

3.0 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project. The following pages present a more detailed checklist and discussion of each environmental factor.

- Aesthetics
- Biological Resources
- Greenhouse Gas Emissions
- Land Use/Planning
- Population/Housing
- Transportation/Traffic
- Agriculture and Forestry Resources
- Cultural Resources
- Hazards & Hazardous Materials
- Mineral Resources
- Public Services
- Utilities/Service Systems
- Air Quality
- Geology/Soils
- Hydrology/Water Quality
- Noise
- Recreation
- Mandatory Findings of Significance

DETERMINATION:

On the basis of this initial evaluation:

I find that the Proposed Project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

I find that although the Proposed Project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

I find that the Proposed Project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

I find that the Proposed Project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

I find that although the Proposed Project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the Proposed Project, nothing further is required.

Arme Henry
Signature

8/24/12
Date

Signature

Date

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
I. AESTHETICS				
Would the project:				
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The visual character of the City of Oakland is framed by the ridgeline of the Oakland-Berkeley Hills on the east, and the estuary shoreline and San Francisco Bay on the west, as described by the Oakland General Land Use and Transportation Element Draft Environmental Impact Report (ESA, 1997). The Oakland International Airport (OAK or Airport) is located along the estuary shoreline and forms a visual city edge feature, and the buildings on the Airport property are a visual landmark. The Airport is described as having functional open space character (ESA, 1997). The Airport is part of the Seaport and Airport/Gateway Showcase District, as identified in the Land Use and Transportation Element of the Oakland General Plan, which envisions Hegenberger Gateway as a regional attraction. Land use policies support the continued development of the Airport and related uses (Community and Economic Development Agency, 1998).

a) Scenic Vista

The Proposed Project would be developed entirely on existing Airport property. Most of the Proposed Project improvements would be constructed at-grade; relocated navigational aids would be similar to those that exist currently and are generally visible only on the Airport runways and vehicle service roads and from the air. Views from the Airport consist primarily of San Francisco Bay from the west and southwest, and Mission Peak and Fremont Hills farther to the southeast; San Leandro Bay to the north; views of open parks and golf courses to the northeast and northwest; and views of industrial, commercial, and residential development toward the east, with the Oakland-Berkeley Hills farther east. The project site is level, with little or no discernible relief, which is necessary for operation of aircraft on the runways and taxiways.

Views toward the Airport are available from residential neighborhoods in Alameda to the north; from surrounding recreational areas, including the Alameda Municipal Golf Course, Metropolitan Golf Links, Oyster Bay Regional Shoreline, and San Leandro Bay Regional Shoreline; and from commercial areas east of the Airport. However, because of the relatively level topography, views of the Airport in the immediate vicinity are limited. The Airport is visible from more distant locations, such as from the hills to the east. Regardless, the visual character of the Airport is predominantly industrial in nature and related

to Airport use. There are no designated or identifiable scenic vistas from the property. Accordingly, the Proposed Project would result in no impact to scenic vistas

b) Scenic Resources

The Proposed Project would have no impacts to scenic views and vistas, because visual resources of the built or natural environment do not occur at the project site that would contribute to a scenic public setting. Accordingly, no scenic resources would be affected by the Proposed Project.

In addition, the Proposed Project would be constructed at-grade, and relocated navigational aids would be similar to those that exist currently. The Proposed Project would not be visible from the closest state-designated scenic highway, Interstate 580, approximately 4.5 miles east of the project site. The closest significant natural landmarks in the area include the San Leandro Bayshore and Oakland-Berkeley Hills (ESA, 1997), which are not located at the project site. The Proposed Project would not alter these landmarks or views of the landmarks. Therefore, no impacts to scenic resources of the built or natural environment would occur as a result of implementation of the Proposed Project.

c) Visual Character

The visual quality in the vicinity of the Airport is primarily controlled by commercial and industrial buildings, the open expanse of the Alameda Municipal Golf Course, San Leandro Bay, and San Francisco Bay. Within the Airport and surrounding area, the visual character is informed by the Airport facilities, surface parking, and undeveloped open areas, including the Metropolitan Golf Links golf course. Within the project site itself, the visual character is formed by level, graded surfaces and paved runways. As described above, the Airport is characterized by its functional, open-space character.

The Proposed Project would be located within the existing airfield and would not alter existing views of the Airport. The proposed minor changes to existing runways and associated navigational aids would not substantially degrade the visual character or quality of the project site or its surroundings. Therefore, the Proposed Project's impact on visual character or quality would be less than significant.

d) Light or Glare

The Proposed Project would require the relocation of runway and taxiway lights and signage, and modification to existing navigational aids. However, these modifications to the existing lighting system are all at-grade, and would not result in additional glare-inducing features. Runway lights and relocated approach lights (medium-intensity approach lighting system with runway alignment indicator lights and Approach Lighting System with Sequenced Flashing Configuration 2) would not add to the existing Airport lighting, and therefore would not create a nuisance in the vicinity or interfere with activities during the day or night. Therefore, the Proposed Project would have less-than-significant impacts related to light or glare. The contribution of the Proposed Project to light and glare impacts in the Airport and surrounding areas would be less than significant.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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II. AGRICULTURE AND FORESTRY RESOURCES

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:

a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a – e) Agriculture and Forestry Resources Effects

The Proposed Project is located within the Oakland International Airport (Airport). The City of Oakland General Plan designates the project site for Airport uses. Because the project site does not contain agricultural uses and is not zoned for such uses, the Proposed Project would not convert any prime farmland, unique farmland, or Farmland of Statewide importance to non-agricultural use, and it would not conflict with existing zoning for agricultural land use or a Williamson Act contract, nor would it involve any changes to the environment that could result in the conversion of farmland. The Airport does not fall

under the State Public Resource Code definitions of forest land⁹ or timberland¹⁰; therefore, the Proposed Project would not conflict with zoning, or cause rezoning of forest land. Furthermore, the Proposed Project would not convert forest land to non-forest use. Therefore, the Proposed Project would have no impacts related to agricultural and forestry resources.

⁹ State Public Resources Code Section 12220 defines “forest land” as: land that can support 10 percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits.

¹⁰ State Public Resources Code Section 4526 provides the following definition for “timberland”: “Timberland” means land, other than land owned by the federal government and land designated by the board as experimental forest land, which is available for, and capable of, growing a crop of trees of any commercial species used to produce lumber and other forest products, including Christmas trees. Commercial species shall be determined by the board on a district basis after consultation with the district committees and others.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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III. AIR QUALITY

Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:

a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

An air quality assessment and a health risk assessment (HRA) were performed for the Proposed Project. The assessments were conducted in accordance with the Bay Area Air Quality Management District (BAAQMD) *California Environmental Quality Act (CEQA) Air Quality Guidelines*¹¹ (adopted on June 2, 2010, and updated in May of 2011) (BAAQMD, 2010a). The temporary (i.e., construction) and cumulative impacts related to the project were analyzed and compared to the appropriate significance thresholds within the BAAQMD *CEQA Air Quality Guidelines*. The Proposed Project would not change the number of aircraft operations and the aircraft fleet mix serving OAK or result in a net increase in long-term operational emissions from any other activities; therefore, a long-term operational emissions inventory is not required. **Appendix J** includes the *Air Quality Technical Report*, which provides the regulatory setting, detailed assumptions, and methodologies for the air quality analyses.

a) Air Quality Plan

On September 15, 2010, the BAAQMD adopted the *2010 Bay Area Clean Air Plan* (BAAQMD, 2010b). The *2010 Clean Air Plan* updates the *Bay Area 2005 Ozone Strategy* in accordance with the requirements of the California Clean Air Act to implement all feasible measures to reduce ozone; provide a control strategy to reduce ozone, particulate matter, air toxins, and greenhouse gases (GHGs) in a

¹¹ Although not currently legally binding, the BAAQMD CEQA Air Quality Guidelines provide a useful guidepost for establishing potentially significant air quality impacts. Specifically, the BAAQMD Guidelines provide a reliable approach for making a conservative air quality determination regarding GHG emissions and toxic air contaminants. With regard to GHG emissions and toxic air contaminants, the BAAQMD Guidelines are more conservative (more stringent) than other air districts in California, and serve as a model for other air districts.

single, integrated plan; and establish emission control measures to be adopted or implemented in the 2010 through 2012 timeframe. The primary goals of the *2010 Clean Air Plan* are to:

- Attain air quality standards;
- Reduce population exposure and protect public health in the San Francisco Bay Area; and
- Reduce GHG emissions and protect the climate.

The BAAQMD recommended measures for determining project support of these goals is to consider: (1) the primary goals of the *2010 Clean Air Plan*; (2) the consistency with the 55 control measures listed in the *2010 Clean Air Plan*; and (3) whether the project would hinder implementation of the *2010 Clean Air Plan*.

The Proposed Project would be consistent with the *2010 Clean Air Plan* goals, and would not conflict with the primary goals of the *2010 Clean Air Plan*. In addition, the Proposed Project would be consistent with the *2010 Clean Air Plan's* applicable specific control measures and actions; particularly, the Proposed Project would comply with the Mobile Source Measures C-1 – Construction and Farming Equipment, which include the retrofit of engines with diesel particulate filters or the upgrade of electric equipment and the use of renewable electricity and renewable fuels. Thus, the Proposed Project would be consistent with the type of strategies promoted by the *2010 Clean Air Plan*. Furthermore, the Proposed Project does not include any components that would disrupt, delay, or otherwise hinder implementation of the *2010 Clean Air Plan* (e.g., preclude the extension of a transit line or bike path).

The Proposed Project would comply with applicable air quality plans and would not obstruct implementation of any of these plans. As such, the Proposed Project would have less-than-significant impacts on the implementation of applicable air quality plans.

b) Air Quality Standards

Construction activities for the OAK RSA Improvement Project would include site preparation, grading, and placement of infrastructure. These construction activities would require the use of heavy trucks, excavating and grading equipment, material loaders, backhoes, and construction equipment. During the construction period, the Proposed Project would add between 25 to 30 cars and 10 to 20 construction vehicles per day.

During the construction period, fugitive dust¹² emissions would be generated from ground-disturbing activities, materials handling, and mobile equipment use on unimproved surfaces. Fugitive dust emissions would contribute particulate matter into the local atmosphere. Dust could also cause watering eyes or irritation to the lungs, nose, and throat. Depending on exposure, adverse health effects can occur due to this particulate matter in general, and also due to specific contaminants such as asbestos that may be in the soil. In addition, fugitive organic gases (or off-gassing) would be generated during asphalt paving of taxiways and runways. Fugitive dust emissions during construction would be a potentially significant impact.

The BAAQMD's *CEQA Air Quality Guidelines* require implementation of best management practices (BMPs) to control fugitive dust emissions. The BAAQMD has identified eight construction mitigation

¹² Any solid particulate matter that becomes airborne, other than that emitted from an exhaust stack, directly or indirectly as a result of the activities of man.

measures, and considers these measures as meeting the BMP threshold for fugitive dust emissions. The Port of Oakland (Port) would implement **Mitigation Measure AQ-1 – Fugitive Dust Control Measures**, detailed below, to reduce fugitive dust impacts. **Mitigation Measure AQ-1** addresses fugitive dust from windblown dust, loading/unloading materials, movement of materials, and equipment movement on unpaved surfaces, as well as exhaust emissions from idling. With the implementation of **Mitigation Measure AQ-1**, fugitive dust impacts resulting from the Proposed Project would be less than significant.

Although the Proposed Project would result in less-than-significant impacts with implementation of **Mitigation Measure AQ-1**, given the construction duration and size of the Proposed Project, the Port would implement **Mitigation Measure AQ-2 – Additional Fugitive Dust Emissions Reduction Measures**, which would further reduce fugitive dust emissions resulting from construction activities.

In addition to fugitive dust emissions from construction activities, equipment exhaust would also be generated from construction worker vehicle trips, material truck trips, and the operation of construction equipment. Construction exhaust emissions were estimated using the California Air Resources Board's OFFROAD2007, EMFAC2007, and URBEMIS 2007 model (Version 9.2.4) emission models and other appropriate guidelines. The emission estimates combine information on construction schedule such as hours of operation and vehicle mileage with equipment emissions data specific to the San Francisco Bay Area Air Basin. The *Air Quality Technical Report* prepared for the Proposed Project provides detailed assumptions and methodologies for the construction emissions inventory (see **Appendix J**).

The estimated average daily construction exhaust emissions over the entire construction period are presented in **Table 5**. These emissions are less than the applicable BAAQMD significance thresholds, as shown in **Table 5**. Therefore, the Proposed Project would result in less-than-significant construction-related criteria air pollutant emissions, and additional construction mitigation measures are not required.

Table 5
Project Construction Average Daily Emissions Estimates

	Estimated Average Daily Unmitigated Emissions (pound per day)				
	ROG	NO _x	CO	PM ₁₀	PM _{2.5}
Project	5.12	44.4	32.6	1.87	1.69
<i>BAAQMD Threshold</i>	54	54	NA	82	54
Significant	No	No	NA	No	No

Notes:

BAAQMD = Bay Area Air Quality Management District

CO = carbon monoxide

NA = not available – BAAQMD California Environmental Quality Act Guidelines does not contain a significance threshold for CO.

NO_x = oxides of nitrogen

PM₁₀ = particulate matter with a diameter equal to or less than 10 microns

PM_{2.5} = particulate matter with a diameter equal to or less than 2.5 microns

ROG = reactive organic gas

The project construction activities would be temporary in duration. The Proposed Project's air quality impacts from construction would result in daily average emissions of less than the BAAQMD significance

thresholds. Therefore, with the implementation of **Mitigation Measure AQ-1** and **AQ-2**, the Proposed Project would result in less-than-significant construction-related criteria air pollutant emissions.

In summary, the Proposed Project would not violate any air quality standard or contribute substantially to an existing or projected air quality violation, and impacts would be less than significant with mitigation incorporated.

c) Cumulative Increase in any Criteria Pollutant

The BAAQMD's *CEQA Air Quality Guidelines* include standards and methods for determining the significance of cumulative health risk impacts. The method for determining cumulative health risk requires the addition of the health risks from permitted sources and major roadways in the vicinity of a project (i.e., within a 1,000-foot radius of the source, also considered the zone of influence for a health risk analysis), then adding the health risks of the Proposed Project impacts (in this case, construction activities) to determine whether the project would result in a cumulatively considerable net increase of any criteria pollutant identified in federal or state ambient air quality standards.

BAAQMD has developed a geo-referenced database of permitted toxic air contaminants (TACs) emissions sources throughout the San Francisco Bay Area and has developed the Stationary Source Risk & Hazard Analysis Tool (dated May 2011) for estimating cumulative health risks from these permitted sources. Ten permitted sources are located within 1,000 feet of the Proposed Project. Information associated with these sources was provided and/or verified by BAAQMD (Gordon, 2011). Information (cancer risks, hazard index [HI], and concentration of particulate matter with a diameter equal to or less than 2.5 microns [$PM_{2.5}$]) was adjusted for distance from source to receptor based on BAAQMD's *Distance Adjustment Multiplier for Diesel Internal Combustion Engine* and *the Distance Adjustment Multiplier for Gasoline Dispensing Facilities*.

For a cumulative HRA, BAAQMD guidelines indicate that the risks from all sources within a 1,000-foot radius of the source should be assessed and compared to a cumulative cancer risk threshold of 100 in a million, a cumulative hazard impact ratio of 10, and a cumulative $PM_{2.5}$ concentration of 0.8 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$).

BAAQMD has also developed a geo-referenced database of roadways throughout the San Francisco Bay Area, and has developed the Highway Screening Analysis Tool (dated May 2011) for estimating cumulative health risks from roadways. State Route 61 is located adjacent (to the east of the project site) and within 1,000 feet of the project but further than 1,000 feet from the nearby sensitive receptors impacted by the project. Nevertheless, the health impacts from this roadway were included in the cumulative analysis.

Roadway segments along State Route 61 from Harbor Bay Parkway and 98th Avenue were reviewed within the geo-referenced database. The data associated with the southbound traffic impacts within the geo-referenced database were used, as the receptors of concern are to the west of State Route 61 (nearest travel lanes). The data associated with the 6 feet height receptor within the geo-referenced database were used as most residences in the area are single-family residences, not multi-story apartments.

In addition, OAK operations would be considered a non-permitted source (i.e., aircraft operations, ground support equipment, and other airport-related equipment) and also emit TACs. No other sources of TACs were identified within 1,000 feet of the project site.

The maximum cumulative cancer risk would be 35 per million (**Appendix J**). The cumulative cancer risk is therefore below the BAAQMD threshold of 100 per million, and would be less than significant. The maximum hazard impact ratio would be 0.05. The cumulative hazard impact would be below the BAAQMD threshold of 10, and the cumulative impact would therefore be less than significant. The maximum cumulative annual $PM_{2.5}$ concentration would be $14 \mu\text{g}/\text{m}^3$. The cumulative annual $PM_{2.5}$ concentration is potentially above the BAAQMD threshold of $0.8 \mu\text{g}/\text{m}^3$, and therefore impacts would be cumulatively potentially significant.

The cumulative cancer risk and hazard impacts would be below the BAAQMD cumulative significance criteria. However, the cumulative $PM_{2.5}$ concentrations would potentially be above the BAAQMD cumulative significance criteria, and thus, there is a potential cumulative impact. Given that the project would not result in increased $PM_{2.5}$ concentrations exceeding the project-level thresholds (as shown under **Section 3.III-d**), the OAK RSA Improvement Project would not result in a cumulatively considerable contribution to localized health risk and hazard impacts, resulting in a less-than-significant cumulative air quality impact.

d) Pollutant Concentration Near Sensitive Receptors

Some receptors are considered more sensitive to air pollutants than others, owing to pre-existing health problems, proximity to the emissions source, or duration of exposure to air pollutants. Land uses such as primary and secondary schools, hospitals, and convalescent homes are considered to be relatively sensitive to poor air quality because the very young, the old, and the infirm are more susceptible to respiratory infections and other air quality-related health problems than the general public. Residential areas are considered sensitive to poor air quality because people in residential areas are often at home for extended periods.

Residential areas located to the north are within 1,000 feet of the project site. However, residential areas located to the southeast and east are beyond 1,000 feet of the project site, and thus not included in this analysis per BAAQMD guidance.

Project-related construction activities would produce diesel particulate matter (DPM) and $PM_{2.5}$ emissions associated with construction equipment such as loaders, haul trucks, and backhoes. This could lead to an increase in the risk of cancer, non-cancer hazards, and exposure of sensitive receptors to high levels of $PM_{2.5}$ concentrations.

Cancer Risk

Cancer risk is defined as the lifetime probability of developing cancer from exposure to carcinogenic substances. Cancer risks are expressed as the chances in one million of getting cancer; for example, ten cancer cases among one million people exposed would be considered a significant impact.

Following HRA guidelines included in BAAQMD's *CEQA Air Quality Guidelines* (BAAQMD, 2010a), BAAQMD's *Health Risk Screening Analysis Guidelines* (BAAQMD, 2005), and in the California Office of Environmental Health Hazard Assessment (OEHHA) guidelines (OEHHA, 2003), incremental cancer risks (i.e., the additional risk above baseline levels attributable to the Proposed Project) were calculated by applying toxicity factors to modeled TAC concentrations in order to determine the inhalation dose (in milligrams per kilogram of body weight per day). The estimated dose through inhalation was multiplied by the cancer potency slope factor to determine the incremental cancer risk. The analysis is based on guidance from OEHHA for exposure parameters, including breathing rate, exposure periods, inhalation absorption factor, and age sensitivity factors. **Appendix J** provides additional information on HRA methodology, assumptions, and results.

As a result of construction activities associated with the OAK RSA Improvement Project, the maximum cancer risk for the maximum exposed residential-adult receptor would be less than 0.01 per million. The maximum cancer risk for a residential-child would be 0.05 per million. The maximum cancer risk for a school-child would be 0.16 per million (**Appendix J**). The maximum exposed receptors are to the north of the project site, which is contrary to the typical wind direction, resulting in relatively low exposures. The cancer risk due to construction activities is therefore below the BAAQMD threshold of 10 per million, and would be less than significant.

Although not considered significant, implementation of **Mitigation Measures AQ-1 and AQ-2** would reduce the construction emissions and these reported cancer risks.

According to OEHHA guidelines, the results of a HRA should not be interpreted as the expected rates of cancer or other potential human health effects, but rather as estimates of probability of potential risk based on current knowledge, a number of highly conservative assumptions, models, and techniques, and the best assessment tools currently available.

Non-Cancer Health Impacts

Both acute (short-term) and chronic (long-term) adverse health impacts unrelated to cancer are measured against a HI, which is defined as the ratio of the predicted incremental exposure concentration from the project to a published reference exposure level (REL) for a particular TAC that could cause adverse health effects. The RELs are published by OEHHA and based on epidemiological research.

The chronic REL for DPM was established by the California OEHHA (OEHHA, 2010) as $5 \mu\text{g}/\text{m}^3$. There is no acute REL for DPM. However, diesel exhaust does contain acrolein, which does have an acute REL. BAAQMD's DPM speciation¹³ profile was used to assess the acute impacts of acrolein, which is estimated at approximately 1.3 percent of the total DPM emissions. The acute REL for acrolein was established by the California OEHHA as $2.5 \mu\text{g}/\text{m}^3$. The chronic impact analysis uses the annual maximum concentration, while the acute impact uses the maximum 1-hour concentration over the 3-year construction period.

¹³ Speciation is the separation of emissions into their individual compounds.

As a result of project-related construction, the chronic HI would be less than 0.01, and the acute HI would be 0.03 for the maximum exposed residential-adult receptor. The chronic HI would be less than 0.01, and the acute HI would be 0.03 for the maximum exposed residential-child receptor (**Appendix J**). The chronic HI would be less than 0.01, and the acute HI would be 0.04 for the maximum exposed school-child receptor. The chronic and acute HI would be below the BAAQMD threshold of 1.0, and the impact of the project would therefore be less than significant.

PM_{2.5} Concentration

Dispersion modeling was also used to predict the exposure of sensitive receptors to project-related emissions of PM_{2.5}. Because emissions of PM_{2.5} are associated with health risks, the BAAQMD has established a separate significance threshold to protect public health from this pollutant. Only PM_{2.5} exhaust emissions are included in this analysis, because fugitive dust emissions are addressed under **Section 3.III-b** of this document.

The maximum annual PM_{2.5} concentration as a result of project construction would be 0.01 µg/m³ at the residential-adult, residential-child, and school-child receptors. The annual PM_{2.5} concentration due to implementation of the Proposed Project is below the BAAQMD threshold of 0.3 µg/m³, and therefore impacts would be less than significant.

e) Objectionable Odors

Typical odor sources of concern include wastewater treatment plants, sanitary landfills, transfer stations, composting facilities, petroleum refineries, asphalt batch plants, chemical manufacturing facilities, fiberglass manufacturing facilities, auto body shops, rendering plants, and coffee-roasting facilities. Diesel-fueled construction equipment associated with the OAK RSA Improvement Project would generate some odors associated with diesel exhaust. Because these emissions would be temporary, limited to the construction period, and would typically dissipate quickly, they would be unlikely to affect a substantial number of people. Therefore, odor impacts associated with construction of the OAK RSA Improvement Project would be less than significant.

Air Quality Mitigation Measures

The following mitigation measures apply to impacts identified in **Section 3.III-b**.

Mitigation Measure AQ-1 – Fugitive Dust Control Measures

The construction contractor shall reduce construction-related air pollutant emissions by implementing BAAQMD's basic fugitive dust control measures. Therefore, the project shall include the following requirements in construction contracts:

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

- All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible.
- All vehicle speeds on unpaved roads shall be limited to 15 miles per hour.
- A publically visible sign shall be posted with the telephone number and person to contact at the Port regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's telephone number shall also be visible to ensure compliance with applicable regulations.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, California Code of Regulations Section 2485). Clear signage shall be provided for construction workers at all access points.
- All construction equipment shall be maintained and properly tuned in accordance with manufacturers' specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.

Mitigation Measure AQ-2 – Additional Fugitive Dust Emissions Reduction Measures

The construction contractor shall implement the following measures during construction to further reduce construction-related fugitive dust emissions:

- All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 miles per hour¹⁴.
- The simultaneous occurrence of excavation, grading, and ground-disturbing construction activities in the same area at any one time shall be limited. Activities shall be phased if feasible to reduce the amount of disturbed surfaces at any one time.
- All trucks and equipment, including their tires, shall be washed off prior to leaving the site.

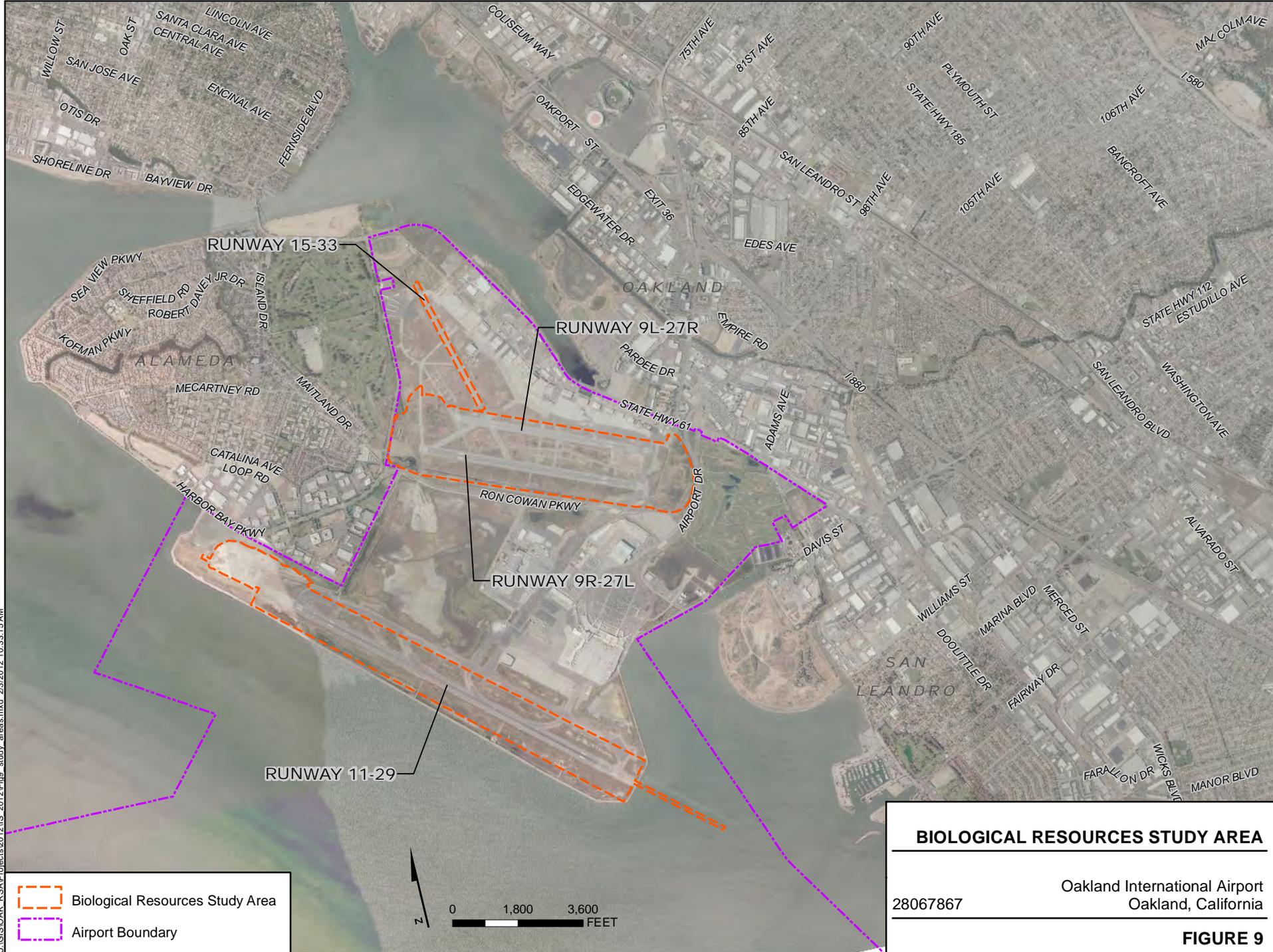
¹⁴ The average wind speed at OAK is 9 miles per hour, and typically ranges from 6 to 11 miles per hour.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
IV. BIOLOGICAL RESOURCES				
Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Existing Conditions

For the purposes of describing the existing biological resources at the Proposed Project site, a study area was established for environmental considerations that encompasses potential direct and indirect construction-related impacts on fish, wildlife, plants, wetlands, and other sensitive biological resources. The biological resources study area (study area) is shown on **Figure 9**. Existing biological resources within this area are described in detail in the section below. For the purpose of analysis in this document, special-status species include:

- Plants and animals that are listed or proposed for listing as threatened or endangered under the California Endangered Species Act (CESA) and/or the Federal Endangered Species Act (FESA);
- Plants and animals that are candidates for future listing as threatened or endangered under CESA and/or FESA;



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Source: Aerial Photo, National Agriculture Imagery Project, 2010.

- Plants and animals that meet the definition of rare or endangered under the California Environmental Quality Act (14 California Code of Regulations Section 15380), but are not listed under CESA or FESA;
- Plants appearing on List 1A and List 1B of the California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants of California;
- Plants and animals that are designated by the California Department of Fish and Game (CDFG) as Species of Special Concern;
- Animals that are designated as “fully protected” under the California Fish and Game Code;
- Bird species protected under the Migratory Bird Treaty Act (MBTA);
- Bird species protected under the Bald and Golden Eagle Protection Act; and
- Bat species listed under the Western Bat Working Group (WBWG) Regional Bat Species Priority Matrix.

Existing data for the study area (maximum area of potential direct and indirect impacts to sensitive biological resources) were reviewed for reported occurrences of special-status species by conducting the following activities:

- **Database Searches:** Information on special-status species that may occur in the vicinity of the Oakland International Airport (OAK or Airport) were acquired through the U.S. Fish and Wildlife Service (USFWS) Sacramento Field Office for the four U.S. Geological Survey (USGS)-quadrangles, CDFG's California Natural Diversity Database (CNDDDB), CNPS, and the WBWG. Species that were assessed for presence in the study area are presented in **Table C-1** in **Appendix C**.
- **Reconnaissance Surveys:** Various reconnaissance surveys of the study area were conducted on May 6, 2009, February 4 and 11, 2011, May 11, 2011, and January 5, 2012 by biologists from URS Corporation, the consultant to the Port of Oakland (Port) consultant.
- **Focused Species Surveys:** Focused surveys have been conducted in various years in the study area for western snowy plover (*Charadrius alexandrius nivosus*), California least tern (*Sternula antillarum browni*), salt marsh harvest mouse (*Reithrodontomys raviventris*), and rare plants. Survey results are summarized in the sections below corresponding to each species.

Special-Status Species Habitats

OAK consists of a highly modified section of land that is surrounded by the cities of Alameda, Oakland, and San Leandro. Land that currently supports OAK was mapped in 1855 as salt marsh, mudflat and open water of San Francisco Bay. Changes to the salt marsh and mudflat have occurred through the conversion and development of OAK in two major phases: construction of the North Field and construction of the South Field.

Based on reconnaissance surveys and aerial photograph interpretation, special-status species habitats within the study area were mapped and digitized in a Geographical Information System. Special-status

species habitats identified within the study area include non-tidal wetlands, non-tidal waters of the U.S., the sand area, and upland habitat. **Table 6** and **Figure 10** present the acreage and location of each special-status species habitat within the study area, respectively.

Table 6
Special-Status Species Habitats and Acreage Within the Study Area

Special-Status Species Habitat	Area (acres)
Non-tidal wetlands	67.56
Tidal wetlands	0.00
Non-tidal waters of the U.S.	24.09
Tidal waters of the U.S.	0.00
Sand Area	3.53
Non-native annual grassland*	126.40

Note: Areas calculated by URS Corporation using GIS.

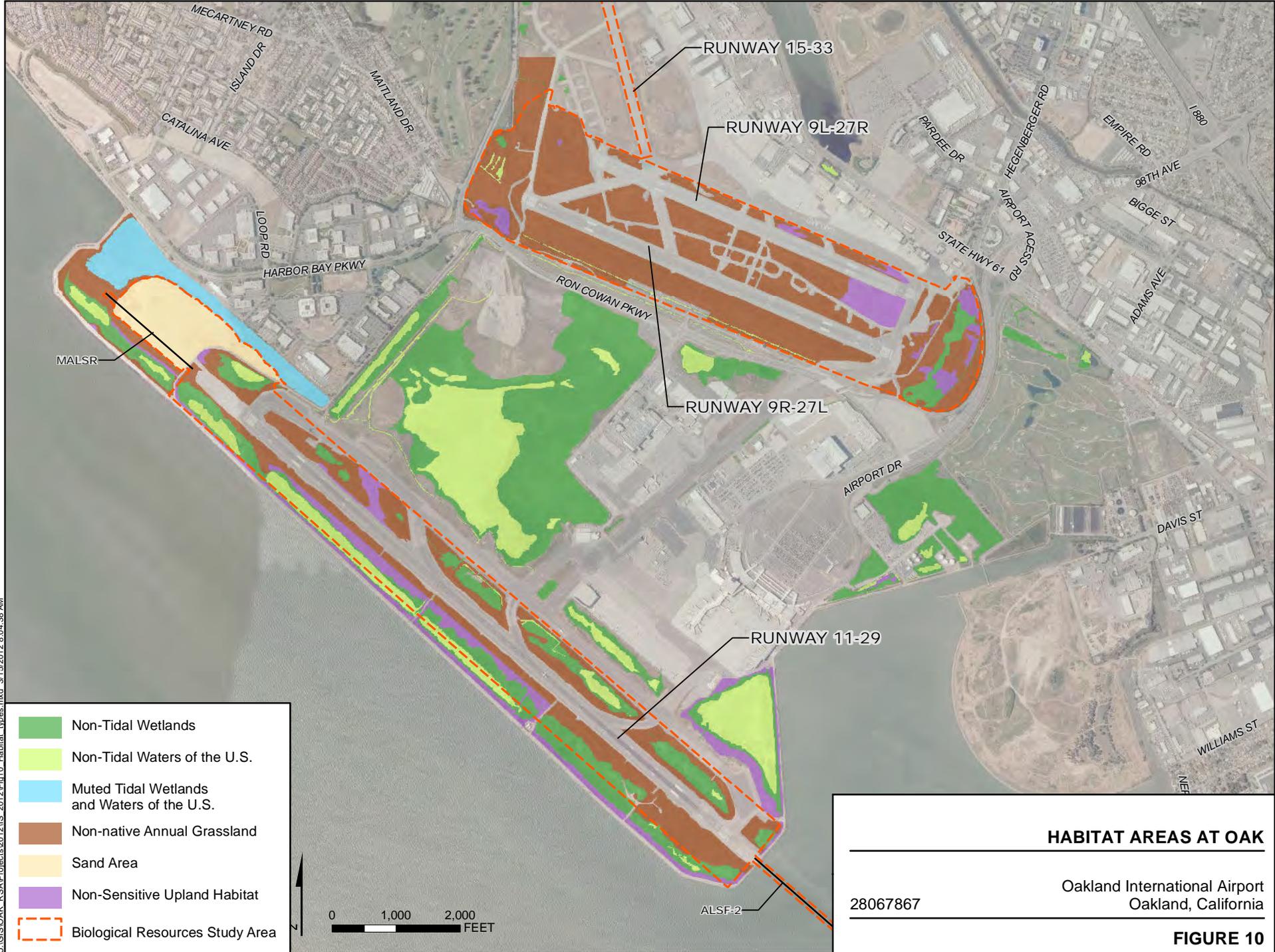
*Non-native annual grassland does not provide suitable habitat for federally listed species. It has historically provided habitat for certain migratory birds, including western burrowing owl; however, as described above, it does not currently provide valuable habitat for these species.

Most of the special-status species habitats at OAK correspond to wetlands and waters of the U.S. The U.S. Army Corps of Engineers (USACE) conducted a field verification of the wetland and waters of the U.S. features at OAK on October 28, 2009 and the jurisdictional determination was approved by USACE on March 15, 2011. This is the current jurisdictional delineation at the Airport and it is valid for 5 years.

Tidal and Non-Tidal Wetlands

Tidal wetlands are not present within the study area. However, muted tidal wetlands are present in two areas at OAK: (1) at Fan Marsh, located on the northeastern corner of the Airport boundary, east of the northern end of Harbor Bay Parkway; and (2) vegetated areas surrounding the muted tidal lagoon located at the northwestern end of Runway 11-29, just south of Harbor Bay Parkway. At the muted tidal lagoon, the tidal flow comes from two culverts, and runs under the perimeter dike vehicle service road, which effectively slows or “mutes” the tidal flow both into and out of the lagoon. The muted tidal lagoon consists of tidal wetlands and tidal waters of the U.S. Tidal influence and only partial filling of San Francisco Bay has created a lagoon at this location, supporting suitable habitat for some plant and wildlife species. The dominant vegetation surrounding these tidal waters consists of pickleweed (*Salicornia virginica*) and saltgrass (*Distichlis spicata*). Other vegetation species include bird’s foot trefoil (*Lotus corniculatus*), fat hen (*Atriplex patua*), Australian saltbush (*Atriplex semibaccata*), Mediterranean barley (*Hordeum marinum*), rabbit’s-foot grass (*Polypogon monspeliensis*), sheep sorrel (*Rumex acetosella*), and curly dock (*Rumex crispus*).

