeological and tribal cultural resources is defined geographically and ethnographically. Thus, the geographic scope of the cumulative impact analysis encompasses the eastern portion of the Bay Area. The analysis also takes into consideration the cultural geography of the Ohlone people who occupied the region prehistorically and the entire suite of resources that make up the cultural geography of various Ohlone groups. Trends have affected the regional cultural and tribal cultural resource base, including continuing urban development in the Bay Area, which can result in disturbance and loss of onsite archeological resources and change to cultural landscapes.

As described in **Section 3.5 Cultural and Tribal Cultural Resources**, there is a low to moderate likelihood of cultural and tribal cultural resources to remain within the detailed study area, and project-specific mitigation measures would reduce these potential impacts to less-than-significant levels. Thus, the Proposed Project's contribution to a cumulative impact to archaeological or tribal cultural resource would not be cumulatively considerable.

The implementation of the Proposed Project would result in a significant and unavoidable impact on CRHR-eligible buildings through demolition of the historic resource (building M101 which includes a character-defining feature of historic Terminal 1). The list of reasonable and foreseeable projects consists of the types of projects that would not have cumulative effects to significant built-environment cultural resources within the detailed study area

beyond those resulting from the Proposed Project. Therefore, the Proposed Project would not result in additional impacts to the built environment.

5.4.5 Geology and Soils

All of the foreseeable projects listed in **Table 5-1** and the Proposed Project would be exposed to similar geologic hazards such as surface rupture, strong ground shaking, liquefaction, erosion or loss of topsoil, and expansive soils. All of the projects listed in **Table 5-1**, like the Proposed Project, would incorporate appropriate BMPs to minimize erosion or loss of topsoil and be designed in accordance with building standards such as California Building Code (CBC) and American Society of Civil Engineers (ASCE) Minimum Design Loads and Associated Criteria for Buildings and Other Structures. Therefore, the Proposed Project would not have a cumulatively considerable contribution to geologic and soil impacts.

5.4.6 Greenhouse Gas Emissions

GHG impacts are treated exclusively as cumulative impacts as it is the accumulation of GHGs in the atmosphere that may result in global climate change. Climate change impacts are cumulative in nature and, therefore, no single project would typically result in emissions of such a magnitude that it would be significant on a project basis. A typical individual project would be insubstantial relative to total global or even statewide GHG emissions. As such, because the assessment of significance is based on a determination of whether the GHG emissions from the Proposed Project, construction emissions would not contribute to cumulatively considerable impact. However, operation of the Proposed Project could result in a cumulatively considerable impact relative to GHG emissions.

5.4.7 Hazards and Hazardous Materials

Cumulative land use changes within the cumulative study area would have the potential to expose employees and airport travelers to chemical hazards through redevelopment of sites and structures that may be contaminated from either historical or ongoing uses. The severity of potential hazards for individual projects would depend upon the location, type, and size of development and the specific hazards associated with individual sites.

Therefore, specific projects proposed in the cumulative study area would be required to undergo individual environmental review, including review of potential impacts related to hazards and hazardous materials that are applicable to that development site and proposed use.

Construction of the Proposed Project would require potential demolition of existing infrastructure (such as old pavement and utility lines) as well as grading and excavation. A Phase II Environmental Site Assessment (ESA) would provide information on the locations, approximate area of impact, and specific contaminants of concern (COCs) within the soil and groundwater at OAK. The Phase II ESA and remedial actions proposed to address hazardous materials in the subsurface would comply with all applicable local, state, and federal codes and regulations, as well as applicable BMPs, related to the treatment, handling, and disposal of hazardous materials. Additionally, demolition anticipated to occur under the Proposed Project would facilitate the safe removal of potentially hazardous building materials and the cleanup of contaminated areas, thus reducing the level of risk on

a particular site in the nearby vicinity and within the detailed study area, compared to existing conditions.

Because cumulative projects would be fully regulated, thus reducing potential for public safety risks, impacts associated with exposure to hazards and hazardous materials would not be cumulatively considerable.

5.4.8 Hydrology and Water Quality

The list of projects considered on the Airport include projects that are focused on aboveground or indoor infrastructure (e.g., roof, CCTV, substation equipment, and restroom improvements), which may involve only limited, if any, soil disturbance. Additionally, there are numerous projects that are likely to offer net benefits to stormwater system performance and reduce the risk of water quality and flooding impacts, including replacement of aging stormwater conveyance assets, construction of post-construction stormwater controls, perimeter dike seismic improvements, tidal wall flood vulnerability improvements, and the addition of trash capture devices. There are a series of pavement replacement and rehabilitation projects, which are primarily redevelopment and would be expected to have marginal changes in impervious area and low risks of stormwater impacts because they would also be implemented in accordance with the applicable environmental regulations in **Section 3.9, Hydrology and Water Quality**.

The region surrounding the Airport is already highly urbanized and densely developed with existing residential, commercial, and industrial sites. Projects within this region are expected to primarily involve redevelopment and many will require demolition of existing facilities prior to construction of new facilities, which would limit the net change in impervious surface area and the potential for significant hydrology and water quality impacts. A few of the listed projects offer the potential for stormwater benefits including roadway diets, shoreline improvements, and new stormwater controls. Select projects have the potential to involve an increase in impervious surface area (particularly those noted as occurring on existing vacant or undeveloped sites), although the extents are not known at this time.

Where applicable, new development and redevelopment within the region would be subject to similar environmental and stormwater regulations as the Proposed Project based on their respective municipal jurisdictions. For example, Alameda, Oakland, and San Leandro participate in the Alameda Countywide Clean Water Program in compliance with the San Francisco Bay Region Municipal Regional Stormwater MS4 National Pollutant Discharge Elimination System (NPDES) Permit (NPDES No. CAS612008). This Phase I MS4 permit includes similar requirements for post-construction stormwater management for new and redevelopment, industrial and commercial site controls, construction site runoff control, water quality monitoring, Illicit Discharge Detection and Elimination (IDDE), and Total Maximum Daily Load (TMDL) compliance.³⁶⁰ Additionally, the regional, state, and federal requirements described for the Proposed Project would be relevant as well, where applicable.

³⁶⁰ California Regional Water Quality Control Board, San Francisco Bay Region. (2022). *Municipal Regional Stormwater NPDES Permit, Order No. R2-2022-0018*. NPDES Permit No. CAS612008.

