
FINAL ENVIRONMENTAL ASSESSMENT

Proposed Runway Safety Enhancement Project

Hayward Executive Airport
City of Hayward, Alameda County, California

Prepared for

City of Hayward

And

U.S. Department of Transportation
Federal Aviation Administration

As lead Federal Agency pursuant to the National Environmental Policy Act of 1969

Prepared by:

RS&H

June 2015

**This Environmental Assessment becomes a Federal document when evaluated, signed
and dated by the Responsible Federal Official.**

Responsible Federal Official

Date

WHAT'S IN THIS DOCUMENT? This document contains a Final Environmental Assessment (EA) for the City of Hayward's proposed improvements to place culverts in sections of Sulphur Creek at Hayward Executive Airport (HWD). This document discloses the analysis and findings of the potential impacts of the proposal, the No Action, and other reasonable alternatives. This document also includes a Proposed Finding of No Significant Impact and Record of Decision (FONSI/ROD). Both the Final EA and the FONSI/ROD have been coordinated with the Federal Aviation Administration (FAA). However, the FAA will not accept the Final EA as a federal document or make a decision to approve or disapprove the proposed FONSI/ROD until after this Final EA has been circulated for a 30-day public review period, and the FAA considers any review comments on these documents.

BACKGROUND. In October 2012 the Runway Safety Action Team (RSAT) identified that HWD should modify the areas adjacent to Runway 19L-28R to eliminate open, unculverted sections of Sulphur Creek. The proposed infrastructure improvements (Proposed Action) would directly benefit HWD operations by: 1) protecting aircraft from damage and aircraft passengers from injuries that could occur if an aircraft that veered off the runway plunged into Sulphur Creek; 2) improving drainage and reducing the duration of ponding on the northwest portion of the airfield; and 3) reducing wildlife hazard attractants on HWD. The Proposed Action is necessary to facilitate safe and efficient Airport operations and is considered by the City of Hayward to be of the highest priority to the development of HWD.

The Draft EA was released on January 16, 2015 and made available for comment during a 30-day comment period which lasted until February 17, 2015. The notice of availability of the Draft EA was advertised in the Hayward Daily Review to inform the general public and other interested parties. Comment received during the 30-day comment period were addressed and can be found in **Appendix F. Addenda and Response to Comments**.

The documents presented herein represent the Final EA and Proposed FONSI/ROD for the federal decision-making process in fulfillment of FAA's policies and procedures relative to the National Environmental Policy Act (NEPA) and other related federal requirements. A 30-day review period for this Final EA and Proposed FONSI/ROD starts on June 26, 2015 and will end on July 27, 2015. A notice of availability for these documents is being published concurrent with their release for a 30-day review period. Copies of the document are also available for inspection on the HWD website at <http://www.haywardairport.org/>. The addresses for locations of where the Final EA and Proposed FONSI/ROD are available for review are provided in **Chapter 5** of this Final EA.

WHAT SHOULD I DO? Read the Final EA to understand the actions that the City of Hayward and the FAA intend to take relative to the proposed Runway Safety Enhancement Project at the Airport, and provide comments during the 30-day comment period should you choose to do so.

WHAT HAPPENS AFTER THIS? The FAA will review any comments on this Final EA and proposed FONSI/ROD and decide whether to accept the Final EA as a federal document and decide whether to finalize a FONSI/ROD or decide to prepare an Environmental Impact Statement.

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1 CHAPTER 1 PURPOSE AND NEED

The FAA is the lead federal agency to ensure compliance with the National Environmental Policy Act (NEPA) for airport development actions. This Environmental Assessment (EA) has also been prepared in accordance with Federal Aviation Administration (FAA) Order 1050.1E, *Environmental Impacts: Policies and Procedures*, and FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*.¹² This EA identifies and evaluates potential environmental impacts related to the proposed implementation of runway safety enhancements at Hayward Executive Airport (HWD or Airport).

This chapter provides an introduction to the Airport and describes the Purpose and Need for the Proposed Action. FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*, requires that the EA fully address and convey the purpose and need for a proposed action.³ The Purpose and Need for the Proposed Action serves as the foundation for the identification of reasonable alternatives to the Proposed Action and the evaluation of the effects associated with project implementation. The “need” describes what problems the Airport is facing, while the “purpose” describes why the Airport must solve those problems.

1.1 INTRODUCTION

The Airport is owned and operated by the City of Hayward (City) in Alameda County (County), California (see **Figure 1-1**). The Airport is identified in the FAA’s National Plan of Integrated Airports System (NPIAS) as a reliever airport for Oakland International Airport.⁴ A reliever airport is a high-capacity general aviation airport in a metropolitan area that reduces traffic loads at a commercial service in a region and to provide more access for a community’s overall general aviation. HWD also is categorized by the FAA as a “National” general aviation airport that serves national and international markets.⁵

The Airport is located approximately two miles west-southwest of downtown Hayward approximately 0.5 miles west of Interstate 880, and 1.5 miles east of the San Francisco Bay (see **Figure 1-2**). The Airport is located on 527 acres. The City’s Skywest Golf Course, adjacent to the northern boundary of the Airport, is also dedicated Airport property. John F. Kennedy Park is also located on City-owned property to the north of the Airport’s main facilities.

A full-time professional airport manager manages the day-to-day operations of the Airport. A Council Airport Committee (CAC), comprised of three members from the Hayward City Council,

¹ Federal Aviation Administration, Order 1050.1E, *Environmental Impacts: Policies and Procedures*, http://www.faa.gov/documentLibrary/media/order/energy_orders/1050-1E.pdf, March 20, 2006.

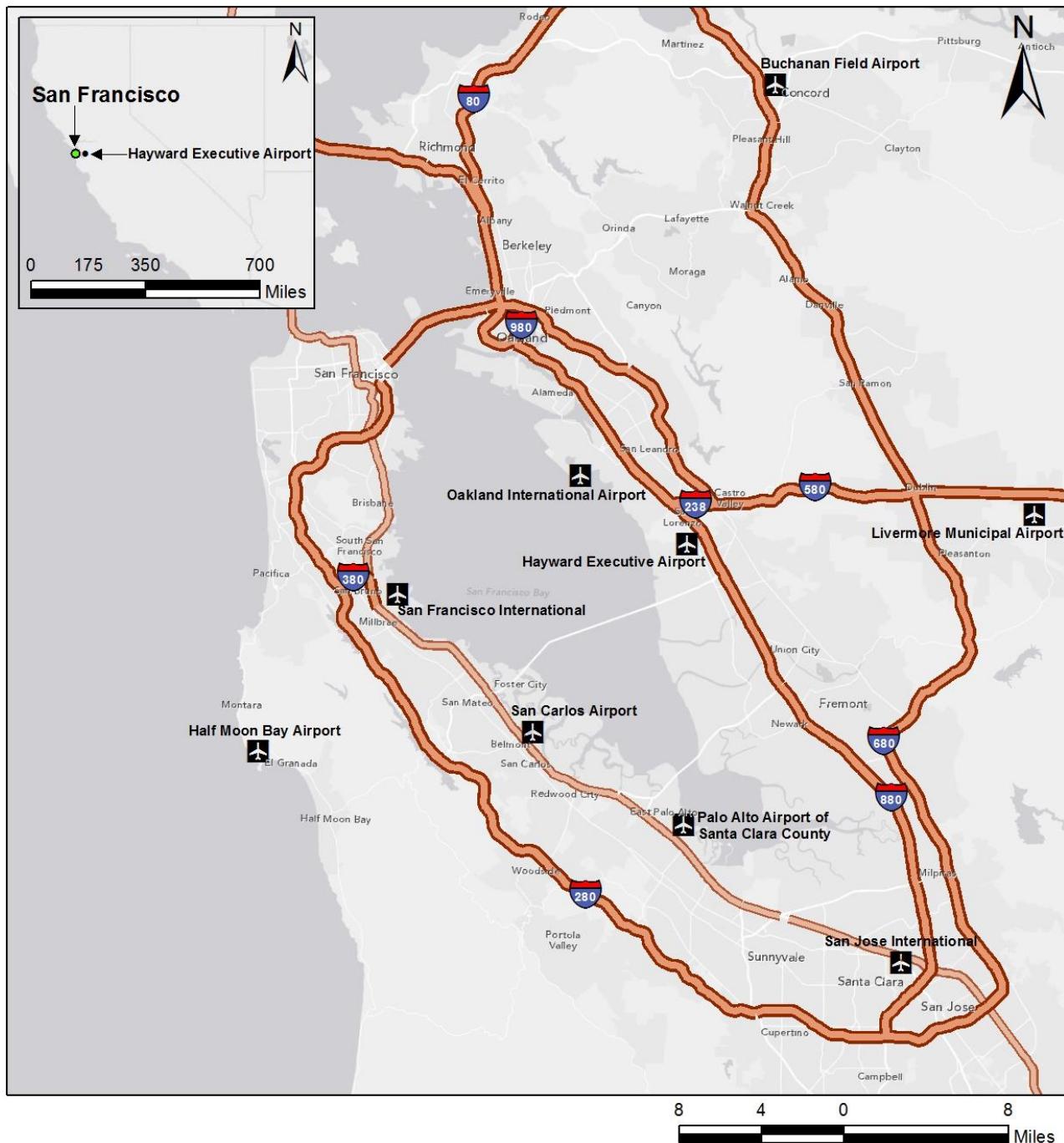
² Federal Aviation Administration, Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*, April 26, 2006.

³ Federal Aviation Administration, Order 5050.4B Paragraph 706.b(3)(a)-(c), *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*, April 26, 2006.

⁴ Federal Aviation Administration, *National Plan of Integrated Airports System*. Available at: http://www.faa.gov/airports/planning_capacity/npias/. Accessed: December, 2013.

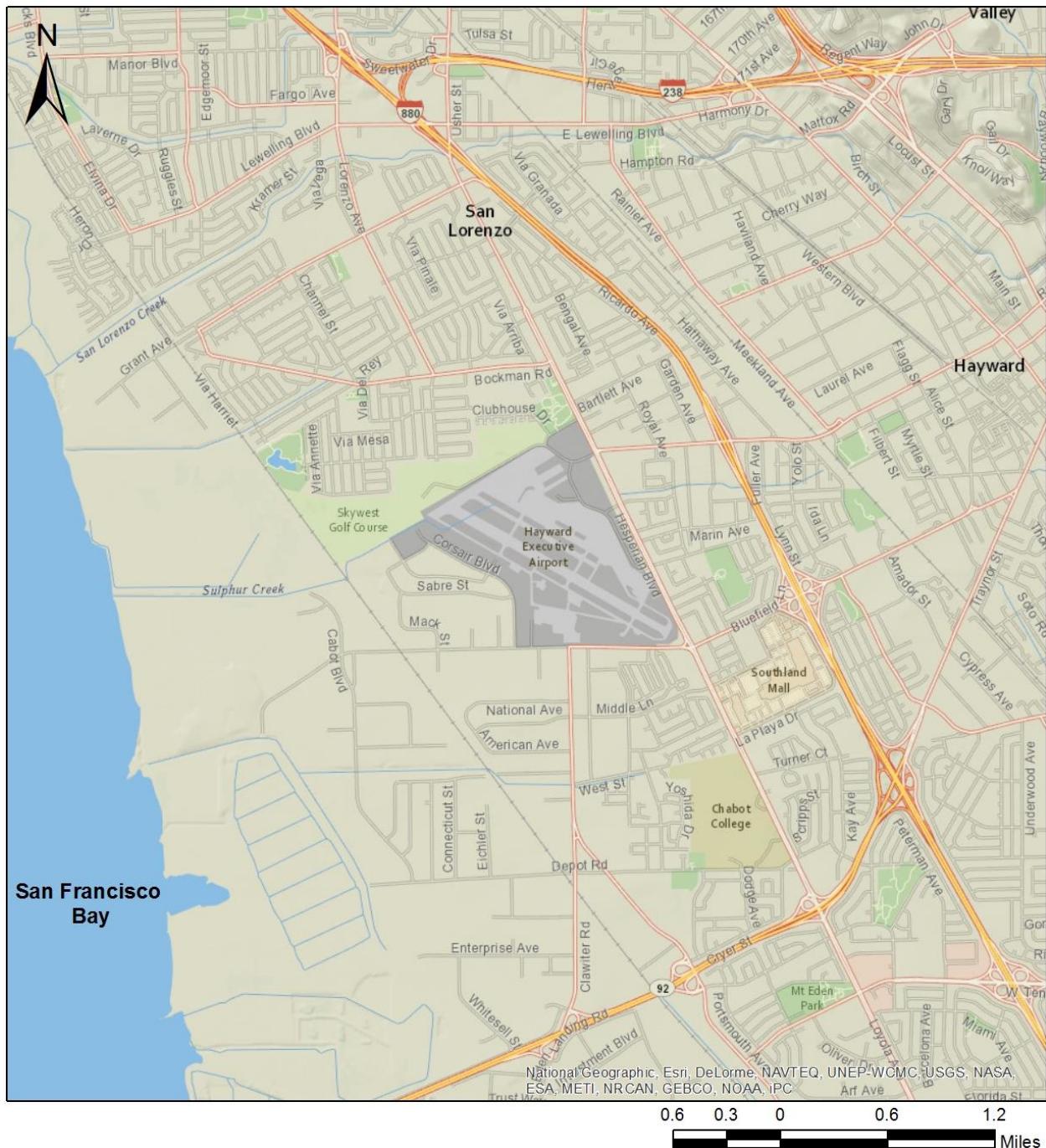
⁵ Federal Aviation Administration, General Aviation Airports: A National Asset: A fresh look at the many roles General Aviation Airports play in the National Air Transportation System, May 2012.

**Figure 1-1
AIRPORT LOCATION MAP**



SOURCE: ESRI, RS&H, 2013
PREPARED BY: RS&H, 2013

**Figure 1-2
VICINITY MAP**



SOURCE: ESRI, RS&H, 2013
PREPARED BY: RS&H, 2013

reviews and considers policy recommendations related to airport fees, operating permits, land use changes on Airport property, and other matters that affect the community and Airport tenants, prior to the City Council taking action on those matters.

1.2 BACKGROUND INFORMATION

As shown in **Figure 1-3** the airfield is comprised of two parallel runways in a northwest-southeast orientation. Runway 10R-28L has a displaced threshold on each approach end, which limits the runway landing distance available for arriving aircraft. Runway 10R-28L is 5,694 feet long by 150 feet wide and has an airport reference code (ARC) C-II, which accommodates aircraft with a wingspan up to 79 feet and a tail height of up to 30 feet and an aircraft approach speed of 121 to 141 knots. The existing displaced thresholds on Runway 10R-28L are 816 feet from the runway end on Runway 10R and 676 feet from the runway end on Runway 28L. The displaced thresholds are in place for noise mitigation (noise reduction) purposes and to accommodate any aircraft that undershoots the runway as the existing Runway Safety Area (RSA) for Runway 10R-28L is shorter than the FAA RSA design standard. Runway 10L-28R is 3,107 feet long by 75 feet wide and accommodates smaller design group ARC B-I aircraft, which include aircraft with a 91- to 120-knot approach speed, a wingspan of less than 49 feet, and a tail height of less than 20 feet.

1.2.1 Airport Forecast

The FAA Terminal Area Forecast (TAF) was used to estimate the annual aircraft operations (one operation is one takeoff or landing by an aircraft) occurring at HWD. Recent and forecasted aviation activity at HWD is presented in **Table 1-1**.

Table 1-1
RECENT ESTIMATED AND FORECAST AIRCRAFT OPERATIONS

	Planning Period			
	2011 ^{/a/}	2014	2016	% AAG ^{/b/}
Total Operations	87,478	83,889	84,984	-0.58%

/a/ Most recent year approved.

/b/ AAG – average annual growth

SOURCE: FAA Terminal Area Forecast (TAF), 2013.
PREPARED BY: RS&H, 2013.

Figure 1-3
EXISTING AIRFIELD AT HWD



Source: RS&H, 2014

Legend

— Airport Property

0.15 0.075 0 0.15 0.3
Miles

1.3 CITY'S PURPOSE AND NEED

The City's purpose and need for the Proposed Action is to enhance the safe operation of the Airport by making physical modifications to the Air Operations Area (AOA) in the areas between the RSAs. The City proposes to do this by implementing the recommendations of the Runway Safety Action Team (RSAT) to "Recommend the Airport take immediate steps to eliminate the hazard posed by the drainage ditches currently located adjacent to the runway safety area for Runway 10L-28R".⁶

⁶ FAA, *Local Runway Safety Action Plan Hayward Executive Airport*, October 2012.

The need for the Proposed Action includes reducing the potential damage to aircraft that veer off the runways at HWD, improving drainage, and reducing habitat for wildlife hazardous to air operations. The Proposed Action would:

- Protect aircraft from damage and aircraft passengers from injury should an aircraft veers off a runway within the AOA.
- Improve drainage to allow the areas between runways and taxiways to drain more uniformly after heavy rains or flooding by meeting FAA airport design standards.
- Reduce habitat in the AOA that is likely to attract wildlife hazardous to aircraft operations.
- The FAA RSAT has identified that the open air sections of Sulphur Creek adjacent to the RSAs need to be eliminated to enhance safety at the Airport.
- When the City previously received federal Airport Improvement Program grant funds for improvement projects at the Airport, the City agreed to abide by FAA Advisory Circular 150/5200-33B *Hazardous Wildlife Attractants on and near Airports*, which describes how to minimize the attractiveness of the airport to wildlife hazardous to aircraft operations (wildlife aircraft strike hazards)."

The purpose of the Proposed Action is to implement airport improvements that will address the need to protect aircraft from damage and aircraft passengers from injury should an aircraft veer off a runway within the AOA, reduce the occurrence and duration of ponded water and flooding, and reduce the attractiveness of the AOA to wildlife hazardous to aircraft operations. The elements of the project that will accomplish these purposes include:

- Enclosing Sulphur Creek at the three locations adjacent to RSAs where Sulphur Creek is currently an open air channel.
- Grade infield sections of the AOA to a slight uniform slope grade that meets FAA airport design standards will allow the AOA to drain more uniformly after flooding than under current conditions.

1.4 FAA PURPOSE AND NEED

The FAA's statutory mission is to ensure the safe and efficient use of navigable airspace in the United States as set forth under 49 USC § 47101(a)(1). The FAA must ensure that the Proposed Action does not derogate the safety of aircraft and airport operations at the Airport.

1.5 DESCRIPTION OF THE PROPOSED ACTION

The Proposed Action would provide improvements that would enhance Airport safety and efficiency. As shown in **Figure 1-4**, the City is proposing the following on-Airport projects:

- construct box culverts for segments of Sulphur Creek to enhance Airport safety; and
- improve drainage, eliminate topographic inconsistencies, and enhance Airport safety by grading existing infield areas.

**Figure 1-4
PROPOSED ACTION**



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Collectively, those projects comprise the Proposed Action and would bring infield areas of the airfield into conformance with FAA airport design standards.⁷ Re-grading these areas infield areas of approximately 426,000 square feet, or about 10 acres, would reduce the potential for the accumulation of standing water within infield areas. This would also make the Airport less attractive to hazardous wildlife, which represents a wildlife-aircraft strike hazard. The RSA and AOA re-grading component would bring the RSA into compliance with FAA Advisory Circular 150/5300-13A Section 305, Subpart A by eliminating small changes in the ground elevation on the AOA. The areas proposed for grading and drainage improvements are shown in **Figure 1-4**. The following sections summarize each project component.

1.5.1 Construct Box Culverts for Segments of Sulphur Creek

In October of 2012, the RSAT Team assessed the Airport for compliance with FAA standards. The RSAT Team recommended that the Airport “take immediate steps to eliminate the hazard posed by Sulphur Creek”, which is located adjacent to the RSA of Runway 10L-28R.⁸ The construction of box culverts to contain Sulphur Creek in the areas adjacent to Runways 10L-22R and 10R-28L would protect aircraft from damage and aircraft passengers from injuries that could occur if an aircraft that veered off the runway plunged into Sulphur Creek. Installing culverts in Sulphur Creek adjacent to Runways 10L-22R and 10R-28L also would eliminate habitat between the runways for wildlife hazardous to aircraft operations (which could collide with aircraft) such as Canada geese, other waterfowl, herons, and egrets.

This project component of the Proposed Action would specifically involve placing three separate, hydrologically connected, linear segments of Sulphur Creek into box culverts. The first segment would involve placing a 170-foot-long box culvert in Sulphur Creek to convey water between Runway 10L-28R and Taxiway A. The second segment would involve placing a 180-foot-long box culvert in the creek to convey water between Runway 10L-28R and Runway 10R-28L. The third segment would involve placing a 90-foot-long box culvert to convey water between Taxiway Z and Runway 10R-28L. The construction of these culverts satisfies a RSAT recommendation and would replace the existing open earthen channel within the AOA with a graded and maintained grass area.

1.5.2 Improve Grading and Drainage in Infield Areas

The most recent February 9, 2000 flood insurance rate map (FIRM) for the Airport shows that the northwest portions of the Airport are subject to flooding as a result of 100-year storm events (see **Figure 1-5**).^{9,10} Flooding is also caused by culvert blockages and by vegetation overgrowth within the earthen channel of Sulphur Creek in the AOA. Topographic depressions within infield areas of the AOA also present an unsafe condition in the event an aircraft leaves the runway, promote ponding after precipitation events, and can result in wildlife hazard attractants after storm events (see **Figure 1-6**).

⁷ Federal Aviation Administration Advisory Circular 150/5300-13A, *Airport Design*, Sections 307 (RSA) and 313 (Surface Gradients), September 2012.

⁸ FAA, *Local Runway Safety Action Plan Hayward Executive Airport*, October 2012.

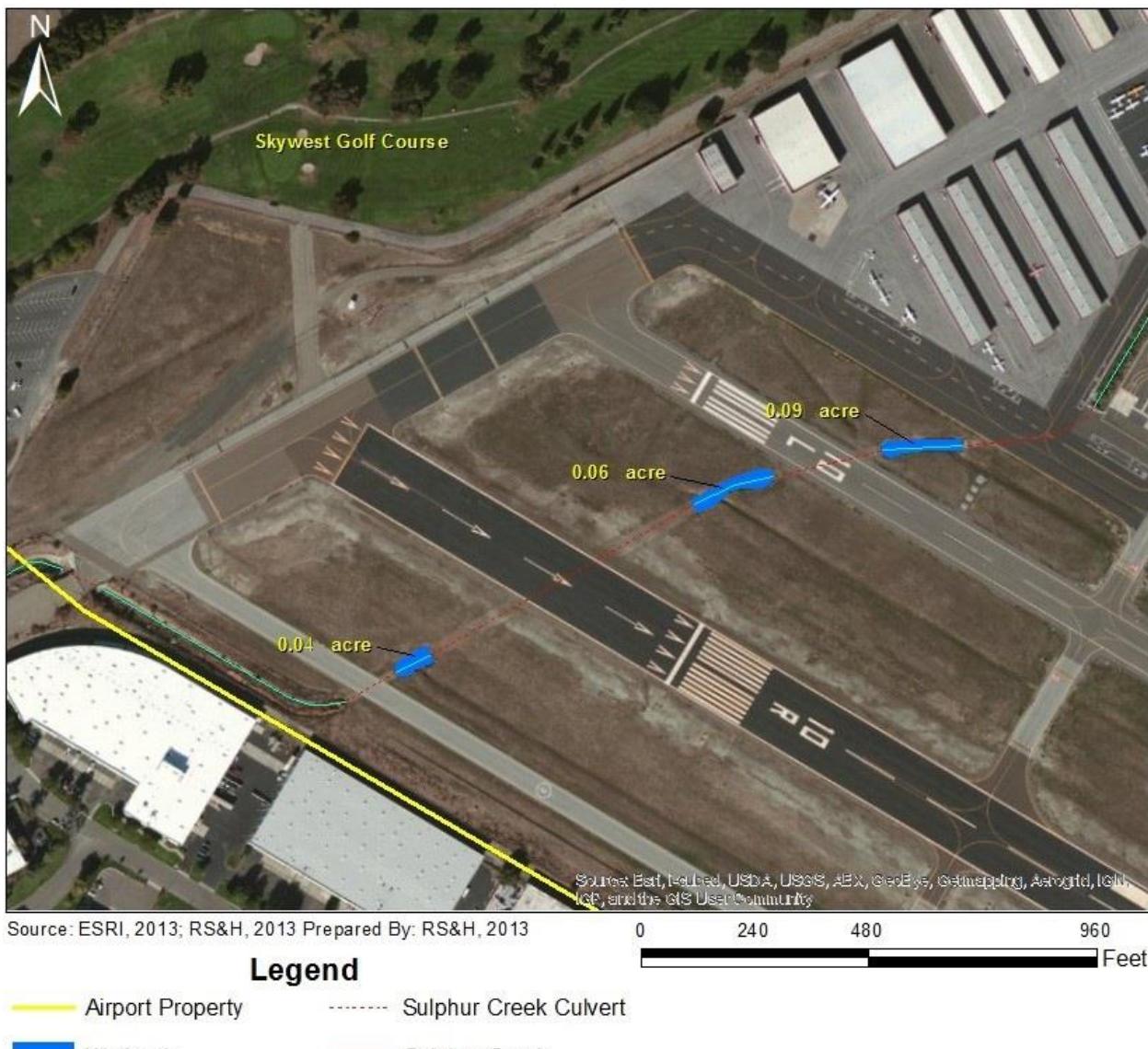
⁹ Federal Emergency Management Agency, Maps 06001C0267G and 06001C0286G, Accessed December, 2013.

¹⁰ The capacity of Sulphur Creek is less than the 15-year design storm event. Due to urbanization of the watershed, flow rates are greater than they would be in the undeveloped state. This urbanization within the watershed has directly led to the marginal capacity of Sulphur Creek.

Figure 1-5
100-YEAR FLOODPLAIN AT THE AIRPORT



Figure 1-6
**EXISTING WETLANDS (WILDLIFE HAZARD ATTRACTANTS)
BETWEEN RUNWAYS AND TAXIWAYS**



The infield drainage areas, located between runways and taxiways of the airfield, are designed to convey surface waters from the AOA to Sulphur Creek, where it is subsequently discharged into San Francisco Bay. These earthen channels have slowly eroded over the years. As a result, portions of the AOA tend to flood during precipitation events. Therefore, the Sulphur Creek channel depth needs to be reestablished and the AOA infield drainage areas need to be re-graded to drain efficiently.

1.6 REQUESTED FEDERAL ACTIONS

The requested Federal action(s) being considered in this EA are:

1. unconditional approval of the ALP to depict installation of additional culverts, pursuant to 49 United States Code (USC) §§ 40103(b) and 47107(a)(16);
2. determinations under 49 USC §§ 47106 and 47107 relating to the eligibility of the Proposed Action for federal funding under the Airport Improvement Program (AIP) to assist with construction of potentially eligible development items shown on the ALP;
3. determination under 49 USC § 44502(b) that the airport development is reasonably necessary for use in air commerce or in the interests of national defense;
4. approval of further processing of an application for federal assistance for near-term eligible projects using federal funds from the Airport Improvement Program, as shown on the ALP; and
5. approval of a Construction Safety and Phasing Plan to maintain aviation and airfield safety during construction pursuant to FAA Advisory Circular 150/5370-2F *Operational Safety on Airports During Construction*.¹¹

1.7 TIMEFRAME FOR IMPLEMENTATION OF THE PROPOSED ACTION

The Proposed Action cannot start until the FAA completes its evaluation of this NEPA EA. The FAA will determine whether it can issue a Finding of No Significant Impact (FONSI) and Record of Decision (ROD) based on the evaluation in this EA, or whether an Environmental Impact Statement (EIS) must be completed before a ROD can be issued. Once a ROD is issued for the Proposed Action, the phased construction of the Proposed Action is projected to be completed within three years.

1.8 DOCUMENT ORGANIZATION

This EA is organized into the following chapters:

Chapter 1: Purpose and Need - Chapter 1 provides an overview, background information, a brief description of the City's purpose and need for the Proposed Action, the FAA's purpose and need for the Proposed Action, and a brief description of the Proposed Action. This chapter also includes the requested Federal actions and the proposed timeline of the proposed improvements.

Chapter 2: Alternatives - This Chapter provides an overview of the identification and screening of alternatives considered as part of the environmental evaluation process.

¹¹ Federal Aviation Administration, Advisory Circular 150/5370-2F, section 2-4, *Operational Safety on Airports During Construction*, faa.gov/regulations_policies/advisory_circulars/index.cfm/go/document.information?documentID=1019533

Chapter 3: Affected Environment - This Chapter describes existing environmental conditions within the project study area as well as describes the past, present, and reasonably foreseeable actions at the Airport (i.e., cumulative actions).

Chapter 4: Environmental Consequences and Mitigation - Chapter 4 describes the potential environmental effects that the No Action, Proposed Action, and each reasonable alternative would have on the Airport environs per FAA Order 5050.4B.^{12¹³}

Pursuant to 40 CFR 1508.7, as well as Council on Environmental Quality (CEQ) guidance documents¹⁴, this chapter also discusses cumulative impacts. That discussion focuses on the effects of the Proposed Action, in combination with the effects on the same resources, due to past, concurrent, and reasonably foreseeable actions.

Where appropriate, the EA contains graphics and tables to clarify the analysis presented in this chapter.

Chapter 5: Consultation and Coordination – Chapter 5 outlines the various agencies and individuals contacted as part of the NEPA process.

Chapter 6: Abbreviations – List of abbreviations used in this EA.

Chapter 7: References – This Chapter contains a list of references used in the development of this EA.

Chapter 8: List of Preparers – Chapter 8 contains a list of names and the qualifications of individuals that prepared, contributed to, and reviewed this EA.

Appendices: The appendices present relevant material and technical reports that were developed, and used as part of this EA's preparation.

¹² Federal Aviation Administration, Order 5050 4B, Chapter 5, Section B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*, April 26, 2006.

¹³ 40 CFR Part 1508.7, *Cumulative Impacts*, July 2010.

¹⁴ Council on Environmental Quality Executive Office of the President, *Considering Cumulative Effects*, January 1997, and *Guidance on the Consideration of Past Actions in Cumulative Effects Analysis*, June 24, 2005.

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2 CHAPTER 2 ALTERNATIVES

2.1 INTRODUCTION

As the Airport Sponsor, it is the City of Hayward's responsibility to provide a safe and efficient environment for air traffic at the Airport. This chapter evaluates reasonable alternatives to meet FAA guidelines while enhancing the overall safety of the Airport environment. The evaluation describes details of the alternatives and includes the following:

- description of the alternatives evaluation process;
- identification of the reasonable alternatives considered;
- description of the screening criteria that eliminated some alternatives from further analysis; and
- identification of the reasonable alternatives that were screened and retained for further consideration.

The Council on Environmental Quality regulations (40 CFR Section 1502.14) for implementing NEPA, require that Federal agencies perform the following tasks:

- rigorously explore and objectively evaluate all reasonable alternatives and briefly discuss reasons why other alternatives were eliminated;
- devote substantial treatment to each alternative considered in detail, including the Proposed Action, so reviewers may evaluate their comparative merits;
- include reasonable alternatives not within the jurisdiction of the lead agency; and
- include the alternative of "No Action".

Federal and FAA guidelines concerning the environmental review process require that a range of reasonable, feasible, and prudent action alternatives that might accomplish the objectives of the Purpose and Need be identified and evaluated, along with the No Action Alternative. Such an examination ensures that an alternative that addresses a project's purpose and need, that might enhance environmental quality, or that would have less detrimental environmental effects, has not been prematurely dismissed from consideration. In the development of this EA, a total of seven on-airport and off-airport/operational alternatives were evaluated.

Off-Airport alternatives identified include:

- Other Modes of Transportation; and
- Use of Other Area Public Airports.

On-Airport alternatives identified include:

- No Action Alternative;
- Alternative 1;
- Alternative 2; and
- Alternative 3.

Table 2-1 outlines which project elements, as previously described in **Chapter 1, Purpose and Need** are included with each on-Airport alternative. **Section 2.3** provides a detailed discussion of each reasonable alternative considered within this chapter.

Table 2-1
PROJECT COMPONENT COMPARISON OF ON-AIRPORT ALTERNATIVES

Proposed Project Elements	Alternative 1	Alternative 2	Alternative 3
Sulphur Creek			
Box Culvert	x	-	x
Grate	-	x	x
Airfield Drainage Improvements	x	x	x

SOURCE: RS&H, 2014.
PREPARED BY: RS&H, 2014.

This alternatives analysis does not present an evaluation of other development projects depicted on the ALP. Other development projects identified on the ALP have independent utility from the Proposed Action and may or may not be implemented by the City of Hayward within the time frame of this EA. Those projects, when necessary, would need to be justified and evaluated in accordance with the appropriate NEPA documentation (e.g., Federal - Categorical Exclusion, Environmental Assessment or Environmental Impact Statement). The cumulative effects of these reasonably foreseeable projects are considered in **Chapter 4, Environmental Consequences and Mitigation**.

2.2 ALTERNATIVES EVALUATION PROCESS

The evaluation of alternatives first considers whether an alternative could meet the Purpose and Need in the level 1 analysis. Then the alternatives evaluation provides a comparison of the potential impacts of each alternative with respect to its constructability and preliminary environmental effects in the level 2 analysis.

2.2.1 Level 1 Analysis: Purpose and Need

In accordance with FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures*¹⁵, this EA is required to evaluate all reasonable alternatives “to achieve the Purpose of the Project.” The Purpose and Need, as previously discussed in **Chapter 1, Purpose and Need**, includes the following:

- culvert, fill, and grade segments of Sulphur Creek to eliminate topographic inconsistencies in the AOA, to prevent aircraft that might veer off the runway from plunging into Sulphur Creek, and to reduce wetlands that attract birds and wildlife hazardous to the safety of the AOA; and
- grade infield areas of the airfield to promote drainage and eliminate topographic depressions that support ponding of water which could attract hazardous wildlife and could be hazardous to aircraft in the event one veers off the runway.

¹⁵ FAA Order 1050.1E, Paragraph 405d, *Environmental Impacts: Policies and Procedures*, March 2006.

2.2.1.1 Protect Aircraft Veering Off Runways From Damage

The FAA Runway Safety Action Team (RSAT) indicated that HWD should modify the areas adjacent to Runway 10L-28R to eliminate open, unculverted sections of Sulphur Creek so that if an aircraft veers off a runway at HWD, it could not plunge into Sulphur Creek. The Alternative that provides a surface over Sulphur Creek that would support aircraft would meet that purpose.

2.2.1.2 Airfield Drainage

The infield areas between runways and taxiways on the northwest end of the AOA have slowly eroded over time and need to be re-graded in order to eliminate the accumulation of water during precipitation events. Each alternative is assessed on its ability to improve topographic inconsistencies and drainage inefficiencies within the northwest AOA of the Airport. All alternatives would reduce the quantity of debris that could enter the creek and would improve drainage conveyance capability of Sulphur Creek. Alternatives that “significantly improve” drainage (i.e., remove ponding water and would not permit water to back up into the AOA) are considered more prudent compared to an alternative that offers less protection to the AOA from flooding events.

2.2.1.3 Wildlife Hazards

As per FAA Advisory Circular (AC) 150/5200-33B, the FAA recommends immediately correcting, in cooperation with local, state, and Federal regulatory agencies, any wildlife hazards arising from existing wetlands located on or near airports.¹⁶ An alternative that meets the guidance within FAA AC 150/5200-33B and improves safety within the Airport’s AOA would be more prudent compared to an alternative that would not correct the existing wildlife attractants on the Airport.¹⁷ Each alternative is designated with a degree of wildlife hazard attractant reduction, including: (1) high level of reduction (i.e., wildlife attractant significantly reduced); (2) moderate level of reduction (i.e., reduces the attraction of the wildlife hazard); (3) low level of reduction (i.e., least amount of wildlife reduction); or (4) no reduction of wildlife attractants. Alternatives that result in a high level of wildlife hazard reduction would satisfy the Purpose and Need.

2.2.1.4 Results of Level 1 Screening

Alternatives that fully meet the Level 1 Purpose and Need screening criteria, as described, were carried forward for consideration in the Level 2 analysis. Alternatives that did not fully meet the Purpose and Need screening criteria were eliminated from further consideration in this EA.

2.2.2 Level 2 Analysis: Operational Efficiency and Environmental Considerations

Level 2 of the alternatives screening was designed to determine which alternatives met the Purpose and Need in addition to being considered the most feasible and prudent with respect to operational considerations and potential adverse effects to environmental resources. Alternatives considered to be feasible and prudent with respect to these criteria were retained for subsequent detailed analysis in **Chapter 4, Environmental Consequences and Mitigation**.

2.2.2.1 Operational Efficiency

Consideration was given to the complexity of staging, phasing, construction and maintenance activities, and whether or not an alternative would allow airfield operations to continue

¹⁶ FAA AC 150/5200-33B, Section 2-4, Subsection a, *Hazardous Wildlife Attractants On or Near Airports*, August 2007.

¹⁷ The FAA defines “prudent” as “rationale judgment”, FAA Order 50504B paragraph 1007, section (e)(4)(b) *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*.

uninterrupted. FAA AC 150/5370-2F, *Operational Safety on Airports During Construction*, states the following:

- No construction may occur with the existing RSA while the runway is open for aircraft operations. The RSA dimensions may be temporarily adjusted if the runway is restricted to aircraft operations requiring an RSA that is equal to the RSA width and length beyond the runway ends available during construction. The temporary use of declared distances and/or partial runway closures may provide the necessary RSA under certain circumstances.
- No construction may occur within the taxiway safety area (TSA) while the taxiway is open for aircraft operations. The TSA dimensions may be temporarily adjusted if the taxiway is restricted to aircraft operations requiring a TSA that is equal to the TSA width available during construction.
- The taxiway object free area dimensions may be temporarily adjusted if the taxiway is restricted to aircraft operations requiring a taxiway object free area that is equal to the taxiway object free area width available.¹⁸

For this alternatives evaluation, and for comparison purposes, each alternative is designated a ranking of low, moderate, or high (or a combination of two rankings) based on the potential to adversely affect operational efficiency at the Airport. An alternative requiring additional maintenance activities and increased costs to Airport users is considered less desirable.

Hazardous Wildlife Attractants

FAA Advisory Circular (AC) 150/5200-33B recommends for airports such as HWD that serve turbo-jet aircraft that hazardous wildlife attractants not be located within 10,000 feet from the airport's AOA and that a five-mile distance be maintained between hazardous wildlife attractants and aircraft on approach to, departing from, and/or circling the airport. For this project, an alternative that removes attractants of hazardous wildlife within the AOA is considered more prudent and reasonable than an alternative that continues to provide attractants to hazardous wildlife within the AOA, such as wildlife resting or feeding areas.

2.2.2.2 Environmental

Consideration for adverse wetland and floodplain impacts was also considered for each reasonable alternative. Each of these environmental categories is protected under special purpose environmental laws to avoid or minimize potential floodplain and wetland impacts.

Wetlands

Wetlands and navigable waterways are protected by the U.S. Clean Water Act (CWA) and regulated by the U.S. Army Corps of Engineers (USACE). Executive Order 11990 states that Federal agencies should avoid adverse impacts associated with the destruction or modification of wetlands whenever practicable. Impacts resulting from a proposed action should only be allowed if there is no prudent alternative and the Proposed Action includes all practicable measures to minimize harm to wetlands.

Sulphur Creek is considered a jurisdictional water of the U.S. and flows through the Airport property from east to west through a series of open channels and culverts that run through and

¹⁸ FAA Order 1050/5370, Operational Safety on Airports During Construction, Section 221.

underneath the AOA. The ground within Sulphur Creek is saturated year round and has flowing water through portions of the year. Although the depth and flow velocities of the stream vary seasonally, pockets of saturated soil are present for the duration of the summer and typically surface water remains in the channel all year.¹⁹ Emergent vegetation is present in the channel consisting primarily of bermuda grass (*Cynodon dactylon*), umbrella sedge (*Cyperus eragrostis*), and cattails (*Typha latifolia*). The wetland area of Sulphur Creek within the AOA provides low value wildlife habitat. Creek flows are reduced in the summertime and vegetation clearance is conducted as part of routine maintenance by the Airport to keep the drainage channel clear.

Floodplains

Executive Order 11988 directs Federal agencies to “take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by floodplains”.²⁰ The Executive Order and DOT Order 5650.2, *Floodplain Management and Protection*, establishes a Federal policy to avoid taking an action within a 100-year floodplain, where prudent.²¹ Every effort must be made to minimize the potential risks to human safety and property damage and the adverse impacts on natural and beneficial floodplain values.

Flood Insurance Rate Maps (FIRMs) published by FEMA, delineate areas that would be subject to either storm or coastal flooding during a 100- year storm event. The February 9, 2000 FIRM that includes the Airport shows the central portions of the Airport subject to flooding resulting from a 100-year storm event.²² In the westernmost portion of the Airport, flooding is confined to the area immediately surrounding Sulphur Creek. As Sulphur Creek flows through the AOA, the floodplain widens significantly across Runway 10L-28R, Taxiway Z, and the drainage swales. The floodplain narrows to encompass the area immediately surrounding Sulphur Creek just outside the northwest corner of the Airport property.

The alternatives analysis evaluates each alternative based on the approximate acreage of 100-year floodplains that would be affected and the potential to reduce floodplains within the AOA. Alternatives that would result in no impacts or less impacts to floodplains are considered to be more prudent and feasible than those with greater adverse effects.

Alternatives considered feasible and prudent with respect to these criteria were retained for subsequent detailed analysis in **Chapter 4, Environmental Consequences and Mitigation**.

2.3 DESCRIPTION OF ALTERNATIVES

The following sections describe the reasonable off- and on-airport alternatives considered for evaluation in the screening analysis.

¹⁹ AECOM, *ALP Narrative Report*, January 2011.

²⁰ EO 11988, *Floodplain Management and Protection of Wetlands*,

<http://www.fema.gov/plan/ehp/ehplaws/attachments-laws/eo11988.pdf>, May 1977.

²¹ DOT Order 5650.2, *Floodplain Management and Protection*, <http://isddc.dot.gov/OLPFiles/DOT/007652.pdf>, April 1979.

²² Federal Emergency Management Agency, *Flood Insurance Rate Map*, Community-Panel Number 065033 001 E, www.fema.gov, February 9, 2000.

2.3.1 Off-Airport Alternatives

Off-airport alternatives are included within this EA for compliance with CEQ regulations because Federal decision-makers are required to include reasonable alternatives not within the jurisdiction of the lead agency.²³

An initial component of the evaluation of alternatives involved evaluating the possible use of other general aviation airports in the San Francisco Bay area to serve the area's aviation needs.

2.3.2 On-Airport Alternatives

The following sub-sections describe each reasonable on-Airport alternative. Figures are also included for visual reference.

2.3.2.1 Alternative 1

Alternative 1 includes improvements to Sulphur Creek and infield drainage (see **Figure 2-1**). Alternative 1 includes the construction of a box culvert for the three segments of Sulphur Creek within the AOA, between Taxiway A and Taxiway Z. The area above the culvert portion of the creek would be covered with soil, graded, and seeded. Infield grading and drainage improvements associated with Alternative 1 would be conducted in accordance with FAA AC 150/5320-5C, *Surface Drainage Design*, would include conveyance facilities, berms, and outfalls that would facilitate improved drainage within the AOA.²⁴

2.3.2.2 Alternative 2

Alternative 2 includes the construction of load-bearing grates that would be constructed over the existing open segments of Sulphur Creek within the AOA (see **Figure 2-2**). Support walls would be constructed along the sides of each wetland segment and at-grade open-air grates would be constructed atop. Infield grading and drainage improvements associated with Alternative 2 would be conducted in accordance with FAA AC 150/5320-5C *Surface Drainage Design*, would include conveyance facilities, berms, and outfalls that would facilitate improved drainage within the AOA.

2.3.2.3 Alternative 3

Alternative 3 includes a combination of grating and culvert improvements to Sulphur Creek (see **Figure 2-3**). This alternative includes the construction of a box culvert for the three segments of Sulphur Creek within the OFZ of Runways 10R-28L and 10L-28R. The box culvert of Sulphur Creek within the OFZ would be built at grade, covered with soil, graded and seeded. The segment of the creek between Runway 10L-28R and Taxiway A, outside of the OFZ, would include support walls along the edge of the wetland and covered with at-grade load-bearing grates. Infield grading and drainage improvements associated with Alternative 1, in accordance with FAA's *Surface Drainage Design* would include conveyance facilities, berms, and outfalls that would facilitate improved drainage within the AOA.

²³ CEQ, 40 CFR Section 1502.14.

²⁴ FAA AC 150/5320-5C, *Surface Drainage Design*, http://www.faa.gov/airports/resources/advisory_circulars/, September 2006.

Figure 2-1
ALTERNATIVE 1



Figure 2-2
ALTERNATIVE 2



Source: ESRI, 2013; RS&H, 2013 Prepared By: RS&H, 2013

0 550 1,100 2,200
Feet

Legend

- | | | |
|--|-------------------------------------|-----------------|
| ----- Area of Potential Ground Disturbance | ---- Existing Sulphur Creek Culvert | Grading Areas |
| — Airport Property | ■ Area to be Grated and Graded | — Sulphur Creek |

Figure 2-3
ALTERNATIVE 3



Source: ESRI, 2013; RS&H, 2013 Prepared By: RS&H, 2013

Legend

- | | | |
|--|-------------------------------------|---------------------|
| ----- Area of Potential Ground Disturbance | Yellow Area to be Grated and Graded | Cyan Sulphur Creek |
| Yellow Airport Property | Red Area to be Culverted and Graded | Green Grading Areas |
| - - - Existing Sulphur Creek Culvert | | |

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2.3.2.4 No Action Alternative

The No Action Alternative involves no improvements at the Airport. Under the No Action Alternative Sulphur Creek would remain an open channel within the AOA and flood-induced pavement damage would continue.

2.4 ALTERNATIVES SCREENING EVALUATION

Each reasonable alternative was evaluated based on the screening criteria described in **Section 2.2**. **Table 2-1** at the end of this section summarizes the evaluation of the prudent alternatives in this EA.

2.4.1 Level 1 Screening

The following sections describe the reasonable alternatives Level 1 analysis. Those alternatives that did not fully meet all of the Level 1 criteria were not retained for further evaluation in the Level 2 analysis.