Non-tidal wetlands occur in the North Field and in the South Field at OAK. In the North Field, large patches of non-tidal wetlands occur at the end of Runways 27R and 27L, and one small patch occurs at the end of Runways 9R and 9L. In the South Field, non-tidal wetlands extend along the sides of Runway 11-29. The dominant vegetation in these non-tidal wetlands consists of pickleweed, saltgrass, alkali heath (*Frankenia salina*), and small patches of cordgrass (*Spartina* sp.). Other vegetation species



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- Non-Tidal Wetlands
- Non-Tidal Waters of the U.S.
- Muted Tidal Wetlands and Waters of the U.S.
- Non-native Annual Grassland
- Sand Area
- Non-Sensitive Upland Habitat
- Biological Resources Study Area

HABITAT AREAS AT OAK

Oakland International Airport
Oakland, California

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FIGURE 10

Source: Aerial Photo, NAIP, 2010; Habitat, URS, 2009.

include bird's foot trefoil (*Lotus corniculatus*), fat hen (*Chenopodium album*), Australian saltbush (*Atriplex semibaccata*), Mediterranean barley, rabbit's-foot grass (*Polypogon monspeliensis*), sheep sorrel (*Rumex acetosella*), and curly dock (*Rumex crispus*).

The non-tidal wetlands in the North and South Fields in the study area have specific soils, hydrology, and seasonal characteristics. These non-tidal wetlands are predominantly located on the dredged soils that were deposited in San Francisco Bay. The non-tidal wetlands in the study area historically may not have been covered with salt marsh (most likely tidal mud flat [Goals Project, 2000]), but as they exist today, they mostly resemble a salt marsh that has been drained. Seasonal inundation appears to be the result of both precipitation and high groundwater. Algal mats, debris lines, and water marks on vegetation are indicative of wetland hydrology. The majority of the non-tidal wetlands at the Airport and in the study area have a seasonal hydrology in the South and North Fields during the rainy season. Topographic depressions in the study area along the western side of Runway 11 in the South Field are identified in this document as "non-tidal wetlands" to distinguish the vegetation composition and duration of ponding from other seasonal wetlands in the vicinity of Runway 29 in the South Field, and wetlands in the North Field (**Figure 10**). The non-tidal wetland features remain ponded throughout most of the year. Specifically, the water level is generally shallow yet persistent throughout the year, and contains sufficiently brackish water, which favors the presence of native tidal marsh vegetation around the margins. In contrast, the seasonal wetlands are typically ponded for only a short period of the year. These seasonal wetland features artificially resemble marsh pannes (shallow pools with persistent ponding found in poorly drained portions of a tidal marsh) in both hydrology and vegetative cover.

Tidal and Non-Tidal Waters of the U.S.

Tidal waters within Clean Water Act (CWA) jurisdiction only occur within the study area beneath the trestle supporting the Approach Lighting System with Sequenced Flashing Configuration 2 (ALSF-2) lighting equipment southeast of the Runway 29 threshold. Tidal waters just outside the study area include the tidal lagoon north of Runway 11-29, and the tidal waters of San Francisco Bay, which are separated from OAK by the Airport's perimeter levees. However, most of the waters of the U.S. at OAK are not subject to tidal influence. Non-tidal waters of the U.S. occur in the study area. Non-tidal waters of the U.S. in North Field include one long ditch and three ponds located at the western end of Runway 9R. This ditch feature is shallow and narrow, and appears to be manmade. This feature is primarily an open-water source that converges into a linear canal and is connected to the adjacent property to the west of the Airport boundary through a culvert extending under Harbor Bay Parkway. The composition of this feature varies, but the majority of the area is open water, with portions that are seasonally devoid of water and vegetation, and contain exposed mud flats; while other areas contain small amounts of emergent vegetation such as pickleweed and saltgrass.

In the South Field, non-tidal waters of the U.S. extend along both sides of the western end of Runway 11-29. These non-tidal waters of the U.S. are located behind the perimeter dike. Year-round inundation from low elevations appears to be the result of insufficient filling, precipitation, seepage through the perimeter dike, and high groundwater.

Sand Area

Within the study area, there are 3.53 acres of sand area habitat on the western end of Runway 11. After placement of the perimeter dike the Merritt Sand placed there from dredging in San Francisco Bay was left uncovered. Therefore, the sand area present in the study area is a direct result of human activity.

Non-Native Annual Grassland

Non-native annual grassland is a prevalent vegetation community within the study area, occurring at the approach of the runways, and surrounding the runways. It is dominated by large patches of non-native grasses and herbaceous species, such as mustard (*Brassica nigra*), fennel (*Foeniculum vulgare*), wild radish (*Raphanus sativus*), filaree (*Erodium botrys*), bird's foot trefoil (*Lotus corniculatus*), plantain (*Plantago* sp.), Mediterranean barley, common wild oat (*Avena fatua*), ripgut brome (*Bromus diandrus*), Italian ryegrass (*Lolium multiflorum*), foxtail (*Hordeum leporinum*), Queen Anne's lace (*Daucus carota*), sweet clover (*Melilotus alba*), bristly oxtonque (*Picris echioides*), and purple thistle (*Cirsium vulgare*). Within the non-native annual grassland, there are large patches of the invasive iceplant (*Carpobrotus* sp.). In addition, small shrubby areas are found in scattered locations dominated by coyote bush (*Baccharis pilularis*). This area provides potential low-value habitat to the western burrowing owl and some scattered migratory birds, as described below.

Common Wildlife

OAK is located in an urbanized area, isolated from known wildlife corridors. Wildlife living in or adjacent to the Airport boundary may use portions of the study area for breeding, foraging, or as shelter habitat, either during species migration periods or year-round. Due to the high level of human activity at the Airport, the existing visual and noise disturbance, the Airport's maintenance activities, and the ongoing wildlife hazard management, upland areas within the Airport boundary provide marginal habitat for common wildlife species, primarily those species that are either attracted to, or tolerant of, human disturbance.

Bird species that use the tidal and non-tidal ~~marshes~~ wetlands, muted tidal lagoon, and channels include migratory and resident shorebirds, wading birds, waterfowl, and other water bird species. However, the ongoing U.S. Department of Agriculture (USDA) Wildlife Hazard Management Program (WHMP) deters species from getting established for public safety reasons. Pursuant to 14 Code of Federal Regulations (CFR) Part 139, an airport sponsor is required to eliminate wildlife hazards whenever they are detected. The WHMP addresses wildlife hazards at OAK. Small mammals and marine invertebrates may be present in the marshes or open grasslands. Common amphibians and reptiles may also be present in the tidal and non-tidal wetland habitats. However, fish species have not been found within the Airport boundary, and may only reside in the open waters outside the Airport boundary, on the outward side of the perimeter dike. A list of common wildlife species casually observed in the Airport boundary is included in **Appendix C, Table C-2**.

Special-Status Species

An inventory of special-status species (plants or animals that are legally protected under FESA, CESA, or other regulations) and designated and proposed critical habitats known or potentially occurring in the vicinity of the Airport, was created based on existing federal, state, and resource agency information. **Table C-1** in **Appendix C** lists all the special-status species with potential to occur in the vicinity of the Airport boundary. For each of the special-status species plant and wildlife species, habitat requirements were assessed and compared to habitats present within the study area. Factors such as onsite habitat quality and known geographic distribution of individual species were considered in evaluating the likelihood of their occurrence within the study area.

The original list suggested that approximately 83 special-status species could potentially occur in the vicinity of the Airport. Of these species, it was concluded that 71 would not occur in the study area based on the lack of suitable habitat, the extensive areas converted by human development, local or regional extirpations, and/or because the study area lies outside the species' known current geographic range. After this background review, it was determined that a total of 12 special-status species have the potential to occur within the study area. Those special-status plant and wildlife species with the potential to occur within the study area are addressed in the following two sections. In addition, the only federally designated critical habitat areas for fish, wildlife, or plant species within the study area are designated critical habitat units for listed fish species in San Francisco Bay underneath the trestle supporting the ALSF-2 lighting equipment.

Special-Status Plant Species

Due to the historical locations of the plant populations and habitat suitability (**Table C-1** in **Appendix C**), the existing conditions likely preclude these species from occurring within the study area. Rare plant and floristic surveys were conducted by the Port's consultant, Environmental Science Associates botanists, in October 1991, and during September, October, and November 1992; and by botanists from H.T. Harvey and Associates in July and August 1992 and in January 1993. These are the most recent rare plant surveys at OAK, and the Airport is planning to conduct additional rare plant surveys in the summer 2012. These surveys were carried out to coincide with the normal flowering periods of the rare plant species reported at that time (Port, 1997). Habitats and conditions that were present in the 1991 and 1992 floristic surveys mentioned above are likely similar to those currently found at OAK, which were verified during site reconnaissance surveys on May 6, 2009; February 4 and 11, 2011; May 11, 2011; and January 5, 2012.

There were no individuals or populations of special-status plant species observed in the study area during the 1991 to 1993 surveys. Several individual salt marsh gumplants (*Grindelia stricta* var. *angustifolia*) that at the time of discovery were listed as CNPS List 4 (plants of limited distribution) species were observed within the study area (H.T. Harvey and Associates, 1993). Since the time of the discovery, the CNPS has de-listed the species and determined that protection of the species is not warranted. In addition, there are no other federally listed or state-listed plant species with the potential to occur in the study area.

Special-Status Wildlife Species

Based on the results of background research and analysis, the following 12 special-status wildlife species have the potential to occur in the study area. These wildlife species have been divided into federally listed wildlife species and other special-status wildlife species for the discussions below and summarized in **Table 7**.

Table 7
Special-Status Wildlife Species With Potential to Occur in the Study Area

Species Common Name/Scientific Name	Federal/State/Other Status
Federally Listed Species	
Western snowy plover (<i>Charadrius alexandrinus nivosus</i>)	FT, MBTA/SSC
California clapper rail (<i>Rallus longirostris obsoletus</i>)	FE, MBTA/SE, FP
California least tern (<i>Sternula antillarum browni</i>)	FE, MBTA/SE, FP
Salt marsh harvest mouse (<i>Reithrodontomys raviventris</i>)	FE/FP
Green Sturgeon (<i>Acipenser medirostris</i>)	FT
Central California Coast steelhead (<i>Oncorhynchus mykiss irideus</i>)	FT
Other Special-Status Species	
Western burrowing owl (<i>Athene cuniculata</i>)	MBTA/SSC
Northern harrier (<i>Circus cyaneus</i>)	MBTA/SSC
White-tailed kite (<i>Elanus leucurus</i>)	MBTA, FP
Saltmarsh common yellowthroat (<i>Geothlypis trichas sinuosa</i>)	MBTA/SSC
California black rail (<i>Laterallus jamaicensis coturniculus</i>)	MBTA/ST, FP
Alameda song sparrow (<i>Melospiza melodia pusillula</i>)	MBTA/SSC
Double-crested cormorant (<i>Phalacrocorax auritus</i>)	MBTA/WL
Salt-marsh wandering shrew (<i>Sorex vagrans halicoetes</i>)	SSC
Longfin smelt (<i>Spirinchus thaleichthys</i>)	SE

Notes:

Federal Status

- FE Endangered. Species in danger of extinction throughout all or a significant portion of its range.
 FT Threatened. Species likely to become endangered within the foreseeable future.
 MBTA Species protected under the Migratory Bird Treaty Act

California State Status

- FP Fully protected species defined in the State of California under Sections 3511 of the Fish and Game Code.
 SE Endangered. Species whose continued existence in California is in jeopardy.
 ST Threatened. Species likely to become endangered within the foreseeable future.
 SSC California Department of Fish and Game species of special concern.
 WL California Department of Fish and Game Watch-list

Habitat requirements for the special-status wildlife species identified above were compared to existing habitat present in the study area. **Table C-1** in **Appendix C** presents a summary of the habitat requirements for these special-status wildlife species, their status, and their potential to occur in the study area. The likelihood of any of these species occurring in the study area was evaluated based on incidental detections during recent field visits, existing biological reports, individual species' geographic distribution, onsite habitat quality, and connectivity to existing populations. Below is a summary of their potential to occur within the study area.

Federally Listed Wildlife Species

The following four federally listed special-status wildlife species have the potential to occur in the study area: the western snowy plover (*Charadrius alexandrinus nivosus*), the California least tern (*Sterna antillarum browni*), the California clapper rail (*Rallus longirostris obsoletus*), and the salt marsh harvest mouse (*Reithrodontomys raviventris*). **Figures 11** and **12** show the potential dispersal and marginal foraging habitat for the California clapper rail in the study area. **Figure 13** shows the potential nesting habitat for the western snowy plover and the California least tern. **Figure 14** shows the potential habitat for the salt marsh harvest mouse in the study area. Critical habitat for these species does not occur within the study area. The life history, previously documented occurrences, critical habitat, and potential to occur for each of these four species are summarized in **Appendix D, Biological Assessment**.

Other Special-Status Wildlife Species

The other eight special-status wildlife species identified in **Table 7** and that may occur in the study area are protected by the California Endangered Species Act (CESA) or the Migratory Bird Treaty Act, or have been identified by the California Department of Fish and Game as either a fully protected species or a species of special concern. Species with potential to occur in non-tidal wetlands include the California black rail, salt-marsh common yellowthroat, salt-marsh wandering shrew, and Alameda song sparrow. The double-crested cormorant could occur in the non-tidal waters of the U.S. in the study area. The non-native annual grassland may provide suitable habitat for bird species, such as burrowing owl, white-tailed kite, and northern harrier. Although burrowing owls occurred historically in the non-native annual grasslands, they have not been identified during protocol surveys at OAK in the past few years. Given the proximity to Airport operations, the quality of the non-native annual grassland as species habitat is very low. The potential for all these special-status species to occur in the study area is low, given the ongoing Airport operation and maintenance activities, the negative findings from field surveys, and the quality of the habitat at OAK.

Special-Status Fish Species

Special-status fish species could occur in the waters of San Francisco Bay adjacent to the study area. The only portion of the study area that could support any fish species is the portion of San Francisco Bay underneath the trestle supporting the ALSF-2 approach lighting equipment. The Proposed Project only includes work on the trestle, and not in the water under the trestle. Federally threatened and endangered fish species with at least a minimal potential to occur in the study area include the green sturgeon Southern Distinct Population Segment (*Acipenser medirostris*) and the Central Coast steelhead Evolutionarily Significant Unit (*Oncorhynchus mykiss irideus*). Designated critical habitat for those

species also occur in the study area. Essential Fish Habitat as defined in accordance with the Magnuson-Stevens Fisheries Conservation and Management Act is also present in the San Francisco Bay and within the study area below the trestle. The longfin smelt (*Spirinchus thaleichthys*), which is listed as a threatened species under CESA, has at least minimal potential to occur within the study area.

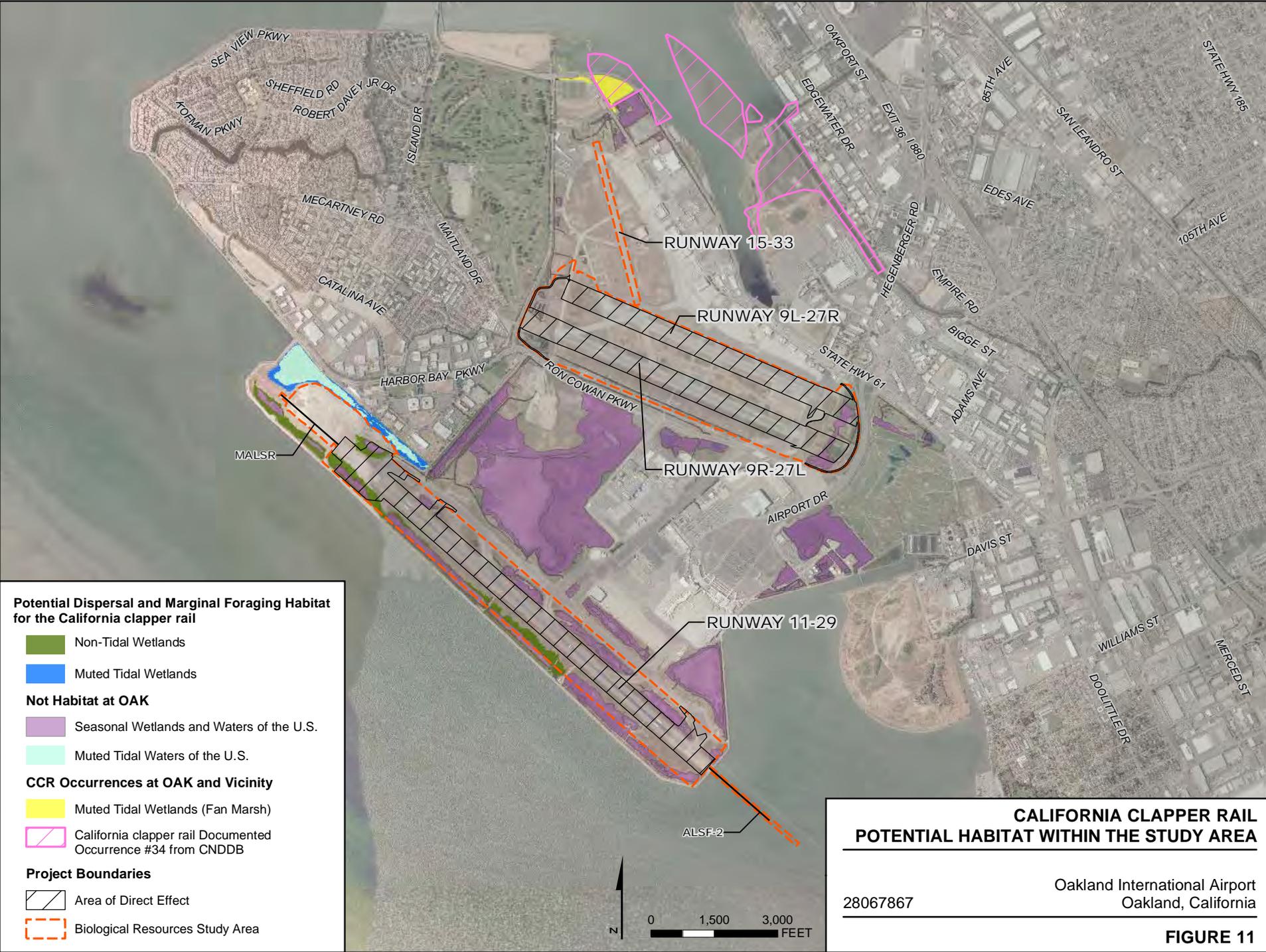
a) Impacts to Special-Status Species or their Habitat

Overview

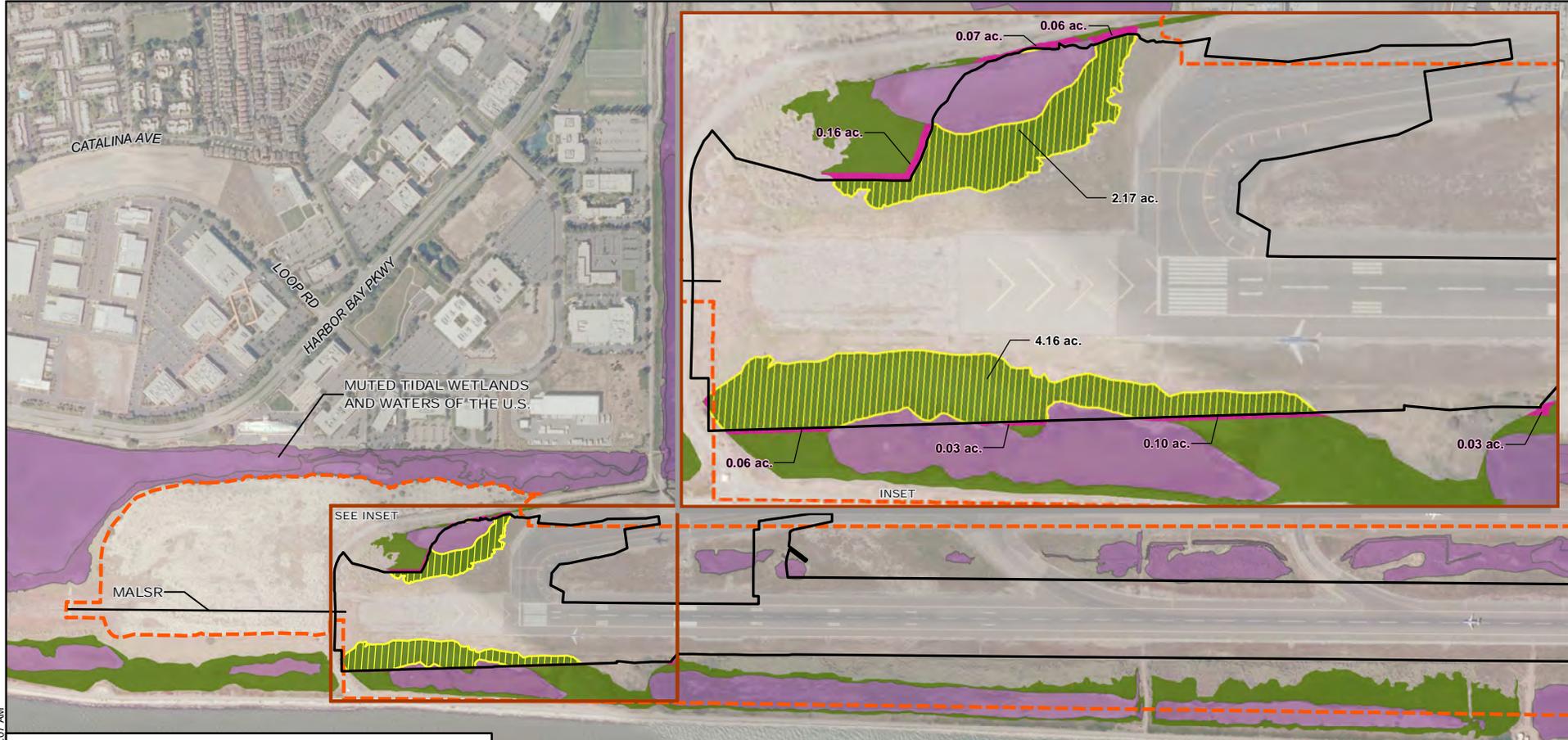
The Proposed Project would result in the permanent and temporary removal of upland (i.e., non-native annual grasslands and the sand area) and wetland areas that are currently located within and directly adjacent to the Runway Safety Areas (RSAs). Some of these habitat fragments have historically supported special-status species. Non-native annual grasslands in the North Field historically supported a small resident population of California burrowing owl. This species has not been detected in the Airport since 2007. In the South Field, the sand area historically supported a California least tern nesting colony. This species has not bred at the Airport since 1992, and the last documented roosting event occurred in 2007. Western snowy plover historically nested in the sand area, but the last documented nesting event occurred in 1996. Other species that have the potential to be affected by wetland or upland habitat loss include the salt marsh common yellowthroat, Alameda song sparrow, California black rail, northern harrier, and white-tailed kite. None of these species have been documented breeding at the Airport, but it is possible that they are at least seasonally present in wetlands or uplands on site. Upon further analysis, impacts to these eight non-federally listed special-status wildlife species are not anticipated due to lack of suitable habitat in the impacted area itself, ongoing human disturbance from Airport operations and maintenance activities, and negative findings from field surveys.

Implementation of project-related activities such as grading, paving, installing an Engineered Materials Arresting System, shifting runway thresholds, and relocating the glide slope antennas and vehicle service roads, may result in permanent disturbance to wetlands that historically supported special-status wildlife species. Temporary disturbances associated with the Proposed Project would occur during construction activities at temporary construction areas adjacent to the RSA and runway areas and temporary roads and staging areas. The temporary construction of roads and staging areas would be located in previously disturbed, paved, and/or ruderal areas. In addition, the relocation of the Runway 11 medium-intensity approach lighting system with runway alignment indicator lights (MALSR) would require temporary disturbance in the sand area west of Runway 11.

Construction of the Proposed Project would occur over a 3-year period, starting in 2013 and continuing through 2015, with each year of construction focusing on a major runway. These project components would result in temporary and permanent disturbances to the various habitats that may provide suitable habitat for wildlife and plant resources. The construction best management practices (BMPs) listed in **Section 2.6 – Construction Best Management Practices** of this document, in addition to species-specific mitigation measures identified below, would be implemented to avoid and minimize the potential for impacts associated with suitable habitats that may support wildlife and plant resources, including special-status species.



Source: Aerial Photo, NAIP, 2010; Habitat, URS, 2009; CNDDB, 2011.



Non-Tidal Wetland Features

- Non-Tidal Wetlands with potential for occasional California Clapper Rail presence
- Permanent direct effects to Non-tidal Wetlands with potential for occasional California Clapper Rail presence (6.33 ac.)
- Temporary direct effects to non-tidal wetlands with potential for occasional California Clapper Rail presence (0.51 ac.)

Other Aquatic Features

- Seasonal Wetlands and Waters of the U.S.

Project Boundaries

- Area of Direct Effect
- Detailed Study Area

**POTENTIAL DIRECT EFFECTS
TO DISPERSAL AND MARGINAL FORAGING
HABITAT FOR THE CALIFORNIA CLAPPER RAIL
IN THE BIOLOGICAL RESOURCES STUDY AREA**

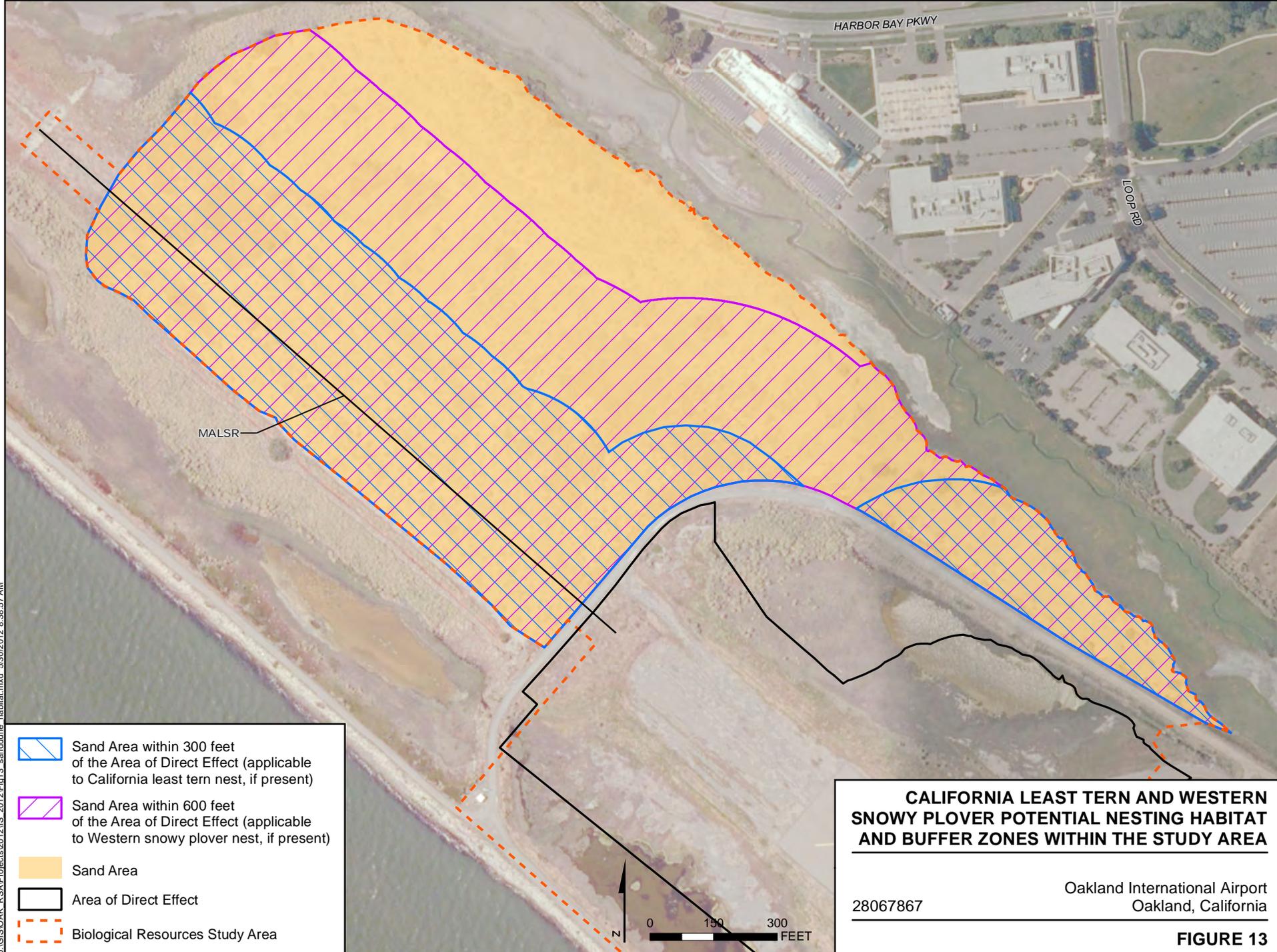
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Oakland International Airport
Oakland, California

FIGURE 12

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Source: Aerial Photo, NAIP, 2010; Habitat, URS, 2009; CNDDDB, 2011.



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- Sand Area within 300 feet of the Area of Direct Effect (applicable to California least tern nest, if present)
- Sand Area within 600 feet of the Area of Direct Effect (applicable to Western snowy plover nest, if present)
- Sand Area
- Area of Direct Effect
- Biological Resources Study Area

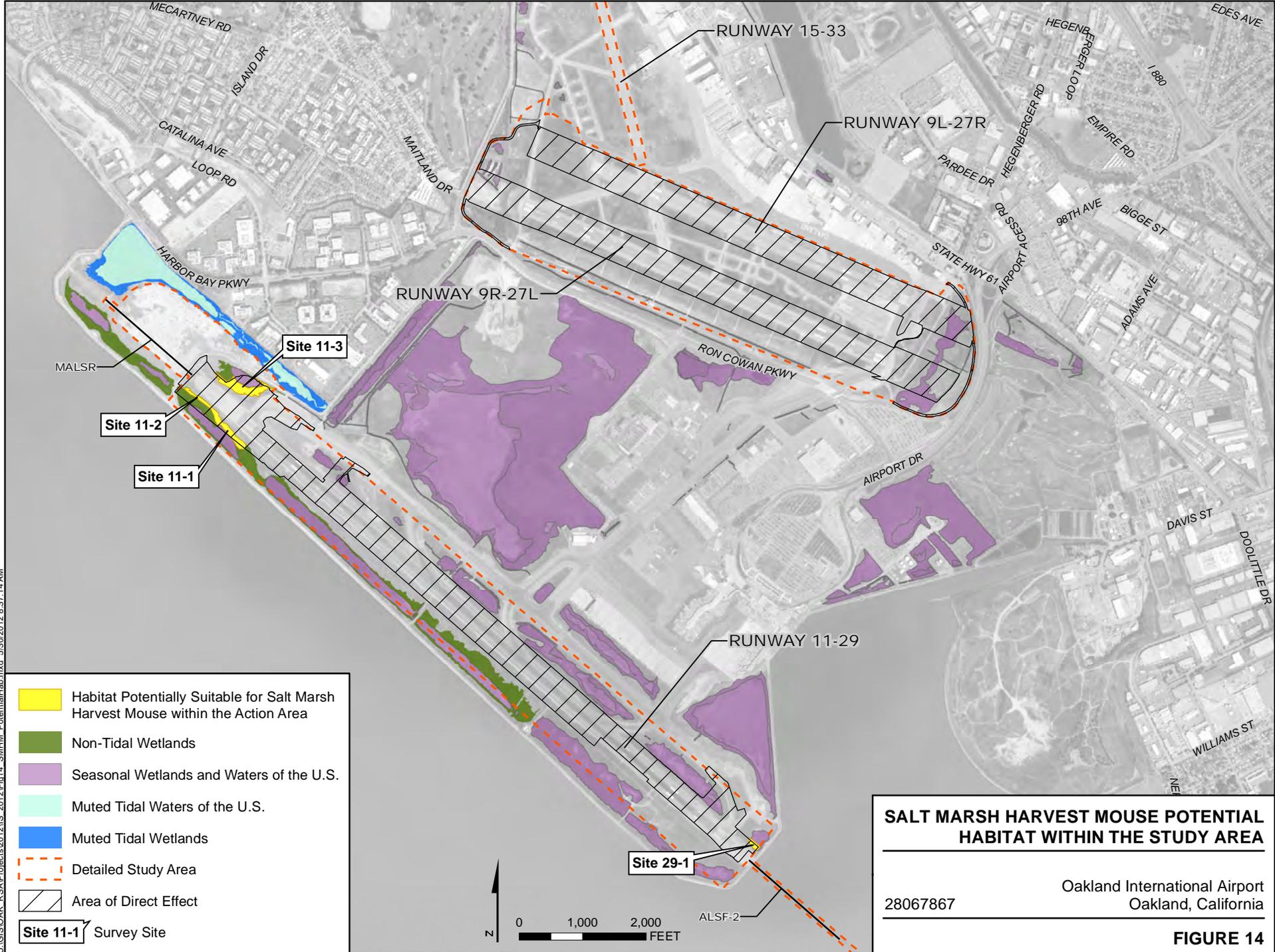
CALIFORNIA LEAST TERN AND WESTERN SNOWY PLOVER POTENTIAL NESTING HABITAT AND BUFFER ZONES WITHIN THE STUDY AREA

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Oakland International Airport
Oakland, California

FIGURE 13

Source: Aerial Photo, NAIP, 2010; Habitat, URS, 2009.



SALT MARSH HARVEST MOUSE POTENTIAL HABITAT WITHIN THE STUDY AREA

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Oakland International Airport
Oakland, California

FIGURE 14

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Source: Aerial Photo, Digital Globe, April 2007.

Construction Impacts

Impacts to Special-Status Species

Following the release of the Initial Study (IS)/Proposed Mitigated Negative Declaration, the project team worked to refine the design of the project to see if any additional reductions in wetland fill for the Proposed Project were available. The following modifications were found to further reduce impacts to wetlands and other waters of the U.S.

Revised Fill Estimates for Runway 11-29: One of the project components with the greatest impact to wetlands is the relocation of the glide slope antennae from the northeast side to the southwest side of Runway 11-29. Accordingly, the project team reviewed options to further reduce wetland fill for Runway 11-29 after the release of the IS.

The technical basis for the glide slope antenna relocation is provided in **Section 2.2.3**. In addition to the relocation of the antenna hardware and infrastructure, the land area adjacent to the antenna (the so-called critical area) must be drained and graded to meet Federal Aviation Administration (FAA) standards.

For the development of the Proposed Project, the dimensions of the critical area used in the IS were taken from FAA AC 150/5300-13, *Airport Design*. These standard design dimensions may be larger than actually needed in the field for the antenna to function properly based on local topography. For Runway 11, the use of standard design dimensions resulted in a large critical area, the draining and grading of which would have a significant impact to wetlands and waters of the U.S. Following the release of the IS, FAA's Operations Engineering Support Group issued a study report, *Oakland Runway 11 AAZ Glideslope Feasibility Study, May 18, 2012*, which analyzed the performance of the proposed Runway 11 glide slope antenna, relocated to the southeast side of the runway. This study considered the radar signal propagation characteristics of the antenna, and the site-specific topography surrounding Runway 11. The objective was to determine how large the relocated critical area must be to provide a suitable vertical guidance signal to approaching aircraft. The study found that a relocated antenna would function properly with a graded and drained critical area that is significantly smaller than the standard dimensions considered in the IS for the Proposed Project. The FAA study established the basis for the design engineers to significantly reduce the Runway 11 glide slope critical area from the standard dimensions and still provide sufficient area for the glide slope to function properly. This significantly reduced (by approximately 3.87 acres) the impacts to wetlands and waters of the U.S. associated with the refined Proposed Project design.

In addition, a small reduction in impacts to wetlands and waters of the U.S. was achieved by revising the grading boundary (i.e., the toe of slope) for Taxiway W at both the Runway 11 end (0.34 acre) and Runway 29 end (0.03 acre). A further refinement of the RSA design resulted in an additional reduction of 0.59 acre to wetlands and waters of the U.S. Consequently, permanent impacts, initially identified in the IS at 14.59 acres, were reduced to 9.76 acres—a decrease of 4.83 acres.

The other reduced fill concept for Runway 11-29 was a change in the construction buffer zone for temporary impacts based on further engineering design. A conservative 25-foot impact zone beyond the

boundary of the permanent impact zone was used in the IS to calculate the temporary impacts. After additional engineering refinement, the project team has determined that this construction buffer zone can be held to 20 feet typically throughout the project area, and to 10 feet in the area surrounding the Runway 11 glide slope antenna critical area. This reduction is based on consultation with URS design engineers and construction managers, who advise that a 20-foot construction buffer zone for the Proposed Project and a 10-foot¹⁵ buffer zone at the level of the glide slope critical area are adequate to construct the Proposed Project, and that the construction specifications and processes can be developed and enforced to implement these requirements. The project construction documents will include provisions to limit the construction buffer zone between permanent and temporary construction to 20 feet typically, and 10 feet surrounding the Runway 11 glide slope antenna critical area.

For Runway 11-29, the change in the construction buffer zone described above resulted in a change in impacts to temporary wetlands and waters of the U.S. from 2.37 acres, initially identified in the IS, to 1.24 acres—a reduction of 1.13 acre.