Compliance with these requirements would limit the risk for potentially significant impacts from these projects because each project would need to evaluate these potential risks and identify measures to be implemented to mitigate identified risks. Based on this, the potential contribution of the Proposed Project to cumulative impacts for hydrology and water quality would not be cumulatively considerable.

5.4.9 Land Use and Planning

Because the Proposed Project would not divide any established community and is consistent with applicable plans, the Proposed Project would not contribute to any cumulative land use impacts in the Airport vicinity.

5.4.10 Noise and Vibration

The potential for cumulative aircraft noise impacts is defined primarily by current and reasonably foreseeable future operations as OAK. As a result, the geographic area of the cumulative analysis of aircraft noise is the area that lies beneath the OAK flight path, including the area that is within the OAK 65 community noise equivalent (CNEL) contours and beyond.

With respect to cumulative impacts, none of the development projects identified in **Table 5-1** would have aircraft operations that could contribute to cumulative aircraft noise impacts. Therefore, cumulative contribution of the Proposed Project to aircraft noise would not be cumulatively considerable.

The potential for cumulative roadway noise impacts would include development projects identified in **Table 5-1** that may change traffic volumes on roads. The traffic volume predictions used for the roadway traffic noise analysis, **Section 3.11.3.3**, considers reasonable and foreseeable development projects, such as those provided in **Table 5-1**, that could change traffic volumes in the area. Therefore, the direct impact analysis is inclusive of these development projects and the cumulative impact is the same as the direct impact analysis findings, which is that the contribution of the Proposed Project to roadway traffic noise impacts would not be cumulatively considerable.

Cumulative construction noise impacts may occur if construction of one of the development projects listed in **Table 5-1** overlaps in time and geographic location with construction of the Proposed Project. Only the projects located on airport are close enough to potentially contribute cumulatively to construction noise impacts. The on-Airport development projects listed in **Table 5-1** would overlap in time and proximity with the Proposed Project. Therefore, the contribution of the Proposed Project to construction noise would be cumulatively considerable and the same mitigation strategies described in **Section 3.11.3.1** would be implemented.

5.4.11 Public Services

The Proposed Project would not increase demand for parks or school facilities and, therefore, would make no contribution to any cumulative impact resulting from construction of new or expanded physical facilities to meet park or school demand.

The Airport is required to comply with Federal Aviation Regulation (FAR) Part 139, which outlines the number of engines and personnel the OAK needs to have onsite in case of a fire

emergency. As discussed in **Section 3.12.3**, the Airport exceeds the number of engines it is required to have onsite. In case of a fire or medical emergency, the Airport would only call upon Alameda County, Oakland Fire Department (OFD), and local agencies as needed. However, the local fire or County agencies would not be the first responders to the site.

Similarly, in compliance with 40 Code of Federal Regulations (CFR) 1542 the Airport would have the necessary law enforcement onsite. The Project's demand for Alameda County Sheriff's Office, OFD, and other local fire protection services from public agencies would be as needed and would be minimal. Because the Proposed Project would continue to provide onsite law enforcement and fire protection services, there would not be a considerable contribution to a cumulative public services impact.

5.4.12 Transportation

Cumulative transportation impacts are incorporated into the Transportation Report provided in **Appendix N**. A review of intersection vehicle operations at the seven signalized intersections located closest to OAK found that all intersections would operate at level of service (LOS) C or better with the Proposed Project for 2019 and 2028 conditions. In 2038, two intersections were found to operate at LOS E without the Proposed Project. The addition of traffic from Airport operations based on market-based demand would result in the intersection of John Glenn Drive and Ron Cowan Parkway improving in the p.m. peak hour due to rerouting of traffic, while the intersection of Hegenberger Road and Doolittle Drive is anticipated to have the average vehicle delay increase by about four seconds per vehicle. All intersections would continue to operate at LOS E or better in 2038 with the Proposed Project indicating none would be over capacity. Therefore, the Proposed Project would not contribute to a cumulatively considerable impact to transportation.

5.4.13 Energy, Utilities, and Service Systems

5.4.13.1 Energy

The Proposed Project and the projects in **Table 5-1** would require energy for construction and operation. Electricity and natural gas are provided to the Airport by the Port. The Port assesses projected energy demand and plans and operates accordingly. Additionally, the California Energy Commission (CEC) is required to assess population growth, electricity demand, and reliability. The CEC uses these assessments and forecasts to develop energy policies that conserve resources and ensure energy reliability.

As discussed in **Section 3.14.3**, the Proposed Project would be located within an area that has existing energy infrastructure that would be upgraded in order to serve the Proposed Project. The Proposed Project, along with the other projects identified in **Table 5-1**, would be subject to regulations such as CALGreen and State Energy Conservation Standards contained in Title 24 that would reduce cumulative energy demand.

In addition to implementation of the other initiatives and BMPs identified in **Section 3.7, Greenhouse Gas Emissions**, such as the use of electric or alternatively fueled equipment as available and as feasible, the Proposed Project would not contribute to wasteful, inefficient, or unnecessary consumption of energy resources. In addition, electricity supplied to the Proposed Project would be required to comply with California's renewable

portfolio standard. As such, the Proposed Project would not contribute to a cumulatively considerable impact to energy resources.

5.4.13.2 Water/Wastewater

As previously described, the Proposed Project is required to comply with a variety of regulations and requirements that would minimize the risk of potential impacts to water and wastewater. The risk of impacts from the Proposed Project alone on these significance criteria is **less than significant**. The Proposed Project was also reviewed in conjunction with a variety of upcoming projects in the region (**Table 5-1**) to evaluate the potential for cumulative impacts to water and wastewater. The cumulative project list includes projects at OAK, as well as projects to be implemented in the cities of Alameda, San Leandro, and Oakland, as shown in **Figure 5-1**.

The region surrounding the Airport that includes the cumulative projects is already highly urbanized and densely developed with existing residential, commercial, and industrial land uses. Projects within this region are expected to primarily involve redevelopment and many require demolition of existing facilities prior to construction of new facilities. All of the cumulative projects are located within the same East Bay Municipal Utility District (EBMUD) water supply service area as the Proposed Project. With respect to wastewater, all projects on the list fall within EBMUD SD-1 service area, with the exception of the projects in San Leandro, which fall within the service area of the City of San Leandro Water Pollution Control Division.