2.4.1.1 Off-Airport Alternatives

Off-Airport Alternatives (i.e., Other Modes of Transportation or Use of Other Area Public Airports) would not meet the Purpose and Need. These alternatives would not remove or reduce the attraction of wildlife from the segments of Sulphur Creek within the Airport's AOA. The Off-Airport Alternatives also would not improve infield topographic inconsistencies or drainage within the AOA and RSA. In addition, FAA and the Airport do not have the authority to divert air transportation activity from the Airport to other area airports or compel Airport users to use other modes of transportation. Therefore, the Off-Airport Alternatives were eliminated from further consideration in this EA.

2.4.1.2 On-Airport Alternatives

All three on-Airport alternatives would enclose Sulphur Creek with culverts or grates to prevent aircraft that veer off the runway from plunging into Sulphur Creek. All three on-Airport alternatives also include grading of the areas between runways and taxiways in accordance with FAA AC 150/5320-5C to provide a smooth surface to minimize damage to aircraft that veer off the runway and to enhance drainage at HWD.

Alternative 1

Alternative 1 would improve the safety of the airfield by completely enclosing the three segments of Sulphur Creek within the AOA. Construction of enclosed, at-grade box culverts of Sulphur Creek within the AOA would be constructed in compliance with FAA AC 150/5300, *Airport Design*.²⁶ Implementation of Alternative 1 would reduce the attraction of birds by eliminating or greatly reducing feeding and resting habitats in the Sulphur Creek segments located in the AOA. The elimination of the steep terrain drop-off within the AOA would result in an airfield safety improvement and would satisfy an open item from the FAA RSAT review.

Alternative 1 would significantly reduce wildlife attractants within the AOA and would significantly improve topographic inconsistencies and drainage within the AOA and RSA. Therefore, Alternative 1 was carried through to Level 2 alternatives evaluation (see **Section 2.4.2.1**).

²⁶ FAA AC 150/5300-13, *Airport Design*, www.faa.gov, September 2011.

Alternative 2

Alternative 2 would improve the safety of the airfield by constructing at-grade load-bearing grates over all three segments of Sulphur Creek within the AOA while maintaining a natural bottom environment that would result in a moderate reduction of habitat attractive to wildlife hazardous to aircraft within the AOA. Smaller animals within Sulphur Creek would continue to use the creek because the grates would allow continued access. Grating would not provide sufficient daylighting needed to support wetland flora. The grating would deter larger animals (e.g., geese) from foraging and resting within this wildlife hazard attractant. However, Alternative 2 would not reduce habitat for wildlife hazardous to aircraft operations as much as Alternatives 1 or 3 because smaller wildlife species, such as rodents and small birds, could continue to use the creek channel as habitat. These small rodents and other prey species would have the potential to inhabit these segments of Sulphur Creek and could move outside the grating into the AOA or RSA and attract large, hazardous predatory birds that are potential wildlife-aircraft strike hazards.

Therefore, Alternative 2 was considered to produce a low reduction in habitat for wildlife hazardous to air operations. Alternative 2 may be preferred by some regulatory agencies, such as the San Francisco Regional Water Quality Board (RWQCB), which recommended streambed enhancement, rather than streambed enclosure.²⁷ However, the continued existence of a wildlife hazard is unacceptable because it does not meet the Purpose and Need.

The design, operation, and maintenance of Alternative 2 would be conducted to be consistent with the regional flood control plan to not increase downstream flows and avoid flooding downstream areas.²⁸ While Alternative 2 improves the topographic inconsistencies and somewhat reduces drainage inefficiencies within the AOA and RSA, it is not as effective as either Alternatives 1 or 3 at reducing wildlife hazards; therefore Alternative 2 was not included for detailed evaluation in this EA.

Alternative 3

As described previously, Alternative 3 includes construction of box culverts over two segments of Sulphur Creek and at-grade, load-bearing grates over one segment of Sulphur Creek. The grated segment would maintain a natural bottom. However, grating needed to maintain safety standards in the event aircraft veer over the grate would not allow sufficient daylighting for wetland flora to continue to grow. The enclosed box culvert segments would eliminate wildlife attractants within the AOA. The grating would deter larger birds (e.g., geese) from foraging and resting within Sulphur Creek. However, small rodents or other prey species would have the potential to inhabit this segment of Sulphur Creek and could move outside of the grating into the AOA or RSA and attract large, hazardous predatory birds that present potential wildlife-aircraft strike hazards.

Alternative 3 improvements would reduce the area of ponding that occurs during frequent (1 to 2 year) storm events and provide a mechanism that facilitates drainage during more severe storm events. Installing box culverts on segments of Sulphur Creek would benefit Airport operations by reducing flood risks and moderately reducing wildlife hazard attractants at the Airport. The design and operation of Alternative 3 would be consistent with the regional flood control plan to not increase downstream flows and avoid flooding downstream areas.

²⁷ City of Hayward, Public Works Department, *Request for Qualifications, Hayward Executive Airport*, <http://www.ci.hayward.ca.us/departments/publicworks/HEA/docs/2010/RFQ%20Sulphur%20Creek%20Improvements.pdf>.

²⁸ California Department of Water Resources, *Regional Flood Management Planning*. Available at: <http://www.water.ca.gov/cvfmmp/regionalplan/>. Accessed December, 2013.

Alternative 3 would result in a moderate reduction of wildlife attractants within the AOA and would improve topographic inconsistencies and drainage within the AOA and RSA. Therefore, Alternative 3 partially met the Purpose and Need and was carried through to Level 2 alternatives evaluation (see **Section 2.4.2.3**).

No Action Alternative

The No Action Alternative involves no improvements at the Airport. Under the No Action Alternative Sulphur Creek would remain an open channel within the AOA. Aircraft that veered off the runway would still have the potential to plunge into Sulphur Creek. The uneven ground that contributes to drainage issues and the potential for damage to aircraft that veer off the runway would still be present. However, the No Action Alternative was carried through to the next level of screening, as required by NEPA.

2.4.2 Level 2 Screening

As previously described in **Section 2.2**, the Level 2 evaluation considers the constructability, operational efficiency and environmental issues related to those alternatives carried forward for consideration from the Level 1 screening evaluation. The Level 2 analysis considered the following effects of Alternative 1 and Alternative 3:

- the effect of maintenance activities on operational efficiency of the airfield; and
- acres of wetland and floodplain impacts.

Those alternatives that were considered to be the most reasonable were retained for analysis in **Chapter 4, Environmental Consequences and Mitigation**.

2.4.2.1 Alternative 1

As previously described, Alternative 1 would result in culverting all three sections of Sulphur Creek and re-grading infield areas of the AOA (see **Figure 2-1**). When compared to other reasonable alternatives retained for Level 2 analyses, implementation of Alternative 1 would require low levels of additional maintenance activities within the AOA. Anticipated maintenance procedures associated with implementation of Alternative 1 would involve regular mowing according to practices that avoid attracting wildlife as needed and regular preventative maintenance checks to ensure the continued structural integrity of the culverts. Neither of these procedures would require the closure of a runway or taxiway at the Airport.

Unavoidable adverse wetland effects associated with Alternative 1 would involve filling a 0.19 acre (8,276 square foot) area, which represents the open channel area of Sulphur Creek between Taxiway A and Taxiway Z.

2.4.2.2 Alternative 3

Alternative 3 is a combination of Alternatives 1 and 2. Implementation of Alternative 3 would involve grating a 0.05-acre area of Sulphur Creek that is outside the Runway 10R-28L OFZ. Other segments of Sulphur Creek within the AOA and the OFZ would be culverted, filled, and graded. Holes in grating would not allow sufficient light through to permit continued growth of wetland flora.

Additionally, the presence of small openings associated with the grated section of Sulphur Creek would attract and allow small wildlife to inhabit the grated areas of the creek. The attraction of smaller animals could attract larger predatory avian species that would be hazardous to aircraft operations. As result, the sponsor must monitor the habitat and take measures to eliminate or reduce wildlife use of the habitat to ensure safe operating conditions.

2.4.2.3 Comparing Alternatives 1 and 3

Alternative 1 was retained for further analysis because it would result in the highest level of wildlife hazard reduction. Since the adverse environmental impacts anticipated under Alternative 3 were identical to that of Alternative 1, it was not retained as a viable alternative for further analysis because it would only result moderate wildlife hazards reductions.

2.5 NO ACTION ALTERNATIVE

The No Action Alternative involves no improvements at the Airport. Under the No Action Alternative Sulphur Creek would remain an open channel within the AOA. This EA retains the No Action Alternative as required by 40 CFR 1502.14(d) of CEQ Regulations, which requires that the No Action Alternative be considered in all NEPA analyses.²⁹ The No Action Alternative assumes that none of the reasonable alternatives would be developed and there would be no alteration of the existing facilities.

Although the proposed improvements would not occur under the No Action Alternative, continued airfield maintenance would be necessary to ensure that the airfield remains functional for aircraft operations. This maintenance would entail activities such as filling of cracks, patching of failing pavement, and clearing and trimming wetland segments of Sulphur Creek, as needed. Although the No Action Alternative is not considered a reasonable alternative as a result of this alternatives analysis, it is further considered in this EA, as required by CEQ regulations.

2.6 PREFERRED ALTERNATIVE

Alternatives for the proposed Airport improvements were evaluated within this chapter of the EA. Alternative 1 is identified as the City of Hayward's Preferred Alternative as it would meet the purpose and need for the Proposed Action at HWD by:

- protecting aircraft from damage and passengers from injury if an aircraft veered off a runway by placing all portions of Sulphur Creek between runways and taxiways at HWD within culverts; and
- reducing habitat attractive to wildlife hazardous to aircraft operations to a greater extent than Alternatives 2 or 3.

²⁹ 40 CFR 1502.14(d), *Alternatives Including the Proposed Action*. March 1970.

Implementation of Alternative 1 would result in the loss of 0.19 acres of wetlands. Since those wetland segments lay within the AOA, yet need to be removed to enhance airport safety, there is no prudent alternative to Alternative 1 that affects a smaller area of wetlands.

Therefore, Alternative 1 is the City of Hayward's Preferred Alternative and is furthered assessed for potential environmental impacts in **Chapter 4, Environmental Consequences and Mitigation** of this EA. Alternative 1 will subsequently be referred to as the Proposed Action in this Environmental Assessment.

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Table 2-2
EVALUATION OF ALTERNATIVES

Screening Criteria	No Action	Off-Airport Alternatives	Alternative 1	Alternative 2	Alternative 3
			Culvert	Grating	$\frac{3}{4}$ Culvert $\frac{1}{4}$ Grate
Level 1: Purpose and Need					
What is the level of reduction for the existing wildlife hazard within the AOA?	No Reduction	No Reduction	High	Low	Moderate
Does the alternative improve the poorly drained areas within the northwest portion of the airfield?	No Improvement	No Improvement	Greatest Improvement	Least Improvement	Moderate Improvement
<i>Continue for further evaluation?</i>	Yes*	No	Yes	No	Yes
Level 2: Constructability, Operational Efficiency and Environmental					
Would the alternative require future maintenance activities that may require temporary runway closure?	Yes	-	No	-	No
How many acres of wetlands and floodplains would be affected?	0	-	0.19	-	0.19
Is the alternative practical and carried forward for further environmental analysis in Chapter 4, Environmental Consequences and Mitigation, of this EA?	Yes^{/a/}	No	Yes	No	No

^{/a/} As per CEQ regulations, the No Action Alternative was retained for detailed environmental analysis for baseline comparative purposes.

SOURCE: RS&H, 2014.

PREPARED BY: RS&H, 2014

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3 CHAPTER 3 AFFECTED ENVIRONMENT

This chapter provides a description of the existing conditions within the study area. The environmental resource categories are organized as identified in FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures*³⁰ and FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*.³¹ The Affected Environment at Hayward Executive Airport includes all areas within Airport property that have the potential to be affected as a result of implementation of the Proposed Action.

The potential environmental impacts of the No Action and Proposed Action and reasonable alternatives retained for analysis of environmental impacts are presented in **Chapter 4, Environmental Consequences and Mitigation**, of this EA.

3.1 INTRODUCTION

As described in **Chapter 1, Purpose and Need**, the Airport is located in Hayward, California, approximately 15 miles south of the City of Oakland. Existing conditions were evaluated within two study areas, which were developed for this EA. The Airport Study Area (ASA) and the Area of Potential Ground Disturbance are presented in **Figure 3-1**.

3.1.1 Airport Study Area

The ASA includes all areas of Airport property and is identical to the Airport property boundary. Since the Proposed Action would not alter the quantity of operations or the fleet mix of based aircraft at the Airport, the ASA is limited to the Airport property boundary. The ASA and Airport property are both referenced interchangeably throughout this document. The ASA is presented in **Figure 3-1**.

3.1.2 Area of Potential Ground Disturbance

The Area of Potential Ground Disturbance is the geographical areas that has the potential to be directly affected by implementation of the Proposed Action, including ground disturbing activities associated with the construction of the Proposed Action. The Area of Potential Ground Disturbance is presented in **Figure 3-1**.

3.2 RESOURCES NOT AFFECTED

The Proposed Action is not a capacity enhancing action and would not directly increase or decrease operations at the Airport. The Proposed Action is intended to reduce the potential damage to aircraft that veer off the runways at HWD, improve drainage, and reduce habitat for wildlife hazardous to air operations.

The Proposed Action would not affect the following environmental resources categories, as described in FAA Order 1050.1E, Change 1:

³⁰ FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures*, 2006.

³¹ FAA Order 5050.4B, *National Environmental Policy Act Implementing Instructions for Airport Actions*, 2006.

- Coastal Resources;
- Compatible Land Use;
- Section 4(f) Resources;
- Farmlands;
- Light Emissions and Visual Surroundings;
- Natural Resources and Energy Supply;
- Noise;
- Secondary (Induced);
- Wild and Scenic Rivers.

Brief explanations of why adverse effects to these resource categories would not reasonably occur are provided in the subsections below. In accordance with guidance provided in FAA Orders 5050.4B and 1050.1E, detailed analysis of these resources is not required or included within **Chapter 4, Environmental Consequences and Mitigation**.

3.2.1 Coastal Resources

3.2.1.1 Coastal Barriers

Federal activities involving or affecting coastal barrier resources are governed by Coastal Barriers Resources Act. As of 2006, activities affecting coastal barrier resources are also governed by the California Coast Act of 1976. The Proposed Action and No Action Alternative would not affect coastal barrier resources. Therefore, the provisions of the Coastal Barriers Resources Act do not apply to the No Action Alternative or the Proposed Action.

3.2.1.2 Coastal Zone Management Program

The San Francisco Bay Conservation and Development Commission (BCDC) is the agency responsible for administering the provisions of the Federal Coastal Zone Management Act of 1972 under the State of California's approved Coastal Zone Management Program (CZMP). BCDC's jurisdiction extends over all tidal areas of SF Bay and a shoreline band, which extends 100 feet inland from the mean high tide line. Within this area, BCDC has permitting responsibility for all SF Bay filling, dredging, or substantial change in use of land, water, or structures.

The Airport facilities are located approximately 2,800 feet east of Hayward Regional Shoreline and the Proposed Action is outside the jurisdiction of BCDC. The Proposed Action has no potential to affect coastal resources and no further coordination regarding coastal issues is required.

3.2.2 Compatible Land Use

The alternatives under consideration would occur entirely on Airport property; therefore, the Proposed Action would not directly affect off-Airport land uses. The Proposed Action would not include activities that would indirectly affect compatible land uses adjacent to the Airport property. Activities that can influence aviation-related noise and affect land uses include airport development actions to accommodate fleet mix changes or the number of aircraft operations, air traffic changes, or new approaches made possible by new navigational aids. Since the Proposed Action would not involve activities that would influence aviation-related noise or cause other off-airport effects, land use compatibility in the vicinity of the Airport would not be affected. The City of Hayward has provided a Land Use Assurance letter (see **Appendix D**) to the FAA stating that the City will restrict land uses in the vicinity of HWD to activities and purposes compatible with normal airport operations, including the landing and takeoff of aircraft.

Figure 3-1
EA STUDY AREAS



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3.2.3 Department of Transportation Act: Section 4(f) and Section 6(f) Resources

Section 4(f) of the U.S. Department of Transportation Act of 1966, as amended (49 United States Code [U.S.C.] 303, and 23 U.S.C. 138) requires a Section 4(f) analysis of any federally funded transportation project if the project proposes to use property from a publicly owned park, recreation area, wildlife or waterfowl refuge area, or any significant historic site. The Secretary of Transportation may approve a transportation project requiring the use of Section 4(f) land only if:

- there is no prudent and feasible alternative to using that land; or
- the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuges, or historic sites resulting from the use.

For Section 4(f) purposes, use includes actual physical takings of Section 4(f) lands as well as actions that result in adverse indirect impacts, or constructive use. Constructive use only occurs if Section 4(f) lands are substantially impaired by a project action, which includes substantially diminishing the activities, features, or attributes of the Section 4(f) resource that contribute to its significance or enjoyment.

As shown in **Figure 3-2**, and presented in **Table 3-1** there are two Section 4(f) resources located within the ASA (Kennedy Park and Skywest Golf Course).

3.2.3.1 Kennedy Park

Kennedy Park is a 13.3-acre park on Airport property and is owned and operated by Hayward Area Recreation and Park District (HARD). This local community park is north of the Airport's airside facilities, located at 19501 Hesperian Boulevard. Kennedy Park is a large children's park with a varied of playing opportunities, including the Triple Pines Ranch Petting Zoo and train rides. Other activities at Kennedy Park include a multi-use field of open lawn areas and casual play, four lighted tennis courts, and two horseshoe pits that serves the City of Hayward Area Recreation and Park District.

3.2.3.2 Skywest Golf Course

Built in 1995, the Skywest Golf Course is a 125-acre, 18-hole championship golf course that is open to the public and operated by the HARD. The golf course is located on Airport property northwest of the airfield, is considered to be a wildlife hazard attractant, and is a significant source of income for the Airport.

3.2.3.3 Conclusions

Since the Proposed Action will not result in any physical impacts or noise impacts to either of these properties or anywhere beyond the HWD boundaries, there is no potential for the Proposed Action to affect any Section 4(f) resources and no further analysis is required.

Figure 3-2
SECTION 4(f) RESOURCES IN THE AIRPORT STUDY AREA



Table 3-1
SECTION 4(f) RESOURCES

Name	Location	Acres	Facilities
Kennedy Park	19501 Hesperian Blvd.	13.3	Petting Zoo, Tennis Courts, Horseshoe pits, Open area
Skywest Golf Course	1401 Golf Course Rd.	125.0	Golf Course

SOURCE: Hayward Area Recreation & Park District, District Recreation & Parks Master Plan, June 2006.
PREPARED BY: RS&H, 2011.

3.2.4 Farmlands

According to the Natural Resource Conservation Service (NRCS), the ASA contains prime farmland soil types, including Botella loam, Clear Lake clay, Danville silty clay loam, and Willows clay. These soil types are considered prime farmland soil types if they are irrigated and drained.³³

According to 7 CFR Part 658.2, the Farmland Protection Policy Act (FPPA) does not apply to land already committed to "urban development or water storage" (i.e., Airport developed areas), regardless of its importance as defined by NRCS.³⁴ In addition, there is no active farming on Airport property and the area has been extensively developed with airside facilities (runway and taxiways) and landside facilities (hangars). Therefore, implementation of the Proposed Action has no potential to affect prime or unique farmlands and no additional analysis is required.

3.2.5 Light Emissions and Visual Setting

3.2.5.1 Light Emissions

Airfield lighting and visual navigational aids at the Airport consist of Medium Intensity Runway Lights (MIRLs), Precision Approach Path Indicator (PAPI), Visual Approach Slope Indicators (VASIs), and Runway End Identifier Lights (REILs). A MIRL system consists of a configuration of lights that define the lateral and longitudinal limits of the usable landing area. Runways 10L and 28R are equipped with four-light PAPIs, located on the left side of either runway. Runways 10R and 28L are equipped with a four-light VASI, which are located on the left side of Runway 28L and on the right side of Runway 10R. The REIL system is used to provide rapid and positive identification of the approach end of the runway threshold. Airfield lighting also includes taxiway lighting to guide aircraft to and from the taxiways and runways. Lighting associated with the airfields is generally low to the ground and low intensity.

Terminal lighting includes systems to illuminate both the internal and external areas of the terminal. Interior lighting illuminates the Airport for usage by passengers and employees. Exterior lighting includes parking areas, aprons, airport roadways, and transfer areas.

Illuminated areas not a part of the Airport's landside facilities include various businesses and warehouses southwest of the ASA. In addition, the Airport is encircled by major highways, interstates, and other local roads illuminated by streetlights.

Installing additional box culverts on Sulphur Creek and re-grading portions of the Airport will not result in additional light emissions. The Proposed Action may require temporary nighttime construction to limit the duration of any potential runway or taxiway closure. Nighttime construction efforts would require lighting. However, as the nearest light-sensitive land uses to the Proposed Action are located approximately 1,600 feet to the northwest and are separated from the Proposed Action by intervening vegetation and Skywest Golf Course, this nighttime lighting would have no potential to affect nearby light-sensitive land uses.

3.2.5.2 Visual Setting

The Airport is located within an urban landscape. Surrounding the ASA are residential and educational land uses to the north, residential land uses east of Hesperian Boulevard, and commercial/industrial and warehouse distribution facilities south and southwest of the Airport. The

³³ NRCS, Web Soil Survey, <http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>, accessed December 2013.

³⁴ 7 CFR Part 658.2, Definitions, [http://www.gpo.gov/fdsys/pkg/CFR-2010-title7-vol6-pdf/CFR-2010-title7-vol6-part658.pdf](http://www.gpo.gov/fdsys/pkg/CFR-2010-title7-vol6/pdf/CFR-2010-title7-vol6-part658.pdf) Accessed: May 5, 2014.

Proposed Action would occur completely on Airport property and would not alter the visual setting of the Airport.

3.2.6 Natural Resources and Energy Supply

The Proposed Action would not change the energy requirements or natural resources usage necessary to operate the Airport or change the demand of energy or natural resources for Airport users. Therefore, implementation of the Proposed Action would not affect the energy supplies and natural resources consumption associated with on-going Airport operations. Energy and natural resources uses associated with construction of the Proposed Action are addressed in **Section 4.3, Construction Impacts**.

3.2.7 Noise

This section of the EA addresses the existing sources of noise at the Airport and the methodologies used to determine the extent of existing noise exposure.

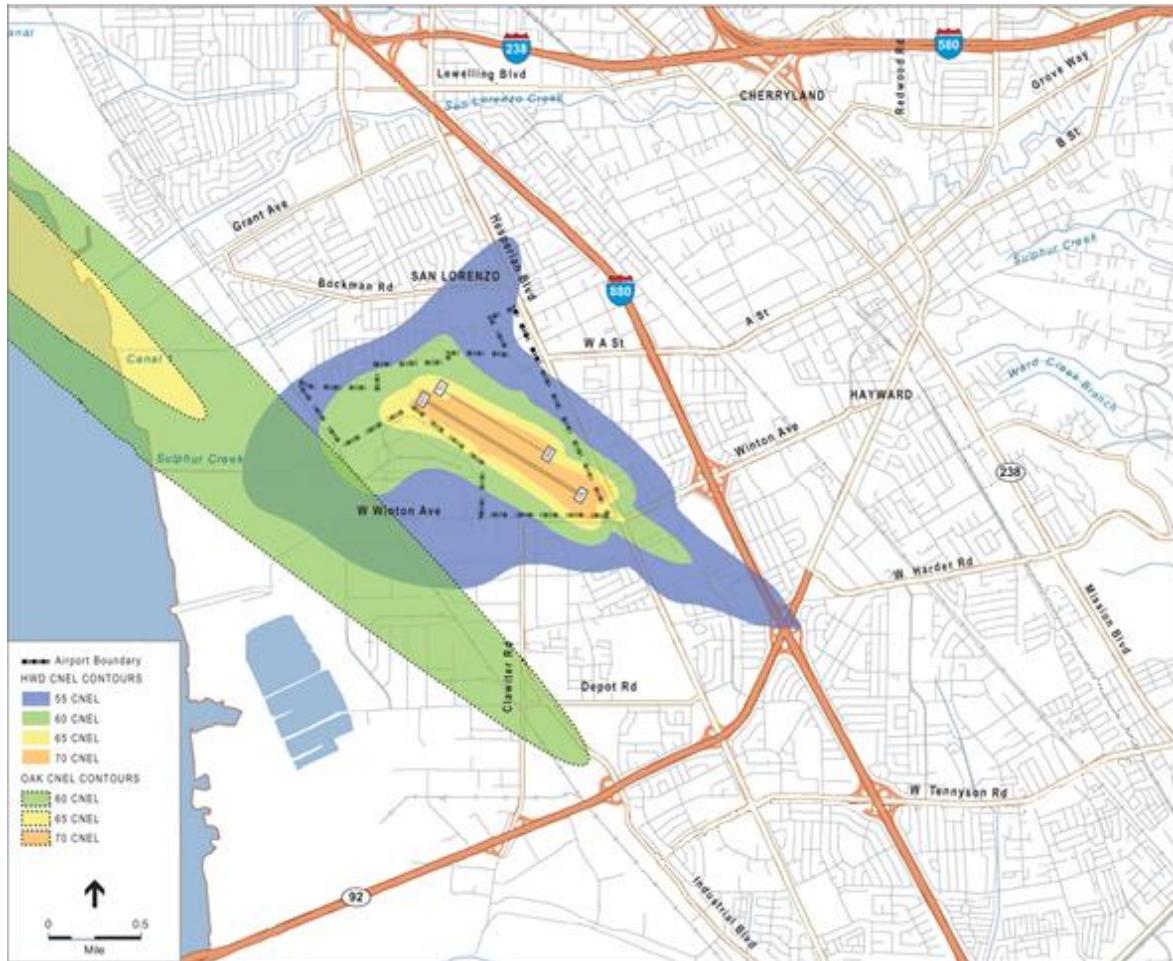
3.2.7.1 Existing Noise Environment

The closest existing noise sensitive land use to the project site is a residential parcel 1,600 feet to the north of the Airport, separated by vegetated buffers and Skywest Golf Course. The existing noise environment surrounding the Airport experiences approximately 87,000 annual aircraft operations at HWD, as shown in **Table 1-1**.^{35,36} Based on these operational figures, noise contours were developed through the use of the Integrated Noise Model (INM) version 7.0b for the Airport Land Use Compatibility Plan completed in 2010. FAA Order 1050.1E, Appendix A, paragraph 14.1a identifies the Community Noise Equivalent Level (CNEL) decibel level (dB) as an appropriate measure of noise exposure in California, which is similar to the Day/Night Average Sound Level (DNL) in decibels that is used to measure noise exposure in other areas of the United States. The CNEL dB contours from the Airport Land Use Compatibility Plan were superimposed onto aerial photography to develop **Figure 3-3**, which presents the current extent of the CNEL 65, 70, and 75 dB noise contours for HWD and also shows existing CNEL dB contours for the Oakland International Airport, which is approximately 6 miles northwest of HWD. The Proposed Action would not result in increases in aircraft operations when compared to the No Action Alternative because implementation of the Proposed Action would not change the number of air operations at HWD. Therefore, a detailed evaluation of changes in noise exposure as a result of implementation of the Proposed Action is unnecessary as it would not be different from the No Action Alternative. The potential for the Proposed Action to generate construction-related noise is examined in **Section 4.3, Construction Impacts**.

³⁵ Federal Aviation Administration, Terminal Area Forecast, Available at:
[https://aspm.faa.gov/wtaf/detail.asp?line=SELECT+*+FROM+WTAF+WHERE+SYSYEAR%3E^2005+AND+SYSYEAR%3C^2025+AND+\(LOC_ID~HWD~\)](https://aspm.faa.gov/wtaf/detail.asp?line=SELECT+*+FROM+WTAF+WHERE+SYSYEAR%3E^2005+AND+SYSYEAR%3C^2025+AND+(LOC_ID~HWD~))

³⁶ An operation as defined as one takeoff and one landing.

Figure 3-3
HAYWARD EXECUTIVE AIRPORT CNEL dB NOISE CONTOURS



Source: Hayward Executive Airport Land Use Compatibility Plan, 2010

3.2.7.2 Land Use Compatibility

The FAA, through guidance outlined in 14 CFR Part 150 and FAA Order 1050.1E, defines CNEL 65 as the threshold of noise compatibility that is normally acceptable for noise-sensitive land uses. **Table 3-2** identifies the sound levels associated with land uses that are typically compatible and non-compatible with different levels of noise exposure from air operations. The Proposed Action would not result in increased in aircraft operations when compared to the No Action Alternative because implementation of the Proposed Action would not change the number of air operations at HWD. Therefore, a detailed evaluation of changes in land use compatibility as a result of implementation of the Proposed Action is unnecessary as land use compatibility would not be different from the No Action Alternative.

Table 3-2
LAND USE COMPATIBILITY WITH YEARLY DAY-NIGHT AVERAGE SOUND LEVEL (DNL)

	Below 65	65-70	70-75	75-80	80-85	Over 85
RESIDENTIAL						
Residential, other than mobile homes and transient lodging	Y	N(1)	N(1)	N	N	N
Mobile home parks	Y	N	N	N	N	N
Transient lodgings	Y	N(1)	N(1)	N(1)	N	N
PUBLIC USE						
Schools	Y	N(1)	N(1)	N	N	N
Hospitals and nursing homes	Y	25	30	N	N	N
Churches, auditoriums, and concert halls	Y	25	30	N	N	N
Government services	Y	Y	25	30	N	N
Transportation	Y	Y	Y(2)	Y(3)	Y(4)	Y(4)
Parking	Y	Y	Y(2)	Y(3)	Y(4)	N
COMMERCIAL USE						
Offices, business and professional	Y	Y	25	30	N	N
Wholesale and retail-building materials, hardware and farm equipment	Y	Y	Y(2)	Y(3)	Y(4)	N
Retail trade-general	Y	Y	25	30	N	N
Utilities	Y	Y	Y(2)	Y(3)	Y(4)	N
Communication	Y	Y	25	30	N	N
MANUFACTURING AND PRODUCTION						
Manufacturing, general	Y	Y	Y(2)	Y(3)	Y(4)	N
Photographic and optical	Y	Y	25	30	N	N
Agriculture (except livestock) and forestry	Y	Y(6)	Y(7)	Y(8)	Y(8)	Y(8)
Livestock farming and breeding	Y	Y(6)	Y(7)	N	N	N
Mining and fishing, resource production and extraction	Y	Y	Y	Y	Y	Y
RECREATIONAL						
Outdoor sports arenas and spectator sports	Y	Y(5)	Y(5)	N	N	N
Outdoor music shells, amphitheaters	Y	N	N	N	N	N
Nature exhibits and zoos	Y	Y	N	N	N	N
Amusements, parks, resorts, and camps	Y	Y	Y	N	N	N
Golf courses, riding stables and water recreation	Y	Y	25	30	N	N

Table 3-2 /a/ (Continued)

LAND USE COMPATIBILITY WITH YEARLY DAY-NIGHT AVERAGE SOUND LEVEL (DNL)

- /a/ The designations contained in this table do not constitute a Federal determination that any use of land covered by the program is acceptable or unacceptable under Federal, State, or local law. The responsibility for determining the acceptable and permissible land uses remains with the local authorities. FAA determinations under Part 150 are not intended to substitute federally determined land uses for those determined to be appropriate by local authorities in response to locally determined needs and values in achieving noise compatible land uses.
- Y (YES) - Land Use and related structures compatible without restrictions.
- N (No) - Land Use and related structures are not compatible and should be prohibited.
- NLR - Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure. 25, 30, or 35 Land use and related structures generally compatible; measures to achieve NLR of 25, 30 or 35 dB must be incorporated into design and construction of the structure.
- (1) Where the community determines that residential or school uses must be allowed, measures to achieve outdoor to indoor Noise Level Reduction (NLR) of at least 25 dB and 30 dB should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide a NLR of 20 dB, thus, the reduction requirements are often stated as 5, 10 or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year round. However, the use of NLR criteria will not eliminate outdoor noise problems.
- (2) Measures to achieve NLR 25 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
- (3) Measures to achieve NLR of 30 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
- (4) Measures to achieve NLR 35 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal level is low.
- (5) Land use compatible provided special sound reinforcement systems are installed.
- (6) Residential buildings require an NLR of 25.
- (7) Residential buildings require an NLR of 30.
- (8) Residential buildings not permitted.

3.2.8 Secondary (Induced)

As previously described, the Proposed Action is not a capacity enhancing project and would not directly result in an increase or decrease in air operations at the Airport or result in a change in the level of public services required by HWD. Implementation of the Proposed Action would not result in permanent increase in economic activity that could induce on- or off-Airport economic growth or development, or shifting patterns of population movement outside of the Airport boundary. In addition, the Proposed Action would occur on the existing airfield and would not result in the relocation or displacement of any homes or businesses.

3.2.9 Wild and Scenic Rivers

There are no rivers in the ASA or in the Airport vicinity that are listed in the Wild and Scenic River System. The closest river to the Airport designated as Wild and Scenic is the American (Lower) River, which is located approximately 75 miles northeast of the Airport. The closest water body to HWD identified on the National River Inventory (NRI) as a resource is Olema Creek, which is located approximately 25 miles to the northwest of the Airport.³⁷ Due to the substantial distance between these water bodies and the Airport, the Proposed Action has no potential to affect these water bodies and no further environmental impact evaluation is required.

3.3 RESOURCES POTENTIALLY AFFECTED

The Proposed Action and reasonable alternatives have the potential to affect the following environmental resources categories, as described in FAA Order 1050.1E, Change 1:

- Air Quality;
- Construction Impacts;

³⁷ National Wild and Scenic Rivers System, Designated Wild & Scenic Rivers, <http://www.rivers.gov/maps.html>, accessed December 2013.

- Floodplains;
- Fish, Wildlife, and Plants;
- Hazardous Materials, Pollution Prevention, and Solid Waste;
- Historic, Architectural, Archaeological, and Cultural Resources;
- Socioeconomics, Environmental Justice, and Children’s Environmental Health and Safety
- Water Quality;
- Wetlands; and
- Cumulative Impacts.

3.3.1 Air Quality

This section describes existing air quality conditions in the vicinity of the Airport and the ASA. Information on applicable air quality standards, current attainment/nonattainment designations, and existing air monitoring data are provided in this section. The potential air quality impacts associated with the Proposed Action are discussed in **Section 4.2**.

The Federal Clean Air Act (CAA) requires the U.S. Environmental Protection Agency (U.S. EPA) to establish and periodically review National Ambient Air Quality Standards (NAAQS) to protect public health and welfare. These national standards have been established for the following seven air pollutants, many of which have been enhanced by California standards: ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter equal to or less than 10 micrometers (coarse particulates or PM_{10}), particulate matter equal to or less than 2.5 micrometers (fine particulates or $PM_{2.5}$), and lead (Pb). These standards are presented in **Table 3-3**.

In accordance with the federal CAA, all areas in the U.S. are designated with respect to the NAAQS. The region encompassing the Airport is listed as in attainment for most NAAQS criteria pollutants. However, according to the U.S. EPA Green Book, Alameda County is considered “marginal” for the 8-hour O_3 standard and is in “nonattainment” for the 2006 standard for $PM_{2.5}$.³⁸ The EPA designated the Bay Area as nonattainment for the $PM_{2.5}$ standard on December 14, 2009 and the Bay Area Air Quality Management District (BAAQMD) was given three years to develop a State Implementation Plan (SIP) demonstrating that the Bay Area will achieve the revised standard by December 14, 2014. In December 2012, the State of California submitted a revision to the SIP and the Emission Inventory SIP Submittal was adopted after notice and public hearing in accordance with 40 CFR Section 51.102.³⁹ **Table 3-4** presents the attainment status for Alameda County for all criteria pollutants.

State and Local Air Quality

The California Air Resources Board (CARB) manages air quality, regulates mobile emissions sources, and oversees the activities of county and regional air districts within California. CARB also regulates local air quality by establishing California Ambient Air Quality Standards (CAAQS); vehicle emissions standards, and by conducting research, planning, and coordination activities. As previously described, California has adopted ambient standards that are more stringent than the NAAQS. **Table 3-5** presents the California Ambient Air Quality Standards.

³⁸ U.S. EPA, Green Book, *List of Currently Designated Nonattainment Areas for All Criteria Pollutants*, as of August 30, 2014, <http://epa.gov/oaqps001/greenbk/ancl.html>, accessed December 2013.

³⁹ State of California Air Resources Board, *THE 2012 PM2.5 EMISSION INVENTORY SUBMITTAL TO THE STATE IMPLEMENTATION PLAN FOR THE SAN FRANCISCO BAY AREA*. Available at: <http://www.arb.ca.gov/board/books/2012/120612/prores1237.pdf>

Table 3-3
NATIONAL AMBIENT AIR QUALITY STANDARDS

Pollutant		Primary / Secondary	Averaging Time	Level	Form
Carbon Monoxide (CO) ^{/a/}		Primary	8-hour	9 ppm	Not to be exceeded more than once per year
			1-hour	35 ppm	
Lead ^{/b/}		primary / secondary	rolling 3- month average	0.15 µg/m ³ ^{/c/}	Not to be exceeded
Nitrogen Dioxide ^{/d/ /e/}		Primary	1-hour	100 ppb	98 th percentile, averaged over 3 years
		primary / secondary	annual	53 ppb ^{/f/}	Annual Mean
Ozone ^{/g/}		primary / secondary	8-hour	0.075 ppm ^{/h/}	Annual fourth-highest daily maximum 8-hour concentration averaged over 3 years
Particle Pollution ^{/i/}	PM _{2.5}	primary / secondary	Annual	15 µg/m ³	Annual mean, averaged over 3 years
			24-hour	35 µg/m ³	98 th percentile, averaged over 3 years
	PM ₁₀	primary / secondary	24 hour	150 µg/m ³	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide ^{/k/}		primary	1-hour	75 ppb ^{/l/}	99 th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		secondary	3-hour	0.5 ppm	Not to be exceeded more than once per year

/a/ 76 Federal Register 54294, August 31, 2011.

/b/ 73 Federal Register 66964, November 12, 2008.

/c/ Final rule signed October 15, 2008. The 1978 lead standard (1.5 µg/m³ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

/d/ 75 Federal Register 6474, February 9, 2010.

/e/ 61 Federal Register 52852, October 8, 1996.

/f/ The official level of the annual NO₂ standard is 0.053 ppm, equal to 53 ppb, which is shown here for the purpose of clearer comparison to the 1-hour standard.

/g/ 73 Federal Register 16436, March 27, 2008.

/h/ Final rule signed March 12, 2008. The 1997 ozone standard (0.08 ppm, annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years) and related implementation rules remain in place. In 1997, EPA revoked the 1-hour ozone standard (0.12 ppm, not to be exceeded more than once per year) in all areas, although some areas have continued obligations under that standard ("anti-backsliding"). The 1-hour ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is less than or equal to 1.

/i/ 71 Federal Register 61144, October 17, 2006.

/j/ Final rule signed June 2, 2010. The 1971 annual and 24-hour SO₂ standards were revoked in that same rulemaking. However, these standards remain in effect until one year after an area is designated for the 2010 standard, except in areas designated nonattainment for the 1971 standards, where the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standard are approved.

/k/ 75 Federal Register 35520, June 22, 2010.

SOURCE: EPA, 2014

The BAAQMD has jurisdiction over the Bay Area Air Basin, encompassing nine counties, including Alameda County. BAAQMD is responsible for ensuring that federal and state air quality standards are met by monitoring ambient air pollutant levels throughout the region and implementing strategies to attain the standards. The Association of Bay Area Governments, Metropolitan Transportation Commission, county transportation agencies, cities and counties, and various nongovernmental organizations are also involved in managing air quality in the region.

Under the California Clean Air Act, patterned after the Federal CAA, areas have also been designated as attainment or nonattainment with respect to the CAAQS. With respect to these standards, Alameda County is presently designated as a nonattainment area for ozone, PM10, and PM2.5, and attainment/unclassified for CO, NO₂, SO₂, and lead.

Table 3-4
CURRENT ATTAINMENT STATUS FOR ALAMEDA COUNTY /a/

Pollutant	NAAQS Designation	CAAQS Designation
Carbon monoxide (CO)	Attainment	Attainment
Lead (Pb)	Attainment	Attainment
Nitrogen dioxide (NO ₂)	Attainment	Attainment
Ozone (O ₃), 8 Hour	Marginal	Nonattainment
Particulate matter (PM ₁₀)	Attainment	Nonattainment
Particulate matter (PM _{2.5})	Nonattainment	Nonattainment
Sulfur dioxide (SO ₂)	Attainment	Attainment

/a/ California Environmental Protection Agency, Air Resources Board, 2011 State Area Designations, <http://www.arb.ca.gov/desig/adm/adm.htm>, accessed December, 2013.

SOURCE: U.S. EPA, *Green Book*, August 2014.
 PREPARED BY: RS&H, 2014.

Table 3-5
CALIFORNIA AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	Level
Carbon Monoxide (CO) /a/	8-hour	9 ppm
	1-hour	20 ppm
Lead	1 month average	1.2x10 ⁻⁵ µg/m ³
Nitrogen Dioxide	1-hour	18 ppb
	annual	30 ppb
Ozone	8-hour	0.07 ppm
	1-hour	.09 ppm
	Annual	12 µg/m ³
Particulate Matter PM 2.5	Annual	20 µg/m ³
	24-Hours	50 µg/m ³
Sulfur Dioxide	1-hour	.25 ppm

/a/ 76 Federal Register 54294, August 31, 2011.

SOURCE: California Environmental Protection Agency Air Resources Board
 PREPARED BY: RS&H, 2013

The Hayward monitoring site is located at 3466 La Mesa Drive (ID 06-001-2001). This air monitoring site was chosen to measure ozone at a higher elevation. Located on the east side of Hayward at an elevation of 951 feet, it is the highest elevation air monitoring site in the Air District. The Hayward site was shut down on November 6, 2009 due to the demolition and reconstruction of the water tank nearby the site. The construction project was completed in late 2010 and the site reopened at the start of the ozone sampling season on April 1, 2011. Prior to the temporary shutdown of Hayward in 2010, during the three most recent years of operation of the site (2007-2009), the national 8-hour ozone standard was exceeded four times. **Table 3-6** shows the maximum and minimum values of ozone recorded at the Hayward monitoring site in 2013.

Table 3-6
2013 HAYWARD MONITORING SITE DATA: OZONE

	Month											
	1	2	3	4	5	6	7	8	9	10	11	12
Maximum Value ^{/a/}	-	-	-	71	86	72	62	60	72	68	52	43
Minimum Value ^{/a/}	-	-	-	10	15	1	5	3	12	0	4	8

^{/a/} Measured in part per billion (ppm * 1,000 = ppb). Unchecked data by BAAQMD; may contain errors.

SOURCE: BAAQMD, <http://gate1.baaqmd.gov/aqmet/AQSiteYearly.aspx>, accessed December 9, 2013.
 PREPARED BY: RS&H, 2014.

Climate Change and Greenhouse Gasses

Research has shown there is a direct correlation between fuel combustion and Greenhouse Gas (GHG) emissions. In terms of U.S. contributions, the General Accounting Office (GAO) reports that "domestic aviation contributes about three percent of total carbon dioxide emissions, according to EPA data," compared with other industrial sources including the remainder of the transportation sector (20 percent) and power generation (41 percent).⁴⁰ The International Civil Aviation Organization (ICAO) estimates that GHG emissions from aircraft account for roughly three percent of all anthropogenic GHG emissions globally.⁴¹ Climate change due to GHG emissions is a global phenomenon, so the affected environment is the global climate.⁴²

The scientific community is continuing efforts to better understand the impact of aviation emissions on the global atmosphere. The FAA is leading and participating in a number of initiatives intended to clarify the role that commercial aviation plays in GHG emissions and climate. The FAA, with support from the U.S. Global Change Research Program and its participating Federal agencies (e.g., NASA, NOAA, EPA, and DOE), has developed the Aviation Climate Change Research Initiative (ACCRI) in an effort to advance scientific understanding of regional and global climate impacts of aircraft emissions. FAA also funds the Partnership for Air Transportation Noise & Emissions Reduction (PARTNER) Center of Excellence research initiative to quantify the effects of aircraft exhaust and contrails on global and U.S. climate and atmospheric composition. Similar research topics are being examined at the international level by the International Civil Aviation Organization.⁴³

⁴⁰ GAO Report to Congressional Committees, *Aviation and Climate Change*, 2009.

⁴¹ Alan Melrose, "European ATM and Climate Adaptation: A Scoping Study," in *ICAO Environmental Report*. (2010).

⁴² As explained by the U.S. Environmental Protection Agency, "greenhouse gases, once emitted, become well mixed in the atmosphere, meaning U.S. emissions can affect not only the U.S. population and environment but other regions of the world as well; likewise, emissions in other countries can affect the United States." Climate Change Division, Office of Atmospheric Programs, U.S. Environmental Protection Agency, *Technical Support Document for Endangerment and Cause or Contribute Findings for Greenhouse Gases under Section 202(a) of the Clean Air Act* 2-3 (2009).

⁴³ FAA Order 1050.1E, Change 1, Guidance Memo #3. *Considering Greenhouse Gases and Climate Change under the National Environmental Policy Act (NEPA): Interim Guidance*, January 12, 2014.

3.3.2 Floodplains

Much of the below information is based on the Environmental Assessment/Environmental Impact Report (EA/EIR) prepared for the Airport Master Plan in 2002⁴⁴, as well as a hydraulic study conducted for the Airport in October 2012.⁴⁵

The Airport is located in the San Francisco Bay Watershed within the Hydrological Planning Area identified as the South Bay Basin in the San Francisco Bay RWQCB *Water Quality Control Plan* (Basin Plan). The Airport is also located in Zone 2 of the Alameda County Flood Control and Water Conservation District (ACFCD). Zone 2 includes Sulphur Creek (Line K of the ACFCD), which runs through the Airport and has a total drainage area of approximately 4.3 square miles. Sulphur Creek is an intermittent stream that originates in the Hayward Hills and passes through the highly developed commercial and residential areas east of Hesperian Boulevard before discharging into San Francisco Bay approximately 1.5 miles west of the Airport.