Revised Fill Estimates for Runways 9R-27L and 9L-27R: As described above for Runway 11-29, for Runways 9R-27L and 9L-27R, the Port was able to design the project to work within a smaller temporary impact construction buffer zone. In the IS, a construction buffer zone of 25 feet was used to calculate the temporary impacts. The wetland calculations upon which the IS was based assumed that the zone of temporary wetland impact would necessarily extend 25 feet from the boundary of any permanent impact zone. As described above, this reduction is based on consultation with URS design engineers and construction managers, who advised that the 20-foot construction buffer zone is adequate to construct the Proposed Project, and that construction specifications and processes can be developed and enforced to ensure that the zone of temporary impacts does not extend more than 20 feet from the boundary of any permanent impact zone. Appropriate construction design specifications to ensure the 20-foot construction buffer zone will be incorporated into the project construction documents. For Runways 9R-27L and 9L-27R, the reduction in the temporary impact area from 25 feet to 20 feet resulted in a reduction in temporary impacts to wetlands and waters of the U.S. from 0.7 acre, initially identified in the IS, to 0.56 acre—a reduction of 0.13 acre.

Certain habitats in the study area that would be disturbed may provide suitable habitat for a variety of special-status wildlife species. Historical occurrences of special-status wildlife species have been documented within and adjacent to the study area, while other special-status species are conservatively assumed to be potentially present based on the presence of suitable habitat and background research. All habitats within the study area are shown on **Figure 10**. During project construction, some special-status species habitats would be permanently removed, as identified in **Table 8**. Potential impacts to each of the special-status species within these habitats are discussed in the following sections.

¹⁵ The reduction in the construction buffer zone at the level of the glide slope critical area is an additional special consideration to minimize impacts to wetlands.

**Table 8
Permanent Impacts to Special-Status Species Habitats**

Special-Status Species Habitat	Permanent Impact (acres)
Non-tidal wetlands ¹	43.57 12.25
Tidal wetlands	0.00
Non-tidal waters of the U.S.	5.82 2.31
Tidal waters of the U.S.	0.00
Non-native annual grassland ²	1246.340
Sand area	0.00

Note:

- 1 The California clapper rail and salt marsh harvest mouse habitat are a subset of the "non-tidal wetlands" category. Permanent impacts to potential habitat for the California clapper rail amount to up to 7.03 acres. Permanent impacts to potential habitat for the salt marsh harvest mouse habitat amount to 4.2259 acres, of which all but 0.23 acre overlaps with the California clapper rail.
- 2 Non-native annual grassland does not provide suitable habitat for federally listed species. It has historically provided habitat for certain migratory birds, including western burrowing owl; however, as described above, it does not currently provide valuable habitat for these species.

Special-Status Plant Species

Through research and background review of all the plant species with potential to occur in the vicinity of the study area, it was determined there are no federal or state listed plants with potential to occur within the study area. Given the existing conditions of the disturbed areas within the study area, it is unlikely that it would provide suitable habitat for special-status plant species. Special-status plant species are not anticipated to occur because the areas have been previously graded and are regularly disturbed. In addition, no special-status plant species have been previously observed in the areas to be disturbed by the Proposed Project. However, because a considerable amount of time has passed from the last focused floristic survey, there is a low potential for the presence of special-status plant species within the study area. In the unlikely event that these species occur on site during construction activities, this would be a potentially significant impact. The Port would implement **Mitigation Measure BO-1 – Conduct Botanical Survey** that requires a rare plant survey within the study area prior to completion of final design. If rare plants are found, this mitigation measure also includes the avoidance or, if avoidance is infeasible, salvage and relocation of rare plants. Therefore, impacts to special-status plant species would be less than significant with mitigation incorporated.

Special-Status Wildlife Species

This section addresses potential impacts to the special-status wildlife species with potential to occur in the study area. It has been subdivided into impacts to federally listed wildlife species and other special-status wildlife species.

Federally Listed Wildlife Species

Western Snowy Plover and California Least Tern. Western snowy plovers and California least terns have the potential to co-occur in the sand areas at the western end of Runway 11-29 and are therefore

addressed together. Relocation of the Runway 11 MALSR required as part of the Proposed Project would result in the temporary disturbance of the sand area during construction. The existing lighting posts in this area are being relocated from their current locations, and the work would be conducted in a 1.5-month time frame. The sand area has the potential to be used for nesting activities by these two species, although neither species has been identified within the sand area for over a decade. If one of these species is present and affected by the temporary construction, this would be a potentially significant impact. **Mitigation Measure BO-2 – Environmental Awareness Training** would be implemented to avoid impacts to these species. In addition, if nesting western snowy plovers or California least terns are present, they would be identified during pre-construction surveys and avoided during the breeding season, as specified in **Mitigation Measure BO-3 – Conduct Pre-Construction Survey for Western Snowy Plover and California Least Tern** and **Mitigation Measure BO-4 – Seasonal Work Restrictions and Buffer Zones for Western Snowy Plover and California Least Tern**. There would be no permanent habitat impacts as a result of the lighting system relocation, because there would be no net loss of habitat in the sand area, and the duration of work will be limited to approximately 1.5 months.

Indirect impacts to the western snowy plover and California least tern may result from increased human presence in the sand area during removal and installation of the new lighting system, and heavy equipment movement around the area. Indirect impacts may cause the western snowy plover and California least tern to have no direct response, or it may result in a response such as flushing, leaving the area, increased vigilance, or simply avoiding certain areas. This could be a potentially significant impact. To reduce direct and indirect impacts to the western snowy plover and California least tern, the Port would implement **Mitigation Measure BO-3** and **Mitigation Measure BO-4**, which require surveying the sand area and the South Field Area, and restricting construction to a defined time period or location if nests are found. With implementation of this mitigation, impacts to western snowy plover and California least tern would be reduced to less-than-significant levels.

California Clapper Rail. Based on the absence of suitable habitat and predation pressure, it is not likely that nesting California clapper rail is present in the marshes adjacent to the study area. However, juvenile migrants have the potential to occur occasionally in the non-tidal wetlands within the South Field when dispersing from nearby regional populations in the San Leandro Bay wetland complex (see Photo 1 in **Appendix D, Biological Assessment**). Use of this area by dispersing juvenile or adult rails is likely rare throughout the year, with sporadic presence slightly increasing during the post-breeding dispersal period. Construction activities in or adjacent to the non-tidal wetlands in the South Field may directly impact this species. Direct impacts to California clapper rail incidentally occurring in an active work area may include alarm response on the part of the bird, causing it to flush, run away from the source of disturbance, or wait out the disturbance. Flushing birds are at increased risk of predation by nearby predators when they flush or run, and they may fly accidentally into the construction zone. Direct impacts could also include injury leading to mortality, or direct mortality from accidental contact with construction equipment. These would be potentially significant impacts. To reduce impacts on California clapper rail during construction, the Port would implement **Mitigation Measure BO-2**, which requires that environmental awareness training be provided for all construction crews and contractors working in special-status species habitats. With implementation of this mitigation measure, direct impacts to California clapper rail species would be significantly reduced.

California clapper rail foraging and dispersal is generally restricted to their preferred habitat, mature tidal marsh. California clapper rails forage and move within their habitat, using a network of sloughs. Prey items such as mussels, clams, and other benthic invertebrates are only present in marshes with adequate tidal flow. The non-tidal wetlands and waters of the U.S. impacted by the Proposed Project superficially resemble suitable habitat for this species, consisting primarily of low-growing pickleweed and saltgrass adjacent to non-tidal brackish ponds (waters of the U.S.). However, these non-tidal wetlands and waters of the U.S. lack the prey base and marsh structure typically preferred by this species. In the South Field, up to 7.03 acres of non-tidal wetlands could provide potential dispersal and marginal foraging habitat for a juvenile California clapper rail. Therefore, implementation of the Proposed Project would result in the permanent loss of up to 7.03 acres of potential dispersal and marginal foraging habitat for the California clapper rail. In addition, the Proposed Project would temporarily affect 0.74-51 acres of wetlands in the Runway 11 area of the South Field that also provides potential dispersal and marginal foraging habitat for California clapper rail. These temporary and permanent impacts to potential dispersal habitat and marginal foraging habitat for California clapper rail would be a potentially significant impact. Permanent and temporary impacts to this marginal habitat would be offset by the implementation of **Mitigation Measure BO-5 – Offsite Mitigation**, described below. With implementation of **Mitigation Measures BO-2 and BO-5**, impacts to the California clapper rail would be reduced to less-than-significant levels.

Indirect impacts associated with habitat degradation from erosion and sedimentation could occur, but is unlikely to indirectly impact clapper rails. Foraging habitat adjacent to the construction boundaries is non-tidal, and so is generally devoid of rail prey, such as mussels, crabs, and other common marine macro-invertebrates. For this reason, increased turbidity of the non-tidal waters that occur along the southern perimeter would not significantly alter prey availability. Therefore, sediment discharge into marginal foraging habitats (non-tidal wetlands) would be less than significant. To further reduce these impacts, the Port would implement the BMPs described under **Section 2.6 – Construction Best Management Practices** of this document.

Salt Marsh Harvest Mouse. Occurrence of the salt marsh harvest mouse within the study area is extremely unlikely, and it is probable that this species does not occur at OAK. However, potential habitat for this species is present at the Airport and within the study area, and the Proposed Project has the potential to impact this species by removing vegetation and disturbing the salt marsh harvest mouse habitat. The Proposed Project would permanently remove 4.225 acres and temporarily disturb 0.38-42 acre of non-tidal and seasonal wetlands that are potentially suitable for the salt marsh harvest mouse. This would be a potentially significant impact. The Port would implement the BMPs described under **Section 2.6 – Construction Best Management Practices** of this document to reduce potential impacts to the salt marsh harvest mouse. In addition, to further reduce the potential significant impacts to the salt marsh harvest mouse, the Port would implement species-specific **Mitigation Measure BO-6 – Habitat Exclusion Fencing for Salt Marsh Harvest Mouse**, and **Mitigation Measure BO-7 – Use of Hand-Operated Equipment to Protect Salt Marsh Harvest Mouse**, described below, which require the installation of exclusion fencing around the margins of work areas and use of hand-operated equipment to remove vegetation in areas within potential habitat for the salt marsh harvest mouse, to avoid impacts to salt marsh harvest mouse. In addition, the Port would implement **Mitigation Measure BO-5- Offsite**

Mitigation, which would further reduce impacts to salt marsh harvest mouse habitat. With implementation of these mitigation measures, potential impacts to the salt marsh harvest mouse would be reduced to less-than-significant levels.

Other Special-Status Wildlife Species

Temporary and permanent disturbance of upland areas (including non-native annual grasslands) could disturb breeding, roosting, and foraging activities of special-status species that have the potential to occur in the study area, such as the northern harrier, white-tailed kite, and burrowing owl, if they are present at the time of project construction. The northern harrier and white-tailed kite could potentially forage within the study area, but it is unlikely they would nest within the study area. Burrowing owls are not likely to occur within the study area. However, in the unlikely event that any of these species occur onsite during construction activities, this would be a significant impact. Implementation of **Mitigation Measure BO-2, Mitigation Measure BO-8 – Conduct Pre-Construction Survey for Western Burrowing Owl, and Mitigation Measure BO-9 – Conduct Pre-Construction Survey for Migratory Birds** would help identify whether any of these three species occurs onsite at the time of project construction so they can be avoided, and would therefore reduce impacts to these three species to less-than-significant levels.

Temporary and permanent disturbance to non-tidal wetlands and waters of the U.S. could disturb roosting and foraging activities for the saltmarsh common yellowthroat, Alameda song sparrow, California black rail, or the salt-marsh wandering shrew. Tidal marsh dependent State-listed species have the potential to occur, but the following factors are likely to limit their presence on site: tidal habitat that is extremely limited, and of marginal quality; availability of preferable high-quality tidal marsh habitat in multiple locations nearby (such as Elsie Roemer Bird Sanctuary in Alameda, and Arrowhead Marsh in San Leandro Bay); disturbance due to maintenance and aircraft operations nearby; and lack of habitat connectivity. There is a low potential for these species to occur within the study area. Implementation of **Mitigation Measures BO-2 and BO-9** would help identify whether any of these species occur onsite at the time of project construction so they can be avoided, and would therefore reduce impacts to less-than-significant levels.

Summary for Special-Status Plant and Wildlife Species

In summary, during project construction, implementation of **Mitigation Measures BO-1 through BO-9** along with other species-specific measures described in the Biological Opinion (Appendix D) would reduce potentially significant impacts to twelve special-status species with the potential to occur in the study area to less-than-significant levels. These special-status species are identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFG or USFWS. Therefore, project-related impacts on special-status species and their habitats during construction activities would be less than significant with mitigation incorporated.

Special-Status Fish Species

There are fish species present in San Francisco Bay that are regulated by the National Marine Fisheries Service (NMFS) and CDFG, including the green sturgeon (*Acipenser medirostris*), Central California Coast steelhead (*Oncorhynchus mykiss irideus*), and the longfin smelt (*Spirinchus thaleichthys*). All of these species inhabit portions of the open waters of estuaries in San Francisco Bay, coastal rivers, and

tributaries. Designated critical habitat for these species includes San Francisco Bay. This Initial Study conservatively evaluates the potential for indirect effects to these federally listed species.

The Proposed Project would have no direct or indirect impacts on the Central California Coast steelhead, the green sturgeon, the longfin smelt, or their habitat for the following reasons: (1) no work in or discharge to San Francisco Bay is required for the portion of work for the Proposed Project that modifies the Instrument Landing System and ALSF-2 navigational equipment on the existing pile-supported trestle structure over San Francisco Bay; (2) there would be no increases in stormwater discharges resulting from the Proposed Project, as described in detail in the Hydrology **Section 36.IX** below; and (3) OAK would continue to comply with the San Francisco Regional Water Quality Control Board (RWQCB) stormwater requirements, including the implementation of project-specific BMPs described under **Section 2.6 – Construction Best Management Practices**. In addition, there would be no indirect water quality impacts to San Francisco Bay, as described further in **Section 63.IX-a**.

Operations Impacts

The operational activities related to the Proposed Project were reviewed for potential impacts to vegetation, wildlife, fish, and special-status species. Because there are no operational changes to OAK, no adverse impacts to vegetation, wildlife, or special-status species would occur as a result of the Proposed Project. Therefore, there will be no impacts to special-status species or their habitats from airport operations associated with the Proposed Project, and mitigation measures are not proposed for future operational activities after project construction.

b) Impacts to Riparian or other Sensitive Natural Communities

Habitats in the study area include non-tidal wetlands and non-tidal waters of the U.S.; a sand area; and upland habitat. **Table 6** summarizes the acres of these habitats within the study area and they are depicted on **Figure 10**. For the purposes of this analysis, sensitive natural communities include riparian habitats and natural communities identified as sensitive in the CNDDDB (CDFG, 2011). Sensitive natural communities within the study area include non-tidal wetlands. Those wetlands features are described in Special-Status Species Habitat Section of this document and impacts to non-tidal wetlands are discussed in **Section 36.IV-c** below. Impact to non-tidal wetlands could be significant. As described in **Section 3.IV-a**, the Proposed Project has been revised to reduce the significance of impacts to wetlands and waters of the U.S. ~~To reduce the potential significant impacts to non-tidal wetlands,~~ the Port would implement **Mitigation Measure BO-5 – Offsite Mitigation** to further reduce the potential significant impacts to non-tidal wetlands. With implementation of this mitigation, potential impacts to non-tidal wetlands would be reduced to less-than-significant levels.

c) Impacts to Wetlands and other Waters

Any activity that fills, destroys, degrades the water quality or disturbs the natural hydrology of a wetland or other water of the U.S. and the State would be a potentially significant impact.

As described in **Section 3.IV-a**, the Proposed Project has been revised to reduce the significance of impacts to wetlands and waters of the U.S. Wetlands and waters of the U.S. and the State may provide

habitat for a variety of special-status species. USACE issued a jurisdictional determination of the wetland delineation on March 15, 2011, which is valid for 5 years (USACE, 2011). Wetlands at OAK are classified into four types (tidal wetlands, tidal waters of the U.S., non-tidal wetlands, and non-tidal waters of the U.S.) based on plant species composition, hydrologic regime, and geomorphology. However, the study area only contains two types (non-tidal wetlands and non-tidal waters of the U.S., as described in the **Special-Status Species Habitats** section above and shown on **Figures 15** through **21**. In the study area, the total of non-tidal wetlands present is 67.56 acres and the total of non-tidal waters of the U.S. present is 24.09 acres, as listed in **Table 6**. Only a small portion of those features would be impacted by the Proposed Project (adding the permanent impacts from many small areas results in a total of ~~13.58~~12.25 acres of impacts to non-tidal wetlands and ~~5.82~~3.14 acres of impacts to non-tidal waters of the U.S.). The total acreage of impacts to non-tidal wetlands and non-tidal waters of the U.S. is presented below in **Table 9**. The RSA improvements including RSA extensions, vehicle service roads, taxiways, and the Glide Slope Critical Area would result in unavoidable permanent impacts to ~~19.39~~14.56 acres of non-tidal wetlands and non-tidal waters of the U.S. and temporary impacts to ~~3.08~~1.81 acres of non-tidal wetlands and non-tidal waters of the U.S. As stated in **Section 2.5 – Project Description** of this document, the Proposed Project would require grading or fill to meet the ~~Federal Aviation Administration~~ (FAA) design standards for RSAs.

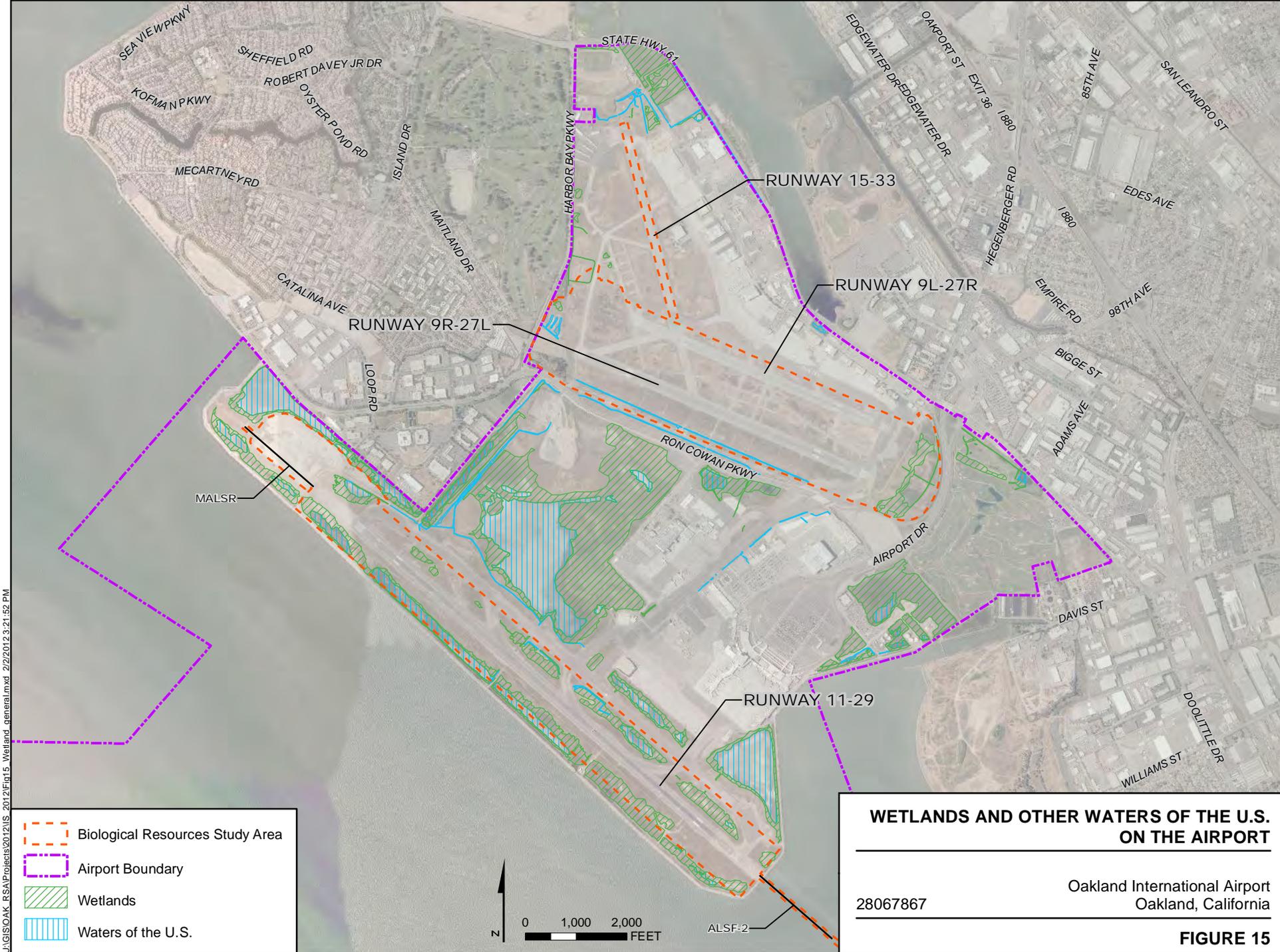
Table 9
Impacts of Proposed Project on Wetland and Other Waters

Feature Type	Permanent Impacts (acres)	Temporary Impacts (acres)
Non-tidal wetlands Salt marsh	13.58 <u>12.251</u>	2.80 <u>1.467</u>
Non-tidal waters of the U.S. Open water	5.82 <u>2.307</u>	0.34 <u>0.27</u>
Total	19.39<u>14.558</u>	3.08<u>1.737</u>

Note: Areas calculated by URS Corporation using GIS.

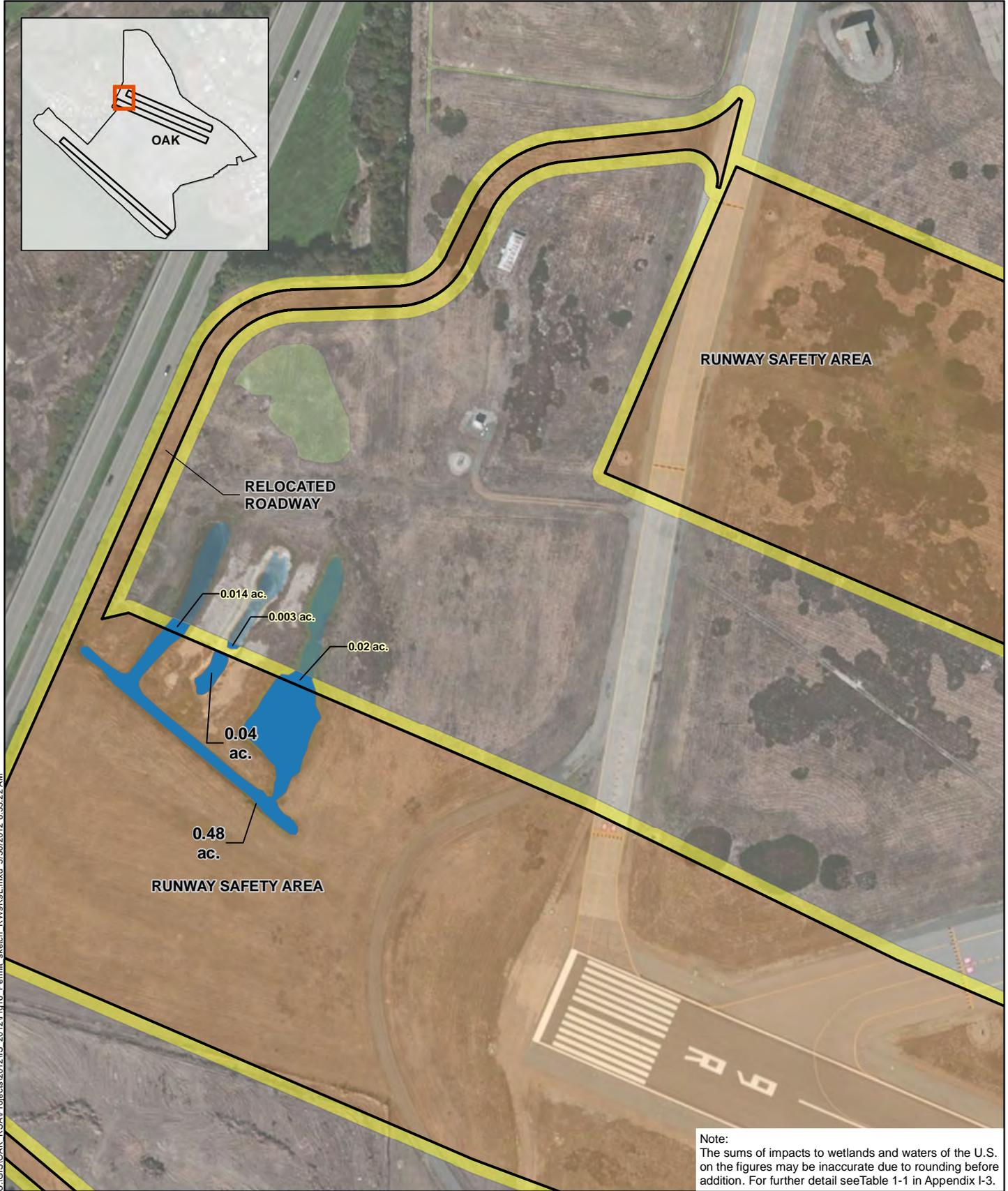
The Port would implement the BMPs, described under **Section 2.6 – Construction Best Management Practices** of this document, to minimize impacts to non-tidal waters of the U.S. and wetlands. However, the Proposed Project could result in significant impacts to wetlands. To reduce these impacts, the Port would implement **Mitigation Measure BO-5** to ensure no net loss of wetlands through the provision of valuable offsite compensatory mitigation for unavoidable impacts to non-tidal wetlands and waters of the U.S. and the State.

In addition, the Project Sponsor will be working with the USACE and the San Francisco Bay Regional Water Quality Control Board (RWQCB) to obtain a Section 404 permit for discharges to waters of the U.S. and a corresponding Section 401 Water Quality Certification/Waste Discharge Requirements from the San Francisco Bay RWQCB. Through these processes, the agencies will ensure that the Proposed Project is the Least Environmentally Damaging Practicable Alternative to impacting wetlands and waters of the U.S., and will assist in finalizing the most appropriate mitigation option for wetlands.



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Source: Aerial Photo, NAIP, 2010.



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Source: Aerial image, Bing, 2010.

Note:
The sums of impacts to wetlands and waters of the U.S. on the figures may be inaccurate due to rounding before addition. For further detail see Table 1-1 in Appendix I-3.

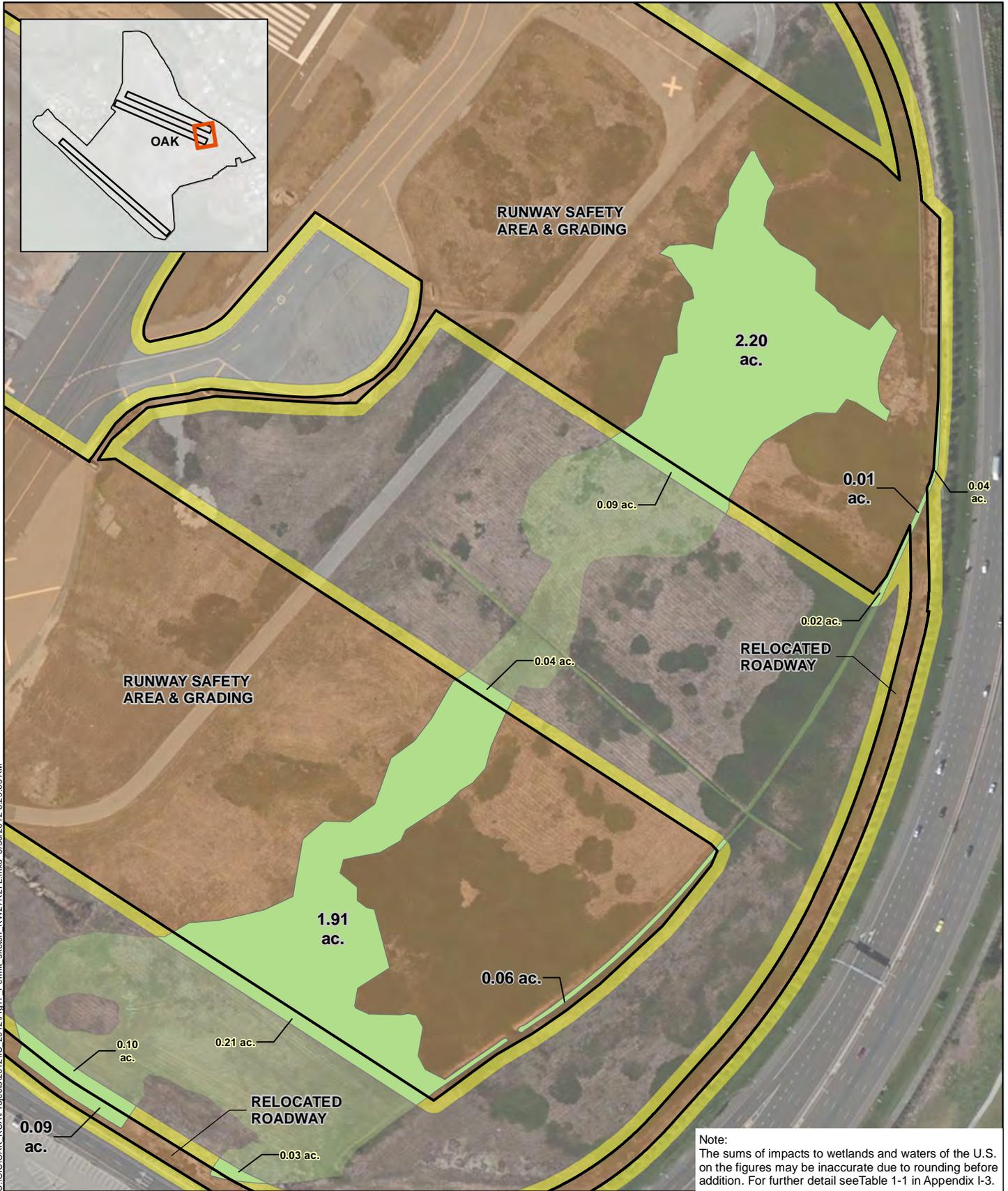
- Extent of Permanent Impacts
- Extent of Temporary Impacts
- Non-Tidal Wetlands
- Non-Tidal Waters of the U.S.



WETLAND IMPACTS - RUNWAY 9R

28067867 Oakland International Airport
Oakland, California

FIGURE 16

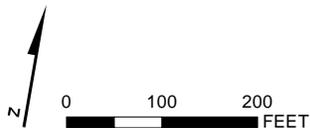


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Source: Aerial image, Bing, 2010.

WETLAND IMPACTS - RUNWAY 27R-27L

- Extent of Permanent Impacts
- Extent of Temporary Impacts
- Non-Tidal Wetlands



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Oakland International Airport
Oakland, California

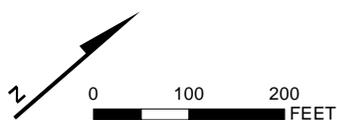
FIGURE 17



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Source: Aerial image, Bing, 2010.

-  BCDC Jurisdiction
-  Extent of Permanent Impacts
-  Extent of Temporary Impacts
-  Non-tidal Wetlands
-  Non-tidal Other Waters

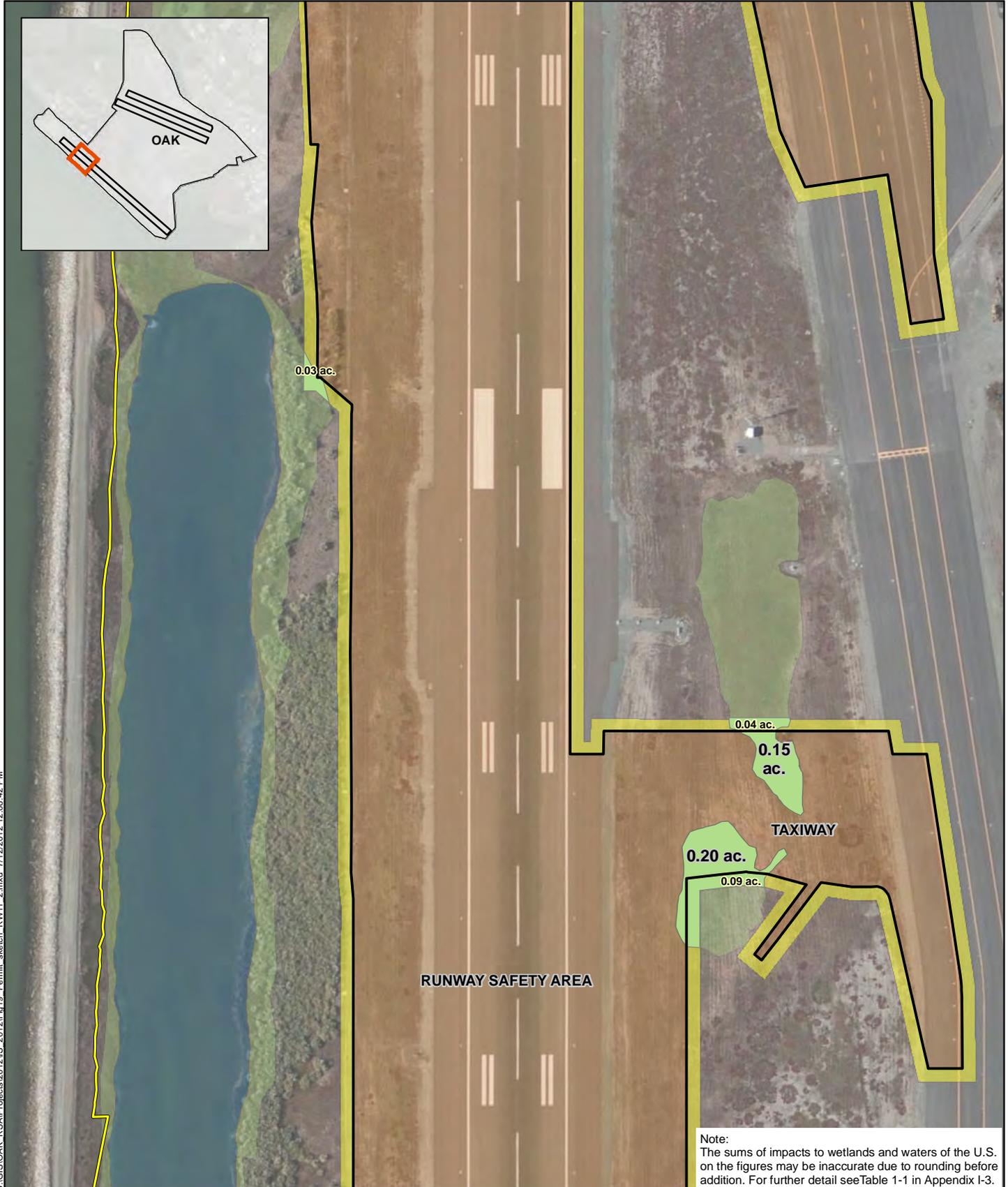


WETLAND IMPACTS - RUNWAY 11 (END)

28067867

Oakland International Airport
Oakland, California

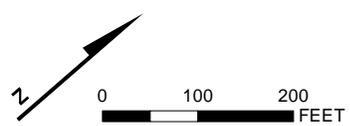
FIGURE 18



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Source: Aerial image, Bing, 2010.

- BCDC Jurisdiction
- Extent of Permanent Impacts
- Extent of Temporary Impacts
- Non-tidal Wetlands
- Non-tidal Waters of the U.S.