Many of the projects on the list are not expected to significantly affect water or wastewater utility demand, including roadway projects, greenway and trail improvements, and infrastructure replacement. Other projects on the list do have the potential to affect water and wastewater demand, including new industrial facilities and warehouses, hotels, medical facilities, commercial facilities, and multi-unit residential developments, although specific capacity demands for these projects are not known at this time. Redevelopment projects may be able to use existing utility infrastructure, where feasible, if demands are not increasing relative to previous site developments. New infrastructure would need to be constructed in accordance with applicable local, regional, state, and federal environmental regulations (see **Section 3.14.1.1**), and construction within previously developed sites would limit the potential for environmental impacts.

Each new connection to a public utility would require coordination with the applicable utility agency to evaluate utility demand versus available capacity and establish the terms and conditions of their connection in the form of an agreement or permit. Projects would be required to comply with the requirements of the utility provider (EBMUD and San Leandro) as established within the agreement, including rates and surcharges related to utility capacity demand, as well as requirements related to water-efficient fixtures or other water conservation strategies, which may also reduce the amount of wastewater generated. As with the Proposed Project, other projects may require coordination with EBMUD and the City of San Leandro to identify opportunities to use recycled water on a temporary or permanent basis, including water available from the EBMUD Recycled Water Truck Program or San Leandro Recycled Water Facility.

As noted in **Section 3.14.2.2**, the average dry weather flow currently entering EBMUD’s MWWTP is 54 million gallons per day (MGD), in comparison to a primary treatment capacity of 320 MGD and secondary treatment capacity of 168 MGD. Wastewater within San Leandro is routed to the San Leandro Water Pollution Control Plant, which has a maximum dry weather flow capacity of 7.6 MGD but currently receives an average dry weather flow of 5 MGD.³⁶¹ These numbers suggest that there may be available treatment capacity to accommodate a limited increase in demand; however, coordination would be required with EBMUD or City of San Leandro to confirm as the projects are defined in further detail.

The potential for cumulative impacts to water and wastewater is minimized based on the Proposed Project location within an urbanized and developed region and the need to comply with the terms and conditions of agreements with local utility providers and applicable environmental regulations. The potential contribution of the Proposed Project to cumulative impacts for water and wastewater is not cumulatively considerable.

5.4.13.3 Solid Waste

The Proposed Project, when combined with the other cumulative projects, would increase the amount of solid waste generated through demolition and construction as well as operations. However, all projects would adhere to State and local regulations related to solid waste diversion. Alameda County’s two largest landfills, Altamont Landfill and Vasco Road Landfill, had a total remaining capacity of almost 100 million tons (71.4 million cubic yards) based in 2020. In comparison, the Proposed Project is expected to generate up to approximately 100,000 tons of material for landfill disposal, which is approximately 0.1 percent of remaining capacity. Based on projected generation rates developed in 2020, Altamont Landfill and Vasco Road Landfill have sufficient permitted capacity to accommodate disposal until 2052 and 2035, respectively; however, Vasco Road Landfill is proposing to increase the permitted capacity through vertical expansion to extend the estimated closure year to 2051. Landfill capacity in Alameda County is sufficient to meet the proposed disposal demand; therefore, cumulative impacts associated with solid waste would not be cumulatively considerable.

³⁶¹ City of San Leandro. (2023). *About Water Pollution Control*.

CHAPTER 6
PUBLIC OUTREACH AND
COORDINATION

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6.1 INTRODUCTION

California Environmental Quality Act (CEQA) requirements were considered and adhered to when conducting public involvement activities. The public involvement process was designed to inform the public and agencies about the Proposed Project, alert the public of the opportunity to raise environmental concerns, and provide the public with an opportunity to review and comment on the Proposed Project being analyzed. By receiving and responding to public comments, the Port of Oakland (Port) was able to evaluate and address the public and agency concerns about the social, economic, and environmental effects of the Proposed Project and determine whether additional environmental analysis and mitigation measures were necessary as part of the preparation of the EIR.

Appendix B contains the public and agency comments received on the NOP, as well as responses to comments. Additionally, **Appendix B** contains the public involvement documentation (e.g., public meeting presentation materials, etc.) that was used during the public outreach process.

6.2 PUBLIC OUTREACH EFFORTS

A Notice of Preparation (NOP), which informed the public and agencies that an Environmental Impact Report (EIR) would be prepared, was published on May 7, 2021, and marked the beginning for a 30-day public comment period. The Port conducted public outreach for the NOP and associated public scoping meetings in the form of newspaper advertisements, press releases, eblasts, social media posts, and on-site Airport advertisements. These advertisements are documented in **Appendix B**.

6.2.1 Public Scoping Meetings

The scoping period started May 7, 2021, and comments were due to the Port by June 7, 2021, at 3:00 pm Pacific Daylight Time (PDT). Due to federal and state guidance on social distancing in response to the COVID-19 pandemic of 2020/2021, the Port held four separate virtual public scoping meetings over May 25 and 26, 2021 (see **Table 6-1**). Each meeting provided the same information and the same opportunity for providing comments on the scope and content of the EIR.

Port personnel staff and the Port’s consultants were present at the public scoping meetings. The purpose of the public scoping meetings was to ensure that the general public and regulatory agencies were made aware of the Proposed Project and were given an opportunity to ask questions and provide input as part of the EIR process.

6.2.2 Draft Environmental Impact Report Public Meetings

Publication of this Draft EIR will begin a public review and comment period. The Port recognizes the document may take some time to review. Therefore, the Port is voluntarily extending the public review period to 60 days, which is longer than the 45-day review period required by Section 15105(a) of the CEQA Guidelines. Upon publication, the Draft EIR will be available to federal, state, and local agencies as well as to interested organizations and members of the public for review. The Port will hold a total of four public meetings, two virtual and two in-person, to allow agencies, organizations, and the public to

TABLE 6-1
VOLUNTARY VIRTUAL PUBLIC SCOPING MEETINGS SCHEDULE

Date	Start Time (PDT)	End Time (PDT)
May 25, 2021	3:00 PM	4:00 PM
May 25, 2021	6:00 PM	7:00 PM
May 26, 2021	3:00 PM	4:00 PM
May 26, 2021	6:00 PM	7:00 PM

voice their opinions regarding the adequacy of the Draft EIR. Notice of the times and location(s) will be published prior to the public meetings.