Within the limits of the Airport, Sulphur Creek is a combination of culverts and earthen open channels. The downstream end of the creek is a trapezoidal concrete-lined channel that changes to a double box culvert (two 8.5-feet by 4-feet) under Taxiway Z. On the north side of Taxiway Z, the culvert crosses under Taxiway Z and becomes an earthen channel until it crosses under Runway 10R and becomes four 48-inch-diameter culverts. At the upstream end of the four 48-inch culverts, the creek becomes an earthen channel and crosses under Runway 10L in a double box culvert (two 8-foot by 4.5-foot). At the upstream end, the creek becomes an earthen channel until it crosses under Taxiway A in another set of double box culverts (two 8-foot by 4-foot).

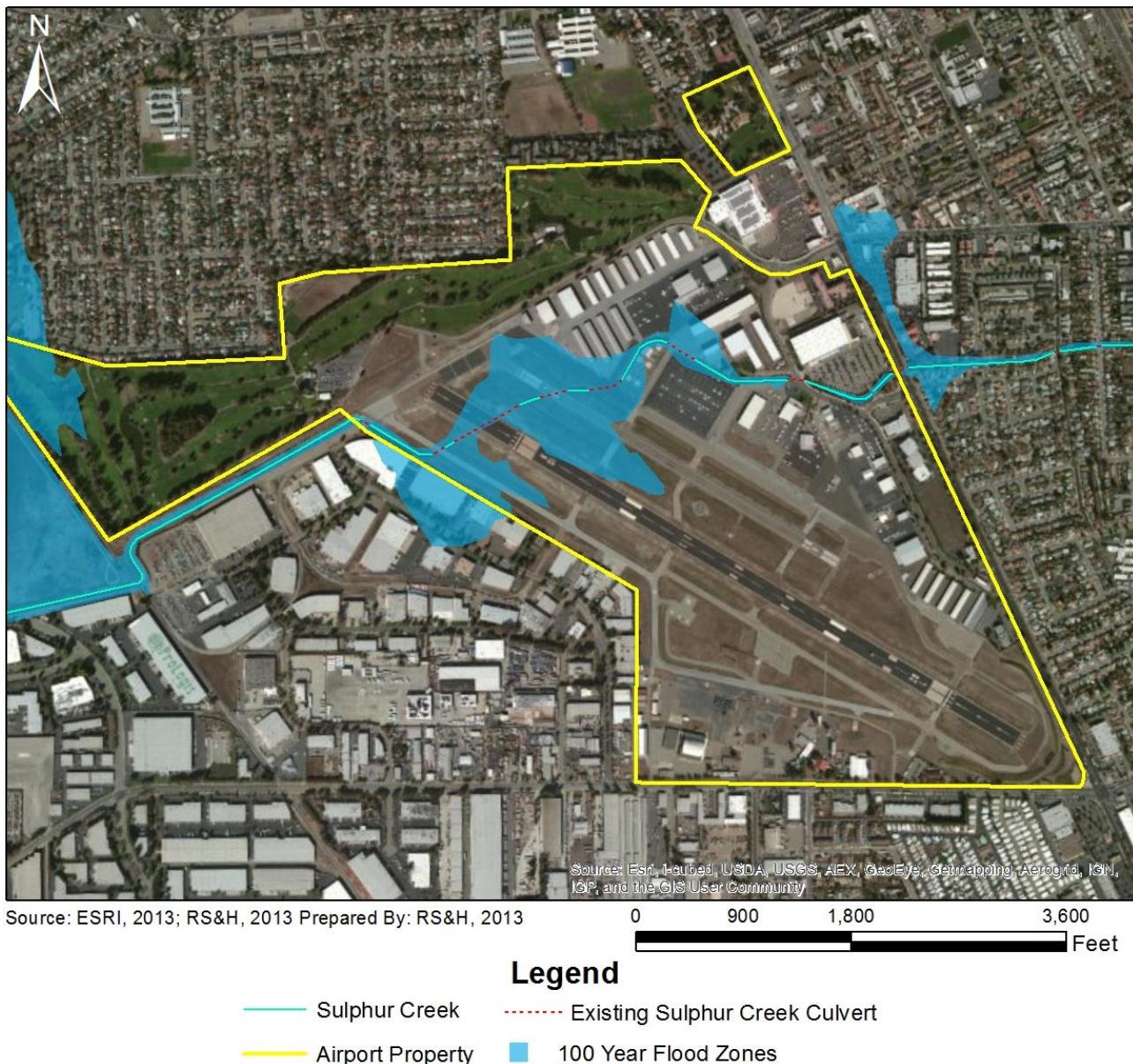
Upstream of the culvert under Taxiway A, Sulphur Creek is an earthen channel which flows through a set of four 4-foot diameter culverts before it reaches the boundaries of the airport. This reach was subject to a City habitat mitigation/enhancement project in 2008. No improvements to Sulphur Creek are proposed upstream of Taxiway A.

Under normal conditions, stormwater flows of up to 350 to 400 cfs are diverted to San Lorenzo Creek approximately 3 miles upstream of the Airport. Flows in excess of 350-400 cfs are channeled into Sulphur Creek. The Airport's Stormwater Pollution Prevention Plan (SWPPP) identifies 260 of the 543 total acres (i.e., 48%) on the Airport property as impervious surfaces. The Airport is depicted on the FEMA Flood Insurance Rate Map (FIRM) Numbers 06001C0286G and 06001C0267G (effective date August 3, 2009). As shown on **Figure 3-4**, approximately 43 acres adjacent to Sulphur Creek are within Zone AE (100-year floodplain) with smaller areas within Zone X (low to moderate risk flood zone areas, which is considered to be a non-special flood hazard area).

⁴⁴ City of Hayward. Final Environmental Assessment/Environmental Impact Report: Hayward Executive Airport Master Plan, Hayward, California. Prepared for U.S. Department of Transportation, Federal Aviation Administration. February 22, 2002.

⁴⁵ Ruggeri Jensen Azar (RJA). Hayward Airport Storm Drain Sulphur Creek (Line K) Hydraulic Summary. October 4, 2012.

**Figure 3-4
FLOODPLAINS IN THE AIRPORT STUDY AREA**



3.3.3 Fish, Wildlife, and Plants

This section describes the existing fish, wildlife, and plants in the ASA and also discusses federally listed plant and animal species potentially occurring in the ASA vicinity.

3.3.3.1 Vegetation and Wildlife

Much of the Airport is developed, with natural vegetation types limited to annual grassland on the Airport infields and small patches of freshwater marsh within Sulphur Creek. Native riparian vegetation has been planted along upstream portions of Sulphur Creek as part of an earlier City of Hayward restoration project. Each vegetation or cover type is discussed in further detail below. Wildlife habitat values for each vegetation or cover type are also discussed.

Annual Grassland

Annual grassland is the predominant vegetation type on the Airport infields (i.e., rectangular or square areas between airfield runways and taxiways). Non-native grass and forb species growing in the infields include wild oat (*Avena fatua*), ripgut grass (*Bromus diandrus*), rye grass (*Festuca perennis*), soft chess (*Bromus hordeaceus*), annual blue grass (*Poa annua*), bur-clover (*Medicago polymorpha*), long-beaked filaree (*Erodium botrys*), bird's-foot trefoil (*Lotus corniculatus*), and bristly ox-tongue (*Helminthotheca echinoides*). Bur-clover cover approximates 50 to 75 percent cover of some of the infields.

Wildlife species observed using upland portions of the infields during a reconnaissance biological survey conducted on March 15, 2013 include great blue heron (*Ardea herodias*), killdeer (*Charadrius vociferus*), European starling (*Sturnus vulgaris*), American pipit (*Anthus rubescens*), Bryant's savannah sparrow (*Passerculus sandwichensis alaudinus*), western meadowlark (*Sturnella neglecta*), red-winged blackbird (*Agelaius phoeniceus*), tree swallow (*Tachycineta bicolor*), and Botta's pocket gopher (*Thomomys bottae*) (multiple burrows observed). Raptor species that may occasionally hunt for gophers and other small mammals over the infields include northern harrier (*Circus cyaneus*), white-tailed kite (*Elanus leucurus*; State Fully Protected Species), red-tailed hawk (*Buteo jamaicensis*), barn owl (*Tyto alba*), great horned owl (*Bubo virginianus*), and American kestrel (*Falco sparverius*). Common amphibian and reptile species likely occurring in the grassland include Sierran treefrog (*Pseudacris sierra*), western fence lizard (*Sceloporus occidentalis*), gopher snake (*Pituophis catenifer*), and common garter snake (*Thamnophis sirtalis*). Urban-adapted mammals such as big brown bat (*Eptesicus fuscus*), Brazilian free-tailed bat (*Tadarida brasiliensis*), northern raccoon (*Procyon lotor*), and striped skunk (*Mephitis mephitis*), likely forage on the infields at night.

Freshwater Marsh

Patches of freshwater marsh vegetation dominated by bulrush (*Scirpus* sp.) and cattail (*Typhus* sp.) are present in Sulphur Creek. Such patches are relatively small and are not mapped separately from adjacent wetlands or aquatic features. These cattail and/or bulrush stands provide habitat for red-eared slider turtle (*Trachemys scripta elegans*; a non-native turtle observed during March 15 reconnaissance survey) and Sierran treefrog, as well as support red-winged blackbird nesting.

3.3.3.2 Federally Listed Species

The U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) identify 21 federally listed species (3 plants and 18 animals) as potentially occurring in the Airport vicinity (i.e., Hayward, San Leandro, Redwood Point, and Newark Unite4d States Geological Survey (USGS) 7.5 minute quadrangles). **Table 3-7** shows the species, status, habitat, occurrence, or potential for occurrence in the ASA for each of these species. The USFWS has jurisdiction over federally listed plant and animal species, while the NMFS has jurisdiction over all federally listed anadromous fish.

None of the federally listed species in **Table 3-7** are expected to occur on or adjacent to the Airport. Some of the pools and adjacent emergent vegetation in Sulphur Creek superficially resemble California red-legged frog (*Rana draytonii*) habitat; however, the species has not been recorded in the urbanized lowlands in the project vicinity and the Airport is isolated from known occurrences in the Hayward Hills to the east. Zander Associates conducted protocol-level red-

legged frog surveys along Sulphur Creek between Hesperian Boulevard and Skywest Drive in 1998 with negative results.⁴⁶

There are no ponds or non-urban streams with potential red-legged frog habitat within 1 mile of the Airport. California tiger salamanders (*Ambystoma californiense*) are not expected to occur on the Airport due to the lack of seasonal pools or ponds for breeding and the Airport's isolation from known occurrences in the Hayward Hills. The only California Natural Diversity Database (CNDDDB) occurrence for this species in the Airport vicinity is a California Academy of Sciences museum specimen collected in Alameda in 1886; California tiger salamanders are now considered to be extirpated from this site.⁴⁷ (CDFW 2013). Most of the other federally listed species in **Table 3-7** are considered extirpated from the San Francisco Bay region or are presumed absent due to the lack of habitat (e.g., tidal salt marsh, tidal streams, and chaparral).

3.3.3.3 State Fully Protected Species

The classification of Fully Protected was the State's initial effort in the 1960's to identify and provide additional protection to those animals that were rare or faced possible extinction. Lists were created for fish, mammals, amphibians and reptiles, birds and mammals. Please note that most fully protected species have also been listed as threatened or endangered species under the more recent endangered species laws and regulations.

Fully Protected species may not be taken or possessed at any time and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research and relocation of the bird species for the protection of livestock. White-tailed kite is the only Fully Protected species with any potential to occur on the Airport (**Table 3-7**), although its presence is likely limited to occasional foraging (i.e., no nesting habitat is present).⁴⁸

⁴⁶ Zander Associates, Hayward Airport Wetlands and Red-legged Frog Assessment – Home Depot Project. Unpublished report cited in City of Hayward. 2002. Final Environmental Assessment/Environmental Impact Report: Hayward Executive Airport Master Plan, Hayward, California. Prepared for U.S. Department of Transportation, Federal Aviation Administration. February 22, 1998.

⁴⁷ California Department of Fish and Wildlife, *California Natural Diversity Database*. Available at: <http://www.dfg.ca.gov/biogeodata/cnddb/>. Accessed January 2014.

⁴⁸ California Department of Fish and Wildlife, Fully Protected Animals, available at: http://www.dfg.ca.gov/wildlife/nongame/t_e_spp/fully_pro.html

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Table 3-7
FULLY PROTECTED AND FEDERALLY LISTED PLANT AND ANIMAL SPECIES IN THE VICINITY OF HAYWARD EXECUTIVE AIRPORT^{/a/}

Species	Status ^{/b/}	Habitat	Occurrence or Potential for Occurrence in Airport Study Area	Fully Protected by State (Y/N) ^{/c/}
SPECIES UNDER USFWS ADMINISTRATION:				
Plants				
Santa Cruz tarplant (<i>Holocarpha macradenia</i>)	E	Clay and sandy soils in coastal prairie, coastal scrub, and valley and foothill grassland. Elevation: 10–220 m. Blooms June to October.	Not expected to occur. Considered extirpated in San Francisco Bay Area. ^{/d/}	N
Contra Costa goldfields (<i>Lasthenia conjugens</i>)	E	Valley and foothill grassland and cismontane woodland in vernal pools, swales, and moist depressions (alkaline grasslands). Extirpated from most of its range; extremely endangered. Elevation: 0–470 m. Blooms March to June.	Not expected to occur due to lack of vernal pools and disturbed condition of airfield grasslands.	N
California seablite (<i>Suaeda californica</i>)	E	Coastal salt marshes and swamps. Elevation: 0–15 m. Blooms July to October.	Not expected to occur due to lack of coastal salt marsh.	N
Animals				
Vernal pool fairy shrimp (<i>Branchinecta lynchi</i>)	T	Seasonal ponds and vernal pools	Not expected to occur due to lack of vernal pools.	N
Vernal pool tadpole shrimp (<i>Lepidurus packardi</i>)	E	Vernal pools and swales in the Sacramento Valley in clear to highly turbid water	Not expected to occur due to lack of vernal pools.	N
California tiger salamander (<i>Ambystoma californiense</i>)	T	Grasslands and foothills that contain small mammal burrows (for dry-season retreats) and seasonal ponds and pools (for breeding during the rainy season).	Not expected to occur due to surrounding urbanization and consequent lack of breeding habitat.	N
California red-legged frog (<i>Rana draytonii</i>)	T	Ponds, streams, drainages and associated uplands; requires areas of deep, still, and/or slow-moving water for breeding	Not expected to occur due to lack of known occurrences in Sulphur Creek and species' presumed extirpation from the western lowland portions of Alameda County. ^{/e/}	N
Alameda whipsnake (<i>Masticophis lateralis euryxanthus</i>)	T	Chaparral and sage scrub with rock outcrops and an abundance of prey species such as western fence lizard.	Not expected to occur due to lack of chaparral. Species does not occur in lowlands adjacent to Bay.	N
San Francisco garter snake (<i>Thamnophis sirtalis tetrataeni</i>)	E	Freshwater marshes, ponds, and slow-moving streams in San Mateo County and extreme northern Santa Cruz County; prefers dense cover and water depths of at least 1 foot.	Not expected to occur. Airport outside known range of species.	Y
Western snowy plover (Pacific coast population) (<i>Charadrius alexandrinus nivosus</i>)	T	Sandy beaches, salt ponds, and salt pond levees.	Not expected to occur due to lack of habitat.	N
California clapper rail (<i>Rallus longirostris obsoletus</i>)	E	Tidal salt marshes with sloughs and substantial cordgrass (<i>Spartina</i> sp.) cover	Not expected to occur due to lack of tidal salt marsh.	Y
California least tern (<i>Sterna antillarum browni</i>)	T	Sandy beaches, alkali flats, hard-pan surfaces (salt ponds).	Not expected to occur due to lack of habitat.	Y
Salt-marsh harvest mouse (<i>Reithrodontomys raviventris</i>)	E	Tidal salt marshes of San Francisco Bay and its tributaries. Requires tall, dense pickleweed (<i>Salicornia</i> sp.) for cover.	Not expected to occur due to lack of tidal salt marsh.	Y

Species	Status ^{/b/}	Habitat	Occurrence or Potential for Occurrence in Airport Study Area	Fully Protected by State (Y/N) ^{/c/}
SPECIES UNDER NMFS ADMINISTRATION:				
Green sturgeon (southern DPS) ^{/f/} <i>(Acipenser medirostris)</i>	T	Estuaries, lower reaches of large rivers, and salt or brackish water off river mouths. Ascends far up Trinity and Klamath rivers.	Not expected to occur in Sulphur Creek due to lack of habitat and tidal connectivity to Bay.	N
Tidewater goby <i>(Eucyclogobius newberryi)</i>	E	Brackish shallow lagoons and lower stream reaches with still, but not stagnant, water	Not expected to occur. Considered extirpated in San Francisco Bay. ^{/g/}	N
Delta smelt <i>(Hypomesus transpacificus)</i>	T	Open brackish and fresh water of large channels.	Not expected to occur due to lack of aquatic habitat.	N
Central California coast coho salmon ESU ^{/h/} <i>(Oncorhynchus kisutch)</i>	E	Anadromous: spawns in coastal streams in fall and winter.	Not expected to occur in Sulphur Creek due to lack of habitat and tidal connectivity to Bay.	N
Central California Coast steelhead ESU <i>(Oncorhynchus mykiss)</i>	Critical Habitat	Coastal streams from Russian River south to Aptos Creek (Santa Cruz Co.), including streams tributary to San Francisco and San Pablo Bays. Requires clear cool riffles with gravel or cobble substrate for spawning; and clear, cool riffles and pools for rearing habitat.	Not expected to occur in Sulphur Creek due to lack of habitat and tidal connectivity to Bay.	N
Central Valley steelhead ESU <i>(Oncorhynchus mykiss)</i>	T	Clear cool riffles with gravel or cobble substrate for spawning; clear, cool riffles and pools as rearing habitat.	Not expected to occur in Sulphur Creek due to lack of habitat. Individuals from this ESU not expected to regularly occur in South Bay.	N
Sacramento River winter-run chinook salmon ESU <i>(Oncorhynchus tshawytscha)</i>	E	Anadromous: spawns in Sacramento River system; occurs in small numbers in Central Bay.	Not expected to occur in Sulphur Creek due to lack of habitat and tidal connectivity to Bay.	N
Central Valley spring-run chinook salmon ESU <i>(Oncorhynchus tshawytscha)</i>	E	Anadromous: spawns in Sacramento River system; occurs in small numbers in Central Bay.	Not expected to occur in Sulphur Creek due to lack of habitat and tidal connectivity to Bay.	N
OTHER SPECIES White-tailed kite <i>(Elanus leucurus)</i>	–	Open grasslands, meadows, or marshes. Require dense-topped trees or shrubs for nesting and perching.	May occur. Grassland suitable for foraging but not expected to nest on Airport due to lack of trees and shrubs.	Y

/a/ California Department of Fish and Wildlife, Fully Protected Animals, available at: http://www.dfg.ca.gov/wildlife/nongame/t_e_spp/fully_pro.html

/b/ Status Codes: E = federally endangered / T = federally threatened

/c/ State of California Fish and Game Code Section 3511, 4700, 5050, and Section 5515.

/d/ California Native Plant Society (CNPS). 2013. Inventory of Rare and Endangered Plants (online edition, v8-01a). California Native Plant Society, Sacramento.

/e/ U.S. Fish and Wildlife Service (USFWS). 2002. Recovery Plan for the California Red-legged Frog (*Rana aurora draytonii*). U.S. Fish and Wildlife Service, Portland, OR.

/f/ DPS = distinct population segment

/g/ Moyle, P.B. 2002. Inland fishes of California. University of California Press, Berkeley.

/h/ ESU = evolutionarily significant unit

PREPARED BY: LSA Associates Inc., 2013

3.3.4 Hazardous Materials, Pollution Prevention, and Solid Waste

This section describes the presence of hazardous materials in the ASA and solid waste capacity of landfills in the Airport vicinity.

3.3.4.1 Hazard Materials

A search of available environmental records was conducted on December 4, 2013.⁴⁹ According to Federal, state, regional, and local agency databases searched by EDR, several reported release sites and permitted businesses generate, store, or dispose of hazardous materials located within the ASA. However, none of these sites is located within the Area of Potential Ground Disturbance; therefore, the Proposed Action would not result in adverse hazardous material effects.

3.3.4.2 Solid Waste

Municipal solid waste generated by the Airport is processed and disposed at the Altamont Landfill in Livermore, California, which is approximately 20 miles to the east. The Proposed Action would not increase operations at the Airport; therefore, the correlating municipal solid waste of Airport users would not permanently increase nor affect the capacity of the Altamont Landfill.

The Proposed Action would be greater than 10,000 feet from any operating or proposed landfills and would be in compliance with the landfill separation distance guidelines provided in FAA AC 150/5200-33B, *Hazardous Wildlife Attractants On or Near Airports*. Therefore, implementation of the Proposed Action would not result in an increased bird strike potential at the Airport. Further information on these permitted sanitary landfills found in **Table 3-8**.

Table 3-8
LANDFILLS IN ALAMEDA COUNTY

Transfer Station	Owner/Operator	Site Acreage	Design/Permitted Capacity (TPD) ^{/a/}	Remaining Capacity (millions of tons) ^{/b/}	Expected Closure Date	Spatial Orientation
Tri-Cities ^{/c/}	Waste Management Inc.	378	2,000	<1	2010	12 mi SSE
Altamont	Waste Management of Alameda County	2,170	TPD: 7,000 TPD TPY: 1,600,000 TPY ^{/d/} Total: 87.1 million tons	43	2040	26 mi ENE
Vasco Road	Republic Services	644	2,518	11	2022	22 mi ENE

/a/ TPD: Tons Per Day

/b/ Remaining Capacity in 2008

/c/ Now Closed

/d/ TPY: Tons Per Year

SOURCE: Alameda County Integrated Waste Management Plan Countywide Element, 2003
PREPARED BY: RS&H, 2011

⁴⁹ Hayward Executive Airport EDR Radius Map™ Report with GeoCheck, Hayward Executive Airport, December 2013.

3.3.5 Historic, Architectural, Archaeological, and Cultural Resources

Currently, there are no listed or eligible National Register of Historic Places (NRHP) or California Register of Historic Resources sites within the area of potential ground disturbance of the Proposed Action, which is the same as the Area of Potential Effect (APE). In addition, there are no structures located within the Proposed Action APE. No archaeological resources are present within the APE and none are likely to occur because of past ground disturbing activities that occurred as part of Airport development and maintenance activities.

The APE and the area of potential ground disturbance is defined as the area in which earthmoving and ground disturbing activities are anticipated to occur under the Proposed Action. The APE includes all areas of Sulphur Creek that would be subject to culverts, grading, seeding, and ground disturbance associated with construction activities. See **Figure 3-1** for the location of the APE.

3.3.6 Socioeconomics, Environmental Justice, and Children’s Environmental Health and Safety

The Proposed Action would occur entirely on Airport property. Residential and business acquisitions or relocations would not directly or indirectly occur as a result of the Proposed Action. **Table 3-9** presents socioeconomic characteristics of the census tract containing the Airport as well as City of Hayward, Alameda County, and National averages. **Table 3-9** also presents median income for the census tract that contains the Airport. **Figure 3-5** presents the spatial extent of Census Tract 437101, which includes the Airport.

Table 3-9
DEMOGRAPHIC AND SOCIOECONOMIC CHARACTERISTICS

	Census Tract 437101 ^{a/}	Population of Census Tract 437101	City of Hayward	Alameda County	National Average
Under 18 years old	21%	840	25%	22%	23%
19 to 64 years old	68%	2,721	65%	66%	63%
65 and older	11%	440	10%	12%	14%
Median Age	33	N/A	33	36	36
White	21%	840	19%	34%	63%
Black	6%	240	12%	12%	13%
American Indian and Alaska Native	2%	160	1%	1%	1%
Asian	50%	2,001	22%	25%	5%
Native Hawaiian, and Pacific Islander	2%	160	3%	1%	Under 1%
Hispanic or Latino^{b/}	22%	80	41%	22%	16%
Other/Two or More	11%	240	7%	5%	N/A
Socioeconomic Characteristics					
Median Household Income	\$100,968	N/A	\$62,313	\$71,516	\$53,046

^{a/}: Approximately 4,002 individuals located in Census Tract 437101.

^{b/}: “Hispanic origin” is not a race and persons of Hispanic origin may be of any race. Therefore, racial makeup often exceeds 100%. SOURCE: United States Census Bureau American Fact Finder, 2014.

Figure 3-5
EXTENT OF CENSUS TRACT 437101



Source: United States Census; RS&H, 2014.

There are no residences, schools, child care facilities, or other similar facilities in the ASA. Therefore, health and safety risks that may disproportionately affect children would not occur as a result of the Proposed Action. However, the census tract containing the Airport does contain a disproportionate number of individuals of Asian descent. Therefore, socioeconomic, environmental justice, children's environmental health and safety must be analyzed in **Chapter 4, Environmental Consequences and Mitigation**.

3.3.7 Water Quality

The cities of Alameda, Albany, Berkeley, Dublin, Emeryville, Fremont, Hayward, Livermore, Newark, Oakland, Piedmont, Pleasanton, San Leandro, and Union City, Alameda County (unincorporated area), the Alameda County Flood Control and Water Conservation District, and Zone 7 of the Alameda County Flood Control and Water Conservation District have joined together to form the Alameda Countywide Clean Water Program (the Alameda Permittees) and are currently subject to NPDES Permit No. CAS612008 issued by Order No. R2-2009-0074 on October 14, 2009 and amended by Order No. R2-2011-0083 on November 28, 2011.

The City of Hayward Stormwater Management and Urban Runoff Control Ordinance prohibits the discharge of non-stormwater discharges to the City's storm sewer system and establishes Stormwater Treatment Measures for development projects in accordance with the City's Site Design Standards and Guidance.

In addition to the above stormwater regulations, the Airport operates under an Industrial Storm Water Pollution Prevention Plan for Discharges of Storm Water Associated with Industrial Activities Excluding Construction Activities (General Permit) to comply with the State Water Resources Control Board Water Quality Order No. 97-03-DWQ and National Pollutant Discharge Elimination System General Permit No. CAS000001. The General Permit has two major objectives: 1) to identify and evaluate sources of pollutants associated with industrial activities that may affect the quality of storm water discharges and authorized non-stormwater discharges from the Airport; and, 2) to identify and implement site-specific Best Management practices (BMPs) to reduce or prevent pollutants associated with industrial activities in stormwater discharges and authorized non-stormwater discharges. The General Permit includes long-term monitoring of SWPPP elements to ensure that they continue to be effective and maintained.

3.3.7.1 Surface Water

Rainfall runoff on the Airport is conveyed through pipelines and open drainage channels to Sulphur Creek, which serves as the primary drainage feature for the Airport. Surface water runoff is collected by storm drains along Skywest Drive and along Airport taxiways and discharged into Sulphur Creek. Seasonal drainage channels in the infields also discharge runoff into Sulphur Creek, which eventually drains into San Francisco Bay located approximately 1.5 miles west of the Airport. The contaminants in the stormwater are addressed by implementation of the General Permit BMPs.

3.3.7.2 Groundwater

The Airport is located on the East Bay Plain, which contains an aquifer system greater than 100 square miles in area.⁵⁰ The East Bay Plain aquifer is used for irrigation, industrial, and emergency groundwater supply purposes, and as a limited drinking water source. However, the shallow groundwater below the Airport is located in a non-attainment zone and is used strictly for industrial purposes. Because of its low elevation and proximity to San Francisco Bay, the Airport has a relatively shallow groundwater table, located at depths of 5 to 20 feet below ground surface. Groundwater in the Airport vicinity fluctuates with seasonal variations in precipitation, with shallower depths during the rainy season of the winter months.

⁵⁰ California Regional Water Quality Control Board, San Francisco Bay Region, Water Quality Control Plan, June 1995.

3.3.7.3 Wastewater

Wastewater generated at the Airport consists of domestic wastes from the Airport's bathrooms and restaurant, as well as treated aircraft wash water from the public-use wash rack located next to Executive Hangar A at the north end of the Airport. Wastewater is conveyed to the City of Hayward Wastewater Treatment Plant then pumped to the East Bay Dischargers Authority sewer line for eventual disposal into deeper portions of San Francisco Bay west of San Leandro.

3.3.8 Wetlands

A soil scientist investigated the Area of Potential Ground Disturbance for features potentially subject to CWA jurisdiction on March 15, 2013, using the routine determination method provided in the *Corps of Engineers Wetland Delineation Manual*⁵¹ and the revised procedures in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)*.⁵² A formal jurisdictional determination (dated December 16, 2013) has been submitted to the Corps of Engineers for their review and verification.

3.3.8.1 Sulphur Creek

Approximately 3,100 linear feet of an intermittent stream, Sulphur Creek, flows westward across the Airport. Roughly half of this length is conveyed underground beneath runways and taxiways within five sets of culverts. The furthest downstream surface reach of the creek (i.e., northwest of Taxiway Z) flows within a trapezoidal concrete channel. Although this reach is located less than a mile from the San Francisco Bay, the elevation of the concrete channel has been altered by a manmade structure, which reduces the elevation of Sulphur Creek by approximately 6 feet after it leaves Airport Property. This structure was intentionally introduced into Sulphur Creek in order to restrict tidal influence within the upstream surface reaches east of Taxiway Z. The remainder of Sulphur Creek has been channelized in relatively straight, mostly trapezoidal, earthen channels until it drains into the San Francisco Bay.

Some of the creek bed and most of its lower banks are vegetated with freshwater marsh plant species, predominantly cattails and bulrushes. In the furthest upstream reach of the creek northeast of Taxiway A, a low floodplain within the trapezoidal channel banks also supports wetland plant species. This reach was subject to a City habitat mitigation/enhancement project in 2008. The creek's upper banks are vegetated with ruderal non-wetland grasses and forbs similar to those in the unpaved infields. No tidal salt marsh vegetation (e.g., pickleweed) is present within any portions of the creek channel on or adjacent to Airport property, including the reach adjacent to Skywest Golf Course.

Most of the surface reaches of Sulphur Creek have a well-defined low-flow channel with a relatively flat bed and steep cut banks. Debris wrack deposits outside this channel show that the creek does typically flow outside this channel after significant rainfall events. In some locations the low flow cut bank is interpreted as the ordinary high water mark (OHWM) elevation, while in others the OHWM elevation appears to extend outside the low flow channel onto adjacent low slope banks. At these locations, the wetland vegetation also extends beyond the low flow channel. Since the OHWM is defined as extending to the limit of the debris wrack deposits, the extent of the OHWM includes adjacent wetland vegetation.

⁵¹ Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Technical report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.

⁵² U.S. Army Corps of Engineers (USACE). 2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0). U.S. Army Engineer Research and Development Center, Vicksburg, MS.

3.3.8.2 Ditches and Basins

As previously mentioned, manmade shallow drainage ditches and swales drain the unpaved infield areas of the airfield into Sulphur Creek. These ditches extend mostly to the southeast of Sulphur Creek and include culverts underneath taxiways. Although several locations within these drainage swales contain some wetland plant species and evidence of seasonal ponding, most locations do not meet jurisdictional wetland criteria. None of the swales have a bed and bank or show evidence of scour, so are not delineated as other waters of the United States within Clean Water Act jurisdiction. The one exception is a short reach of ditch between Taxiway A and Runway 10L, which showed evidence of scour. Although the evidence for the ditch containing jurisdictional wetlands and other waters of the United States is marginal, it is delineated as potentially jurisdictional based on this combination of characteristics. The potential jurisdictional area of the ditch is 0.01 acre.

The remainder of the Area of Potential Ground Disturbance is vegetated with upland plant species and did not have any wetland characteristics. No other evidence of potential waters of the United States within Clean Water Act jurisdiction was observed during the March 15, 2013 field investigation.

4 CHAPTER 4 ENVIRONMENTAL CONSEQUENCES AND MITIGATION

4.1 INTRODUCTION

Alternatives that satisfied the requirements of the level one and two screening criteria in **Chapter 2, Alternatives** were retained for impact analysis in this Chapter. The following alternatives will be analyzed in this Chapter:

- No Action Alternative – No improvements to Sulphur Creek, or infiel drainage would occur under this alternative.
- Proposed Action – Sulphur Creek culvert component, and infiel drainage improvements.

4.1.1 Environmental Categories Not Affected by the Proposed Action

As previously discussed, the Proposed Action would not affect the following environmental resources categories, as described in FAA Order 1050.1E, Change 1:

- Coastal Resources;
- Compatible Land Use;
- Section 4(f);
- Farmlands;
- Light Emissions and Visual Impacts;
- Natural Resources and Energy Supply (note: Any build alternative would use construction material and fuel for construction equipment. However, plenty of those supplies occur in the project area. The alternatives would not adversely affect local supplies and fuel availability);
- Noise (Note: No aircraft operational increase. Minor construction-related noise and short-term runway closures. See discussion below);
- Secondary (Induced); and
- Wild and Scenic Rivers.⁵³

Since the Proposed Action would not result in an adverse effects to these resources, they will not be discussed further in this chapter.

4.1.2 Environmental Categories Potentially Affected by the Proposed Action and Reasonable Alternatives.

Future aviation activity and airport operations for Hayward Executive Airport are the same under the Proposed Project and the No-Action Alternative. The only differences in environmental impacts of the Proposed Project and the No-Action Alternative are associated with impacts of the permanent removal of vegetation and unculverted creek habitat, the regrading of areas between the runways and taxiways, and the associated environmental effects of construction activities to complete this work. Therefore, only these environmental impacts are evaluated in this EA.

⁵³ Federal Aviation Administration, Order 1050.1E, Appendix A, *Environmental Impacts: Policies and Procedures*, March 20, 2006.

Chapter 3, Affected Environment presented information on resource categories the Proposed Action would not affect. The remainder of this Chapter focuses on project-induced effects that involve the following environmental categories:

- Air Quality;
- Construction Impacts;
- Fish, Wildlife, and Plants;
- Floodplains;
- Hazardous Materials, Pollution Prevention and Solid Waste;
- Historic Architectural, Archaeological and Cultural Resources;
- Socioeconomic Impacts, Environmental Justice, and Children’s Environmental Health and Safety; and
- Water Quality;
- Wetlands; and
- Cumulative Impacts.

4.2 AIR QUALITY

This section describes the potential effects of the Proposed Action on the ambient air quality in the Airport vicinity. When compared to the No Action Alternative, implementing the Proposed Action would generate criteria pollutant emissions. However, those emissions would be temporary since they would occur only during construction activities.

4.2.1 Background and Methodology

FAA Order 5050.4B provides the basis for determining the extent of air quality impacts under the NEPA and the CAA. FAA Order 1050.1E Change 1, also provides direction on the preparation of air quality assessments. Air quality assessments prepared under NEPA must provide an analysis and summary conclusions of the Proposed Action’s and reasonable alternative’s impacts on air quality.

4.2.1.1 Regulatory Context

This section describes how air quality is regulated in the ASA and discusses the criteria and applicable statutes used to determine if the Proposed Action and reasonable alternatives would cause significant air quality effects.

The CAA requires the U.S. EPA to establish and periodically review NAAQS to protect public health and welfare.

4.2.1.2 Thresholds of Significance

NAAQS: FAA Order 1050.1E, Change 1, Appendix A2.3 provides the following air quality significance threshold:

“Potentially significant air quality impacts associated with an FAA project or action would be demonstrated by the project or action exceeding one or more of the NAAQS for any of the time periods analyzed.”

4.2.2 Environmental Consequences

This section describes the potential for air quality impacts associated with implementation of the Proposed Action and the No Action Alternative.

4.2.2.1 No Action Alternative

Implementation of the No Action Alternative would not involve any construction activities. Thus, there would be no air quality impacts associated with the No Action Alternative.

4.2.2.2 Proposed Action

The amount of emissions of criteria air pollutants associated with construction of the Proposed Action was determined by completing an air emissions inventory (see **Appendix B**). As shown in **Table 4-1**, criteria pollutant emissions generated as a result of implementation of the Proposed Action would remain below *de minimis* thresholds for all NAAQS criteria pollutants. The Proposed Action would not result in increased operational criteria pollutant emissions and construction of the Proposed Action would not result in exceedance of applicable *de minimis* air emissions thresholds for NAAQS or CAAQS. Therefore, the Proposed Action would not result in a significant air quality impact.

Table 4-1
CONSTRUCTION EMISSION INVENTORY

NAAQS Pollutant	Emissions ^{/a/b/}	de minimis Threshold	Threshold Exceeded?
Volatile Organic Compounds (VOCs)	0.12	100	No
Carbon Monoxide (CO)	0.48	100	No
Oxides of Nitrogen (NO _x)	0.73	100	No
Sulfur Oxides (SO ₂)	0.29	Not applicable	Not applicable
Particulate Matter (PM 2.5 and PM 10)	0.25	100	No
Greenhouse Gasses	43.91	Not applicable	Not applicable

/a/ In tons per year

/b/ See **Appendix B** for the results and methodology of the construction emission inventory.

SOURCE: RS&H, 2014

PREPARED BY: RS&H, 2014

4.2.2.3 Assessment of Climate Change

Although there are no Federal standards for aviation-related GHG emissions, it is well-established that GHG emissions can affect climate.⁵⁴ The Council on Environmental Quality (CEQ) has indicated that climate should be considered in NEPA analyses. As noted by CEQ, however, "it is not currently useful for the NEPA analysis to attempt to link specific climatological changes, or the environmental impacts thereof, to the particular project or emissions; as such direct linkage is difficult to isolate and to understand".⁵⁵ The following provides an estimate of GHG emissions for

⁵⁴ See *Massachusetts v. E.P.A.*, 549 U.S. 497, 508-10, 521-23 (2007).

⁵⁵ CEQ, *Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions*, (2010). http://ceq.hss.doe.gov/nepa/regs/Consideration_of_Effects_of_GHG_Draft_NEP_A_Guidance_FINAL_02182010.pdf.

the No Action and Proposed Action alternatives. These estimates are provided for information only as no Federal NEPA standard for the significance of GHG emissions from individual projects on the environment has been established.

No Action Alternative

Under the No Action Alternative there would be no increase in project-specific GHG emissions.

Proposed Action

The Proposed Action would generate GHG emissions of 43 tons over the No Action alternative during construction. This increase would comprise less than .01⁵⁶ percent of U.S. based GHG emissions and less than .001⁵⁷ percent of global GHG emissions.⁵⁸

4.2.3 Mitigation

The Proposed Action would not cause any significant air quality impacts. Nevertheless, construction contractors will use BMPs noted below to limit dust and fossil fuel emissions construction equipment generates to reduce project-related air quality effects. These BMPs include the following:

- require construction-related contractors to use ultra-low sulfur diesel in vehicles and construction equipment;
- limit the idle time of gasoline and diesel-powered construction equipment engines to no more than five minutes, when feasible;
- encourage contractors to substitute low and zero-emitting construction equipment whenever possible;
- implement a construction-employee shuttle service, rideshare program, and/or on-site food service to reduce vehicle trips;
- use electrical drops in place of temporary electrical generators, whenever possible; and
- train and monitor employees on the adherence to these emission-reducing measures.

Since the project site is located in a nonattainment for particulate matter 2.5 microns in size, the following additional BMPs aimed at reducing the occurrence of fugitive dust emissions would be implemented:

- apply non-toxic soils stabilizers to all inactive construction areas including areas with disturbed, or exposed soils, and stockpiled fill material;
- stabilize on-site truck haul routes and staging areas with dust-prevention materials;
- remove mud and dirt from haul truck wheels and cover truck bodies before leaving the construction site(s); and
- permanently cover all disturbed and exposed soils with vegetation as soon as practicable.

⁵⁶ See *Massachusetts v. E.P.A.*, 549 U.S. 497, 508-10, 521-23 (2007).

⁵⁷ CEQ, *Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions*, (2010). http://ceq.hss.doe.gov/nepa/reg/Consideration_of_Effects_of_GHG_Draft_NEP_A_Guidance_FINAL_02182010.pdf.

⁵⁸ U.S. based GHG emission estimated at 6,821.8 million metric tons CO₂ equivalent in Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2010, (April 2012). The IPCC estimates global GHGs in 2004 at 49 Gigatonnes.”

4.3 CONSTRUCTION IMPACTS

The analyses of construction impacts for this EA are based on the following assumptions:

1. Construction will occur during the California construction season, which runs from April 15 to October 15.
2. Construction activities will take place during a 5-day work week. Activities will occur from Monday thru Friday, eight hours per day.
3. Rainfall during that season will be less than 5 inches. The City of Hayward typically receives less than that level during that construction period (annual average precipitation is approximately 26 inches).
4. Construction procedures are expected to be consistent with provisions contained in FAA AC 150/5370-10E, *Specifying Construction at Airports* to ensure safe airport operations while construction activities occur.⁵⁹

4.3.1 Background and Methodology

Construction activities, although short-term in duration, have the potential to cause substantial environmental effects. Unavoidable, construction-related air quality emissions, noise, changes in surface traffic density and flow, water quality degradation, soil erosion, habitat loss, use of natural resources and energy, and exposure of workers to hazardous materials are examples of such effects. See **Chapter 2, Alternatives** for a summary of the project components associated with each alternative.

4.3.1.1 Regulatory Context

The regulations the EA addresses depend upon the various regulations protecting the affected environmental resources (e.g., 40 CFR Part 122 addressing National Pollutant Discharge Elimination Permit System [NPDES] requirements; Executive Order requirements on floodplains or wetlands). In addition, construction specifications associated with the Proposed Action would incorporate:

- the provisions of FAA AC 150/5370-10C;⁶⁰
- required mitigation; and
- applicable Federal, State and local regulations to reduce those effects.

4.3.1.2 Methodology

This EA uses the analytical guidelines discussed in Appendix A of FAA Order 1050.1E, Change 1 to evaluate and disclose construction impacts on particular environmental resources such as air quality or water quality.

4.3.1.3 Threshold of Significance

This EA uses the significance thresholds in FAA Order 1050.1E, Change 1, Appendix A that apply to each environmental resource construction would affect.

⁵⁹ Federal Aviation Administration, AC 150/5370-10F, *Standards for Specifying Construction at Airports*, September 30, 2011.

⁶⁰ Federal Aviation Administration, Advisory Circular 150/5370-10C, *Standards for Specifying Construction at Airports*, Item P-156 *Temporary Air and Water Pollution, Soil Erosion and Siltation Control*, current edition.

4.3.2 Environmental Consequences

This section describes the potential for construction impacts associated with implementation of the Proposed Action and the No Action Alternative.

4.3.2.1 No-Action Alternative

Implementation of the No-Action Alternative would not involve any construction activities. Therefore, there are no construction-related impacts associated with the No-Action Alternative.

4.3.2.2 Proposed Action

Airport property includes areas that would include construction activities associated with the Proposed Action. This includes the spatial location of many construction activities such as cement mixing, parking, equipment storage, vehicle staging, and temporary infrastructure designed to accommodate construction crews.

Air Quality

The amount of airborne suspended particulates would temporarily increase in the Airport vicinity during certain construction activities. Heavy construction equipment used at the site would emit exhaust containing CO, NOx, VOCs, and particulate matter. Temporary air quality impacts associated with these sources would vary depending on the local weather conditions, level of construction activity, and the nature of the construction operation; however, these temporary impacts would not be significant since the selected contractor would be required to implement BMPs noted below.

To minimize temporary air quality impacts, the contractor would be required to implement BMPs, such as treating excavated areas with water during dry and windy conditions, covering haul trucks, maintaining construction vehicles appropriately, using reduced speeds, suspending certain construction activities during high wind conditions, and covering graded areas with stabilizing materials. Since criteria pollutant emissions associated with construction of the Proposed Action would not exceed applicable *de minimis* thresholds, construction of the Proposed Action would not result in a significant air quality impact.

Fish, Wildlife, and Plants

During construction activities, direct mortality to invertebrates with a reduced capacity to flee could occur. This would be a result of the earthwork associated with excavation and grading required for implementation of the Proposed Action. Since no federally or state protected fish, wildlife, or plants occur within the construction area, implementation of the Proposed Action would not affect these protected species.

Energy Supply, Natural Resources, and Sustainable Design

The Proposed Action would result in temporary increased energy demand throughout the construction process. Airside, landside, and surface transportation improvements associated with the Proposed Action would include the use of aggregate, sub-base materials, and concrete. In addition, trucks and construction equipment would consume fuels as needed for construction purposes. The Proposed Action would result in an increase in the quantity of common construction-related materials consumed at the Airport.

Hazardous Materials and Pollution Prevention

Implementation of the Proposed Action would result in a temporary increase of on-site hazardous material storage. This would predominantly occur in the form of diesel fuel, which is necessary for the operation of construction equipment. Implementation of the Proposed Action also would result in short-term and temporary increases in the quantity of solid waste generated at the Airport. Since the County has the ability to accommodate solid waste generated as a result of the Proposed Action and since storage of hazardous materials would be conducted in accordance with applicable Federal, State, and local laws, construction of the Proposed Action would not result in a significant in a significant hazardous material or pollution prevention impact.

Noise

Temporary noise impacts as a result of construction vehicles and machinery would be limited to the immediate vicinity of the Proposed Action. Earthwork and site preparation would result in temporary noise generation while these activities are taking place. Noise levels would vary dependent on the nature of construction activities, the type, and model of equipment used. Given the distance to the nearest noise-sensitive land use and the presence of vegetated buffers surrounding the Airport, temporary noise impacts from construction would not be significant.

Construction of the Proposed Action would not involve activities that would permanently influence aviation-related noise. Construction equipment required for implementation of the Proposed Action would include cement mixers, backhoes, dump trucks, graders, water trucks, sweepers, and other construction equipment commonly associated with runway and culvert construction. Due to the need for runway closure, construction could occur during nighttime hours in an effort to reduce the duration of runway closure. The nearest residential land uses in relation to the project site are located approximately 1,600 feet to the north of the Proposed Action and are separated by a vegetated buffer and Skywest Golf Course. Due to the lack of noise sensitive land uses in the immediate vicinity of the Proposed Action and the presence of vegetated buffers, the Proposed Action would not result in a significant noise impact. Information regarding construction phasing and runway closure is detailed in subsequent sections.

Phase 1

Work in Phase 1 includes all associated work in the infield areas south of Taxiway A and north of Runway 10L-28R, which would require closure of Runway 10L-28R for approximately three months. Taxiway A west of Taxiway E also would be closed. Runway 10R/28L would accommodate all Airport operations during this phase of construction.

Phase 2

Work in Phase 2 includes work in the infield areas south of Runway 10L-28R and north of Runway 10R-28L, which would require closure of Runway 10R-28L for approximately three months. Taxiway A would be operational during Phase 2. During this phase of construction Runway 10R-28L would accommodate all Runway 10L-28R air traffic.