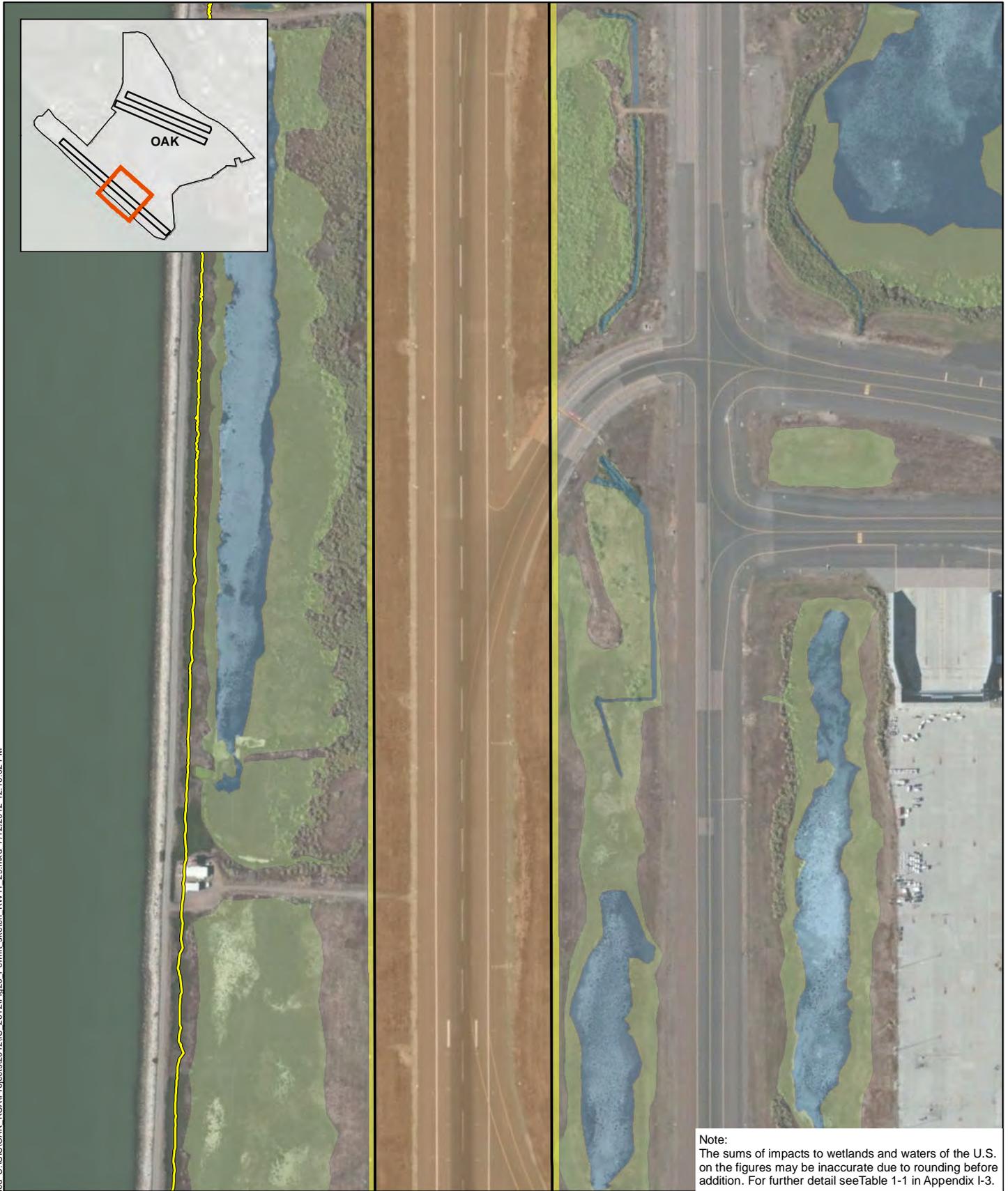


**WETLAND IMPACTS -
RUNWAY 11 (NEW TAXIWAY)**

28067867 Oakland International Airport
Oakland, California

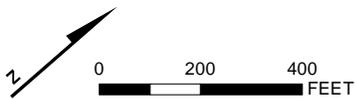
FIGURE 19

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Source: Aerial image, Bing, 2010.

-  BCDC Jurisdiction
-  Extent of Permanent Impacts
-  Extent of Temporary Impacts
-  Non-tidal Wetlands
-  Non-tidal Other Waters

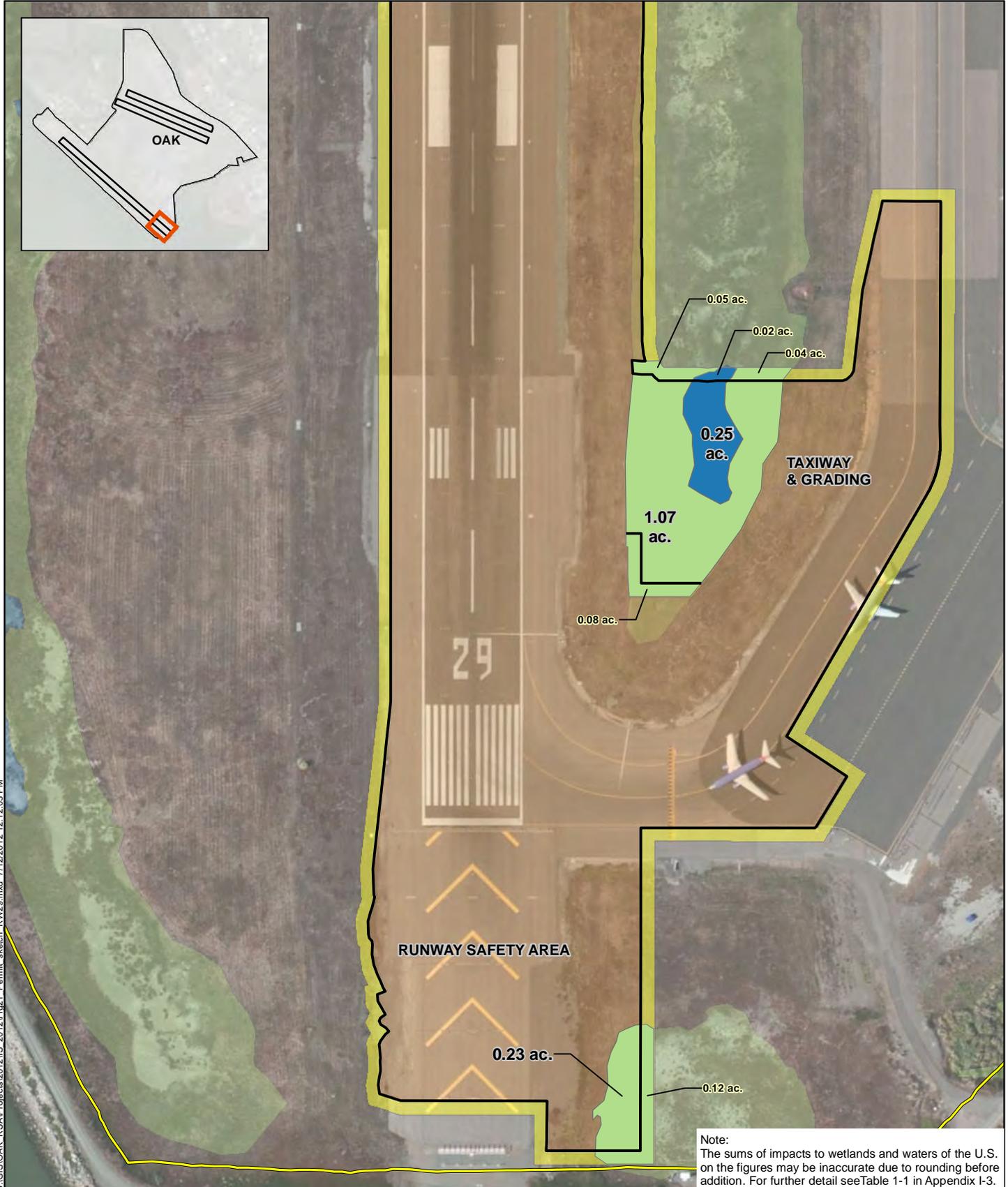


Note:
 The sums of impacts to wetlands and waters of the U.S. on the figures may be inaccurate due to rounding before addition. For further detail see Table 1-1 in Appendix I-3.

WETLAND IMPACTS - RUNWAY 11-29

28067867 Oakland International Airport
Oakland, California

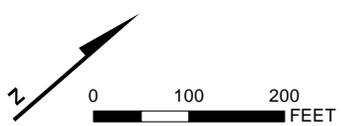
FIGURE 20



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Source: Aerial image, Bing, 2010.

- BCDC Jurisdiction
- Extent of Permanent Impacts
- Extent of Temporary Impacts
- Non-tidal Wetlands
- Non-tidal Other Waters



WETLAND IMPACTS - RUNWAY 29

28067867 Oakland International Airport
Oakland, California

FIGURE 21

Thus, impacts to wetlands and other waters of the U.S. and the State would be less than significant with mitigation incorporated.

d) Interfere with Wildlife or Fisheries Migratory Corridors

The ongoing USDA WHMP at the Airport deters species from getting established in the area for aircraft safety reasons. Fish species have not been found within the Airport boundary, and may only reside in the muted tidal lagoon or the open waters outside of the Airport boundary, on the outward side of the perimeter dike. Migratory and resident shorebirds, wading birds, waterfowl, and other water bird species may use the non-tidal wetlands and waters of the U.S., muted tidal lagoon, channels, the sand area, and upland habitat in the study area. Small mammals, marine invertebrates, and common amphibians and reptiles may also be present in the non-tidal wetland habitats or open grasslands. However, the WHMP deters species that may create a hazard for aircraft, or damage infrastructure throughout the Airport, including the study area. In addition, the developments around the Airport act as a barrier to wildlife corridors. Therefore, impacts to the movement of native resident or migratory fish or wildlife species would be less than significant.

e) Conflict with Local Policies

The Proposed Project does not include the removal of trees. Therefore, the Proposed Project would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance, and there would be no impact to these resources.

f) Conflict with Adopted Habitat Conservation Plan or Natural Community Conservation Plan

There is no proposed or adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan that encompasses the study area at the Airport. Therefore, the Proposed Project will not conflict with any such plan, and there would be no impact.

Biological Resources Mitigation Measures

The following mitigation measures apply to impacts identified in **Sections 63.IV-a, b, and c**. These measures would avoid and/or minimize the potential for impacts to wildlife and plant resources and habitat, including federal and state listed special-status species. Implementation of these mitigation measures ~~may be~~ have been further refined during coordination and consultation with the applicable resource agencies.

Mitigation Measure BO-1 – Conduct Botanical Surveys

One round of surveys will be conducted prior to the start of construction activities by a qualified biologist and conducted in accordance with the CDFG approved guidelines, as outlined in Protocols for Surveying and Evaluating Impacts to Special-Status Native Plant Populations and Natural Communities (CNRA, 2009). The botanical survey would be scheduled to coincide with the appropriate blooming periods for the special-status plant species that potentially occur in the study area, as identified in **Table C-1 Appendix C**. If special-status plant species are identified during the botanical survey, the areas

supporting these species will be avoided, or the plants will be salvaged and relocated to a site that is approved by the regulatory agencies.

Mitigation Measure BO-2 Environmental Awareness Training

An agency-approved biologist will conduct environmental awareness training for all construction crews and contractors working in special-status species habitats (e.g., non-tidal wetlands, non-tidal waters of the U.S., the sand area, and upland habitats) before work on the Proposed Project is initiated. The training will include a brief review of all the special-status species and other sensitive resources that may exist in the study area, including the field identification, and the habitat requirements of each species; the locations of sensitive biological resources; the legal status and protection of each species; the project's avoidance and minimization measures; environmental permits; and regulatory compliance requirements.

New workers who arrive after the start of construction will be trained as needed by a designated onsite supervisor. Additional training will be conducted as needed, including morning "tailgate" sessions, to update crews as the work progresses. A record of all personnel trained during the project will be maintained, and this record will be made available for compliance verification. In addition, training materials, written documentation, photographs, and/or interpretive signs will be provided to the work crew with details on sensitive resources, resource avoidance, permit conditions, and possible fines for violations of state or federal environmental laws.

Mitigation Measure BO-3 – Conduct Pre-Construction Survey for Western Snowy Plover and California Least Tern

The Port will conduct surveys commencing in April 2012. Four surveys will be conducted prior to construction: three in the 2012 breeding season (mid-April, May, and July), and one pre-construction survey in 2013 within 30 days prior to construction.

The breeding seasons are as follows (Raabe, 2011):

- Western snowy plover: March 1 through September 14.
- California least tern: April 15 through August 15.

The seasonal restrictions or buffer zones, described under **Mitigation Measure BO-4** below, will be implemented if nests are detected during the 2013 pre-construction surveys. See **Appendix D, Biological Assessment Opinion**, for additional detail regarding the proposed surveys for the western snowy plover and California least tern.

Mitigation Measure BO-4 – Seasonal Work Restrictions and Buffer Zones for Western Snowy Plover and California Least Tern

Western snowy plover. If nests are detected during the pre-construction survey, then either the construction work will be limited to September 15 through February 28, or no activities will be performed within a 600-foot buffer zone of the nest until the chicks have fledged or they are no longer using the sand area.

California least tern. If nests are detected during the pre-construction survey, then either the construction work will be limited to August 16 through April 14, or no activities will be performed within a 300-foot buffer zone of the nest until the chicks have fledged or they are no longer using the sand area.

Mitigation Measures BO-5.—(a) Offsite Mitigation for Federally Listed Species and (b) Wetlands and Waters of the U.S.

The Port has assessed offsite mitigation options to offset unavoidable impacts to both wetland resources and protected species habitat. This section describes the offsite program proposed by the Port to compensate for the significant impacts to both wetland resources and protected species habitat.

Requirements for Mitigation for Impacts to Federally Listed Species

Under Section 7 of the Endangered Species Act, a federal agency is required to consult with the USFWS and/or NMFS regarding the potential impacts to federally listed species, and designated critical habitat (16 United States Code [USC] 1536). During recent discussions with USFWS, the agency noted the need for compensatory mitigation for impacts to the potential dispersal and marginal foraging habitat for California clapper rail. Accordingly, this document includes compensatory mitigation for the California clapper rail.

Compensatory Mitigation Limitations

The Proposed Project would result in an unavoidable permanent impact to as much as 7.03 acres and temporary impact of 0.5174 acre of non-tidal wetlands, which could be potential dispersal and marginal foraging habitat for the California clapper rail. Offsite mitigation is required because placing habitat or aquatic mitigation areas onsite at OAK to compensate for endangered species or wetland impacts would be inconsistent with the following federal regulations and guidelines:

- Memorandum of Agreement between the FAA, the U.S. Air Force, the U.S. Army, the U.S. Environmental Protection Agency (U.S. EPA), the USFWS, and the USDA to Address Aircraft-Wildlife Strikes (2003), which established procedures to address existing and future environmental conditions contributing to aircraft-wildlife strikes.
- FAA Advisory Circular 150/5200 33B, Hazardous Wildlife Attractants on or Near Airports, recommends a minimum separation distance of 10,000 feet between aircraft operations areas of airports serving turbine jet aircraft, and hazardous wildlife attractants; and recommends a distance of 5 statute miles between the airport operations area and hazardous wildlife attractants, if the attractant could cause hazardous wildlife movement into or across the airport's approach or departure airspace.
- FAA regulations regarding certification of commercial service airports at 14 CFR 139.337, which requires that OAK, as a commercial service airport, alleviate wildlife-aircraft collision strike hazards.
- USACE regulations for compensatory mitigation for losses of aquatic resources at 33 CFR Part 332.3(b)(1), which states that compensatory mitigation projects should not be located where they will increase risks to aviation by attracting wildlife to areas where aircraft-wildlife strikes may occur.

As part of the Section 7 consultation process, the Port has met with the USFWS (February 2010, January 2011, May 2011, September 2011, and December 2011) and NMFS (February 2011) and CDFG (February 2011 and December 2011) to obtain guidance on potential impacts and mitigation measures for listed species. Based on these discussions, the Port proposes to complete ~~one of the two~~ offsite mitigation ~~options~~ discussed below. The selected offsite mitigation will provide benefits to California clapper rails above and beyond the value provided by the marginal habitat in the Runway 11 area at OAK. Specific benefits would include providing contiguous habitat with functional linkages to existing populations that would be preserved in perpetuity and managed for the benefit of the species.

Mitigation Measure BO-5 (a) Proposed Compensatory Mitigation for California Clapper Rail Habitat. The Port proposes ~~two options for~~ offsite compensatory mitigation for habitat to offset the loss of potential dispersal and marginal California clapper rail habitat. ~~The Port is coordinating these options with the USFWS for their approval.~~

~~**Option 1 – Enhancement of Offsite Habitat.** If Option 1 is selected, the Port will provide funding for improvements to existing California clapper rail habitat. Potential improvements will include:~~

~~Vegetation management at a site identified in consultation with USFWS (e.g., Arrowhead Marsh in the San Leandro Bay region, Emeryville Crescent, the Hayward Shoreline); and/or,~~

~~Floating islands at a site identified in consultation with USFWS; and/or~~

~~Predator management at the Don Edwards San Francisco Bay National Wildlife Refuge.~~

~~The selected habitat improvements will enhance survival and breeding opportunities for established California clapper rail populations. These habitat improvement activities will be coordinated with similar enhancement activities currently proposed by the San Francisco Estuary Invasive Spartina Project (ISP, 2012). Each of the potential improvements is described in more detail below, followed by a description of the proposed funding.~~

- **Vegetation Management.** Vegetation management activities will create or enhance high-tide refugia and increase foraging and nesting habitat for the California clapper rail. The proposed activities will focus on two objectives:
 - Enhance and accelerate marsh succession and complexity with plantings of ~~other native marsh plant species such as~~ gumplant (*Grindelia stricta*), which have a tall shrubby structure and provide California clapper rail nesting substrate cover and high tide refugia.
 - Enhance and accelerate re-establishment of native cord grass (*Spartina foliosa*) at selected marshes, using plugs or propagated seedlings to support California clapper rail foraging and nesting habitat.

As noted above, these activities would be coordinated with the California State Coastal Conservancy and the Invasive Spartina Project, consistent with the 2012 California Clapper Rail Habitat Enhancement, Restoration, and Monitoring Plan (ISP, 2012). For more details regarding the vegetation plan, please refer to the Biological Opinion (Appendix D).

- ~~Floating Islands. Floating islands can provide artificial high-tide refugia at sites that support an existing California clapper rail population but lack accessible or sufficient natural high-tide refugia. Floating islands have been used for breeding by light-footed clapper rail (*Rallus longirostris yumanensis*) in southern California, and for breeding and as a refuge from high-tide events by California clapper rail at the Arrowhead Marsh (ISP, 2012). The Port will coordinate with the USGS to determine the best strategy to employ floating islands as high-tide refugia.~~
- ~~Predator Management. The Port will fund predator management at the Don Edwards San Francisco Bay National Wildlife Refuge (Refuge) in accordance with the Predator Management Plan (USFWS, 1991). Predation is recognized as a threat to California clapper rails. The Predator Management Plan targets non-native and native predators such as red fox (*Vulpes vulpes*), feral cats (*Felis domesticus*), raccoons (*Procyon lotor*), striped skunk (*Mephites mephites*), and Norway rats (*Rattus sp.*), and selects small-scale localized areas to reduce intensive predation (USFWS, 1991).~~

~~Predator management at the 30,000-acre refuge relies on two to three permanent staff from the USDA wildlife biologists/specialists, as well as on intermittent seasonal staff (Popper, 2011). Currently, the USDA wildlife biologists are tasked with conducting predator management on eleven separate projects in an area as large as 75,000 acres in six counties (Popper, 2011). Additional funds for the USDA predator management activities will improve the survival of established California clapper rail populations at the refuge.~~

- ~~Proposed Funding. Concurrent with the start of construction of the Runway 11 RSA Improvement Project, the Port will fund vegetation management activities, floating islands, and/or predator management. The proposed funding is for enhancement of tidal marsh habitat.~~
- ~~Funding for the selected habitat improvement(s) will be provided as follows:~~
- ~~Vegetation management activities will be funded by the Port will provide funding through an agreement contract with Save the Bay, East Bay Regional Park District, Invasive Spartina Project, the California Coastal Conservancy for the Invasive Spartina Project, or other entity approved by the USFWS.~~

~~— Floating islands will be funded by the Port through a research grant to the USGS through USFWS (direct transfer since both are agencies in the Department of Interior), through a non-profit, or directly to the USGS.~~

~~— Predator management will be funded by the Port through an Agreement with the USDA Animal and Plant Health Inspection Service Wildlife Services. Funds could be used for one USDA wildlife specialist full-time equivalent, including equipment and supplies. Alternatively, funds could be placed in an endowment with the National Fish and Wildlife Foundation to fund predator management over a longer duration.~~

~~Option 2 – Offsite Habitat Acquisition and In-Perpetuity Preservation.~~ ~~If this option is selected, the Port will contribute to the establishment of high-quality California clapper rail habitat, to be protected in perpetuity at the same location as the wetlands mitigation site approved by the USACE and the RWQCB.~~

~~The proposed mitigation takes into account the location of the offsite mitigation area, the amount of acreage available, and the hydrological and biological conditions that may benefit the California clapper rail, history of the property, and status of the mitigation design, among other selection criteria, in consultation with the USFWS.~~

~~A Management Plan will be developed concurrent with the proposed habitat establishment and will include:~~

- ~~• A description of existing habitats and proposed habitat establishment;~~
- ~~• Success criteria for habitat modification;~~
- ~~• A predator management plan; and~~
- ~~• Three years of monitoring and reporting of the proposed habitat establishment.~~

~~The Port will submit the Management Plan to the USFWS for approval.~~

~~Offsite habitat enhancement or creation proposed for the California clapper rail, as described above, would provide potential benefits for the salt marsh harvest mouse since habitat of the California clapper rail is considered potentially suitable for the salt marsh harvest mouse.~~

Mitigation Measure BO-5 (b) Mitigation for Wetlands and Waters of the U.S. The U.S. EPA and USACE's Wetlands Mitigation Rule (Mitigation Rule) ([73 Federal Register 19594](#)) requires replacement of the loss of wetland acreage and functions from fill of wetlands through compensatory mitigation, but does not allow compensatory mitigation in locations that may create a wildlife-aircraft strike hazard (USACE, 2008). The Port considered the viability of creating onsite mitigation projects at the Airport; however, FAA regulations prohibit development of compensatory mitigation projects within approximately 2 miles of airport operations (see the Compensatory Mitigation Limitations section under **Mitigation Measure BO-5**, above). Accordingly, the Port has developed the following proposed offsite compensatory mitigation program to reduce impacts to a less-than-significant level. This mitigation package will be reviewed and further refined by the regulating resource agencies; in particular, USACE and the San Francisco RWQCB, as part of the respective Section 404 and 401 permitting processes under the CWA.

Requirements for Mitigation for Loss to Aquatic Resources. The CWA prohibits the discharge of dredged or fill material into wetlands, streams, and waters of the U.S. unless a Section 404 permit is issued by the USACE, and a Section 401 Water Quality Certification is issued from the state in which the discharge originates (33 USC 1344). Implementation of the Proposed Project will require an individual Section 404 Permit by the USACE San Francisco Bay District, and a Section 401 Water Quality Certification by the San Francisco Bay RWQCB.

Under the guidance of the U.S. EPA and USACE's Wetlands Mitigation Rule (Mitigation Rule), proposed dischargers are required to replace the loss of wetland acreage and functions by providing compensatory mitigation through aquatic resource restoration, establishment, enhancement, and in certain circumstances, preservation. The Mitigation Rule encourages the use of mitigation banks to reduce many risks and uncertainties associated with compensatory mitigation. The other option is permittee-responsible mitigation, because there are no available in-lieu fee programs.

In addition, the proposed mitigation described below will conform to the RWQCB's San Francisco Bay Region (Region 2) Water Quality Control Plan (Basin Plan), and "Fact Sheet for Reviewing Wetland and Riparian Projects" by the San Francisco RWQCB.

The project sponsor will work with USACE and RWQCB to ensure that the proposed compensation complies with federal and state regulations and policies, as described above.

Proposed Compensatory Wetland and Waters Mitigation. The Port identified potential offsite mitigation options to compensate for the permanent loss of ~~49~~14.56~~-39~~ acres and temporary loss of ~~3.08~~1.81 acres of wetlands and waters of the U.S. Potential mitigation sites were evaluated based on the following selection criteria:

- Schedule Risks (i.e., ability to create wetlands in conjunction with the RSA Improvement Project construction schedule);
- Location (i.e., proximity to the Airport and if the proposed mitigation site is located in the same drainage area as OAK);
- Capacity (i.e., available acreage of wetlands); and
- Ecological functions of the wetlands at the mitigation site.

Before the impact to wetlands and waters of the U.S. would occur, the Port will purchase wetlands and waters of the U.S. mitigation credits from the San Francisco Bay Wetland Mitigation Bank (Bank) at a ratio of 1:1 for in-kind permanent impacts to wetlands and waters of the U.S., at a ratio of 0.1:1 for in-kind temporary impacts to wetlands and waters of the U.S., and at a ratio of 3:1 for waters of the U.S. mitigation credits that are used as out-of-kind mitigation for impacts to wetlands. As described in detail in Table 1-2 of Appendix I-3, the total project impacts will require purchase of 15.134 acres of mitigation bank credits, including purchase of 12.200 acres of mitigation bank credits for in-kind impacts to wetlands, purchase of 2.341 acres of waters of the U.S. mitigation bank credits for in-kind impacts to waters of the U.S., and purchase of 0.593 acre of waters of the U.S. mitigation bank credits as out-of-kind mitigation for 0.198 acre of wetlands impacts (3:1 ratio). As specified in the USACE communications of January 17, 2012 and Port/USACE/FAA meeting of June 28, 2012, the USACE indicated that these were appropriate mitigation ratios for this project if credits were purchased from this Bank. Use of a wetland mitigation bank to compensate for losses of wetlands habitat is the most highly preferred method of mitigation identified in the USEPA and USACE 2008 Compensatory Mitigation Rule.

The USACE issued an Individual Permit for the Bank on July 30, 2008, which included authorization to restore the Bank property to full tidal action. The framework and language for the establishment, use, operation, maintenance, and long-term management of the Bank is contained in the *San Francisco Bay Wetland Mitigation Bank Enabling Instrument (BEI)* and associated *Resource Management Plan*, both finalized in March 2011. The BEI agreement was entered into by Keech Properties, LLC (Sponsor and Land Manager), USACE, Region 9 of the U.S. EPA, and the Wildlife Heritage Foundation, and fully executed on June 24, 2011.

The Bank property comprises approximately 82.8 acres in northeastern Redwood City, San Mateo County. It is on the edge of San Francisco Bay, bounded by Belmont Slough on the west, Bay Slough on the northeast, Shearwater Parkway on the south, and residential development on the east and south.

Similar to the Port property, the Bank property is within the historic bay margin; it was separated from San Francisco Bay during the early part of the twentieth century by dikes, and drained. The Bank property supported the same jurisdictional features the Port property currently supports, including non-tidal seasonal wetlands and non-tidal open water features.

For several years after the Bank property was diked, it was used for production and farming. During the early 1960s, the Bank property was incorporated into Redwood City's General Plan for a marina, residential, and commercial development as part of the Redwood Shores Master Plan. In 2006, Keech Properties, LLC, acquired the Bank property, removed it from development uses, and obtained entitlements to restore the Bank property to full tidal action in perpetuity as valuable wetlands and waters of the U.S.

Restoration construction activities began in 2009 and continued through 2010. In January 2011, the dike surrounding the property was breached and the Bank property was restored to full tidal action. Since the dike was breached, habitat and aquatic resource functions associated with tidal marsh development have progressed quickly. Historic slough channels have become active, new slough channels are forming, and sedimentation accretion has been observed throughout the Bank.

The Bank Sponsor is responsible for initial design and construction, managing and maintenance, achievement of performance standards, and submitting annual reports for the Bank property, in accordance with the March 2011 *Bank Development Plan: Wetlands Restoration and Success Monitoring* approved by the USACE and U.S. EPA.

The selected mitigation site will achieve the federal and state goal of "no net loss of wetlands." In addition, the selected mitigation site will enhance the wetland complex in the Bay Area by providing a contiguous area of at least ~~4915.13-39~~ acres, including 12.200 acres of wetlands and 2.934 acres of waters of the U.S. versus many small, fragmented wetland areas impacted by the OAK RSA Improvement Project. The contiguous area will ensure greater wetland success by allowing vegetation to establish in a larger area, which subsequently enhances and supports wildlife habitat and minimizes predators associated with urban development.—Also, the selected mitigation site will be preserved in perpetuity through the recordation of a legal instrument such as a conservation easement deed.

Implementation of the mitigation measures ~~will be funded~~would be eligible for funding by a cost share between the FAA (through an Airport Improvement Program grant) and the Port, as part of the overall RSA Improvement Project.—Monitoring performance criteria and reporting requirements will be established in compliance with the USACE's Section 404 Permit and the RWQCB's 401 Water Quality Certification and Waste Discharge Requirements.

The example wetland and waters mitigation sites described below also have the potential to provide habitat for federally listed species, such as the California clapper rail.

~~*Example Mitigation Site: Sears Point Restoration Project*~~

~~In 2005, the Sonoma Land Trust (SLT) purchased the 2,327-acre Sears Point Ranch in southern Sonoma County, adjacent to San Pablo Bay, Tolay Creek, and Sonoma Baylands. The SLT, with lead agencies CDFG and USFWS and partner Ducks Unlimited, plans to restore 960 acres of tidal marsh and adjacent seasonal wetlands and uplands. Conceptual restoration designs were developed by experienced professionals and vetted by a technical review committee. The 100-percent design should be available in spring 2012, with construction starting in the summer of 2012. The SLT is in the process of obtaining necessary permits and funding. The OAK RSA project could help to fill SLT's funding gap to ensure construction of the project.~~

~~*Example Mitigation Site: San Francisco Bay Wetland Mitigation Bank*~~

~~Located approximately 10.5 miles south of OAK in Redwood City, the Bank was approved by the U.S. EPA and USACE in August 2011. The 88-acre restoration site, historically tidally influenced and hydrologically connected to Belmont Slough, was diked in the early part of the twentieth century for future development. Prior to restoration, the area contained uplands and some seasonal wetlands. The site is now restored to full tidal action, with upland refugia habitat such as pickleweed, California cordgrass, and salt grass. According to the credit release schedule, the Bank will be capable of releasing a total of 50.5 acres of wetland and 8.7 acres of waters credits.~~

Mitigation Measure BO-6 – Habitat Exclusion Fencing for Salt Marsh Harvest Mouse

Prior to vegetation removal, the agency-approved biologist will mark the limit of potentially suitable habitats, as identified in the **Appendix D, Biological Assessment**Opinion. Plastic fencing that meets the USFWS and CDFG design standards for exclusion of salt marsh harvest mouse will be installed along the marked limits of potentially suitable habitat. The exclusion fencing will be installed with an opening to the adjacent habitat with the highest cover of pickleweed. Vegetation removal within the fenced area will proceed toward the opening in the fence to allow any mice within the fenced area to passively relocate through the opening into adjacent habitat. The opening will be closed after the vegetation has been cleared. Furthermore, the Port will implement other species-specific measures described in the Biological Opinion (Appendix D).

Mitigation Measure BO-7 – Use of Hand-Operated Equipment to Protect Salt Marsh Harvest Mouse

The contractor will use hand-operated equipment to remove vegetation within the marked areas.

Mitigation Measure BO-8 – Conduct Pre-Construction Survey for Western Burrowing Owls

A pre-construction survey for western burrowing owls will be included in any special-status species survey conducted 30 days prior to the start of construction activities. If burrowing owls are observed within the study area, the Port will implement the existing CDFG protocols identified in the Burrowing Owl Management Plan (The California Burrowing Owl Consortium, 1993).

Mitigation Measure BO-9 – Conduct Pre-Construction Survey for Migratory Birds

A pre-construction survey for nesting migratory birds will be conducted 30 days prior to the start of construction activities. In the unlikely event that a migratory bird is observed nesting within the study project area, the Port will contact CDFG immediately and implement measures (such as a construction buffer, an agency approved biologist onsite, or time avoidance) to avoid any impact to the nest and the nesting bird.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
V. CULTURAL RESOURCES				
Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

a) Historical Resources

Under the California Environmental Quality Act (CEQA), a historical resource is considered eligible for listing on the California Register of Historical Resources (CRHR) if it meets the following criteria set forth in CEQA Section 15064.5, and defines as significant any resource that:

- is associated with events that have made a significant contribution to the broad patterns of California’s history and cultural heritage;
- is associated with lives of persons important in our past;
- embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
- has yielded, or may be likely to yield, information important in prehistory or history.

Resources that are listed, or formally determined to be eligible for listing, in the National Register of Historic Places (NRHP) are automatically listed in the CRHR, and are thus considered historical resources for the purposes of CEQA compliance.

Baseline conditions for archaeological and historic architectural resources located in the OAK Runway Safety Area (RSA) Area of Potential Effects (APE) are presented in technical reports produced for the Proposed Project (Hale 2011, Lytle 2011) and summarized in this section.

Under CEQA Section 15064.5 a historical resource includes prehistoric and historical archaeological resources and built environment resources that the lead agency determines to be historically significant.

Archaeological Resources

Inventory efforts for archaeological resources included a review of ethnographic and historic literature and maps, archaeological base maps and site records, survey reports, and atlases of historic places on file at

the Northwest Information Center (NWIC) of the California Historical Resources Information System (CHRIS) located at Sonoma State University; consultation with the California Native American Heritage Commission (NAHC) and outreach to Native American contacts identified by the NAHC; and a limited archaeological pedestrian reconnaissance of the OAK RSA APE (Hale, 2011). No archaeological resources, CRHR-eligible or otherwise, were identified within the OAK RSA APE.

As part of the Section 106 consultation, FAA determined the APE and provided its finding of no effect of the Proposed Project on historic properties. The California State Historic Preservation Office concurred with the FAA's determination of no effect by letter of February 6, 2012 (see **Appendix F, Cultural Resource Consultation**). Current conditions, including history of reclamation, extent of current development, and evidence of subsurface conditions as evidenced from existing geotechnical data (Fugro West 2007; URS/AGS, 2008) were utilized to determine the potential for exposing previously undiscovered archaeological sites during project implementation (i.e., excavation) (Archaeological/Historical Consultants, 1993; Board of Port Commissioners, 1927; OAK, not dated [n.d.][a]; OAK, n.d.[b]; Reuther and Larkins, 2008; Sorensen, 1989; Fugro West 2007; URS/AGS, 2008). This analysis revealed that all of the excavations associated with the Proposed Project would be confined to the layer of imported material used to fill this portion of San Francisco Bay, except for the Engineered Material Arresting System excavation in the RSA at Runway 9R, where, based on the existing geotechnical data, the upper 2 feet of the underlying Bay Mud would be encountered. Neither the imported fill nor the Bay Mud is considered sensitive for containing buried archaeological resources; therefore, no impacts to significant archaeological resources are anticipated. The imported fill is not sensitive for containing significant archaeological resources, because any archaeological materials transported to the site and inadvertently used in the reclamation process would not retain sufficient integrity to be considered eligible for inclusion in either the NRHP or CRHR.

The deposit of Bay Mud underlying the fill is the result of rising sea level gradually inundating land surfaces at the end of the last glacial epoch. With the melting of the glaciers, sea levels worldwide began to rise rapidly, at the rate of about 2 centimeters per year. By about 10,000 Before Present (BP), the rising sea flooded in through the Golden Gate to form San Francisco and San Pablo bays. As the shoreline of San Francisco Bay encroached inland, low- to moderate-energy wave action stripped much of the residual soil and weathered rock away, allowing Bay Mud sediments to deposit almost directly on the bedrock surface. The bays enlarged as sea levels continued to rise at the same rate until about 8,000 BP (Atwater and Hedel, 1976; Atwater et al., 1977). By about 6,000 BP, sea-level rise had declined to a much slower rate of 2 millimeters per year. Between 6,000 and 5,000 BP, this slow inundation was outstripped by sedimentation (marsh deposits) from Bayside tributaries, and extensive mudflats and tidal marshes began to develop along the Bay shores (Ingram, 1995; Lightfoot, 1997). Tidal marshes probably reached their maximum extent by about 2,000 BP (J. West cited in Banks & Orlins, 1984:3.2). Sea levels have continued to rise at a slower rate, and with occasional reversals, into modern times. The Bay Mud and marsh deposits that formed as a result of these sedimentation processes do not represent stable land surfaces and were therefore unavailable for human occupation. These deposits are thus not considered sensitive for containing prehistoric archaeological resources.

Given that only soils not considered to be sensitive for containing archaeological resources would be encountered with project implementation, it is not anticipated that the Proposed Project would result in the inadvertent discovery of buried (i.e., currently unknown) archaeological resources.

Although unlikely, the inadvertent discovery of buried archaeological resources cannot be completely eliminated. Although *in situ* archaeological resources would not occur in the fill layer, it is possible that an anomalous archaeological resource could be found entombed in the Bay Mud. As such, ground-disturbing construction activities have the potential to inadvertently expose—and therefore affect—previously unknown archaeological resources, including those that may be CRHR-eligible. The inadvertent exposure of a previously unknown archaeological resource would be a potentially significant impact. Implementation of **Mitigation Measure CR-1 – Accidental Discovery Measures**, would reduce impacts to a less-than-significant level. Therefore, impacts to historical archaeological resources as defined in Section 15064.5 would be less than significant with mitigation incorporated.

Historical Architectural Resources

Inventory efforts for historic architectural resources included a review of historic literature and maps, archaeological and historic architecture base maps and site records, and survey reports on file at the NWIC of the CHRIS at Sonoma State University; a review of properties listed as California Points of Historic Interest (CPHIs), California Historical Landmarks (CHLs), California Historical Resources Inventory, NRHP, CRHR, and local registries; a review of the Caltrans Statewide Bridge Inventory of Local Agency and State Agency Bridges for Alameda County; supplementary archival research at the Port of Oakland (Port), the Western Aviation Museum, and various online sources; and a reconnaissance historic architecture survey of the OAK RSA APE (Lytle, 2011). The archival research identified one historic architectural resource within the confines of the OAK RSA APE: North Field, a locally designated commemorative listing, and therefore a historical resource for the purposes of CEQA. No other historic architectural resources, whether newly assessed or previously recommended or determined eligible for the CRHR or as resources for purposes of CEQA, were identified within the OAK RSA APE. As noted above, the California State Historic Preservation Office concurred with the FAA's determination of no effect by letter of February 6, 2012 (see **Appendix F, Cultural Resource Consultation**).

North Field was designated as a City Landmark (LM 79-310) by Ordinance No. 9872, adopted by the City of Oakland on February 5, 1980, and is therefore considered a historical resource for purposes of CEQA. The designation, however, is commemorative in nature and is exclusive of all buildings and features. As it is a commemorative designation, its historical significance is not directly tied to the actual structures and features themselves, but is instead related to the geographical location. The boundaries of North Field are not specified in the listing; however, the Port generally defines North Field as the portion of the Airport located north of Ron Cowan Parkway, including the North Field runways (9L-27R, 9R-27L, and 15-33). This portion of the Airport includes the original Airport buildings and World War II developments. Examples of similar commemorative listings for which the physical presence of structures and features are not necessary for the retention of significance often include CPHI and CHLs, which may be listed even if the property has lost its historic appearance (integrity), and are usually marked by a plaque (California Office of Historic Preservation, 2011).