6.2.3 Port Website

The Port established and maintained an informational website regarding the Proposed Project at the following website address: www.oaklandairport.com/terminaldevelopment.

Website information has been updated as needed for updates on the Proposed Project and announcements of public meetings.

6.2.4 Other Public Outreach Efforts

Continued public outreach has occurred through the project website, eblasts, and public forums held by the Port.

6.3 LIST OF PERSONS AND AGENCIES CONSULTED

The consultation process includes notifying agencies, organizations, and individuals of various documents that are produced during the EIR process. The following tables list the agencies, organizations, and individuals that received the NOP and will receive notification of the publication of the Draft EIR or those entities that were added to the mailing list after the publication of the NOP and will receive notification of the publication of the Draft EIR.

6.3.1 Federal Agencies

Table 6-2 lists the federal agencies consulted as part of the EIR process.

TABLE 6-2
FEDERAL AGENCIES CONSULTED

Federal Agency	Division
Federal Aviation Administration	Western-Pacific Region
U.S. Army Corps of Engineers	San Francisco District

6.3.2 Tribal Consultation

Table 6-3 lists the tribes consulted as part of the EIR process.

TABLE 6-3 TRIBES CONSULTED

Tribe	Title	Contact
Amah Mutsun Tribal Band of Mission San Juan Bautista	Chairperson	Irene Zwierlein
Costanoan Rumsen Carmel Tribe	Chairperson	Tony Cerdá
Indian Canyon Mutsun Band of Costanoan	Chairperson Most Likely Descendant	Ann Marie Sayers Kanyon Sayers-Roods
Muwekma Ohlone Indian Tribe of the SF Bay Area	Chairperson Vice Chairwoman	Charlene Nijmeh Monica Arellano
North Valley Yokuts Tribe	Chairperson Most Likely Descendant	Katherine Perez Timothy Perez
The Ohlone Indian Tribe	President	Andrew Galvan
Wuksache Indian tribe / Eshom Valley Band	Chairperson	Kenneth Woodrow
The Confederated Villages of Lisjan	Chairperson	Corrina Gould
Tamien Nation	Chairperson Tribal Historic Preservation Officer	Quirina Luna Geary Johnathan Wasaka Costilla

6.3.3 State of California Agencies

Table 6-4 lists the state agencies consulted as part of the EIR process.

**TABLE 6-4
STATE AGENCIES CONSULTED**

State Agency	Division
California Air Resources Board	Air Quality Planning and Science Division
California Department of Fish and Wildlife	Bay Delta Region
California Department of Toxic Substances Control	
California Department of Transportation	District 4
California State Assembly	District 18
California State Lands Commission	Environmental Science, Planning, and Management Division
California State Office of Historic Preservation	
California Governor Office of Business and Economic Development	

6.3.4 Regional Agencies

Table 6-5 lists the regional agencies consulted as part of the EIR process.

TABLE 6-5
REGIONAL AGENCIES CONSULTED

Regional Agency
Alameda-Contra Costa Transit (AC Transit)
Alameda County Transportation Commission (ACTC)
Bay Area Air Quality Management District (BAAQMD)
Bay Conservation and Development Commission (BCDC)
Bay Area Regional Transit (BART)
Alameda County
Contra Costa County
East Bay Municipal Utility District (EBMUD)
East Bay Regional Park District
San Francisco Bay Regional Water Quality Control Board (SFRWQCB)

6.3.5 Federal Representatives

Table 6-6 lists the U.S. House of Representatives consulted as part of the EIR process.

TABLE 6-6
FEDERAL REPRESENTATIVES CONSULTED

U.S. House of Representatives	Title	District
Dianne Feinstein	Senator	
Kamala Harris	Senator (former)	
Barbara Lee	Congresswoman	12th District
Eric Swalwell	Congressman	14th District
John Garamendi	Congressman	8th District
Mark DeSaulnier	Congressman	10th District
Nancy Pelosi	Congresswoman	11th District

6.3.6 State of California Representatives

Table 6-7 lists the State of California Representatives consulted as part of the EIR process.

TABLE 6-7
STATE OF CALIFORNIA REPRESENTATIVES CONSULTED

State Senate Representative	Title	District
Nancy Skinner	Senator	District 9
State Assembly Representative	Title	District
Eleni Kounalakis	Lieutenant Governor	
Buffy Wicks	Assemblymember	15th Assembly District
Phil Ting	Assemblymember	19th Assembly District
Rob Bonta	Former Assemblymember	18th Assembly District

6.3.7 Local Agencies

Table 6-8 lists the local agencies consulted as part of the EIR process.

TABLE 6-8
LOCAL AGENCIES

Local Agency	Division
City of Alameda	
City of Albany	
City of Berkeley	
City of El Cerrito	
City of Emeryville	
City of Hayward	
City of Oakland	
East Oakland Neighborhoods Initiative (City of Oakland)	Coliseum Business Alert 35Y South Hills, Coliseum Business Alert / Neighborhood, 25X Neighborhood Council, 31Y and 31Z Neighborhood Council
City of Richmond	
City of San Leandro	

6.3.8 Local Elected Representatives

Table 6-9 lists the local elected representatives consulted as part of the EIR process.

TABLE 6-9
LOCAL ELECTED REPRESENTATIVES CONSULTED

City of Alameda	Title	District/Office
Marilyn Ezzy Ashcraft	Mayor	
Malia Vella	Vice Mayor, Alternate	
Jen Ott	City Manager	
Eric Levitt	City Manager (former)	
Amy Wooldridge	Assistant City Manager	
Gerry Beaudin	Assistant City Manager (former)	
Malia Vella	Councilmember	
Tony Daysog	Councilmember (former)	
Tracy Jensen	Councilmember	
John Knox-White	Councilmember (former)	
Trish Herrera Spencer	Councilmember	
Kathleen Livermore	Staff Representative	
Allen Tai	Staff Representative	
Robert Sikora	Community Representative	
City of Albany	Title	District/Office
Aaron Tiedemann	Mayor	
Ge'Nell Gary	Mayor (former)	