HWD operates two runways that accommodate C-II and B-I aircraft and annual services less than 90,000 propeller operations. This level of aviation activity is not anticipated to result in noise impacts to surrounding areas. As stated in FAA Order 1050.1E, Section 14.6a, “No noise analysis is needed for proposals involving Design Group I and II airplanes in approach categories A through D operating at airports whose forecasted operations in the period covered by the EA do not exceed 90,000 annual propeller operations or 700 jet operations. These number of general aviation (GA) propeller and jet operations result in DNL 60 dB contours of less than 1.1 square

miles that extend no more than 12,500 feet from the start of takeoff roll. The DNL 65 dB contour areas would be 0.5 square miles or less and extend no more than 10,000 feet from start of takeoff roll.” While temporary runway closures during project construction would shift all aircraft operations onto Runway 10R-28L and then to 10L-28R, this level of aviation activity would not result in a significant noise impacts on noise-sensitive land uses.

Secondary (Induced) Impacts

Short-term construction-related employment of local contractors would occur as a result of the Proposed Action. This is considered to be a positive impact. With respect to changes in traffic volumes in the Airport vicinity during construction activities, the increase in construction-related traffic would be considered minor. Since these roads in the Airport vicinity operate at acceptable levels of service, the Proposed Action would not result in significant secondary induced impacts.

Water Quality

Without implementation of Best Management Practices (BMPs) to protect water quality, there would be a possibility that contaminants could be discharged into groundwater resources during construction activities. Construction activities would be subject to coverage under the General Permit for Discharge of Storm Water Associated with Construction Activity, Construction General Permit Order 2009-0009-DWQ.⁶¹ BMPs would be necessary to ensure water quality impacts do not extend to downstream portions of Sulphur Creek. **Section 4.9** contains BMPs that would ensure that construction of the Proposed Action would not result in significant water quality impacts. Given the guidelines of water-related BMPs, construction permit conditions, and the design of project-specific plans; the Proposed Action would not have a significant impact on groundwater resources.

4.4 FISH, WILDLIFE, AND PLANTS

This section describes impacts of the Proposed Action and the No Action Alternative on fish, wildlife, and plant species within the ASA.

4.4.1 Background and Methodology

As noted below, a number of Federal laws, regulations, and Executive Orders protect many of the biotic communities in the ASA.

- NEPA;⁶²
- Airport and Airways Development Act, Section 47106(c)(B);⁶³
- The Endangered Species Act;⁶⁴
- Related Essential Fish Habitat Requirements of the Magnuson-Stevens Act, as amended by Sustainable Fisheries Act;⁶⁵
- Fish and Wildlife Conservation Act of 1980;⁶⁶

⁶¹ California Environmental Protection Agency, 2009-0009-DWQ Construction General Permit. Available at: http://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml. Accessed January 22, 2014.

⁶² 42 U.S.C. Sections 4321–4347.

⁶³ 49 U.S.C. Section 47106(c)(B).

⁶⁴ 16 U.S.C. Sections 1531–1544.

⁶⁵ 16 U.S.C. Section 1855(b)(2).

⁶⁶ 16 U.S.C. Section 662.

- EO 13112, Invasive Species;⁶⁷
- Migratory Bird Treaty Act of 1981;⁶⁸
- The Fish and Wildlife Coordination Act;⁶⁹ and
- Presidential Memorandum on Environmentally and Economically Beneficial Landscape Practices on Federally Landscaped Grounds.⁷⁰

4.4.1.1 Regulatory Context

Numerous regulations that protect fish, wildlife, and plants are summarized below:

- 50 CFR Part 402 provide instructions on Federal agency consultation with the USFWS and preparing biological assessments to determine project-related effects on Federally-listed endangered and threatened species;
- 50 CFR 600.920 requires Federal agencies approving or funding Federal actions that may affect essential fish habitat to consult with the National Oceanic and Atmospheric Administration (NOAA) Fisheries; and
- 50 CFR Parts 10 and 10.13 discuss the taking and protection of the listed migratory birds, respectively.

The USFWS has jurisdiction over federally listed threatened and endangered plant and animal species. The federal Endangered Species Act (ESA) protects listed species from harm or “take,” broadly defined as to “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct. Any activity can be defined as a “take” even if it is unintentional or accidental. Listed plant species are typically provided less protection than listed animals.

Federal statutes require avoidance and minimization of temporary or permanent impacts to threatened or endangered species or migratory birds resulting from the project elements of the Proposed Action (Federal Endangered Species Act, Migratory Bird Treaty Act). Federal regulatory statutes require avoidance and minimization of temporary or permanent impacts to threatened or endangered species or migratory birds resulting from the project elements of the Proposed Action (Federal Endangered Species Act, Migratory Bird Treaty Act). This section identifies wildlife and plant resources and their habitats within the Airport Study Area and draws conclusions as to whether the No Action Alternative or the Proposed Action Alternative would have any type of impact to identified resources.

4.4.1.2 Thresholds of Significance

A significant impact is likely to occur when the Proposed Action would jeopardize the continued existence of fish, wildlife, and plants in question, or result in a destruction or adverse modification to Federally or state-designated critical habitats in the ASA. FAA Order 1050.1E, Change 1, Appendix A8.3 and FAA Order 5050.4B, note a significant impact to fish, wildlife, and plants are associated with factors affecting population dynamics and sustainability (e.g., reproductive success rates, natural mortality rates, non-natural mortality) and minimum population levels required for population maintenance.

⁶⁷ Vol. 64 *Federal Register*, page 6183, Feb. 1999.

⁶⁸ 16 U.S.C. Sections 703-711.

⁶⁹ 16 U.S.C. Section 661 et. seq.

⁷⁰ Vol. 60 *Federal Register*, page 40837, Aug. 1995.

4.4.2 Environmental Consequences

This section describes the potential for fish, wildlife, and plant impacts associated with implementation of the Proposed Action and the No Action Alternative.

4.4.2.1 No Action Alternative

Implementation of the No Action Alternative would not involve construction activities. Therefore, the No Action Alternative would not have any adverse effect on fish, wildlife, and plants.

4.4.2.2 Proposed Action

The Proposed Action would result in the elimination of approximately 0.19 acres of wetland habitat within the AOA of the Airport and its replacement with an enclosed concrete culvert. In addition, the Proposed Action would involve grading activities which would result in the disturbance of approximately ten acres of annual grassland located on an active airfield surrounded by runways and taxiways, and other sections of Sulphur Creek that are already enclosed in culverts.

No Federal or State listed species has a high probability of occurrence within the ASA, or the Area of Potential Ground Disturbance. Since the Proposed Action would not result in adverse effects to protected species of flora or fauna the Proposed Action would not have a significant impact fish, wildlife, and plants. The impacts associated with the loss of approximately 0.19 acres of wetland habitat is addressed in **Section 4.10, Wetlands**.

4.4.2.3 Mitigation

Prior to construction activities the Airport would complete a field survey of the area to determine if ground nesting birds protected by the Migratory Bird Treaty Act are present. If nests of birds protected by the Migratory Bird Treaty Act are present, a buffer of 50 feet between construction areas and the nesting birds should be established with construction fencing and maintained until the birds have completed nesting.

4.5 FLOODPLAINS

This section discusses the unavoidable floodplain encroachment associated with the effects of the Proposed Action and the No Action Alternative. It also describes the laws and regulations applicable to those actions, how those actions would affect the natural and beneficial values of the floodplains, and measures to mitigate those effects.

4.5.1 Background and Methodology

Floodplains are areas adjacent to rivers, creeks, ditches, lakes, or other surface waters that periodically flood. The flooding normally occurs during or after large storm events or rapid snowmelt because downstream constrictions or obstructions prevent unobstructed flood flows. In other instances, storm surges, can overwhelm low laying coastal areas.

According to the Federal Emergency Management Agency (FEMA), floodplain boundaries are based on the likelihood that a specific area will flood. FEMA, often with assistance from the United States Army Corps of Engineers (USACE), determines the boundaries of floodplains based on hydraulic modeling. The results of this modeling are published as Flood Insurance Rate Maps (FIRMs). The 100-year floodplain (Zone A) is the area that statistically has a one percent chance

of becoming flooded each year. A 20-year floodplain is an area that statistically has a five percent chance of becoming flooded each year.

Local and Federal agencies regulate construction in the 100-year floodplain. This is because development has an impact on the amount of flood storage the floodplain can provide and other natural and beneficial functions (e.g., aquatic and wildlife habitat, farmland). In addition, such development often puts human life and property at risk. EO 11988, *Floodplain Management*, directs Federal agencies to preserve and restore floodplain values and functions.⁷¹

4.5.1.1 Regulatory Context

DOT Order 5650.2, *Floodplain Management and Protection*, requires, FAA, as a U.S. Department of Transportation (USDOT) agency, to meet the Executive Order's requirements. Information in FEMA's *Floodplain Management Guidelines* provides information on how to meet those requirements.⁷² State and local construction regulations also address floodplain protection. The public also provides valuable information about floodplains and potential project effects.

4.5.1.2 Thresholds of Significance

The Proposed Action would represent a “significant encroachment” if it would cause one or more of the following impacts:

1. The action would have a high probability of loss of human life.
2. The action would likely have substantial, encroachment-associated costs or damage, including interrupting aircraft service or loss of a vital transportation facility (e.g., flooding of a runway or taxiway; important navigational aid out of service due to flooding, etc.).
3. The action would cause significant adverse impacts on natural and beneficial floodplain values.

4.5.1.3 Methodology

A report analyzing the existing and proposed hydraulic capacity of Sulphur Creek using Hydraulic Engineering Centers River Analysis System (HEC-RAS) software was prepared in October 2012.⁷³ Alameda County provided 15-year and 100-year flow rates for Sulphur Creek and starting Hydraulic Grade Line (HGL) at the downstream end of the analysis. A 15-year storm is the typical storm used for evaluating flood control impacts in the City of Hayward and Alameda County. A 100-year storm is the storm evaluated for FEMA. For the purposes of the analysis, the HGL values approximated the expected water surface elevations within the creek channel created by the 15-year and 100-year storm model simulations. The 15-year flow rate downstream of Line K-1 (drainage system that confluences with Sulphur Creek), approximately 400 feet upstream of Taxiway A is 682 cubic feet per second (cfs). The 100-year flow rate in this same section of Sulphur Creek is 1002 cfs.

Most of the surface reaches of Sulphur Creek have a well-defined low-flow channel with a relatively flat bed and steep cut banks. Debris wrack deposits outside this channel show that the creek does typically flow outside this channel after significant rainfall events. In some locations the low flow cut bank is interpreted as the ordinary high water mark (OHWM) elevation, while in others the OHWM elevation appears to extend outside the low flow channel onto adjacent low slope banks. At these locations, the wetland vegetation also extends beyond the low flow channel.

⁷¹ Vol. 42, *Federal Register*, page, 26951, May 1977.

⁷² Vol. 43 *Federal Register*, page 6030, Feb. 1978.

⁷³ RJA 2012, op. cit.

Since the OHWM is defined as including adjacent wetland vegetation, the OHWM is mapped as extending to the limit of wrack and wetland vegetation in these reaches.

Upstream of Line K-1 to the airport boundary at Hesperian Boulevard, the 15-year flow rate in Sulphur Creek is 502 cfs. The 100-year flow rate to Hesperian Boulevard is 745 cfs. The starting HGL at the downstream end of the analysis is 20.4 feet for the 15-year storm and 24.4 feet for the 100-year storm. These flow rates and HGL values were used for the existing and proposed conditions in the HEC-RAS hydraulic model. Cross-sections for the model were developed from field surveys conducted in October 2011 and supplemented in May 2012. Record drawing research was also conducted to determine the existing culvert geometry.

4.5.2 Environmental Consequences

This section describes the potential for floodplain impacts associated with implementation of the Proposed Action and the No Action Alternative.

4.5.2.1 No Action Alternative

Implementation of the No Action Alternative would not involve any construction activities. Therefore, there are no floodplain impacts associated with selection of the No Action Alternative.

4.5.2.2 Proposed Action

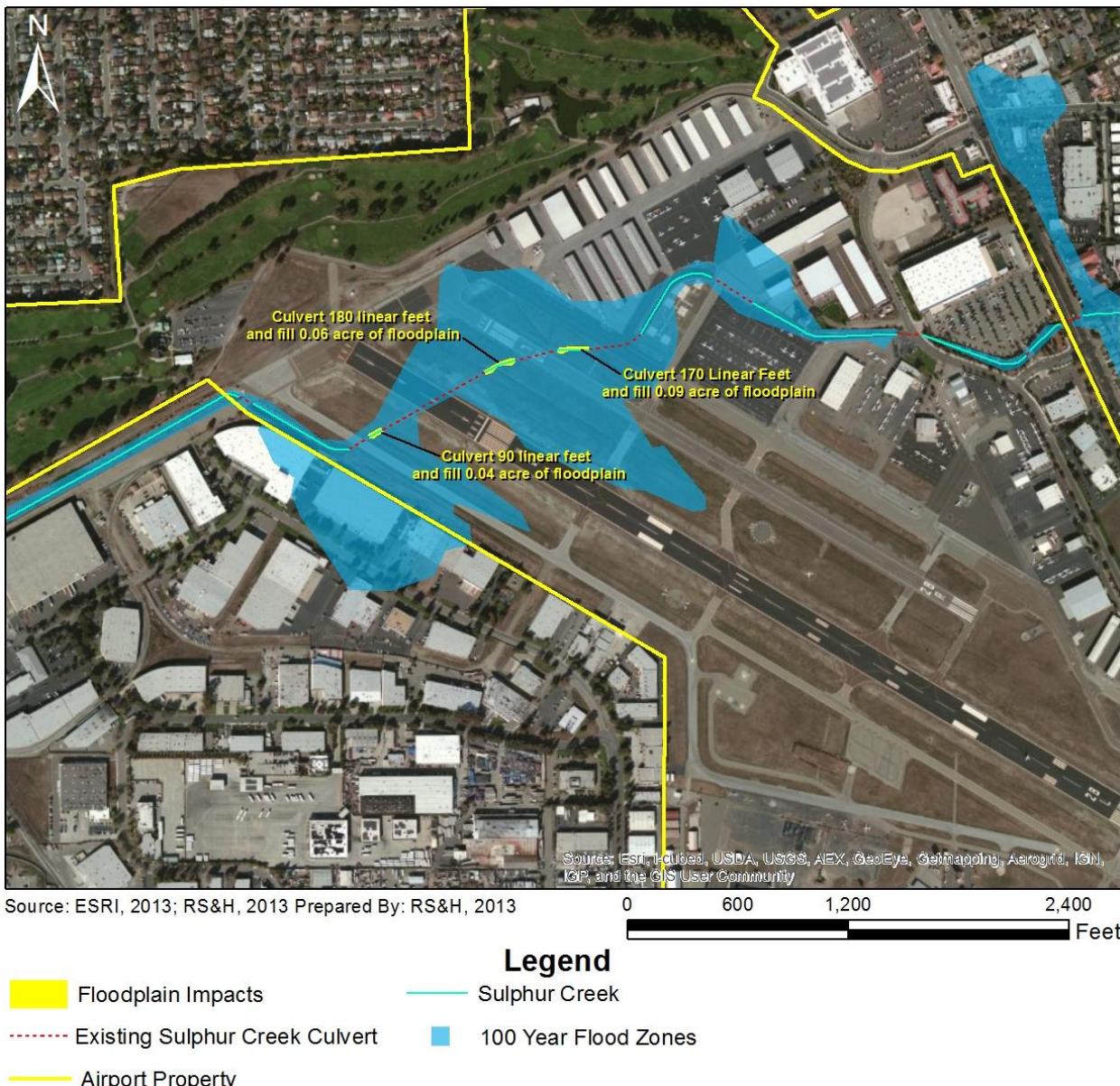
The Proposed Action would place culverts in Sulphur Creek within the 100-year floodplain and eliminates topographic inconsistencies by grading areas between the HWD runways and taxiways within the 100-year floodplain.

The HGL (or “typical water level”) at the upstream end of Sulphur Creek within the Airport boundary under the No Action Alternative during a 15-year storm event is 33.4 feet and is 34.6 feet during a 100-year storm event. With implementation of the Proposed Action, the projected HGL at the upstream end, based on the results of the HEC-RAS model simulation, is 33.5 feet during a 15-year storm event and 34.7 feet during a 100-year storm event. This analysis shows that water surface elevations with implementation of the Proposed Action is estimated to be only 0.1-foot higher during both the 15-year and 100-year storm events. This 0.1-foot difference in flood plain elevation is not significant.

The 100-year floodplain map for the No Action alternative, which is the same as the 100-year floodplain map shown for existing conditions in **Figure 1-5** (based on FIRMs #06001C0267G and #06001C0286G) and the projected 100-year floodplain map based on implementation of the Proposed Action shown in **Figure 4-1**, are essentially the same shape. Although the depth of water adjacent to Sulphur Creek within the 100-year floodplain is estimated to increase by 0.1 foot with implementation of the Proposed Action, the lateral extent of water within the 100-year floodplain in the vicinity of Sulphur Creek on HWD is essentially the same as for the No Action alternative. Therefore, the Proposed Action would not result in a “significant encroachment” upon the existing floodplains at the Airport as the Proposed Action would not:

- result in a high probability of loss of human life because there are no residential structures or high-occupancy office buildings within the 100-year floodplain associated with the Proposed Action;

*Figure 4-1
FLOODPLAIN CONSEQUENCES*



- result in the increased probability of substantial, encroachment-associated costs or damage when compared to existing conditions. A 100-year flood would result in temporary flooding of HWD and disruption of aircraft traffic, but the extent of this flooding under the Proposed Action would not be increased by more than 0.1 feet above conditions present under the No Action Alternative, which is not a significant change;
- cause significant adverse impacts on natural and beneficial floodplain values since the topographic features within the 100-year floodplain would not change except for levelling the areas between the runways and taxiways to a consistent slope, and the enclosure of a portion of Sulphur Creek within culverts. The existing beneficial floodplain values on the Airport include water quality maintenance and groundwater recharge. The wetlands and

wildlife habitat that would be removed by placing a portion of Sulphur Creek in an enclosed culvert would be replaced through mitigation as described in **Section 4.10, Wetlands**.

Therefore, the Proposed Action would not result in a significant floodplain impact.

As the floodplain areas impacted by the Proposed Action are along the edges of Sulphur Creek, and there is no practicable alternative to placing portions of Sulphur Creek in underground culverts to meet the purpose and need for the Proposed Action, there is no practicable alternative to impacting the floodplain to implement the Proposed Action.

4.6 HAZARDOUS MATERIALS, POLLUTION PREVENTION, AND SOLID WASTE

This section describes the potential for the Proposed Action to affect hazardous materials and solid waste. A review of available information was conducted to determine if properties within the ASA have known environmental concerns or contaminants. This was accomplished by field reconnaissance and review of regulatory databases, including EPA's EnviroMapper. No sampling or subsurface testing of environmental media (i.e., soils, surface or ground water) was conducted as part of this investigation. The assessment within this section does not constitute an Environmental Site Assessment or an Environmental Audit.

4.6.1 Background and Methodology

Federal, State, and local laws regulate the use, storage, transport, or disposal of hazardous materials. These laws may extend to past and future landowners of properties containing these materials. In addition, sites containing hazardous materials may create pathways to allow contaminants to affect human health and the environment.

Airport operations include the routine storage, use, and transport of hazardous materials and the generation of wastes including hazardous wastes. Hazardous materials are transported to and from the Airport by ground vehicles as well as by passenger and all-cargo aircraft. Aviation fuel represents the largest quantity of hazardous material used at the Airport. It is consumed in operations and rarely becomes a waste. Smaller quantities of other hazardous materials are stored and used on the Airport. A common waste generated is used motor oil associated with aircraft, vehicle and ground equipment maintenance at the Airport. In addition, Airport operations also generate solid waste typical of commercial and industrial activities. Any increase in aviation activity has the potential to increase the amount of hazardous materials stored, used, and transported at the Airport as well as the amount of hazardous waste and solid waste generated by Airport activities. However, the Proposed Action would not result in any increases in aviation activity.

4.6.1.1 Regulatory Context

Generally, the terms "hazardous wastes," "hazardous substances," and "hazardous materials" are associated with industrial wastes, petroleum products, dangerous goods, or other contaminates. In a regulatory context, these terms have very precise and technical meanings that are used for consistency and legal purposes. The following paragraphs discuss some of those terms.

Hazardous Wastes

Subpart C of RCRA defines this term. Hazardous wastes (sometimes called characteristic wastes) are solid wastes that are ignitable, corrosive, reactive, or toxic. Examples include waste oil, mercury, lead or battery acid. In addition, Subpart D of the Resource Conservation Recovery Act (RCRA) contains a list of specific types of solid wastes that the EPA has deemed hazardous (sometimes called listed wastes). Examples include degreasing solvents, petroleum refining waste, or pharmaceutical waste.

Hazardous Substances

Section 101(14) of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) defines this term broadly. It includes hazardous wastes, hazardous air pollutants, or hazardous substances designated as such under the CWA and Toxic Substances Control Act (TSCA) and elements, compounds, mixtures, or environmental resources. It should be noted that, pursuant to CERCLA, hazardous substances do not include any petroleum or natural gas substances and materials. Examples include ammonia, bromine, chlorine, or sodium cyanide.

Hazardous Materials

According to 49 CFR Part 172, hazardous materials are any substances commercially transported that pose unreasonable risk to public health, safety, and property. These substances include hazardous wastes and hazardous substances as well as petroleum and natural gas substances and materials. Examples include household batteries, gasoline, or fertilizers.

4.6.1.2 Thresholds of Significance

Section 10 of Appendix A in FAA Order 1050.1E, Change 1 indicates that the significance threshold for determining adverse effects due to hazardous materials and hazardous wastes includes the following:

- If the Proposed Action or reasonable alternative involves a property on or eligible for the National Priority List (NPL)⁷⁴, the FAA recommends that any NEPA document disclose if presence of contamination within the boundaries of the *entire* NPL site. This helps the decision maker (and reader) determine if there are areas within the site that are not contaminated (i.e., “clean”).
- If an airport would have difficulty meeting applicable, state, or Federal laws and regulations addressing hazardous wastes or hazardous materials, then the FAA recommends that any NEPA document disclose that difficulty. This helps the decision maker (and reader) determine if extraordinary measures are needed to mitigate project-related disturbances of contaminates that would endanger the health and/or safety of citizens (e.g., connecting the project area to a new water supply or moving local residents to avoid contamination).
- If there is an unresolved issue regarding hazardous materials, then FAA recommends that any NEPA document discuss how the Proposed Action or reasonable alternative would affect a site known or suspected to be contaminated. This informs the decision maker (and reader) that the effects of the contamination are not fully understood, but necessary corrective actions may be needed.

⁷⁴ The NPL is the list of areas throughout the United States and its territories that have had releases or threatened releases of hazardous substances, pollutants, or contaminants. The NPL’s primary purpose is to guide the EPA in determining those sites warranting further investigation.

Section 10 of Appendix A in FAA Order 1050.1E, Change 1 provides guidance on determining the level of effect that would occur.

4.6.2 Environmental Consequences

This section describes the potential for hazardous material impacts associated with implementation of the Proposed Action and the No Action Alternative.

4.6.2.1 No Action Alternative

Implementation of the No Action Alternative would not involve any construction activities. Therefore, the No Action Alternative would not result in a significant hazardous material or pollution impact.

4.6.2.2 Proposed Action

Since the Proposed Action would not increase the number of operations and enplanements, permanent additional municipal solid waste (MSW) generation would not occur. Therefore, the Proposed Action would not result in the permanent generation of additional MSW or a significant impact on solid waste disposal capacity of local landfills.

The improvements associated with the Proposed Action are not located in areas of the Airport that are known or suspected to contain environmental contamination. See **Section 4.3, Construction Impacts** for a discussion of the use and disposition of hazardous materials during construction.

Hazardous Materials

A search of available environmental records was conducted on December 4, 2013.⁷⁵ According to Federal, state, regional, and local agency databases searched, there are several reported release sites and permitted businesses for the generation, storage, or disposal of hazardous materials located within the ASA. However, none of these sites are located within the Area of Potential Ground Disturbance. Therefore, the Proposed Action would not result in hazardous material impacts to existing sites, facilities, or operations, and would not result in a significant impact associated with hazardous materials.

Solid Waste

Municipal solid waste generated by the Airport is processed and disposed at the Altamont Landfill in Livermore, California, which is approximately 20 miles to the east. The Proposed Action would not change the amount of solid waste generated at the Airport. Therefore, the Proposed Action has no potential to affect the capacity of the Altamont Landfill.

4.7 HISTORIC, ARCHITECTURAL, ARCHAEOLOGICAL, AND CULTURAL RESOURCES

This section describes the potential for the Proposed Action to affect historic, architectural, archaeological, and cultural resources. Due to the absence of any cultural resources in the Airport vicinity, the Proposed Action would not have any impact on any historic, architectural, archaeological, and cultural resources.

⁷⁵ *Hayward Executive Airport EDR Radius Map™ Report with GeoCheck*, Hayward Executive Airport, December 2013. See **Appendix D**.

4.7.1 Background and Methodology

Historic properties are resources that have been determined to be significant to American history, prehistory, architecture, archaeology, engineering and culture. These resources can include districts, sites, buildings, structures, objects, landscapes, and historic or prehistoric archaeological sites; which could also be considered Native American Traditional Cultural Properties (TCPs).

4.7.1.1 Regulatory Context

The National Historic Preservation Act of (NHPA) of 1966, as amended, established the Advisory Council on Historic Preservation (AChP) and the National Register of Historic Places (NRHP) within the National Park Service (NPS).⁷⁶ Section 106 of the NHPA requires Federal entities to consider the effect of proposed actions on properties included, and eligible for inclusion in the NRHP. Statutes and regulations applicable to historic, architectural, archaeological, and cultural resources include:

- *Archaeological and Historic Preservation Act of 1974*;⁷⁷
- *Archaeological Resources Protection Act of 1979*;⁷⁸
- *Native American Graves Protection and Repatriation Act*,⁷⁹
- *Antiquities Act of 1906*⁸⁰;
- *American Indian Religious Freedom Act of 1978*;⁸¹
- *Public Building Cooperative Use Act of 1976*;⁸²
- EO 13006, *Locating Federal Facilities on Historic properties in our National Central Cities*;⁸³
- *Historic Sites Act of 1935*;⁸⁴
- EO 13007, *Indian Sacred Sites*;⁸⁵
- EO 13175, *Consultation and Coordination with Indian Tribal Governments*;
- Presidential memorandum of April 29, 1994, *Government-to-government; Relations with Native American Tribal Governments*;⁸⁶ and
- EO 11593, *Protection and Enhancement of the Cultural Environment*.⁸⁷

4.7.1.2 Thresholds of Significance

Section 106 of the NHPA requires a Federal agency having direct or indirect jurisdiction over a proposed federal or federally-assisted undertaking, or issuing licenses or permits, must consider the effect of the proposed undertaking on historic properties.

Pursuant to FAA Order 1050.1E, Change 1, *Environmental Impacts: Policies and Procedures*, the FAA determines whether the Proposed Action is an “undertaking” as defined in 36 CFR

⁷⁶ U.S. Code. 1966. National Historic Preservation Act of 1966. 16 U.S. Code 470 and following sections.

⁷⁷ U.S. Code. 1974. Archaeological and historic Preservation Act of 1974, 16 USC Subsection 469.

⁷⁸ U.S. Code. 1979. Archaeological Resources Protection Act of 1979, 16 USC Subsection 470.

⁷⁹ U.S. Code. 1990. Native American Graves Protection and Repatriation Act, 25 USC Subsection 3001.

⁸⁰ U.S. Code. 1906. American Antiquities Act of 1906, 16 UISC Subsection 431-433.

⁸¹ U.S. Code. 1978. American Indian Religious Freedom Act of 1978, 42 USC Subsection 1996.

⁸² U.S. Code. 1976. The Public Building Cooperative Use Act of 1976, 40 USC Subsection 601a.

⁸³ EO 13006, Locating Federal Facilities on historic properties in Our Nation's Cities, May 21, 1996.

⁸⁴ U.S. Code. 1935. Historic Sites Act of 1935, 16 USC Subsection 461-467

⁸⁵ EO 13007, Indian Sacred Sites, 61 FR 26771-26772, May, 1996.

⁸⁶ EO 13175, Consultation and Coordination with Indian Tribal Governments, 65 Federal Register 67249, November 2000.

⁸⁷ EO 11593 *Protection and Enhancement of the Cultural Environment*.

800.16(y).⁸⁸ A significant impact would occur if following an adverse effect determination the FAA and the State Historic Preservation Officer (SHPO) fail to identify or implement appropriate mitigation measures. The specific criteria of effect and adverse effect, defined in 36 CFR 800.9, were used to evaluate an undertaking's effect on a historic property.

4.7.1.3 Methodology

In order to assess the potential impacts of the Proposed Action on historic, archaeological and cultural resources, an Area of Potential Effect was established, which is identical to the Area of Potential Ground Disturbance referenced in **Figure 3-1**. The APE is a spatial area used to assess the potential direct and indirect impacts in which the Proposed Action could alter characteristics of a historic, archaeological, or cultural resource. The NRHP was consulted to identify historic and architectural structures.

4.7.2 Environmental Consequences

This section describes the potential for historic, architectural, archeological, and cultural resource impacts associated with implementation of the Proposed Action and the No Action Alternative.

4.7.2.1 No-Action Alternative

Implementation of the No Action Alternative would not involve any construction activities. Therefore, the No-Action Alternative would not result in any impacts to historic, archaeological, or cultural resources.

4.7.2.2 Proposed Action

Currently, there are no historic properties on or eligible for listing on the National Register of Historic Places (NRHP) or the California Register of Historic Resources within the Area of Potential Ground Disturbance, which is the same as the APE. No buildings are present in the Area of Potential Ground Disturbance, so there is no potential that an undocumented building that is eligible for the NRHP could be affected by the Proposed Action.

The FAA has previously consulted with the California State Historic Preservation Officer (SHPO) regarding whether any archaeological resource on or eligible for the NRHP are present at HWD. In 2001, during preparation of the Environmental Assessment for the HWD Master Plan, the SHPO concurred with the FAA in a June 18, 2001 letter that there are no known significant archaeological resources on or eligible for the NRHP within the boundaries of HWD (see **Appendix E**). As a result of extensive grading and earthmoving activities that have occurred at the Airport in the past, it is very unlikely that undiscovered archaeological resources eligible for the NRHP exist at HWD.

As there are no historic properties on or eligible for the NRHP within the APE, the Proposed Action would have no effect on historic properties. However, in the event that unanticipated archaeological or cultural resources are discovered during construction, all ground disturbing activities in the vicinity of the find will be halted. The SHPO and FAA would immediately be notified to ensure compliance with 36 CFR § 800.13 Post Review Discoveries.

⁸⁸ FAA Order 1050.1E, Change 1, *Environmental Impacts: Policies and Procedures*, March, 2006.

4.8 SOCIOECONOMIC IMPACTS; ENVIRONMENTAL JUSTICE, AND CHILDREN'S ENVIRONMENTAL HEALTH AND SAFETY

4.8.1 Background and Methodology

Socioeconomic data was gathered in the ASA in order to determine the potential for the proposed Action to result in socioeconomic impacts, environmental justice impacts, and the locations where the environmental health and safety of children could be affected. Information presented in **Chapter 3, Affected Environment** presents the baseline demographic, and income conditions.

4.8.1.1 Regulatory Context

Statutes, regulations, and policies that apply to the evaluation of socioeconomic impacts, environmental justice, and children's environmental health and safety risk are as follows:

- Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*⁸⁹;
- Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risk*⁹⁰; and
- *Uniform Relocation Assistance and Real Property Acquisition Policies Act*, as amended,
- *Implementing the Uniform Relocation Assistance and Real Property Acquisition Policies*
- *Act (URARPAPA) of 1970*⁹¹.

4.8.1.2 Thresholds of Significance

Potential socioeconomic impacts would be considered significant if the Proposed Action would result in:

- extensive relocation, but sufficient replacement housing is unavailable;
- extensive relocation of community businesses that would cause severe economic hardship for affected communities;
- disruption of local traffic patterns that substantially reduce the Levels of Service of the roads serving the airports and its surrounding communities; or
- a substantial loss in the community tax base.

For environmental justice impacts, the Proposed Action would have to result in a disproportionately high and adverse human health or environmental effects on minority or low-income populations.

For children's health and safety risks, the Proposed Action would have to result in a disproportionate health and safety risks to children.

4.8.1.3 Methodology

Socioeconomic impacts were determined through the evaluation of the areas affected by each alternative. Potentially affected land uses, residences, buildings, and transportation facilities were

⁸⁹ Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, 59 FR 7629, February 16, 1994.

⁹⁰ Executive Order 13045, *Protection of Children from Environmental Health Risk and Safety Risks*, 1997.

⁹¹ *Uniform Relocation Assistance and Real Property Acquisition Policies Act*, as amended, 1970.

identified using information from Geographic Information System (GIS) databases and United States Census databases. The evaluation of environmental justice impacts was based on the potential to result in significant noise, air quality, water quality and other physical direct and indirect impacts that would affect a minority or low income population. The evaluation of children's environmental health and safety risk was based on the potential to result in direct impacts to children in a residential or business setting within the ASA.

4.8.2 Environmental Consequences

4.8.2.1 No Action Alternative

Implementation of the No Action Alternative would not involve any construction activities. Therefore, the No Action Alternative would not affect socioeconomic, not produce any environmental effects on minority or low-income populations, and would not affect the environmental health and safety of children.

4.8.2.2 Proposed Action

The Proposed Action would not require the acquisition of land, relocation of any individuals, or result in the disruption of any established community or existing local traffic patterns. Construction activities associated with the Proposed Action would occur entirely on Airport property and would not temporarily or permanently disrupt essential community services. Implementation of the Proposed Action would not result in a significant increase in air pollutant emissions or in a significant release of environmental contaminants. The Proposed Action would not result in a significant impact to any environmental resource.

Children's Environmental Health and Safety Risk

As the Proposed Action has no potential to relocate children to locations closer to environmental contaminants, to produce a significant increase in air pollutant emissions, or result in a release of environmental contaminants into the environment, the Proposed Action would not increase environmental health and safety risks to children.

Environmental Justice Considerations

The Proposed Action has no potential to relocate minority or low-income populations closer to environmental contaminants, and would not produce a significant increase in air pollutant emissions, or result in a release of environmental contaminants into the environment. Therefore, the Proposed Action would not result in a disproportionately high or adverse environmental impact on minority or low-income populations.

4.9 WATER QUALITY

This section describes the potential for the Proposed Action and the No Action Alternative to affect water quality in the ASA. It also describes the laws and regulations applicable to the No Action Alternative and the Proposed Action, how those actions would affect water quality and measures to mitigate those effects.

4.9.1 Background and Methodology

In accordance with FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures*, the following is a list of impacts to water quality that would likely be considered significant if they are persistent and if proper mitigation is not available:

- water quality parameters to exceed state standards in receiving waters;
- permit limits are exceeded;
- noncompliance with best practices and mitigation is not possible; and
- an increase in toxic substances in water supply wells in the affected area.

The EPA and the RWQCB regulate water quality in the ASA. The regulations that guide the management of water quality include:

- *Federal Water Pollution Control Act*, as amended, known as the *Clean Water Act*,⁹²
 - as amended by the *Clean Water Floodplains and Floodways Act of 1977*,⁹³
 - as amended by the *Oil Pollution Act of 1990*,⁹⁴ and
- *Safe Drinking Water Act*, as amended, also known as the *Public Health Service Act*.⁹⁵

4.9.1.1 Regulatory Context

Stormwater Regulations

The U.S. EPA was granted authority under the Clean Water Act of 1977 to establish regulations to restore and maintain the quality of surface waters. The EPA implemented the NPDES permit program to regulate point sources of discharge pollutants into surface waters. In California, authority to regulate under the NPDES program has been delegated to the California State Water Resources Control Board (SWRCB). There are nine regional boards that implement SWRCB policy as related to climate and geographic conditions within the boards' regulatory boundaries. The project is located within the San Francisco Regional Water Quality Control Board boundary (SFRWQCB).

Porter-Cologne Water Quality Control Act

The State of California adopted the Porter-Cologne Water Quality Control Act (Porter-Cologne Act) in 1969 to establish the nine regional boards, adopt statewide water quality control plans to establish water quality objectives for specific water bodies and authorize the NPDES program under the CWA. The RWQCB prepared the San Francisco Bay Basin Water Quality Control Plan (Basin Plan) to establish the legal, technical, and programmatic basis for water quality regulation in the region. The Basin Plan describes beneficial uses of major surface waters and their tributaries that are enforced by the RWQCB through issuance of permits. Specifically, under its Porter-Cologne Act authority, the RWQCB reviews projects for either Waiver of Waste Discharge Requirements, or for more complicated or larger scale projects, Waste Discharge Requirements. Waste Discharge Requirements are required of all wastewater treatment providers in the region. The RWQCB also reviews permits for discharge of wastes and wastewater to land and land disturbance activities if the activities could affect the beneficial uses of surface water or groundwater. The Basin Plan identifies beneficial uses for each hydrologic unit and subunit within the RWQCB's jurisdictional area. Project applications are reviewed, in part, for compliance with beneficial uses in the unit. Beneficial uses for Sulphur Creek include Warm Freshwater Habitat, Wildlife Habitat, Water Contact Recreation, and Noncontact Water Recreation.

4.9.1.2 Thresholds of Significance

FAA Order 1050.1E, Change 1, Appendix A, Section 17.3 states a significant water quality effect would occur if the EA and early consultation:

⁹² U.S. Code. 1972. *Clean Water Act*, 32 USC Subsection 1251-1387.

⁹³ U.S. Code. 1997. *Floodways Act of 1977*, 33 USC Subsection 1252.

⁹⁴ U.S. Code. 1990. *Oil Pollution Act of 1990*, 33 USC Subsection 1252.

⁹⁵ U.S. Code. 1942. *Public Health Service Act*, 42 USC Subsection 300f to 300j-26.

- show that there is a potential to exceed water quality standards;
- identify water quality effects that cannot be avoided or satisfactorily mitigated; or
- indicate difficulties in obtaining required permits.

4.9.1.3 Methodology

Water quality regulations and consultation with agencies responsible for issuing water-related permits will normally identify issues associated with project-related water quality.

4.9.2 Environmental Consequences

This section describes the potential for water quality impacts associated with implementation of the Proposed Action and the No Action Alternative.

4.9.2.1 No Action Alternative

Implementation of the No Action Alternative would not involve any construction activities. Therefore, no impacts to water quality would occur under the No Action Alternative.

4.9.2.2 Proposed Action

The Proposed Action involves the placement of culverts (8-foot by 4-foot culverts) and fill material into Sulphur Creek. The first section (from Taxiway A to Taxiway Z, respectively) would involve the placement of a 170-foot-long box culvert and the subsequent filling and grading of a 3,920-square-foot segment of the creek. The second segment would involve the placement of a 180-foot-long box culvert into Sulphur Creek. This component would also involve subsequent filling and grading of 2,745-square-feet of creek channel. Finally, an 90-foot-long section of box culvert would be placed into the third and final segment of Sulphur Creek. This 1,655-square-foot area would also be filled and graded. This action would result in the replacement of the existing natural creek bottom with impervious concrete bottom. The net increase in impervious surface area caused by the above activities would result in a 0.67-acre-foot stormwater runoff increase over the duration of the entire year and would reduce natural infiltration in this portion of Sulphur Creek.

During construction, grading and other ground disturbing activity on the infield areas of the airfield have the potential to increase sediment loads and turbidity in stormwater runoff. In the long term, the proposed channelization of the creek would decrease sediment loads into Sulphur Creek due to the replacement of the earthen banks between the infields with a concrete-lined channel. The Proposed Action would be subject to existing water quality permit conditions set forth in NPDES Permit number CAS612008 and would not require groundwater withdrawals at the Airport.

Since the Proposed Action would not exceed water quality standards implementation of the Proposed Action would not result in a significant water quality impact. Furthermore, implementation of the mitigation measures and Best Management Practices (BMPs) described below would further protect water quality. With implementation of the mitigation measures and BMPs described below, implementation of the Proposed Action would not result in a significant water quality impact.

4.9.3 Mitigation and Best Management Practices

Since the Proposed Action would involve grading and soil disturbance over 1 acre, the Airport will be required to file a Notice of Intent (NOI) with the SFRWQCB to obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit). The Construction General Permit requires the development and implementation of a SWPPP that includes construction and post-construction BMPs including, but not limited to the following:

- install fiber rolls or silt fencing adjacent to aquatic features for erosion control. Fiber rolls should be buried 3-4 inches into the soil, staked every 4 feet, and limited to use on 3:1 slopes. Silt fencing should be trenched 6 inches by 6 inches into the soil, staked every 6 feet, and placed 2-5 feet from the toe of any slope;
- designate a concrete washout area to avoid wash water from concrete tools or trucks from entering gutters, inlets, or storm drains. Maintain washout area and dispose concrete waste on a regular basis; and
- protect drain inlets from polluted storm water through the use of filters such as fabrics, gravel bags, or straw wattles.

4.10 WETLANDS

This section describes the existing jurisdictional and non-jurisdictional wetlands in the ASA. The section also describes the laws, regulations, and policies applicable to the Proposed Action and the No Action Alternative.

4.10.1 Background, Methodology, and Regulatory Context

The United States Army Corps of Engineers (USACE) Wetland Delineation manual defines wetlands as:

“...those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.”⁹⁶

Wetlands are productive parts of the landscape. They are important to watershed and biotic health. Wetlands absorb floodwaters, supply base flow, protect shorelines, trap sediments, recharge groundwater, and provide habitat for fish and wildlife.

The USACE regulates dredge and fill activities in wetlands within Clean Water Act (CWA) jurisdiction under Section 404 of the CWA. All wetlands adjacent to Sulphur Creek are within CWA jurisdiction.

Several laws and Executive Orders address and regulate Federal airport activities and their effects on wetlands. The following paragraphs list and summarize the requirements of the laws most applicable to airport projects.

- The Federal Water Pollution Control Act, as amended by the CWA;⁹⁷

⁹⁶ Environmental Laboratory, *Corps of Engineers Delineation Manual*, Technical Report 87-1, 1987.

⁹⁷ 33 U.S.C. Chapter 26.

- The Fish and Wildlife Coordination Act of 1980 (FWCA); and⁹⁸
- EO 11990, *Protection of Wetlands*.⁹⁹
- Rivers and Harbors Act of 1899;¹⁰⁰ and
- Clean Water Act.¹⁰¹

CWA: The law's purpose is to maintain and restore the biotic, chemical, and physical characteristics of the Nation's waters. As a result, Congress required Federal agencies to develop procedures to prevent, reduce, and remove water pollution from waters of the United States (including wetlands). Section 404 of the CWA established a permitting program for the disposition of dredged or fill material into waters of the United States. Airport projects often unavoidably affect wetlands on airport property because FAA design standards require placing certain aviation facilities (i.e., runways, taxiways, aprons, navigational aids) at specific locations on airports to promote safe, efficient air transportation. The USACE regulates discharges to waters of the United States under its authority to administer Section 404 of the CWA. A permit under Section 404 is required to dredge jurisdictional wetlands or to place fill in them. All Section 404 permits require water quality certification under Section 401 of the Clean Water Act. In the San Francisco Bay Area, this regulatory program is administered by the SFRWQCB. Project proponents that propose to fill wetlands or other waters of the United States must apply for water quality certification from the RWQCB. The RWQCB has adopted a policy requiring mitigation for any loss of wetland, streambed, or other jurisdictional area.

FWCA: The Act requires a Federal agency to coordinate with the USFWS when a project under an agency's purview would control (i.e., impound, divert, drain) a stream or other water body.

EO 11990: This Order requires Federal agencies to protect, preserve and enhance the Nation's jurisdictional and non-jurisdictional wetlands to the fullest extent practicable. As a result, Federal actions avoid or minimize the destruction, loss, or degradation of those wetlands if possible. Agencies do so by evaluating practical alternatives that avoid wetlands. If avoidance is not possible, agencies must ensure project designs and mitigation minimize the unavoidable effects.

Certain structures and/or work in or affecting navigable waters of the United States are regulated under the authority of the USACE pursuant to Section 10 of the Rivers and Harbors Act.¹⁰² Under this Act, the creation of any obstruction to the navigable capacity of any waters of the United States is prohibited without the specific approval of the USACE. In addition, excavation, fill, or any modification in any way of the course, location, conditions, or capacity of the navigable waterway or associated waterways is also subject to the regulatory authorization of this Act.

4.10.1.1 Thresholds of Significance

FAA Order 1050.1E, Appendix A, Section 18.3 indicates that a significant impact would occur to wetlands when a proposed action would do any of the following:

- Adversely affect a wetland's function to protect the quality or quantity of a municipal water supply, including sole source aquifers and a potable water aquifer.
- Substantially alter the hydrology needed to sustain the wetland's values and functions or those of a wetland to which it is connected.

⁹⁸ 16 U.S.C. Section 661.

⁹⁹ Vol. 42, *Federal Register*, page 26961, May 1977.

¹⁰⁰ 33 U.S.C. 403; Chapter 425, March 3, 1899; 30 Stat. 1151

¹⁰¹ 33 U.S.C. § 1251 *et seq.*

¹⁰² 33 U.S.C. 403

- Substantially reduce the affected wetland's ability to retain floodwaters or storm runoff, thereby threatening public health, safety, or welfare. The last term includes cultural, recreational, and scientific public resources or property.
- Adversely affect the maintenance of natural systems supporting wildlife and fish habitat or economically important timber, food, or fiber resources of the affected or surrounding wetlands.
- Promote development of secondary activities or services that causes any of the above impacts.
- Be inconsistent with applicable state wetland strategies.¹⁰³

4.10.1.2 Methodology

The wetland delineation presented in **Appendix C** served as the basis for the assessment and analysis of the potential impacts associated with implementation of the Proposed Action, which includes those areas that would be directly affected by construction activities. In April of 2013, the USACE was sent a letter requesting verification of the extent of Clean Water Act jurisdiction in the areas affected by the Proposed Action. HWD may develop and submit a Clean Water Act, Section 404 permit application for the Proposed Action once the extent of the Proposed Action within Clean Water Act jurisdiction is known.

4.10.2 Environmental Consequences

This section describes the potential for wetland impacts associated with implementation of the Proposed Action and the No Action Alternative.