The Proposed Project would enhance safety through improvements to the RSAs of the Airport's runways. Although partially within portions of the Port-recognized boundaries of North Field, the Airport's structures and features (specifically, Runways 9R-27L, 9L-27R, and 15-33, and associated taxiways and access roads) are not included in the Landmark designation. North Field would not be directly or indirectly affected by the project because the landmark designation is not dependent on the historic integrity or physical presence of any related structures or features. The Proposed Project would not change the general geographic location of the runways or alter their use. Therefore, impacts to historic architectural resources as defined in Section 15064.5 would be less than significant.

b) Archaeological Resources

In addition to assessing impacts to archaeological resources meeting the requirements for listing as historical resources, impacts to unique archaeological resources are also considered under CEQA, as described in Section 15064.5, as well as under California Public Resource Code (PRC) (Section 21083.2). If an archaeological site does not meet the criteria for inclusion on the CRHR, as described under **Section 3.V-a**, but does meet the definition of a unique archaeological resource as outlined in PRC 21083.2, it is entitled to special protection or attention under CEQA. A unique archaeological resource implies an archaeological artifact, object, or site about which it can be clearly demonstrated that—without merely adding to the current body of knowledge—there is a high probability that it meets one of the following criteria:

- The archaeological artifact, object, or site contains information needed to answer important scientific questions, and there is a demonstrable public interest in that information;
- The archaeological artifact, object, or site has a special and particular quality, such as being the oldest of its type or the best available example of its type; or
- The archaeological artifact, object, or site is directly associated with a scientifically recognized important prehistoric or historic event or person.

A non-unique archaeological resource indicates an archaeological artifact, object, or site that does not meet the above criteria. Impacts to non-unique archaeological resources and resources that do not qualify for listing on the CRHR receive no further consideration under CEQA.

No previously recorded unique archaeological resources have been identified within the footprint of the Proposed Project. Potential impacts to previously unidentified unique archaeological resources causing a substantial adverse change in the significance of a historical resource, as defined in Section 15064.5, would be the same as described under **Section 3.V-a** above, potentially significant, and implementation of **Mitigation Measure CR-1** would be required to reduce the level of impact. With the implementation of **Mitigation Measure CR-1**, potential impacts to archaeological resources as defined under either Section 15064.5 or PRC 21083.2 would be less than significant.

c) Paleontological Resources

PRC Section 5097.5 prohibits excavation or removal of any "vertebrate paleontological site, or any other archaeological, paleontological, or historical feature, situated on public lands, except with the express

permission of the public agency having jurisdiction over such lands.” Public lands are defined to include lands owned by or under the jurisdiction of the state or any city, county, district, authority, or public corporation, or any agency thereof. Section 5097.5 also states that any unauthorized disturbance or removal of archaeological, historical, or paleontological materials or sites located on public lands is a misdemeanor. Section 30244 requires reasonable mitigation for impacts on paleontological resources that occur as a result of development on public lands.

The Proposed Project is to be constructed within soils either composed of imported fill or the upper 2 feet of underlying Bay Mud. Any paleontological materials occurring in the imported fill would have been inadvertently transported to the area and would thus no longer be *in situ* (i.e., no longer remains within its original context). Given the relatively recent age of the levels of the underlying Bay Mud to be encountered during project implementation (as described under **Section 3.V-a** above), this stratum is unlikely to contain unique paleontological remains or unique geologic features. As such, these impacts to unique paleontological resource or unique geologic features with project implementation would be less than significant.

d) Human Remains

Section 15064.5 of CEQA assigns special importance to human remains, and specifies procedures to be used when Native American remains are discovered. These procedures are detailed under PRC Section 5097.98.

No previously recorded archaeological sites, including those likely to contain human remains, have been identified within the project area. Although it is possible to inadvertently expose unknown archaeological resources during construction, it is unlikely, given that the Proposed Project is confined to introduced fill and the upper 2 feet of underlying Bay Mud, that human remains are present and undiscovered within the OAK RSA APE, as defined for archaeological resources.

Although unlikely, the inadvertent discovery of buried archaeological resources, including those that contain human remains, cannot be completely eliminated. As such, ground-disturbing construction activities have the potential to inadvertently expose, and therefore affect, previously unknown archaeological resources, including those that may contain human remains. The inadvertent exposure of previously unidentified human remains would be a potentially significant impact. Implementation of the aforementioned **Mitigation Measure CR-1**, as well as **Mitigation Measure CR-2 – *Inadvertent Discovery of Human Remains and Associated or Unassociated Funerary Objects including those Interred Outside of Formal Cemeteries***, would reduce this impact to a less-than-significant level. With implementation of these measures, impacts relating to disturbance of human remains would be less than significant.

Cultural Resources Mitigation Measures

The following mitigation measures apply to impacts identified in **Sections 3.V-a, b, d**.

Mitigation Measure CR-1 – Accidental Discovery Measures

If an intact archeological deposit is inadvertently exposed during construction, all soils-disturbing activities in the vicinity of the deposit shall cease. The Port shall retain the services of a qualified archaeologist, who shall make a reasonable effort to assess the identity, integrity, and significance of the encountered archeological deposit, and present the findings of this assessment to the Port staff and/or their representative.

If unanticipated resources are discovered during construction, they will be addressed under the procedures set forth in CEQA Section 15064.5, and in compliance with the Port's Emergency Plan of Action for Discoveries of Unknown Historical or Archaeological Resources (URS, 2000). If possible, the resource will be avoided first through design modification, or second through protective measures as described above. If the resource cannot be avoided, the Port will consult with the Federal Aviation Administration (FAA), and if necessary the State Historic Preservation Officer, with regard to resource treatment and determination of the importance and/or significance of the discovery. If it is determined that the resource is important, then additional measures to mitigate impacts will be devised in consultation with the FAA, and will be carried out by the Port.

Mitigation Measure CR-2 – Inadvertent Discovery of Human Remains and Associated or Unassociated Funerary Objects including those Interred Outside of Formal Cemeteries

The treatment of human remains and of associated or unassociated funerary objects discovered during any soils-disturbing activity will comply with applicable state laws. In the event of the accidental discovery or recognition of any human remains in any location other than a dedicated cemetery, the following steps should be taken:

- (1) There will be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until:
 - (A) The Alameda County Coroner is contacted to determine that no investigation of the cause of death is required, and

If the coroner determines the remains to be Native American:
 1. The coroner will contact the NAHC within 24 hours.
 2. The NAHC will identify the person or persons it believes to be the most likely descended from the deceased Native American.
 3. The most likely descendent may make recommendations to the Port for means of treating or disposing of—with appropriate dignity—the human remains and any associated grave goods as provided in PRC Section 5097.98, or
- (2) Where the following conditions occur, the Port will rebury the Native American human remains and associated grave goods—with appropriate dignity—on the property, in a location not subject to further subsurface disturbance.

- (A) The NAHC is unable to identify a most likely descendent or the most likely descendent failed to make a recommendation within 24 hours after being notified by the commission.
- (B) The descendant identified fails to make a recommendation; or
- (C) The Port rejects the recommendation of the descendant, and the mediation by the NAHC fails to provide measures acceptable to the landowner.

An archaeological consultant, project sponsor, and most likely descendant will make all reasonable efforts to develop an agreement for the treatment of—with appropriate dignity—human remains and associated or unassociated funerary objects (CEQA Guidelines Sec. 15064.5[d]). The agreement will take into consideration the appropriate excavation, removal, recordation, analysis, custodianship, curation, and final disposition of the human remains, and associated or unassociated funerary objects. California Public Resources Code allows 24 hours to reach agreement on these matters. If the most likely descendant and the other parties do not agree on the reburial method, the project will follow Section 5097.98(b) of the California PRC, which states “the landowner or his or her authorized representative shall reinter the human remains and items associated with Native American burials with appropriate dignity on the property in a location not subject to further subsurface disturbance.”

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
VI. GEOLOGY AND SOILS				
Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a-i) Alquist-Priolo Earthquake Fault Zone

The project site is located in a seismically active region that has been subjected to several strong earthquakes during historic times. The San Andreas Fault, which lies about 13 miles southwest of the Oakland International Airport (OAK or Airport), dominates the tectonics, geology, and physiography of the San Francisco Bay region. Closer to the Airport is the Hayward Fault, which lies about 5.6 miles northeast, and is also a significant seismic source. Other major active faults that could cause significant shaking at OAK are the Concord; Calaveras; Greenville, Mt. Diablo Thrust; San Gregorio; and Rodgers Creek (URS/AGS, 2008).

The maximum moment magnitude earthquake (Mmax) is defined as the largest earthquake that a given fault is considered capable of generating. **Table 10** presents a listing of the Mmax earthquake for each of the major faults in the vicinity of the Airport. The Mmax earthquake on the Hayward Fault would be a magnitude 7.3 event occurring approximately 5.6 miles from OAK. The Mmax earthquake on the San Andreas Fault would be a magnitude 7.9 event occurring approximately 13 miles from the Airport (URS/AGS, 2008).

**Table 10
Fault Seismicity**

Fault	Distance to Project Site (miles)	Maximum Moment Magnitude	Slip Rate¹ (inches/year)
Hayward	5.6	7.3	0.35
San Andreas	13	7.9	1.00
San Gregorio	16	7.4	0.27
Calaveras	17	7.0	0.60
Concord	19	6.7	0.20
Greenville	24	6.9	0.08
Rodgers Creek	25	7.0	0.35

Notes

¹ Average rate at which the fault moves per year.

Source: URS/AGS, 2008; Working Group, 2003

The project site is located in a seismically active area; however, it is not located in an Alquist-Priolo Special Studies Zone because the active Hayward Fault, the active structure closest to the Airport, does not cross the Airport boundaries (URS/AGS, 2008). The Proposed Project would not change existing operations, and would not include new structures. Therefore, the Proposed Project would not result in changing the potential exposure of people or structures to the rupture of a known fault.

a-ii) Seismic Ground Shaking

The Proposed Project would be subject to ground shaking in the event of an earthquake on any of the San Francisco Bay Area faults, as well as localized liquefaction or possible inundation due to tsunami (URS/AGS, 2008; Port, 1997; Ritter and Dupre, 1972). During construction, compacted backfill would be placed as required in the California Building Standards Code. As such, design and construction of the Runway Safety Areas (RSAs) would result in a less-than-significant impact related to strong seismic ground shaking.

a-iii) Seismic-Related Ground Failure

The North Field was constructed on a shallow layer of fill material hydraulically placed on the former San Francisco Bay margin. The fill consists of the following materials, using the Unified Soil Classification System nomenclature: Silt (ML), Poorly Graded Sand with Clay and Gravel (SP-SC), Silty Clay (CL), and Silty Sand (SM). Below the fill lies Bay Mud that consists of Silty Clay (CH). Below the Bay Mud lie Older Bay Deposits that consist of Clay with Sand (CL), and Clayey Sand (SC) (URS/AGS, 2008).

The South Field, constructed in San Francisco Bay, has a relatively greater depth of hydraulically placed fill consisting of Silty Sand with Gravel (SM), Poorly Graded Sand (SP), and Poorly Graded Sand with Silt (SP-SM). Below the fill lies Bay Mud that consists of Silty Fat Clay with Shells (CH) and Silty Fat Clay (CH) (URS/AGS, 2008).

Ground settlement due to localized liquefaction from an earthquake was estimated to be on the order of 1 to 3 inches in the South Field, and 2 to 4 inches in the North Field (URS/AGS, 2008). The recommended near-surface sections for RSAs at OAK range from 36 to 54 inches, with two layers of reinforcing (geogrids) to an unreinforced section from 48 to 60 inches thick (URS/AGS, 2008). The new structural layer of the Proposed Project would likely span over any localized areas of liquefaction, resulting in a less-than-significant impact. Seismic activity could result in temporary closure of OAK; however, the Proposed Project would not increase the risk resulting from seismic activity. Implementation of the Proposed Project would not result in an increase in the number of facilities exposed to seismic events, because no new buildings would be constructed.

a-iv) Landslides

No slopes exist within the project site; thus, landslides are not anticipated. Therefore, the Proposed Project would have no impacts related to landslides.

b) Substantial Erosion

Land clearing/grading activities for the Proposed Project would disturb the ground surface and temporarily increase the potential for soil erosion, which could cause an increase in suspended solids in runoff and local receiving waters. The Proposed Project would comply with all local ordinances for grading, drainage, and construction of improvements and would include a grading/erosion sedimentation plan. Therefore, the Proposed Project would not have substantial operational effects associated with soil loss and erosion, and impacts related to potential soil erosion and the loss of topsoil are expected to be less than significant.

c) Unstable Geologic Unit

The dominant soil types at the Airport are Urban Land and Xeropsamments. The Urban Land is subject to severe wind blowing, and has high permeability and slow to medium runoff. Xeropsamment is a non-specific soil unit composed of heterogeneous fill over native soil. The North Field are mostly the Urban Land type and Xeropsamments. The South Field is underlain by the soil unit Xeropsamments and consists of dredged Merritt sand from San Francisco Bay. These sandy soils are highly permeable, with slow runoff and low water erosion hazards, but are subject to severe wind blowing when exposed (USDA, 1981).

Near-surface materials are considered to be stable, except for localized liquefaction (discussed previously), and no unusual geologic or topographic features exist at the Airport. Therefore, no impacts related to instable soils are expected as a result of construction or operation of the Proposed Project (URS/AGS, 2008).

d) Expansive Soils

As discussed, soils that underlie the project site are Urban Land and Xeropsamments. Xeropsamments are typically used for urban and industrial development, and because airfields and Urban Land are mainly composed of heterogeneous fill and are typically covered by urban structures (USDA, 1981). No indications of potential expansivity (i.e., shrink-swell potential) are contained in the soil descriptions

(USDA, 1981). Because these types of soils are granular in nature, they are not susceptible to expansivity. Implementation of the Proposed Project would result in a low risk to life or property from such conditions. Therefore, no impacts are expected as a result of construction or operation of the Proposed Project.

e) Wastewater

Septic tanks or alternative wastewater disposal systems are not an element of the Proposed Project. Therefore, the Proposed Project would have no related impacts.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
VII. GREENHOUSE GAS EMISSIONS				
Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Some gases in the atmosphere affect the Earth’s heat balance by absorbing infrared radiation. These gases can prevent the escape of heat in much the same way as glass in a greenhouse. This is often referred to as the “greenhouse effect,” and it is responsible for maintaining a habitable climate. On Earth, the gases believed to be most responsible for global warming are water vapor, carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆); known collectively as greenhouse gases (GHGs) (OPR, 2008). The most common GHGs resulting from human activity are CO₂, CH₄, and N₂O (OPR, 2008). These most common GHGs are usually emitted in the fuel combustion process such as those associated with the construction activities within Oakland International Airport (OAK) Runway Safety Area (RSA) Improvement Project. State law defines GHGs to also include HFCs, PFCs, and SF₆. These less common GHGs are usually emitted in industrial processes which are not applicable to the OAK RSA Improvement Project.

Enhancement of the greenhouse effect can occur when concentrations of these gases exceed the natural concentrations in the atmosphere. Of these gases, CO₂ and CH₄ are emitted in the greatest quantities from human activities. Emissions of CO₂ are largely by-products of fossil fuel combustion, whereas CH₄ primarily results from off-gassing associated with agricultural practices and landfills. SF₆ is a GHG commonly used in the utility industry as an insulating gas in transformers and other electronic equipment. SF₆, while comprising a small fraction of the total GHGs emitted annually worldwide, is a very potent GHG with 23,900 times the global warming potential as CO₂. To account for the warming potential of GHGs, GHG emissions are often quantified and reported as CO₂ equivalents (CO₂e). The effects of GHG emission sources (i.e., individual projects) are reported in metric tons/year of CO₂e. There is widespread international scientific agreement that human-caused increases in GHGs has and will continue to contribute to global warming, although there is much uncertainty concerning the magnitude and rate of the warming.

Some of the potential resulting effects in California of global warming may include loss in snow pack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years. Globally, climate change has the potential to affect numerous environmental resources through potential, though uncertain, impacts related to future air temperatures and precipitation patterns. The projected effects of global warming on weather and climate are likely to vary regionally, but are expected to include the following direct effects (IPCC, 2007):

- Higher maximum temperatures and more hot days over nearly all land areas;
- Higher minimum temperatures, fewer cold days, and fewer frost days over nearly all land areas;
- Reduced diurnal temperature range over most land areas;
- Increase of heat index over land areas; and
- More intense precipitation events.

There are many secondary effects that are projected to result from global warming, including global rise in sea level, impacts to agriculture, changes in disease vectors, and changes in habitat and biodiversity. While the possible outcomes and the feedback mechanisms involved are not fully understood, and much research remains to be done, the potential for substantial environmental, social, and economic consequences over the long term may be great.

In 2006, California passed the California Global Warming Solutions Act of 2006 (Assembly Bill [AB] 32; California Health and Safety Code Division 25.5, Section 38500 et seq.), which requires the California Air Resources Board (CARB) to design and implement emission limits, regulations, and other measures so that statewide GHG emissions will be reduced to 1990 levels by 2020.

AB 32 required CARB to adopt regulations by January 1, 2008, that identify and require selected sectors or categories of GHG emitters to report and verify their statewide GHG emissions, and CARB is authorized to enforce compliance with the program. Under AB 32, CARB was also required to adopt a statewide GHG emissions limit by January 1, 2008, equivalent to the statewide GHG emissions levels in 1990, which must be achieved by 2020. CARB established this limit, in December 2007, at 427 million metric tons of CO₂e. On January 1, 2011, CARB adopted rules and regulations, to achieve the maximum technologically feasible and cost-effective GHG emission reductions. AB 32 permits the use of market-based compliance mechanisms to achieve those reductions. By January 1, 2012, the rules and market mechanisms adopted by CARB took effect and are legally enforceable. The cap-and-trade program started on January 1, 2012, with an enforceable compliance obligation beginning with the 2013 GHG emissions. Full implementation of AB 32 and its timeline may be subject to legal challenges.

The Bay Area Air Quality Management District (BAAQMD) is the primary agency responsible for air quality regulation in the nine-county San Francisco Bay Area Air Basin. In May of 2011, the BAAQMD adopted revised California Environmental Quality Act (CEQA) air quality thresholds of significance, and issued revised guidelines that supersede the 1999 air quality guidelines. The *CEQA Air Quality Guidelines* initiated CEQA thresholds of significance for operational GHG emissions from land use projects for the first time. The BAAQMD has not defined GHG thresholds from construction activities, but recommends that significance be determined in relation to meeting AB 32 GHG reduction targets. The Office of Planning and Research's amendments to the CEQA Guidelines, as well as BAAQMD's *CEQA Air Quality Guidelines* and thresholds of significance, have been incorporated into the analysis of potential GHG impacts associated with the Proposed Project.¹⁶

¹⁶ Although not currently legally binding, the BAAQMD CEQA Air Quality Guidelines provide a useful guidepost for establishing potentially significant air quality impacts. Specifically, the BAAQMD Guidelines provide a reliable approach for making a conservative air quality determination regarding GHG emissions and toxic air contaminants. With regard to GHG emissions and toxic air contaminants, the BAAQMD Guidelines are more conservative (more stringent) than other air districts in California, and serve as a model for other air districts.

Significance Threshold

The BAAQMD *CEQA Air Quality Guidelines* identifies GHG emissions of either 1,100 metric tons of CO₂e per year or 4.6 metric tons of CO₂e per year per service population (i.e., the number of residents plus the number of employees associated with a new development) as the project-operations-specific threshold that would result in a cumulatively considerable contribution of GHG emissions and a cumulatively significant impact on global climate change. Alternatively, project operations that are found to be consistent with a Qualified Climate Action Plan would have a less-than-significant impact on global climate change. The BAAQMD *CEQA Air Quality Guidelines* recommends quantification of construction GHG emissions and analysis to compliance with AB 32 but does not provide specific thresholds for construction activities.

a and b) Greenhouse Gas Emissions

Appendix J (Air Quality Technical Report) presents the regulatory setting, technical background, and information used to develop the GHG analysis, including assumptions and methodologies used for the emissions inventory. The Proposed Project would result in GHG emissions during construction activities; however, these emissions would be temporary and associated with the short-term construction period, and would not continue after completion of the project.

GHG emissions associated with OAK RSA Improvement Project construction activities were quantified based on the CARB OFFROAD2007 and EMFAC2007 emissions models through estimations of fuel use. Estimated GHG emissions that would be associated with construction are presented in **Table 11**. As indicated, maximum annual construction-related GHG emissions would be 1,958 metric tons of CO₂e during 2013. For construction projects, GHG emissions are quantified and amortized over the life of the project (i.e., the duration until which the project element would be required to be replaced). To amortize the emissions over the life of the project, the total GHG emissions for the construction activities are divided by the project life (typically assumed to be 30 years, but varies by project). For the OAK RSA Improvements, the construction project life would vary between 5 and 7 years for pavement elements, approximately 20 years for the Engineered Materials Arresting System, and approximately 30 years for other infrastructure elements. Given the construction emissions by construction element, the overall construction project life was estimated to be 10 years (providing for a more conservative amortized GHG emissions estimate than the typical assumption of 30 years). Thus, the construction GHG emissions amortized over a 10-year period would equal 461 metric tons per year. Of note, the BAAQMD significance threshold of 1,100 metric tons of CO₂e per year does not apply to construction activities, although the 461 metric tons per year would be below the significance threshold. Although impacts resulting from GHG emissions would not be significant, implementation of the construction best management practices described in **Section 2.6 – Construction Best Management Practices**, and **Mitigation Measures AQ- 1** and **AQ-2**, described in **Section 3.III**, would further reduce these emissions.

The Proposed Project would not conflict with the State's GHG reduction goals, as defined in AB 32. Therefore, the Proposed Project would not result in GHG emissions that would have a significant impact on the environment, nor would the Proposed Project conflict with any policy, plan, or regulation adopted for the purpose of reducing GHG emissions; and GHG impacts would be less than significant.

Table 11
Construction-Related Greenhouse Gas Emissions

Year	Metric tons of CO₂e
2013	1,958
2014	1,169
2015	1,480
Amortized over 10 years	461

Notes:

CO₂e = carbon dioxide equivalents

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
VIII. HAZARDS AND HAZARDOUS MATERIALS				
Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) 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 it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) 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 for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

a) Transport, Disposal, and Use of Hazardous Materials

The types, characteristics, and occurrences of hazardous materials and other similarly regulated substances at Oakland International Airport (OAK or Airport) are typical of metropolitan airports that offer commercial, cargo, and general aviation services. These services include the fueling, servicing, and repair of aircraft, ground support equipment, and motor vehicles; the operation and maintenance of the airfield, main terminal complex and parking facilities; and a range of other special-purpose facilities and operations connected with aviation (i.e., rental car and air cargo facilities, navigation, and air traffic control functions). The largest overall quantities of substances used at OAK that are classifiable as hazardous are aircraft and motor-vehicle fuels. Other, smaller amounts of petroleum products (e.g., lubricants and solvents), waste materials (e.g., used oils, used filters, cleaning residues, and spent batteries), and

manufactured chemicals (e.g., herbicides, fertilizers, paints, fire-fighting foam, de-icing fluids) are stored in various locations throughout the Airport. Bulk aircraft fuels are stored in above-ground storage tanks, and below-grade pipelines are used to transfer fuels. These materials and substances are characteristically used on a routine basis in support of aircraft, ground support equipment, and motor-vehicle maintenance activities, and for a range of other similar functions to operate the Airport and to meet aviation safety requirements.

The use of hazardous materials and other similarly regulated substances for routine operations at OAK would continue, and is not anticipated to significantly increase as a result of implementation of the Proposed Project because aircraft operations would not increase as a result of the Proposed Project. In addition, the Port of Oakland (Port) would create a plan for emergency cleanup of any spills of fuel or other materials, as stated in the construction best management practices described in **Section 2.6**.

Hazardous materials similar to those already in use at the Airport would be used during construction (e.g., fuels, lubricants). This could be a potentially significant impact. The storage and use of these hazardous materials would be regulated under the existing local, state, and federal environmental regulations. In addition, the Port would implement **Mitigation Measure HZ-1 – Hazardous Materials Handling Documentation**, and **Mitigation Measure HZ-2 – Asbestos Materials** to reduce the potential impacts resulting from the routine transport, use, and handling of hazardous materials. Under **Mitigation Measure HZ-1**, the Port would require the contractor to store and handle hazardous materials according to local, state, and federal regulations and report any discharge of hazardous materials. Under **Mitigation Measure HZ-2**, the contractor would include demolition plans for any structures or utilities that would be removed during the construction activities. With the implementation of **Mitigation Measures HZ-1 and HZ-2**, impacts related to routine transport, use, and handling of hazardous materials is expected to be less than significant.

b) Accidental Spills

Hazardous materials releases to the environment are regulated by federal and state regulations and agencies. The City of Oakland Fire Department serves as the Certified Unified Program Agency (CUPA) and the Local Enforcement Agency, and enforces federal and state regulations pertaining to hazardous materials and compliance with hazardous waste generator and underground storage tank (UST)/aboveground storage tank requirements. The Alameda County Department of Environmental Health coordinates with the CUPA on hazardous materials enforcement, leads oversight at leaking UST and other selected contaminated sites, and regulates solid waste countywide. The California Department of Toxic Substances Control and San Francisco Bay Regional Water Quality Control Board compile and maintain lists of potentially contaminated sites throughout the state.

An assessment was conducted to identify sites and facilities that are known, suspected, or likely to contain or store hazardous materials and to identify areas of known subsurface soil and/or groundwater contamination at OAK and within the project vicinity. In order to assess these sites of potential concern, a database containing federal, state, and local regulatory agency file information was searched to support this assessment (EDR, 2011). This radius map database report prepared by Environmental Data Resources, Inc. (EDR) was used as a screening tool to identify known hazardous materials release sites,

generators of hazardous waste(s), UST sites, etc., that are reported to be present in the general vicinity of the Airport. Hazardous materials release sites on and listed within 0.25 mile of the Airport were evaluated in greater detail.

The database report identified 70 sites within 0.25 mile from the project site. However, location information included in the database records was often incomplete, and many records were mapped at the approximate center of the North Field rather than at the actual release location on the Airport. For these reasons, all sites mapped within OAK and within 0.25 mile from the project site were reviewed to assess the potential for contamination and for impacts to occur.

In addition to the EDR record search, a review of site-specific reports from the Port's environmental files was performed. The review identified sites relevant to this analysis that were not mapped by EDR (Port, 2003). Furthermore, the review provided additional information about the listings identified in the EDR at the Airport and within a 0.25-mile radius (LFR, 2008a and LFR, 2008b). The releases at the sites identified have primarily been of petroleum hydrocarbons from leaking USTs and jet fuel releases from surface spills and below-grade pipeline leaks. Based on the record search and files review, site investigations have concluded that contaminants from past releases at the Airport are either absent or present in low levels in the soil or groundwater and the regulatory agencies have recommended no further action (Port, 2003; LFR, 2008a; LFR, 2008b; EDR, 2011).

Other sites within a 0.25-mile radius of the project site were either listed because they generate hazardous waste routinely without indication of a release, or were reported fuel releases from fuel pipelines that were not associated with a specific location and could not be researched further.

The Airport was partially developed on portions of San Francisco Bay that were filled, using artificial fill materials, from the 1920s to the 1960s. The South Field was generally filled with sand dredged from San Francisco Bay and the North Field was filled with a mixture of materials (Sorensen, 1989). These fill materials may have included hazardous materials. However, the Port's Environmental Division has no evidence that the fill at the Airport contains any contaminants (Heinze, 2012).

Construction activity associated with the Proposed Project would mostly involve removal of existing surface material (i.e., concrete and asphalt) to prepare the new surface and relatively shallow excavations. Typical excavation depths for the Proposed Project would be up to approximately 4 feet. Previous studies have indicated that groundwater occurs within 1 foot of the ground surface. Potential construction impacts associated with the Proposed Project may include the possibility of encountering soil and/or groundwater contamination in select areas, and the handling of hazardous materials typically associated with construction. This could be a potentially significant impact.

To reduce potential contamination of groundwater during construction the Port would ensure that the contractor follows the Port Contract Project Manual – Section 01340 that requires the submittal of a soil and groundwater management plan for the handling, storage, treatment, and/or testing of contaminated soil and/or groundwater. Additionally, the Port would ensure that the contractor pre-arranges for dewatering, water testing, storage, and treatment in compliance with applicable permits, depending on the discharge point and the nature of any contamination encountered, and under **Section 2.6 – Construction Best Management Practices**. In addition, the Port would ensure that the contractor pre-

arranges for dewatering, water testing, storage, and treatment in compliance with applicable permits, depending on the discharge point and the nature of any contamination encountered. To further reduce these impacts, the Port would implement **Mitigation Measure HZ-3 – Contaminated Soil and/or Groundwater**, and **Mitigation Measure HZ-4 – Dewatering, Water Testing, Storage and Treatment**. With implementation of these mitigation measures, the potential for impacts related to hazardous-materials handling and potentially contaminated soil and/or groundwater would be reduced to a less-than-significant level with mitigation incorporated.

c) Within One-Quarter Mile of Schools

No existing or planned elementary, middle, intermediate or high schools are within 0.25 mile of the project site. The Lighthouse Charter School is approximately 2,500 feet northeast of the project site, Brookfield Elementary school is approximately 5,300 feet northeast of the project site, and the James Madison Middle School is approximately 8,800 feet northeast of the project site. Private schools and daycare centers appear to be located approximately 5,000 feet west and 2,000 feet north of the project site. Therefore, the Proposed Project would have no impacts associated with hazardous emissions, or handling of hazardous material, on an existing or planned school.

d) Hazardous Materials Sites Pursuant to Government Code Section 65962.5

As discussed above, numerous hazardous waste sites are listed in the proximity of the project site, and five clusters of sites within 0.25 mile of the project site are also listed on the “Cortese” list compiled pursuant to Government Code Section 65962.5. As described under **Section 3.VIII-b** above, impacts associated with hazardous waste sites would be reduced to less-than-significant levels with the implementation of **Mitigation Measures HZ-3 and HZ-4**.

e) Safety Hazards

The Proposed Project would be constructed on Airport property and involves improving Runway Safety Areas (RSAs) of existing runways to enhance aviation safety at OAK in accordance with federal regulations. The Proposed Project would not result in any associated changes in aviation activity at the Airport during or after construction. The use of runways would change as a result of temporary runway closures during construction; however, this change would not result in a significant impact to air traffic patterns. Temporary reduction in runway lengths of Runway 11-29 during construction would result in minor changes in aircraft activities. Specifically, cargo and passenger aircraft may need to operate with weight restrictions during construction periods when the runway lengths are reduced. These changes are managed by the airlines as a routine part of their operations, and are not expected to result in any measurable change in either cargo or passenger traffic at the Airport. In addition, the temporary loss of some Navigational Aid Systems (NAVAIDS) functionality could result in minor early morning flights delays. The Airport would use the NAVAIDS on Runway 27R (which would be operational during the construction of Runway 11-29). Construction in the North Field would occur after Runway 11-29 improvements are completed. During the North Field construction period, either Runway 9R-27L or Runway 9L-27R would remain operational at all times and no impacts to air traffic patterns would occur. The Federal Aviation Administration would prepare a Safety Management System for construction and operation of the Proposed Project. Implementation of the Safety Management System would provide

OAK with a formal, top-down, systemic approach to managing safety risk, including the appropriate organizational structures, responsibilities, and policies and procedures required. Furthermore, the Proposed Project would enhance safety and reduce potential hazards related to RSAs. Therefore, the Proposed Project would not cause any significant safety hazards for people residing or working in the project area.

f) Private Airstrip

OAK is a public airport, and there is no private airstrip located in the vicinity of the Proposed Project. Therefore, the Proposed Project would have no impacts associated with the proximity to a private airstrip.

g) Interference with Emergency Plans

The Proposed Project is not a capacity-enhancing project, and would not result in any changes in aviation activity at OAK. The number of workers or passengers/customers using OAK would not increase; therefore, the Proposed Project would not adversely affect an emergency evacuation. As discussed under the Transportation/Traffic section of this document, construction-related traffic would be limited to the construction period and would not pose an obstacle to emergency response vehicles. Any temporary increases in traffic volumes related to construction activities are expected to be less than significant. In addition, construction activities would be restricted to the construction of RSA improvements on existing Airport property and would not occur in the right-of-way of any public roadways. Therefore, the Proposed Project would not impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan, and would result in a less-than-significant impact.

h) Wildfires

The Proposed Project involves improving RSAs of existing runways to enhance aviation safety at OAK in accordance with applicable standards and regulations. These RSA improvements would not affect any buildings/structures. In addition, the Port would ensure that the contractor would comply with applicable safety standards and regulations. Therefore, the Proposed Project's exposure of people or buildings/structures to the risk of fire would result in less-than-significant impacts.

Hazards and Hazardous Materials Mitigation Measures

The following mitigation measures apply to impacts identified in **Sections 3.VIII-a, b, and d**.

Mitigation Measure HZ-1 – Hazardous Material Handling Documentation

During the construction phases, hazardous materials (i.e., fuel, waste oil, solvents, paint, and other hydrocarbon-based products) would be used in quantities that are typical of the construction industry. The construction contract documents would require that these materials be stored, labeled, and disposed of in accordance with applicable regulations. The contractors would be held responsible for reporting any discharges of hazardous materials or other similar substances (in amounts above their reportable quantities).

Mitigation Measure HZ-2 – Asbestos Materials

Although not anticipated, if demolition of any existing utilities other than concrete and asphalt is required during construction, and building materials are known, or suspected, to have asbestos-containing materials, the contractor's demolition plans and specifications would include requirements for the testing, handling, removal, and disposal of asbestos in accordance with federal, state, and local regulations.

Mitigation Measure HZ-3 – Contaminated Soils and/or Groundwater

For any location where environmental contamination could be encountered during the construction phase, the Port would ensure that the contractor's construction plans and specifications include provisions for the handling, storage, treatment, and/or testing and disposal of hazardous materials, contaminated soil, and/or groundwater in accordance with federal, state, and local regulations. These provisions would include the excavation and offsite disposal of contaminated soil, or testing and reuse of contaminated soil on the project site beneath sealed surfaces.

Mitigation Measure HZ-4 – Dewatering, Water Testing, Storage, and Treatment

For locations requiring dewatering where environmental contamination could be encountered during the construction phase, the Port would ensure that the contractor pre-arranges for dewatering, water testing, storage, and treatment, in compliance with applicable NPDES or pretreatment permits, depending on the discharge point and the nature of any contamination encountered.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
IX. HYDROLOGY AND WATER QUALITY				
Would the project:				
a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
j) Inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

a) Water Quality Standards and Waste Discharge Requirements

The Proposed Project has the potential to exceed applicable state water quality standards, unless mitigation is incorporated. Impacts could be caused by erosion, increased turbidity, sedimentation, potential release of fuels and lubricants, modifications to drainage patterns, and filling of wetlands and waters of the U.S.¹⁷.

¹⁷ At OAK, waters of the State are the same as waters of the U.S. Accordingly, all references to wetlands and waters of the U.S. also apply to waters of the State.

Construction Impacts

Construction activities associated with the Proposed Project include clearing, grading, paving, excavating, placing of fill, and relocating utilities. These construction activities have the potential to temporarily cause erosion, sedimentation, and increased turbidity in water bodies and thereby affect surface water and groundwater quality. Discharge of fluids, such as fuel or oils, leaking from vehicles and equipment used during construction, also has the potential to decrease water quality.

It is anticipated that most of the construction activities would be performed during late March through October when the likelihood of measurable rainfall (0.01 inch or more) is low (less than 50 percent probability) to the extent practicable, which would serve to minimize erosion effects associated with construction. The Port of Oakland (Port) would implement the best management practices (BMPs) outlined in **Section 2.6 – Construction Best Management Practices** of this document to avoid impacts to water quality. In addition, specific erosion control measures and other BMPs would be described in the project-specific stormwater pollution prevention plan (SWPPP) prepared in accordance with the National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities Order 2010-0014-DWQ NPDES No. CAS000002 (General Construction Permit) to minimize the effects of erosion, sedimentation, and leakage of vehicle and equipment fluids. Erosion control measures that may be implemented include, but are not limited to, minimizing the limits of construction to reduce exposed land, covering soil piles, mulching, temporary seeding, and silt fencing. Construction activity associated with the Proposed Project would mostly involve removal of existing surface material (i.e., concrete and asphalt) to prepare the new surface and relatively shallow excavations. Typical excavation depths for the Proposed Project would be up to approximately 4 feet. Previous studies have indicated that groundwater occurs within 1 foot of the ground surface.