Nicole Almaguer	City Manager	
City of Berkeley	Title	District/Office
Jesse Arreguin	Mayor	
Rigel Robinson	Councilmember	District 7
Dee Williams-Ridley	City Manager	
City of El Cerrito	Title	District/Office
Lisa Motoyama	Mayor	
Paul Fadelli	Mayor (former)	
Karen Pinkos	City Manager	
City of Emeryville	Title	District/Office
John Bauters	Mayor	
Dianne Martinez	Mayor (former)	
Paul Buddenhagen	City Manager	
Christine Daniel	City Manager (former)	
Kalimah Priforce or Sukhdeep Kaur	Councilmember	
Scott Donahue	Councilmember (former)	
City of Hayward	Title	District/Office
Mark Salinas	Mayor Councilmember (former)	
Kelly McAdoo	City Manager	
Ray Bonilla Jr.	Councilmember	District 2
Eliza Marquez	Councilmember (former)	District 2
City of Oakland	Title	District/Office
Sheng Thao	Mayor, Councilmember (former)	
Libby Schaaf	Mayor (former)	
Treva Reid	Councilmember	
Nikki Fortunato-Bas	Councilmember	District 2
Noel Gallo	Councilmember	District 5
Carroll Fife	Councilmember	District 3
Lynette Gibson-McElhaney	Councilmember (former)	District 3
Dan Kalb	Councilmember	District 1
Rebecca Kaplan	Councilmember At-Large	
Kevin Jenkins	Councilmember	District 6
Loren Taylor	Councilmember (former)	District 6
City of Richmond	Title	District/Office
Eduardo Martinez	Mayor	
Tom Butt	Mayor (former)	
Ruben Hernandez	Alternate (former)	
City of San Leandro	Title	District/Office
Juan Gonzalez III	Mayor	
Pauline Cutter	Mayor (former)	
Bryan Azavedo	Vice Mayor and Councilmember	

Fran Robustelli	City Manager	
Jeff Kay	City Manager (former)	
Eric Engelbart	Deputy City Manager	
Scott Koll	Deputy City Manager	
Victor Aguilar	Councilmember	District 3
Pete Ballew	Councilmember	District 6
Celina Reynes	Councilmember	District 1
Deborah Cox	Councilmember (former)	District 1
Xouhoa Bowen	Councilmember	District 5
Corina Lopez	Councilmember (former)	District 5
Fred Simon	Councilmember	District 4
County of Alameda, Representatives	Title	District/Office
Keith Carson	Supervisor	District 5
Lena Tam	Supervisor	District 3
Wilma Chan	Supervisor (former)	District 3
David Haubert	Supervisor Vice President	District 1
Scott Haggerty	Supervisor (former)	District 1
Nate Miley	Supervisor	District 4
Elisa Marquez	Supervisor	District 2
Richard Valle	Supervisor (former)	District 2
Cindy Horvath	Staff Representative (former)	Planning Department
County of Contra Costa Representatives	Title	District/Office
John Gioia	Supervisor	District 1

6.3.9 Other Public / Private Entities

Table 6-10 lists other public and private entities consulted as part of the EIR process.

TABLE 6-10
OTHER PUBLIC / PRIVATE ENTITIES CONSULTED

Alameda Based Community Organizations
Alameda Backyard Growers, Inc
Alameda Boys & Girls Club
Alameda Care Center
Alameda Chamber of Commerce
Alameda County Bike/Ped Committee
Alameda County Community Food Bank
Alameda Family Service League
Alameda Food Bank
Alameda Free Library
Alameda Friendly Visitors
Alameda Labor Council

Alameda Meals on Wheels
Alameda Point Collaborative
Alameda Rotary Club
Bike Walk Alameda
Girls Inc. of Island City
Berkely-based Community Organizations
Alzheimer's Services of the East Bay
Berkley Chamber of Commerce
Building Opportunities for Self Sufficiency (B.O.S.S.)
Center for Independent Living
Rising Sun Energy Center
Castro Valley-based Community Organization
Eden Area Chamber of Commerce
Fremont-based Community Organizations
Fremont Chamber of Commerce
Shelter Against Violent Environments (SAVE)
Hayward-based Community Organizations
Friends of the San Lorenzo Creek
Hayward Chamber of Commerce
Hayward Chamber of Commerce – Latino Business Roundtable
Lafayette-based Community Organizations
Lafayette Chamber of Commerce
Newark-based Community Organizations
Newark Chamber of Commerce
Oakland Neighborhoods Initiative
100 Black Men Bay Area
25X Neighborhood Council
31Y & 31Z Neighborhood Council
Brookfield/Columbian Garden/ Sobrante Park RCA/NCPC
Castro Valley / Eden Area Chamber of Commerce
Coliseum Business Alert 35Y South Hills NCPC
Coliseum Business Alert/ Neighborhood Council
Eastmont Neighborhood Council
Oakland-Based Organizations
Allen Temple Baptist Church
APEN POPstars
Asian Health Services
Brothers on the Rise
Causa Justa / Just Cause
Center for Empowering Refugees and Immigrants
Centro Community Partners
Centro Legal de La Raza
Chabot Space and Science Center
Clean Water Action California
Clinica de la Raza

Cypress Mandela Training Center
East Bay Alliance for a Sustainable Economy
East Bay Asian Local Development Corporation
East Bay Asian Youth Center
Bike East Bay, Formerly East Bay Bicycle Coalition
East Bay Community Law Center
East Bay Economic Development Alliance
East Oakland Boxing Association
East Oakland Collective
East Oakland Communities for a Better Environment
East Oakland Community Foundation
East Oakland Youth Development Center
Ella Baker Center for Human Rights
Family Bridges, Inc.
Family Violence Law Center
Filipino Advocates for Justice
Girls Inc. of Alameda County
League of Women Voters of Oakland, Inc.
Oakland Metropolitan Chamber of Commerce
Montclair Village Association
Oakland African American Chamber of Commerce
Oakland Black Board of Trade and Commerce
Oakland Chinatown Chamber of Commerce
Oakland Community Organizations
Oakland East Bay Democratic Club
Oakland Latino Chamber of Commerce
Oakland Police-Community Activities League
Oakland Pride
Oakland Tenants Union
Oakland Unite
Oakland Citizens Committee for Urban Renewal (OCCUR)
Peralta Colleges Foundation
PolicyLink
Prospera Community Development
Race Forward Oakland
Rose Foundation for Communities and the Environment
Spanish Speaking Citizens' Foundation
The Unity Council
Tradeswomen, Inc.
Transform California
Urban Strategies Council
Vietnamese American Community Center of the East Bay
Vietnamese Chamber of Commerce
Visit Oakland
Walk Oakland Bike Oakland