4.10.2.1 No Action Alternative

Implementation of the No Action Alternative would not involve any construction activities. Therefore, the No Action Alternative would not result in any impacts to wetlands.

4.10.2.2 Proposed Action

The Proposed Action would result in the fill (installation of culverts) on three sections of Sulphur Creek totaling 0.19 acres, or 440 linear feet of creek channel, including adjacent wetlands, between Taxiway A and Runway 10L-28R. The conversion of approximately 0.19 acres of wetlands and creek channel is a potentially significant impact that would be reduced to a not-significant level because mitigation is proposed to mitigate for the impact of the placing the wetlands and creek channel in a culvert. Since the impact of the Proposed Action would be offset by mitigation, implementation of the Proposed Action would not result in a significant wetland impact.

As the wetlands impacted by the Proposed Action are along the edges of Sulphur Creek, and there is no practicable alternative to placing portions of Sulphur Creek in underground culverts to meet the purpose and need for the Proposed Action, there is no practicable alternative to impacting wetlands to implement the Proposed Action.

4.10.3 Mitigation

To compensate for the loss of 0.19 acres (440 linear feet) of jurisdictional waters, the Airport would restore or purchase stream channel and/or wetland habitat credit from an established mitigation bank, or identify an alternative mitigation measure to compensate for the losses of

¹⁰³ FAA Order 1050.1E, *Environmental Impacts, Policies and Procedures*.

stream channel and wetland habitat at a minimum 1:1 ratio. Although specific mitigation measures have not yet been identified, the final mitigation strategy may involve the following components:

- In previous informal discussions with the Airport, the RWQCB has indicated their preference for mitigation for impacts to Sulphur Creek in the form of daylighting upstream creek channels currently in underground culverts. Alternatively, the Airport could purchase mitigation credits, after an appropriate mitigation ratio was determined to offset wetland impacts. These credits would be purchased from an agency-approved wetland mitigation bank within the lowlands surrounding San Francisco Bay. For example, the Airport is within the agency-approved service area for the San Francisco Bay Wetland Mitigation Bank in Redwood Shores.

The final wetland mitigation program would be subject to the review and approval by the regulatory agencies.

4.11 CUMULATIVE IMPACTS

This section discusses how the selected alternative would contribute to cumulative impacts on environmental resources in the ASA and measures to mitigate those effects.

4.11.1 Background

The selected alternative would occur in an area where other development has occurred, and where it could occur in the reasonably foreseeable future. As a result, this EA must evaluate and disclose the degree to which the selected alternative would contribute to the cumulative effects on the environmental resources those actions have or will affect.

4.11.1.1 Regulatory Context

According to CEQ 40 CFR 1508.7 defines a cumulative impact as:

“...the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.”¹⁰⁴

CEQ regulations implementing NEPA require the analysis and disclosure of the selected alternative’s potential cumulative effects (40 CFR 1508.25.(a)(2) and (3)). CEQ and NEPA do so to tell the public if the selected alternative, when considered with other projects occurring within the ASA during specific time frames (i.e., “past, present, and reasonably foreseeable actions”) would cause a significant environmental effect.¹⁰⁵

4.11.1.2 Thresholds of Significance

The significance thresholds used in the cumulative analysis vary with the resources affected. However, FAA does not have significance thresholds for cumulative impacts. As a result, this EA’s cumulative analysis uses the thresholds of significance in FAA Order 1050.1E, Change 1, Appendix A that FAA has developed for each individual impact category.

¹⁰⁴ Council on Environmental Quality. 40 U.S.C., Section 1508.7.

¹⁰⁵ FAA Order 5050.4B, paragraph 9.q. defines “reasonably foreseeable actions.”

4.11.2 Past Projects in Sulphur Creek

Since the 2002 HWD Master Plan was completed, substantial airfield changes have been implemented at Hayward. These changes are summarized below:

- Runway 28L was extended 670 feet and Taxiway A1 was widened adjacent to the runway threshold.
- North side helicopter pads (six) were constructed.
- Ascend Development completed ParkAvion, a hangar complex adjacent to the airport administration building.
- Approximately 16 acres of airport property were sold from the airport.
- The City of Hayward Sulphur Creek mitigation/enhancement project was completed.
- The East Bay Municipal Utility District and San Francisco Public Utility Commission Water System Intertie project and associated Skywest Pump Station were constructed.

4.11.3 Future Projects

On the Airport's future conditionally approved ALP the Airport has several projects listed. In addition, there are several planned and ongoing projects in the Airport vicinity. These projects include:

- Taxiway Z and Taxiway D intersection.
- Construct hangars west of Taxiway Z.
- Construct Air Traffic Control Tower West of Taxiway Z.

4.11.4 Proposed Action

The past, present, and reasonably foreseeable projects have increased the quantities of impervious surfaces at the Airport, increased the potential for operational activity, and reduced the size of the Airport. No other project would or has directly affected wetlands beyond a threshold of significance. Surface runoff increases have not caused Sulphur Creek to exceed the mandated 15-year storm design capacity and the Sulphur Creek Culvert Project would improve drainage efficiency of the airfield.

When past, present, and reasonably foreseeable projects are cumulatively examined with the goals, potential adverse environmental effects, and functions of the Proposed Action, these individual projects would not cumulatively contribute to a significant adverse environmental effect in environmental categories contained with FAA Order 1050.1E.¹⁰⁶ Therefore, the Proposed Action would not result in a significant cumulative impact.

4.11.4.1 Air Quality

Each project at the Airport has contributed to temporary construction-related emissions at the Airport. Projects involving construction have occurred at the Airport during subsequent construction years. Therefore, the temporary construction emissions anticipated from the Proposed Action would not contribute to a significant level of temporary construction-related

¹⁰⁶ FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures*, 2006.

emissions in a year. Since the Proposed Action would not result in a permanent increase in annual emissions, it would not cumulatively contribute to significant air quality impacts.

4.11.4.2 Construction Impacts

Past projects have resulted in temporary construction impacts in subsequent years. Since no past project has resulted in permanent construction impacts or significant impacts that could not be mitigated, the cumulative contribution of temporary impacts associated with the Proposed Action would not result in a significant cumulative construction impact.

4.11.4.3 Fish, Wildlife, and Plants

The only project that has directly affected fish, wildlife, and plants considered for this cumulative analysis is the Sulphur Creek Enhancement Project. The Sulphur Creek Enhancement Project had a positive impact on fish, wildlife, and plant habitat at the Airport by improving the quality of habitat within Sulphur creek. Therefore, the cumulative effect of the Sulphur Creek Culvert Project along with the Sulphur Creek Enhancement Project would not result in a significant cumulative fish, wildlife, and plant impact.

4.11.4.4 Floodplains

Past construction projects have resulted in the addition of impervious surfaces, which have increased the quantities of annual stormwater runoff at the Airport. A summary of each project's contribution to floodplain impacts at the airport are provided below:

Runway 28L Extension and Taxiway A1 Widening

The Runway 28L extension and Taxiway A1 widening Project did not involve floodplain encroachment. This project did include additional impervious surfaces which results in a net increase in stormwater runoff. Drainage improvements associated with this project accommodated the additional runoff.

North Side Helicopter Pads

The North Side Helicopter Pad Project did not involve the introduction of additional impervious surfaces because the area was previously paved as part of a past apron project. This project permitted helicopters to operate in areas of the airfield subject to flooding during 100-year flood events. The North Side Helicopter Pad Project did not involve the construction of structures that would be regularly inhabited by people. This project also did not involve the storage of property that would be subject to the risks associated with flooding. Therefore, this project did not cumulatively contribute to 100-year floodplain impacts.

ParkAvion, Hangar Complex

ParkAvion is a 40,000 square-foot hangar complex that features fifteen private bays that accommodate large and small aircraft. This project was constructed on land previously occupied by impervious surfaces outside of the 100-year floodplain. Since this action did not result in additional impervious surfaces and was not located in the 100-year floodplain, it would not cumulatively contribute to floodplain impacts that would occur under the Proposed Action.

The Proposed Action would result in a minor increase in impervious surfaces, other aspects of the Proposed Action would improve drainage characteristics at the Airport. According to the hydraulic analysis, the Proposed Action would improve the drainage characteristics of the Airport by improving the water conveyance capacity of Sulphur Creek at the Airport. Since the Proposed

Action would result in a net improvement in drainage characteristics at the Airport, the Proposed Action would not contribute to a significant cumulative floodplain impact at the Airport.

4.11.4.5 Hazardous Materials, Pollution Prevention and Solid Waste

Implementation of the Proposed Action would not result in a permanent increase in the storage or consumption of hazardous materials at the Airport. The Proposed Action would not affect any areas that contain hazardous material contamination. Therefore, the Proposed Action would not cumulatively contribute to a significant hazardous material impact.

4.11.4.6 Historic, Architectural, Archaeological, and Cultural resources

The Proposed Action would have no adverse effect on historic, architectural, archaeological, or cultural resources. Past projects have not resulted in adverse effects to historic, architectural, archaeological, and cultural resources at the Airport. However, in the event previously undiscovered resources are discovered during project implementation, mitigation measures are identified in the document to protect and preserve these resources.

4.11.4.7 Water Quality

The introduction of new impervious surfaces can adversely affect water quality by creating a new area for pollutants to be deposited and by eliminating flora capable of filtering pollutants from runoff. Past projects have resulted in increased impervious surfaces at the Airport. Since the Proposed Action would also involve the introduction of new impervious surfaces at the Airport, it would incrementally contribute to adverse water quality impacts at the Airport. However, the Proposed Action would not cumulatively contribute to a permitted pollutant exceedance. Therefore, the Proposed Action would not result in a significant cumulative impact at the Airport.

4.11.4.8 Wetlands

Past actions at the Airport included in this cumulative impact analysis have not resulted in the conversion of wetlands at the Airport. Since the Proposed Action would not result in a significant wetland impact, implementation of the Proposed Action alone could not result in a significant cumulative wetland impact.

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5 CHAPTER 5 CONSULTATION AND COORDINATION

5.1 INTRODUCTION

Public involvement and agency coordination programs were implemented at the beginning of the preparation of this EA to ensure that information was provided to the general public and regulatory agencies, and that input from these parties was received and considered as the draft EA was prepared. Under 40 CFR 1501.4, federal agencies are required to involve environmental agencies, applicants, and the public, to the extent practicable, in preparing EAs. Therefore, when conducting the NEPA process, the FAA and the Airport Sponsor are encouraged to begin early coordination with the proper federal, state, tribal, and local agencies, including surrounding municipalities, to determine any possible environmental concerns. The primary components of the agency coordination and public involvement program for the EA include:

- distribution of an early notification letter to agencies, local communities, and stakeholder groups;
- publication of the Draft EA for agency and public review; and
- preparation of a Final EA that will include responses to comments received on the Draft EA.

Keeping agencies and the public informed and gathering their input is an essential component of any environmental study. The following sections summarize the agency coordination and public involvement program for this EA.

5.2 SCOPING / EARLY NOTIFICATION

In April of 2013, an early scoping / notification letter was mailed to regulatory agencies, local communities, stakeholders, and interested members of the public. The notice summarized the project purpose and elements, along with the NEPA document preparation and process. A copy of the early scoping / notification letter is included in **Appendix A**. The list of parties to whom the early scoping / notification letter was distributed also is included in **Appendix A**.

5.3 CONSULTATION WITH TRIBAL COMMUNITIES

The FAA contacted the California Native American Heritage Commission (NAHC) to receive information as to whether the NAHC's files indicated Native American cultural resources might occur in the area of the Proposed Action. The NAHC stated their sacred lands file did not indicate the presence of cultural resources in the immediate project area. The NAHC provided a list of nine Native American individuals and organizations who may have knowledge of cultural resources in the project area. None of these individuals or organizations represented federally recognized Indian tribes.

By letter of October 20, 2014, the FAA contacted each of the nine individuals and organizations seeking their comments regarding concerns that uniquely or significantly affect their organization or Tribe related to the proposed airport improvements and whether cultural

resources might occur in the project area. As of the publication of this Draft EA, none of these individuals or organizations has responded.

5.4 EA AVAILABILITY FOR REVIEW

The Draft EA was available for review by the general public, government agencies, and interested parties for a 30-day review period held from January 16, 2015 to February 17, 2015. The Notice of Availability of the Draft EA was published in the *Hayward Daily Review* on January 16, 2015. Copies of the Draft EA were available for review at the locations listed in **Table 5-1**. All comments on the Draft EA were considered by the Airport and the FAA in preparing the Final EA. Comments received during the 30-day comment period on the Draft EA and responses to those comments can be found in **Appendix F, Addenda and Responses to Comments**.

This Final EA and an attached Proposed Finding of No Significant Impact and Record of Decision will be distributed for a 30-day review on the schedule identified on the inside front cover of this Final EA.

Table 5-1
PUBLIC REVIEW DISTRIBUTION LIST

FAA Western-Pacific Region, Airports Division	15000 Aviation Boulevard	Hawthorne
FAA Western-Pacific Region, San Francisco Airports District Office	1000 Marina Boulevard, Suite 220	Brisbane
Hayward Public Library	835 C Street	Hayward
Hayward Executive Airport	20301 Skywest Drive	Hayward

6 CHAPTER 6 ABBREVIATIONS

AAG – Average Annual Growth

AC – Advisory Circular

ACFCD – Alameda County Flood Control and Water Conservation District

ACHP – Advisory Council on Historic Preservation

AIP – Airport Improvement Program

ALP – Airport Layout Plan

AOA – Airport Operations Area

APE – Area of Potential Effect

ARC – Airport Reference Code

ARFF – Airport Rescue and Fire Fighting

ASA – Airport Study Area

ATCT – Air Traffic Control Tower

BAAQMD – Bay Area Air Quality Management District

BCDC – Bay Conservation and Development Commission

BMPs – Best Management Practices

CAA – Clean Air Act

CAAQS – California Ambient Air Quality Standards

CAC – Council Airport Committee

CARB – California Air Resources Board

CCM – California Coastal Management Program

CDFW – California Department of Fish and Wildlife

CEQ – Council on Environmental Quality

CERCLA – Comprehensive Environmental Response, Compensation and Liability Act

Chapter 6 – Abbreviations

CFR – Code of Federal Regulations

CFS – Cubic Feet Per Second

CNDB – California Natural Diversity Database

CNEL – Community Noise Equivalent Level

CNPS – California Native Plant Society

CO – Carbon Monoxide

CO₂ – Carbon Dioxide

CWA – Clean Water Act

CZMP – Coastal Zone Management Plan

Db – Decibel

DNL – Day-Night Average Sound Level

DOT – Department of Transportation

EA – Environmental Assessment

EIR – Environmental Impact Report

EIS – Environmental Impact Statement

EO – Executive Order

EPA - Environmental Protection Agency

ESA – Endangered Species Act

FAA – Federal Aviation Administration

FEMA – Federal Emergency Management Agency

FIRM – Flood Insurance Rate Map

FONSI – Finding of No Significant Impact

FPPA – Farmland Protection Policy Act

FWCA – Fish and Wildlife Coordination Act

GA – General Aviation

GHG – Greenhouse Gas

HARD – Hayward Area Recreation and Park District

HEC-RAS – Hydraulic Engineering Service River Analysis System

HGL – Hydraulic Grade Lines

HIRL – High Intensity Runway Lights

HWD – Hayward Executive Airport

MALSF – Medium Intensity Approach Lighting System with Sequenced Flashing

MALSR – Medium Intensity Approach Lighting System

MIRL – Medium Intensity Runway Lights

MITL – Medium Intensity Taxiway Lighting

MSL – Mean Seal Level

MSW – Municipal Solid Waste

NAAQS – National Ambient Air Quality Standards

NAHC – Native American Heritage Commission

NEPA – National Environmental Policy Act

NHPA – National Historic Preservation Act

NO₂ – Nitrogen Dioxide

NOAA – National Oceanic and Atmospheric Administration

NOI – Notice of Intent

NOx – Nitrogen Oxides

NPDES – National Pollutant Discharge Elimination System

NPIAS – National Plan of Integrated Airports System

NLP – National Priority List

NPS – National Park Service

NRC – National Response Center

NRCS – Natural Resource Conservation Service

NRHP – National Register for Historic Places

Chapter 6 – Abbreviations

NRI – Nationwide Rivers Inventory

NWI – National Wetlands Inventory

O₃ – Ozone

OFA – Object Free Area

OFZ – Obstacle Free Zone

OHWM – Ordinary High Water Mark

PAPI – Precision Approach Path Indicator

Pb – Lead

PG&E – Pacific Gas and Electric

PM – Particulate Matter

PPM – Parts Per Million

REIL – Runway End Identifier Lights

RJA – Ruggeri, Jenson, Azar

ROD – Record of Decision

RPZ – Runway Protection Zone

RSA – Runway Safety Area

RSAT – Runway Safety Action Team

RS&H – Reynolds, Smith and Hills

RWQCB – Regional Water Quality Control Board

SHPO – State Historic Preservation Officer

SIP – State Implementation Plan

SO₂ – Sulfur dioxide

SWRCB – State Water Resources Control Board

TAF – Terminal Area Forecast

TCP – Traditional Cultural Properties

TPD – Total Permitted Disposal

TSCA – Toxic Substances Control Act

USACE – United States Army Corps of Engineers

USC – United States Code

USDA – United States Department of Agriculture

USFWS – United States Fish and Wildlife Service

USGS – United States Geological Survey

UST – Underground Storage Tank

VASI – Visual Approach Slope Indicator

VOCs – Volatile Organic Compounds

WSRS – National Wild and Scenic Rivers System

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7 CHAPTER 7 REFERENCES

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8 CHAPTER 8

List of Preparers

8.1 Principal Reviewers

Responsibility for review of this EA rests with the FAA San Francisco ADO. Listed below are the identities and backgrounds of the principal FAA individuals in accordance with Council on Environmental Quality (CEQ) *Regulations Section 1502.17, List of Preparers.*¹⁰⁷

FAA

Doug Pomeroy, Federal Aviation Administration Environmental Specialist.

8.2 Principal Preparers

It is recognized that no one individual can be an expert in all of the environmental impact categories within this Draft EA. As a result an interdisciplinary team of researchers, technicians, and experts in various disciplines were required to prepare and complete the necessary documentation.

The lead consultant for preparation of this document is RS&H.

City of Hayward

Douglas McNeeley, B.A., C.M., 28 years of experience. Airport Manager.

David Decoteau, B.S., M.B.A., C.M., 9 years of experience. Airport Operations Supervisor.

Reynolds, Smith & Hills

David J. Full, AICP, B.A. Urban Planning, M.U.P. 29 years of experience. Project Manager, QA/QC of all work products. Coordination with the FAA, City of Hayward, and the technical team members assisting in the preparation of this EA.

Edward Melisky, M.S. Environmental Planner. 36 years of experience. Responsible for this EA's quality assurance and compliance with NEPA, FAA Orders 1050.1E, 5050.4B, and the *Environmental Desk Reference for Airport Actions*.

David Alberts, B.A. Geography, 16 years of experience. Senior Environmental Planner. Responsibilities include, technical writing of Purpose and Need and Alternatives chapters.

Nicholas Kozlik, B.S. Environmental Studies, Planning Certificate, 4 years of experience. Responsible for document research, preparation, technical exhibit preparation, and coordination with technical team.

¹⁰⁷ Council on Environmental Quality, 40 CFR Section 1502.17, *List of Preparers*, November 1978.

LSA Associates

Ross A. Dobberteen, M.S. Biology; Ph.D. Environmental Science and Policy. 25 years of experience. Principal at LSA Associates, Inc., QA/QC for Fish Wildlife and Plants, Floodplains, Water Quality, and Wetlands sections of EA.

Matt Ricketts, M.S. Biology/Applied Ecology. 13 years of experience. Senior Wildlife Biologist at LSA Associates, Inc. Prepared Fish Wildlife and Plants, Floodplains, Water Quality, and Wetlands sections of EA.

APPENDIX A

Agency Correspondence

SCOPING LETTERS

The following agencies were sent a scoping letter that has been attached to Page A-3 of this Appendix. This scoping letter identified the Proposed Action^{/a/} and requested information from each agency that would assist in the preparation of the Draft Environmental Assessment (EA). None of the agencies responded to the scoping letter. However, the EA consultant generated a U.S. Fish and Wildlife Service official list of federally listed threatened or endangered species that may occur in the project area on December 6, 2013, and that list is included in this appendix.

- **California Fish and Wildlife Service**
7329 Silverado Trail
Napa, CA 94558
- **State of California Clearinghouse**
State Clearinghouse
P.O. Box 3044
Sacramento, CA 95812-3044
- **California Department of Conservation**
801 K Street, MS 24-01
Sacramento, CA 95814
- **San Francisco Bay Conservation and Development Commission**
50 California Street, Suite 2600
San Francisco, California 94111
- **United States Army Corps of Engineers**
1455 Market Street
San Francisco, CA 94103
- **United States Environmental Protection Agency**
75 Hawthorne Street
San Francisco, CA, 94105
- **Sacramento United States Fish and Wildlife Service**
2800 Cottage Way, Room W-2605
Sacramento, CA 95825

^{/a/}: The Taxiway Zulu project component originally included in the scoping letters has been dropped from the Proposed Action.



369 Pine Street, Suite 610
San Francisco, California 94104
415.986.1702

Sacramento United States Fish and Wildlife Office
2800 Cottage Way,
Room W-2605,
Sacramento, CA 95825
April 16, 2013

Dear Susan K. Moore,

An Environmental Assessment (EA) in compliance with the National Environmental Policy Act (NEPA) and an Initial Study (IS) in compliance with the California Environmental Quality Act (CEQA) are being prepared to assess the potential for environmental effects associated with the implementation of a Proposed Action at Hayward Executive Airport (Airport). The Proposed Project involves the relocation of Taxiway Z, the placement of a portion of Sulphur Creek within the Airport Operations Area (AOA) into a culvert, and the grading of infield areas (see **Attachment A-1** for the Airport location and **Attachment A-2** for the Proposed Action. The Federal Aviation Administration (FAA) is the lead agency for NEPA and the City of Hayward is the lead agency for CEQA.

The EA and IS will discuss the potential for environmental effects that could occur as a result of the Proposed Action. The purpose of this initial coordination letter is to seek input from State and Federal agencies concerning the potential for environmental effects associated with the Proposed Action. If your agency has any information relating to potential environmental effects, please provide this information to Nick Kozlik within 30 days at the address above. **Attachment B** lists the environmental resource categories being analyzed as part of the EA. **Attachment C** contains the environmental resource categories contained within Appendix G of CEQA guidelines that will be analyzed as part of the IS.

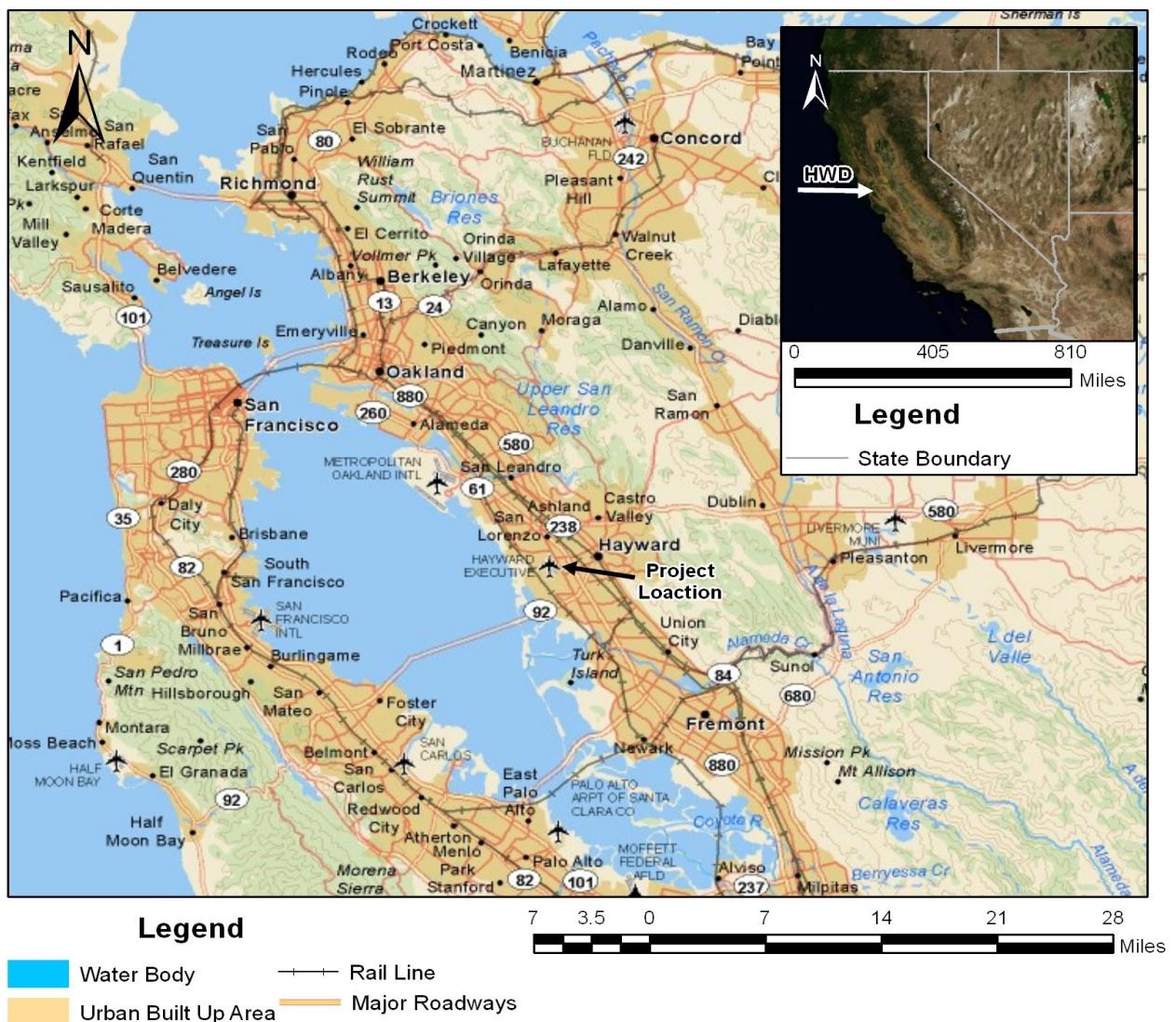
Thank you in advance for your assistance with the preparation of this EA and IS. Please feel free to contact me by e-mail (Nick.Kozlik@rsandh.com), or phone (415-986-1702) if you have any questions or comments regarding the EA or IS.

Sincerely,
Nicholas Kozlik

REYNOLDS SMITH & HILLS, INC

Attachments: A-1 Airport Location,
A-2 Proposed Action
B: Environmental Assessment Categories
C: CEQA Appendix G Initial Study Categories

Attachment A-1
Airport Location



SOURCE: ESRI, 2012; RS&H, 2012.

**Attachment A-2
Proposed Action**



Source: ESRI, 2013; RS&H, 2013 Prepared By: RS&H, 2013

Legend

- | | |
|---|---|
| <ul style="list-style-type: none"> ----- Area of Potential Ground Disturbance ----- Airport Property - - - Existing Sulphur Creek Culvert ■ Proposed Taxiway Z Pavement | <ul style="list-style-type: none"> ■ Proposed Taxiway Z Removal ■ Grading Areas ■ Area to be Culverted and Graded ■ Sulphur Creek |
|---|---|

Source: ESRI, RS&H, 2013.

Hayward Executive Airport Environmental Assessment

Attachment B Environmental Assessment Categories

The following environmental resource categories will be included in the Environmental Assessment:

- air quality;
- biotic resources;
- coastal barriers;
- coastal zone management;
- compatible land use;
- construction impacts;
- section 4(f) resources;
- endangered species;
- energy supply;
- environmental justice;
- farmlands;
- floodplains;
- hazardous materials;
- historic;
- induced socioeconomic impacts;
- light emissions and visual impacts;
- noise;
- social impacts;
- solid waste;
- water quality;
- wetlands;
- wild and scenic; and
- cumulative impacts.

**Hayward Executive Airport
Initial Study**

Attachment C
Initial Study Categories

The following environmental resource categories will be included in the Initial Study:

- aesthetics
- agricultural resources
- air quality
- biological resources
- cultural resources
- geology and soils
- hazards and hazardous materials
- hydrology and water quality
- land use and planning
- mineral resources
- noise
- population and housing
- public services
- recreation
- transportation and traffic
- utilities and service systems; and
- mandatory findings of significance



United States Department of the Interior
FISH AND WILDLIFE SERVICE
 Sacramento Fish and Wildlife Office
 2800 Cottage Way, Room W-2605
 Sacramento, California 95825



December 6, 2013

Document Number: 131206022324

Nicholas Kozlik
 Reynolds Smith and Hills
 369 Pine Street Suite 610
 San Francisco, CA 94104

Subject: Species List for Sulphur Creek Culvert Project

Dear: Mr. Kozlik

We are sending this official species list in response to your December 6, 2013 request for information about endangered and threatened species. The list covers the California counties and/or U.S. Geological Survey 7½ minute quad or quads you requested.

Our database was developed primarily to assist Federal agencies that are consulting with us. Therefore, our lists include all of the sensitive species that have been found in a certain area *and also ones that may be affected by projects in the area*. For example, a fish may be on the list for a quad if it lives somewhere downstream from that quad. Birds are included even if they only migrate through an area. In other words, we include all of the species we want people to consider when they do something that affects the environment.

Please read Important Information About Your Species List (below). It explains how we made the list and describes your responsibilities under the Endangered Species Act.

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be March 06, 2014.

Please contact us if your project may affect endangered or threatened species or if you have any questions about the attached list or your responsibilities under the Endangered Species Act. A list of Endangered Species Program contacts can be found [here](#).

Endangered Species Division



U.S. Fish & Wildlife Service

Sacramento Fish & Wildlife Office

**Federal Endangered and Threatened Species that Occur in
or may be Affected by Projects in the Counties and/or
U.S.G.S. 7 1/2 Minute Quads you requested**

Document Number: 131206022324

Database Last Updated: September 18, 2011

Quad Lists

Listed Species

Invertebrates

Branchinecta lynchi
vernal pool fairy shrimp (T)

Fish

Acipenser medirostris
green sturgeon (T) (NMFS)

Eucyclogobius newberryi
tidewater goby (E)

Hypomesus transpacificus
delta smelt (T)

Oncorhynchus kisutch
coho salmon - central CA coast (E) (NMFS)

Oncorhynchus mykiss
Central California Coastal steelhead (T) (NMFS)
Central Valley steelhead (T) (NMFS)
Critical habitat, Central California coastal steelhead (X) (NMFS)

Oncorhynchus tshawytscha
Central Valley spring-run chinook salmon (T) (NMFS)
winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Ambystoma californiense
California tiger salamander, central population (T)

Rana draytonii
California red-legged frog (T)
Critical habitat, California red-legged frog (X)

Reptiles

Masticophis lateralis euryxanthus
Alameda whipsnake [=striped racer] (T)
Critical habitat, Alameda whipsnake (X)

Birds

Charadrius alexandrinus nivosus
western snowy plover (T)

Pelecanus occidentalis californicus
California brown pelican (E)

Rallus longirostris obsoletus
California clapper rail (E)

Sternula antillarum (=*Sterna*, =*albifrons*) *browni*
California least tern (E)

tidewater goby (E)

Hypomesus transpacificus

Critical habitat, delta smelt (X)
delta smelt (T)

Oncorhynchus kisutch

coho salmon - central CA coast (E) (NMFS)

Oncorhynchus mykiss

Central California Coastal steelhead (T) (NMFS)
Central Valley steelhead (T) (NMFS)
Critical habitat, Central California coastal steelhead (X) (NMFS)
Critical habitat, Central Valley steelhead (X) (NMFS)

Oncorhynchus tshawytscha

Central Valley spring-run chinook salmon (T) (NMFS)
Critical habitat, winter-run chinook salmon (X) (NMFS)
winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Ambystoma californiense

California tiger salamander, central population (T)
Critical habitat, CA tiger salamander, central population (X)

Rana draytonii

California red-legged frog (T)
Critical habitat, California red-legged frog (X)

Reptiles

Masticophis lateralis euryxanthus

Alameda whipsnake [=striped racer] (T)
Critical habitat, Alameda whipsnake (X)

Thamnophis gigas

giant garter snake (T)

Thamnophis sirtalis tetrataenia

San Francisco garter snake (E)

Birds

Charadrius alexandrinus nivosus

western snowy plover (T)

Pelecanus occidentalis californicus

California brown pelican (E)

Rallus longirostris obsoletus

California clapper rail (E)

Sternula antillarum (=Sterna, =albibrons) browni

California least tern (E)

How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute quads. The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, **or may be affected by** projects within, the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.
- Amphibians will be on the list for a quad or county if pesticides applied in that area may be carried to their habitat by air currents.
- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regardless of whether they appear on a quad list.

Plants

Any plants on your list are ones that have actually been observed in the area covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the surrounding quads through the California Native Plant Society's online [Inventory of Rare and Endangered Plants](#).

Surveying

Some of the species on your list may not be affected by your project. A trained biologist and/or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list. See our [Protocol](#) and [Recovery Permits](#) pages.

For plant surveys, we recommend using the [Guidelines for Conducting and Reporting Botanical Inventories](#). The results of your surveys should be published in any environmental documents prepared for your project.

Your Responsibilities Under the Endangered Species Act

All animals identified as listed above are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such animal.

Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

Take incidental to an otherwise lawful activity may be authorized by one of two procedures:

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a formal [consultation](#) with the Service.

During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result in a biological opinion by the Service addressing the anticipated effect of the project on listed and proposed species. The opinion may authorize a limited level of incidental take.

- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant^{A11}, should apply for an incidental take permit. The

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APPENDIX B

Construction Emission Inventory

Appendix B –Construction Emission Inventory

A construction emission inventory for the Proposed Action was prepared using available information in order to estimate construction-related emissions. The construction emission inventory involved calculating estimated hourly usage of construction equipment, applying these hourly usages to 100% load factors and corresponding emission factors unique to each piece of equipment, and calculating emissions resulting from equipment delivery and worker commutes.

The vehicle mix, trip distances, and assumed travel speeds for material delivery, dump truck usage, and worker commute vehicles were input into the Emission Dispersion Modeling System (EDMS), which is the FAA preferred model for air quality analyses. To estimate emissions associated with on-road motor vehicles including haul trucks, deliveries, and vehicles used by construction workers, the following assumptions were applied:

- construction worker vehicle miles traveled (VMT) were calculated assuming 40 miles per work day (round trip);
- 1.25 employees per vehicle over the duration of the construction schedule;
- haul truck and workers assume an average vehicle speed of 40 miles per hour; and
- work schedule of four months and an average of 8 workers working concurrently over the duration of the construction schedule.

Greenhouse Gas Emissions (GHGs) were calculated by quantifying gallons of fuel consumed by construction equipment and standard EPA emission factors for GHG inventories were applied to the anticipated fuel consumption.¹

Results, calculations, assumptions, and emission factors used in these calculations can be found within the following pages of **Appendix B**. Since construction would occur over four to six months it is assumed that temporary criteria pollutant emissions resulting from construction of the Proposed Action would occur in one construction year and would not be considered significant.

¹ Environmental Protection Agency (2013). Emission Factors for Greenhouse Gas Inventories. Accessed: May 2014. Available at: <http://www.epa.gov/climateleadership/documents/emission-factors.pdf>

CONSTRUCTION EMISSION INVENTORY

Equipment Type	Hours of Use	CO Emission Rate lb/hr	CARBON MONOXIDE (CO) lbs	HC Emission Rate lb/hr	HYDROCARBONS lbs	NO2 Emission Rate lb/hr	NITROGEN OXIDES (NOX) lbs	SO2 Emission Rate lbs/hr	SULFUR OXIDES (SO2) lbs	PART Emission Rate lbs/hr	PM 10 lbs	PART Emission Rate lbs/hr	PM 2.5 lbs	Fuel Consumption (Gallons per Hour)	Fuel Consumption Total
Asphalt Paver		0.3981	0	0.07589	0	1.28138	0	0.1157	0	0.055985	0	0.055985	0		0
Concrete Paver		0.81219	0	0.19905	0	1.78078	0	0.16528	0	0.079975	0	0.079975	0		0
Roller		0.37896	0	0.10024	0	1.13688	0	0.12225	0	0.047675	0	0.047675	0		0
Scraper		2.46872	0	0.35056	0	4.29557	0	0.44437	0	0.31106	0	0.31106	0		0
Paving Equipment		0.5322	0	0.13074	0	1.27382	0	0.10413	0	0.052065	0	0.052065	0		0
Trencher		0.90692	0	0.15578	0	0.99423	0	0.09228	0	0.07144	0	0.07144	0		0
Excavator	16	1.19602	19.13632	0.161	2.576	2.47254	39.56064	0.2139	3.4224	0.165605	2.64968	0.165605	2.64968	6	96
Cement Mixer		0.06248	0	0.01399	0	0.14955	0	0.01263	0	0.00611	0	0.00611	0		0
Graders	140	0.87912	123.0768	0.36322	50.8508	2.22095	310.933	0.20127	28.1778	0.115675	16.1945	0.115675	16.1945	8	1120
Rubber Tired Loader		1.00019	0	0.1792	0	2.14624	0	0.1792	0	0.1344	0	0.1344	0		0
Rubber Tired Dozer		1.29679	0	0.3983	0	4.44613	0	0.43072	0	0.152835	0	0.152835	0		0
Tractor/Loader/Backhoe	108	0.635	68.58	0.13354	14.42232	0.94316	101.86128	0.07937	8.57196	0.049025	5.2947	0.049025	5.2947	6.5	702
Crawler Tractor	44	0.96378	42.40632	0.25902	11.39688	2.06811	90.99684	0.17067	7.50948	0.115455	5.08002	0.115455	5.08002	6.5	286
Sweeper	8	0.88138	7.05104	0.23271	1.86168	2.03619	16.28952	0.13526	1.08208	0.116355	0.93084	0.116355	0.93084	1.2	9.2
Off Highway Truck	123	1.72088	211.66824	0.51626	63.49998	5.90016	725.71968	0.54699	67.27977	0.24584	30.23832	0.24584	30.23832	0.7	79.95
Generator (gasoline)		12.974	0	0.474	0	0.018	0	0.005	0	0.001	0	0.001	0		0
Generator (diesel)		0.179	0	0.033	0	0.293	0	0.033	0	0.008	0	0.008	0		0
Manual Lift/Manlift (Boom and Scissor)		0.282	0	0.065	0	0.673	0	0.043	0	0.0165	0	0.0165	0		0
Forklift		0.52	0	0.17	0	1.54	0	0.143	0	0.0465	0	0.0465	0		0
Crane	12	0.751	9.012	0.25	3	1.919	23.028	0.167	2.004	0.0625	0.75	0.0625	0.75	10.0	120
Boom Truck		0.052	0	0.017	0	0.184	0	0.017	0	0.0065	0	0.0065	0		0
Refueling Truck		0.052	0	0.017	0	0.184	0	0.017	0	0.0065	0	0.0065	0		0
Air Compressor		0.195	0	0.036	0	0.32	0	0.036	0	0.009	0	0.009	0		0
300-Ton Capacity Truck Crane		2.24	0	0.688	0	5.504	0	0.4945	0	0.374	0	0.374	0		0
Weld Machine		0.173	0	0.032	0	0.284	0	0.032	0	0.008	0	0.008	0		0
Skidsteer (bobcat)		0.204	0	0.00735	0	0.287	0	0.00315	0	0.0125	0	0.0125	0		0
Concrete Mixer		0.062	0		0	0.148	0	0.012	0	0.003	0	0.003	0		0
Hand Held Vibrator Plate		7.018	0	3.086	0	0.002	0	0.002	0	0.0145	0	0.0145	0		0
Vertical Auger Drill		3.135	0	0.47	0	3.762	0	0.314	0	0.1175	0	0.1175	0		0
Chain Saw		0.15	0	0.029	0	0.208	0	0.037	0	0.0125	0	0.0125	0		0
Chipper		0.908	0	0.119	0	1.169	0	0.165	0	0.057	0	0.057	0		0
Tamping Spade		4.488	0	1.973	0	0.001	0	0.001	0	0.0095	0	0.0095	0		0
Concrete Pump/Truck		0.547	0	0.237	0	2.941	0	0.331	0	0.0505	0	0.0505	0		0
Water Truck (BMPs)	12	0.052	0.624	0.017	0.204	0.184	2.208	0.017	0.204	0.0065	0.078	0.0065	0.078	1.5	18
SUB-TOTAL EMISSIONS (LBS)			481.55472		147.81166		1310.59696		118.25149		61.21606		61.21606		0
TOTAL EMISSIONS (TONS)			0.24077736		0.073906		0.65529848		0.0591257		0.03061		0.030608		2431.15

Emission factors are based on criteria pollutant emissions per hour (in pounds) for a given piece of equipment operating at 100% load factor.

Results are presented in tons.

Construction Worker Trips				Equipment and Supply Delivery								
120 work days: employees (average)	8			Equipment #	8 pieces							
employees per car	1.25				40 mi/round trip							
worker roundtrips per day	6.4				320							
Trips during schedule	768			1: Grams per vehicle mile								
30 miles roundtrip	23,070			2: Results presented in tons								
Worker Construction trips g/VM (light duty gasoline trucks) (tons)¹						g/VM class 7 Heavy Duty diesel trucks¹						
CO	VOC	Nox	SOx	PM ₁₀	PM _{2.5}	CO	VOC	Nox	SOx	PM ₁₀	PM _{2.5}	
8.6	0.39	0.42	0.0088	0.024	0.0112	0.13	0.2	0.38	0.009	0.035	0.018	
Emission Results²						Emission Results²						
CO	VOC	NO _x	SO ₂	PM ₁₀	PM _{2.5}	CO	VOC	NO _x	SO ₂	PM ₁₀	PM _{2.5}	
0.219	0.01	0.011	0	0.001	0.001	0.02	0.03	0.06	0.001	0.006	0.003	

Results are presented in tons.

Presented in Grams per Vehicle mile

Grand Total						GHG Calculation						
CO	VOC	NO _x	SO ₂	PM ₁₀	PM _{2.5}	CO2/a/	CH4	N2O	CO2 Tons	CH4 Tons	N2O Tons	
0.48	0.12	0.73	0.06	0.04	0.03	Worker Trips/b/	14,678,288	60,559	115	16.2	0.1	0.0001
Annualized Emissions^{/a/}						Construction Equipment	24749107	102108	194	27.3	0.1	0.0002
CO	VOC	NO _x	SO ₂	PM ₁₀	PM _{2.5}	Equipment Delivery/c/	407200	1680	3	0.4	0.002	0.000004
-	-	-	-	-	-	Totals	39,834,595	164,347	313	43.91	0.18	0.0003

/a/: Does not apply, construction schedule < or = 1 year.

/a/: 1 gal of diesel = 10,180 grams

Presented in Grams

Presented in Tons

EPA (2005). Average Carbon Dioxide Emissions Resulting from Gasoline and Diesel Fuel. Available at:

<https://www.chargepoint.com/files/420f05001.pdf>

/b/ Assumed MPG: 16

/c/ Assumed MPG: 8

Diesel 1 Gal=			
CH4:	.42 g/gal	N2O	.08 g/gal
Gasoline 1 Gal=			
CH4:	.38 g/gal	N2O	.08 g/gal

Results are presented in tons.

Presented in Grams per Vehicle mile

APPENDIX C

Wetland Delineation

SITE DESCRIPTION

The approximately 6.9-acre project site is located at the northwestern end of the Hayward Executive Airport, which is located west of Interstate 880 and accessed from Skywest Drive at the western end of West A Street, 2/3 mile west of its intersection with I-880. The project site is bounded by the airport to the southeast, industrial park to the southwest, Clubhouse Drive and the municipal Skywest Golf Course to the northwest, and airport hangers to the northeast (Alameda County Assessor's Parcel Numbers 432-134-1-5 and 432-124-1-4). The site is situated within an un-sectioned portion of Township 3 South, Range 2 West on the Hayward, California 7.5-minute USGS quadrangle, and is centered at 37.6614° North Latitude and 122.1265 West Longitude. Figures 1 and 2 (attached) depict the regional location and project site location, respectively.

The project site includes runways, taxiways, unpaved grass infields, and reaches of Sulphur Creek. There are no buildings on the site. Most of the site has been graded to drain through swales and culverts to Sulphur Creek. The southwestern edge of the site has an airport perimeter fence.