Potential construction impacts associated with the Proposed Project may include the possibility of encountering soil and/or groundwater contamination in select areas, and the handling of hazardous materials typically associated with construction. The project-specific SWPPP would include specific BMPs to address the storage, handling, and disposal of fuel, oils, and other wastes from project construction activities, which could include, but are not limited to, regular maintenance of construction equipment, fueling, and servicing equipment in designated locations away from water bodies, regular waste disposal, and site maintenance during construction, to reduce the potential for pollutants to enter water bodies. The Port would implement the **Mitigation Measures HZ-3** and **HZ-4**, described in **Section 3.VIII – Hazards and Hazardous Materials**, to reduce the potential impacts to water quality associated with groundwater dewatering during construction to less-than-significant levels. Furthermore, the Port would implement **Mitigation Measures AQ-1** and **AQ-2**, described in **Section 3.III – Air Quality**, to reduce fugitive dust impacts, and therefore reduce indirect impacts of dust emissions to water quality.

The Proposed Project includes the filling of ~~49.39~~^{14.56} acres of waters of the U.S. The Clean Water Act prohibits the discharge of dredged or fill material into waters of the U.S. unless a Section 404 permit is issued by the U.S. Army Corps of Engineers (USACE), and a Section 401 Water Quality Certification is issued from the state in which the discharge originates (33 United States Code 1344). In addition, the California Porter-Cologne Water Quality Act requires all discharges into waters of the State to be authorized through a Report of Waste Discharge (California Water Code Section 13260). Accordingly,

the Proposed Project will require an individual Section 404 Permit from the USACE San Francisco Bay District, and a combined Section 401 Water Quality Certification/Waste Discharge Requirements from the San Francisco Bay Regional Water Quality Control Board (RWQCB) to authorize discharges.

The Port would implement the Construction BMPs described under **Section 2.6** of this document to minimize wetland impacts. Monitoring and reporting would be required in accordance with the General Construction Permit and the 401 Water Quality Certification/Waste Discharge Requirements. In addition, the Port would implement **Mitigation Measure BO-5** to ensure no net loss of wetlands by providing mitigation for unavoidable impacts to waters of the U.S. For additional information regarding wetlands, see **Section 3.IV-c – Biological Resources**.

With the implementation of **Mitigation Measures HZ-3, HZ-4, AQ-1, AQ-2, BO-1 and BO-5**, the Proposed Project's impacts to water quality during construction would be less than significant.

Post Construction Impacts

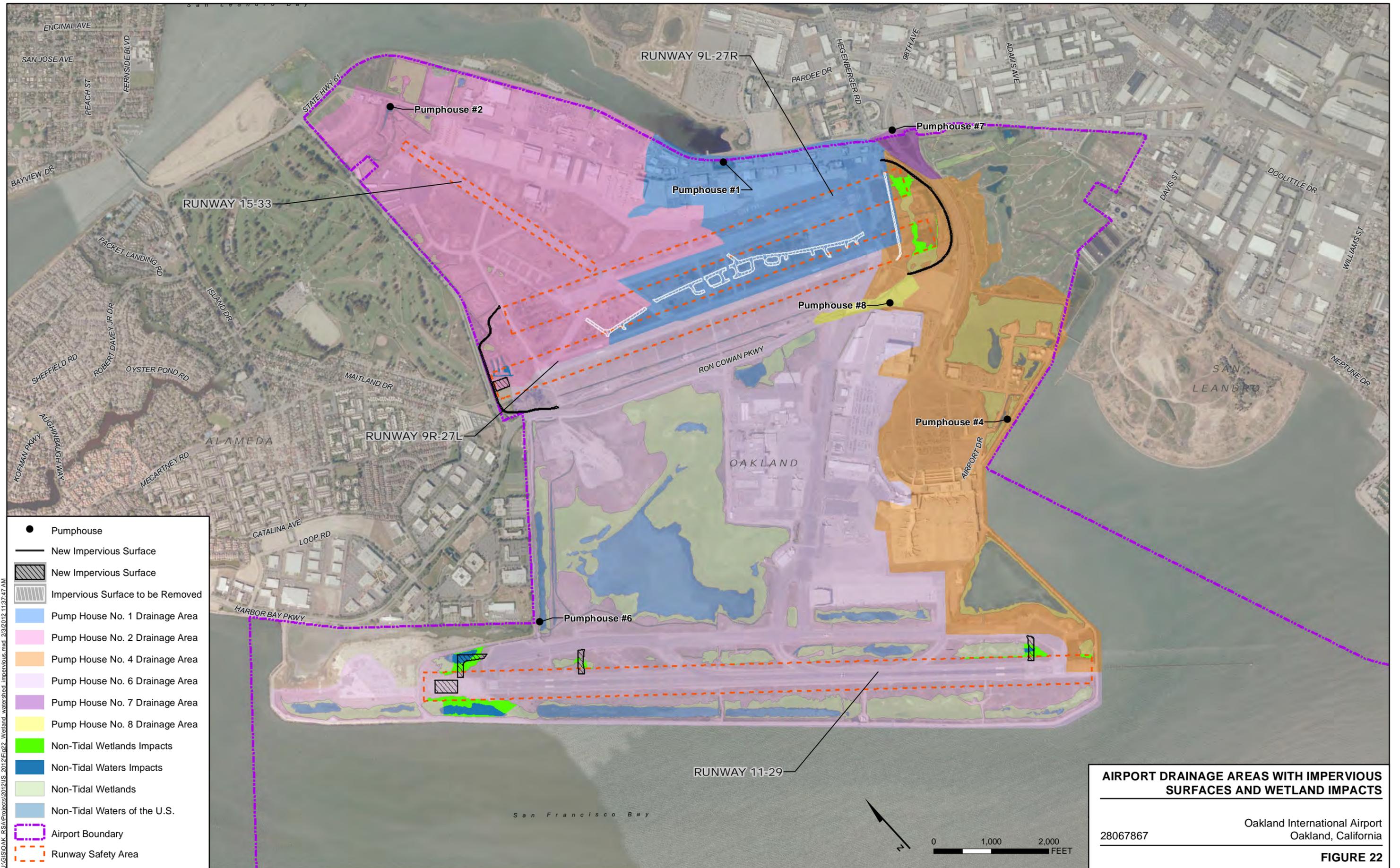
As described in **Section 3.IV-a**, the Proposed Project has been revised to reduce the impacts to wetlands and waters of the U.S. The Proposed Project would result in filling of wetlands and waters of the U.S., which could impact the quality of the water discharged into San Leandro Bay or San Francisco Bay. The Proposed Project would also modify portions of the existing storm drain system and may include new storm drain inlets, and pipes coincident with the grading and earthwork activities.

Storm drainage and sanitary systems are separated at OAK. The Airport drainage system is mainly a water detention system that is composed of storm drain inlets, underground pipes, ditches, swales, channels, culverts, and retention basins. Stormwater runoff is discharged via pumping to either San Leandro Bay or San Francisco Bay. There are currently six pump houses operating at the Airport as shown on **Figure 22** and listed in **Table 12**.

Table 12
Drainage Areas Served by Each Airport Pump House

Pump House	Acres
Pump House No. 1	225
Pump House No. 2	466
Pump House No. 4	394
Pump House No. 6	1,261
Pump House No. 7	25
Pump House No. 8	10

Source: Kimley Horn, 2009



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Source: Aerial Photo, National Agriculture Imagery Project, 2010; Watersheds, Port of Oakland - Stormwater Infrastructure Management Plan, OAK Watershed Exhibit, Kimley-Horn & Associates, March 2009.

Non-tidal wetlands that are located in the Pump House No. 4 drainage area on the eastern end of Runways 9L-27R and 9R-27L would be filled. Currently, these wetlands retain stormwater runoff from the small area immediately surrounding the wetlands. Stormwater runoff from the existing runways is not directed into or treated by these wetlands. The existing stormwater drainage system associated with the eastern portions of Runways 9L-27R and 9R-27L collects and conveys stormwater runoff to either Pump House No. 1 or Pump House No. 6. As shown in **Table 13** and on **Figures 17 and 23**, approximately ~~4.2854~~ 4.2854 acres of non-tidal wetlands would be filled as a result of the Proposed Project, thereby eliminating a relatively small amount of storage. The small amount of additional runoff, due to filling the wetlands, would flow directly to the detention basin at Pump House No. 4, where sediments and potential pollutants conveyed by the stormwater would be allowed to settle, similar to existing operations. In addition, there would be a small net increase in impervious surface area of approximately 1.1 acres, or approximately 0.3 percent of the total drainage area (1.1 acres, compared to 394 acres).

Table 13
Amount of Area Permanently Disturbed by Proposed Project

Pump House	Total Drainage Area (acres) ¹	Amount of Impervious Surface Area to Be Removed (acres)	Amount of Impervious Surface Area to Be Added (acres)	Net Amount of Impervious Surface Area to Be Added (acres)	Percent of Total Drainage Area (percent)	Non-Tidal Wetlands and Non-Tidal Waters of the U.S. to Be Impacted (acres)
Pump House No. 1	225	8.5	0.04	-8.5	-4	0
Pump House No. 2	466	1.1	1.3	0.2	<0.1	0.51 ²
Pump House No. 4	394	0.2	1.3	1.1	0.3	4.2854 ³
Pump House No. 6	1,261	0	5.9	5.9	0.5	14.379.76 ^{4, 5}
Total	2,346	9.8	8.5	-1.3	<0.1	19.3914.56 ⁵

Notes:

- 1 Pump house drainage areas are from Kimley-Horn 2009. See Figure 22.
- 2 Represents impacted non-tidal waters of the U.S. west of Runway 9R-27L. See Figures 16 and 23.
- 3 Represents impacted non-tidal wetlands east of Runway 9R-27L. See Figures 17 and 23.
- 4 Represents non-tidal wetlands and waters of the U.S. in South Field. See Figures 18 through 21 and 24.
- 5 Total may not match details because of rounding.

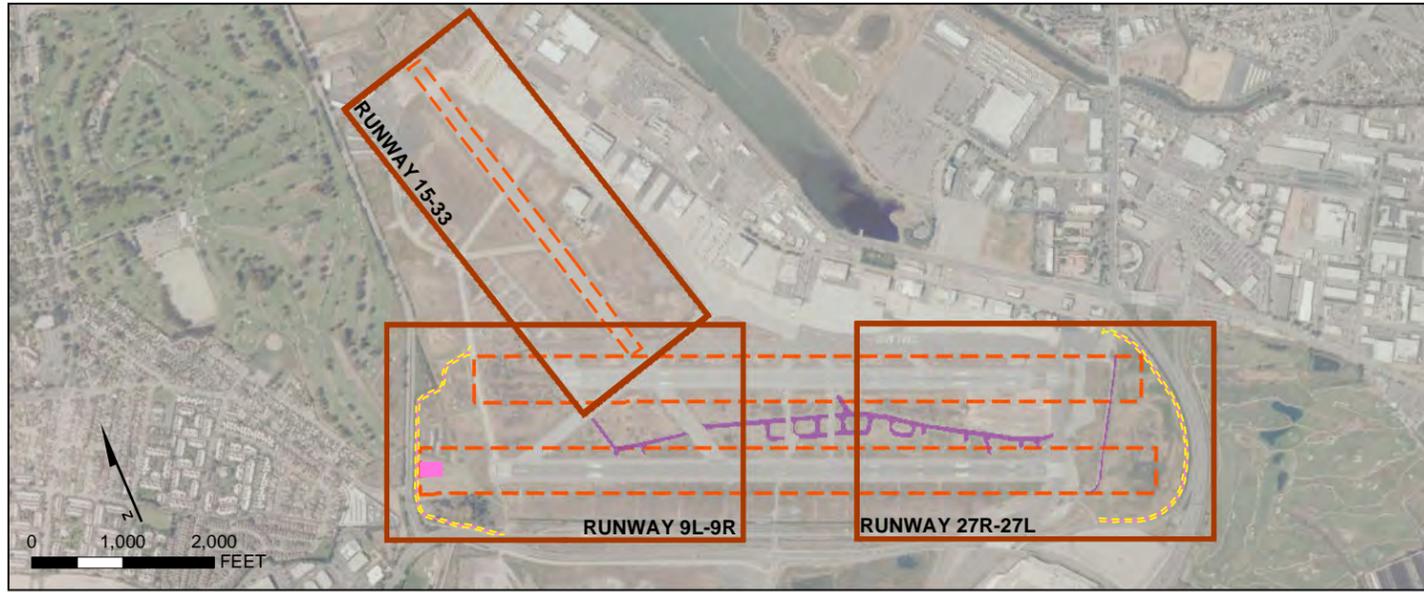
In addition, a portion of the non-tidal waters of the U.S. at the northwestern end of Runway 9R-27L would be filled. Currently, these non-tidal waters of the U.S., which are shown to be located in the Pump House No. 2 drainage area, connect to the adjacent property via an existing culvert. These non-tidal waters of the U.S. generally contain standing water throughout the year (Kimley Horn, 2009). Implementation of the Proposed Project would include partial filling of the wetlands and regrading to improve drainage conditions. As shown in **Table 13**, the net increase in impervious surface area that would be added to the Pump House No. 2 drainage area would be 0.2 acre (less than 0.1 percent of the Pump House No. 2 drainage area), and the loss of storage from filling the non-tidal waters of the U.S. would be 0.51 acre.

The total drainage area of Pump House No. 2 is 466 acres. Therefore, the increase in impervious surface area and the loss of storage from filling the non-tidal waters of the U.S. would be extremely small compared to the total stormwater runoff within the drainage basin of Pump House No. 2.

In South Field, modifications at the western end of Runway 11-29 would include grading, filling, and installing new impervious surface at Runway 11, all located in the Pump House No. 6 drainage area. The area west of Runway 11-29 would be graded to lengthen the Runway Safety Area (RSA), and the area adjacent to Runway 11 to the south would be graded to be used as the Glide Slope Critical Area. The relocated Glide Slope Critical Area is currently a depressed area with standing water, and would require the placement of fill. Additional pavement would be required at Runway 11 to comply with Federal Aviation Administration requirements regarding RSA lengths for Runway 11-29, and to implement the new taxiways, as shown on **Figure 22**. As presented in **Table 13** and on **Figure 24**, the Proposed Project would result in a net increase in impervious surface area of approximately 5.9 acres (or approximately 0.5 percent of the Pump House No. 6 drainage area of 1,261 acres). In addition, 44,379.76 acres of non-tidal wetlands and waters of the U.S. would be filled, which would eliminate a relatively small amount of storage in the 1,261-acre Pump House No. 6 drainage area. These wetlands are topographic depressions, and while they contain direct rainfall and runoff from the immediately surrounding area, stormwater runoff from the existing runways and taxiways is not directed into or treated by them. The existing stormwater drainage system associated with the Runway 11-29 collects and conveys stormwater runoff to Pump House No. 6. **Figure 22** shows the non-tidal wetlands impacts and impervious surfaces to be added or removed with each Airport drainage area. As shown in **Figure 22**, the impacts related to runoff quantity and flow direction in the drainage area for Pump House No. 6 would be minimal relative to the size of the drainage area.

Although stormwater storage would be reduced where existing non-tidal wetlands, non-tidal waters of the U.S., and depressions are filled, the amount of storage provided by these features is relatively small, based on the comparison of surface area of wetlands and drainage area of pump houses shown in **Table 13**.

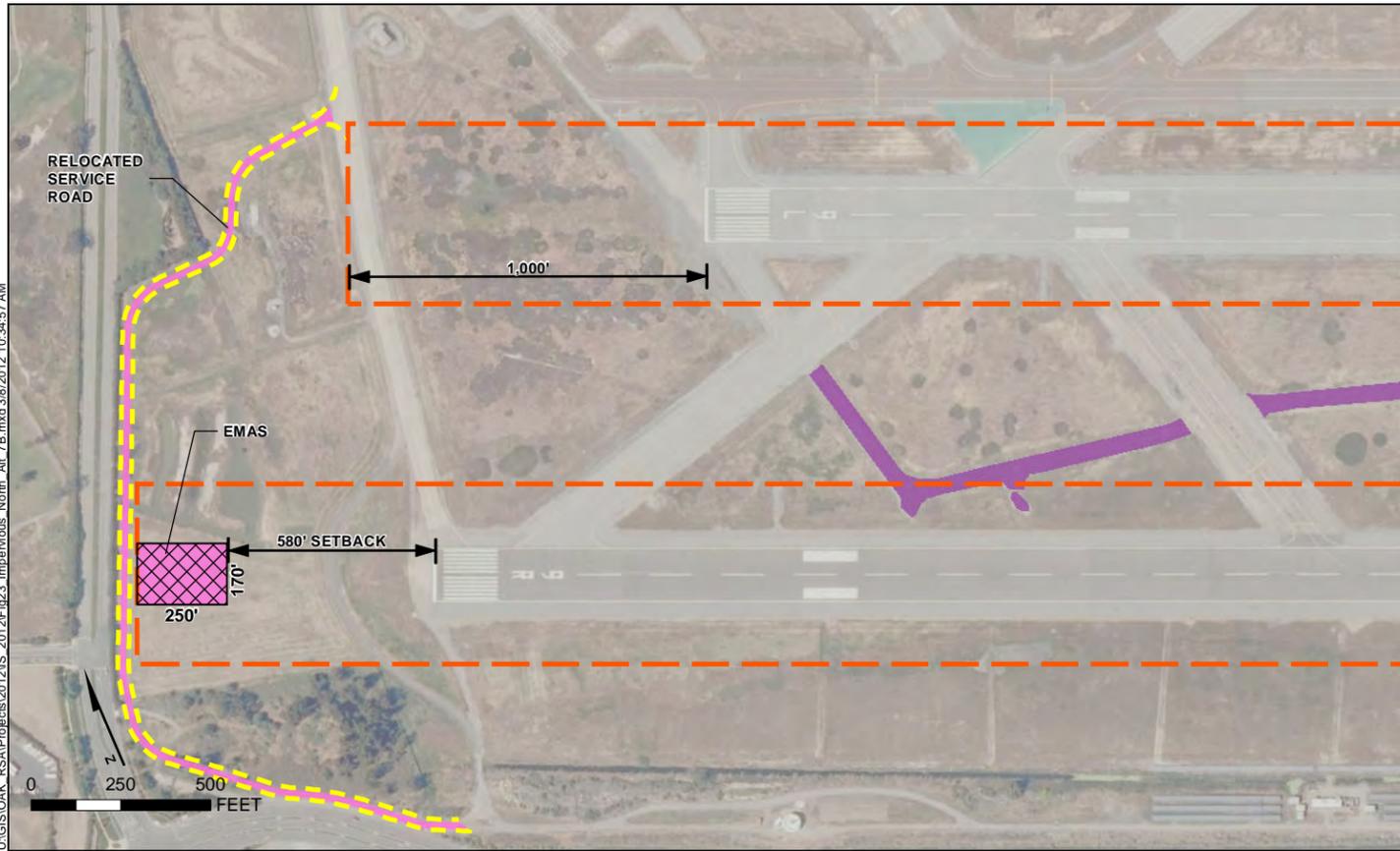
The Proposed Project would include construction of new pavement in order to shift runway thresholds, relocate service roadways, and install new taxiways. However, new pavement would be offset by the removal of existing roadways. The overall area of impervious surfaces associated with the Proposed Project would decrease by approximately 1 acre. Stormwater runoff would continue to be directed to the existing detention basins at the pump houses, where sediments and potential pollutants would settle, prior to discharge to San Leandro Bay or San Francisco Bay. The Proposed Project would modify portions of the existing storm drain system and may include new storm drain inlets, and pipes coincident with the grading and earthwork activities. During and after completion of the Proposed Project, runways and taxiways would continue their operational functions. No additional activities, such as aircraft maintenance, would be implemented as part of the Proposed Project. Existing impervious surfaces would be removed to offset the addition of new impervious surfaces. Stormwater monitoring would continue in accordance with the Airport Group Monitoring Plan under the NPDES General Permit No. CAS000001 Waste Discharge Requirements for Discharges of Storm Water Associated with Industrial Activities Excluding Construction Activities (General Industrial Stormwater Permit). As noted above, the contractor would comply with the 401 Water Quality Certification/Waste Discharge Requirements.



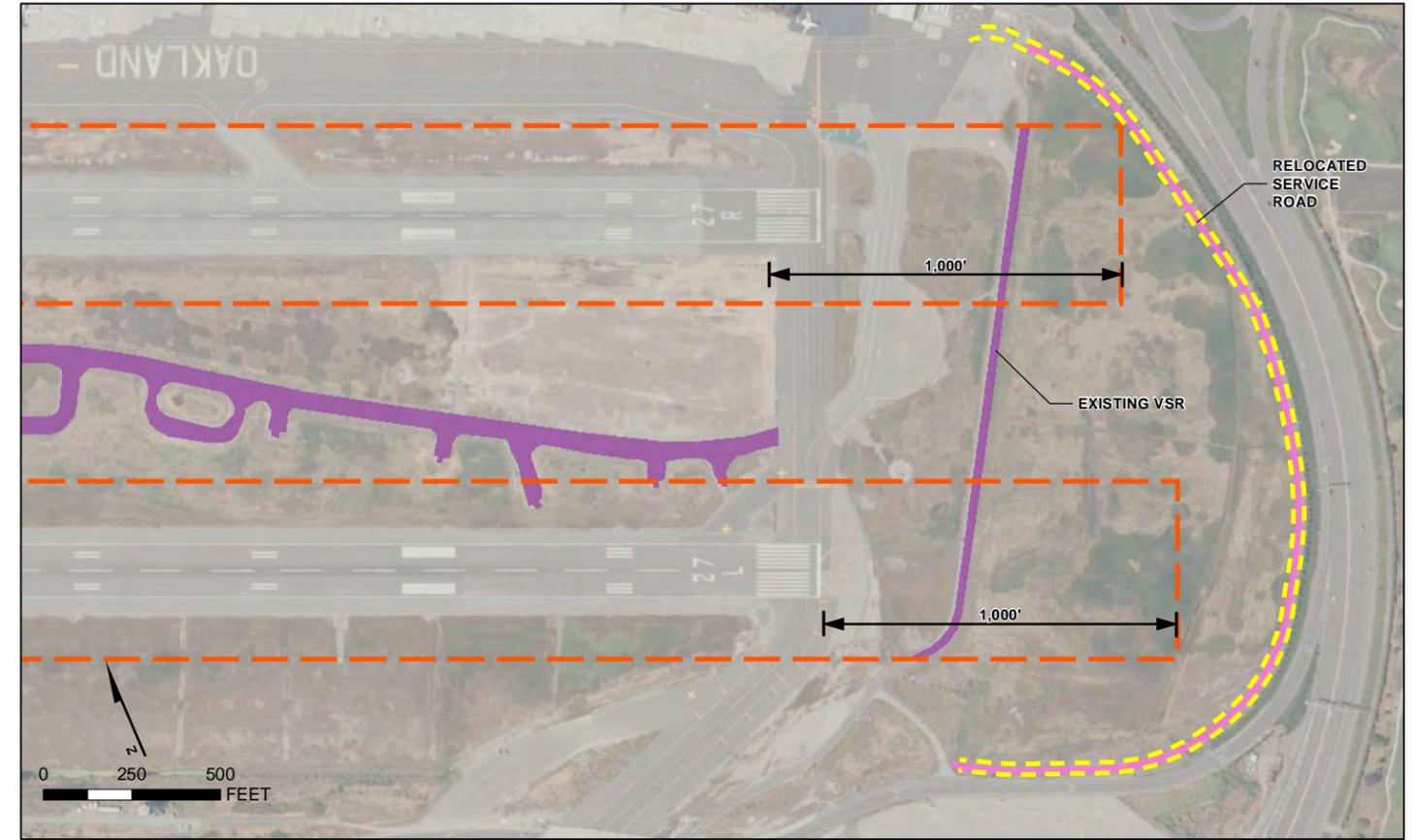
OVERVIEW



RUNWAY 15-33



RUNWAY 9L-9R



RUNWAY 27R-27L

- Roadway
- Runway Safety Area
- Impervious Surface to be Removed
- New Impervious Surface
- EMAS

**PROPOSED PROJECT -
NORTH FIELD IMPROVEMENTS
WITH CHANGES TO IMPERVIOUS SURFACES**

28067867

Oakland International Airport
Oakland, California

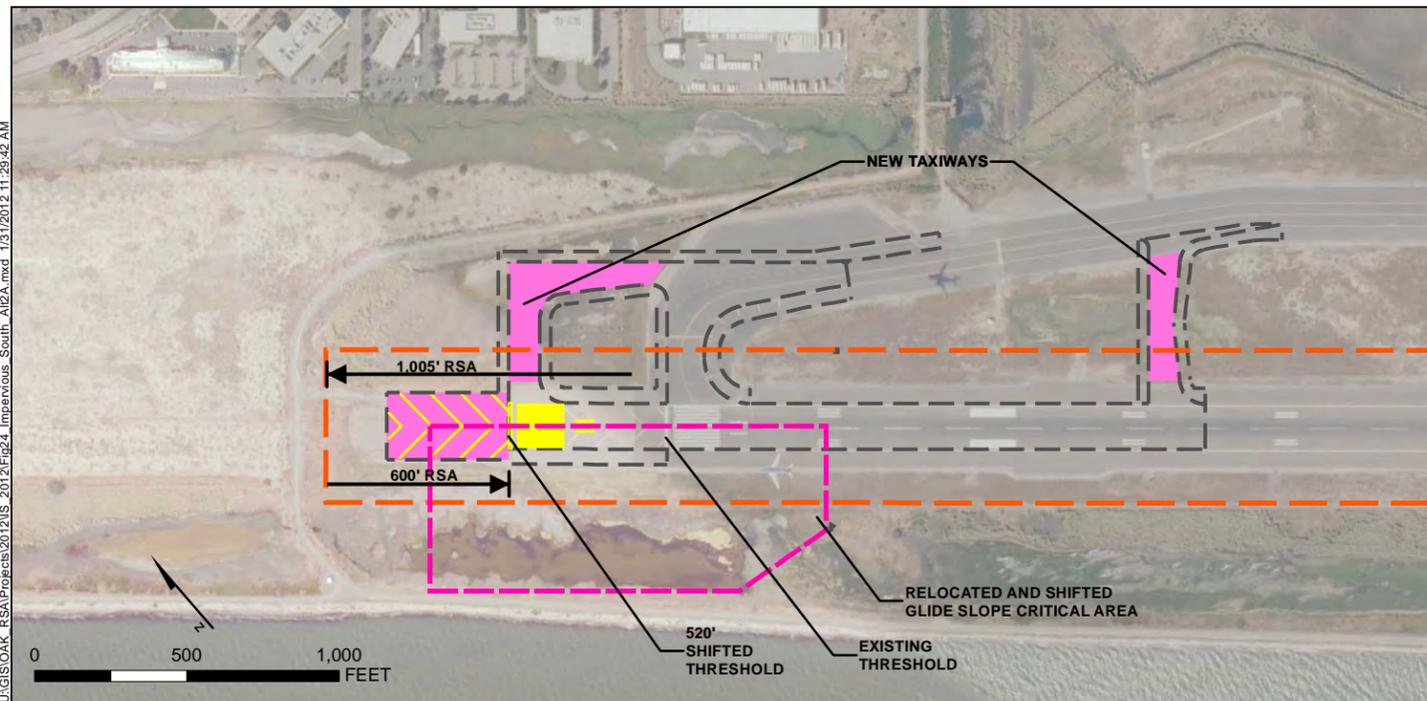
FIGURE 23

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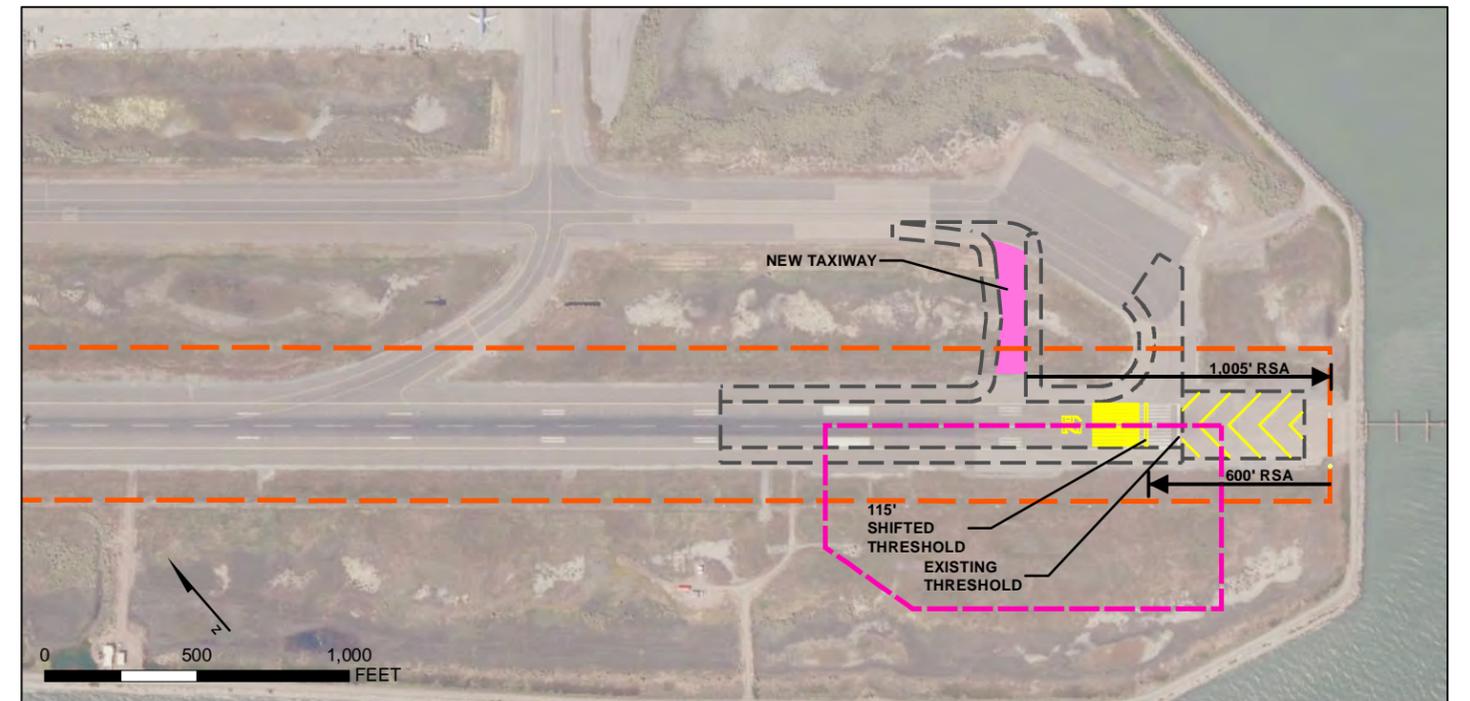
Source: Aerial Photo, National Agriculture Imagery Project, 2010.



OVERVIEW



RUNWAY 11



RUNWAY 29

- Existing Approach Lighting
- Shifted Approach Lighting
- ▭ Runway Safety Area
- ▭ Glide Slope Critical Area
- ▭ New Impervious Surface

**PROPOSED PROJECT - SOUTH FIELD
IMPROVEMENTS WITH NEW IMPERVIOUS SURFACES**

28067867

Oakland International Airport
Oakland, California

FIGURE 24

To further reduce the level of impacts to water quality, the Port would implement **Mitigation Measure WQ-1 – Drainage Improvements**, which requires the implementation of drainage improvements in consultation with the RWQCB to ensure that stormwater is treated to pre-project levels. Modifications to the existing storm drain system as a result of grading and drainage improvements would be designed to maintain general drainage patterns, and not indirectly create new wetlands and/or waters of the U.S. Stormwater runoff would continue to be conveyed to the pump house detention basins, which would continue to provide settling capability.

By offsetting the additional impervious surfaces with removal of existing runway pavement, complying with 401 Water Quality Certification/Waste Discharge Requirements, using the existing pump house detention basins as settling basins, monitoring stormwater quality, and implementing **Mitigation Measure WQ-1**, permanent impacts to water quality resulting from the Proposed Project would be less than significant.

b) Groundwater Supply and Recharge

The Proposed Project includes grading and drainage improvements, relocation of existing vehicle service roads, and construction of an Engineered Material Arresting System. The majority of the construction is likely to involve relatively shallow grading, and removal of existing surface material (i.e., concrete and asphalt) to prepare for the new surface. Because the depth to groundwater at OAK can be shallower than 1 foot below ground surface, the potential for encountering groundwater during construction is considered likely, and temporary dewatering may be required. Although construction may require dewatering, groundwater would not be substantially depleted because dewatering would only occur temporarily and would not remove more water than would be necessary to perform the project construction activities.

Operational activities as a result of the Proposed Project are expected to remain the same as under existing conditions. Therefore, the Proposed Project would have no impacts to groundwater resources or supplies during operations. Because there would be no substantial change to the overall impervious surface area, there would be no change with respect to groundwater recharge.

Therefore, impacts to groundwater supplies and groundwater recharge from construction and implementation of the Proposed Project would be less than significant.

c) Erosion or Siltation On or Off Site

As described under **Section 3.IX-a** above, the Proposed Project would modify portions of the existing storm drain system, and may include new storm drain inlets and pipe, coincident with the grading and earthwork activities. This could result in significant erosion and siltation impacts. The Port would implement **Mitigation Measures AQ-1** and **AQ-2** to maintain the stormwater treatment at pre-project levels in coordination with the RWQCB. Specifically, grading would be designed to direct drainage to new and existing infrastructure and avoid concentration of flows and increased flow velocities, and thereby minimize the potential for erosion. Drainage improvements would include new storm drain inlets, underground pipe, and would be designed to capture stormwater runoff where minor changes to drainage patterns would occur, and direct the discharge away from low lying areas. The Proposed Project would

be designed to minimize slopes. Runoff would be directed to the existing detention basins at the pump houses, where sediments and potential pollutants would settle, prior to discharge to the San Leandro Bay or San Francisco Bay. In addition, as discussed under **Section 3.IX-a** above, stormwater management and monitoring would continue to be performed in accordance with the Airport Group Monitoring Plan under the NPDES General Permit No. CAS000001 Waste Discharge Requirements for Discharges of Storm Water Associated with Industrial Activities Excluding Construction Activities (General Industrial Stormwater Permit). Therefore, with implementation of **Mitigation Measures AQ-1** and **AQ-2**, project impacts on existing drainage patterns and soil erosion and siltation would be reduced to less-than-significant levels.

d) Flooding from Surface Runoff

As described under **Section 3.IX-a** above, the Proposed Project would modify portions of the existing storm drain system, introduce new and remove existing impervious surface, and fill portions of existing wetlands. As such, the Proposed Project could alter existing drainage patterns or increase the rate or amount of surface runoff that could result in flooding on or off site. Modification of the Airport drainage patterns and loss of storage from filling ~~49.39~~14.56 acres of non-tidal wetlands and waters of the U.S. could result in significant impacts to surface runoff that could increase the risk of flooding. As described above, the Proposed Project would result in a net increase of approximately 1.1 acres of pervious surface.

As noted above, the Port and contractor would comply with the 401 Water Quality Certification/Waste Discharge Requirements. In addition, the Port would implement **Mitigation Measure WQ-1** to ensure that stormwater is managed to at least pre-projects levels, and therefore reduce the rate or amount of surface runoff that would result in flooding on or off site to less-than-significant levels. With implementation of **Mitigation Measure WQ-1**, impacts to the amount of surface runoff and flooding on or off site would be reduced to less-than-significant levels.

e) Polluted Surface Runoff

As discussed under **Section 3.IX-d** above, the Proposed Project would modify Airport Drainage patterns, and result in filling ~~49.39~~14.56 acres of non-tidal wetlands and waters of the U.S. This could result in significant impacts associated with runoff water and the capacity of the stormwater drainage system. During construction, the Port would ensure that the contractor would provide temporary drainage facilities to handle stormwater runoff and construction-related discharge, such as covering soil piles, installing silt fences, proper storage and handling of hazardous materials, and practicing good housekeeping. In addition, the contractor would implement BMPs included in the project-specific SWPPP and the construction BMPs described in **Section 2.6** of this document. As noted above, the contractor would comply with the 401 Water Quality Certification/Waste Discharge Requirements. In addition, the Port would implement **Mitigation Measures WQ-1, AQ-1, AQ-2, HZ-3** and **HZ-4** to reduce the impacts of additional sources of polluted runoff and filling of wetlands. With implementation of these mitigation measures, these impacts would be reduced to less-than-significant levels.

f) Other Sources Affecting Water Quality

Other than the less-than-significant water quality impacts related to erosion and sedimentation discussed above, the Proposed Project would result in filling ~~49.39~~^{14.56} acres of wetlands and waters of the U.S. This would be a significant impact. As discussed under **Section 3.IV – Biological Resources**, the Port would implement **Mitigation Measure BO-5** to reduce impacts to wetlands to less-than-significant levels. The Proposed Project would not affect underground water quality. The Port would ensure that the contractor pre-arranges for dewatering, water testing, storage, and treatment in compliance with applicable permits, depending on the discharge point and the nature of any contamination encountered. With implementation of **Mitigation Measure BO-5**, the Proposed Project would have less-than-significant impacts to water quality.

g) Housing within 100-Year Flood Hazard Area

The Proposed Project does not include the construction of housing; therefore, there would be no impacts related to placing housing within a 100-year flood hazard area.

h) Structures within 100-Year Flood Hazard Area

The project site is surrounded by a perimeter dike and is not currently mapped in Federal Emergency Management Agency-designated 100-year floodplains. All of the RSA improvements would be constructed at or below the existing runway elevation and would involve the placement of fill in wetlands and waters of the U.S. No aboveground structures would be constructed as part of the Proposed Project. Because none of the construction activities associated with the Proposed Project would occur in a designated floodplain, nor would aboveground structures be constructed in a 100-year floodplain, there would be no impacts to flood flows.

i) Risk from Levee of Dam Failure

The perimeter dike that surrounds OAK provides flood protection from the surrounding San Leandro Bay and San Francisco Bay. There would be no change in operational activities or the number of passengers as a result of the Proposed Project. No new structures would be constructed by the Proposed Project. As such, the Proposed Project would not change the level of OAK's exposure to a potential perimeter dike failure, nor increase the amount of potential loss in the event of a levee failure. Therefore, impacts associated with increased exposure of people or structures to significant risk or loss, injury, or death, would be less than significant.

j) Seiches, Tsunami, or Mudflow

As noted in the Oakland General Plan Community Safety Element, seiches are not historically common occurrences in the San Francisco Bay Area (City of Oakland, 1998). Additionally, damaging tsunamis are not common along the California coast or within San Francisco Bay. Because the Airport is located on relatively flat terrain and the project involves enhancing the RSAs on existing runways, the Proposed Project would not increase mudslide hazard.