Western Minority Supplier Development Council
Youth Employment Partnership
Youth UpRising
Richmond-based Community Organizations
Iron Triangle Neighborhood Council
Richmond Neighborhood Coordinating Council
Rubicon Programs, Inc.
San Leandro-Based Community Organizations
Building Futures
Davis Street Community Center
DCARA Deaf Counseling and Advocacy Referral Agency
Family Service Counseling Center
Friends of San Leandro Creek
Heritage Baptist Church
Interfaith Homeless Network / April Showers
Marina Action Committee
Mulford Gardens Improvement Association
Pacific Plaza Community Association
Praises of Zion
REACH Ashland Youth Center
San Leandro African American Business council
San Leandro Asian Business Council
San Leandro Boys and Girls Club
San Leandro Chamber of Commerce
San Leandro Education Fund
SOS Meals on Wheels San Leandro
San Leandro Rotary Club
Tri-Valley-based Community Organizations
Danville Area Chamber of Commerce
Dublin Chamber of Commerce
Livermore Chamber of Commerce
Pleasanton Chamber of Commerce
Tri Valley Leadership Group
Regional Community Organizations
Bay Area Business Roundtable
Bay Area Council
Bay East Association of Realtors
Bay Planning Coalition
Bike East Bay
Asian Pacific Islander Legal Outreach
Bonta California Progress Foundation
Girl Scouts of Northern California
Hamilton Families
Hispanic Chambers of Commerce of San Francisco
Latino Community Foundation

League of Women Voters of the Bay Area
Lend a Hand Foundation, Inc. of Northern California
Renaissance Entrepreneurship Center
Save Our Skies East Bay
Other Community Organizations
Brentwood Chamber of Commerce
Californians for Justice
Communities for a Better Environment
Eden Housing
Martinez Chamber of Commerce
Muslim Advocates
National Coalition of 100 Black Women
Oakley Chamber of Commerce
San Francisco African American Chamber of Commerce
Sierra Club
San Francisco Planning and Urban Research Association (SPUR)
Stockton Chamber of Commerce
Stop OAK Expansion Coalition
U.S. Black Chambers, Inc.
Union City Chamber of Commerce
Unite Here
Vallejo Chamber of Commerce
Walnut Creek Chamber of Commerce
Women's Transportation Seminar (WTS) International

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CHAPTER 7
GLOSSARY AND ABBREVIATIONS

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The following are abbreviations or acronyms that are used in this Draft Environmental Impact Report (EIR). These are being provided for ease of reference in identifying terms that are used in the Draft EIR.

1D/2D – One dimensional / two dimensional

A

AAD – Average Annual Day

AB – Assembly Bill

ABAG – Association of Bay Area Governments

AC – Advisory Circular

ACA – Airport Carbon Accreditation

ACDEH – Alameda County Department of Environmental Health

ACEIT – Airport Construction Emissions Inventory Tool

ACERT – Airport Carbon and Emissions Reporting Tool

ACI – Airport Council International

ACM – Asbestos Containing Material

ACRP – Airport Cooperative Research Board

AC Transit – Alameda-Contra Costa Transit District

ADA – Americans with Disabilities Act

ADAP – Airport Developmental Aid Program

ADRM – Airport Development Reference Manual

ADT – Average Daily Traffic

AEDT – Aviation Environmental Design Tool

AFD – Alameda Fire Department

AFE – Above Field Elevation

AHEREA – Asbestos Hazard Emergency Response Act

AIA – Airport Influence Area

AIP – Airport Improvement Program

Aircraft Operation – takeoffs and landings

Airport – Oakland International Airport

Alameda CTC – Alameda County Transportation Commission

ALP – Airport Layout Plan

ALUC - Alameda County Airport Land Use Commission

ALUCP – Airport Land Use Compatibility Plan

ALUP – Airport Land Use Plan

ANCA – Airport Noise and Capacity Act of 1990

ANOMS – Airport Noise and Operations Monitoring System

AOA – Airspace or airport operation area

APU – Auxiliary Power Unit

AQP – Air Quality Plan

ARFF – Aircraft Rescue and Fire Fighting

ASCE – American Society of Civil Engineers

ASP – Airport Security Plan

AST – Aboveground Storage Tank

ATCM – Air Toxics Control Measure

ATCT – Airport Traffic Control Tower

AUSD – Alameda Unified School District

B

BAAQMD – Bay Area Air Quality Management District

BACT – Best Available Control Technology

BART – Bay Area Rapid Transit

Basin Plan – Water Quality Control Plan

Bay Block – a late Pliocene structural depression occupied by the San Francisco Bay

Bay Plan – San Francisco Bay Plan

BCDC – San Francisco Bay Conservation and Development Commission

BFE – Base Flood Elevation

BHP – boiler horsepower

Biological Monitor – USFWS approved biologist

BMP – Best Management Practice

BSA – Biological Study Area

C

CAA – Clean Air Act of 1963

CAAA – Clean Air Act Amendments

CAAQS – California Ambient Air Quality Standards

CalEEMod – California Emissions Estimator Model

CalEPA – California Environmental Protection Agency

CALGreen – California Green Building Standards Code

- Cal/OSHA – California Occupational Safety and Health Administration
- CalRecycle – California Department of Resources Recycling and Recovery
- Caltrans – California Department of Transportation
- CAPCOA – California Air Pollution Control Officers Association
- CAPP – Community Air Protection Program
- CARB – California Air Resources Board
- CARE – Community Air Risk Evaluation
- CBC – California Building Code
- CBP – Customs and Border Protection
- CCAA – California Clean Air Act
- CCE – Community Choice Energy
- CCR – California Code of Regulations
- CDFW – California Department of Fish and Wildlife
- CEC – California Energy Commission
- CEQ – Council on Environmental Quality
- CEQA – California Environmental Quality Act
- CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act
- CERS – California Environmental Reporting System
- CESA – California Endangered Species Act
- CFG – California Fish and Game Commission
- CFR – Code of Federal Regulations
- CGP – Construction General Permit
- CGS – California Geological Survey, formerly known as the California Division of Mines and Geology
- CH₄ – methane
- Chloroethene – Vinyl Chloride
- City – The City of Oakland
- CIWMA – California Integrated Waste Management Act of 1989
- CIWMB – California Integrated Waste Management Board
- CMP – Congestion Management Program
- CNDDDB – California Natural Diversity Database
- CNEL – Community Noise Equivalent Level
- CNPS – California Native Plant Society

CO – Carbon monoxide

CO₂ – Carbon dioxide

CO_{2e} – CO₂ equivalents

COC – Contaminant of concern

CoIWMP – Alameda County Countywide Integrated Waste Management Plan

Compost – Organic Waste

Converter units – ground power converter units

Corrosivity – ability to corrode other materials

CORSIA – Carbon Offsetting and Reduction Scheme for International Aviation

CPUC – California Public Utilities Commission

CR – California Register of Historic Resources

Creek Protection – Storm Water Management and Discharge Control

CRHR – California Register of Historic Resources

CRPR – California Rare Plant Rank

Cumulative noise metrics – noise experienced over duration

CUP – Central Utility Plant

CUPA – Certified Unified Program Agency

CWA – Clean Water Act of 1972

D

dB – Decibel

dBA – A-weighted decibel

DNL – Day/Night Average Noise Level

DOD – Department of Defense

DOORS – Diesel Off-Road Online Reporting System

DPM – Diesel Particulate Matter

DTSC – Department of Toxic Substances Control

DWR – California Division of Water Resources

E

EA – Environmental Assessment

EBMUD – East Bay Municipal Utility District

EBP – East Bay Plain

EBRPD – East Bay Regional Park District

Eden Area – The Alameda County Eden Area

eGSE – Electric Ground Support Equipment
EIR – Environmental Impact Report
Envirostor – California Department of Toxic Substances Envirostor
EO – Executive Order
EPCRA – Emergency Planning and Community Right-to-Know Act
EPP – The Oakland *Estuary Policy Plan*
ESA – Environmentally Sensitive Area
ESA – Phase I Environmental Site Assessment
EV – electric vehicle
EVSE – electric vehicle support equipment

F

FAA – Federal Aviation Administration
FOE – Finding of Effect
FTA – Federal Transit Administration
Fugitive Dust - PM₁₀/PM_{2.5}

G

g – acceleration due to gravity
GA – General Aviation
GAMA – Groundwater Ambient Monitoring and Assessment Program
GAV – Ground Access Vehicles
General Plan – City of Oakland General Plan
Geotracker – California State Resource Board Geotracker
GHG – Greenhouse Gas
GIS – Geographic Information System
GPC – Global Warming Potential
gpd – Gallons Per Day
gpm – Gallons Per Minute
GPUs Ground Power Units
Greenstone – submarine basalt
GSA – Groundwater Sustainability Agencies
GSE – Ground Support Equipment
GSP – Groundwater Sustainability Plan
GWP – Global Warming Potential

H

H&H – Hydrologic and Hydraulic

HABS – Historic American Buildings Survey

Handbook – The *California Airport Land Use Planning Handbook* published by Caltrans

HAP – Hazardous Air Pollutants

HASP – Health and Safety Plan

HAZWOPER – Hazardous Waste Operations and Emergency Response

HFCs – Hydrofluorocarbons

HHRA – Human Health Risk Assessment

HI – Hazard index

HIa – Acute Hazard Index

HIc – Chronic Hazard Index

HMBP – Hazardous Materials Business Plan

HMCP – Hazardous Materials Contingency Plan

HMMP – Hazardous Materials Management Plan

HMIS – Hazardous Materials Inventory Statement of the Unified Program

HMRRP – Hazardous Materials Release Response Plan and Inventory

HMTA – Hazardous Materials Transportation Act of 1975

HMTUSA – Hazardous Materials Transportation Uniform Safety Act

hp – horsepower

HQ – hazard quotient

HSWA – Hazardous and Solid Waste Amendments of 1984

HVAC – Commercial Heating, Ventilation, and Air-Condition

HWCL – Hazardous Waste Control Law

Hz – Hertz

I

I-880 – Interstate 880

IAB – International Arrivals Building

IATA – International Air Transport Association

ICAO – International civil Aviation Organization

IDDE – Illicit Discharge Detection and Elimination

IEPR – Integrated Energy Policy Report

Ignitability – ability to ignite by open flame

IGP – Industrial General Permit

in/sec – inches per second

IPaC – Information, Planning and Conservation System

IPCC – Intergovernmental Panel on Climate Change

ISI – Institute for Sustainable Infrastructure

K

kBtu – kilo British thermal unit

kg – kilogram

kW – kilowatts

kWh – kilowatt-hours

L

LBP – Lead-Based Paint

lbs – pounds

lbs/MMBTu – pounds per million British thermal units

LCFS – low carbon fuel standard

L_{dn} – Day-Night Average Sound Level

LEA – Local Enforcement Agency

$L_{eq(h)}$ – Peak hourly equivalent sound level

LNG – Liquified Natural Gas

L_{max} – Maximum sound level or peak sound level during a noise event

LOS – Level of Service

LPAB – Landmarks Preservation Advisory Board

LPG – liquefied petroleum gas

LUST – Leaking Underground Storage Tanks

LUTE – Land Use and Transportation Element

M

M_L – Richter Magnitude

M_{max} – Maximum Moment Magnitude

M_w – Moment Magnitude

MAP – million annual passengers

MassDEP – Massachusetts Department of Environmental Protection

Master Plan – The 2006 *Oakland International Master Plan*

MBTA – Migratory Bird Treaty Act

MEC – Munitions and Explosives of Concern
MEI – maximally exposed individual
mg – milligram
MG – million gallons
mgd – Million Gallons Per Day
 $\mu\text{g}/\text{m}^3$ C – micrograms per cubic meter
mm – millimeter
MMBtu/hr – million British thermal units per hour
MMP – Materials Management Program
MMRP – Mitigation Monitoring and Reporting Program
MOA – Memorandum of Agreement
MOU – Memorandum of Understanding
MPOs – Metropolitan Planning Organizations
mpg – miles per gallon
mph – miles per hour
MT – metric ton
MTC – Metropolitan Transportation Commission
mtCO₂e – metric tons of carbon dioxide equivalents
MWWTP – Main Wastewater Treatment Plant

N

NAAQS – National Ambient Air Quality Standards
NAC – Noise Abatement Criteria
NAHC – Native American Heritage Commission
NAL – Numeric Action Level
NEHRP – National Earthquake Hazards Reduction Program
NEPA – National Environmental Policy Act
NESHAP – National Emissions Standards for Hazardous Air Pollutants
NF – North Field
NFIP – National Flood Insurance Program
NH₄ – methane
NHPA – National Historic Preservation Act
NHTSA – National Highway Traffic Safety Administration
NMFS – National Marine Fisheries Service

N₂O – Nitrous oxide
NO₂ – Nitrogen dioxide
NO_x – Nitrogen oxides
NOD – Notice of Determination
NOP – Notice of Preparation
NPDES – National Pollution Discharge Elimination System
NPORDS – North Port of Oakland Refuse Disposal Site
NRCS – Natural Resources Conservation Service
NRHP – National Register of Historic Places
NWI – National Wetlands Inventory
NWIC – Northwest Information Center

O

O₃ – Ozone
OAK – Oakland International Airport
Oakland – City of Oakland
Oakland Coliseum – RingCentral Coliseum
OEHHA – California Office of Environmental Health Hazards Assessment
OFD – Oakland Fire Department
Off-Road Regulation – In-Use Off-Road Diesel Fueled Fleets Regulation
ohm-cm = ohm-centimeter or measurement of resistivity
Old Bay – Yerba Buena Mud
OMC – Oakland Maintenance Center
OPD – Oakland Police Department
OPR – California Governor’s Office of Planning and Research
OSCAR – Opens Space Conservation and Recreation
OSFM Office of the State Fire Marshal
OSHA – Occupational Safety and Health Administration
OUSD – Oakland Unified School District

P

PAL – Planning Activity Level
Pb – Lead
PCA – Pre-Conditioned Air
PCB – Polychlorinated Biphenyl

PCSDM – Post-construction Stormwater Design Manual

PDT – Pacific Daylight Time

PEV – Plug-in Electric Vehivle

PFAS – Polyfluoroalkyl Substances

PFC – Passenger Facility Charge

PFOA – Perfluorooctanoic acid

PGAs – Peak Horizontal Ground Surface Accelerations

PG&E – Pacific Gas & Electric Company

Plan – The Plan Bay Area 2050

PM – particulate matter

PMP – Pedestrian Master Plan

Port – Port of Oakland

Porter Cologne Act – Porter Cologne Water Quality Control Act

PPA – Priority Production Area

ppm – Parts Per Million

PPV – Peak Particle Velocity

PRC – Public Resources Code

Program – the Community air Protection Program

Proposed Project – Terminal Modernization and Development Project

Protocol – Air Quality Protocol

PUC – Public Utilities Code

Q

QSD – Qualified SWPPP Developer

QSP – Qualified SWPPP Practitioner

R

RAC – Rental Car Center

RCRA – Resource Conservation and Recovery Act

Reactivity – ability for materials and waste to generate vapors when mixed with water

REC – renewable Energy Credits

RMT – Remote Monitoring Terminals

ROG – Reactive Organic Gases

RSA – Runway Safety Area

RTAC – Regional Targets Advisory Committee

RTP – Regional Transportation Plan

RWQCB – Regional Water Quality Control Board

S

SAF – Sustainable Aviation Fuels

SAFE – Safer Affordable Fuel Efficient

SARA – Superfund Amendments and Reauthorization Act of 1986

SB – Senate Bill

SCK – Stockton Metropolitan Airport

SCS – Sustainable Communities Strategy

SD – Special District

SDWA – Safe Drinking Water Act

Seismic Hazard Zone Maps – maps issued by the Seismic Hazard Mapping Act

SEL – Sound Exposure Level

SENEL – Single Event Noise Exposure level

SFBAAB – San Francisco Bay Area Air Basin

SFBRWQD – San Francisco Bay Regional Water Quality Control Board

SFO – San Francisco International Airport

SFHA – Special Flood Hazard Area

SGMA – Sustainable Groundwater Management Act

SHMA – Seismic Hazards Mapping Act

SHPO – State Historic Preservation Officer

Single-event noise metrics – noise events

SIP – State Implementation Plan

SJC – San José Mineta International Airport

SLF – Sacred Lands File

SMF – Sacramento International Airport

SMP – Site Management Plan

SO₂ – Sulfur dioxide

SO_x – Sulfur oxides

SPCC – spill prevention control and countermeasure

SR – State Route

SSEV – Substation for Electric Vehicle Charging

SSMP – Sewer System Management Plan

SWDM – Stormwater Design Manual

SWMIP – Stormwater Management Implementation Plan

SWPPP – Stormwater Pollution Prevention Plan

SWRCB – State Water Resources Control Board

I

TAC – Toxic Air Contaminant

TIRG – Transportation Impact Review Guidelines

TMDL – Total Maximum Daily Load

Toxicity – ability to be poisonous

TPD – Tons per Day

TPH – Total Petroleum Hydrocarbons

TPY – tons per year

TRB – Transportation Research Board

TSA – Transportation Security Administration

TSCA – Toxic Substances Control Act

U

UBC – Uniform Building Code

USACE – U.S. Army Corps of Engineers

USC – U. S. Code

USDOT – U.S. Department of Transportation

USEPA – U.S. Environmental Protection Agency

USFWS – U.S. Fish and Wildlife Service

USGS – United States Geological Service

UST – Underground Storage Tank

UWMP – Urban Water Management Plan

UXO – Unexploded Ordnances

V

VALE – Voluntary Airport Low Emissions

VdB – Vibration decibels

VDEC – Verified Diesel Emission Control Strategies, i.e., exhaust retrofits

VMT – Vehicle-Miles Traveled

VOCs – Volatile Organic Compounds

W

WDID – Waste Discharger Identification

WEF – Wildlife Exclusion Fencing

WHMP – Wildlife Hazard Management Plan

WMA – Waste Management Authority

WSCP – Water Storage Contingency Plan

Z

ZEV – Zero Emissions Vehicle

Zones of Required Investigation – regulatory zones established by State Geologists

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CHAPTER 8

REFERENCES

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The following section lists the references used in each chapter of the environmental impact report (EIR) in alphabetical order.

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None.

CHAPTER 1 INTRODUCTION

None.

CHAPTER 2 DESCRIPTION OF PROJECT COMPONENTS

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