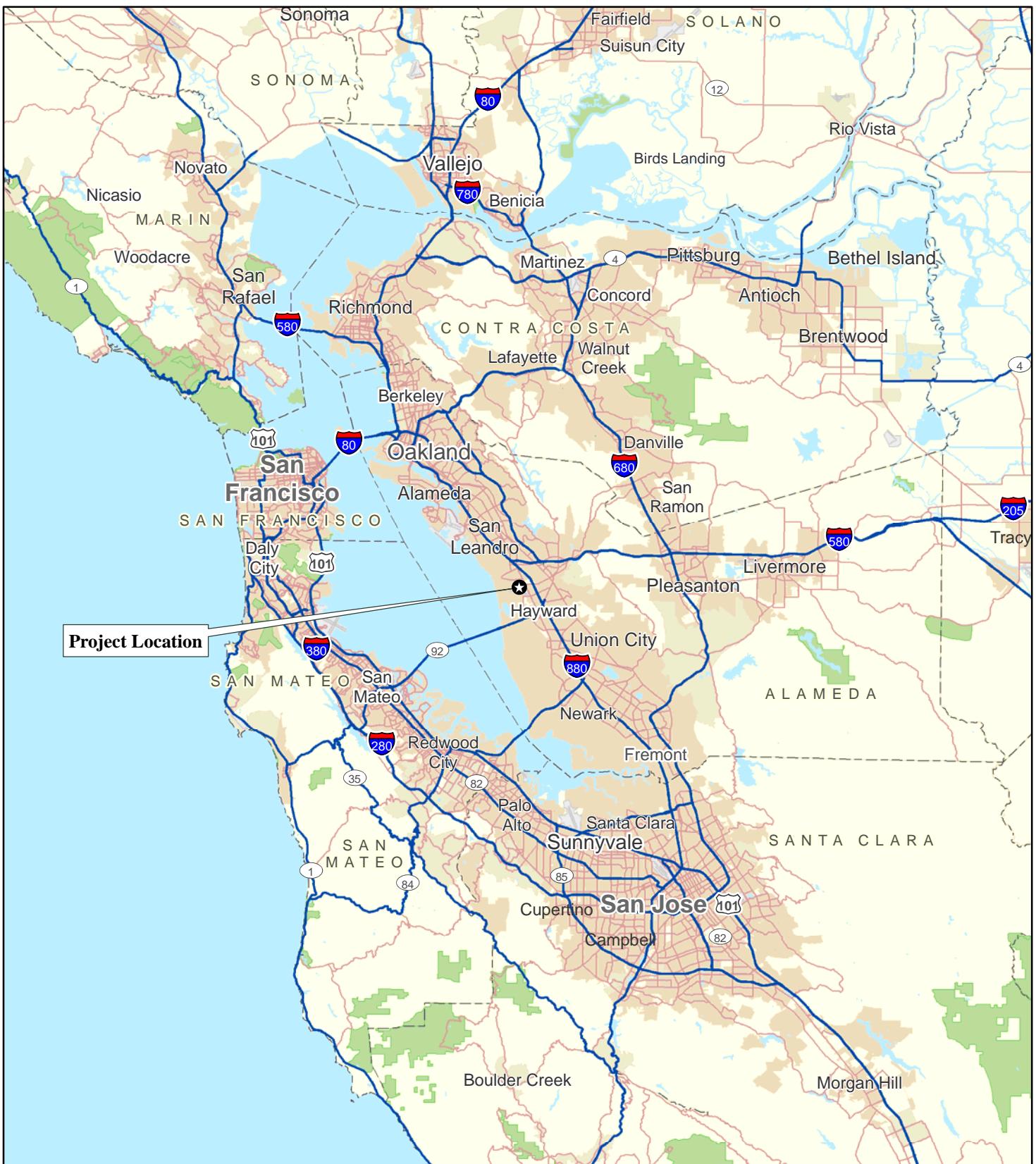
Vegetation on the site is dominated by ruderal grassland. The site has no trees; the only woody vegetation present is small coyote brush (*Baccharis pilularis*), a native ruderal shrub. Grass species observed consist of wild oats (*Avena* sp.), ripgut brome (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), Italian ryegrass (*Festuca perennis*), and Mediterranean barley (*Hordeum marinum*). Forb species observed include bur medic (*Medicago polymorpha*), bird's foot trefoil (*Lotus corniculatus*), English plantain (*Plantago lanceolata*), prickly ox-tongue (*Helminthotheca echinoides*), and suckling clover (*Trifolium dubium*).

The soil on the majority of the project site is mapped by the U.S. Department of Agriculture as Clear Lake clay, drained, 0 to 2 percent slopes (Map Unit Symbol 107); with the soil on a northern corner of the site mapped as Danville silty clay loam, 0 to 2 percent slopes (111). Clear Lake clay is listed as hydric in areas where the water table is within one foot of the surface during the growing season or is seasonally ponded. The Danville silty clay loam is not listed as hydric except in inclusions of Clear Lake clay (Web Soil Survey, <http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>, accessed 11 March 2013). The clear Lake clay is described as poorly drained and with slow permeability. The Danville silty clay loam is described as well drained and with slow permeability (USDA Soil Survey of Alameda County, 1981).

The entire project site drains via constructed shallow ditches and culverts to Sulphur Creek, which bisects the site. Sulphur Creek is tributary to San Francisco Bay, a traditional navigable water of the United States, which is located approximately one mile west of the project site.

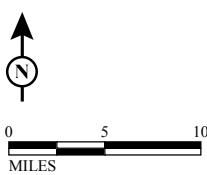
METHODS

The field investigations of potentially jurisdictional wetlands were conducted using the routine determination method provided in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the revised procedures in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* (Arid West Supplement; U.S. Army Corps of Engineers 2008). This methodology entails examination of specific sample points within potential wetlands for hydrophytic vegetation, hydric soils, and wetland hydrology. By the federal definition, all three parameters must be present for an area to be considered a wetland.



LSA

FIGURE 1

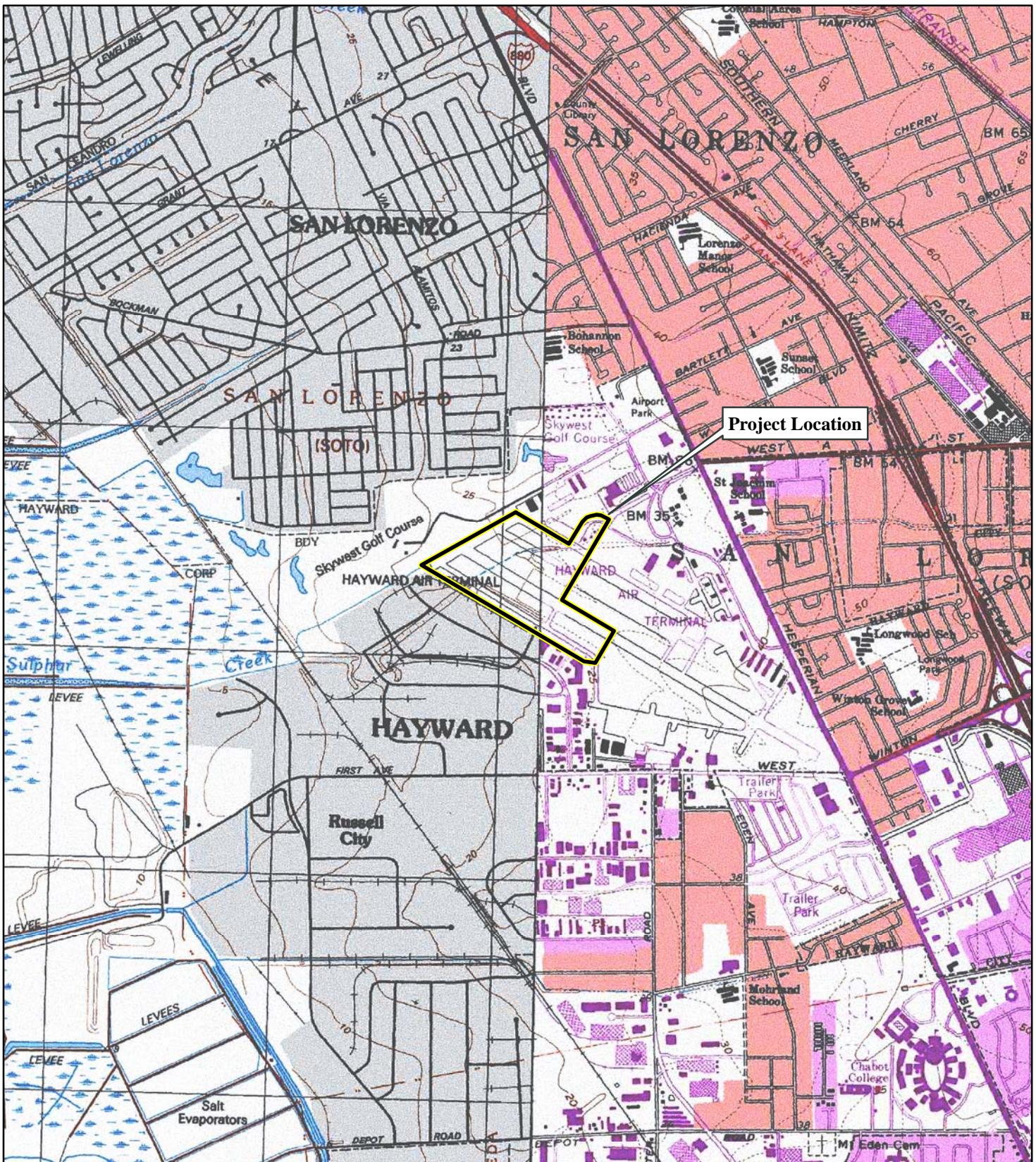


SOURCE: StreetMap North America (2009).

I:\RSQ1001\GIS\Maps\Delineation\Figure1_Regional Location.mxd (4/22/2013)

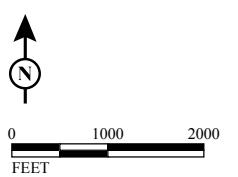
C-3

*Hayward Executive Airport
Hayward, Alameda County, California
Regional Location*



LSA

FIGURE 2



SOURCE: USGS 7.5-Minute Topo Quads - San Leandro, Calif. (1980) and Hayward, Calif. (1980).

I:\RSQ1001\GIS\Maps\Delineation\Figure2_Site Location.mxd (4/24/2013)

C-4

Hayward Executive Airport
Hayward, Alameda County, California
Project Location

Hydrophytic plant species are listed by the National Wetland Plant List (2012). The National List identifies five categories of plants according to their frequency of occurrence in wetlands. The categories are:

- | | |
|-------------------------------------|---|
| • Obligate wetland plants (OBL) | Plants that occur almost always in wetlands |
| • Facultative wetland plants (FACW) | Plants that usually occur in wetlands |
| • Facultative plants (FAC) | Plants that are equally likely to occur in wetlands or non-wetlands |
| • Facultative upland plants (FACU) | Plants that usually occur in uplands |
| • Obligate upland plants (UPL) | Plants that occur almost always in non-wetlands |

An area is generally considered to have hydrophytic vegetation when more than 50 percent of the dominant species in each stratum (tree, shrub, and herb) are in the obligate wetland, facultative wetland, or facultative categories.

Hydric soils are defined by criteria set forth by the National Technical Committee for Hydric Soils (NTCHS). These criteria are given in the Wetland Delineation Manual Supplement and are based on depth and duration of soil saturation. Hydric soils are commonly identified in the field by using indirect indicators of saturated soil, technically known as redoximorphic features. These features are caused by anaerobic, reduced soil conditions that are brought about by prolonged soil saturation. The most common redoximorphic features are distinguished by soil color, which is strongly influenced by the frequency and duration of soil saturation. Hydric soils tend to have dark (low chroma) colors that are often accompanied by reddish mottles (iron mottles), reddish stains on root channels (oxidized rhizospheres), or gray colors (gleying). The Arid West Supplement contains descriptions of numerous federally-recognized hydric soil indicators.

Under natural conditions, development of hydrophytic vegetation and hydric soils are dependent on a third characteristic, wetland hydrology. This criterion is met if the area experiences inundation or soil saturation to the surface for a period equal to at least five (5) percent of the growing season (about 14 days in the region of the project site) in a year of median rainfall. In most cases, this criterion can only be measured directly by monitoring the site through an entire wet season. In practice, the hydrological status of a particular area is usually evaluated using indirect indicators. Some of the indicators that are commonly used to identify wetland hydrology include biotic crusts and oxidized rhizospheres around roots. The Arid West Supplement gives thorough descriptions of numerous federally-recognized indicators of wetland hydrology.

FIELD METHODS

LSA soil scientist Chip Bouril investigated the site on March 15, 2013. The last significant rainfall of approximately ½ inch occurred on February 19.

Wetland boundaries and sample point locations were mapped using a global position system (GPS) receiver with sub-meter accuracy. Wetland boundaries were determined by following a combination of the limits of hydrophytic vegetation, the limits of observed wetland hydrology, topographic breaks, and interpretation of aerial photography.

LSA established 5 sample points on the project site. Their locations are shown on Figure 3.

OBSERVATIONS

Potential jurisdictional features as identified by LSA are mapped on Figure 3.

Sulphur Creek

Approximately 3,150 linear feet of a perennial stream, called Sulphur Creek, flows westward through the study site. Roughly half of this length is conveyed underground beneath runways and taxiways within six sets of culverts. The second most downstream surface reach of the creek flows within a trapezoidal concrete channel. The remaining surface reaches of Sulphur Creek have been channelized into relatively straight, mostly trapezoidal, earthen channels. Although this reach of Sulphur Creek is located less than a mile from San Francisco Bay, the concrete-lined channel near the downstream study site boundary holds the study site reaches of the creek above the elevation of tidal influence.

Some of the creek bed and most of its lower banks are vegetated with freshwater marsh plant species, predominantly cattails (*Typha* spp.) and bulrushes (*Schoenoplectus* spp.). In the upstream surface reach of the creek, a low flood plain within the trapezoidal channel banks also supports similar wetland plant species. The creek's upper banks are vegetated with ruderal non-wetland grasses and forbs, similar to those in the unpaved infields between the runway and taxiways.

Most of the earthen channel reaches of Sulphur Creek have a well-defined low flow channel with a relatively flat bed and steep cut banks. At some locations, debris wrack deposits outside this channel show that the creek does typically flow outside this channel after significant rainfall events. In some locations, the low flow cut bank is interpreted as the Ordinary High Water Mark elevation, while in other areas, the Ordinary High Water Mark elevation appears to extend outside the low flow channel onto adjacent lower banks. At these locations, the wetland vegetation also extends beyond the low flow channel. As Ordinary High Water Mark is defined as including adjacent wetland vegetation, the Ordinary High Water Mark is mapped as extending to the limit of wrack and wetland vegetation in these reaches.

The Ordinary High Water Mark width of the Sulphur Creek surface channel varies between 8 and 30 feet. The total potential jurisdictional length of the surface channel reaches of Sulphur Creek is 1,710 feet and the total potential jurisdictional area is 0.73 acre.

The total widths of the Sulphur Creek culverts range between 16 and 18 feet. Some reaches of Sulphur Creek are culverted in two approximately 8-foot wide box culverts, while other reaches are culverted in four 4-foot diameter pipes. The total potential jurisdictional length of the culverted reaches of Sulphur Creek is 1,440 feet and the total potential jurisdictional area is 0.53 acre.

Sulphur Creek is delineated as an Other Water of the United States. The combined surface and culverted reaches of Sulphur Creek have a total potential jurisdictional length of 3,150 feet and total potential jurisdictional area of 1.26 acres.

Ditches and Basins

Constructed shallow drainage ditches and swales drain the unpaved airport infields to Sulphur Creek. These ditches extend mostly to the southeast of Sulphur Creek and include culverts underneath taxiways. LSA established 4 sample points to test for jurisdictional wetland indicators in these features. Although several locations within these drainage swales contain some wetland plant species and evidence of recent seasonal ponding, most locations do not meet jurisdictional wetland criteria. These swales do not have a bed and bank and do not show evidence of scour, so are not delineated as jurisdictional Other Waters of the United States. The one exception is an approximately 115-foot long reach of ditch between Taxiway A and Runway 10L, where Sample Point 1 was placed. The soil was saturated during the site investigation and vegetation included nut sedge (*Cyperus eragrostis*), a wetland plant not found at other ditch locations. In addition, this reach of ditch did show evidence of scour. Although both the potential jurisdictional wetland and Other Waters evidence for this reach are marginal, this reach of ditch is delineated as potentially jurisdictional based on this combination of characteristics. The potential jurisdictional area of the ditch is 0.010 acre.

Other Observations

Sample Point 3 was placed in a distinct basin within the unpaved infield. Despite its basin form, it did not show any convincing evidence of ponding or other jurisdictional wetland characteristics.

Several culverts empty into Sulphur Creek within the study site. These are presumed to be airport or municipal storm drains which are delineated as non-jurisdictional.

The remainder of the site is vegetated with upland plant species and did not have any wetland characteristics. No other evidence of potential waters of the United States was observed on the site.

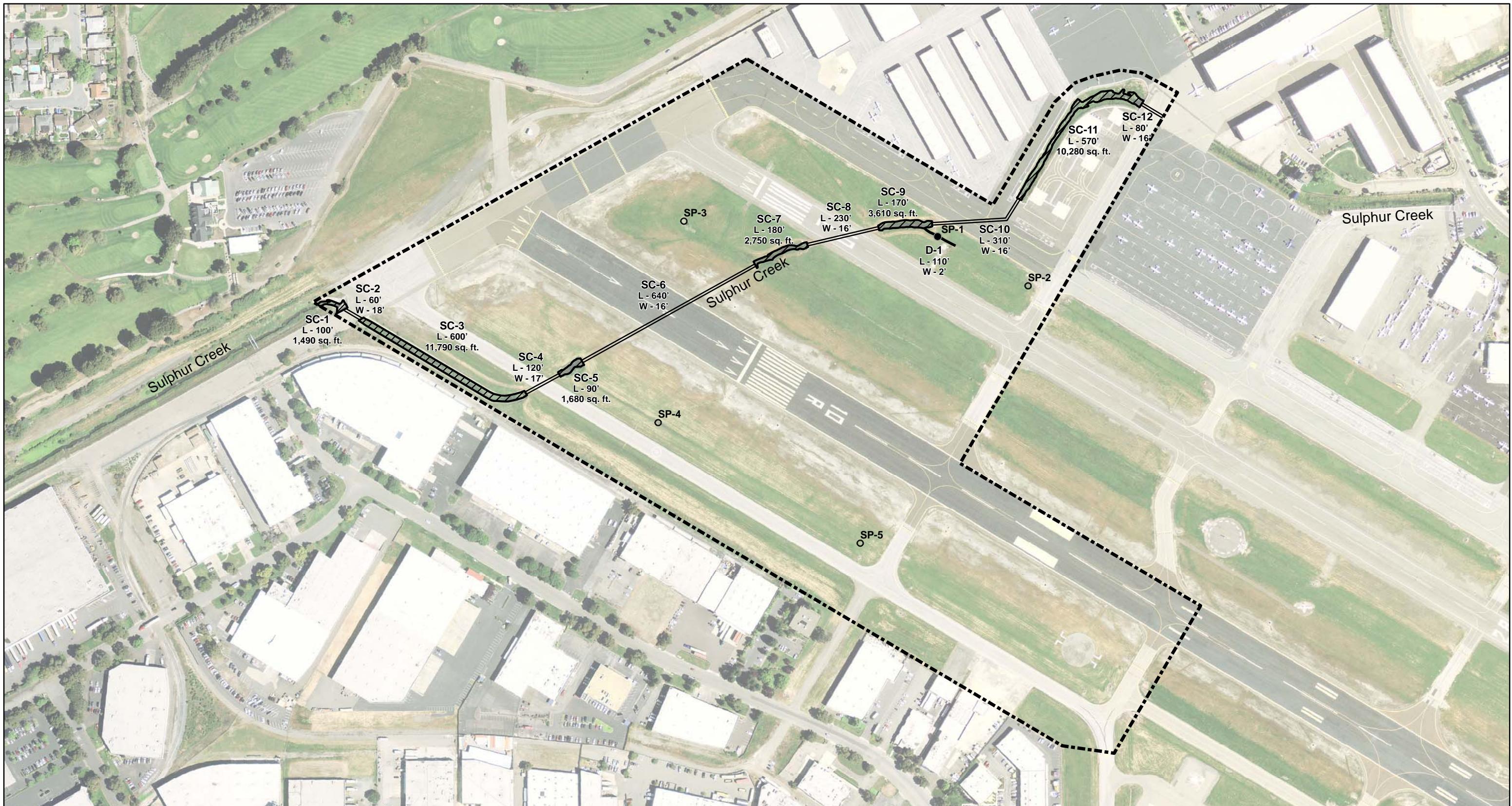
CONCLUSIONS

Potential Clean Water Act Section 404 jurisdictional features identified on the Hayward Executive Airport Project Site consists of Sulphur Creek, with a total potential jurisdictional length of 3,150 feet and an area of 1.26 acres, and a wetland drainage ditch with a potential jurisdictional length of 115 feet and an area of 0.010 acre.

Potential jurisdictional features, project site boundaries, and sample point locations are mapped on the attached Figure 3.

The findings and conclusions presented in this report, including the location and extent of other waters subject to Section 404 regulatory jurisdiction, represent the professional opinion of LSA. These findings and conclusions should be considered preliminary until verified by the Corps.

Please contact me or Ross A. Dobberteen, Ph.D., Principal-in-charge, at (510) 236-6810 to schedule a verification visit.



LSA

LEGEND

Dashed Box: Area of Potential Ground Disturbance

●: Wetland Sample Point

○: Non-wetland Sample Point

1 INCH = 300 FEET
N

0 150 300
FEET

SOURCE: USGS Orthoimagery (04/2011).

I:\RSQ1001\GIS\Maps\Delineation\Figure3_Potential Waters of the US (11x17).mxd (4/24/2013)

POTENTIAL WATERS OF THE US

Open Stream Channel (0.725 acre)

Culverted Stream Channel (0.534 acre)

Wetland Ditch (0.005 acre)

*Hayward Executive Airport
Hayward, Alameda County, California
Potential Waters of the US*

WETLAND DETERMINATION DATA FORM — Arid West Region

Project Site: HOT SPRINGS AIRPORT City/County: HOT SPRINGS/CALIFORNIA Sampling Date: 15 MARCH 13

Applicant/Owner: _____ State: CA Sampling Point: 1

Investigator(s): C. Bouril Section, Township, Range: _____

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): 0, 0-8

Subregion (LRR): LRR C Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No _____ (If no, explain in Remarks.)

Are Vegetation _____ Soil _____ or Hydrology _____ Significantly disturbed? Are "Normal Circumstances" present? Yes _____ No _____

Are Vegetation _____ Soil _____ or Hydrology _____ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the Sampled Area within a Wetland?
Hydric Soil Present?	Yes <u>X</u>	No _____	Yes <u>X</u> No _____
Wetland Hydrology Present?	Yes <u>X</u>	No _____	
Remarks: 			

VEGETATION

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Indicator Species? Status	Dominance Test worksheet:	
1.			Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)	
2.			Total Number of Dominant Species Across All Strata: <u>3</u> (B)	
3.			Percent of Dominant Species That Are OBL, FACW, or FAC: <u>67</u> (A/B)	
4.				
Total Cover: _____				
Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Indicator Species? Status	Prevalence Index worksheet:	
1.			Total % Cover of: _____ Multiply by: _____	
2.			OBL species	x 1 = _____
3.			FACW species	x 2 = _____
4.			FAC species	x 3 = _____
5.			FACU species	x 4 = _____
Total Cover: _____			UPL species	x 5 = _____
Herb Stratum (Plot size: _____)			Column Totals: _____	(A) _____ (B) _____
1. <u>CYPERUS ERAGROSTIS</u>	<u>20</u>	<u>X</u> <u>FACW</u>	Prevalence Index = B/A = <u>= 3.00</u>	
2. <u>FESTUCA PERENNIS</u>	<u>10</u>	<u>X</u> <u>FAC</u>	Hydrophytic Vegetation Indicators:	
3. <u>CYNODON DACTYLON</u>	<u>20</u>	<u>X</u> <u>FACU</u>	<ul style="list-style-type: none"> — Dominance Test is >50% — Prevalence Index is ≤ 0¹ — Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) — Problematic Hydrophytic Vegetation¹ (Explain) 	
4.			¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
5.				
6.				
7.				
8.				
Total Cover: _____			Hydrophytic Vegetation Present? Yes <u>X</u> No _____	
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Indicator Species? Status		
1.				
2.				
Total Cover: _____				
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____				
Remarks:				

SOIL

Sampling Point: _____

¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

² Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- | | |
|-----------------------------------|----------------------------|
| Histsol (A1) | Sandy Redox (S5) |
| Histic Epipedon (A2) | Stripped Matrix (S6) |
| Black Histic (A3) | Loamy Mucky Mineral (F1) |
| Hydrogen Sulfide (A4) | Loamy Gleyed Matrix F2) |
| Stratified Layers (A5) (LRR C) | Depleted Matrix (F3) |
| 1 cm Muck (A9) (LRR D) | Redox Dark Surface (F6) |
| Depleted Below Dark Surface (All) | Depleted Dark Surface (F7) |
| Thick Dark Surface (A12) | Redox Depressions (F8) |
| Sandy Mucky Mineral (SI) | Vernal Pools (F9) |
| Sandy Gleyed Matrix (S4) | |

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR C)
 - 2 cm Muck (A10) (LRR B)
 - Reduced Vertic (F18)
 - Red Parent Material (TF2)
 - Other (Explain in Remarks)

³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present?

Yes

No

Remarks:

SOIL IS PRESUMED HYDRIC BECAUSE OF SATURATION AFTER
A LONG PERIOD OF INSIGNIFICANT RAINFALL

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

Secondary Indicators (2 or more required)

- | | | |
|---|---|---|
| Surface Water (A1) | Salt Crust (B11) | Water Marks (B1) (Riverine) |
| High Water Table (A2) | Biotic Crust (B12) | Sediment Deposits (B2) (Riverine) |
| Saturation (A3) | Aquatic Invertebrates (B13) | Drift Deposits (B3) (Riverine) |
| Water Marks (B1) (Nonriverine) | Hydrogen Sulfide Odor (C1) | Drainage Patterns (B10) |
| Sediment Deposits (B2) (Nonriverine) | Oxidized Rhizospheres along Living Roots (C3) | Dry-Season Water Table (C2) |
| Drift Deposits (B3) (Nonriverine) | Presence of Reduced Iron (C4) | Crayfish Burrows (C8) |
| Surface Soil Cracks (B6) | Recent Iron Reduction in Plowed Soils (CS) | Saturation Visible on Aerial Imagery (C9) |
| Inundation Visible on Aerial Imagery (B7) | Thin Muck Surface (C7) | Shallow Aquitard (D3) |
| Water-Stained Leaves (B9) | Other (Explain in Remarks) | FAC-Neutral Test (D5) |

Field Observations:

Surface Water Present? Yes No Depth (inches):

Water Table Present? Yes No Depth (inches):

Saturation Present? Yes X No Depth (inches):

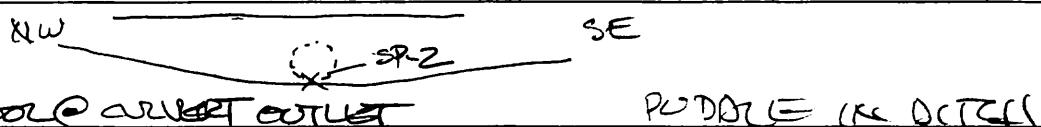
Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

NO PECULIAR SIGN OF WILDERNESS (2 DOTS). SATURATES SOIL, LIKELY REQUIRES CREATIVITY
OF WETLAND HYDROLOGIST. 0.3" IN PREVIOUS 23 DAYS.

WETLAND DETERMINATION DATA FORM — Arid West Region

Project Site: <u>HATFIELD EXCE. AIRPORT</u>		City/County: _____	Sampling Date: <u>15 APR 13</u>																																																																																																																																																	
Applicant/Owner: _____		State: <u>CA</u>	Sampling Point: <u>2</u>																																																																																																																																																	
Investigator(s): <u>C. Bouril</u>		Section, Township, Range: _____																																																																																																																																																		
Landform (hillslope, terrace, etc.): _____		Local relief (concave, convex, none): _____	Slope (%): <u><5</u>																																																																																																																																																	
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SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc.																																																																																																																																																				
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VEGETATION <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Tree Stratum</th> <th>(Plot size: _____)</th> <th>Absolute % Cover</th> <th>Dominant Species?</th> <th>Indicator Status</th> </tr> </thead> <tbody> <tr><td>1.</td><td></td><td></td><td></td><td></td></tr> <tr><td>2.</td><td></td><td></td><td></td><td></td></tr> <tr><td>3.</td><td></td><td></td><td></td><td></td></tr> <tr><td>4.</td><td></td><td></td><td></td><td></td></tr> <tr> <td colspan="5" style="text-align: center;">Total Cover: _____</td> </tr> <tr> <th>Sapling/Shrub Stratum</th> <th>(Plot size: _____)</th> <td colspan="3"></td> </tr> <tr><td>1.</td><td></td><td></td><td></td><td></td></tr> <tr><td>2.</td><td></td><td></td><td></td><td></td></tr> <tr><td>3.</td><td></td><td></td><td></td><td></td></tr> <tr><td>4.</td><td></td><td></td><td></td><td></td></tr> <tr><td>5.</td><td></td><td></td><td></td><td></td></tr> <tr> <td colspan="5" style="text-align: center;">Total Cover: _____</td> </tr> <tr> <th>Herb Stratum</th> <th>(Plot size: _____)</th> <td colspan="3"></td> </tr> <tr><td>1. <u>FESTUCA PERENNIS</u></td><td></td><td><u>8</u></td><td><u>X</u></td><td><u>FAC</u></td></tr> <tr><td>2. <u>LOTUS CORNICULATUS</u></td><td></td><td><u>10</u></td><td><u>X</u></td><td><u>FAC</u></td></tr> <tr><td>3. <u>PLANTAGO lanceolata</u></td><td></td><td><u>5</u></td><td><u>X</u></td><td><u>FAC</u></td></tr> <tr><td>4.</td><td></td><td></td><td></td><td></td></tr> <tr><td>5.</td><td></td><td></td><td></td><td></td></tr> <tr><td>6.</td><td></td><td></td><td></td><td></td></tr> <tr><td>7.</td><td></td><td></td><td></td><td></td></tr> <tr><td>8.</td><td></td><td></td><td></td><td></td></tr> <tr> <td colspan="5" style="text-align: center;">Total Cover: _____</td> </tr> <tr> <th>Woody Vine Stratum</th> <th>(Plot size: _____)</th> <td colspan="3"></td> </tr> <tr><td>1.</td><td></td><td></td><td></td><td></td></tr> <tr><td>2.</td><td></td><td></td><td></td><td></td></tr> <tr> <td colspan="5" style="text-align: center;">Total Cover: _____</td> </tr> <tr> <td colspan="2">% Bare Ground in Herb Stratum _____</td> <td colspan="3">% Cover of Biotic Crust _____</td> </tr> <tr> <td colspan="4">Remarks:</td> <td><u>weak HYDRO vegetation.</u></td> </tr> </tbody> </table>				Tree Stratum	(Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	1.					2.					3.					4.					Total Cover: _____					Sapling/Shrub Stratum	(Plot size: _____)				1.					2.					3.					4.					5.					Total Cover: _____					Herb Stratum	(Plot size: _____)				1. <u>FESTUCA PERENNIS</u>		<u>8</u>	<u>X</u>	<u>FAC</u>	2. <u>LOTUS CORNICULATUS</u>		<u>10</u>	<u>X</u>	<u>FAC</u>	3. <u>PLANTAGO lanceolata</u>		<u>5</u>	<u>X</u>	<u>FAC</u>	4.					5.					6.					7.					8.					Total Cover: _____					Woody Vine Stratum	(Plot size: _____)				1.					2.					Total Cover: _____					% Bare Ground in Herb Stratum _____		% Cover of Biotic Crust _____			Remarks:				<u>weak HYDRO vegetation.</u>
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Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____																																																																																																																																																				
Hydrophytic Vegetation Indicators: <ul style="list-style-type: none"> — Dominance Test is >50% — Prevalence Index is ≥ 1 — Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) — Problematic Hydrophytic Vegetation¹ (Explain) <p>¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.</p>																																																																																																																																																				
Hydrophytic Vegetation Present? Yes <u>X</u> No _____.																																																																																																																																																				

SOIL

Sampling Point: 7

¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ² Location: PL=Pore Lining, M=Matrix.

² Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Histsol (A1)	Sandy Redox (S5)
Histic Epipedon (A2)	Stripped Matrix (S6)
Black Histic (A3)	Loamy Mucky Mineral (F1)
Hydrogen Sulfide (A4)	Loamy Gleyed Matrix F2)
Stratified Layers (A5) (LRR C)	Depleted Matrix (F3)
1 cm Muck (A9) (LRR D)	Redox Dark Surface (F6)
Depleted Below Dark Surface (All)	Depleted Dark Surface (F7)
Thick Dark Surface (A12)	Redox Depressions (F8)
Sandy Mucky Mineral (S1)	Vernal Pools (F9)
Sandy Gleyed Matrix (S4)	

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR C)
- 2 cm Muck (AlO) (LRR B)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present?

Yes

No X

Remarks:

THE LACK OF HYDROPHILIC VEGETATION & HYDROSCOPY EVIDENCE SUPPORT A NON-HYDRIC DESTRUCTION,

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

Secondary Indicators (2 or more required)

<u>Primary Indicators (any one indicator is sufficient)</u>		<u>Secondary Indicators (3 or more required)</u>
Surface Water (A1)	Salt Crust (B11)	Water Marks (B1) (Riverine)
High Water Table (A2)	X Biotic Crust (B12) <i>& Ce West</i>	Sediment Deposits (B2) (Riverine)
Saturation (A3)	Aquatic Invertebrates (B13)	Drift Deposits (B3) (Riverine)
Water Marks (B1) (Nonriverine)	Hydrogen Sulfide Odor (C1)	Drainage Patterns (B10)
Sediment Deposits (B2) (Nonriverine)	Oxidized Rhizospheres along Living Roots (C3)	Dry-Season Water Table (C2)
Drift Deposits (B3) (Nonriverine)	Presence of Reduced Iron (C4)	Crayfish Burrows (C8)
Surface Soil Cracks (B6)	Recent Iron Reduction in Plowed Soils (CS)	Saturation Visible on Aerial Imagery (C9)
Inundation Visible on Aerial Imagery (B7)	Thin Muck Surface (C7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Other (Explain in Remarks)	FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes No Depth (inches):

Water Table Present? Yes No Depth (inches):

Saturation Present? Yes _____ No Depth (inches):

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

THE BULLS WERE MATED BEFORE THE GENERAL RONDOING.

WETLAND DETERMINATION DATA FORM — Arid West Region

Project Site: <u>HOTWATER AIRPORT</u>		City/County: _____		Sampling Date: <u>15 WKR 13</u>			
Applicant/Owner: _____		State: <u>CA</u>		Sampling Point: <u>3</u>			
Investigator(s): <u>C. Bouril</u>		Section, Township, Range: _____					
Landform (hillslope, terrace, etc.): _____		Local relief (concave, convex, none): _____		Slope (%): <u><5</u>			
Subregion (LRR): <u>LRR C</u>		Lat: _____	Long: _____	Datum: _____			
Soil Map Unit Name: _____		NWI classification: _____					
Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No _____ (If no, explain in Remarks.)							
Are Vegetation _____ Soil _____ or Hydrology _____ Significantly disturbed? Are "Normal Circumstances" present? Yes _____ No _____							
Are Vegetation _____ Soil _____ or Hydrology _____ Naturally problematic? (If needed, explain any answers in Remarks.)							
SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc.							
Hydrophytic Vegetation Present? Yes _____ No <u>X</u>		Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>		Hydric Soil Present? Yes _____ No <u>X</u>			
Wetland Hydrology Present? Yes _____ No <u>X</u>							
Remarks: 							
VEGETATION							
Tree Stratum (Plot size: _____)		Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:		
1. _____		_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)		
2. _____		_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>2</u> (B)		
3. _____		_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)		
4. _____		_____	_____	_____			
Sapling/Shrub Stratum (Plot size: _____)		Total Cover: _____				Prevalence Index worksheet:	
1. _____		_____	_____	_____	Total % Cover of: _____ Multiply by: _____		
2. _____		_____	_____	_____	OBL species: _____ x 1 = _____	FACW species: _____ x 2 = _____	
3. _____		_____	_____	_____	FAC species: _____ x 3 = _____	FACU species: _____ x 4 = _____	
4. _____		_____	_____	_____	UPL species: _____ x 5 = _____	Column Totals: _____ (A) _____ (B)	
5. _____		_____	_____	_____	Prevalence Index = B/A = <u>>3</u>		
Herb Stratum (Plot size: _____)		Total Cover: _____				Hydrophytic Vegetation Indicators:	
1. <u>HEUCHERA SERRULATA</u>		<u>40</u>	<u>X</u>	<u>FOCU</u>	— Dominance Test is >50%		
2. <u>LOTUS CORNICULATUS</u>		<u>60</u>	<u>X</u>	<u>FAC</u>	— Prevalence Index is <u>>3.0</u>		
3. <u>FESTUCA PERENNIS</u>		<u><5</u>		<u>FAC</u>	— Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)		
4. _____		_____	_____	_____	— Problematic Hydrophytic Vegetation ¹ (Explain)		
5. _____		_____	_____	_____			
6. _____		_____	_____	_____			
7. _____		_____	_____	_____			
8. _____		_____	_____	_____			
Woody Vine Stratum (Plot size: _____)		Total Cover: _____				Hydrophytic Vegetation Present? Yes _____ No <u>X</u>	
1. _____		_____	_____	_____			
2. _____		_____	_____	_____			
Total Cover: _____							
% Bare Ground in Herb Stratum _____		% Cover of Biotic Crust _____					
Remarks:							

SOIL

Sampling Point: 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

² Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ### **Indicators for Problematic Hydric Soils³:**

- | | |
|-----------------------------------|----------------------------|
| Histsol (A1) | Sandy Redox (S5) |
| Histic Epipedon (A2) | Stripped Matrix (S6) |
| Black Histic (A3) | Loamy Mucky Mineral (F1) |
| Hydrogen Sulfide (A4) | Loamy Gleyed Matrix F2) |
| Stratified Layers (A5) (LRR C) | Depleted Matrix (F3) |
| 1 cm Muck (A9) (LRR D) | Redox Dark Surface (F6) |
| Depleted Below Dark Surface (A11) | Depleted Dark Surface (F7) |
| Thick Dark Surface (A12) | Redox Depressions (F8) |
| Sandy Mucky Mineral (S1) | Vernal Pools (F9) |
| Sandy Gleyed Matrix (S4) | |

- 1 cm Muck (A9) (LRR C)
 - 2 cm Muck (A10) (LRR B)
 - Reduced Vertic (F18)
 - Red Parent Material (TF2)
 - Other (Explain in Remarks)

³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present?

Yes

No

X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Secondary Indicators (2 or more required)

Primary Indicators (any one indicator is sufficient)

- | | |
|---|---|
| Surface Water (A1) | Salt Crust (B11) |
| High Water Table (A2) | Biotic Crust (B12) or one |
| Saturation (A3) | Aquatic Invertebrates (B13) |
| Water Marks (B1) (Nonriverine) | Hydrogen Sulfide Odor (C1) |
| Sediment Deposits (B2) (Nonriverine) | Oxidized Rhizospheres along Living Roots (C3) |
| Drift Deposits (B3) (Nonriverine) | Presence of Reduced Iron (C4) |
| Surface Soil Cracks (B6) | Recent Iron Reduction in Plowed Soils (CS) |
| Inundation Visible on Aerial Imagery (B7) | Thin Muck Surface (C7) |
| Water-Stained Leaves (B9) | Other (Explain in Remarks) |

- Water Marks (B1) (**Riverine**)
 - Sediment Deposits (B2) (**Riverine**)
 - Drift Deposits (B3) (**Riverine**)
 - Drainage Patterns (B10)
 - Dry-Season Water Table (C2)
 - Crayfish Burrows (C8)
 - Saturation Visible on Aerial Imagery (C9)
 - Shallow Aquitard (D3)
 - FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes No Depth (inches):

Water Table Present? Yes No Depth (inches):

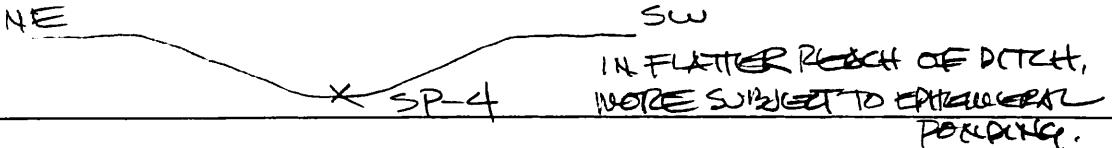
Saturation Present? Yes No Depth (inches): _____
(includes capillary fringe)

Wetland Hydrology Present? Yes _____ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM — Arid West Region

Project Site: <u>HIGHWAY 395, AIRPORT</u>		City/County:	Sampling Date:	<u>SUMMER</u>																																																																																																																																																																															
Applicant/Owner:		State:	CA	Sampling Point:	<u>4</u>																																																																																																																																																																														
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Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = <u>23</u>																																																																																																																																																																																			
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SOIL

Sampling Point: 4

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (2 or more required)		
<u>Primary Indicators (any one indicator is sufficient)</u>				
Surface Water (A1)	<input type="checkbox"/>	Salt Crust (B11)	<input type="checkbox"/>	Water Marks (B1) (Riverine)
High Water Table (A2)	<input type="checkbox"/>	Biotic Crust (B12)	<input type="checkbox"/>	Sediment Deposits (B2) (Riverine)
Saturation (A3)	<input type="checkbox"/>	Aquatic Invertebrates (B13)	<input type="checkbox"/>	Drift Deposits (B3) (Riverine)
Water Marks (B1) (Nonriverine)	<input type="checkbox"/>	Hydrogen Sulfide Odor (C1)	<input type="checkbox"/>	Drainage Patterns (B10)
Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/>	Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/>	Dry-Season Water Table (C2)
Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/>	Presence of Reduced Iron (C4)	<input type="checkbox"/>	Crayfish Burrows (C8)
Surface Soil Cracks (B6)	<input type="checkbox"/>	Recent Iron Reduction in Plowed Soils (CS)	<input type="checkbox"/>	Saturation Visible on Aerial Imagery (C9)
Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/>	Thin Muck Surface (C7)	<input type="checkbox"/>	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	<input type="checkbox"/>	Other (Explain in Remarks)	<input type="checkbox"/>	FAC-Neutral Test (D5)
Field Observations:				
Surface Water Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	
Water Table Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches):	
				Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:				
Remarks: <i>WETTED AREAS SEEN, NOT DARKENED = EPH. DON</i>				

WETLAND DETERMINATION DATA FORM — Arid West Region

Project Site: HYDROLOGIC EXC. & REPORT City/County: _____ Sampling Date: 15 MAR 13
 Applicant/Owner: _____ State: CA Sampling Point: 5
 Investigator(s): C. Bouril Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): 0, < 4
 Subregion (LRR): LRR C Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No _____ (If no, explain in Remarks.)

Are Vegetation _____ Soil _____ or Hydrology _____ Significantly disturbed? Are "Normal Circumstances" present? Yes _____ No _____

Are Vegetation _____ Soil _____ or Hydrology _____ Naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			
Remarks: <u>SP-5</u>					

VEGETATION

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1.				Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)	
2.				Total Number of Dominant Species Across All Strata: <u>3</u> (B)	
3.				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>33</u> (A/B)	
4.					
Total Cover: _____					
Sapling/Shrub Stratum (Plot size: _____)	Total Cover: _____			Prevalence Index worksheet:	
1.				Total % Cover of: _____	Multiply by:
2.				OBL species	x 1 = _____
3.				FACW species	x 2 = _____
4.				FAC species	x 3 = _____
5.				FACU species	x 4 = _____
				UPL species	x 5 = _____
				Column Totals:	(A) _____ (B) _____
				Prevalence Index = B/A = <u>> 3</u>	
Herb Stratum (Plot size: _____)	Total Cover: _____			Hydrophytic Vegetation Indicators:	
1. <u>FESTUCA PERENNIS</u>	<u>30</u>	<u>X</u>	<u>FAC</u>	— Dominance Test is >50%	
2. <u>GERANIUM DISSECTUM</u>	<u>20</u>	<u>X</u>	<u>UPL</u>	— Prevalence Index is $\leq 0^1$	
3. <u>HELMINTOTHECA ECHIOIDES</u>	<u>20</u>	<u>X</u>	<u>FACU</u>	— Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)	
4. <u>PLANTAGO LANCOOLATA</u>	<u>5</u>		<u>FAC</u>	— Problematic Hydrophytic Vegetation ¹ (Explain)	
5.					
6.					
7.					
8.					
Woody Vine Stratum (Plot size: _____)	Total Cover: _____			Hydrophytic Vegetation Present?	
1.				Yes _____	No <u>X</u>
2.					
% Bare Ground in Herb Stratum _____	% Cover of Biotic Crust _____				
Remarks:					

SOIL

Sampling Point: 5

¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. ² Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils³:

Histosol (Al)	Sandy Redox (S5)
Histic Epipedon (A2)	Stripped Matrix (S6)
Black Histic (A3)	Loamy Mucky Mineral (F1)
Hydrogen Sulfide (A4)	Loamy Gleayed Matrix F2)
Stratified Layers (A5) (LRR C)	Depleted Matrix (F3)
1 cm Muck (A9) (LRR D)	Redox Dark Surface (F6)
Depleted Below Dark Surface (All)	Depleted Dark Surface (F7)
Thick Dark Surface (A12)	Redox Depressions (F8)
Sandy Mucky Mineral (SI)	Vernal Pools (F9)
Sandy Gleayed Matrix (S4)	

- 1 cm Muck (A9) (LRR C)
- 2 cm Muck (A10) (LRR B)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present): Type: _____	Hydric Soil Present? Yes _____	No <input checked="" type="checkbox"/>
Depth (inches): _____		
Remarks:		

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

Secondary Indicators (2 or more required)

Surface Water (A1)	Salt Crust (B11)	Water Marks (B1) (Riverine)
High Water Table (A2)	X Biotic Crust (B12) <i>& Levee crest</i>	Sediment Deposits (B2) (Riverine)
Saturation (A3)	Aquatic Invertebrates (B13)	Drift Deposits (B3) (Riverine)
Water Marks (B1) (Nonriverine)	Hydrogen Sulfide Odor (C1)	Drainage Patterns (B10)
Sediment Deposits (B2) (Nonriverine)	Oxidized Rhizospheres along Living Roots (C3)	Dry-Season Water Table (C2)
Drift Deposits (B3) (Nonriverine)	Presence of Reduced Iron (C4)	Crayfish Burrows (C8)
Surface Soil Cracks (B6)	Recent Iron Reduction in Plowed Soils (CS)	Saturation Visible on Aerial Imagery (C9)
Inundation Visible on Aerial Imagery (B7)	Thin Muck Surface (C7)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	Other (Explain in Remarks)	FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes No Depth (inches):

Water Table Present? Yes No Depth (inches):

Saturation Present? Yes _____ No (S) Depth (inches): _____
(includes capillary fringe)

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:



LSA ASSOCIATES, INC.
157 PARK PLACE
PT. RICHMOND, CALIFORNIA 94801

510.236.6810 TEL
510.236.3480 FAX

BERKELEY
CARLSBAD
FORT COLLINS

FRESNO
IRVINE
PALM SPRINGS

RIVERSIDE
ROCKLIN
SAN LUIS OBISPO
SOUTH SAN FRANCISCO

April 24, 2013

Cameron Johnson
South Branch Chief
U. S. Army Corps of Engineers
1455 Market Street, 16th Floor
San Francisco, CA 94103-1398

Subject: Request for Verification of Jurisdictional Delineation for the Hayward Executive Airport Project Site, City of Hayward, Alameda County, California

Dear Mr. Johnson:

On behalf of our client, Reynolds, Smith and Hills, Inc., LSA Associates, Inc. (LSA) is requesting verification of the extent of U.S. Army Corps of Engineers (Corps) jurisdiction under Section 404 of the Clean Water Act for the above-referenced project site. This letter presents the results of a delineation performed by LSA of the potential extent of waters of the United States, including wetlands, on the project site.

SITE DESCRIPTION

The approximately 6.9-acre project site is located at the northwestern end of the Hayward Executive Airport, which is located west of Interstate 880 and accessed from Skywest Drive at the western end of West A Street, 2/3 mile west of its intersection with I-880. The project site is bounded by the airport to the southeast, industrial park to the southwest, Clubhouse Drive and the municipal Skywest Golf Course to the northwest, and airport hangers to the northeast (Alameda County Assessor's Parcel Numbers 432-134-1-5 and 432-124-1-4). The site is situated within an un-sectioned portion of Township 3 South, Range 2 West on the Hayward, California 7.5-minute USGS quadrangle, and is centered at 37.6614° North Latitude and 122.1265 West Longitude. Figures 1 and 2 (attached) depict the regional location and project site location, respectively.

The project site includes runways, taxiways, unpaved grass infields, and reaches of Sulphur Creek. There are no buildings on the site. Most of the site has been graded to drain through swales and culverts to Sulphur Creek. The southwestern edge of the site has an airport perimeter fence.

Vegetation on the site is dominated by ruderal grassland. The site has no trees; the only woody vegetation present is small coyote brush (*Baccharis pilularis*), a native ruderal shrub. Grass species observed consist of wild oats (*Avena* sp.), ripgut brome (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), Italian ryegrass (*Festuca perennis*), and Mediterranean barley (*Hordeum marinum*). Forb species observed include bur medic (*Medicago polymorpha*), bird's foot trefoil (*Lotus*

corniculatus), English plantain (*Plantago lanceolata*), prickly ox-tongue (*Helminthotheca echioides*), and suckling clover (*Trifolium dubium*).

The soil on the majority of the project site is mapped by the U.S. Department of Agriculture as Clear Lake clay, drained, 0 to 2 percent slopes (Map Unit Symbol 107); with the soil on a northern corner of the site mapped as Danville silty clay loam, 0 to 2 percent slopes (111). Clear Lake clay is listed as hydric in areas where the water table is within one foot of the surface during the growing season or is seasonally ponded. The Danville silty clay loam is not listed as hydric except in inclusions of Clear Lake clay (Web Soil Survey, <http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>, accessed 11 March 2013). The clear Lake clay is described as poorly drained and with slow permeability. The Danville silty clay loam is described as well drained and with slow permeability (USDA Soil Survey of Alameda County, 1981).

The entire project site drains via constructed shallow ditches and culverts to Sulphur Creek, which bisects the site. Sulphur Creek is tributary to San Francisco Bay, a traditional navigable water of the United States, which is located approximately one mile west of the project site.

METHODS

The field investigations of potentially jurisdictional wetlands were conducted using the routine determination method provided in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the revised procedures in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* (Arid West Supplement; U.S. Army Corps of Engineers 2008). This methodology entails examination of specific sample points within potential wetlands for hydrophytic vegetation, hydric soils, and wetland hydrology. By the federal definition, all three parameters must be present for an area to be considered a wetland.

Hydrophytic plant species are listed by the National Wetland Plant List (2012). The National List identifies five categories of plants according to their frequency of occurrence in wetlands. The categories are:

- | | |
|-------------------------------------|---|
| • Obligate wetland plants (OBL) | Plants that occur almost always in wetlands |
| • Facultative wetland plants (FACW) | Plants that usually occur in wetlands |
| • Facultative plants (FAC) | Plants that are equally likely to occur in wetlands or non-wetlands |
| • Facultative upland plants (FACU) | Plants that usually occur in uplands |
| • Obligate upland plants (UPL) | Plants that occur almost always in non-wetlands |

An area is generally considered to have hydrophytic vegetation when more than 50 percent of the dominant species in each stratum (tree, shrub, and herb) are in the obligate wetland, facultative wetland, or facultative categories.

Hydric soils are defined by criteria set forth by the National Technical Committee for Hydric Soils (NTCHS). These criteria are given in the Wetland Delineation Manual Supplement and are based on depth and duration of soil saturation. Hydric soils are commonly identified in the field by using indirect indicators of saturated soil, technically known as redoximorphic features. These features are

caused by anaerobic, reduced soil conditions that are brought about by prolonged soil saturation. The most common redoximorphic features are distinguished by soil color, which is strongly influenced by the frequency and duration of soil saturation. Hydric soils tend to have dark (low chroma) colors that are often accompanied by reddish mottles (iron mottles), reddish stains on root channels (oxidized rhizospheres), or gray colors (gleying). The Arid West Supplement contains descriptions of numerous federally-recognized hydric soil indicators.

Under natural conditions, development of hydrophytic vegetation and hydric soils are dependent on a third characteristic, wetland hydrology. This criterion is met if the area experiences inundation or soil saturation to the surface for a period equal to at least five (5) percent of the growing season (about 14 days in the region of the project site) in a year of median rainfall. In most cases, this criterion can only be measured directly by monitoring the site through an entire wet season. In practice, the hydrological status of a particular area is usually evaluated using indirect indicators. Some of the indicators that are commonly used to identify wetland hydrology include biotic crusts and oxidized rhizospheres around roots. The Arid West Supplement gives thorough descriptions of numerous federally-recognized indicators of wetland hydrology.

FIELD METHODS

LSA soil scientist Chip Bouril investigated the site on March 15, 2013. The last significant rainfall of approximately $\frac{1}{2}$ inch occurred on February 19.

Wetland boundaries and sample point locations were mapped using a global position system (GPS) receiver with sub-meter accuracy. Wetland boundaries were determined by following a combination of the limits of hydrophytic vegetation, the limits of observed wetland hydrology, topographic breaks, and interpretation of aerial photography.

LSA established 5 sample points on the project site. Their locations are shown on Figure 3.

OBSERVATIONS

Potential jurisdictional features as identified by LSA are mapped on Figure 3.

Sulphur Creek

Approximately 3,150 linear feet of a perennial stream, called Sulphur Creek, flows westward through the study site. Roughly half of this length is conveyed underground beneath runways and taxiways within six sets of culverts. The second most downstream surface reach of the creek flows within a trapezoidal concrete channel. The remaining surface reaches of Sulphur Creek have been channelized into relatively straight, mostly trapezoidal, earthen channels. Although this reach of Sulphur Creek is located less than a mile from San Francisco Bay, the concrete-lined channel near the downstream study site boundary holds the study site reaches of the creek above the elevation of tidal influence.

Some of the creek bed and most of its lower banks are vegetated with freshwater marsh plant species, predominantly cattails (*Typha* spp.) and bulrushes (*Schoenoplectus* spp.). In the upstream surface reach of the creek, a low flood plain within the trapezoidal channel banks also supports similar

wetland plant species. The creek's upper banks are vegetated with ruderal non-wetland grasses and forbs, similar to those in the unpaved infields between the runway and taxiways.

Most of the earthen channel reaches of Sulphur Creek have a well-defined low flow channel with a relatively flat bed and steep cut banks. At some locations, debris wrack deposits outside this channel show that the creek does typically flow outside this channel after significant rainfall events. In some locations, the low flow cut bank is interpreted as the Ordinary High Water Mark elevation, while in other areas, the Ordinary High Water Mark elevation appears to extend outside the low flow channel onto adjacent lower banks. At these locations, the wetland vegetation also extends beyond the low flow channel. As Ordinary High Water Mark is defined as including adjacent wetland vegetation, the Ordinary High Water Mark is mapped as extending to the limit of wrack and wetland vegetation in these reaches.

The Ordinary High Water Mark width of the Sulphur Creek surface channel varies between 8 and 30 feet. The total potential jurisdictional length of the surface channel reaches of Sulphur Creek is 1,710 feet and the total potential jurisdictional area is 0.73 acre.

The total widths of the Sulphur Creek culverts range between 16 and 18 feet. Some reaches of Sulphur Creek are culverted in two approximately 8-foot wide box culverts, while other reaches are culverted in four 4-foot diameter pipes. The total potential jurisdictional length of the culverted reaches of Sulphur Creek is 1,440 feet and the total potential jurisdictional area is 0.53 acre.

Sulphur Creek is delineated as an Other Water of the United States. The combined surface and culverted reaches of Sulphur Creek have a total potential jurisdictional length of 3,150 feet and total potential jurisdictional area of 1.26 acres.

Ditches and Basins

Constructed shallow drainage ditches and swales drain the unpaved airport infields to Sulphur Creek. These ditches extend mostly to the southeast of Sulphur Creek and include culverts underneath taxiways. LSA established 4 sample points to test for jurisdictional wetland indicators in these features. Although several locations within these drainage swales contain some wetland plant species and evidence of recent seasonal ponding, most locations do not meet jurisdictional wetland criteria. These swales do not have a bed and bank and do not show evidence of scour, so are not delineated as jurisdictional Other Waters of the United States. The one exception is an approximately 115-foot long reach of ditch between Taxiway A and Runway 10L, where Sample Point 1 was placed. The soil was saturated during the site investigation and vegetation included nut sedge (*Cyperus eragrostis*), a wetland plant not found at other ditch locations. In addition, this reach of ditch did show evidence of scour. Although both the potential jurisdictional wetland and Other Waters evidence for this reach are marginal, this reach of ditch is delineated as potentially jurisdictional based on this combination of characteristics. The potential jurisdictional area of the ditch is 0.010 acre.

Other Observations

Sample Point 3 was placed in a distinct basin within the unpaved infield. Despite its basin form, it did not show any convincing evidence of ponding or other jurisdictional wetland characteristics.

Several culverts empty into Sulphur Creek within the study site. These are presumed to be airport or municipal storm drains which are delineated as non-jurisdictional.

The remainder of the site is vegetated with upland plant species and did not have any wetland characteristics. No other evidence of potential waters of the United States was observed on the site.

CONCLUSIONS

Potential Clean Water Act Section 404 jurisdictional features identified on the Hayward Executive Airport Project Site consists of Sulphur Creek, with a total potential jurisdictional length of 3,150 feet and an area of 1.26 acres, and a wetland drainage ditch with a potential jurisdictional length of 115 feet and an area of 0.010 acre.

Potential jurisdictional features, project site boundaries, and sample point locations are mapped on the attached Figure 3.

The findings and conclusions presented in this report, including the location and extent of other waters subject to Section 404 regulatory jurisdiction, represent the professional opinion of LSA. These findings and conclusions should be considered preliminary until verified by the Corps.

Please contact me or Ross A. Dobberteen, Ph.D., Principal-in-charge, at (510) 236-6810 to schedule a verification visit.

Sincerely,

LSA ASSOCIATES, INC.

CHIP BOURIL

Chip Bouril
Wetland Scientist

Attachments: Figure 1 - Regional Location
 Figure 2 - Project Location
 Figure 3 - Delineation Map
 Data Sheets 1 through 5

cc: Mr. David Full, Vice President Aviation,
 Reynolds, Smith and Hills, Inc., 369 Pine Street, Suite 610, San Francisco, CA 94104

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APPENDIX D

Sponsor Land Use Assurance Letter



March 10, 2014

Mr. Douglas Pomeroy
Environmental Specialist
Federal Aviation Administration
San Francisco Airport District Office
1000 Marina Boulevard, Suite 220
Brisbane, California 94005-1835

RE: LAND USE ASSURANCE – HAYWARD EXECUTIVE AIRPORT

Dear Mr. Pomeroy:

The City of Hayward (City) makes the following statement of compatible land use assurance as required by Section 511 (a)(5) of the Airport and Airway Improvement Act of 1982, as amended:

The City provides assurance that appropriate action, within the authority of the City, including encouragement of the adoption of zoning laws, has been or will be taken, to the extent reasonable to restrict the use of land adjacent to or in the immediate vicinity of Hayward Executive Airport (Airport) to activities and purposes compatible with normal airport operations, both existing and in the future. The City works with adjacent land owners and encourages the adoption of zoning laws, to the extent reasonable, to restrict the use of land adjacent to or in the vicinity of the Airport to activities and purposes compatible with Airport operations.

As the Airport sponsor, the City assures; as required under 49 United States Code (USC) 471 07(a)(10), formerly section 511 (a)(5) of the 1982 Airport Act, that appropriate action, including the adoption of zoning laws, has been or will be taken to the extent reasonable, to restrict the use of land adjacent to or in the immediate vicinity of the Airport to activities and purposes compatible with normal airport operations, including landing and takeoff of aircraft.

The Proposed Action to culvert Sulphur Creek is consistent with the land use plans established by the City of Hayward per 49 USC Section 47107(a)(10).

If the Federal Aviation Administration has any further questions regarding Airport land use assurances, please contact me.

Sincerely,

Douglas McNeely
Airport Manager

Cc: Nicholas Kozlik, RS&H

DEPARTMENT OF PUBLIC WORKS ENGINEERING & TRANSPORTATION
HAYWARD EXECUTIVE AIRPORT

20301 SKYWEST, HAYWARD, CA 94541
TEL: 510/293-8678 • FAX: 510/783-4556 • P.D.: 510/247-3340 • www.haywardairport.org

APPENDIX E

2001 SHPO Concurrence Letter



GRAY DAVIS, Governor

STATE OF CALIFORNIA - THE RESOURCES AGENCY

OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATIONP.O. BOX 942856
SACRAMENTO, CA 94206-0001
(816) 553-6624 Fax (816) 553-9824
calshpo@mail2.quicknet.com

June 18, 2001

REPLY TO: FAA010423A

Joseph R. Rodriguez, Supervisor, Planning and Programming Section
Federal Aviation Administration
831 Mitten Road, Room 210
BURLINGAME CA 94010

Re: Section 106 Consultation for the Hayward Executive Airport Master Plan, Hayward,
Alameda County.

Dear Mr. Rodriguez:

Thank you for submitting to our office your April 19, 2001 letter, Draft Environmental Assessment/Environmental Impact Report (DEA/EIR), and Cultural Resource Assessment (CRA) regarding the Hayward Executive Airport Master Plan, Hayward, Alameda County. The Federal Aviation Administration (FAA) is the lead federal agency responsible for an environmental determination in accordance with the National Environmental Policy Act (NEPA) for near-term Master Plan improvements at Hayward Executive Airport. The FAA has reviewed a revised Airport layout Plan (ALP) for future grant funding or local project implementation within the time period of 2000 to 2005. A description of the planned projects is contained in your letter and the DEA/EIR. The proposed Area of Potential Effect (APE) for the proposed undertaking is defined by the boundary of the airport. The project APE appears adequate and meets the definitions set forth in 36 CFR 800.16(d).

FAA is seeking our comments on its determination of the eligibility of architectural and archeological properties located within the project APE for inclusion on the National Register of Historic Places (NRHP) in accordance with 36 CFR 800, regulations implementing Section 106 of the National Historic Preservation Act. FAA is also seeking our comments on its determination of the effects the proposed project will have on historic properties in accordance with 36 CFR 800. Our review of the submitted DEA/EIR and CRA leads us to make the following comments:

- The DEA/EIR and CRA documentation make reference to pre-1955 architectural properties within the project APE, but provides very little information on specific structures and their potential for inclusion on the National Register of Historic Places (NRHP). Despite FAA's assertion that these properties fail to meet NRHP eligibility criteria, no information was provided to support this determination. For the purposes of recording these resources in our information systems database, it is essential that documentation on pre-1955 architectural properties contain information on the structures' description, its date of construction, and its historic as well as current usage on the facility. This information should be part of any documentation that is required to be evaluated against NRHP eligibility.

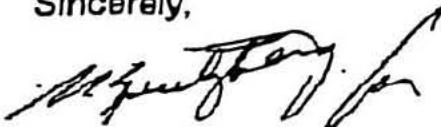
criteria. Please provide our office with any information on specific pre-1955 structures that may exist within the project APE.

- The information contained in the CRA regarding archeological properties is more detailed and appears to address the question of the existence of significant archeological resources within the project APE. On the basis of this information, we can concur with FAA's determination that no known significant archeological resources are located within the project area. We do encourage FAA to implement, where feasible, the "Management Recommendations" noted on Page 7 of the CRA regarding the treatment of any undiscovered archeological resources that may be exposed during project construction. Such recommendations appear consistent with guidance set forth in 36 CFR 800.13.

We will provide additional comments regarding the FAA's finding of effect on pre-1955 architectural properties pending receipt of supplemental information clarifying the NRHP eligibility of these properties.

Thank you again for seeking our comments on your project. If you have any questions, please contact staff historian Clarence Caesar at (916) 653-8902.

Sincerely,



Dr. Knox Mellon
State Historic Preservation Officer

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APPENDIX F

Addenda and Response to Comments

ADDENDA

The following corrections and changes are made to the Draft EA and are incorporated as part of the Final EA. New language is underlined (e.g. new text). Deleted text is shown with strikethrough (e.g. ~~deleted text~~).

On Page 3-27 of Section 3.3.8.1:

Approximately 3,100 linear feet of an intermittent perennial-stream, Sulphur Creek, flows westward across the Airport. Roughly half of this length is conveyed underground beneath runways and taxiways within five sets of culverts.

RESPONSES TO COMMENTS

The Draft EA was sent to the agencies, organizations, and individuals on the distribution list, which is presented on the following page.

This appendix contains a list of comments received concerning the Draft EA during the 30-day comment period (16 January 2015 through 17 February 2015) and the responses to those comments. This page contains text changes to the Draft EA, reflecting necessary corrections addressed by the public comments, responses to comments, or initiated to correct the Draft EA. Each comment is numbered in the margin of the comment letter received by the Airport and the responses that address the comments correspond to the same numbering scheme.

A copy of this Final EA was sent to agency, organizations, and individuals who commented on the Draft EA.

DISTRIBUTION LIST		
Entity	Physical Mailing	Email
United States Army Corps of Engineers	1455 Market Street San Francisco, CA 94103	
United States Fish and Wildlife Service	2800 COTTAGE WAY, ROOM W-2606 SACRAMENTO, CALIFORNIA 95825-1846	
Golden Gate Audubon Society	2530 San Pablo Avenue, Suite G Berkeley, California 94702	cmargulis@goldengateaudubon.org
Sierra Club - Southern Alameda County Group	NONE	toniwise@mac.com
Alameda County	224 W. Winton, Room 111 Hayward, CA 94544	elizabeth.mcelligott@acgov.org
Hayward Airport Land Use Commission	X	cindy.horvath@acgov.org
Alameda County Flood Control	399 Elmhurst Street Hayward, California 94544-1395	info@acpwa.org
Regional Water Quality Control Board	Our Office is Located at: 1515 Clay St Suite 1400 Oakland, CA 94612	info2@waterboards.ca.gov
Bay Area Air Quality Management District	Bay Area Air Quality Management District 939 Ellis St. San Francisco, CA 94109	hhilken@baaqmd.gov
City of Hayward Planning	777 B STREET - HAYWARD, CA 94541	Sara.Buizer@hayward-ca.gov
FAA Region	San Francisco ADO 1000 Marina Blvd, Suite 220 Brisbane, California 94005-1835	Douglas.Pomeroy@faa.gov
California DOT Division of Aeronautics		Philip.Crimmins@dot.ca.gov
CA Fish and Wildlife Service Bay-Delta Office Library	7329 Silverado Trail, Napa CA 94558 777 B STREET - HAYWARD, CA 94541	askbdr@wildlife.ca.gov

Ernie Delli Gatti

ErdelliGatti@hotmail.com

Ernest.DelliGatti@USCG.MIL

Deanna Bogue

[Deanna.Bogue\(dbhwd@msn.com\)](mailto:Deanna.Bogue(dbhwd@msn.com))

Shirley Bos

[Shirley.Bos\(bosara@msn.com\)](mailto:Shirley.Bos(bosara@msn.com))

Howard Beckman

[Howard.Bekman\(hpb@frys.com\)](mailto:Howard.Bekman(hpb@frys.com))

FRIENDS OF SAN LORENZO CREEK

Date: February 16, 2015

To: Douglas McNeely
Airport Manager
Hayward Executive Airport
20301 Skywest Drive
Hayward, CA 94501
douglas.mcneeley@hayward-ca.gov

From: Bruce King
Friends of San Lorenzo Creek
3127 Terry Court
Castro Valley, CA 94546
BruceKing8@gmail.com

Subject: Comments on Behalf of Friends of San Lorenzo Creek on
The January 2015 Draft Environmental Assessment for the
Hayward Executive Airport Runway Safety Enhancement Project

Dear Mr. McNeely:

This letter provides comments made on the behalf of the Friends of San Lorenzo Creek (FSLC) on the January 2015 Draft Environmental Assessment for the Hayward Executive Airport Runway Safety Enhancement Project.

FSLC is concerned with the entire drainage system and creeks within in the San Lorenzo Creek watershed. This project involves potential riparian and aquatic impacts on Sulphur Creek.

FSLC Comment 1.0

- # 1 [] The draft Environmental Assessment (EA) does not assess the impacts of each project alternative on the current and future potential of the lower reaches of Sulphur Creek as an aquatic and riparian corridor system that extends from San Francisco Bay to Hesperian Boulevard (See Figure 1). In addition, the proposed project alternatives do not describe how the Sulphur Creek corridor system can be improved and impacts to the creek can be minimized by the project. Alternatives that improve the lower reaches of the Sulphur Creek corridor system and minimize impacts need to be presented in the EA. Comments 1.1 to 1.5 provide more-specific comments and information on the above general comment.
- # 2 []

Page 1 of 6

A California Public Benefit Nonprofit Corporation

Comments on Behalf of Friends of San Lorenzo Creek on
The January 2015 Draft Environmental Assessment for the
Hayward Executive Airport Runway Safety Enhancement Project
Page 2 of 6

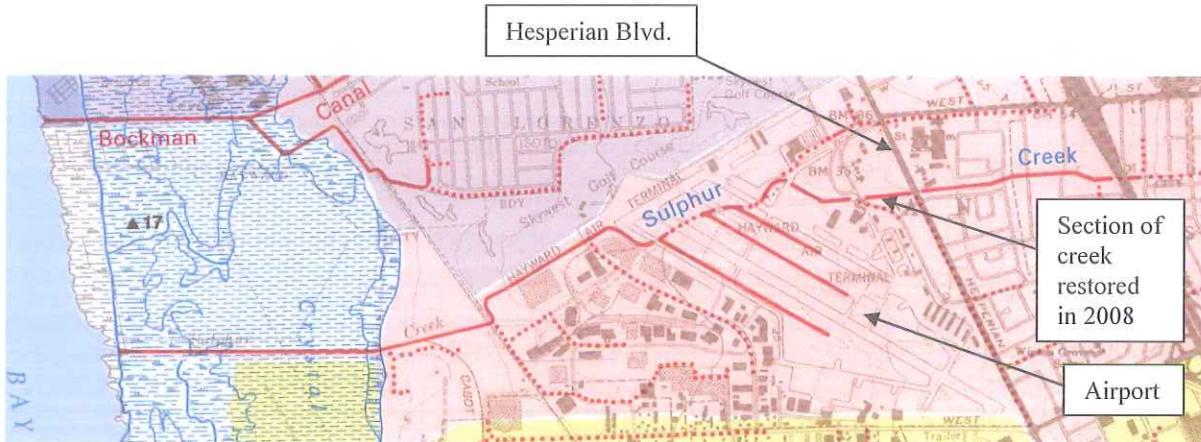
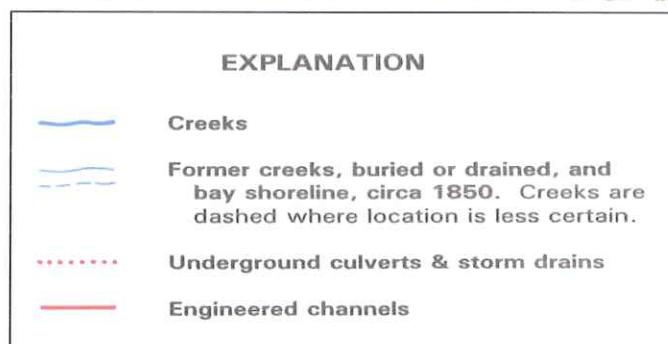


Figure 1
Sulphur Creek Channels and Corridor
Downstream of I-880

Map excerpted from: Creek and Watershed Map of Hayward and San Leandro by Janet M. Sowers, William Lettis & Associates, Inc. Historical wetlands research by the San Francisco Bay Institute. Published by Oakland Museum of California 1997. ISBN 1-882140-12-5.



FSLC Comment 1.1

The EA needs to include, consider, and evaluate the types of creek-corridor conditions, needs, and alternatives that are presented in the “watershed enhancement recommendations” for the Sulphur Creek Basin developed by the Alameda County Flood Control and Water Conservation District Zone 2 (Reference: Zone 2 Watershed Enhancement Recommendations, Clean Water Division, June 30, 2005). Attached to this letter are the Sulphur Creek Basin recommendations excerpted from the Flood Control District report. Here is an example of one recommendation from this report:

Improve fish passage from San Francisco Bay to Hesperian Boulevard.

“Improved fish passage will allow more species and corresponding life-stages to inhabit this creek. This primarily involves the replacement of existing culverts, from Hesperian Boulevard downstream, with a single-span culvert with an earthen bed and minimal grade change. Because this watershed is not disconnected from the Bay by tide-gates, as is common in small drainages to the Bay, there exists a unique opportunity to better establish creek-to-bay fisheries connectivity. Within Zone 2, only Sulphur Creek and San Lorenzo Creek have this feature.”

3

Comments on Behalf of Friends of San Lorenzo Creek on
The January 2015 Draft Environmental Assessment for the
Hayward Executive Airport Runway Safety Enhancement Project
Page 3 of 6

FSLC Comment 1.2

#4 The proposed project Alternative 1 would result in a significant total-continuous stretch of Sulphur Creek at the Hayward Airport being underground. The total-continuous stretch of undergrounded creek that would be created by Alternative 1 would be approximately 1600 feet or 0.3 miles. See Figure 2. Undergrounding such an extensive section of creek would create a significant break in the aquatic and riparian corridor and a barrier to the migration of aquatic and terrestrial animals. The EA needs to include this impact and describe how the Sulphur Creek corridor system can be improved and impacts to the creek can be minimized by the project.

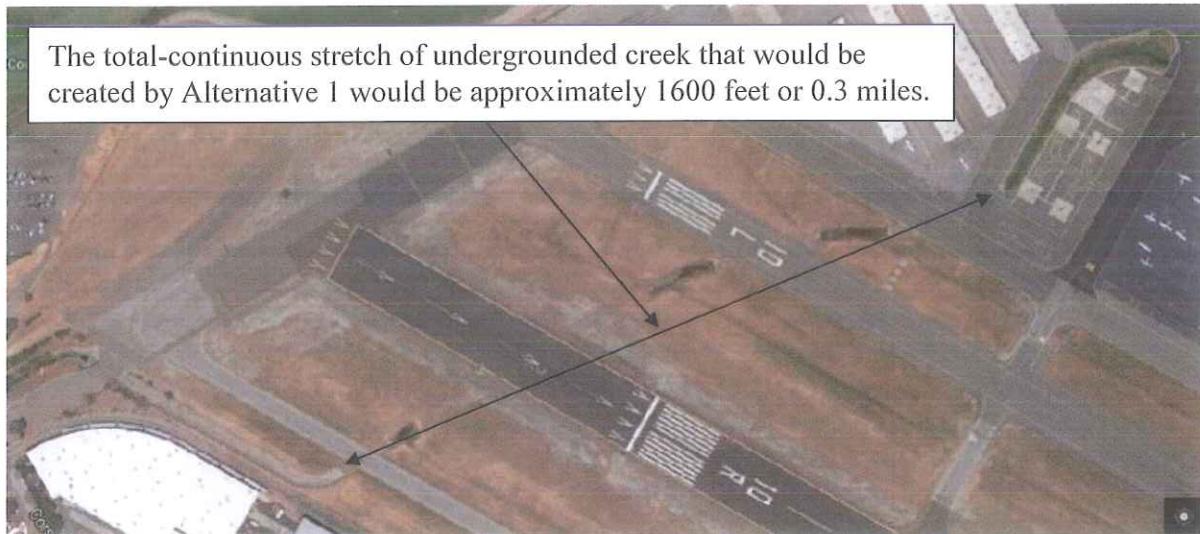


Figure 2. Sulphur Creek and corridor distance-barrier created by Alternative 1

FSLC Comment 1.3

#5 The EA needs to include fish and other animals that inhabit or potentially inhabit Sulphur Creek, their habitat needs, their need to migrate, impacts on these animals, and how the Sulphur Creek corridor system can be improved for these animals and impacts can be minimized by the project. The Sulphur Creek Basin section of the 2005 Flood Control District report noted that fish (most likely stickleback or *gambusia*) were sighted at in Sulphur Creek. Other fish that inhabit creeks in the San Lorenzo Creek Watershed are noted in the following report: Fish Habitat and Fish Population Assessment for The San Lorenzo Creek Watershed, Alameda County, California; Alameda County Flood Control and Water Conservation District and Hagar Environmental Science; January 31, 2002.

Comments on Behalf of Friends of San Lorenzo Creek on
The January 2015 Draft Environmental Assessment for the
Hayward Executive Airport Runway Safety Enhancement Project
Page 4 of 6

FSLC Comment 1.4

#6 [The EA needs to describe the creek corridor environmental benefits and impacts of implementing a project alternative such as Alternative 2. This alternative includes concrete support walls, open-air load-bearing grates, and a natural-earthen creek bottom that supports the migration of fish and other animals. This alternative should also include expanding this open-grate, engineered creek design to the other sections of Sulphur Creek that are in existing concrete culverts on each side the runways. Opening these additional short sections of creek to light and natural creek bottoms may reduce distance and man-made barriers to fish and other animals.

FSLC Comment 1.5

#7 [The EA needs to describe impacts and project alternatives that minimize impacts on movement of fish and other animals to and from the earthen and natural sections of Sulphur Creek upstream of airport runways. This includes the section of Sulphur Creek just downstream from Hesperian Boulevard that was restored in 2008.

FSLC Comment 2.0

The EA's Alternatives Screening Evaluation (Section 2.4) needs to support statements and conclusions that are made based on data, references, and all available options. Comments 2.1 and 2.2 listed below provide specific explanations for this general comment.

FSLC Comment 2.1

[EA Statement and Conclusion: "Grating needed to maintain safety standards in the event aircraft veer over the grate would not allow sufficient daylighting for wetland flora to continue to grow."

#8 [FSLC Comments: All potential gratings and designs need to be included in the scope of the EA, along with an evaluation the grating's ability to enhance or support the creek flora and fauna and the riparian corridor (e.g., migration and life cycle of aquatic fish and animals).

FSLC Comment 2.2

[EA Statement and Conclusion: "The grating would deter larger birds (e.g., geese) from foraging and resting within Sulphur Creek. However, small rodents or other prey species would have the potential to inhabit this segment of Sulphur Creek and could move outside of the grating into the AOA or RSA and attract large, hazardous predatory birds that present potential wildlife-aircraft strike hazards."

[FSLC Comments: The potential and likelihood of attracting "...large, hazardous predatory birds that present potential wildlife-aircraft strike hazards" at this location when using an open-grating design needs to be supported by actual air-field data of birds at airports in the Bay Area that use this design.

Comments on Behalf of Friends of San Lorenzo Creek on
The January 2015 Draft Environmental Assessment for the
Hayward Executive Airport Runway Safety Enhancement Project
Page 5 of 6

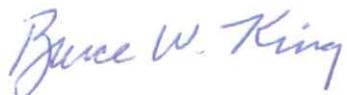
FSLC Comment 3.0

#10

If Alternatives 1, 2, or 3 are selected as the project alternative, the project should be required to select and provide sufficient funding to restore an actual section of creek and wetland area within the Sulfur Creek or San Lorenzo Creek watershed. The restoration should be a 1:1 comparable mitigation (e.g., restore a section of underground creek), and projects with the greatest environmental impact and public visibility should be selected. All agencies that have jurisdiction over the San Lorenzo Creek watershed should be consulted, and the public should be invited for input on the project to be selected. There are many sections of creek within the watershed that are undergrounded, in concrete channels, have high environmental value for restoration, and have the ability to be restored. Agencies that manage the San Lorenzo Creek watershed should not be allowed to purchase stream channel and/or wetland habitat credit from a mitigation bank so that mitigation can occur in a different watershed.

Please keep me informed of further actions, plans, or decisions related to this project.

Sincerely,



Bruce King
On Behalf of the Friends of San Lorenzo Creek

Email: BruceKing8@gmail.com
Home: 510-886-0997, Work: 510-495-2768

February 17, 2015

Doug McNeeley, Manager
City of Hayward Airport
20301 Skywest Drive
Hayward 94501

Runway safety area enhancement project

Dear Doug,

#11

The draft Environmental Assessment for the runway safety area enhancement project (dated January 2015) states that it is intended to satisfy NEPA requirements for FAA action on the project but does not state whether it will also be used to satisfy California Environmental Quality Act (CEQA) requirements for City of Hayward action on the project. The FAA is subject to NEPA because it plans to fund the runway safety area enhancement; the City of Hayward is subject to CEQA because it is the agency, as owner of the airport, that will decide whether to go ahead with the project.

It is customary to prepare a single environmental impact analysis that satisfies both NEPA and CEQA, and in the past that approach has been taken on Hayward Airport projects. How will the City of Hayward meet its obligation under CEQA for the proposed RSA enhancement project? Will the city council be presented with an "initial study" as required by CEQA, or will it be asked to certify that the EA prepared for the FAA meets CEQA requirements?

Please respond by e-mail.

Regards,



Howard Beckman

1261 via Dolorosa
San Lorenzo 94580

E: HPB@frys.com
V: 510.278.7238

HAYWARD

FEB 17 2015
**EXECUTIVE
AIRPORT**

February 16, 2015

HAYWARD

Doug McNeely, Manager
City of Hayward Airport
20301 Skywest Drive
Hayward 94501

FEB 17 2015
EXECUTIVE
AIRPORT

Hand Delivery

Herewith are my comments on the draft "Environmental Assessment: Hayward Executive Airport Runway Safety Enhancement Project" (dated January 2015).

Circulation and Notice: Timing and Outreach

- #12 While the issue of the open Sulphur Creek within the airport's runway safety area has been "in the air" for the past few years, specific notice of the proposed project and draft Environmental Assessment (EA) was made only one day before the start of the period designated for public comment (Jan. 16 - Feb. 17, 2015). Likewise, a notice was published in the Daily Review only on Jan. 16. The draft EA documents no other outreach to the general public.
- #13 The draft EA (App. A) documents an invitation in 2013 to various government agencies to comment on the scope of the EA, but provides no evidence that an effort was made to identify and contact individuals and organizations that might have an interest in the undergrounding of portions of Sulphur Creek. This despite the fact that the draft EA declares (pg. 5-1), consistent with FAA policy: "Keeping agencies and the public informed and gathering their input is an *essential component* of any environmental study." (Italic added for emphasis.)
- #14 The requirement for rigorous analysis of the environmental impacts of proposed government actions is not a mere bureaucratic step to approval of a project. It is fundamentally intended to protect the public interest, i.e., something larger than simply the administrative or regulatory interests of government agencies. In particular, the requirement is intended to ensure the general public that government has taken a "hard look" at the environmental impacts of a proposed project.
- #15 Thus, keeping the public informed is an essential component of any environmental study, as the draft EA states. However, there is no evidence in the EA that RS&H (which prepared the draft EA), the City of Hayward, or the FAA has fulfilled this obligation.

As a result of the short notice to the public, I did not have adequate time to thoroughly review the draft EA and comment meaningfully on all matters I consider important.

/Continued ...

Organization of Environmental Assessment

I wasted a great deal of time, in the short period available, hunting through the draft EA for related information. The draft EA is written in such a way that it is not easy to find particular information of interest. First, instead of explaining in the text the connection between successive topics, the authors have relied on sequential numbering of paragraphs as the basis for the document's organization. Because readers understand that the number 2 follows number 1, etc., they assume at the outset that there must be some logical connection between, say, paragraphs 1.1 and 1.2, even if there is none.

#16 Second, much of the text, particularly in chapters 1 - 3, is repetitious and circular, such that discussion of a particular idea or issue is broken up between different parts of the document (see for ex. the discussions of level 1 and level 2 analyses). And in this respect, without cross references in the text, the hierarchical numbering of the text on its own does not help at all in locating specific details. The use of hierarchical numbering may be common (even if not ideal) in certain kinds of documents, but it is useful only for cross-referencing and only when the underlying organization is logical and economical.

My point here is not simply to comment editorially, but to complain that the organization of the draft EA compounded the problem of the short notice for ordinary citizens who voluntarily read such documents.. Moreover, as I have spent my life editing in a variety of media and subjects, and (separately) have long experience in reviewing documents like the draft EA, I can only imagine that other, less experienced, citizens might have quickly thrown in the towel because of the difficulty of finding particular information of interest.

Compliance with CEQA

#17 The draft EA does not discuss the document's relationship, if any, to any environmental impact analysis required under the California Environmental Quality Act. The FAA is subject to NEPA because it plans to fund the runway safety area enhancement; the City of Hayward is subject to CEQA because it is the agency, as owner of the airport, that will approve the project. Since, strictly speaking, this issue is not relevant to an EA prepared to satisfy NEPA, I have addressed this question in a separate letter to the City of Hayward.

Purpose and Need of the Project

#18 The need and purpose of an action are significant factors in determining whether any harm to the environment from the action is, on balance, justifiable, i.e., wise. The approving agency must /Continued ...

#18
Cont

answer two questions: Is the project necessary, and why is it necessary?

#19

The draft EA describes the need for the project in broad terms of safety (in particular the chance that an aircraft might veer off the runway and into Sulphur Creek) but does not describe the compromises that the City of Hayward has accepted in electing to have runway safety areas that are shorter than the FAA design standard. Thus the draft EA does not answer the question why the project is necessary.

#20

The draft EA (pg. 1-4) describes in summary runway length, RSA, and “displaced threshold,” but states simply that the displaced thresholds are “in place ... to accommodate any aircraft that undershoots the runway as the existing Runway Safety Area for Runway 10R-28L is shorter than the FAA design standard.” It does not explain why this is the case. If the City of Hayward, in collaboration with the FAA, is making successive choices in the development of the airport that in effect constitute one bad choice after another (choices that do not meet professional or policy standards), this is important information in assessing the wisdom of the City’s or FAA’s election to harm the environment (here Sulphur Creek). And it belongs in the EA since the disclosures in that document are intended ultimately for the public, including elected officials.

Culverting of Sulphur Creek

#21

The principal environmental impact of the proposed project is underground enclosure (culverting) of three segments of Sulphur Creek. The stated purpose of culverting, along with regrading of areas between runways and taxiways, is in part to improve drainage in these areas, i.e., to alleviate “ponding” (EA pg. 1-6). Ponding, according to the EA, attracts wild birds that represent a hazard to aircraft landing or departing the runways. The airport, however, is immediately adjacent to thriving bayshore bird habitats, and the EA does not refer to this potential flight hazard, nor does it provide any hard evidence of the number of birds attracted to temporary accumulations of rainfall at the airport, and thus does not assess the relative hazard of this potential population and the much larger population on the bayshore.

#22

In addition, the EA states (pg. 1-9) that flooding under existing conditions is caused by both culvert blockages and vegetation growth within exposed channels. The EA notes that culverting will eliminate the vegetation growth, but does not explain whether or how construction of more culverting will alleviate the blockage problem. If blockage has been a significant problem, why has the City been unable to correct the problem, and how would that change if the proposed project were executed?

/Continued ...

Mitigation of Impacts to Wetlands

The proposed project would fill 550 linear feet of creek channel (0.01 acres), a significant loss of Waters of the U.S. for which mitigation is required.

#23

Whenever development results in negative impacts on a creek, the rule of mitigation should be no net harm to the creek. Thus mitigation for the proposed project's impact on wetlands should be an improvement upstream in Sulphur Creek, outside the airport, and preferably in the upper reaches of the creek in the hills where daylighting is feasible. In addition, selection of the site and type of work should be decided in consultation with knowledgeable local advocates of creek preservation as well as the Alameda County Flood Control District.



Howard Beckman, Esq.

1261 via Dolorosa
San Lorenzo 94580

E: HPB@frys.com
V: 510.278.7238

RESPONSE TO COMMENTS: FRIENDS OF SAN LORENZO CREEK

Dated February 16, 2015

Response 1

Chapter 4, Environmental Consequences and Mitigation, of the Draft Environmental Assessment (EA) includes an analysis of the Proposed Action and No Action Alternative on downstream portions of Sulphur Creek. Several additional alternatives were considered in **Chapter 2, Alternatives**. However, as discussed in **Chapter 2, Alternatives**, these additional alternatives did not fully meet the project purpose and need and therefore were not carried forward for detailed analysis in the **Chapter 4, Environmental Consequences and Mitigation** portion of the EA.

Response 2

Chapter 4, Environmental Consequences and Mitigation, of the Draft EA identifies impacts and mitigation measures associated with the implementation of the Proposed Action. The Proposed Action is to enhance safety at Hayward Executive Airport by making physical modifications to the Air Operations Area in the areas between the Runway Safety Areas to protect aircraft from damage and aircraft passengers from injury when an aircraft veers off a runway, and reduce wildlife habitat in the Air Operations Area. It is beyond the scope of this EA to analyze potential Sulphur Creek corridor habitat improvement projects that are unrelated to addressing environmental effects associated with implementation of the Proposed Action. The specific comments indicated by the commenter as being comments 1.1 through 1.5 are addressed in the responses to comments 3 through 7 of this document.

Response 3

As discussed in Response 2 above, it is beyond the scope of this EA to analyze potential Sulphur Creek corridor habitat improvement projects that are unrelated to addressing environmental effects associated with implementation of the Proposed Action. An existing spillway on Sulphur Creek operated by the Alameda County Flood Control District currently restricts the upstream movement of fish and other aquatic organisms. The elevation change at this spillway serves to help protect the Hayward Executive Airport from flooding during extreme high tides or extreme high tides combined with storm surges. The Proposed Action would not result in conditions that would further impede upstream movement of fish and other aquatic organisms when compared to existing conditions because upstream movement is already precluded by the existing spillway. The pictures provided below show the existing spillway and its location. Since the Proposed Action does not further restrict upstream fish passage or movement of other aquatic organisms from the area below the spillway when compared to existing conditions, no environmental mitigation regarding upstream movements of fish or aquatic organisms below the spillway is required.



Source: ESRI, 2013; RS&H, 2013 Prepared By: RS&H, 2013

0 625 1,250 2,500
Feet

Legend

- Airport Property
- Existing Sulphur Creek Culverts
- Spillway Location
- Sections to be Culverted
- Open Sections of Sulphur Creek



Response 4

Under existing conditions, Sulphur Creek extends for approximately 1,450 linear feet between Taxiway A and Taxiway Z, of which 900 linear feet Sulphur Creek is in underground culverts and 550 linear feet of Sulphur Creek is above ground. Under the Proposed Action, the 550 linear feet of Sulphur Creek currently above ground between Taxiway A and Taxiway Z would be placed in underground culverts. The Draft EA stated this is a potentially significant impact that would be reduced to a not significant level by mitigating for this potential impact and providing alternative stream channel or other aquatic habitat.

The commenter expressed concern that placing this additional 550 feet of Sulphur Creek between Taxiway A and Taxiway Z below ground would create a significant break in the aquatic and riparian corridor and a significant barrier to the migration of aquatic and terrestrial animals. This potential environmental impact is discussed below.

The movement of aquatic and terrestrial animals through the airport along Sulphur Creek is already heavily affected by prior modifications to Sulphur Creek both on and off of Hayward Executive Airport. The movement of aquatic organisms from downstream portions of Sulphur Creek to the west of the Airport are precluded by the presence of the 9-foot tall spillway at the west edge of the Airport operated by the Alameda County Flood Control District, which serves to help reduce flooding on the Airport. Immediately to the east and upstream of the spillway, the Creek extends for approximately 800 linear feet in a concrete-lined channel, which includes two underground culverts of 80 linear feet and 120 linear feet, respectively. East of this area of Sulphur Creek is an unculverted, 90-linear foot section of the creek, and then an additional 635-linear foot underground section of Sulphur Creek. East and upstream of the 635-linear foot underground section of Sulphur Creek are in order from west to east, a 180-linear foot above ground section of Sulphur Creek, a 235-linear foot below ground section of Sulphur Creek, a 170-linear feet above ground section of Sulphur Creek, and a 300-linear foot below ground section of Sulphur Creek. Therefore, in the area of the proposed new culverts on Sulphur Creek, 1,370-linear feet of the total creek length of 2,400 linear feet is already underground.

Any aquatic organism that is using the portion of Sulphur Creek to be culverted as part of a transit route can only do so for a portion of the year, because Sulphur Creek is an intermittent waterbody that does not flow all year. (Note: **Section 3.3.8.** of the Draft EA has been updated in the Final EA to state that Sulphur Creek is an intermittent stream that flows part, but not all, of the year, instead of a perennial stream, which would flow year-round). Also, any aquatic organisms using Sulphur Creek as movement corridor from upstream to downstream must already be capable of moving through a 635-linear foot underground culvert to reach areas below the Airport. The addition of 550 linear feet of underground culvert to the existing underground culvert system in an area of Sulphur Creek that would already require any aquatic organism to traverse multiple underground culverts to reach it is not considered a significant impact. Terrestrial organisms would could to have the option of traversing the area above ground or using alternative routes. Therefore, the addition of 550 more feet of underground culvert would not represent a significant impact.

Response 5

Fish, wildlife, and plants that inhabit Sulphur Creek were discussed in **Section 3.3.3**, Fish, Wildlife and Plants of the Draft EA. The environmental effects of the Proposed Action are discussed in **Section 4.4** of the Draft EA. The Proposed Action would not have a significant impact on fish, wildlife, or plants. As mentioned in Response 3 above, the Proposed Action would not result in conditions that would further impede fish migration when compared to existing conditions because fish cannot traverse the spillway at the west end of the Airport,

which is designed to protect the Airport from flooding. As discussed in Response 2 above, it is beyond the scope of this EA to analyze potential Sulphur Creek corridor habitat improvement projects that are unrelated to addressing environmental effects associated with implementation of the Proposed Action.

Response 6

As discussed in the Draft EA **Chapter 2, Alternatives**, Alternatives 2 and 3, which included varying amounts of load bearing grates over Sulphur Creek, were initially considered as alternatives for the proposed project, but were eliminated from detailed consideration because those alternatives would continue to allow small wildlife to access the grated area, and could attract larger avian species that would be hazardous to aircraft operations. However, as discussed in **Chapter 2, Alternatives**, these alternatives did not meet the project purpose and need, and therefore, in accordance with the NEPA, were not carried forward for detailed analysis in the **Chapter 4, Environmental Consequences and Mitigation** portion of the EA. There is no requirement that alternatives that did not meet the purpose and need for the Proposed Action be evaluated in detail in the EA.

Response 7

See Responses 4, 5, and 6.

Response 8

See Responses 4, 5, and 6.

Response 9

It is not necessary to have site-specific information to make the reasonable assumption that if Hayward Executive Airport provides habitat for small rodents and other prey species that predatory birds that hunt those species will eventually find and hunt them on the airport. As large, predatory birds represent a potential wildlife-aircraft strike hazards, establishing or maintaining such habitat on an airport is inconsistent minimizing the risk of wildlife-aircraft strike hazards.

Response 10

As identified in **Section 4.10.3, Mitigation**, the Airport would restore or purchase stream channel and/or wetland habitat credit from an established mitigation bank, or identify an alternative mitigation measure to compensate for the losses of stream channel and wetland habitat at a minimum 1:1 ratio. The final mitigation requirements for wetlands and waters in Clean Water Act (CWA) jurisdiction will be established during the CWA Section 404 permit process. The order of mitigation preference would be conducted in accordance with U.S. Army Corps of Engineers regulation 33 CFR 332 *Compensatory Mitigation for Losses of Aquatic Resources* at 33 CFR 332.3 *General Compensatory Mitigation Requirements*. Agencies that have jurisdiction over the Sulphur Creek watershed would be consulted as part of the CWA Section 404 permitting process. In previous informal discussions with the Airport, the San Francisco Regional Water Quality Control Board has indicated their preference that mitigation for impacts to Sulphur Creek be in the form of daylighting upstream creek channels currently in underground culverts. Alternatively, the Airport could purchase mitigation credits, after an appropriate mitigation ratio was determined to offset wetland impacts. These credits would be purchased from an agency-approved wetland mitigation bank within the lowlands surrounding San Francisco Bay. For example, the Airport is within the agency-approved service area for the San Francisco Bay Wetland Mitigation Bank in Redwood Shores. The final wetland mitigation program would be subject to the review and approval by the regulatory agencies.

RESPONSE TO COMMENTS: MR. HOWARD BECKMAN

Dated February 17, 2015

Response 11

Because the requirements for NEPA and California Environmental Quality Act (CEQA) documentation are different and because the lead agencies are different for NEPA and CEQA documentation, the FAA and the City of Hayward agreed to prepare separate NEPA and CEQA documentation. The City of Hayward anticipates preparing an Initial Study and Mitigated Negative Declaration to comply with CEQA.

RESPONSE TO COMMENTS: MR. HOWARD BECKMAN

Dated February 16, 2015

Response 12

Public notice and participation has been conducted in accordance with FAA Order 1050.1E: *Environmental Impacts: Policies and Procedures*. The public comment period extended from January 16, 2015 to February 17, 2015.

Response 13

The Draft EA was made available for the public comment period that extended from January 16, 2015 to February 17, 2015 to provide agencies, organizations, and individuals an opportunity to comment on the Proposed Action.

Response 14

A detailed evaluation of the various alternatives to meet the purpose and need of the project was provided in **Chapter 2, Alternatives**, of the Draft EA. In addition, a detailed analysis of the impacts associated with the only alternative that met the purpose and need (i.e., the Proposed Action) was provided in **Chapter 4, Environmental Consequences and Mitigation**, of the Draft EA.

Response 15

Chapter 5, Consultation and Coordination, of the Draft EA outlines the scoping and early agency notification process and dates, consultation with tribal communities, and information regarding the public review period for the EA. The efforts to inform agencies and the general public are in compliance with FAA Order 1050.1E: *Environmental Impacts: Policies and Procedures*. The public comment period extended from January 16, 2015 to February 17, 2015.

Response 16

The comments regarding the organization of the Draft EA are noted. The organization of the Draft EA follows FAA guidance on preparing NEPA documentation. The efforts to inform agencies and the general public are in compliance with FAA Order 1050.1E: *Environmental Impacts: Policies and Procedures*. The public comment period extended from January 16, 2015 to February 17, 2015.

Response 17

See Response 11.

Response 18

Chapter 1, Purpose and Need, of the Draft EA provides a detailed discussion of the Purpose and Need for the Proposed Action.

Response 19

Chapter 1, Purpose and Need, of the Draft EA provides a detailed discussion of the Purpose and Need for the Proposed Action. The City of Hayward proposed to implement the recommendation of the FAA Runway Safety Action Team to eliminate the hazard posed by the uncovered drainage ditches currently located adjacent to the Runway Safety Area (RSA) of Runway 10L-28R. As neither the Proposed Action, nor the No Action Alternative evaluated in this EA would change the existing RSAs, a detailed evaluation of prior decisions that established the current RSA dimensions at Hayward Executive Airport is not relevant to the evaluation of the environmental impacts of the Proposed Action or the No Action Alternative, and is therefore not included in the EA.

Response 20

See Response 19.

Response 21

It appears the commenter is requesting that the EA assess the relative Wildlife-Aircraft Strike Hazard potential of birds that are attracted to temporary ponded areas at Hayward Executive Airport in comparison to the Wildlife-Aircraft Strike Hazard potential of birds that occur in the general vicinity of Hayward Executive Airport. The commenter further requests that specific numbers of birds attracted to ponded areas on the airport be documented. FAA Advisory Circular (AC) 150/5200-33B *Hazardous Wildlife Attractants on or Near Airports*, identifies that airports should strive to obtain a separation distance of 10,000 feet between hazardous wildlife attractants and aircraft operations areas. FAA AC 150/5200-33B explains that the basis for this criteria is that 78 percent of Wildlife-Aircraft strikes occur with 1,000 feet above ground level and 90 percent of Wildlife-Aircraft Strikes occur within 3,000 feet above ground level. Therefore, any concentrations of birds or other wildlife designated as “hazardous wildlife in FAA AC 150/5200-33B within 10,000 feet of Hayward Executive Airport would be of concern. While the Hayward Executive Airport is developing a Wildlife Hazard Assessment to assess numbers of birds present on the airport, sufficient information regarding the general hazards that birds present to aircraft at airports is available to provide a reasonable basis to proceed with this project. The differentiation of the specific number of birds attracted to ponding on the airport as opposed to birds present in the general vicinity of Hayward Executive Airport would be difficult and expensive to obtain, and is not necessary to make a reasonable decision.

Response 22

Occasionally, debris builds up at the mouth of a culvert, particularly during storm events when debris is washed into Sulphur Creek. With implementation of the Proposed Action, six culvert openings will be eliminated, including three openings on the upstream (east) side of the culverts that would be subject to blockage during storm conditions. Under the No Action Alternative, these culvert openings would remain and would still be subject to potential debris blockages. Thus, the Proposed Action would alleviate the existing problem associated with debris blockages by reducing the number of places blockages could occur.

Response 23

As stated in **Section 4.10.3, Mitigation** in the Draft EA, the Airport would restore or purchase stream channel and/or wetland habitat credit from an established mitigation bank, or identify an alternative mitigation measure to compensate for the losses of stream channel and wetland habitat at a minimum 1:1 ratio. Also see Response 10.

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APPENDIX G

Proposed Finding of No Significant Impact and Record of Decision

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U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
WESTERN-PACIFIC REGION

***PROPOSED
FINDING OF NO SIGNIFICANT IMPACT
AND
RECORD OF DECISION***

Proposed Runway Safety Enhancement Project

Hayward Executive Airport
City of Hayward, Alameda County, California



For further information:

Douglas R. Pomeroy
Environmental Protection Specialist
U.S. Department of Transportation
Federal Aviation Administration
San Francisco Airports District Office
1000 Marina Blvd., Suite 220
Brisbane, CA 94005
(650) 827-7612

June 2015

GENERAL INFORMATION ABOUT THIS DOCUMENT

WHAT'S IN THIS DOCUMENT? This document is the Federal Aviation Administration's (FAA) Proposed Finding of No Significant Impact (FONSI) and Record of Decision (ROD) for the City of Hayward's Runway Safety Enhancement Project at the Hayward Executive Airport located in Alameda County, California. This document includes the determinations and approvals being considered by the FAA for those proposed federal actions described in the Final Environmental Assessment (EA) dated June 2015. This document and the attached EA discuss all alternatives considered by FAA in reaching its decision, summarizes the analysis used to evaluate the alternatives, and briefly summarizes the potential environmental consequences of the Proposed Action and the No Action alternative, which are evaluated in detail in the Final EA, and this Proposed FONSI/ROD. This document identifies the environmentally preferred alternative and the agency preferred alternative. This document provides notice of an action occurring in a floodplain in accordance with Executive Order 11988 *Floodplain Management* and an action occurring in a wetland in accordance with Executive Order 11990 *Protection of Wetlands*. This document identifies applicable and required mitigation.

BACKGROUND. In January 2015, the City of Hayward released a Draft EA for public comment. The Draft EA addressed the potential environmental effects of the proposed Runway Safety Enhancement Project including various alternatives to that proposal. The Draft EA was prepared in accordance with the requirements of the National Environmental Policy Act (NEPA) [Public Law 91-190, 42 USC 4321-4347], the implementing regulations of the Council on Environmental Quality (CEQ) [40 CFR Parts 1500-1508], and FAA Orders 1050.1E, *Environmental Impacts: Policies and Procedures* and 5050.4B, *National Environmental Policy Act (NEPA), Implementing Instructions for Airport Actions*. The City of Hayward published the Notice of Availability for the Draft EA on January 16, 2015. The City of Hayward received comments on the Draft EA between January 16, 2015 and February 16, 2015.

WHAT SHOULD YOU DO? Read the Final EA and Proposed FONSI/ROD to understand the actions that FAA intends to take relative to the proposed Runway Safety Enhancement Project at Hayward Municipal Airport. You may provide written comments on this proposed project to the FAA point-of-contact identified on page 1 of this Proposed FONSI/ROD. Comments must be received by 5:00 p.m. Pacific Daylight Time, on the last day of the comment period identified for the Final EA attached to this Proposed FONSI/ROD, not simply postmarked to be considered, please allow adequate time for mailing.

WHAT HAPPENS AFTER THIS? Based on the information received the FAA will make a determination whether to approve the Proposed FONSI/ROD or prepare an Environmental Impact Statement for the proposed action. If the FAA approves the FONSI/ROD, the City of Hayward may begin to implement the Proposed Action.

**U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
PROPOSED FINDING OF NO SIGNIFICANT IMPACT
AND
RECORD OF DECISION**

PROPOSED RUNWAY SAFETY ENHANCEMENT PROJECT

**HAYWARD EXECUTIVE AIRPORT
CITY OF HAYWARD
ALAMEDA COUNTY, CALIFORNIA**

1. Introduction

This document is a Proposed Finding of No Significant Impact (FONSI) on the environment and Record of Decision (ROD) as a result of the proposed Runway Safety Enhancement Project at Hayward Executive Airport (HWD or Airport), City of Hayward, Alameda County, California. The City of Hayward (City) is the sponsor for the Hayward Executive Airport. The Federal Aviation Administration (FAA) must comply with the National Environmental Policy Act of 1969 (NEPA) before being able to take the federal action of approval of an application for federal assistance for construction of the proposed project, or approval of those portions of the Airport Layout Plan (ALP) that depict the proposed project. Approval of the ALP is authorized by the Airport and Airway Improvement Act of 1982, as amended (Public Laws 97-248 and 100-223).

2. Project Purpose and Need. As discussed in Sections 1.3 and 1.4 of the Final Environmental Assessment (EA) the City's purpose and need for the Proposed Action is to enhance the safe operation of the Airport by making physical modifications to the Air Operations Area (AOA) in the areas between the Runway Safety Areas. The purpose of the Proposed Action includes reducing the potential damage to aircraft that may veer off the runways at HWD, improving drainage, and reducing habitat for wildlife hazardous to air operations. The City proposes to do this by implementing the recommendations of the FAA Runway Safety Action Team to take immediate steps to eliminate the hazard posed by the drainage ditches currently located adjacent to the Runway Safety Area for Runway 10L-28R.

The FAA's statutory mission is to ensure the safe and efficient use of navigable airspace in the United States. The FAA must insure that the proposed action does not derogate the safety of aircraft and airport operations at the Hayward Executive Airport.

3. Proposed Action and Federal Actions

As discussed in Section 1.5 of the Final EA, the Proposed Action would provide improvements that would enhance Airport safety and efficiency. The City is proposing the following on-Airport projects:

- Construct box culverts for three segments of Sulphur Creek to enhance Airport safety;
- Improve drainage, eliminate topographic inconsistencies, and enhance Airport safety by grading existing infield areas.

The Proposed Action would specifically involve placing three separate, hydrologically connected, linear segments of Sulphur Creek into box culverts. These include

- Install a 170-foot-long box culvert in Sulphur Creek to convey water between Runway 10L-28R and Taxiway A.
- Install a 180-foot-long box culvert in Sulphur Creek between Runway 10L-28R and Runway 10R-28L.
- Install a 90 foot long box culvert between Taxiway Z and Runway 10R-28L.
- Grade approximately 426,000 square feet (approximately 10 acres) of infield area between runways and taxiways of HWD, to convey surface waters from the AOA to Sulphur Creek, where it is subsequently discharged into San Francisco Bay.

Collectively, those projects comprise the Proposed Action and would bring infield areas of the Airport into conformance with FAA airport design standards and implement the recommendation of the FAA Runway Safety Action Team. The construction of box culverts to enclose Sulphur Creek in the areas adjacent to Runways 10L-28R and 10R-28L would protect aircraft from damage and aircraft passengers from injuries that could occur if an aircraft that veered off the runway plunged into Sulphur Creek. Installing culverts in Sulphur Creek adjacent to Runways 10L-28R and 10R-28L also would eliminate habitat between the runways for wildlife hazardous to aircraft operations. Re-grading the infield areas would reduce the potential for the accumulation of standing water in those areas. This would also make the Airport less attractive to hazardous wildlife.

The proposed Federal actions are:

- Unconditional approval of the ALP to depict installation of additional culverts, pursuant to 49 United States Code (USC) §§ 40103(b) and 47107(a)(16);
- Determinations under 49 USC §§ 47106 and 47107 relating to the eligibility of the Proposed Action for federal funding under the Airport Improvement Program (AIP) to assist with construction of potentially eligible development items shown on the ALP;
- Determination under 49 USC § 44502(b) that the airport development is reasonably necessary for use in air commerce or in the interests of national defense;
- Approval of further processing of an application for federal assistance for near-term eligible projects using federal funds from the Airport Improvement Program, as shown on the ALP; and
- Approval of a Construction Safety and Phasing Plan to maintain aviation and airfield safety during construction pursuant to FAA Advisory Circular 150/5370-2F, *Operational Safety on Airports During Construction*.

4. Reasonable Alternatives Considered

As described in Chapter 2 of the Final EA, the alternatives evaluated include:

- **No Action Alternative:** The No Action Alternative involves no improvements at the Airport. Under the No Action Alternative Sulphur Creek would remain an open channel within the AOA, and no grading of the airport infield would occur.
- **Alternative 1. Proposed Action.** Construction of Alternative 1 would enclose three segments of Sulphur Creek in box culverts within the AOA and result in grading approximately 426,000 square feet of infield area between runways and taxiways of HWD to improve drainage.
- **Alternative 2. Load bearing grates.** Construction of Alternative 2 would consist of the construction of load-bearing grates over the existing open segments of Sulphur Creek within the AOA. Construction of Alternative 2 would also require the construction of support walls along the sides of each wetland segment of Sulphur Creek. Infield grading of the AOA would be the same as under Alternative 1.
- **Alternative 3. Combination of box culverts and load bearing grates.** Alternative 3 includes a combination of box culverts and load bearing grates. Alternative 3 includes the construction of box culverts for the three segments of Sulphur Creek within the Object Free Zone of Runways (OFZ) 10R-28L and 10L-28R. However the segment of the creek between Runway 10L-28R and Taxiway A, outside of the OFZ, would include support walls along the edge of the wetland and be covered with at-grade load-bearing grates. Infield grading of the AOA would be the same as under Alternative 1.

As described in Section 2.2 of the Final EA, the alternatives were evaluated in a two-step process that considered whether the alternatives met the project Purpose and Need, and subsequently considered whether the alternatives were the most feasible and prudent with respect to operational considerations and potential adverse effects on environmental resources.

The results of the Alternatives evaluation are described in Section 2.4 of the Final EA and summarized on Table 2-2 of the Final EA. Alternatives 2 and 3 were not carried forward for detailed evaluation in the Final EA because they did not reduce the potential attractiveness of the airport to wildlife hazardous to air operations as effectively as Alternative 1, the Proposed Action. The No Action alternative has fewer environmental effects than the Proposed Action alternative, however the No Action alternative does not meet the purpose and need for the proposed project. Therefore, the FAA concludes that the Proposed Action is the alternative that meets the purpose and need for the proposed project with minimum adverse environmental effects while enhancing aviation safety.

5. Assessment

The potential environmental impacts and possible adverse effects of the Proposed Action and the No Action Alternatives were identified and evaluated in Chapter 4 of the Final EA dated April 2015. The Final EA was reviewed by the FAA and found to be adequate for the purpose of the proposed Federal action. The FAA determined that the Final EA adequately describes the potential impacts of the Proposed Action and No Action Alternatives. No new issues were identified as a result of the public review process. Implementation of the No-Action Alternative would not involve any construction activities or changes to the existing environment. Therefore, the No Action Alternative has no environmental impacts and the No Action Alternative is not discussed further in this FONSI/ROD.

Environmental Resources Not Affected by the Proposed Action

Chapter 3 of the Final EA identified an Airport Study Area (ASA) (Final EA, Figure 3-1) and environmental resources within that study area that have no potential to be affected by the Proposed Action. These environmental resources include Coastal Resources, Compatible Land Use, Department of Transportation Section 4 (f) Resources, Farmlands, Light Emissions and Visual Impacts, Natural Resources and Energy Supply, Noise, Secondary (Induced) Impacts, and Wild and Scenic Rivers. Brief explanations as to why the these environmental resources would not be effected as a result of implementation of the Proposed Action are provided in Sections 3.2.1 to 3.2.9 of the Final EA and summarized below.

Coastal Resources: As described in Section 3.2.1 of the Final EA, HWD is located approximately 2,800 feet east of Hayward Regional Shoreline and the Proposed Action is outside the jurisdiction of the local coastal agency, the Bay Conservation and Development Commission. The Proposed Action has no potential to affect coastal resources and no further coordination regarding coastal issues is required.

Compatible Land Use: As described in Section 3.2.2 of the Final EA, the Proposed Action would occur entirely on HWD property; therefore, the Proposed Action would not directly affect off-Airport land uses. The Proposed Action would not include activities that would indirectly affect compatible land uses adjacent to the HWD property. The Proposed Action would not involve activities that would influence aviation-related noise or cause other off-airport effects. Land use compatibility in the vicinity of HWD would not be affected. Appendix D of the Final EA includes a Land Use Assurance Letter from the City of Hayward to the FAA.

Department of Transportation Section 4 (f): As described in Section 3.2.3 of the Final EA, there are two Department of Transportation Section 4(f) Resources – Kennedy Park and Skywest Golf Course – within the ASA for the Final EA. Since the Proposed Action will not result in any physical impacts or noise impacts to either of these properties or anywhere beyond the HWD boundaries, there is no potential for the Proposed Action to affect any Section 4(f) resources.

Farmlands: As described in Section 3.2.4 of the Final EA, the ASA contains prime farmland soil types, including Botella loam, Clear Lake clay, Danville silty clay loam, and Willows clay. However, as HWD is already committed to urban use, in accordance with 7 Code of Federal Regulations (CFR) Part 658.2, the lands on HWD do not meet the definition of being farmlands. Therefore, implementation of the Proposed Action has no potential to affect prime or unique farmlands.

Light Emissions and Visual Impacts: As described in Section 3.2.5 of the Final EA, installing additional box culverts on Sulphur Creek and re-grading portions of the HWD will not result in additional light emissions or change the visual setting of HWD. Therefore, implementation of the Proposed Action has no potential to affect light emissions or visual surroundings.

Natural Resources and Energy Supply: As described in Section 3.2.6 of the Final EA, the Proposed Action would not change the energy requirements or natural resources usage necessary to operate HWD or change the demand of energy or natural resources for Airport users. Therefore, implementation of the Proposed Action would not affect the energy supplies and natural resources consumption associated with on-going Airport operations.

Noise: As described in Section 3.2.7 of the Final EA, the Proposed Action would not result in an increase in aircraft operations when compared to the No Action Alternative because implementation of the Proposed Action would not change the number of air operations at HWD. Therefore, implementation of the Proposed Action would not result in a permanent change in noise exposure or result in a noise impact on noise-sensitive receptors. Potential temporary increases in noise exposure during construction are addressed below under Construction Impacts.

Secondary (Induced) Impacts: As described in Section 3.2.8 of the Final EA, the Proposed Action would not enhance the aviation capacity of HWD, would not directly result in an increase or decrease in air operations at HWD, or result in a change in the level of public services required by HWD. Implementation of the Proposed Action would not result in permanent increase in economic activity that could induce on- or off-Airport economic growth or development, or shifting patterns of population movement outside of the HWD boundary. In addition, the Proposed Action would occur on the existing airfield and would not result in the relocation or displacement of any homes or businesses. Therefore, the Proposed Action has no potential to generate any Secondary or Induced Impacts.

Wild and Scenic Rivers. As described in Section 3.2.9 of the Final EA, there are no designated Wild and Scenic Rivers in the ASA or in the vicinity of HWD. The nearest designated Wild and Scenic River is the Lower American River, which is located approximately 75 miles northeast of HWD. The closest water body to HWD identified on the National River Inventory as a resource is Olema Creek, which is located approximately 25 miles to the northwest of the HWD. Due to the substantial distance between these water bodies and HWD, the Proposed Action has no potential to affect either of these water bodies and no further environmental impact evaluation is required.

Environmental Resources That Could Potentially Be Affected by the Proposed Action

Chapter 4 of the Final EA evaluated in detail the potential effect of the proposed project on the following environmental impact categories: Air Quality; Fish, Wildlife and Plants; Floodplains; Hazardous Materials, Pollution Prevention, and Solid Waste; Historic Architectural, Archaeological and Cultural Resources; Socioeconomic Impacts, Environmental Justice, and Children's Environmental Health and Safety; Water Quality; Wetlands; Construction Impacts; and Cumulative Impacts.

Air Quality. The effects of the Proposed Action on air quality are described in Section 4.2 of the Final EA. Implementation of the Proposed Action would not result in any increase in air emissions associated with aircraft operations at HWD. Section 4.2.2.2, Table 4-1 of the Final EA, and Section 4.3 *Construction Impacts*, of the Final EA discuss air emissions associated with construction of the Proposed Action. Construction of the Proposed Action would not result in air emissions that exceeded de minimis levels for any criteria air pollutant emission threshold identified by the National Ambient Air Quality Standards or the California Ambient Air Quality Standards. Therefore, implementation of the Proposed Action would not result in a significant impact on Air Quality.

Fish, Wildlife, and Plants. As discussed in Section 3.3.3 and Section 4.4 of the Final EA, the Proposed Action would result in the elimination of approximately 0.19 acres of wetland/wildlife habitat within the AOA of HWD and its replacement with an enclosed concrete culvert. In addition, the Proposed Action would involve grading activities which would result in the disturbance of approximately 426,000 square feet of annual grassland located on an active airfield surrounded by runways and taxiways, and other sections of Sulphur Creek that are already enclosed in culverts.

FAA has determined that no Federal or State listed threatened or endangered species or critical habitat are known or likely to occur within the ASA, or the Area of Potential Ground Disturbance due to a lack of suitable habitat. Therefore, the Proposed Action would not affect any Federal or State listed threatened or endangered species.

As discussed in Section 4.4 of the Final EA, ground nesting birds protected by the Migratory Bird Treaty Act could occur in the Area of Potential Ground Disturbance for the Proposed Action. Therefore, prior to construction activities HWD will complete a field survey of the Area of Potential Ground Disturbance to determine if ground nesting birds protected by the Migratory Bird Treaty Act are present. If nests of birds protected by the Migratory Bird Treaty Act are present, a buffer of 50 feet between construction areas and the nesting birds would be established with construction fencing and maintained until the birds have completed nesting. The FAA will condition any Airport Improvement Program grant for construction of this project with the requirement that HWD complete this mitigation measure to minimize environmental effects of the Proposed Action and ensure compliance with the Migratory Bird Treaty Act.

While the Proposed Action would not result in adverse effects to Federal or State-listed Threatened or Endangered Species, the loss of approximately 0.19 acres of wetland/wildlife habitat represents habitat that could be used by migratory birds and common wildlife species. This habitat loss would be mitigated as described in Section 4.10 of the Final EA regarding Wetland impacts and in the Wetland impact paragraph of this FONSI/ROD.

Floodplains. As discussed in Section 3.3.2 and 4.5 of the Final EA, implementation of the Proposed Action would enclose three segments of Sulphur Creek within the AOA within concrete box culverts and result in grading approximately 426,000 square feet of infield area between runways and taxiways of HWD. All three culverts are within the 100-year floodplain and portions of the 426,000 square foot graded area are also within the 100-year floodplain.

The effect of the Proposed Action on the 100-year floodplain was evaluated in the Final EA. With implementation of the Proposed Action, the elevation of areas inundated by the 100-year floodplain is anticipated to increase by 0.1 foot. This is due to the installation of the box culverts with water inlet structures in place of a continuously open stream channel. However, as shown in Figures 1-5 and 4-1 of the Final EA, the lateral extent of the 100-year floodplain is essentially the same under the Proposed Action and the No-Action Alternative. So while implementation of the Proposed Action would increase the depth of water in areas inundated within the 100-year flood on HWD by 0.1 foot, the lateral extent of the 100-year flood plain is essentially unchanged under the Proposed Action as compared to the No Action alternative.

The 426,000 square feet of infield grading associated Proposed Action will facilitate improved drainage with the AOA, as compared to the No Action alternative. So while the 100-year flood elevation will be 0.1 foot deeper under the Proposed Action, flood water would be expected to drain away more evenly, and without ponded areas, under the Proposed Action. The FAA concludes the enhancements of aviation safety obtained by placing Sulphur Creek within underground box culverts and the improved drainage to reduce use of ponded areas on the airport by hazardous wildlife warrants the 0.1 foot increase in the 100-year floodplain elevation on HWD.

The FAA considers an action to have a significant encroachment and impact on a 100-year floodplain when that action 1) would have a high probability of loss of human life, 2) would likely have substantial, encroachment-associated costs or damage, including interrupting aircraft service or loss of a vital transportation facility (e.g., flooding of a runway or taxiway; important navigational aid out of service due to flooding, etc.), or 3) would cause significant adverse impacts on natural and beneficial floodplain values.

Implementation of the Proposed Action and the associated 0.1 foot increase in depth of the existing 100-year floodplain, would not result in 1) a high probability of loss of human life, 2) would not be likely have a substantial, encroachment-associated costs or damage, including interrupting aircraft service or loss of a vital transportation facility (e.g., flooding of a runway or taxiway; important navigational aid out of service due to flooding, etc, beyond what already occurs under existing conditions), and 3) would not cause significant adverse impacts on natural and beneficial floodplain values. Therefore, implementation of the Proposed Action would not result in a significant impact on the existing floodplain. As the floodplain areas impacted by this project are along the edges of Sulphur Creek, and there is no practicable alternative to placing portions of Sulphur Creek in underground culverts to meet the purpose and need for the project, there is no practicable alternative to impacting the floodplain to implement the Proposed Action.

Hazardous Materials, Pollution Prevention, and Solid Waste. As discussed in Section 4.6 of the Final EA, implementation of the Proposed Action would not increase the number of operations and enplanements at HWD, and therefore not result in permanent change in the amount of municipal solid waste generated by the airport. Also, the improvements associated with the Proposed Action are not located in areas of HWD that are known or suspected to contain environmental contamination. Therefore, implementation of the Proposed Action would not result in a significant impact associated with the generation of solid waste or hazardous waste. An evaluation of pollution prevention measures associated with the use and disposition of hazardous

materials during construction is discussed in the Section 4.3 of the Final EA and the Construction Impacts section of this FONSI/ROD.

Historical, Architectural, Archaeological, and Cultural Resources. As discussed in Section 4.7 of the Final EA, there are no known buildings or archeological sites on HWD that are on or eligible for listing on the National Register of Historic Places (NRHP) within the Area of Potential Effect (APE). The FAA had previously consulted with the California State Historic Preservation Officer (SHPO) regarding resources on or eligible for the NRHP are present at HWD. The SHPO concurred with FAA's determination that there are no resources within HWD. It is very unlikely that undiscovered archaeological resources eligible for the NRHP exist at HWD, as extensive grading and earthmoving activities have occurred at HWD in the past. As there are no historic properties on or eligible for the NRHP within the APE, the Proposed Action would have no effect on historic properties. However, in the event that unanticipated archaeological or cultural resources are discovered during construction, all ground disturbing activities in the vicinity of the find will be halted. The SHPO and FAA would immediately be notified to ensure compliance with 36 CFR § 800.13 *Post Review Discoveries*.

Socioeconomic Impacts, Environmental Justice, and Children’s Environmental Health and Safety. Section 4.8 of the Final EA addresses potential for Socioeconomic Impacts, disproportionate environmental impacts on low-income or minority populations resulting in Environmental Justice impacts, and Children’s Environmental Health and Safety impacts.

The Proposed Action would not require the acquisition of land, relocation of any individuals, or result in the disruption of any established community or existing local traffic patterns. Construction activities associated with the Proposed Action would occur entirely on Airport property and would not temporarily or permanently disrupt essential community services.

The Proposed Action has no potential to relocate minority or low-income populations closer to environmental contaminants, and would not produce a significant increase in air pollutant emissions, or result in a release of environmental contaminants into the environment. Therefore, the Proposed Action would not result in a disproportionately high or adverse environmental impact on minority or low-income populations.

The Proposed Action has no potential to relocate children to locations closer to environmental contaminants, to produce a significant increase in air pollutant emissions, or result in a release of environmental contaminants into the environment. Therefore, the Proposed Action would not increase environmental health and safety risks to children.

Water Quality. As discussed in Section 4.9 of the Final EA, implementation of the Proposed Action involves the installation of three culverts that would result in the fill of 440 linear feet of Sulphur Creek including adjacent wetlands and totaling approximately 0.19 acres. Specifically, the first section (from Taxiway A to Taxiway Z, respectively) would involve the placement of a 170-foot-long box culvert and the subsequent filling and grading of a 3,920-square-foot segment of the creek. The second segment would involve the placement of a 180-foot-long box culvert into Sulphur Creek. This component would also involve subsequent filling and grading of 2,745-square-feet of

creek channel. Finally, a 90-foot-long section of box culvert would be placed into the third and final segment of Sulphur Creek. This 1,655 square-foot area would also be filled and graded. This action would result in the replacement of the existing natural creek bottom with impervious concrete bottom. The net increase in impervious surface area caused by the above activities would result in a 0.67-acre foot stormwater runoff increase over the duration of the entire year and would reduce natural infiltration in this portion of Sulphur Creek.

During construction, grading of 426,000 square feet of the infield has the potential to increase sediment loads and turbidity in stormwater runoff. In the long term, the proposed channelization of the creek would decrease sediment loads into Sulphur Creek due to the replacement of the earthen banks between the infields with a concrete-lined channel. The Proposed Action would be subject to existing water quality permit conditions set forth in National Pollutant Discharge Elimination System Permit number CAS612008 and would not require groundwater withdrawals at HWD.

Since the Proposed Action would involve grading and soil disturbance over 1 acre, HWD will be required to file a Notice of Intent (NOI) with the San Francisco Regional Water Quality Control Board (SFRWQCB) to obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit). The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan that includes construction and post-construction BMPs including, but not limited to the following:

- Install fiber rolls or silt fencing adjacent to aquatic features for erosion control. Fiber rolls should be buried 3-4 inches into the soil, staked every 4 feet, and limited to use on 3:1 slopes. Silt fencing should be trenched 6 inches by 6 inches into the soil, staked every 6 feet, and placed 2-5 feet from the toe of any slope;
- Designate a concrete washout area to avoid wash water from concrete tools or trucks from entering gutters, inlets, or storm drains. Maintain washout area and dispose concrete waste on a regular basis; and
- Protect drain inlets from polluted storm water through the use of filters such as fabrics, gravel bags, or straw wattles.

With implementation of the Best Management Practices described above, the Proposed Action would not exceed water quality standards. Therefore, implementation of the Proposed Action would not result in a significant water quality impact.

Wetlands. As discussed in Section 4.10 of the Final EA, implementation of the Proposed Action involves the installation of three culverts that would result in the fill of 440 linear feet of Sulphur Creek including adjacent wetlands and totaling approximately 0.19 acres. This amount of stream channel and wetland impact is the minimum possible impact that allows the purpose and need of the project to be met, as this is the minimum fill amount that is required to install the three culverts in Sulphur Creek. Therefore, the Proposed Action is the least environmentally damaging practicable alternative to meet the purpose and need for the project.

To compensate for the loss of 0.19 acres, and 440 linear feet of jurisdictional waters, HWD would restore or purchase stream channel and/or wetland habitat credit from an

established mitigation bank, or identify an alternative mitigation measure to compensate for the losses of stream channel and wetland habitat at a minimum 1:1 ratio.

Implementation of the Proposed Action will require authorization from the U.S. Army Corps of Engineers under the Clean Water Act, Section 404 permit program, including obtaining a Water Quality Certification from the local water quality certification agency, the SFRWQCB. In previous informal discussions between the HWD and the SFRWQCB, the SFRWQCB has indicated their preference for mitigation for impacts to Sulphur Creek in the form of daylighting upstream creek channels currently in underground culverts. Alternatively, HWD could purchase mitigation credits, after an appropriate mitigation ratio was determined to offset wetland impacts during the Clean Water Act, Section 404 permitting process. These credits would be purchased from a wetland mitigation bank approved by the U.S. Army Corps of Engineers and the SFRWQCB within the lowlands surrounding San Francisco Bay. For example, HWD is within the agency-approved service area for the San Francisco Bay Wetland Mitigation Bank at Redwood Shores on San Francisco Bay.

The U.S. Army Corps of Engineers and the SFRWQCB would both review the HWD's proposed mitigation prior to the U.S. Army Corps of Engineers issuance of a Clean Water Act, Section 404 authorization for this project or the SFRWQCB issuance of a Clean Water Act, Section 401, water quality certification for the Proposed Action.

The conversion of approximately 0.19 acres of wetlands and 440 linear feet of creek channel is a potentially significant impact that would be reduced to a not-significant level because mitigation to mitigate for the impact of the placing the wetlands and creek channel in a culvert will be required by the Clean Water Act, Section 404 permit. In order to further ensure that this potentially significant impact is reduced to a not significant level, the FAA will condition any Airport Improvement Program grant for construction of this project with the requirement that HWD must provide the FAA will a current U.S. Army Corps of Engineers Clean Water Act, Section 404 authorization to proceed with the Proposed Action before HWD undertakes any construction of the Proposed Action. Since the impact of the Proposed Action would be offset by these mitigation measures, implementation of the Proposed Action would not result in a significant wetland impact. As the wetlands impacted by this project are along the edges of Sulphur Creek, and there is no practicable alternative to placing portions of Sulphur Creek in underground culverts to meet the purpose and need for the project, there is no practicable alternative to impacting the wetlands to implement the Proposed Action.

Construction Impacts. Environmental impacts associated with the construction activities needed to implement the Proposed Action are discussed in Section 4.3 of the Final EA. Construction activities, although short-term in duration, have the potential to cause substantial environmental effects. Construction activities associated with the Proposed Action include cement mixing, parking, equipment storage, vehicle staging, and temporary infrastructure designed to accommodate construction crews.

The amount of airborne suspended particulates would temporarily increase in the vicinity of HWD during certain construction activities. Heavy construction equipment used at the site would emit exhaust containing criteria air pollutants regulated by the NAAQS and CAAQS standards. Temporary air quality impacts associated with these sources

would vary depending on the local weather conditions, level of construction activity, and the nature of the construction operation; however, these temporary impacts would not be significant since the construction would be of limited duration and the selected contractor would be required to implement BMPs noted below.

To minimize temporary air quality impacts, the contractor would be required to implement BMPs, such as treating excavated areas with water during dry and windy conditions, covering haul trucks, maintaining construction vehicles appropriately, using reduced speeds, suspending certain construction activities during high wind conditions, and covering graded areas with stabilizing materials. Criteria pollutant emissions associated with construction of the Proposed Action would not exceed applicable *de minimis* thresholds as described in Section 4.2 of the Final EA, and the Air Quality section of this FONSI/ROD. Therefore, construction activities needed to implement the Proposed Action would not result in a significant air quality impact.

No federally or state listed threatened or endangered species occur within the construction area so construction activities associated with implementation of the Proposed Action would not affect any these species. As discussed in Section 4.4 of the Final EA, ground nesting birds protected by the Migratory Bird Treaty Act could occur in the Area of Potential Ground Disturbance for the Proposed Action. Therefore a field survey for migratory birds will be undertaken before construction is initiated, and if ground nesting birds protected by the Migratory Bird Treaty Act are present, a buffer of 50 feet between construction areas and the nesting birds would be established with construction fencing and maintained until the birds have completed nesting. The FAA will condition any Airport Improvement Program grant for construction of this project with the requirement that HWD complete this mitigation measure to minimize environmental effects of the Proposed Action and ensure compliance with the Migratory Bird Treaty Act.

Temporary noise impacts associated with the use of construction vehicles and machinery would be limited to the immediate vicinity of the Proposed Action. Earthwork and site preparation would result in temporary noise generation while these activities are taking place. Noise levels would vary dependent on the nature of construction activities, the type, and model of equipment used. Given the distance to the nearest noise-sensitive land use and the presence of vegetated buffers surrounding the Airport, temporary noise impacts from construction equipment would not be significant.

HWD operates two runways and annual operations of propeller aircraft are less than 90,000 operations and less than 700 jet operations. As discussed in Section 4.3 of the Final EA, aviation noise levels associated with those numbers of annual aviation operations is limited. Therefore, any temporary runway closures during project construction that shift all aircraft operations onto Runway 10R-28L or 10L-28R, would not result in significant noise impacts on noise-sensitive land uses.

Short-term construction-related employment of local contractors would occur as a result of the Proposed Action. This is considered to be a positive impact. With respect to changes in traffic volumes in the vicinity of HWD during construction activities, the increase in construction-related traffic would be considered minor. Since these roads in the vicinity of HWD operate at acceptable levels of service, the Proposed Action would not result in significant secondary induced impacts.

BMPs to protect water quality will be implemented to prevent the possibility that contaminants could be discharged into groundwater resources during construction activities. As discussed in Section 4.9 of the Final EA, HWD will be required to implement BMPs to maintain water quality during construction. Construction activities also would be subject to coverage under the General Permit for Discharge of Storm Water Associated with Construction Activity, Construction General Permit Order 2009-0009-DWQ. Given the guidelines of water-related BMPs, construction permit conditions, and the design of project-specific plans; construction activities associated with implementation of the Proposed Action would not have a significant impact on water quality.

Cumulative Impacts. Section 4.11 of the Final EA describes other past, present, and reasonably foreseeable projects in the ASA for the Proposed Action. The past, present, and reasonably foreseeable projects have increased the quantities of impervious surfaces at the Airport. Surface runoff increases have not caused Sulphur Creek to exceed its 15-year storm design capacity. When past, present, and reasonably foreseeable projects are considered in relation to the Proposed Action, those projects would not cumulatively contribute to a significant adverse environmental effect. Therefore, implementation of the Proposed Action would not result in a significant cumulative environmental impact.

6. Public Participation

As discussed in Section 5 of the Final EA, the Notice of Availability of the Draft EA for a 30-day review period was published in the Hayward Daily Review newspaper serving the City of Hayward and Alameda County on January 16, 2015. The review period was held through February 17, 2015. During the review period the Draft EA was available at the Hayward Executive Airport administrative office, the Hayward Executive Airport's website www.haywardairport.org, the Hayward Public Library, the FAA San Francisco Airports District Office, and FAA Western-Pacific Region Office. Three comment letters were received during the public comment period, with two of the letters being sent by the same person. The public comments did not identify any environmental impacts of the Proposed Act that had not been previously considered. The public comments and responses are included in Appendix F of the Final EA.

7. Inter-Agency Coordination

In accordance with 49 USC § 47101(h), FAA has determined that no further coordination with the U.S. Department of Interior or the U.S. Environmental Protection Agency is necessary because the proposed project does not involve construction of a new airport, new runway or major runway extension that has a significant impact on natural resources including fish and wildlife; natural, scenic and recreational assets; water and air quality; or another factor affecting the environment.

8. Reasons for the Determination that the Proposed Project will have No Significant Impacts.

The attached Final EA evaluates the potential of the Proposed Action and alternatives to have an environmental impact on environmental resources as identified in FAA Orders

1050.1E, *Environmental Impacts: Policies and Procedures* and 5050.4B, *National Environmental Policy Act (NEPA), Implementing Instructions for Airport Actions*. As described in the Final EA, implementation of the Proposed Action would not result in any environmental impacts after mitigation that would exceed the threshold of significance as defined by FAA Orders 1050.1E and 5050.4B. The FAA will include as a special condition for approval of further processing of an application for federal assistance for near-term eligible projects using federal funds from the Airport Improvement Program, as shown on the ALP, that the City of Hayward agree to mitigate for environmental impacts to the Sulphur Creek stream channel and wetlands at a minimum 1:1 ratio, as identified in Section 4.10 of the Final EA.

9. Agency Findings.

The FAA makes the following determinations for this project based on the information and analysis set forth in the Final EA and other portions of the administrative record.

- a. Floodplains:** As discussed in Section 3.3.2 and 4.5 of the Final EA, portions of the Proposed Action would occur within the 100-year floodplain of Sulphur Creek on HWD. The FAA evaluated practicable alternatives to avoid the floodplain. No prudent or feasible alternatives which would avoid the floodplain were identified.

In accordance with Department of Transportation Order 5650.2 *Floodplain Management and Protection*, the FAA considers an action to have a significant encroachment on a 100-year floodplain when that action 1) would have a high probability of loss of human life, 2) would likely have substantial, encroachment-associated costs or damage, including interrupting aircraft service or loss of a vital transportation facility (e.g., flooding of a runway or taxiway; important navigational aid out of service due to flooding, etc.), or 3) would cause significant adverse impacts on natural and beneficial floodplain values.

The Final EA disclosed that implementation of the Proposed Action is anticipated to increase the elevation of the 100-year floodplain by 0.1 foot, while the lateral extent of the 100-year floodplain is essentially unchanged. Therefore, the FAA has determined that the Proposed Action would not result in a significant encroachment or impact on the 100-year floodplain. As the floodplain area impacted by this project are along the edges of Sulphur Creek, and there is no practicable alternative to placing portions of Sulphur Creek in underground culverts to meet the purpose and need for the project, there is no practicable alternative to impacting the floodplain to implement the Proposed Action.

- b. Wetlands:** As discussed in Sections 2.6, 3.3.8 and 4.10 of the Final EA, implementation of the Proposed Action would require removal of 0.19 acre of wetlands. Consistent with the provisions of Executive Order 11990 – *Protection of Wetlands*, dated May 24, 1977, the FAA finds that there is no practicable alternative to the removal of 0.19 acre of wetlands on airport property to construct the Proposed Action. The FAA has determined that all practicable measures to minimize harm to wetlands, including providing compensatory mitigation for the wetlands removed, will be taken as part of the Proposed Action.

c. **Independent and Objective Evaluation:** As required by the Council on Environmental Quality (40 CFR § 1506.5) the FAA has independently and objectively evaluated this proposed project. As described in the Final EA, the Proposed Action, and the No Action alternatives were studied extensively to determine the potential impacts and appropriate mitigation measures for those impacts. The FAA provided input, advice, and expertise throughout the analysis, along with administrative and legal review of the project.

10. PROPOSED Decision and Orders.

Based on the information in this FONSI/ROD and supported by detailed discussion in the Final EA, the FAA has selected the Proposed Action, the Runway Safety Enhancement Project, as the FAA's Preferred Alternative. The FAA must select one of the following choices:

- Approve agency actions necessary to implement the Proposed Action, or
- Disapprove agency actions to implement the Proposed Action.

Approval signifies that the applicable federal requirements relating to the proposed airport development and planning have been met. Approval permits the City of Hayward to proceed with implementation of the Proposed Action and associated mitigation measures. Disapproval would prevent the City of Hayward from implementing the Proposed Action elements within the Hayward Executive Airport.

Under the authority delegated to me by the Administrator of the Federal Aviation Administration, I find that the project is reasonably supported. I therefore, direct that action be taken to carry out the agency actions more fully discussed in Section 3 of this FONSI/ROD.

1. Unconditional approval of the ALP to depict installation of additional culverts, pursuant to 49 United States Code (USC) §§ 40103(b) and 47107(a)(16);
2. Determinations under 49 USC §§ 47106 and 47107 relating to the eligibility of the Proposed Action for federal funding under the Airport Improvement Program (AIP) to assist with construction of potentially eligible development items shown on the ALP;
3. Determination under 49 USC § 44502(b) that the airport development is reasonably necessary for use in air commerce or in the interests of national defense;
4. Approval of further processing of an application for federal assistance for near-term eligible projects using federal funds from the Airport Improvement Program, as shown on the ALP; and
5. Approval of a Construction Safety and Phasing Plan to maintain aviation and airfield safety during construction pursuant to FAA Advisory Circular 150/5370-2F, *Operational Safety on Airports During Construction*.

APPROVED:

Mark A. McClardy
Manager, Airports Division, AWP-600

Date

DISAPPROVED:

Mark A. McClardy
Manager, Airports Division, AWP-600

Date

RIGHT OF APPEAL

This FONSI/ROD constitutes a final order of the FAA Administrator and is subject to exclusive judicial review under 49 U.S.C § 46110 by the U.S. Circuit Court of Appeals for the District of Columbia or the U.S. Circuit Court of Appeals for the circuit in which the person contesting the decision resides or has its principal place of business. Any party having substantial interest in this order may apply for review of the decision by filing a petition for review in the appropriate U.S. Court of Appeals no later than 60 days after the order is issued in accordance with the provisions of 49 U.S.C. § 46110.

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