The Proposed Project would not introduce new operational activities that would increase the number of workers or visitors, nor would it involve construction of structures. Therefore, the Proposed Project would not increase exposure, or risk of loss, injury, or death from inundation by seiche, tsunami, or mudflow, and impacts associated with risk involving inundation by seiche, tsunami, or mudflow would be less than significant.

Hydrology and Water Quality Mitigation Measures

The following mitigation measure applies to impacts identified in **Sections 3.IX-a, c, d, e, and f**.

Mitigation Measure WQ-1 – Drainage Improvements

The Port will implement drainage improvements in consultation with RWQCB to ensure that stormwater is treated to pre-project levels. Erosion control and pollution prevention measures to minimize impacts to water quality during construction activities will be designed so that water quality standards would not be exceeded. Improvements to the stormwater system will be designed to minimize changes in flow direction, quality, and quantity. Modifications to drainage patterns and filling of wetlands will be minimized. To avoid creation of new wetlands, soil stabilization treatment will be incorporated to minimize settlement and meet pre-project level conditions. Ongoing inspection and maintenance will be performed to identify and eliminate depressions and standing water. The Port will implement its ongoing Airport operation and maintenance program, which includes regular inspection of the stormwater infrastructure, periodic cleaning of ditches and pipes, removal of accumulated sediments from ditches and the pump house forebays, and rehabilitation and replacement activities as deemed necessary by the Port to ensure that the stormwater system operates as designed.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
X. LAND USE AND PLANNING				
Would the project:				
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a) Established Community

The Proposed Project would not physically divide an established community because it involves constructing enhancements to Runway Safety Areas (RSAs) for existing runways at the Oakland International Airport (OAK or Airport), and would be developed entirely on existing Airport property. The nearest established communities are the City of Alameda, City of Oakland, and City of San Leandro, which are separated from the project area by Airport property and Harbor Bay Parkway, Doolittle Drive (State Route 61), and Davis Street (State Route 112). Therefore, the Proposed Project would not physically divide an established community, and no impact is anticipated.

b) Land Use Plan, Policy, or Regulation

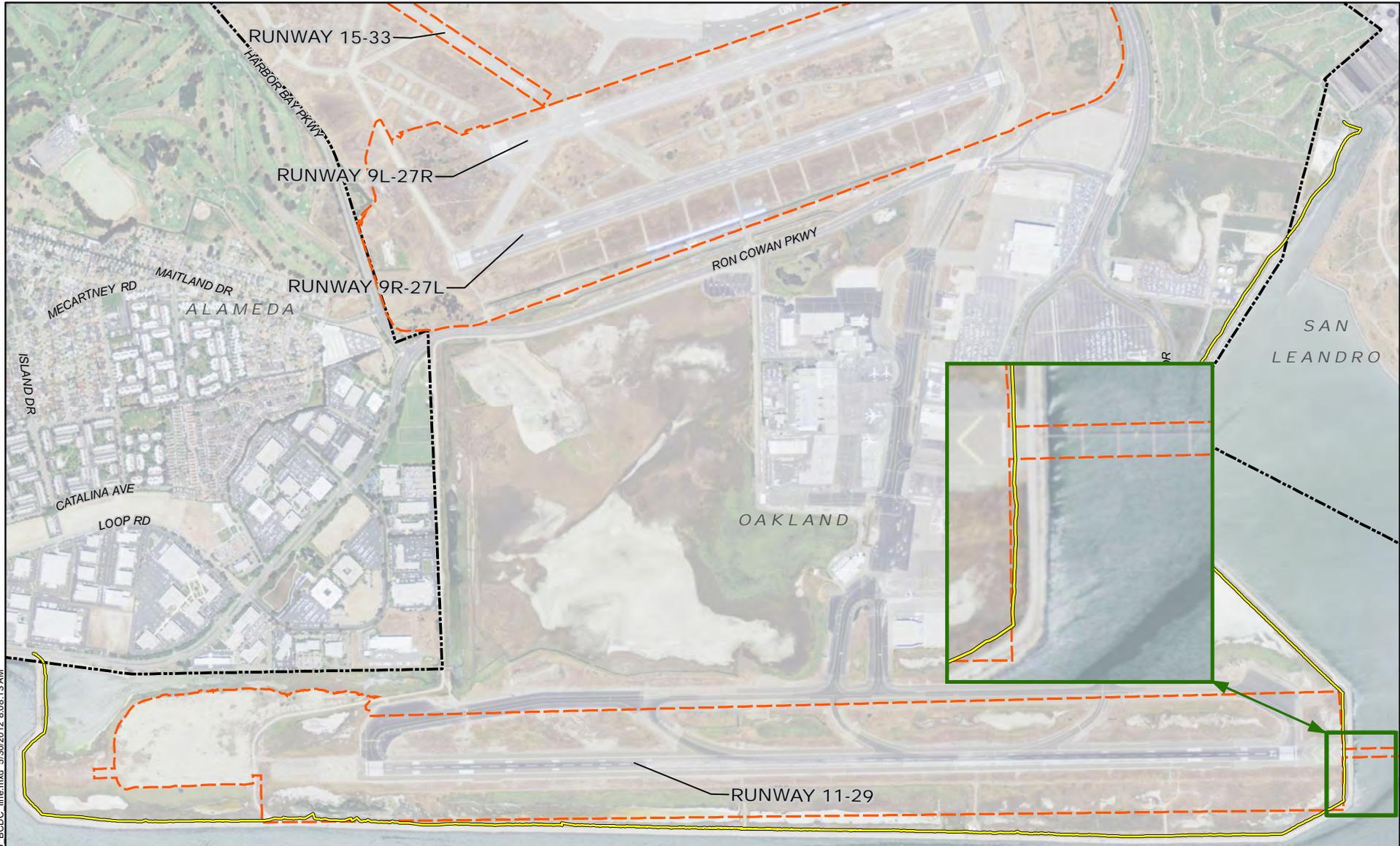
The City of Oakland Charter grants land use jurisdiction to the Port of Oakland (Port) for land within the Airport, Seaport, Commercial Real Estate, and the Oakland Airport Business Park. OAK is within the Port jurisdiction and is zoned as Transportation. The Airport is included in the General Industrial/Transportation designation of the City of Oakland General Plan (City of Oakland, 1998). The intent of this land use designation is to recognize, preserve, and enhance areas of the City for a wide variety of uses that may have the potential to create offsite impacts such as noise, light/glare, truck traffic, and odor. The importance of the Airport is also recognized in the General Plan, which includes OAK in the Seaport and Airport/Gateway Showcase District. The Airport is also included in the City of Oakland's General Industrial zoning district (City of Oakland, 2011a). The purpose of this district is to create, preserve, and enhance areas of the city that are appropriate for a wide variety of uses, including transportation facilities, that may have the potential to generate offsite impacts such as noise, light/glare, odor, and traffic.

OAK is included in the Alameda County Airport Land Use Policy Plan (ALUPP) that was adopted by the Alameda County Airport Land Use Commission to promote compatibility between the public use airports in Alameda County and the land uses that surround them (Alameda County ALUC, 2010). Jurisdictions with planning authority in areas covered by the ALUPP are required to ensure that their planning documents and zoning ordinances are consistent with the ALUPP.

The Proposed Project would not conflict with preferred land use designations or existing zoning at the Airport or in the vicinity because it involves constructing enhancements to RSAs for existing runways at OAK, and would be developed entirely on existing Airport property. In addition, the Proposed Project would not require additional land acquisition, generate substantial off-airport land use impacts, or otherwise influence land use patterns or development in the vicinity of OAK. As shown on **Figure 25**, a ~~portion of the grading activities for the Glide Slope Critical Area RSA grading work~~ would not be in an area under the jurisdiction of the San Francisco Bay Conservation and Development Commission (BCDC). The Port would comply with the BCDC regulations ~~by amending~~ under the existing Shoreline Maintenance Permit M1989.075. The Port would obtain BCDC's approval prior to starting the grading activities. As stated in **Section 3.XII – Noise**, of this document, the Proposed Project would not result in significant noise impacts on surrounding communities, including Alameda or San Leandro. Therefore, the Proposed Project would not conflict with applicable land use plans and regulations, including the City of Oakland General Plan and Zoning Ordinance, and the Alameda County ALUPP, and would result in no impacts to applicable land use plans, policies, and regulations.

c) Conservation Plans

No habitat conservation plans or natural community conservation plans have been adopted for the project area in the vicinity of the Proposed Project. Therefore, no impacts are anticipated.



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	BCDC Jurisdiction
	Biological Resources Study Area
	Airport Boundary

San Francisco Bay

N

0 750 1,500
FEET

BAY CONSERVATION AND DEVELOPMENT COMMISSION JURISDICTION	
28067867	Oakland International Airport Oakland, California
FIGURE 25	

Source: Aerial Photo, Digital Globe, April 2007.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XI. MINERAL RESOURCES				
Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a) Available Known Mineral Resource

Within the Oakland International Airport (Airport) and surrounding areas, there are no known important mineral deposits or mining activities for oil, coal, natural gas, sand, gravel, or crushed stone. The Proposed Project would be developed on the Airport property and would not impact mineral resources that are important to the region or state residents.

b) Locally-Important Mineral Resource Recovery Site

The project site is located in a developed urban area that has no known locally important mineral resources. In the City of Oakland, Leona Quarry, at Edwards Avenue and I-580, approximately 4 miles northwest of the Airport, is the only mining site identified by the State Mining and Geology Board as a Regionally Significant Construction Aggregate Resource (City of Oakland, 1996). Additionally, construction of the Proposed Project would use common building materials such as asphalt and concrete for runways, taxiways, service roads, and Engineered Material Arresting System installations, and soil for grading portions of the Runway Safety Areas. These materials are considered widely available in the San Francisco Bay Area. Therefore, the Proposed Project would have no impact on locally important mineral resources within the project site.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XII. NOISE				
Would the project:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) 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 expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) For a project located in the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a) Noise Levels in Excess of Established Standards

As part of a concurrent Environmental Assessment prepared for the Oakland International Airport (OAK or Airport) Runway Safety Area (RSA) Improvement Project under the National Environmental Protection Act, potential noise effects were analyzed based on guidance contained in Federal Aviation Administration (FAA) Order 1050.1E, Environmental Impacts: Policies and Procedures, Change 1, Appendix A, Section 14, Paragraph 14.2b. This guidance requires detailed noise analyses to be performed using the latest version of the FAA’s noise model, the Integrated Noise Model (INM) (INM Version 7.0b). Using INM, Community Noise Equivalent Level (CNEL) noise contours were prepared for analysis reflecting Proposed Project conditions as well as no project conditions for the years 2010, 2015, and 2020. These contours are shown on **Figures 26 through 31**.

Single Event Noise Exposure Level (SENEL) contours were prepared for representative aircraft types and typical operations to evaluate the change in noise exposure from individual aircraft events. SENEL contours were prepared for the Proposed Project and no project conditions. The representative aircraft types are the Boeing 747-400, Boeing 737-700, Airbus A300-622R, Canadair Regional Jet CRJ900 and the Gulfstream GIV business jet. Approximate generalized flight tracks were created based on an analysis of 1-year of flight track data. These flight tracks are also based on the assumption that the vast majority of the large aircraft operations, both arrivals and departures, occur on Runway 29. Both arrivals and departures were modeled for Runway 29 and departures were modeled for Runway 11. Arrivals for Runway 11 were not modeled because such operations are infrequent and the associated SENEL contours are contained within the SENEL contours generated by Runway 29 departures. SENEL contours of 80 A-weighted decibels (dBA) for departures from Runway 11 for the Boeing 747-400 and

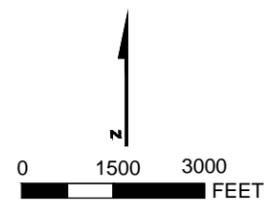


- 65 CNEL Noise Contour
- 70 CNEL Noise Contour
- 75 CNEL Noise Contour
- School
- Church
- Child Care
- Elderly Care
- Park
- Golf Course
- Hotel
- City Limits
- Airport Boundary

LAND USE DESIGNATIONS

- Residential
- Public Use
- Commercial Use
- General Industrial/Transportation
- Recreational

Source:
City of Oakland, 2009



**2010 NO PROJECT CONDITIONS,
65, 70, 75 CNEL CONTOURS**

Oakland International Airport
Oakland, California

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FIGURE 26

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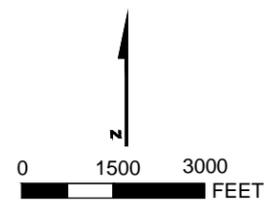


- 65 CNEL Noise Contour
- 70 CNEL Noise Contour
- 75 CNEL Noise Contour
- School
- Church
- Child Care
- Elderly Care
- Park
- Golf Course
- Hotel
- City Limits
- Airport Boundary

LAND USE DESIGNATIONS

- Residential
- Public Use
- Commercial Use
- General Industrial/Transportation
- Recreational

Source:
City of Oakland, 2009



**2015 NO PROJECT CONDITIONS,
65, 70, 75 CNEL CONTOURS**

Oakland International Airport
Oakland, California

28067867

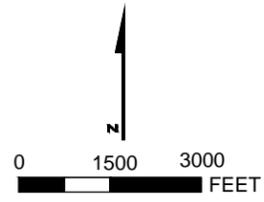
FIGURE 27



- 65 CNEL Noise Contour
- 70 CNEL Noise Contour
- 75 CNEL Noise Contour
- School
- Church
- Child Care
- Elderly Care
- Park
- Golf Course
- Hotel
- City Limits
- Airport Boundary

- LAND USE DESIGNATIONS**
- Residential
 - Public Use
 - Commercial Use
 - General Industrial/Transportation
 - Recreational

Source:
City of Oakland, 2009



**2020 NO PROJECT CONDITIONS,
65, 70, 75 CNEL CONTOURS**

Oakland International Airport
Oakland, California

28067867

FIGURE 28

Mar 05, 2012 - 4:16pm T:\Port of Oakland_RSA\Figures_JS\FIGURE 28.dwg

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IMAGES: No Project Legend - No Border.jpg\ No Project Noise Contour 2020 - No Border.jpg\

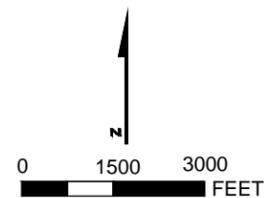


- 65 CNEL Noise Contour
- 70 CNEL Noise Contour
- 75 CNEL Noise Contour
- School
- Church
- Child Care
- Elderly Care
- Park
- Golf Course
- Hotel
- Proposed Threshold Relocation
- City Limits
- Airport Boundary

LAND USE DESIGNATIONS

- Residential
- Public Use
- Commercial Use
- General Industrial/Transportation
- Recreational

Source:
City of Oakland, 2009



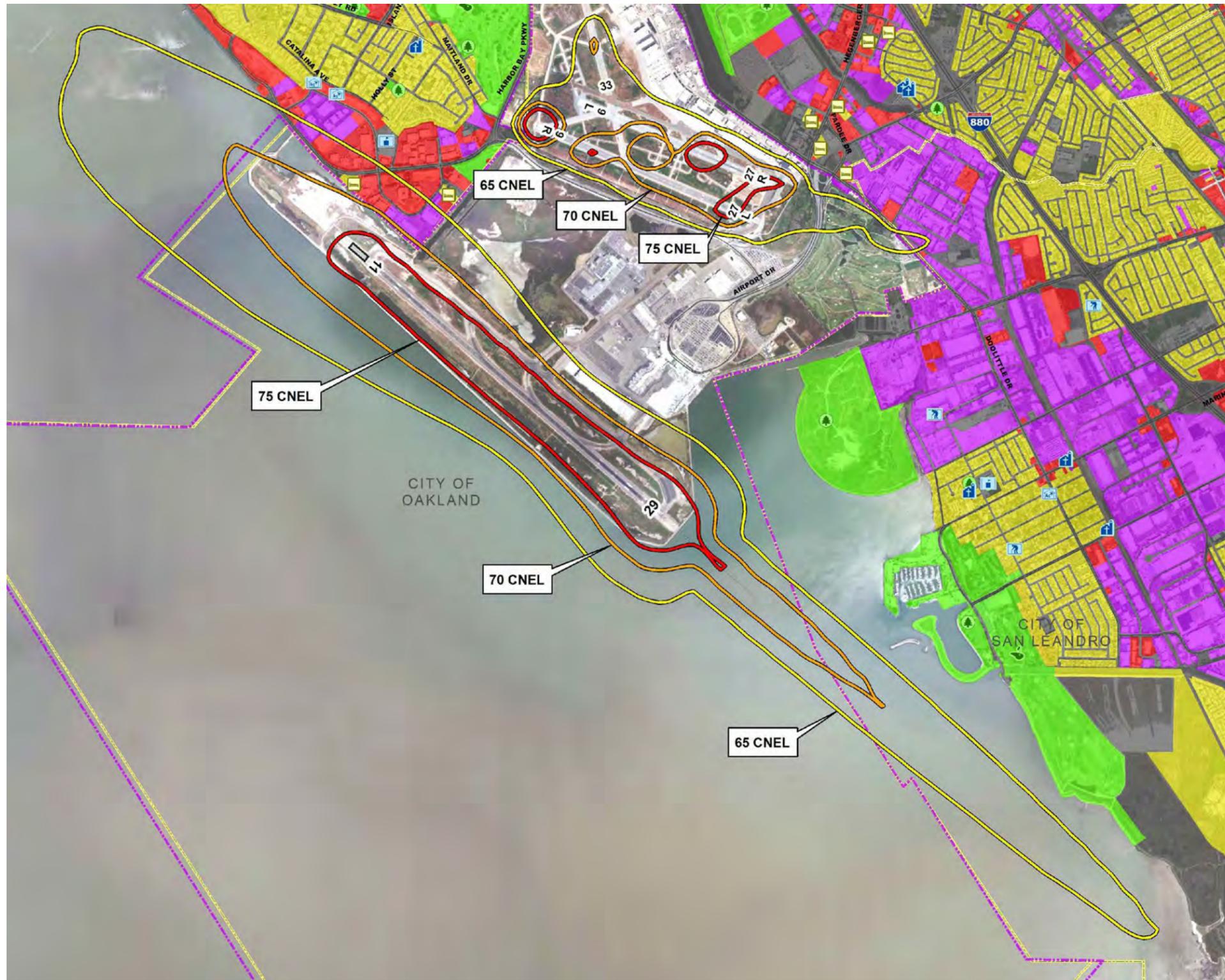
**2010 PROPOSED PROJECT CONDITIONS,
65, 70, 75 CNEL CONTOURS**

Oakland International Airport
Oakland, California

28067867

FIGURE 29

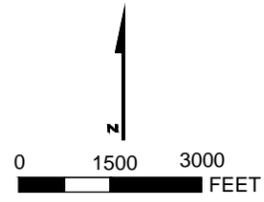
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- 65 CNEL Noise Contour
- 70 CNEL Noise Contour
- 75 CNEL Noise Contour
- School
- Church
- Child Care
- Elderly Care
- Park
- Golf Course
- Hotel
- Proposed Threshold Relocation
- City Limits
- Airport Boundary

- LAND USE DESIGNATIONS**
- Residential
 - Public Use
 - Commercial Use
 - General Industrial/Transportation
 - Recreational

Source:
City of Oakland, 2009



**2015 PROPOSED PROJECT CONDITIONS,
65, 70, 75 CNEL CONTOURS**

Oakland International Airport
Oakland, California

28067867

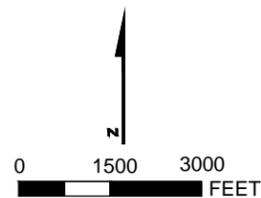
FIGURE 30

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- 65 CNEL Noise Contour
 - 70 CNEL Noise Contour
 - 75 CNEL Noise Contour
 - School
 - Church
 - Child Care
 - Elderly Care
 - Park
 - Golf Course
 - Hotel
 - Proposed Threshold Relocation
 - City Limits
 - Airport Boundary
- LAND USE DESIGNATIONS**
- Residential
 - Public Use
 - Commercial Use
 - General Industrial/Transportation
 - Recreational

Source:
City of Oakland, 2009



**2020 PROPOSED PROJECT CONDITIONS,
65, 70, 75 CNEL CONTOURS**

Oakland International Airport
Oakland, California

28067867

FIGURE 31

Mar 05, 2012 - 4:14pm C:\DOCUMENT~1\LOCALS~1\TEMP\AcPublish_4848\FIGURE 31.dwg

Boeing 737-700 under existing conditions and with the implementation of the Proposed Project are shown on **Figures 32 and 33**. As shown in these figures, small increases in SENEL would occur north of the project area. These increases are less than 3 decibels. Changes of this magnitude are considered to be imperceptible and are less than significant. SENEL contours for all representative aircraft are shown in **Appendix B-IS**.

The Proposed Project would enhance aviation safety at OAK and would cause no increase in airport operations, or the number of passengers or aircraft operations at the Airport; no increase in the size of aircraft using OAK; or any changes to airspace characteristics, flight paths, or their use. Therefore, assumptions associated with the operational characteristics of the Airport remain the same as those defined for no project conditions, except that the location of the takeoff point and landing point on some runways would change with project implementation because of the use of displaced thresholds, use of declared distances, and shifting of some runway ends to enhance RSAs.

A significant impact from aircraft noise would occur if implementation of the Proposed Project would result in one or more of the following conditions:

Noise-sensitive land uses would be newly exposed to noise levels of CNEL 65 dBA or higher under Proposed Project conditions (2010, 2015, or 2020). This significance threshold is derived from the California Airport Noise Standards (Title 21) (Code of Regulations, Title 21, Section 5000 et seq.), which applies to ten airports in California, including OAK.

Noise-sensitive uses would experience a CNEL 1.5 dBA or higher increase in noise within areas exposed to CNEL 65 dBA or higher under Proposed Project conditions when compared to no project conditions for the same time periods (2010, 2015, or 2020). This significance threshold is derived from FAA Order 1050.1E, Change 1, Appendix A, Section 14.3. Land uses were identified that would be newly exposed to noise levels of CNEL 65 dBA or higher under Proposed Project conditions when compared to no project conditions. These areas were identified by overlaying the noise contours developed for both Proposed Project and no project conditions for each analysis year on geographic information system maps depicting existing land use and parcel data. **Table 14** indicates the noise exposure within the CNEL 65 dBA contour for the no project and Proposed Project conditions. Analysis of **Table 14** indicates that there are no noise sensitive land uses newly exposed to CNEL 65 dBA. Therefore, any noise impacts in areas newly exposed to noise levels of CNEL 65 dBA would be less than significant (see **Figures 26 through 31**).

Table 15 presents the area of increase of CNEL 1.5 dBA or higher within the CNEL 65 dBA contour. As shown in **Table 15**, there are no areas of CNEL 1.5 dBA or higher increase within the CNEL 65 dBA contour.

The City of Oakland has noise standards applicable to noise from construction activity. These standards are shown in **Table 16**. Existing ambient noise levels in the project environs exceed the levels shown in **Table 16** due to aircraft operational activity. Construction activities for the Proposed Project would temporarily increase background noise levels in the immediate vicinity of the construction area. Grading and scraping operations are the noisiest, with such equipment generating noise levels as high as 70 dBA

Table 14
Noise Exposure Within CNEL 65 dBA Contour
Proposed Project and No Project (2010, 2015, and 2020)

	Total Acreage	Total Acreage Residential Use¹	Estimated Total Residential Parcels	Estimated Total Number of Residents
2010				
No Project – CNEL 65 dBA and higher	1,324.2	3.6	0	0
Proposed Project – CNEL 65 dBA and higher	1,326.2	3.6	0	0
Increase	2	0	0	0
2015				
No Project – CNEL 65 dBA and higher	1,335.6	3.6	0	0
Proposed Project – CNEL 65 dBA and higher	1,340	3.6	0	0
Increase	4.4	0	0	0
2020				
No Project – CNEL 65 dBA and higher	1,400.7	3.6	0	0
Proposed Project – CNEL 65 dBA and higher	1,404.6	3.6	0	0
Increase	3.9	0	0	0

Notes:

1 For the purposes of this study, the hotel located within the 65 to 70 CNEL noise contours complies with indoor noise reduction standards; therefore, it is not considered a noise sensitive site. There are no other residential land uses or sites within the noise contours.

CNEL= Community Noise Equivalent Level

dBA = A-weighted decibel

Sources:

Adaptation of data obtained from the U.S. Census Bureau's Census 2000 (2003 Update), and parcel data obtained from the Alameda County Assessor

Table 15
Noise Exposure Change of 1.5 dBA within CNEL 65 dBA Contour
Proposed Project (2010, 2015, and 2020)

Year	Total Acreage	Total Acreage Other Uses¹	Total Acreage Residential Use	Total Residential Parcels	Estimated Total Number of Residents
2010	0	0	0	0	0
2015	0	0	0	0	0
2020	0	0	0	0	0

Notes:

1 Industrial, Transportation, and Open Space land uses

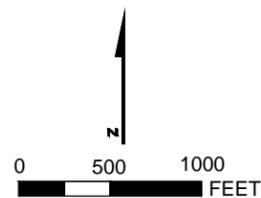
CNEL = Community Noise Equivalent Level

dBA = A-weighted decibel



- No Project Conditions
- - - Proposed Project Conditions

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**BOEING 747-400, RUNWAY 11 DEPARTURE
START OF TAKEOFF ROLL - 80 dBA SENEL CONTOURS**

Oakland International Airport
Oakland, California

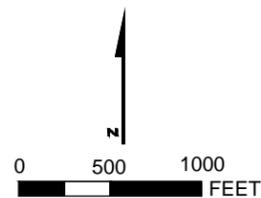
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FIGURE 32



- No Project Conditions
- - - Proposed Project Conditions

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**BOEING 737-700, RUNWAY 11 DEPARTURE
START OF TAKEOFF ROLL - 80 dBA SENEL CONTOURS**

Oakland International Airport
Oakland, California

28067867

FIGURE 33

Table 16
City of Oakland Construction Noise Standards
at Receiving Property Line, dBA¹

Receiving Land Use	Maximum Allowable Noise Level (dBA)	
	Weekdays 7 a.m. – 7 p.m.	Weekends 9 p.m. – 8 p.m.
Less than 10 days		
Residential	80	65
Commercial, Industrial	85	70
More than 10 Days		
Residential	65	55
Commercial, Industrial	70	60

Note:

1 If the ambient noise level exceeds these standards, the standard shall be adjusted to equal the ambient noise level.

dBA = A-weighted decibel

Source: City of Oakland, 2003.

to 95 dBA within 50 feet of their operation. Existing noise levels from aircraft operations exceed these construction equipment noise levels, and distance rapidly attenuates noise levels. The nearest noise-sensitive receiver is approximately ~~3,000~~550 feet from the construction activity. Maximum noise levels from construction activities would be approximately 60 dBA at the nearest noise-sensitive receiver. Noise generated during the construction period would be less than the City of Oakland noise standards at the nearest noise-sensitive receivers. Accordingly, the Proposed Project would not cause noise levels in excess of FAA standards or the City of Oakland standards.

b) Excessive Groundborne Vibration

The Proposed Project would improve RSAs of existing runways at the Airport and would be unlikely to result in an increase in groundborne noise or vibration. Any potential for temporary increase in groundborne noise or vibration would result from project construction. Construction activities associated with the Proposed Project would include grading, scraping, compacting soil, and other activities associated with a project of this type. These activities would occur adjacent to runways at the Airport and other areas already exposed to high levels of noise. Groundborne noise is generally the result of underground construction activity, such as tunneling. The Proposed Project does not include these types of activities and it is unlikely that groundborne noise would result. Similarly, the type of equipment that would be used during project construction would be unlikely to result in excessive groundborne vibration. Therefore, the Proposed Project would have less-than-significant impacts related to groundborne vibration.

c and d) Permanent or Temporary Increase in Ambient Noise Levels

The Proposed Project would improve RSAs of existing runways at the Airport and would be unlikely to result in a substantial permanent increase in ambient noise levels in the project vicinity as discussed

above under **Section 3.XII-a**. It is unlikely that project construction activities would temporarily increase ambient noise levels in the immediate vicinity of the Proposed Project. Grading and scraping operations would be the noisiest construction activities associated with the OAK RSA Improvement Project. Equipment that would generate the highest noise levels during project construction includes a motor grader and a scraper. At a distance of 50 feet from the source, typical noise levels produced by graders and scrapers are 85 dBA and 89 dBA, respectively. The nearest noise-sensitive receptors to the Proposed Project are located approximately 550 feet from the new service road west of Runway 9R-27L and 575 feet from the proposed Engineered Material Arresting System location. Based on calculations using the Federal Highway Administration's Roadway Construction Noise Model, operation of the two types of construction equipment with highest noise levels at a distance of 575 feet would be approximately 62 dBA equivalent sound level. Noise levels would be intermittent and temporary. Additionally, noise that would be generated by the Proposed Project would not be significant in view of the existing noise from aircraft operations. Furthermore, any potential noise impacts associated with the delivery of construction materials are expected to be less than significant because contractors would use designated haul routes including I-880 and connecting arterials to minimize impacts to residential and other noise-sensitive receptors. Therefore, the Proposed Project would result in less-than-significant temporary increase in ambient noise levels.

e) Excessive Noise Levels Within Airport Land Use Plan

The Proposed Project is located on a public airport and would not result in substantial or significant temporary or periodic increases in noise levels to people residing or working in an area within 2 miles of the Airport. The Proposed Project would enhance the RSAs at OAK and would cause no increase in Airport operations, or the number of passengers or aircraft operations at the Airport, or other activity that would lead to significant temporary or periodic increases in noise levels. As discussed under the **Sections 3.XII-c and d** above, any temporary noise resulting from construction of the Proposed Project would be less than significant at the nearest noise-sensitive receptor. Therefore, any impact associated with temporary or periodic increases in noise as a result of the Proposed Project would be less than significant.

f) Excessive Noise Within Vicinity of a Private Airstrip

OAK is a public airport, and there is no private airstrip located in the vicinity of the Proposed Project. Therefore, the Proposed Project would have no impacts associated with the proximity to a private airstrip.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XIII. POPULATION AND HOUSING				
Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a) Population Growth

Direct impacts to population growth would not occur because the Proposed Project would not increase operations, or the number of passengers or aircraft, at the Oakland International Airport (Airport). No additional businesses, industries, or facilities would be developed or acquired for the Proposed Project. During construction, employment within the Airport and surrounding cities (Alameda and Oakland) would temporarily increase, but would not result in a need for additional housing. Construction and operation of the Proposed Project would take place entirely on existing Airport property. The Proposed Project would not directly or indirectly induce population growth.

b) Housing

The Proposed Project would occur entirely on existing Airport property, and would not result in the displacement of existing housing or require the construction of replacement housing elsewhere. Therefore, the Proposed Project would have no impacts on the displacement of existing housing, and would not require the construction of replacement housing elsewhere.

c) Displacement of People

The Proposed Project would occur entirely on existing Airport property, and would not result in the displacement of people or require the construction of replacement housing elsewhere.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XIV. PUBLIC SERVICES				
a) Would the project 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 public services:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
• Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The Oakland International Airport (OAK or Airport) is served by City of Oakland police and fire protection services. Outside of the Airport property, public services, including police and fire protection, schools, and parks, are provided by local jurisdictions (cities of Oakland, Alameda, and San Leandro, and Alameda County). The provision of these services is described below.

Police and Fire Protection

The Oakland Fire Department and the Oakland Police Department serve OAK. Oakland Fire Station 22 is located on Airport property and provides Airport rescue and firefighting to respond to aircraft incidents and accidents. Oakland also has mutual-response agreements for fire protection with adjacent jurisdictions, including Alameda and Contra Costa counties, and the cities of Alameda and San Leandro (City of Oakland, 2004). The Airport is located in Oakland Police District 6 and is served by Police Beat 31X (City of Oakland, 2011b). The Port of Oakland also provides security services to the Airport (Port, 2006).

The Proposed Project would enhance aviation safety by improving the Runway Safety Areas without altering or increasing the number of passengers or aircraft operations at the Airport. Thus, the Proposed Project would not increase the demand for fire/emergency response and law enforcement services. Therefore, the Proposed Project would have no impacts on police protection, fire, and emergency services.

Parks and Schools

The Proposed Project would not cause an increase in Airport operations or the number of passengers at the Airport, and thus would not increase patronage of the parks and recreational areas near the Airport. Therefore, the Proposed Project would not physically alter the existing parks, and would not require construction of new parks.

As discussed in **Section 3.XIII – Population and Housing**, of this document, the Proposed Project would not result in population growth. For these reasons, the Proposed Project would not generate new students or increase the need for new or expanded school facilities. Therefore, the Proposed Project would have no impact on schools or any other facilities.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XV. RECREATION				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The Proposed Project would enhance the level of safety provided by the Runway Safety Areas at the Oakland International Airport. As described under **Section 3.XIII – Population and Housing**, implementation of the Proposed Project would not result in an increase in population; therefore, the Proposed Project would not increase the use of existing recreational facilities in the project vicinity. As such, the Proposed Project would not result in the physical deterioration of recreational facilities, or require the construction or expansion of recreational facilities. The Proposed Project would have no impact on recreational resources.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVI. TRANSPORTATION/TRAFFIC				
Would the project:				
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The project site is served regionally by Interstate 880 (I-880) and Interstate 580 (I-580), and locally by Hegenberger Road, 98th Avenue, Doolittle Drive (State Route 61), Airport Drive, Ron Cowan Parkway, Davis Street, Harbor Bay Parkway, and High Street, connecting the Airport to the cities of Alameda, Oakland, and San Leandro.

Regional rail service is provided by Amtrak and Bay Area Rapid Transit (BART), which both offer connections to Oakland International Airport (OAK or Airport) via the Coliseum/Oakland Airport Station. Amtrak is a national rail service provider with two stations in the nearby vicinity: Coliseum/Oakland Airport Station, and Jack London Square Station. The two stations combined offer daily service that connects OAK to three main routes: San Jose to Sacramento, Los Angeles to Seattle, and Oakland to Chicago. BART is a regional rail service with a station at the Coliseum/Oakland Airport Station that connects transit riders to the East Bay, San Francisco, and northern San Mateo County.

Transit riders can directly connect from the Coliseum/Oakland Airport Station to OAK's Terminals 1 and 2 using AirBART, a shuttle service operated by BART, or via fixed-route bus service (#73 Local and #805 All Nighter) operated by the Alameda-Contra Costa Transit District (AC Transit) (BART, 2011; AC Transit,

2011). Additionally, AC Transit operates the #21 Local, a bus that provides direct service between OAK and Oakland and Alameda, and also provides indirect bus connections that serve the counties of Alameda and Contra Costa, as well as San Francisco and the Peninsula.

a) Effectiveness of the Performance of the Circulation System

Roadways

The Proposed Project includes minor changes in the alignment of the vehicle service roads within the North Field; these vehicle service roads are adjacent to Runways 9R-27L and 9L-27R, are restricted to Airport security and operations (e.g., maintenance) vehicles, and are not accessible to the public. Traffic on the vehicle service roads is extremely limited, and such roads would be kept open until the realigned vehicle service roads become available.

All construction activities, construction staging, and vehicle parking associated with the Proposed Project would be on existing Airport property, and outside of the right-of-way of public roadways. Therefore, no travel-lane closures or roadway detours are anticipated.

During the construction period — February 2013 to October 2015 — a minor increase in roadway congestion could occur temporarily at various locations around the Airport as a result of construction-related vehicle traffic, and workers traveling to and from the project site. These construction trips would occur on the existing roadway network in the project vicinity, including I-880, I-580, Hegenberger Road, 98th Avenue, Doolittle Drive (State Route 61), Airport Drive, Ron Cowan Parkway, Davis Street, Harbor Bay Parkway, and High Street. **Table 17** presents annual average daily traffic and peak-hour traffic in 2009 for freeways serving the project site and Airport Drive. During the construction period, the Proposed Project would add between 25 to 30 cars and 10 to 20 construction vehicles per day. The addition of worker and construction vehicle trips to the roadway network serving the project site would be neither substantial relative to the existing traffic volumes nor disrupt traffic flows on these roadways, because roadway network changes would not be required, and the Proposed Project would be constructed on existing Airport property.

No impacts to roadways on-Airport or off-Airport property would occur during operation of the OAK RSA Improvement Project.

The Proposed Project would enhance the safety conditions of the runways, and would not result in an increase in Airport operations, or the number of passengers or aircraft operations at the Airport. Therefore, impacts to roadways resulting from the construction and operation of the Proposed Project would be less than significant.

Public Transit

The project vicinity is well served by existing regional and local transit services operated by AC Transit, Amtrak and BART, which directly or indirectly serve OAK. Thus, existing transit services would provide sufficient capacity to accommodate any construction workers using transit.

Table 17
Annual Average Daily Traffic and Peak Hour Traffic(2010) on Freeways/Roadways
Adjacent to Oakland International Airport

Freeway/Roadway	Annual Average Daily Traffic ¹	Peak-Hour Traffic
I-880, east of Route 112 and Davis Street	205,000	13,500
I-880, east of 98th Avenue Interchange	190,000	12,500
I-880, east of Hegenberger Road	202,000	13,300
I-880, east of 66th Avenue	210,000	13,800
I-580, north of Estudillo Avenue Interchange	143,000	12,700
I-580, north of Edwards Avenue	172,000	15,200
I-580, north of High Street	147,000	12,000

Note:

1 Annual Average Daily Traffic is defined as the total volume of vehicle traffic on a highway or road for a given year divided by 365 days.

Source: Caltrans, 2010.

I-580 = Interstate 580

I-880 = Interstate 880

The effect of project construction and operation on public transit would be minimal because the project involves the construction of Runway Safety Area (RSA) enhancements on the existing Airport property, away from the Airport terminal where there are transit connections. The minor increase in construction-related vehicles along shared roadways with AC Transit bus routes could potentially slow bus movements. However, this temporary impact on roadway traffic volumes and AC Transit bus service would have a less-than-significant impact on the overall public transit network serving the Airport, because construction would be temporary, and the number of construction-related vehicles would not be substantial compared to the existing traffic volumes.

Bicycle and Pedestrian Facilities

Existing Class 1 bike paths and Class 2 bike lanes link OAK's Terminal 1 to the cities of Oakland, Alameda, and San Leandro, and the San Francisco Bay Trail. Within the Airport, bicycles are allowed to operate on the main airport roads (Doolittle Drive, Airport Drive, Ron Cowan Parkway, and John Glen Drive) to Terminal 1, and must be walked along the terminal curbside to Terminal 2. There are designated bicycle parking areas located at each terminal (Port, 2011a).

The Proposed Project is limited to the construction of RSA improvements on the existing Airport property, and no construction activities would be conducted within the right-of-way of existing bicycle and pedestrian facilities (including crosswalks at key intersections and the existing San Francisco Bay Trail alignments). Pedestrian and bicycle-related facilities are located on or adjacent to local roadways that may be shared with construction-related vehicles and workers; however, construction and operation of the Proposed Project would not obstruct or require the detour or relocation of such facilities. For these reasons, the Proposed Project would have less-than-significant impacts on access to pedestrian and bicycle facilities.

b) Level of Service Standards

Construction-related vehicles would result in temporary and intermittent project construction effects on traffic volumes to roads and highways in the project vicinity. These roadways are expected to include I-880, I-580, Hegenberger Road, 98th Avenue, Doolittle Drive (State Route 61), Airport Drive, Ron Cowan Parkway, Davis Street, Harbor Bay Parkway, and High Street. However, as discussed above, construction impacts would be limited to the construction period of the Proposed Project (February 2013 to October 2015). Furthermore, construction activities would be restricted to the construction of RSA improvements on existing Airport property, and would not occur in the right-of-way of any public roadways. Therefore, the project would not conflict with any County or Metropolitan Transportation Commission congestion management projects, level-of-service standards, travel demand measure, or other standards. The Proposed Project would not result in an increase in Airport operations, or the number of passengers or aircraft operations at the Airport. Therefore, the Proposed Project would not conflict with any congestion management program, and impacts would be less than significant.

c) Change in Air Traffic Patterns

The Proposed Project would improve existing RSAs at OAK to enhance safety. Construction activities and operations associated with the Proposed Project would not result in a change in air traffic patterns, air traffic activity, Airport operations, or in the number of passengers or aircraft operations at the Airport. The use of runways would change as a result of temporary runway closures during construction; however, this change would not impact air traffic patterns. In the North Field, when construction activities are taking place on one runway, two of the three runways would remain open at all times. The South Field runway would remain in operation during most of the construction activities. Runway 11-29 would be closed for very short periods (a few hours), and if needed, aircraft landings and takeoffs would be shifted to the North Field during this period. Temporary reduction in runway lengths of Runway 11-29 during construction would result in minor changes in aircraft activities. Specifically, cargo and passenger aircraft may need to operate with weight restrictions during construction periods when the runway lengths are reduced. These changes are managed by the airlines as a routine part of their operations, and are not expected to result in any measurable change in either cargo or passenger traffic at the Airport. In addition, the temporary loss of some Navigational Aid Systems (NAVAIDS) functionality could result in minor early morning flights delays. The Airport would use the NAVAIDS on Runway 27R (which would be operational during the construction of Runway 11-29). Construction in the North Field would occur after Runway 11-29 improvements are completed. During the North Field construction period, either Runway 9R-27L or Runway 9L-27R would remain operational at all times, and no impacts to air traffic patterns would occur. FAA would prepare a Safety Management System for construction and operation of the Proposed Project. Implementation of the Safety Management System would provide OAK a formal, top-down, systemic approach to managing safety risk, including the appropriate organizational structures, responsibilities, and policies and procedures required. Therefore, temporary impacts to air traffic patterns and safety associated with the construction activities would be less than significant.

d and e) Roads Safety Hazards and Emergency Access

Construction and implementation of the Proposed Project would not change existing design features of roads and highways in the project vicinity. Project construction and implementation would occur entirely on Airport property. Moreover, the purpose of the project is to improve runway safety. Therefore, the Proposed Project would have no impact on design features or incompatible uses that would increase the potential for traffic safety hazards.

As discussed above, construction-related traffic would be restricted to the construction of the RSA improvements. Therefore, traffic associated with the Proposed Project would be minimal, and would not pose an obstacle to emergency response vehicles. Temporary impacts to emergency access related to the Proposed Project would be less than significant.

f) Adopted Policies Plans or Programs Regarding Public Transit, Bicycle, or Pedestrian Facilities

As described above, temporary effects of construction activities would result in less-than-significant impacts on the transportation network. Implementation of the Proposed Project would not permanently change the existing or planned transportation network or result in long-term increases in transit demand in the project vicinity. The Proposed Project would not conflict with adopted policies/objectives, plans (including the transportation elements of general plans for the cities of Oakland, Alameda and San Leandro), or programs related to public transit, pedestrian, or bicycle facilities; therefore, less-than-significant impacts would occur.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVII. UTILITIES AND SERVICE SYSTEMS				
Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

a) Wastewater Treatment

The Proposed Project would not include new Oakland International Airport (OAK or Airport) operational activities that would introduce additional sources of pollutants and/or increase discharges to the wastewater treatment system. In addition, because the Proposed Project would cause no increase in Airport operations, or the number of passengers or aircraft operations at the Airport, it would not result in additional generation of wastewater. Therefore, the Proposed Project would have no impact on wastewater treatment requirements of the San Francisco Bay Regional Water Quality Control Board (RWQCB).

b) Construction of New Water or Wastewater Treatment Facilities

Potable water is supplied to OAK by East Bay Municipal Utility District (EBMUD). OAK's sanitary wastewater is conveyed to and treated at the EBMUD Wastewater Treatment Plant at the eastern end of the San Francisco–Oakland Bay Bridge before it is released into San Francisco Bay (EBMUD, 2011a, 2011b). Wastewater created from airplane-washing services, terminal sanitary sewer waste, aircraft lavatory waste, and grease traps are also directed into the sanitary sewer system.

Because the Proposed Project would not increase Airport operations, or the number of passengers or aircraft operations at the Airport, the construction or expansion of water or wastewater treatment facilities would not be required. Therefore, the Proposed Project would have no impact on water or wastewater treatment facilities.

c) Stormwater Drainage Facilities

The Proposed Project would modify portions of the existing storm drain system and include filling of portions of the wetlands and waters of the U.S. As described under **Section 3.IX-a** above, the Port of Oakland (Port) would comply with all applicable requirements and guidelines to meet water quality objectives for water discharge, including the National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities Order No. 2010-0014-DWQ NPDES No. CAS000002 (General Construction Permit). As part of the General Construction Permit, the Port would be required to prepare a stormwater pollution prevention plan that would include erosion control measures to minimize the effects of erosion, sedimentation, and leakage of vehicle and equipment fluids. In addition, the Project would obtain a 401 Water Quality Certification/Waste Discharge Requirements permit from the RWQCB to certify that the Proposed Project would not violate state water quality standards. As described under **Section 3.IX – Hydrology and Water Quality**, the Port would implement the **Mitigation Measures WQ-1, AQ-1, AQ-2, HZ-3, and HZ-4** to reduce the impacts to quality of the stormwater discharge to less-than-significant levels. Therefore, impacts to stormwater drainage facilities from construction and implementation of the Proposed Project would be less than significant with mitigation incorporated.

d) Water Supplies

The Proposed Project would not result in an increase in Airport operations, and the number of passengers at the Airport and water use would not increase as a result of the Proposed Project. Additionally, the Proposed Project would not require relocation or disturbance of public drinking-water supply pipelines or local distribution systems. Therefore, no impact on water supply is anticipated as a result of the Proposed Project.

e) Wastewater Treatment

The Proposed Project would not increase Airport operations or the number of passengers at the Airport, and it would not result in increased wastewater discharges or introduce additional sources of pollutants to the wastewater treatment system. Therefore, there would be no impact on the capacity of the wastewater treatment system to serve the Proposed Project, in addition to the system's existing commitments.

f and g) Landfill Capacity and Compliance with Solid Waste Regulations

The City of Oakland has a Construction and Demolition Debris and Recycling Program, which includes detailed specification and defined responsibilities for meeting the City's waste reduction and recycling requirements. The program requires the contractor to develop a plan that describes how 75 percent of the construction and demolition debris would be diverted from landfills (City of Oakland, 2002). In addition, Alameda County Department of Environmental Health's Solid/Medical Waste program oversees

the solid waste collection, disposal, recycling, and hazardous waste programs at OAK. The solid wastes collected at OAK are taken to local transfer stations, where they are prepared for transportation to Altamont Landfill and Resource Recovery Facility, Tri-Cities Landfill, or any other appropriate landfills (Alameda County, 2011). OAK has an in-terminal and airline recycling program to divert recyclable and compostable items from landfills. In 2011, OAK recycled/composted approximately 496 tons of recyclable materials, including paper, plastic, cardboard, glass, and aluminum; and composted more than 150 tons of food waste (Port, 2011b). The Airport recycling program has achieved a greater than 50 percent diversion rate, and includes cardboard, paper, plastic, metals, and food waste.

Altamont Landfill and Resource Recovery Facility, operated by Waste Management of Alameda County, has a total estimated permitted capacity of 62 million cubic yards. Currently, approximately 16.3 million cubic yards (approximately 26.3 percent) have been used, and approximately 45.7 million cubic yards of capacity remain (approximately 73.7 percent). The facility has a projected closure date of 2025 (California Department of Resources Recycling and Recovery, 2011a). The facility has a projected closure date of 2019 (California Department of Resources Recycling and Recovery, 2011b).

The Airport's Materials Management Program diverts from public landfills recyclable construction materials such as concrete and asphalt and converts it into reusable material for new Airport construction and maintenance projects (OAK, 2007). The Materials Management Program has designated sites for material stockpiling and recycling, allowing for the reduction of disposal and material purchasing costs and reduction of truck emissions associated with landfill disposal of waste. Therefore, no new solid waste facilities or expansion of existing facilities would be required as a result of the project because the Proposed Project would cause no increase in Airport operations, or the number of passengers or aircraft operations at the Airport. Debris associated with construction of the Proposed Project would be recycled wherever feasible in accordance with applicable laws, ordinances, and regulatory requirements. The volume of post-diversion demolition debris would not be significant relative to existing annual disposal volumes, and would not result in significant impacts on solid waste. Therefore, solid waste generated from the project's construction and operation would not substantially affect the projected life of the landfill, and impacts from solid waste generation or impacts on solid waste facilities would be less than significant.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVIII. MANDATORY FINDINGS OF SIGNIFICANCE				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Does the project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

a) Degrade the Quality of the Environment

Most of the potential impacts from the Oakland International Airport (OAK or Airport) Runway Safety Area (RSA) Improvement Project would be associated with construction activities as described in the preceding analysis. The Proposed Project would not cause operational impacts because it is not a capacity-enhancing project, and would not result in any associated increase or decrease in airport operations, or the number of passengers or aircraft operations at the Airport. The Proposed Project has the potential to result in significant impacts in the following areas: air quality, biological resources; cultural resources; hazards and hazardous materials, hydrology and water quality, and utilities and service systems. However, incorporation and implementation of the mitigation measures identified in this document would reduce all significant project-related impacts to less-than-significant levels. Therefore, the Proposed Project would not degrade the quality of the environment, and would not substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory.

b) Cumulative Impacts

Past, present, and reasonably foreseeable projects within the Airport and its vicinity include, but are not limited to, tower replacement, terminal improvements, taxiway improvements, dike improvements, Bay Area Rapid Transit (BART) connector, and utility and stormwater upgrades, while off-Airport cumulative projects include a BART connector, medical facility, residential units, warehouse development, and bikeway expansion.

Cumulative development, including the list of projects identified in **Table 18**, could result in impacts to the environmental resources that could combine with the impacts of the Proposed Project. The Proposed Project would not cause impacts related to agriculture and forestry resources, land use and planning, mineral resources, population and housing, public services or recreation. Therefore, the Proposed Project would not contribute to cumulative impacts associated with these resources. The remaining resource areas that could be affected by the Proposed Project are discussed below.

Aesthetics

Most cumulative projects (including the Proposed Project) are infrastructure improvements at a low elevation (roof repair), or at or below ground surface in localized areas with little or no discernible relief, and resulting in no discernible change in views. Four of the projects, the FedEx structures, the BART – Oakland Airport Connector (OAC) project, the Kaiser medical facility, Harbor Bay Village VI, and the Horizon Beverage Company warehouse, would be larger and would change views in the immediate vicinity, but not adversely. These projects are or would be permitted land uses within the existing general plan land uses and zoning. For these reasons, cumulative aesthetic impacts would be less than significant. Therefore, the Proposed Project would not contribute to a cumulatively significant aesthetics impact, and cumulative impacts would be less than significant.

Air Quality

The Bay Area is in non-attainment for ozone, particulate matter with a diameter equal to or less than 10 microns, and particulate matter with a diameter equal to or less than 2.5 microns (federal and state standards). All of the cumulative projects identified in **Table 18** would involve construction equipment and earth disturbance resulting in emissions of ozone precursors and particulates. The Proposed Project, combined with past, present, and reasonably foreseeable projects, would therefore result in potentially significant air quality impacts, including related health impacts. The Proposed Project would not change the number of aircraft operations or the aircraft fleet mix serving OAK, or result in a net increase in long-term operational emissions from any other activities. The Proposed Project's contribution to cumulatively significant impacts related to air quality and health impacts are limited to construction-related impacts only. The Airport's Air Quality Management Program described in **Section 3.III – Air Quality**, above, directly addresses emission reduction measures related to construction projects. Nevertheless, fugitive dust emissions during construction could have a cumulatively considerable contribution to cumulatively significant air quality and health impacts, which would be a potentially significant cumulative air quality impact.

The Bay Area Air Quality Management District's (BAAQMD) *California Environmental Quality Act (CEQA) Air Quality Guidelines* provides a list of best management practices (BMPs) to control fugitive dust emissions. Specifically, the BAAQMD has identified eight construction mitigation measures that would help to reduce fugitive dust emissions. The Port of Oakland (Port) would implement **Mitigation Measure AQ-1 – Fugitive Dust Control Measures**, described in **Section 3.III**, above, to implement these BMPs to reduce fugitive dust impacts. Notwithstanding that **Mitigation Measure AQ-1** would reduce the Proposed Project's construction-related impacts on air quality to a less-than-significant level,

**Table 18
Past, Present, and Reasonably Foreseeable Cumulative Projects**

	Project Name	Description
On-Airport Projects		
PAST	North Field Airfield Improvements	Pavement replacement for Runway 9R-27L. Construction occurred between 2007 and 2008.
	Terminal Improvements	Expanded Terminal 2 to include five new boarding gates and a new baggage claim area; relocated existing second curbside in front of Terminals 1 and 2; created additional lanes for passenger drop-off/pick-up; and improved existing third curbside. Construction began in 2005 and ended in 2007
	South Field Airfield Improvements	Pavement (concrete and asphalt) replacement for various areas in South Field, including taxiways and the east Apron (1.3 million square feet). Construction occurred between 2005 and 2010.
	Remain Overnight Parking	Constructed a remain-overnight parking aircraft apron located in South Field adjacent to Taxiway B1, between the Oakland Maintenance Center and Taxiway B. The apron encompasses an area approximately 270,000 square feet. Construction occurred between 2009 and 2010.
PRESENT	North Field Airfield Improvements	Paving and edge lighting projects include adding taxiway edge lighting to all taxiways west of Runway 15-33 (Taxiways N, Q, M, L). Design and construct North Field lighting vault conduit, above-finished lighting, and cable (improvements to the electrical, conduit, and lighting systems). Construction is estimated to occur between 2011 and 2015
	Replacement of Airport Traffic Control Tower	Construct a new FAA air traffic control tower to consolidate the two existing towers to improve visibility of the airfield. FAA commenced construction in 2010, and the project is expected to be complete by end of 2013.
	FedEx	Construction of a new 200,000-square-foot International Sort Building for handling cargo, and a 4,000-square-foot building for security administrative purposes; minor interior renovations to the existing international and Metroplex Buildings; expansion of the GSE maintenance facility; and relocation of the loading docks and container decks. Installation of a fuel cell power generation facility (converts natural gas to electricity). Construction commenced in 2008 and is expected to be completed by 2012.
	Terminal Improvements	Renovate and retrofit Terminal 1, including a utility plant; upgrade security systems; replace Terminal 2 roof (Building M-130). Construction initiated and is estimated to complete by 2016.
	Stormwater System Rehabilitation	Replace and upgrade stormwater drainage, pump houses, and collection, detention and pumping systems airport-wide. Reconstruction of Pump House No. 4 commenced in 2011.
	Oakland Fuel Farm Facilities	Replace 124,000-barrel capacity of fuel storage with three new above-ground storage tanks (total fuel storage capacity of about 107,000 barrels), replacing a 12-inch fuel line from the tank farm to the airfield, relocating an electrical transformer, and constructing a small structure (approximately 2,100 square feet) to operate the fuel tanks, support life safety services, store the electrical equipment system and other related improvements to support the fueling facility. Construction began in 2010 and is expected to be complete by 2012.
FUTURE	North Field Leased Area Improvements	Renovate entrance to rental car customer service area; demolish buildings and retrofit and rehabilitate Hangars 5, 6, 9, and Business Jet Center leased hangars/spaces. Construction is estimated to occur between 2012 and 2016.
	South Field Taxiway and Runway Reconstruction	Rehabilitate Runway 11-29 pavement. Construction is estimated to occur between 2012 and 2016.
	Curbside Improvements	Enhance curb 1 between Terminal 1 and Terminal 2. Construction is estimated to occur between 2012 and 2015.

Table 18
Past, Present, and Reasonably Foreseeable Cumulative Projects (Continued)

	Project Name	Description
FUTURE (Continued)	Bike Path Improvements	A Class 1 bike trail will be extended along the south side of Ron Cowan Parkway, connecting Airport Drive to Harbor Bay Parkway. This will occur either when the parcel of land south of Ron Cowan Parkway is developed, or by March 19, 2014, whichever is sooner. This trail will be a minimum of 12 feet wide, be striped in the middle, and reflect the conclusions of the planning studies being conducted by the Port on the transportation needs of the Airport area and the security constraints associated with the requirements of OAK and the FAA. The Class I trail should provide a seamless, safe, efficient, direct, and pleasant connection to public access trails on either side of the trail extension. Proposed plans for this connection will be reviewed by BCDC staff or the BCDC Commission's Design Review Board. It is envisioned that preliminary plans for the Class I trail will be submitted to BCDC Commission staff by December 19, 2013.
	Utility Program Upgrade	Replace critical and deteriorating utility infrastructure, a Terminal 1 substation, and a sanitary sewer along Airport Drive. Construction is estimated to occur in 2012.
	South Field Perimeter Dike Improvement Project	The Port of Oakland plans to improve the perimeter dike that forms the boundary between the Airport and San Francisco Bay for flood control and seismic events. Construction is estimated to occur between 2012 and 2015.
	Pump Station # 6 and other drainage projects	<p>Replace the existing Pump House 6 and upgrade stormwater drainage and equipment. Construction is scheduled to begin in 2012.</p> <p>Pump House No. 6 was constructed around 1956 at the time that the South Field Airport was developed and consists of a steel building structure supported by timber piles that houses mechanical pump and motors. It is located near the northwest end of Runway 11-29 (end of Runway 11) and services about 1,345 acres of the Airport and includes Runway 9R-27L, Runway 11-29, taxiways, aircraft remain overnight parking areas, undeveloped areas, and the FedEx Metroplex.</p> <p>Pump House No. 6 is in current need of repair and upgrade to provide efficient and reliable stormwater drainage system services for OAK.</p> <p>Replacement of Pump House No. 6 would involve construction of a flat, reinforced-concrete structure supported by concrete piles located next to the existing Pump House No. 6. New pumps, motors, and associated equipment would be housed within new weather-proof structure.</p> <p>Other drainage projects that will be implemented as part of the capital improvements to the Airport drainage system include improvements to pump houses, culverts installation, channels construction, and channels grading.</p>
Off-Airport Projects located within the Project Area		
	BART – Oakland Airport Connector (OAC) Project	BART project would consist of a link to OAK via an automated guideway transit system from the Coliseum BART Station to a new BART station at the Airport. The 3.2-mile elevated connector would be located primarily within the median of Hegenberger Road from the Coliseum BART Station to Doolittle Drive, and on Airport property. The automated guideway transit would be operated in its own exclusive right-of-way. FAA approved the Record of Decision for this project on December 29, 2009. Construction is estimated to occur between. This project is currently under construction.
	Kaiser Property Development	This project consists of developing a 63-acre parcel, formerly the site of an Albertsons distribution center located at Marina Boulevard, west of I-880, in San Leandro. Kaiser intends to develop roughly half of the property into a state-of-the-art medical facility, with the remainder of the property to be used for a retail center. Construction is occurring and is estimated to be complete by. This project is currently under construction.

Table 18
Past, Present, and Reasonably Foreseeable Cumulative Projects (Continued)

	Project Name	Description
	Harbor Bay Village VI	The proposed project involves construction of 104 residential housing units on about 12 acres. The current development location is under review by the City of Alameda and is likely to change. The residential units would be two-story, single-family detached units. The project also includes common areas such as streets, parking, landscaping, and open space. The Draft Environmental Impact Report prepared for the project identified significant impacts related to air quality, cultural resources, hazardous materials, hydrology and water quality, and noise. The construction period, planned for the near future without any fixed date, would take about 2 years.
	Bikeway Projects	This City of Oakland project consists of improving/expanding bike lanes along Hegenberger Road to the Airport (Class 1 and 2), all of Doolittle (Class 1 and 2), Edgewater (Class 2), Hegenberger Loop, and Cairo Street to the Lindheim Memorial overcrossing (Class 3b), and along the Columbian Gardens waterway between Hegenberger and 98th Avenue (Class 1). Construction is expected to occur between 2012 and 2015.
	Horizon Beverage Company	Horizon proposes to construct an approximately 156,782-square-foot beverage distribution warehouse on the 8.5-acre project site located in the central portion of the former Fast Track Parking property at the northern terminus of Pardee Drive. The warehouse would receive beverage shipments, primarily from beer companies, via Port of Oakland marine terminals and large-scale trucks, and sort and deliver them to local supermarkets, liquor stores, restaurants, and similar establishments. Construction was estimated to begin in summer. This project is currently under construction.

Notes:

BART = Bay Area Rapid Transit

BCDC = San Francisco Bay Conservation and Development Commission

FAA = Federal Aviation Administration

OAK = Oakland International Airport

RSA = Runway Safety Area

the Port also plans to implement **Mitigation Measure AQ-2 – Additional Fugitive Dust Emissions Reduction Measures**, to further reduce fugitive dust emissions resulting from construction activities. In addition, the project construction activities would be temporary in duration and limited to areas within OAK, with minimal offsite vehicle trips. Therefore, the Proposed Project would not result in a cumulatively considerable contribution to cumulatively significant air quality and related health impacts, and would have a less-than-significant cumulative impact on air quality.

Biological Resources

The Proposed Project, along with past land reclamation and development projects, and other cumulative projects such as the Storm Water System Rehabilitation and the South Field Perimeter Dike Improvement Project, could result in significant cumulative impacts to biological resources, such as loss of wetlands and other habitat for special-status species. All of the cumulative projects identified in **Table 18** that would result in a loss of biological resources would be required to obtain permits from regulatory agencies, which would themselves impose mitigation to reduce impacts to biological resources, although it is not certain if such mitigation would reduce cumulative impacts to a less-than-significant level. The Proposed Project could affect sensitive wildlife habitats, special-status species, and non-tidal wetlands and waters of the U.S. The Proposed Project's contribution to cumulatively significant impacts to

biological resources could therefore be cumulatively considerable, which would be a potentially significant cumulative impact on biological resources.

The Proposed Project would result in ~~19.39~~14.56 acres of impacts to wetlands and waters of the U.S.; up to 7.03 acres of permanent impacts to marginal California clapper rail habitat; and 4.22~~5~~ acres of permanent impacts to very low-value salt marsh harvest mouse habitat. In addition, the Proposed Project would temporarily disturb the western snowy plover and California least tern habitat. The Port would implement BMPs, described in **Section 3.IV – Biological Resources**, that would minimize impacts to any other wildlife habitats within the study area. In addition, the Port would mitigate for the impacts to sensitive wildlife habitats, special-status species, and non-tidal wetlands and waters of the U.S. with a combination of BMPs, avoidance, minimization, and compensatory mitigation, all of which will achieve the federal and state goal of “no net loss of wetlands,” along with the provision of valuable compensatory habitat for listed species. In addition, the Port would implement seasonal and distance restrictions during construction in the event that special-status species are found to be present through preconstruction surveys. These measures are described in detail in this document in **Mitigation Measures BO-1** through **BO-9**. With implementation of these mitigation measures, the contribution of the Proposed Project to cumulatively significant biological resources impacts would not be cumulatively considerable, and would therefore be less than significant.

Cultural Resources

Cumulative projects involve ground-disturbing activities, and repair and rehabilitation of existing older structures. Some such activities could result in disturbance to, or potentially cause a substantial adverse change in, the significance of historical resources (built-environment historic and prehistoric archeological resources) and other archeological resources, as described in CEQA Guidelines Section 15064.5 and under California Public Resource Code (Section 21083.2). It is not known whether cumulative projects would also directly or indirectly destroy a unique paleontological resource or site, or would disturb human remains, including those interred outside of formal cemeteries. For the purpose of this environmental analysis, this Initial Study conservatively assumes that a significant cumulative impact to these resources could occur if the proposed development described in **Table 18** were to result in substantial adverse impacts through the inadvertent discovery of any of the above-described resources during construction of proposed future projects, all of which involve ground-disturbing activities. This would be a cumulatively significant impact. The Port will implement **Mitigation Measure CR-1** and **Mitigation Measure CR-2**, as described in **Section 3.V – Cultural Resources** above, and referenced again below, to reduce these potential (although unlikely) impacts to less-than-significant levels.

As described in **Section 3.V – Cultural Resources**, above, there would be no impact to unique paleontological resource or unique geologic features with project implementation. The Proposed Project would therefore not have a cumulatively significant contribution to significant cumulative paleontological impacts. The single historic architectural resource associated with the Proposed Project, North Field, is a locally designated commemorative (Landmark) listing. The Airport’s structures and features (specifically, Runways 9R-27L, 9L-27R, and 15-33, and associated taxiways and vehicle service roads) are partially within portions of the Port-recognized boundaries of North Field, but they are not included in the Landmark designation. As a commemoratively designated landmark, North Field would not be directly or

indirectly affected by the Proposed Project because the landmark designation is not dependent on the historic integrity or physical presence of any related structures or features. Therefore, the Proposed Project's contribution to significant cumulative historic architectural resources would not be cumulatively considerable. As described in **Section 3.V**, above, only soils not considered to be sensitive for containing archaeological resources would be encountered with the implementation of the Proposed Project. Nevertheless, inadvertent discovery of historic or other archeological resources, described above, or human remains, cannot be conclusively ruled out, and these impacts could result in a cumulatively considerable contribution to cumulatively significant impacts, resulting in potentially significant impact to cumulatively significant archaeological impacts. **Mitigation Measure CR-1** and **Mitigation Measure CR-2**, described in **Section 3.V**, above, would address this unlikely event. These measures would mitigate the Proposed Project's contribution to cumulative impacts related to archeological resources and human remains to a less-than-cumulatively-considerable level.

Geology and Soils

Cumulative development projects would be subject to applicable regulations for grading; drainage; civil and structural design, including stringent seismic standards; and construction in compliance with the California Building Standard Code. Cumulative projects would result in less-than-significant cumulative impacts to geology and soils. Therefore, the Proposed Project could not contribute to a cumulatively significant geology and soils impact, and cumulative impacts would be less than significant.

Greenhouse Gas Emissions

There is international scientific consensus that human-caused increases in greenhouse gases (GHGs) have and will continue to contribute to global warming. Potential global warming impacts in California may include, but are not limited to, loss in snow pack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years. Secondary effects are likely to include a global rise in sea level, impacts to agriculture, changes in disease vectors, and changes in habitat and biodiversity (California Climate Change Portal, 2010). Cumulative projects, through construction and/or operation, would increase GHGs directly and would result in additional vehicle trips or other activities that would generate GHGs. These activities would result in significant cumulative impacts to GHGs. The Proposed Project would result in GHG emissions during construction activities only; these emissions would be minor, temporary, and associated only with the construction period. Furthermore, the Proposed Project would not conflict with the State's GHG reduction goals, as defined in Assembly Bill 32. The Port would implement **Mitigation Measure AQ-1** to reduce construction emissions to less-than-significant levels. Finally, the Port would implement **Mitigation Measure AQ-2**, to further reduce less-than-significant construction emissions. Therefore, the Proposed Project's contribution to cumulatively significant GHG impacts would not be cumulatively considerable and would be less than significant.

Hazards and Hazardous Materials

Impacts from hazards are generally site-specific and typically do not result in cumulative impacts. Any hazards present at surrounding development sites would be subject to the federal, state, and local regulations and requirements discussed for the Proposed Project, above. However, cumulative impacts could be significant because construction sites typically involve the use of hazardous materials, which

could result in upset or accident conditions creating a significant hazard to the public or the environment, or because unknown contamination could migrate downgradient to affect larger areas. The project site is located on Airport property that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5, and could create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. The handling of hazardous materials associated with Proposed Project construction, and the possibility of encountering, in select areas, soil and/or groundwater contamination, or other materials during construction, could result in a cumulatively considerable contribution to cumulatively significant hazardous materials impacts. These impacts would be substantially reduced through compliance with applicable federal, state, and local regulations, and the implementation of **Mitigation Measures HZ-1** through **HZ-4**. Because of the localized and temporary nature of project activities, substantial regulatory requirements, and the commitment to the mitigation measures described above, potential spills and accidents would be avoided and the Proposed Project's contribution to cumulatively significant hazardous materials impacts would not be cumulatively considerable. These cumulative impacts would be less than significant.

Hydrology and Water Quality

Development projects at and in the vicinity of the Airport could result in temporary and permanent impacts to hydrology and water quality, and could potentially exceed applicable water quality standards. The Proposed Project, along with other projects presented in **Table 18** (such as the Storm Water System Rehabilitation and Pump House No. 6 projects; and offsite projects requiring substantive construction, such as the FedEx structures, the BART – OAC project, the Kaiser medical facility, Harbor Bay Village VI, the Horizon Beverage Company warehouse, could contribute to significant cumulative impacts to hydrology and water quality. Construction activities and new facilities or operations that could introduce different types of pollutants in groundwater and in stormwater runoff, increase water consumption, and increase wastewater or industrial treatment volumes, could occur; however, existing programs, policies, and regulatory requirements would prevent and/or minimize such degradation. Such programs, policies, and regulatory requirements mandate implementation of BMPs and other project-specific measures to ensure that discharges to receiving waters meet applicable water-quality objectives. These measures would be implemented in conjunction with the required project-specific SWPPP to be protective of water quality during construction. In addition, the Port would implement **Mitigation Measure WQ-1**, which includes drainage improvements to ensure treatment of stormwater post project to pre-project levels. As a result, development projects would not likely result in substantial alteration of drainage patterns or flood flows, or create or contribute runoff water that would exceed the capacity of stormwater drainage systems. The Port would also implement **Mitigation Measures AQ-1** and **AQ-2** to reduce impacts associated with stormwater runoff. In addition, the Port will implement **Mitigation Measures HZ-3** and **HZ-4** to ensure that groundwater is not contaminated by the Proposed Project. Finally, the Port will implement **Mitigation Measure BO-5** to fully compensate for the loss of wetlands and waters of the U.S. associated with the Proposed Project, and to provide for the preservation in perpetuity of valuable wetlands and waters of the U.S. within the region.

Therefore, the Proposed Project's contribution to significant cumulative hydrology and water quality impacts would not be cumulatively considerable, and cumulative impacts would be less than significant.

Noise

Many past and present projects, combined with future projects and ongoing uses and activities in the project area (on and off Airport), contribute to ongoing incremental increases in noise levels, both during construction and post-construction operations. Existing Airport noise is a substantial contributor to localized noise impacts. Noise impacts in the vicinity of the project area are assumed to be cumulatively significant.

As described under **Section 3.XII – Noise** of this document, the nearest noise-sensitive receiver associated with the Proposed Project during the construction period would be separated from noise and vibration generating activities by a distance of approximately 550~~75~~ feet. Furthermore, there are no noise-sensitive land uses newly exposed to Community Noise Equivalent Level 65 A-weighted decibels. In light of the above, the Proposed Project's noise impacts would not be cumulatively considerable, and the Proposed Project would result in less-than-significant cumulative noise impacts.

Transportation/Traffic

The Proposed Project's transportation impacts considered in combination with other projects in the project area, such as the OAC, and existing traffic associated with the Airport and the Port, could result in significant cumulative transportation impacts. As discussed under **Section 3.XVI – Transportation/Traffic** of this document, additional traffic resulting from the Proposed Project during the construction period would neither be substantial relative to the existing traffic volume, nor disrupt traffic flows. Construction of the OAC—an elevated automated guideway transit system connecting transit riders between OAK and BART—may result in a disruption to local traffic circulation at the same time that the Proposed Project construction is occurring. However, the OAC project has established a mitigation measure to accommodate displaced lanes at new, alternate locations, or to provide additional capacity at another existing left-turn lane, which would reduce the potential for conflicts with traffic associated with the Proposed Project (BART, 2002). Therefore, transportation impacts associated with the Proposed Project would not be cumulatively considerable, and cumulative transportation impacts associated with the Proposed Project would be less than significant.

Utilities and Service Systems

Development projects at and in the vicinity of the Airport could incrementally increase the demand on the capacity of stormwater drainage systems, resulting in temporary and permanent impacts to existing stormwater drainage systems. The Proposed Project, along with other projects presented in **Table 18** (such as the Storm Water System Rehabilitation and Pump House No. 6 projects; and offsite projects requiring substantive construction, such as the FedEx structures, the BART – OAC project, the Kaiser medical facility, Harbor Bay Village VI, and the Horizon Beverage Company warehouse), could contribute to significant cumulative impacts to stormwater drainage systems. Permanent upgrades associated with Pump House No. 6 and Other Drainage Projects would improve the drainage systems at the Airport and contribute to offsetting the impacts of other development projects at the Airport. In addition, the Port would implement **Mitigation Measure WQ-1**, which includes drainage improvements to ensure treatment of stormwater on site to pre-project levels. The Port would also implement **Mitigation Measure AQ-1** to reduce impacts associated with particulates in stormwater runoff. Also, the Port will implement **Mitigation**

Measures HZ-3 and **HZ-4** to ensure that groundwater is not contaminated by the Proposed Project; this would eliminate a potential impact on stormwater facilities. Finally, the Port would implement **Mitigation Measure BO-5** to fully compensate for the loss of wetlands and waters of the U.S. associated with the Proposed Project. This mitigation would preserve at another location the functions and values of these resources which contribute to improving stormwater quality.

For all of these reasons, the Proposed Project's contribution to significant cumulative impacts relating to alteration of drainage patterns, flood flows, or runoff water that would exceed the capacity of stormwater drainage systems, would not be cumulatively considerable, and cumulative impacts would be less than significant.

c) Direct or Indirect Adverse Effects on Human Beings

This document identifies potential significant impacts associated with air quality, cultural resources, biological resources and hazards and hazardous materials. Mitigation measures have been identified for all potentially significant impacts to reduce them to less-than-significant levels. Proposed Project impacts related to aesthetics, geology and soils; GHG emissions, hydrology and water quality, noise, transportation/traffic, and utilities and service systems would be less than significant. The Proposed Project would have no impact on agriculture and forestry resources, land use and planning, mineral resources, population and housing, public services, or recreation. Cumulative impacts would be less than significant. Therefore, the Proposed Project would not result in environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly.