U.S. Fish & Wildlife Service

California Department of Fish & Game

Final Environmental Impact Statement/ Environmental Impact Report

Bair Island Restoration and Management Plan
Don Edwards San Francisco Bay National Wildlife Refuge
Bair Island Ecological Reserve

San Mateo County, California

TABLE OF CONTENTS

TABLE OF CONTENTS (cont.)

TABLE OF CONTENTS (cont.)

TABLE OF CONTENTS (cont.)

FIGURES

TABLES

TABLE OF CONTENTS (cont.)

VOLUME II OF II - TECHNICAL APPENDICES

Note: Volume II is on a CD attached to the back of Volume I. Volume II is also available for public review at the libraries and locations listed in Section 5 of this document.

EIS/EIR SUMMARY
BAIR ISLAND RESTORATION AND MANAGEMENT PLAN

INTRODUCTION

Bair Island is a former tidal salt marsh located adjacent to the San Francisco Bay in Redwood City, San Mateo County, California. The Bair Island complex is divided into three distinct areas separated by slough channels: Inner, Middle and Outer Bair Islands. Inner Bair Island is connected to the mainland and can be reached directly by land from Whipple Avenue. Inner Bair Island is separated from Middle Bair Island by Smith Slough which, in turn, is separated from Outer Bair Island by Corkscrew Slough.

Historically, Bair Island was part of a large complex of tidal marshes and mudflats within the drainage of the San Francisco Bay and Belmont Slough. Bair Island was diked in the late 1800s and early 1900s for agricultural uses, including cattle grazing. Bair Island was converted to salt evaporation ponds starting in 1946, and remained in active salt production until 1965. The lands were subsequently drained and eventually sold to a series of real estate development companies. A local referendum in the City of Redwood City finally halted development plans for Bair Island. The California Department of Fish and Game (CDFG) and the Don Edwards San Francisco Bay National Wildlife Refuge (Refuge) both acquired portions of Bair Island over time. The Peninsula Open Space Trust (POST) purchased most of Bair Island that remained in private ownership and turned over their interests in the property to the two agencies. The lands owned by the CDFG are included in the Bair Island Ecological Reserve. A Memorandum of Understanding (MOU) was signed in 1997 by CDFG and the Refuge agreeing that all CDFG lands on Bair Island would be operated and managed by the Refuge as a part of the Don Edwards San Francisco Bay National Wildlife Refuge. This restoration and management plan would be implemented by the Refuge on CDFG and Refuge owned lands in accordance with the MOU.

Small parcels of land on Middle Bair Island along Redwood Creek remain in private ownership. A small area of the Bay outside of Outer Bair Island is privately owned. The San Carlos Airport also retains a portion of Inner Bair Island as a flight safety zone. In addition, two easements exist on Bair Island; (1) for the PG&E towers and transmission lines that run throughout the site, and (2) for the South Bayside System Authority (SBSA) sanitary sewer force main that runs underneath most of the southern part of the levee on Inner Bair Island. Pedestrians and bicyclists currently use the top of the Inner Bair Island levee as a 3.3-mile loop trail and in the dry season use a cross pond trail from the Whipple Avenue trailhead to the levee along Smith Slough.

For many years, prior to the management of Bair Island by the Refuge, the landowners attempted to limit access and prevent trespassing on Inner Bair Island. However, after many failed attempts to block all public access (including motorcycles and all-terrain vehicles) to Inner Bair Island, the landowners stopped blocking foot access to the levees and pathway on Inner Bair Island. Since acquiring Bair Island, the Refuge has maintained the same level of public access until a public use plan could be generated for all of Bair Island.

Purpose and Need

The U.S. Fish and Wildlife Service, Don Edwards San Francisco Bay National Wildlife Refuge (federal lead agency), and the California Department of Fish and Game (state lead agency) are proposing adoption of a restoration and management plan for the approximately 2,600-acre Bair Island complex in order to restore Bair Island to tidal salt marsh. The lead agencies have prepared a

Draft EIS/EIR, which describes and analyzes the potential environmental effects of the proposed restoration and management project.

National Environmental Policy Act (NEPA) implementation regulations require that each Environmental Impact Statement (EIS) briefly specify the purpose and need to which the agency is responding in proposing the various alternatives, including the proposed action. Similarly, the California Environmental Quality Act (CEQA) requires that each Environmental Impact Report (EIR) include a statement of the objectives for the proposed project. The objectives are intended to help the implementing agency develop a reasonable range of alternatives and to aid decision-makers in preparing findings or a statement of overriding considerations, if necessary. This EIS/EIR addresses the environmental impacts (effects) of five possible restoration and management alternatives.

The purpose and objective of the proposed Bair Island Restoration and Management Plan includes the following elements:

- Restore high quality tidal salt marsh habitat to Inner, Middle and Outer Bair Islands in San Francisco Bay;
- Maximize the function and values of tidal salt marsh habitats in a timely manner;
- Provide habitat for endangered species and other native wildlife; and
- Enhance the public's appreciation and awareness of the unique resources of Bair Island.

The Bair Island site is a large complex of former salt evaporators, and has been a major priority for addition to the Don Edwards San Francisco Bay National Wildlife Refuge (Refuge) since the boundaries of the Refuge were expanded in 1990. The restoration of tidal habitats at Bair Island is ecologically important to South San Francisco Bay. Following restoration, Bair Island will become an integral part of the extensive wetland complex within the Refuge, as shown in Figure 3. This site, once restored, can assist with the preservation and perhaps recovery of both the California Clapper Rail and salt marsh harvest mouse. The California Clapper Rail and the salt marsh harvest mouse were listed by the US Fish and Wildlife Service as endangered species on October 13, 1970 (Federal Register 35:1604).

The project is needed because of:

- Historical losses of tidal salt marsh ecosystems and habitats in San Francisco Bay;
- Deterioration of levees, which could lead to flooding, and velocity safety issues and increased sedimentation along the Redwood Creek Shipping Channel;
- The disturbance to sensitive species including the California Clapper Rail;
- Lack of control over undesirable species including invasive plants, undesirable predators and mosquitoes;
- Increasing restoration costs associated with site deterioration;
- Increasing operation and maintenance costs; and
- Limited opportunities in South San Francisco Bay for wildlife-oriented recreation.

ALTERNATIVES

Based upon the existing site conditions, objectives, constraints and the public concerns identified during preparation of the Bair Island Restoration and Management Plan, a range of alternatives was

identified. Five alternatives were ultimately selected for full evaluation, including the No Action Alternative. Each alternative assumes a 50-year planning horizon, consistent with that used by other bayland restoration projects in the San Francisco Bay Area. The four project levels or "action" alternatives differ in the restoration approach and degree of public access. The following descriptions briefly summarize the alternatives. A more detailed discussion can be found in *Section 2* of this document.

- **No Action Alternative**

  The No Action Alternative would restore tidal action to, and create tidal salt marsh habitat at Middle and Outer Bair Islands. On Inner Bair Island, the Refuge would only undertake minor repairs to the existing levee to protect the South Bayside System Authority (SBSA) sewer line and the San Carlos Airport safety zone. The Refuge would work with the Airport and the SBSA to protect their infrastructure. There would be no tidal action occurring on Inner Bair Island; therefore, no tidal marsh habitat would be created.

  On-going levee maintenance at Middle and Outer Bair Islands would be discontinued and after time the levees would breach. More frequent dredging would be required in Redwood Creek Shipping Channel to maintain the same channel depth for deep-draft navigation. Also, high tidal flows through Smith Slough at Pete's Outer Harbor would increase current velocities above those recommended for small water craft navigation.

  In the short-term, (approximately five years) public access for pedestrians, bicyclists and pets (dogs only on six-foot leash) would be allowed to continue on Inner Bair Island along the existing 3.3-mile levee trail and 0.5-mile connector trail from parking lot to Inner Bair Island trailhead. The Refuge would not maintain the existing trails, signs, and gates as they deteriorate. Therefore, after approximately five years, no trails would be accessible to the public because it is predicted that the lack of maintenance would result in unsafe trail conditions. The Refuge would close all trails to the public prior to the trails deteriorating to unsafe conditions.

  In the long term, no public access to Inner, Middle or Outer Bair Islands would be allowed.

  Fishing and boating would not change in the short term. However, as the levees of Middle and Outer Bair Islands wear down and breach, the tidal prism would increase, leading to an increase in peak current velocities. This could result in exceeding safe navigation requirements for small water craft which would be unsuitable for fishing and boating.

  The Refuge's parking lot on Bair Island Road would be closed, once public access is no longer allowed. No trail improvements would be made. No additional public access infrastructure would be constructed.

- **Alternative A: Tidal Marsh Restoration and Intermediate Public Access (*Proposed Action*)**

  The following list briefly summarizes the restoration and recreation access approach for Alternative A.

  Restoration Approach
  - Restores full tidal inundation to Inner, Middle, and Outer Bair Islands through systematic breaching.
  - Channel modifications at Smith and Corkscrew Sloughs would include installation of a flow-blockage control structure in Smith Slough, would restore its historic meander through Inner Bair Island, and a flow restrictor in Corkscrew Slough would partially block the slough to reduce unsafe flow velocities during tidal changes and prevent increased in sedimentation rates in the Redwood Creek Shipping Channel.
  - Dredged and fill material would be used to raise the marshplain elevation on Inner Bair Island prior to breaching in order to reduce bird-strike hazards for the San Carlos Airport and to protect the South Bayside System Authority (SBSA) sewer line.

  Recreation Approach
  - Public access for pedestrians and bicyclists would be allowed on Inner Bair Island along a 1.8-mile levee trail. The trail would allow access from a new "predator resistant" pedestrian bridge from the parking lot on Bair Island Road. There would be no public access at Whipple Avenue.
  - The parking lot on Bair Island Road would be expanded to accommodate school buses and restroom.
  - Interpretative signs would be installed along the trail and two 30 by 15 foot observation platforms would be constructed on the levee overlooking Smith Slough.
  - Pets (dogs only) would be allowed on Inner Bair Island on a six-foot leash and on designated trails for a three month trial period to determine compliance with refuge regulations designed to protect wildlife.
  - A low fence or similar structure will be constructed between the trail and the restored habitat and the airport safety zone.
  - Public access would only be allowed on Middle and Outer Bair Islands by Refuge-guided trips and by boat to a viewing platform on Middle Bair.
  - Fishing from boats in Smith, Corkscrew and Steinberger Sloughs and Redwood Creek would be allowed, however fishing would not be permitted from land.
  - In Smith and Corkscrew Sloughs, all motorized vehicles would be subject to "no wake zones" and speed limits of a maximum five mph.
  - Hunting of waterfowl on portions of Middle and Outer Bair Islands would be allowed per state regulations.

- **Alternative B: Tidal Marsh Restoration and Restricted Public Access**

  The restoration approach for Alternative B is the same as discussed under Alternative A. The following list briefly summarizes the restoration and recreation access approach for Alternative B.

  Restoration Approach
  - Restores full tidal inundation to Inner, Middle, and Outer Bair Island through systematic breaching.

- Channel modifications at Smith and Corkscrew Sloughs including the installation of a flow-blockage control structure in Smith Slough, would restore its historic meander through Inner Bair Island, and a flow restrictor in Corkscrew Slough would partially block the slough to reduce unsafe flow velocities during tidal changes and prevent increased sedimentation rates in the Redwood Creek Shipping Channel.
- Dredged material would be used to raise the marshplain elevation on Inner Bair Island prior to breaching to reduce bird-strike hazards for the San Carlos Airport and to protect the South Bayside System Authority (SBSA) sewer line.

Recreation Approach

- Public access for pedestrians and bicyclists would be allowed on Inner Bair Island along a 1.8-mile levee trail and 0.5-mile connector trail from the parking lot to Inner Bair Island trailhead at Whipple Avenue.
- No pets would be allowed on Bair Island.
- Public access would only be allowed on Middle and Outer Bair Islands by Refuge-guided trips and by boat to a viewing platform on Middle Bair.
- Fishing from boats in Smith, Corkscrew and Steinberger Sloughs and Redwood Creek would be allowed, however fishing would not be permitted from land.
- In Smith and Corkscrew Sloughs, all motorized vehicles would be subject to "no wake zones" and speed limits of a maximum five mph.
- Seasonal closure to all boat access would be implemented to protect sensitive species (harbor seals).
- Hunting of waterfowl on portions of Middle and Outer Bair Islands would be allowed per state regulations.

- **Alternative C: Tidal and Managed Marsh Restoration and Moderate Public Access**

The following list briefly summarizes the restoration and recreation access approach for Alternative C.

Restoration Approach

- Restores full tidal inundation to Middle, and Outer Bair Island through systematic breaching.
- Creates managed wetlands at Inner Bair Island.
- Channel modifications would be made at Corkscrew Slough and Smith Slough involving the installation of a flow restrictor that would partially block the sloughs in order to reduce unsafe flow velocities during tidal changes and prevent increased in sedimentation rates in the Redwood Creek Shipping Channel.
- Smith Slough would not be restored to its historic meander through Inner Bair Island.
- Hydraulic control structures (*i.e.,* slide-flap gates, float-activated gates) would be installed on Inner Bair Island to allow water management within Inner Bair.
- A managed complex of diked salt marsh, uplands and shallow seasonal wetlands is planned.
- Regular maintenance would be required to maintain the hydraulic structures in working order. Maintaining public access would require periodic levee repair.
- A low berm would be built around the Airport property to prevent flooding and the levee containing the SBSA sewer line would be widened as necessary to prevent erosion.

Recreation Approach

- Public access for pedestrians and bicyclists would be allowed on Inner Bair Island along a 2.7-mile levee trail and 0.5-mile connector trail from the parking lot to Inner Bair Island trailhead.
- Pets (dogs on a six-foot leash only) would be allowed on Inner Bair Island and on designated trails for a test period to determine compliance with refuge regulations designed to protect wildlife.
- Public access would only be allowed on Middle and Outer Bair Islands by Refuge-guided trips and by boat to a viewing platform on Middle Bair.
- Fishing from boats in Smith, Corkscrew and Steinberger Sloughs and Redwood Creek would be allowed, however fishing would not be permitted from land.
- In Smith and Corkscrew Sloughs, all motorized vehicles would be subject to "no wake zones" and speed limits of a maximum five mph.
- Hunting of waterfowl on portions of Middle and Outer Bair Islands would be allowed per state regulations.

- **Alternative D: Tidal and Managed Marsh Restoration and Restricted Public Access**

The restoration approach for Alternative D is the same as discussed under the Alternative C. The recreational access approach for Alternative D is the same as discussed under the Alternative B. The following list briefly summarizes the restoration and recreation access approach for Alternative D.

Restoration Approach

- Restores full tidal inundation to Middle, and Outer Bair Island through systematic breaching.
- Creates managed wetlands at Inner Bair Island.
- Channel modifications would be made at Corkscrew Slough and Smith Slough involving the installation of a flow restrictor that would partially block the sloughs in order to reduce unsafe flow velocities during tidal changes and prevent increased in sedimentation rates in the Redwood Creek Shipping Channel.
- Smith Slough would not be restored to its historic meander through Inner Bair Island.
- Hydraulic control structures (*i.e.,* slide-flap gates, float-activated gates) would be installed on Inner Bair Island to allow water management within Inner Bair.
- A managed complex of diked salt marsh, uplands and shallow seasonal wetlands is planned.
- Regular maintenance would be required to maintain the hydraulic structures in working order. Maintaining public access would require periodic levee repair.
- A low berm would be built around the Airport property to prevent flooding and the levee containing the SBSA sewer line would be widened as necessary to prevent erosion.

Recreation Approach

- Public access for pedestrians and bicyclists would be allowed on Inner Bair Island along a 1.8-mile levee trail and 0.5-mile connector trail from the parking lot to Inner Bair Island trailhead at Whipple Avenue.
- No pets would be allowed on Bair Island.
- Public access would only be allowed on Middle and Outer Bair Islands by Refuge-guided trips and by boat to a viewing platform on Middle Bair.

- Fishing from boats in Smith, Corkscrew and Steinberger Sloughs and Redwood Creek would be allowed, however fishing would not be permitted from land.
- In Smith and Corkscrew Sloughs, all motorized vehicles would be subject to "no wake zones" and speed limits of a maximum five mph.
- Seasonal closure to all boat access would be implemented to protect sensitive species (harbor seals).
- Hunting of waterfowl on portions of Middle and Outer Bair Islands would be allowed per state regulations.

All of the alternatives including the No Action Alternative would eventually restore tidal action and create tidal salt marsh habitat, except at Inner Bair Island, where no tidal action would be restored under the No Action Alternative. The key differences between the alternatives are in how quickly tidal salt marsh habitat is created, how much is ultimately restored, and the quality of the restored habitat.

The No Action Alternative would restore the least amount of high quality salt marsh habitat in the longest amount of time. Alternative A and Alternative B would create the greatest amount of high quality tidal marsh habitat in the shortest amount of time.

The public trail for Alternative A would be approximately 1.8 miles in length. Alternative C would consist of approximately 3.2 miles of trails. Alternative B and D would include 2.3 miles of trails. The No Action Alternative would result in no changes to the existing 3.8 miles of trails in the short term, but the public trails would be eliminated in the long term, under the No Action Alternative. Alternatives A and C, and the No Action Alternative would allow dogs on the Inner Bair Island trails while Alternatives B and D would not allow dogs. Alternatives B and D would implement a seasonal slough closure to all boat access in order to protect sensitive species (harbor seals).

AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

NEPA Council on Environmental Quality (CEQ) Regulations, CEQA Guidelines, and professional judgment were used during the evaluation of environmental consequences to assess whether or not the alternatives would result in significant impacts. Both context and intensity were considered when establishing the level of significance. The context means that the significance of an action must be analyzed in several contexts, such as the locale in which the project site is located. The intensity refers to the severity of the impact.

A summary of the impacts associated with each of the alternatives, and the level of significance and mitigation measures for each is contained in Table S-1 below. None of the Action Alternatives (Alternative A, B, C and D) would result in significant adverse impacts that could not be mitigated to less than significant levels. The No Action Alternative would result in significant adverse impacts which could not be mitigated to less than significant levels (increased siltation of the Redwood Shipping Channel, increased flow velocities at Pete's Outer Harbor, and loss of recreational facilities). All the alternatives would result in significant beneficial impacts (restored tidal marsh providing habitat for wildlife including endangered species).

Environmentally Preferred/Superior Alternative

NEPA states that an EIS shall identify the environmentally preferable alternative from the range considered. The environmentally preferable alternative is the alternative that best promotes the

national environmental policy expressed in NEPA. This means the alternative that causes the least damage to the environment and best protects biological and physical resources. CEQA Guidelines state that an EIR shall identify an environmentally superior alternative. In addition, if the No Project alternative is identified as environmentally superior, then the EIR also must identify the environmentally superior alternative among the other alternatives.

As this is a restoration project, by definition all alternatives would benefit the biological and physical environment and are designed to enhance natural resources in the project area. Alternatives A (Tidal Marsh Restoration and Intermediate Public Use) and B (Tidal Marsh Restoration and Restricted Public Use) both would result in the highest quality tidal marsh habitat in the shortest amount of time compared to the other alternatives.

Subsequent to the publication of the Draft EIS/EIR, Alternative A was modified to lessen the amount of public disturbance to special status species. These modifications include a shorter public access trail and a new "predator resistant" pedestrian bridge from the parking lot. In addition, dog access would be subject to a three month trial period to determine compliance with refuge regulations designed to protect wildlife. Changes made to Alternative A would result in similar, but not the same, potential disturbance to special-status species as Alternative B. Although Alternatives A and B would provide a public access trail of the same length (1.8 miles), they each would have a different alignment on Inner Bair Island. Alternative B would still have a slightly lower potential for disturbance to special-status species because this alternative would not allow dogs or public access at the east end of Inner Bair Island adjacent to restored marsh habitats and it includes a seasonal closure of sloughs to protect harbor seals. Alternative B is considered the environmentally preferred alternative because it would result in the highest quality tidal marsh habitat in the shortest amount of time *and* would result in the least amount of public disturbance to special-status species.

Alternatives C and D would also restore high quality tidal marsh habitat but would not restore as much as Alternatives A and B including reduced available California Clapper Rail habitat. Construction-related impacts for Alternative B would be equivalent to Alternatives A, C and D. Implementation of Alternative A would not result in an unacceptable level of disturbance to special status species populations (See Section 2.2 and Section 3.1.3.3.).

The No Action Alternative is not considered the environmentally preferable alternative because of the continued deterioration of the site and hydrology, recreation, and public health and safety impacts.

Issues of Known Controversy

At this time, concern from the public regarding dog use and public recreation at Bair Island has been expressed by the Refuge.

Table S-1: Summary Comparison of Impacts and Mitigation Measures

Resources, Impacts, and Mitigation Measures	Impact Level by Alternative				
	No Action	**Alter. A**	**Alter. B**	**Alter. C**	**Alter. D**
Vegetation and Wildlife					
Temporary Loss of Tidal Salt Marsh	LTS	NA	NA	NA	NA
Conversion of Diked Salt Marsh to Tidal Salt Marsh (and/or Tidal Mudflat under No Action)	LTS / B	LTS / B	LTS / B	LTS / B	LTS / B
Loss of Tidal Salt Marsh	NA	LTS / B	LTS / B	LTS / B	LTS / B
Loss of Seasonally Ponded Wetlands	NA	LTS	LTS	LTS	LTS
Loss of Congdon's Tarplant	LTS	LTS	LTS	LTS	LTS
Impacts to the Salt Marsh Harvest Mouse	NA	LTS / B	LTS / B	LTS / B	LTS / B
Impacts to Breeding California Clapper Rails During Construction	NA	LTS / B	LTS / B	LTS / B	LTS / B
Disturbance to California Clapper Rails	LTS	LTS	LTS	LTS	LTS
Loss of Harbor Seal Haul-out Access	NA	LTS	LTS	LTS	LTS
Hydrology and Water Quality					
Modification of Surface Drainage Patterns	S*	LTS / B	LTS / B	LTS / B	LTS / B
Increases in Flow Velocities at Pete's Outer Harbor	S*	LTS	LTS	LTS	LTS
Protection of Infrastructure on Inner Bair	NA	LTS / B	LTS / B	LTS / B	LTS / B
Short-Term Flooding Impacts	NA	LTS	LTS	LTS	LTS
Long-Term Flooding Impacts	NA	LTS	LTS	LTS	LTS
Short-Term Drainage Impacts	NA	LTS	LTS	LTS	LTS
Incremental Changes to Hydrology at Bair Island	NA	LTS	LTS	LTS	LTS
Undermining Steinberger Slough Levees	NA	LTS	LTS	LTS	LTS
Short-Term Construction-Related Water Quality Impacts	NA	LTS	LTS	LTS	LTS
Water Quality Impacts Associated with Placement of Dredged Material	NA	LTS	LTS	NA	NA
Increased Salinity Levels	NA	LTS	LTS	LTS	LTS
Improved On-site Water Quality	NA	LTS / B	LTS / B	LTS / B	LTS / B
Land Use					
Consistent with Applicable Land use plans and adjacent land uses	S*	LTS	LTS	LTS	LTS
Air Quality					
Long-term Air Quality Impacts	NI	LTS	LTS	LTS	LTS

Significance determinations: NI= No Impact, LTS = Less Than Significant, S = Significant, B = Beneficial (NEPA), NA = Not Applicable * All significant impacts are reduced to a less than significant level with mitigation or are listed under the No Project Alternative (because this alternative would result in no project being implemented, no mitigation is proposed if this occurs).

Table S-1: Summary Comparison of Impacts and Mitigation Measures (cont.)

Resources, Impacts, and Mitigation Measures	Impact Level by Alternative				
	No Action	**Alter. A**	**Alter. B**	**Alter. C**	**Alter. D**
Socio-economic and Environmental Justice					
Impacts to Port of Redwood City	S*	LTS	LTS	LTS	LTS
Impacts to Pete's Outer Harbor Marina	S*	LTS	LTS	LTS	LTS
Geology					
Geologic features which pose a substantial hazard to property and/or humans life	NA	LTS	LTS	LTS	LTS
Erosion and Siltation	S*	LTS	LTS	LTS	LTS
Public Health and Safety					
Mosquito Abatement	LTS	LTS / B	LTS / B	LTS / B	LTS / B
Hazardous Materials Contamination or from the Storage, Use and/or Disposal of Hazardous Materials	NA	LTS	LTS	LTS	LTS
Airport Safety Hazards	NA	LTS	LTS	LTS	LTS
Electromagnetic Field (EMF) Hazards	LTS	LTS	LTS	LTS	LTS
Cultural Resources					
Impacts to Cultural Resources Mitigation: If cultural resources are encountered, construction would be halted and appropriate authorities would be contacted	S	S	S	S	S
Visual/Aesthetic Considerations					
existing visual character or quality of the site and its surroundings	NI	LTS	LTS	LTS	LTS
Construction					
Navigable Waterway Impacts	NA	LTS	LTS	LTS	LTS
Impacts to Business and Utilities During Construction	NA	LTS	LTS	LTS	LTS
Air Quality Impacts During Construction Mitigation: feasible construction dust control measures that would be implemented during construction of the project	NA	S	S	S	S

Significance determinations: NI= No Impact, LTS = Less Than Significant, S = Significant, B = Beneficial (NEPA), NA = Not Applicable
* All significant impacts are reduced to a less than significant level with mitigation or are listed under the No Project Alternative (because this alternative would result in no project being implemented, no mitigation is proposed if this occurs).

Table S-1: Summary Comparison of Impacts and Mitigation Measures (cont.)

Resources, Impacts, and Mitigation Measures	Impact Level by Alternative				
	No Action	**Alter. A**	**Alter. B**	**Alter. C**	**Alter. D**
Recreational					
Consistency with Existing or Proposed Public Access Plans	S*	LTS	LTS	LTS	LTS
Impacts to Recreational Facilities	S*	LTS	LTS	LTS	LTS
Cumulative					
Invasion of Atlantic Cordgrass (*Spartina*) Impacts Mitigation: compliance with *Spartina* Control Program	S*	S	S	S	S
Hydrology and Water Quality Impacts to Mudflat Habitat	LTS	LTS	LTS	LTS	LTS
Impacts to Flooding	LTS	LTS	LTS	LTS	LTS

Significance determinations: NI= No Impact, LTS = Less Than Significant, S = Significant, B = Beneficial (NEPA), NA = Not Applicable

* All significant impacts are reduced to a less than significant level with mitigation or are listed under the No Project Alternative (because this alternative would result in no project being implemented, no mitigation is proposed if this occurs).

SECTION 1. INTRODUCTION

1.1 Overview

Bair Island is a former tidal salt marsh located adjacent to the San Francisco Bay in Redwood City, San Mateo County, California, as shown in Figures 1, and 2. Historically, Bair Island was part of a large complex of tidal marshes and mudflats within the drainage of the San Francisco Bay and Belmont Sloughs. Bair Island was diked in the late 1800s and early 1900s for agricultural uses, including cattle grazing. Bair Island was converted to salt evaporation ponds starting in 1946, and remained in active salt production until 1965. The lands were subsequently drained and eventually sold to a series of real estate development companies. A local referendum in the City of Redwood City finally halted development plans for Bair Island. The California Department of Fish and Game (CDFG) and the Don Edwards San Francisco Bay National Wildlife Refuge (Refuge) both acquired portions of Bair Island over time. The Peninsula Open Space Trust (POST) purchased most of Bair Island that remained in private ownership, and turned over their interests in the property to these two agencies.

Small parcels of land on Middle Bair Island along Redwood Creek remain in private ownership, refer to Figure 3. A small area of the Bay outside of Outer Bair Island is privately owned. The San Carlos Airport also retains a portion of Inner Bair Island as a flight safety zone. In addition, two easements exist on Bair Island: (1) for the PG&E towers and transmission lines that run throughout the site, and (2) for the South Bayside System Authority (SBSA) sanitary sewer force main that runs underneath most of the southern part of the levee on Inner Bair Island. Pedestrians and bicyclists currently use the top of the Inner Bair Island levee as a 3.3-mile loop trail and in the dry season use a cross pond trail from the Whipple Avenue trailhead to the levee along Smith Slough.

For many years, prior to the management of Bair Island by the Refuge, the landowners attempted to limit access and prevent trespassing on Inner Bair Island. However, after many failed attempts to block all public access (including motorcycles and all-terrain vehicles) to Inner Bair Island, the landowners stopped trying to block foot access to the levees and pathway on Inner Bair Island. Since acquiring Bair Island, the Refuge has maintained the same level of public access until a public use plan could be generated for all of Bair Island.

Until June 2003, pedestrians and bicyclists would reach the trailhead to the Inner Bair Island levees from an unpaved area used for parking at the end of Whipple Avenue. As part of Caltrans' U.S. 101 Auxiliary Lanes Project from Ralston Avenue to Marsh Road, Caltrans closed off this area to parking. Visitors are now directed to park at the existing Refuge Bair Island parking lot along Bair Island Road and walk along the connector trail to the trailhead for Inner Bair Island at the end of Whipple Avenue.

1.2 Purpose and Need

The U.S. Fish and Wildlife Service, Don Edwards San Francisco Bay National Wildlife Refuge (federal lead agency), and the California Department of Fish and Game (state lead agency) are proposing adoption of a restoration and management plan for the approximately 2,600-acre Bair Island complex in order to restore Bair Island to a tidal salt marsh. The lead agencies have prepared a Draft EIS/EIR, which describes and analyzes the potential environmental effects of the proposed restoration and management project.

Figure 1: Regional Map

Figure 2: Vicinity Map

Figure 3: Ownership Map

National Environmental Policy Act (NEPA) implementation regulations require that each Environmental Impact Statement (EIS) briefly specify the purpose and need to which the agency is responding in proposing the various alternatives, including the preferred alternative. Similarly, the California Environmental Quality Act (CEQA) requires that each Environmental Impact Report (EIR) include a statement of the objectives for the proposed project. The objectives are intended to help the implementing agency develop a reasonable range of alternatives and to aid decision-makers in preparing findings or a statement of overriding considerations, if necessary.

The purpose and objective of the proposed Bair Island Restoration and Management Plan includes the following elements:

- Restore high-quality, tidal, salt marsh habitat to Inner, Middle and Outer Bair Islands in San Francisco Bay;
- Maximize the function and values of tidal salt marsh habitats in a timely manner;
- Provide habitat for endangered species and other native wildlife; and
- Enhance the public's appreciation and awareness of the unique resources of Bair Island.

The Bair Island site is a large complex of former salt evaporators, and has been a major priority for addition to the Don Edwards San Francisco Bay National Wildlife Refuge (Refuge) since the boundaries of the Refuge were expanded in 1990. The restoration of tidal habitats at Bair Island is ecologically important to South San Francisco Bay. Following restoration, Bair Island would become an integral part of the extensive wetland complex within the Refuge, as shown in Figure 4. This site, once restored, can assist with the preservation and perhaps recovery of both the California Clapper Rail and salt marsh harvest mouse. The California Clapper Rail and the salt marsh harvest mouse were listed by the US Fish and Wildlife Service as endangered species on October 13, 1970 (Federal Register 35:1604).

The project is needed because of:

- Historical losses of tidal salt marsh ecosystems and habitats;
- Deterioration of levees, which could lead to flooding, and velocity safety issues and increased sedimentation of the Redwood Creek Shipping Channel;
- The disturbance to sensitive species including the California Clapper Rail;
- Lack of control over undesirable species including invasive plants, undesirable predators and mosquitoes;
- Increasing restoration costs associated with site deterioration;
- Increasing operation and maintenance costs; and
- Limited opportunities in South San Francisco Bay for wildlife-oriented recreation.

An earlier version of the restoration project's purpose and objectives included restoring habitat for California sea-blite (*Suaeda californica*) and the California Least Tern (*Sterna antillarum browni*). California sea-blite is an extremely rare succulent shrub of the upper intertidal zone, and favors both well-drained substrates and high-energy waves and tides. California sea-blite was probably never common in San Francisco Bay except in the few areas of sandy beach interface historically located in Alameda and San Francisco counties (Baye et al 2000). Although *Suaeda californica* restoration may not be appropriate for the footprint of this restoration project, options for its re-introduction on Bair Island are being considered by the U.S. Fish and Wildlife Service.

Bair Island is a significant distance from the Bay entrance and is subject only to low-energy wind and waves. The proximity of intertidal mudflats means the transport and deposition of sediments will be fine-grained and create mudflats. Sandy substrates suitable for supporting California sea-blite were probably never present on Bair Island. It is therefore very unlikely that an attempt to create a sandy intertidal habitat would succeed, even on Outer Bair, without significant mechanical inputs to fill with dredged sand and prevent fine sediment deposition and mixing. Furthermore, these techniques are incompatible with the restoration design, which hinges on the natural accumulation of fine sediments on the subsided sites.

California Least Tern was the other species initially considered for the project goals. California Least Terns formerly nested on diked portions of Outer Bair that are not part of this restoration project. The likelihood of successfully creating breeding habitat in this location is slim, as years of management to preserve the former colony were not successful. In addition, the creation of nesting areas for the California Least Tern is not compatible with the natural sedimentation processes necessary for tidal salt marsh development.

Tidal salt marsh is the target habitat of this restoration as it serves as the primary habitat for the California Clapper Rail and salt marsh harvest mouse. Therefore, development of habitat for the California sea-blite and the California Least Tern were not considered further in the restoration plan.

Figure 4: Long-Term Conditions

1.3 NEPA and CEQA Compliance

The National Environmental Policy Act (NEPA) (40 Code of Federal Regulations (CFR)1500-1508) and the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000 et seq.) are the federal and state laws that govern the disclosure and analysis of the environmental effects of agency actions. The purpose of this EIS/EIR is to present information to the public and governmental agencies regarding the environmental impacts of the proposed alternative and all other reasonable alternatives. Decision makers are required to take this information into account when deciding whether or not to approve the Bair Island Restoration and Management Plan Project. For this project, the United States Fish and Wildlife Service is the Lead Agency under the National Environmental Policy Act (NEPA), while the California Department of Fish and Game is the Lead Agency under the California Environmental Quality Act (CEQA). Both NEPA and CEQA encourage the preparation of combined environmental planning documents. Therefore, this joint EIS/EIR would serve to fulfill the statutory obligations of both NEPA and CEQA.

1.4 Public Involvement and Scoping

In late 1999, a meeting was held for elected officials, special-interest groups, and governmental agencies to introduce the concept of restoring Bair Island and to develop a consensus on the goals and objectives for the restoration and management plan. The preparation of this EIS/EIR included the publication of a Notice of Intent (NOI) in the *Federal Register* (Federal Register Vol. 65, Number 59, Page 16217) on March 27, 2000. It also included the preparation and circulation of a Notice of Preparation (NOP) to Responsible Agencies, adjacent cities, and the State Clearinghouse on February 10, 2003. A joint NEPA/CEQA scoping meeting was held on April 27, 2000 at the Redwood City Community Activities Building, 1400 Roosevelt Avenue, Redwood City, California.

During the meeting, members of the public were asked what issues they felt should be addressed. Responses to the NOI and NOP were received from nine agencies and several organizations: California State Department of Toxic Substances Control, California State Department of Boating and Waterways, City of Redwood City, County of San Mateo, San Mateo County Mosquito Abatement District, Federal Aviation Administration, Pacific Gas and Electric Company, California Regional Water Quality Control Board San Francisco Bay Region, San Carlos Airport Pilots' Association, San Francisco Bay Trail of the Association of Bay Area Governments, Sequoia Audubon Society, and South Bayside System Authority.

In January and November 2001 planning updates were sent to everyone who requested to be on the Bair Island mailing list. On August 12, 2002, a presentation was made to the Redwood City Council on the status of the plan and their input was solicited. This presentation was also broadcast throughout Redwood City's local cable network. Throughout 2002 and 2003, a number of presentations were made to local boating organizations and members of the organizations were asked for ideas on how to mitigate potential short-term impacts to boating. Issues raised in these meetings have been addressed in this EIS/EIR.

1.5 Issues of Known Controversy

At this time, concern from the public regarding dog use and public recreation at Bair Island has been expressed to the Refuge.

SECTION 2. DESCRIPTION OF ALTERNATIVES

Based upon the existing site conditions, objectives, constraints and the public concerns identified during preparation of the Restoration Plan, a range of alternatives was identified. Descriptions of six restoration alternatives were prepared. Due to constraints ranging from existing infrastructure, to sensitive wildlife species[1], and through discussions between the U.S. Fish and Wildlife Service, the San Francisco Bay Wildlife Society, the California Department of Fish and Game and other state and federal agencies, a more limited and feasible set of restoration alternatives was prepared.

2.1 Alternatives That Were Studied But Are No Longer Under Consideration

Based on data gathered during the preparation of the Restoration and Management Plan, identification and evaluation of conflicts and inconsistencies with the purpose and need of the project (refer to page 1), and substantial input from the public, the following restoration and public use alternatives are no longer under consideration.

2.1.1 Minimal Construction Tidal Marsh Restoration

This alternative would maximize the use of natural processes in the ecological recovery of Bair Island. This alternative would have the lowest construction cost while providing for the restoration of the entire 1,400-acre area.

For this alternative the restoration approach for Middle and Outer Bair Islands is the same as described in Alternative A (refer to page S-3) except no flow restrictors would be installed in Corkscrew and Smith Sloughs.

On Inner Bair Island, levees would be breached at historic slough channel locations, and borrow-ditch cutoff berms would be created to prevent tidal capture by the existing borrow-ditches[2]. Fill material would be used to expand the southern levee of Inner Bair Island to adequately protect the SBSA sewer line and to create a cross-levee that protects the San Carlos Airport property on Inner Bair Island.

The cost of maintaining the Inner Bair Island levee for public access would increase over existing conditions due to increased wind-wave erosion and tidal scour. Levees would require maintenance on the inboard and outboard sides. The restored tidal prism would induce greater siltation within the Redwood Creek shipping channel and higher tidal velocities at Pete's Outer Harbor.

From an ecological perspective, this is the most direct restoration approach and it is also the most economical. It would, however, likely result in increased bird-strike hazards for aircraft, Redwood Creek shipping channel siltation, and high tidal velocities at Pete's Outer Harbor. Due to the potential design-related impacts on operation of the San Carlos Airport, the Port of Redwood City and Pete's Harbor, this alternative will not receive further evaluation.

[1] A more detailed discussion of the site constraints can be found in the *Bair Island Restoration and Management Plan* located in Technical Appendix A of this EIS/EIR.
[2] Human-constructed channels adjacent to levees created by the process of "borrowing" material to build the levee. They tend to be straighter and offer less habitat complexity than natural channels.

2.1.2 No Restoration of Inner Bair Island

Under this alternative, no restoration to Inner Bair Island would occur, but all current maintenance activities at Inner Bair Island would continue.

The restoration approach for Middle and Outer Bair Islands and channel modifications are the same as Alternatives C and D described in the Tidal and Managed Marsh Restoration Alternatives (refer to pages S-5 and S-6).

This alternative was not chosen for further evaluation because it is inconsistent with the overall purpose of restoring tidal marsh to as much of Bair Island as possible. Additionally, the restoration of Inner Bair Island would provide enhanced wildlife observation, public outreach and educational opportunities which would not be provided by this alternative.

2.1.3 Maximize Public Use

This alternative would include a full loop trail on the Inner Bair Island and Airport levees, similar to the existing use. Educational and interpretive signage would be located on the trail, along with orientation kiosks and a wildlife viewing platform on Inner Bair Island. Restrooms would be provided at the Refuge's Bair Island parking lot. Hunting of waterfowl on Middle and Outer Bair Islands would be allowed per state regulations. Fishing by boat in the sloughs and from docks on the Island would be permitted under this alternative. Pets would be allowed off-leash throughout the islands. Boats would have unlimited access into the sloughs, and Middle and Outer Bair Islands would be open to public use on remaining levees, with boat access and boat docks.

This alternative would cause a high level of disturbance to wildlife and wildlife habitat, including the endangered species present on Bair Island. The loop trail would not allow Smith Slough to be restored to its historic meander through Inner Bair Island because boats would not be able to pass under the trail bridge over the slough. Due to the inconsistency with the project's purpose of protecting endangered species and their habitat, this alternative was not selected for further evaluation.

2.2 Restoration and Management Alternatives

The following discussion of the No Action Alternative and four Action Alternatives (Alternatives A, B, C and D) evaluated in this EIS/EIR assumes a 50-year planning horizon, which is consistent with that used for other San Francisco Bay restoration projects currently in planning stages or recently implemented.

Proposed Action

The Bair Island Technical Review Team that developed and reviewed objectives and technical criteria, has recommended Alternative A for the proposed restoration of Bair Island. The Technical Review Team identified Alternative A as the proposed action based on the ability of this alternative to meet all four of the basic objectives of the project regarding wildlife protection, restoring high quality salt marsh in a timely manner and enhancing public appreciation and awareness. The Technical Review Team concluded that Alternative A balances objectives of wildlife protection and public access for educational and appreciation awareness objectives, without unacceptable disturbance to endangered species.

2.2.1 No Action Alternative

Tidal Marsh Restoration

The No Action Alternative would restore tidal action to, and create tidal salt marsh habitat on, Middle and Outer Bair Islands. However, restoring tidal marsh would occur in an unpredictable and potentially unsafe manner.

Middle and Outer Bair Islands

On-going levee maintenance at Middle and Outer Bair Islands would be discontinued. Levees on Middle and Outer Bair Islands would gradually deteriorate and eventually fail, allowing tidal action. Levees on Middle and Outer Bair Islands would likely overtop and begin to breach within the next ten years, since average levee crest elevation on these islands are below the ten-year high tide elevations. The breaching of levees on Middle and Outer Bair Islands would allow tidal salt marsh to become established. The existing borrow-ditches would capture much of the tidal prism and establishment of the remnant historic channels would be limited. Natural estuarine sedimentation would gradually rebuild the marshplain to elevations at which vegetation could reestablish. These marshes would evolve over a period of decades. Increased tidal flows would scour and deepen the surrounding major sloughs. Tidal inundation would increase tidal flows through the major sloughs and lower Redwood Creek. Higher tidal flows through the Redwood Creek Shipping Channel would increase siltation rates approximately threefold (PWA 2002). More frequent dredging in Redwood Creek would be required to maintain the same channel depth for deep-draft navigation. In addition, high tidal flows through Smith Slough at Pete's Outer Harbor would increase current velocities above those recommended for small water craft navigation.

Inner Bair Island

Under the No Action Alternative, the Refuge would only undertake minor repairs to the existing levee to protect the South Bayside System Authority (SBSA) sewer line and the San Carlos Airport

safety zone on Inner Bair Island. The Refuge would work with the Airport and the SBSA to protect their infrastructure. There would be no tidal action occurring on Inner Bair Island; therefore, no tidal marsh habitat would be created.

Recreational Access

Currently, public access is allowed on a 3.3-mile loop trail on Inner Bair Island and during the dry season along a cross pond trail from Whipple Avenue trailhead to the levee on Smith Slough. Boating access is allowed throughout all of the adjacent sloughs and Redwood Creek. In the short term (approximately five years), this alternative would continue to allow limited public use consistent with protection of wildlife and habitat and compatibility with Refuge purposes and the National Wildlife Refuge System mission. The Refuge would not maintain the existing trails, signs, and gates as they deteriorate. Therefore, after approximately five years, no trails would be accessible to the public because it is predicted that the lack of maintenance would result in unsafe trail conditions. The Refuge would close all trails to the public prior to the trails deteriorating to unsafe conditions. In the short term, pets (dogs only) would be allowed on Inner Bair Island on a six-foot leash and on designated trails for a test period to determine the compliance with Refuge regulations designed to protect wildlife[3].

In the long term, no public access to Inner, Middle or Outer Bair Islands would be allowed. Although levees on Inner Bair Island would require some routine maintenance, the trails system would not be maintained. In the long term, pets would be prohibited on Bair Island as the infrastructure deteriorates and access is precluded.

Fishing and boating would not change in the short term. However, as the levees of Middle and Outer Bair Islands wear down and breach, the tidal prism would increase, leading to an increase in peak current velocities. This could result in exceeding safe navigation requirements for small water craft which would result in conditions that would be unsuitable for fishing and boating.

The Refuge's Bair Island parking lot on Bair Island Road would be closed, once public access is no longer allowed. No trail improvements would be made. No additional public access infrastructure would be constructed.

2.2.2 Alternative A: Tidal Marsh Restoration and Intermediate Public Access (*Proposed Action*)

Tidal Marsh Restoration

Alternative A restores full tidal inundation to Inner, Middle, and Outer Bair Islands. For Middle and Outer Bair Islands, natural estuarine sedimentation would raise the marshplain surface to allow complete vegetation establishment over time. Restoration would include partially filling borrow-ditches to direct flow into the historic tidal channels and to prevent the borrow-ditches from becoming the primary drainage network after tidal action is restored to the marsh.

Channel modifications would be made at Smith and Corkscrew Sloughs to minimize project related effects on sedimentation rates in Redwood Creek shipping channel and flow velocities at Pete's

[3] The US Fish & Wildlife Service Dog Use Monitoring Program report is located in sub-Appendix C of the Restoration and Management Plan located in Appendix A of this EIS/EIR.

Outer Harbor. These channel modifications include the realignment of Smith Slough to its historic meander through Inner Bair Island, and a flow restrictor in Corkscrew Slough to the east of the Middle Bair breaches.

Middle and Outer Bair Islands

The restoration for Middle and Outer Bair Islands includes the following approach. Levees would be breached at seven historic channel locations on Middle and Outer Bair Islands, restoring natural tidal flows to both the islands (refer to Figure 5). Pickleweed-dominated marsh and vegetation would establish quickly in areas already at high intertidal elevations. Natural estuarine sedimentation on the lower mudflat areas would gradually build up enough for cordgrass and pickleweed to establish. By partially filling the borrow-ditches, cutoff berms would be created to prevent tidal capture by the existing borrow-ditches, allowing the natural channel system to reestablish. Interior berms and levees would be selectively lowered or removed to the extent possible, creating additional tidal habitat while still providing sufficient high-tide refuge where needed for Clapper Rails and salt marsh harvest mice. Existing levees required to protect infrastructure from wind-wave erosion would be left in place.

Based on initial ground elevations and predicted sediment supply, some vegetation colonization would begin immediately following restoration implementation. Most of this marsh formation would occur along the perimeter of the restoration areas, along historic slough channels, or on higher elevation areas. Substantial tidal marsh vegetation establishment is expected at Outer Bair within 30 to 50 years and at Middle Bair within approximately 50 years.

A flow restrictor would be installed in Corkscrew Slough. The flow restrictor would partially block Corkscrew Slough to reduce unsafe flow velocities during tidal changes and reduce sedimentation in the Redwood Creek Shipping Channel. There would be warning and information signs near the flow restrictor and at all three boat ramps. A 30-foot wide notch for boat passage would be installed, along with a depth gauge at the notch. In addition, a small craft portage would be constructed along the banks of Corkscrew Slough in order for boaters to also have access around the flow restrictor during the short period of time when the velocities are high and water elevation differences occur on each side of the flow restrictor.

Inner Bair Island

At Inner Bair Island, dredged material (or other sources of fill[4]) would be used to raise the marsh plain elevation to approximately 2.5 feet National Geodetic Vertical Datum (NGVD) for the planned tidal wetland areas and to approximately 6.6 feet NGVD for the Airport safety zone, prior to breaching. The purpose of this dredged and fill material is to reduce bird-strike hazards for the San Carlos Airport by reducing the duration of post-breaching open water at Inner Bair. Placement of dredged and fill material would expedite the establishment of emergent marsh. Dredged material or other sources of fill would also be used to expand the southern levee of Inner Bair Island to protect the South Bayside System Authority (SBSA) sewer line and create a cross-levee that protects the San Carlos Airport property on Inner Bair Island. This portion of the site owned by the San Carlos Airport is a Federal Aviation Administration (FAA) established runway protection zone (RPZ). The

[4] Possible sources of fill material include material excavated from levee breaches and levee crests on all three island areas, excavation of the cross-levee on Inner Bair, dredged material from Redwood Creek, imported fill from Yerba Buena Island and other sources that become available during the restoration period that meet the sediment quality criteria. Sediment quality would be appropriate for wetland reuse.

Figure 5: Restoration Plan for Alternatives A and B

FAA defines the runway protection zone as "an area off the runway end to enhance the protection of people and property on the ground." Since the airport property is subject to federal aviation regulation, it must be kept clear of any structures or stationary objects. Under this alternative, the lack of unvegetated or open water habitat at Inner Bair Island, especially in the upland safety zone area, would minimize the bird-strike hazards within the runway protection zone. In addition, the current conditions of the airport safety zone include areas of ponded water used by waterbirds (Sequoia Audubon Society 2001). By placing fill in the airport safety zone and creating upland habitat, bird-strike risks would be reduced over existing conditions. The levee surrounding the airport safety zone would be large enough to allow emergency vehicles access in the event of a plane crash. The levee surrounding the safety zone would be sloped and gradually lead up to the airport property.

The cross-levee system protecting the San Carlos Airport safety zone, and the alignment of the SBSA sewer line would be filled with dredged and fill material to an elevation above mean higher high water (MHHW)[5] (refer to Figure 6). By creating upland and transitional habitats in these areas, some of the primary constraints, including loss of upland habitat associated with reintroducing tidal action to Inner Bair Island, are minimized. Fill material from the created upland areas would gradually slope down to the lower elevations of the restored marshplain. Transition habitat would also be installed adjacent to the existing perimeter levee between the breach locations.

Fill elevation of the marshplain would vary by approximately one (1) foot, ideally providing ample areas with elevations high enough to allow for planting with native vegetation prior to breaching, and for the vegetation to immediately colonize once the levees are breached, but low enough to allow some channel development through natural tidal scour. Fill would be used to raise ground levels on Inner Bair Island from current elevations of approximately 0.0 feet NGVD to approximately 2.5 feet NGVD for the planned tidal wetland areas and to approximately 6.6 feet NGVD for the Airport safety zone, requiring between 400 and 500 thousand cubic yards of fill.[6]

As shown in Figure 6, a flow-blockage control structure would be installed in Smith Slough to restore its historic meander through Inner Bair Island. The Smith Slough levee would be breached at the two historic Smith Slough channel locations on Inner Bair Island and borrow-ditch cutoff berms would be created to prevent tidal capture by the existing borrow-ditches. The historic Smith Slough channel within Inner Bair Island would not be filled with dredged material. Although other historic slough channels and borrow-ditches would initially be filled with dredged material to the same elevation as the surrounding marshplain, differential settlement of the dredged material would result in a lower elevation, and therefore channel development, in these areas.

Recreational Approach

Currently, public access is allowed on a 3.3-mile loop trail on Inner Bair Island and during the dry season along a cross pond trail from Whipple Avenue trailhead to the levee on Smith Slough. Under Alternative A, public access for pedestrians and bicyclists would be allowed on Inner Bair Island along a 1.8-mile levee trail designed to meet ADA standards (refer to Figure 6). The trail will be shortened both to reduce future human disturbance to wildlife, and because the restoration of Smith Slough to its original alignment will cut the existing trail. There would be no public access to Bair

[5] MHHW is the average of the higher of two daily high tides.

[6] This amount of fill is close to the 538 thousand cubic yards dredged from Redwood Creek during an average dredging event. Redwood Creek has been dredged eight times between 1977 and 1999, and the average annual accumulation rate is estimated to be 200 thousand cubic yards.

Figure 6: Alternative A: Restoration and Recreation Approach for Inner Bair Island

Island from Whipple Avenue. The main entry point to Inner Bair Island would be a new "predator resistant" pedestrian bridge across the street from the parking lot (refer to Figure 6). Once across the bridge, the trail would extend in two separate out and back trails. One segment would extend 1.5 miles northwest toward the San Carlos Airport levee to an observation deck at Smith Slough and the other segment would extend north 0.3 miles to another observation deck at Smith Slough. An orientation kiosk would be located at the trailhead near the bridge and at the parking lot. Viewing/environmental education platforms would be provided at the ends of the levee trails, adjacent to Smith Slough. Additional interpretative signs would be installed along the trail. A low fence or similar structure will be constructed between the trail and the restored habitat and the airport safety zone.

The parking lot will be expanded to accommodate school buses. Sanitary facilities would be provided at the Bair Island parking lot located along Bair Island Road. Pets (dogs only) would be allowed on Inner Bair Island on a six-foot leash and on designated trails for a three month trial period to determine compliance with refuge regulations designed to protect wildlife.[7] If compliance standards are not met during the three month trial period, dog use would be prohibited. Jogging and bicycling would be permitted on all designated trails. To provide wildlife with an area of refuge from human disturbance and to allow boating through the realigned Smith Slough, no public access would be permitted between the two breaches on Inner Bair Island. In addition to access by boat to a viewing platform with interpretative signage on Middle Bair (located at the channel restriction on Corkscrew Slough), public access for this alternative would only be allowed on Middle and Outer Bair Islands by Refuge-guided trips and other specific exceptions that are approved by a Refuge Special Use Permit. Interpretive signage regarding the flow restrictors in Corkscrew and Smith Sloughs would also be placed at the Redwood City boat ramp. This signage would also include information on how to boat past the harbor seal haulout sites without disturbing them.

Fishing from boats in Smith, Corkscrew and Steinberger Sloughs and Redwood Creek would be allowed, however fishing would not be permitted from land or observation decks. In Smith and Corkscrew Sloughs, all motorized boats would be subject to "no wake zones" and maximum speed limit of five miles per hour (mph). No motorized vehicles would be allowed within areas currently inside the existing levees. As discussed previously, a small craft portage would be constructed around the flow restrictor in Corkscrew Slough to facilitate boating during the short period of time when the velocities are high and water elevation differences occur on each side of the flow restrictor. Signs would be placed on both sides of the Corkscrew Slough flow restrictor to warn boaters of conditions around the flow restrictor. A depth gauge would also be placed on the notch in the Corkscrew Slough flow restrictor to help boaters judge the depth of water available for them to pass over the flow restrictor. Boating in Redwood Creek and Steinberger Slough would not be changed. Hunting of waterfowl on portions of Middle and Outer Bair Islands would be allowed per state regulations.

This alternative is the lead agency's proposed action.

[7] The Refuge has a Dog Use Monitoring Program for Inner Bair Island that is located in Appendix D of *Bair Island Restoration and Management Plan,* located within the EIS/EIR Technical Appendix A.

2.2.3 Alternative B: Tidal Marsh Restoration and Restricted Public Access

Tidal Marsh Restoration

Inner, Middle and Outer Bair Islands

The restoration approach for Alternative B is the same as discussed under Alternative A. The following list briefly summarizes the tidal marsh restoration approach:

- Restores full tidal inundation to Inner, Middle, and Outer Bair Islands through systematic breaching.
- Channel modifications, including the installation of a flow-blockage control structure in Smith Slough to restore its historic meander through Inner Bair Island, and a flow restrictor in Corkscrew Slough that would partially block the slough to reduce unsafe flow velocities during tidal changes and prevent increased sedimentation along the Redwood Creek Shipping Channel would be implemented.
- Dredged and fill material would be used to raise the marshplain elevation on Inner Bair Island prior to breaching to reduce bird-strike hazards for the San Carlos Airport and to protect the South Bayside System Authority (SBSA) sewer line.

Recreational Approach

Under Alternative B, public access for pedestrians and bicyclists would be allowed on Inner Bair Island along a 1.8-mile levee trail and a 0.5 connector trail from the parking lot to the Inner Bair Island trailhead at Whipple Avenue (refer to Figure 7). The trail will be shortened compared to existing conditions both to reduce future human disturbance to wildlife, and because the restoration of Smith Slough to its original alignment will cut the existing trail. Public access would be along an out and back trail that would extend from the Refuge trailhead at Whipple Avenue to the north around the San Carlos Airport levee to an observation deck on Smith Slough near the northern levee break. A viewing/environmental education platform would be provided at the end of the levee trail, adjacent to Smith Slough. A low fence or similar structure will be constructed between the trail and the restored habitat and the airport safety zone.

The parking lot will be expanded to accommodate school buses. Sanitary facilities would be provided at the Bair Island parking lot located along Bair Island Road. No pets would be allowed on Bair Island. To provide wildlife with an area of refuge from human disturbance and to allow boating through the realigned Smith Slough, no public access would be permitted between the two breaches on Inner Bair Island. In addition to access by boat to a viewing platform with interpretative signage on Middle Bair (located at the channel restriction on Corkscrew Slough), public access for this alternative would only be allowed on Middle and Outer Bair Islands by Refuge-guided trips and other specific exceptions that are approved by a Refuge Special Use Permit. Interpretive signage regarding the flow restrictors in Corkscrew and Smith Sloughs would also be placed at the Redwood City boat ramp. This signage would also include information on how to boat past the harbor seal haulout sites without disturbing them. A seasonal closure to all boat access would be implemented to protect sensitive species (harbor seals).

Figure 7: Alternative B: Restoration and Recreation Approach for Inner Bair Island

Fishing from boats in Smith, Corkscrew and Steinberger Sloughs and Redwood Creek would be allowed, however fishing would not be permitted from land or observation decks. In Smith and Corkscrew Sloughs, all motorized boats would be subject to "no wake zones" and maximum speed limit of five miles per hour (mph). No motorized vehicles would be allowed within areas currently inside the existing levees. As discussed previously, a small craft portage would be constructed around the flow restrictor in Corkscrew Slough to facilitate boating during the short period of time when the velocities are high and water elevation differences occur on each side of the flow restrictor. Signs would be placed on both sides of the Corkscrew Slough flow restrictor to warn boaters of conditions around the flow restrictor. A depth gauge would also be placed on the notch in the Corkscrew Slough flow restrictor to help boaters judge the depth of water available for them to pass over the flow restrictor. Boating in Redwood Creek and Steinberger Slough would not be changed. Hunting of waterfowl on portions of Middle and Outer Bair Islands would be allowed per state regulations.

2.2.4 Alternative C: Tidal and Managed Marsh Restoration and Moderate Public Access

Tidal Marsh Restoration

Middle and Outer Bair Islands

The restoration approach for Middle and Outer Bair Islands is the same as described under Alternatives A and B. The following list briefly summarizes the restoration approach for Middle and Outer Bair Islands:

- Restores full tidal inundation to Middle, and Outer Bair Island through systematic breaching.
- A channel modification involving the installation of a flow restrictor that would partially block the slough in order to reduce unsafe flow velocities during tidal changes and prevent increased sedimentation along the Redwood Creek Shipping Channel would be made at Corkscrew Slough.

Inner Bair Island

This restoration approach would create managed wetlands at Inner Bair Island. Smith Slough would not be restored to its historic meander through Inner Bair Island. This alternative allows reestablishment of some salt marsh habitat on Inner Bair Island, while limiting the creation of open water habitat that would contribute to bird-strike hazards for aircraft. A flow restrictor would be installed in Smith Slough. The restrictor would partially block the slough to reduce unsafe flow velocities during tidal changes and prevent increased sedimentation along the Redwood Creek Shipping Channel.

Hydraulic control structures (i.e., slide-flap gates, float-activated gates) would also be installed on Inner Bair Island to allow water management within Inner Bair (refer to Figure 8). These structures would allow tidal inundation between approximately mean lower low water (MLLW) and MTL[8] (the existing marshplain elevation). A managed complex of diked salt marsh, uplands and shallow seasonal wetlands is planned. Rainfall would contribute to ponding on the site, and would be augmented by tidal inflows on a managed basis. Existing non-native grassland vegetation on the site would die back and be replaced by pickleweed, creating salt marsh. Existing seasonal wetlands

[8] Mean tide level.

Figure 8: Alternative C: Restoration and Recreation Approach for Inner Bair Island

would remain vegetated, while deeper channels (e.g., former slough and borrow-ditches) would remain ponded.

Water-management design remains to be developed, but flexibility would allow a range of management alternatives from muted tidal to occasionally flooded. Tidal inflow to Inner Bair Island could occur periodically, except during the highest tides, to prevent high-water levels and open water ponding. Water would be allowed to drain from the site as frequently as each tide cycle. The hydraulic control structure would be designed for flexibility, allowing the water level management regime to be adaptively managed in response to monitoring results. Several types of hydraulic structures could be left in the open position most of the time, and then manually closed during the high-tide events to allow outflow only. Alternatively, float-activated gates could eliminate the need for manual gate closure. Floats would mechanically close the inflow culverts when water levels in Smith Slough were high. Flashboard weirs could be used in combination with gated culverts to adjust to the frequency of tidal flooding and depth of on-site ponding.

As discussed previously, there are multiple designs available for the hydraulic structures at Inner Bair Island. Additional hydraulic modeling would be used to refine the hydraulic structure design.

Regular maintenance would be required to maintain hydraulic structures in working order. Water-level control would require on-going active management. Maintaining public access after breaching would require periodic levee repair. A low berm would be built around the Airport property to prevent flooding and the levee containing the SBSA sewer line would be widened, as necessary, to present erosion.

Recreational Approach

Under Alternative C, public access for pedestrians and bicyclists would be allowed on Inner Bair Island along a 2.7-mile levee trail (refer to Figure 9). The trail will be shortened both to reduce future human disturbance to wildlife, and because the restoration of Smith Slough to its original alignment will cut the existing trail. Public access would be along an out and back trail that would extend from the Refuge trailhead at Whipple Avenue to the north around the San Carlos Airport levee and to an observation deck on Smith Slough near the northern levee break. Access would also be allowed on the levee trail to the south towards Pete's Harbor to an observation deck on Smith Slough near the southern levee break.

The parking lot will be expanded to accommodate school buses. Sanitary facilities would be provided at the Bair Island parking lot located along Bair Island Road. Pets (dogs only) would be allowed on Inner Bair Island on a six-foot leash and on designated trails for a three month trial period to determine compliance with refuge regulations designed to protect wildlife.[9] If compliance standards are not met during the three month trial period, dog use would be prohibited. Jogging and bicycling would be permitted on all designated trails. To provide wildlife with an area of refuge from human disturbance and to allow boating through the realigned Smith Slough, no public access would be permitted between the two breaches on Inner Bair Island. In addition to access by boat to a viewing platform with interpretative signage on Middle Bair (located at the channel restriction on Corkscrew Slough), public access for this alternative would only be allowed on Middle and Outer Bair Islands by Refuge-guided trips and other specific exceptions that are approved by a Refuge

[9] The Refuge has a Dog Use Monitoring Program for Inner Bair Island that is located in Appendix D of *Bair Island Restoration and Management Plan,* located within the EIS/EIR Technical Appendix A.

Special Use Permit. Interpretive signage regarding the flow restrictors in Corkscrew and Smith Sloughs would also be placed at the Redwood City boat ramp. This signage would also include information on how to boat past the harbor seal haulout sites without disturbing them.

Fishing from boats in Smith, Corkscrew and Steinberger Sloughs and Redwood Creek would be allowed, however fishing would not be permitted from land or observation decks. In Smith and Corkscrew Sloughs, all motorized boats would be subject to "no wake zones" and maximum speed limit of five miles per hour (mph). No motorized vehicles would be allowed within areas currently inside the existing levees. As discussed previously, a small craft portage would be constructed around the flow restrictor in Corkscrew Slough to facilitate boating during the short period of time when the velocities are high and water elevation differences occur on each side of the flow restrictor. Signs would be placed on both sides of the Corkscrew Slough flow restrictor to warn boaters of conditions around the flow restrictor. A depth gauge would also be placed on the notch in the Corkscrew Slough flow restrictor to help boaters judge the depth of water available for them to pass over the flow restrictor. Boating in Redwood Creek and Steinberger Slough would not be changed. Hunting of waterfowl on portions of Middle and Outer Bair Islands would be allowed per state regulations.

2.2.5 Alternative D: Tidal and Managed Marsh Restoration and Restricted Public Access

Tidal and Managed Marsh Restoration

Inner, Middle and Outer Bair Islands

The restoration approach for Alternative D is the same as discussed under the Alternative C. The following list briefly summarizes the tidal and managed marsh restoration approach:

- Restores full tidal inundation to Middle, and Outer Bair Islands through systematic breaching.
- Creates managed wetlands at Inner Bair Island.
- Channel modifications involving the installation of a flow restrictor that would partially block the sloughs in order to reduce unsafe flow velocities during tidal changes and prevent increased sedimentation along the Redwood Creek Shipping Channel would be made at Corkscrew Slough and Smith Slough.
- Smith Slough would not be restored to its historic meander through Inner Bair Island.
- Hydraulic control structures (*i.e.,* slide-flap gates, float-activated gates) would be installed on Inner Bair Island to allow water management within Inner Bair.
- A managed complex of diked salt marsh, uplands and shallow seasonal wetlands is planned.
- Regular maintenance would be required to maintain the hydraulic structures in working order. Maintaining public access after breaching would require periodic levee repair.
- A low berm would be built around the Airport property to prevent flooding and the levee containing the SBSA sewer line would be widened as necessary to present erosion.

Recreational Approach

The recreational access approach for Alternative D is the same as discussed under the Alternative B. The following list briefly summarizes the recreational access approach:

- Public access for pedestrians and bicyclists would be allowed on Inner Bair Island along a 1.8-mile levee trail (refer to Figure 9).
- No pets would be allowed on Bair Island.
- Public access would only be allowed on Middle and Outer Bair Islands by Refuge-guided trips and by boat to a viewing platform on Middle Bair.
- Fishing from boats in Smith, Corkscrew and Steinberger Sloughs and Redwood Creek would be allowed, however fishing would not be permitted from land.
- In Smith and Corkscrew Sloughs, all motorized vehicles would be subject to "no wake zones" and speed limits of a maximum five mph. Seasonal closure to all boat access would be implemented to protect sensitive species (harbor seals).
- Hunting of waterfowl on portions of Middle and Outer Bair Islands would be allowed per state regulations.

Figure 9: Alternative D: Restoration and Recreation Approach for Inner Bair Island

Table 1: Summary of Actions					
Alternatives	Meets Purpose & Objectives	Restoration Approach for Middle & Outer Bair Island	Restoration Approach for Inner Bair Island	Inner Bair Island Trail	Boating [Smith, Corkscrew, & Steinberger Slough and Redwood Creek]
No Action Alternative	some objectives	No maintenance	Only minor repairs to the existing levee	Short term: same as existing public access (3.3 mile levee trail) Long term: as infrastructure deteriorates, no public access, Dogs allowed in short term (five years) with 6-foot leash	Short-term: same as existing Long term: as infrastructure deteriorates, limited access by boat
Tidal Marsh Restoration/ Intermediate Public Access (Alternative A)	Yes	Full tidal inundation with flow restrictor in Corkscrew Slough	Full Tidal inundation including adding dredged and/or fill material to raise elevation and restoring historic meander of Smith Slough.	Out-and-back 1.8 mile levee trail. Two viewing platforms on the east and west sides of Inner Bair Island. Dogs allowed on leash for trial period	One viewing platform at Middle Bair accessible only by boat. In Smith and Corkscrew Sloughs, all motorized vehicles would be subject to "no wake zones" and speed limits of a maximum of five mph
Tidal Marsh Restoration/ Restricted Public Access (Alternative B)	Yes	Full tidal inundation with flow restrictor in Corkscrew Slough	Full Tidal inundation including adding dredged and/or fill material to raise elevation and restoring historic meander of Smith Slough	1.8 mile levee trail. One viewing platform & loop around airport levee No access on east side of Inner Bair Island No dogs allowed	Same as Alternative A (description above), with seasonal closure to all boat access to protect sensitive species (harbor seals)
Tidal and Managed Marsh Restoration/ Maximum Public Access (Alternative C)	some objectives	Full tidal inundation with flow restrictor in Corkscrew Slough	Managed wetlands with hydraulic control structures	2.7 mile levee trail. Two viewing platforms on the east and west sides of Bair Island & loop around airport levee Dogs allowed on leash	Same as Alternative A description above
Tidal and Managed Marsh Restoration/ Restricted Public Access (Alternative D)	some objectives	Full tidal inundation with flow restrictor in Corkscrew Slough	Managed wetlands with hydraulic control structures	1.8 mile levee trail. One viewing platform & loop around airport levee No access on east side of Inner Bair Island. No dogs allowed	Same as Alternative B description above

2.3 Scheduling

It is expected that the project would begin implementation in 2006 with 2-3 years of Altantic Cordgrass control (which started in 2004/5) preceding all levee breaching. The project is large scale and therefore would be implemented over a period of several years.

Under all alternatives, except the No Action Alternative, Outer Bair Islands would be restored first, followed by Inner and Middle Bair Islands. Outer Bair Island can be breached at OB-1 (Figure 5) as soon as the internal pond features are constructed, which can occur relatively quickly. Breaching of Inner and Middle Bair Islands must wait until after the channel flow control structures are in place. If Inner and Middle Bair Islands were to be breached before the control structures were constructed, the result would be high velocities at Pete's Outer Harbor and some additional silting of the shipping channel, though this second effect would be limited in extent and duration. Approximately one year prior to the restoration of tidal influence on Inner Bair Island, under Alternative A and Alternative B, dredged and/or fill material would be placed on Inner Bair Island. To avoid flooding problems, the Smith Slough control structure would be installed after dredged and/or fill material placement on Inner Bair Island is complete. It may be possible to refine the design later to provide for earlier phased breaching of parts of Middle Bair to Corkscrew Slough. Alternatives C and D would not involve the placement of dredged material. For all Action Alternatives channel-flow-control structures would be constructed during the dry season, to reduce the potential for flood risks before Inner and Middle Bair Island are breached.

2.4 Project Monitoring

The Refuge and CDFG, along with qualified biologists, geomorphologists, contractors, and engineers, would monitor the restoration project. A draft monitoring plan has been developed to ensure that the restoration meets the project's purpose and objectives, both initially and over time. A more detailed description of the monitoring plan can be found in the draft Monitoring Plan, located in Appendix B of this report. Compliance monitoring during implementation will follow guidelines outlined in the Biological Opinion issued by the USFWS (2006) (Appendix B).

The monitoring program, which includes both physical and biological elements, would continue for a minimum of 20 years following implementation of the selected restoration alternative. It may be necessary to extend the length of the monitoring program based upon the monitoring results.

2.5 Conformance with Relevant Plans, Goals, and Policies

Association of Bay Area Governments San Francisco Bay Trail Plan

The plan for the Bay Trail proposes development of a regional hiking and bicycling trail around the perimeter of San Francisco and San Pablo Bays. The Plan was prepared by the Association of Bay Area Governments (ABAG) pursuant to Senate Bill 100, which mandated that the Bay Trail provide connections to existing park and recreation facilities; create links to existing and proposed transportation facilities; and be planned in such a way as to avoid adverse effects on environmentally sensitive areas. The Bay Trail Plan proposes an alignment for what is planned to become a 400-mile recreational "ring around the Bay." Currently, the Bay Trail Plan has designated a portion of this

alignment along the existing levee trail on Inner Bair Island (refer to Figure 10). This segment of the trail extends from the western point on the levee on Inner Bair Island to the trailhead at Whipple Avenue, and then continues on the narrow path that connects to Bair Island Road. The Bay Trail Plan also shows a future bay trail (planned but not developed) connecting Redwood Shores Bay Trail through San Carlos Airport property (along Steinberger Slough) and bridging the Airport property to Inner Bair Island. However, this connection through the Airport is not available for public access because of safety rules and regulations and safety concerns, and would not be presently permitted by the FAA. To provide access from the trailhead at Whipple Avenue north toward the San Carlos Airport without building a bridge to Inner Bair Island, Caltrans is building a trail along US 101 from north of Pulgas Creek south to Whipple Avenue.

The No Action Alternative could result in a conflict with the San Francisco Bay Trail Plan because recreation and public access would eventually be eliminated or substantially reduced on the designated Bay Trail Spur trail alignment on Inner Bair Island as levees fail. Alternative A includes a new pedestrian bridge connecting the existing Refuge parking lot located along Bair Island Road to Inner Bair Island which would be supportive of the Bay Trail Plan. All of the other Alternatives would improve the designated Bay Trail spur trail alignment on Inner Bair Island and the USFWS would work with partners[10] to improve the connector trail to the parking lot along Bair Island Road. Therefore, all of the Action Alternatives are consistent with the Bay Trail Plan.

City of Redwood City General Plan

The *City of Redwood City Strategic General Plan* was adopted on January 22, 1990. Bair Island is within the boundaries of the City of Redwood City. Middle and Inner Bair Island have a General Plan designation of *Future Development Expanding Limits of Urbanization,* and are zoned *Tidal Plain*. Outer Bair Island has a General Plan designation of *Unimproved Areas (Land or Water) Devoted to Preservation of Natural Resources, the Managed Production of Resources, Outdoor Recreation, or Public Health and Safety,* and is zoned *Tidal Plain*. The project area where the existing parking lot is located has a General Plan designation of *Office Park* and is zoned *General Commercial*.

All of the Action Alternatives are in conformance with the stated goals of the City of Redwood City's open space element and conservation element that encourage open-spaces areas within the urban complex to enhance the value of other lands and the quality of life and promote environmental preservation, air and water quality, wildlife protection, and resource recovery. The following is a summary of relevant policies and objectives of the General Plan that would apply to the project.

Open Space objective 3 states to "provide a network of trails and pathways through Redwood City in order to enhance the City's recreational opportunities."

Open Space policy 3 states "open space areas which are primary wildlife habitats or which have major or unique ecological significance should be protected and conserved."

[10] The partners are the San Francisco Bay Trails staff, Peninsula Open Space Trust, City of Redwood City, PG&E, Bay Conservation and Development Commission, Caltrans, and adjacent landowners.

Figure 10: San Francisco Bay Trail at Inner Bair Island

Open Space policy 9 states "the City shall cooperate with County, Regional, State, Federal, and other public agencies on open space issues."

Conservation policy 3 states "environmentally unique open spaces such as San Francisco Bay, its tributaries, slough, and marshlands should be protected and enhanced for conservation and recreation purposes."

The Action Alternatives would be consistent with the goals and policies of the *City of Redwood City Strategic General Plan.*

San Francisco Bay Conservation and Development Commission

The San Francisco Bay Conservation and Development Commission (BCDC) is a California state agency which controls all areas in the Bay subject to tides, including a shoreline band extending 100 feet inland. BCDC issues development permits for projects within its jurisdiction involving filling, dredging, or substantial changes in use. BCDC is responsible for enforcing the McAteer-Petris Act, which requires that "maximum feasible public access, consistent with a project be included as part of each project to be approved by the BCDC." BCDC is also responsible for determining consistency with the federal Coastal Zone Management Act.

The Federal Coastal Zone Management Act and the California Coastal Act require the BCDC to review federal projects, projects that require federal approval or projects that are supported by federal funds. The BCDC Bay Plan (Bay Plan) promotes Bay conservation along with shoreline development and public access. BCDC has adopted policies that specifically address public access and wildlife compatibility, where in some "cases public access would be clearly inconsistent with the project because of public safety considerations or significant use conflicts, including unavoidable, significant adverse effects on Bay natural resources."

BCDC jurisdiction in the project area extends over the Bay, including Steinberger Slough, Smith Slough, Corkscrew Slough, and Redwood Creek, to five feet above mean sea level in marshes and over a 100-foot shoreline band inland from the line of mean high tide. The project would require a BCDC consistency determination for dredging and filling and shoreline improvements.

Currently, public access is allowed on a 3.3-mile loop trail on Inner Bair Island. Boating access is allowed throughout all of the adjacent sloughs and Redwood Creek.

The BCDC has indicated that the waterways should remain accessible to the public. Located in Smith Slough east of Inner Bair Island, is Pete's Outer Harbor, which is a part of Pete's Harbor accessible off Bair Island Road (refer to Figure 3). In order to avoid unsafe and increased velocities at Pete's Outer Harbor and the Redwood Creek shipping channel, the Action Alternatives include channel modifications in Corkscrew Slough and Smith Slough. Under Alternatives A and B, a flow-blockage control structure would be installed in Smith Slough to restore its historic meander through Inner Bair Island. Under Alternatives C and D, a flow restrictor would be installed to allow boat passage through Smith Slough. In all Action Alternatives, a flow restrictor would be installed in Corkscrew Slough, along with improvements to maintain access throughout the waterway. There would be warning and information signs near the flow restrictor and at the boat ramp. A 30 foot notch for boat passage would be installed, along with a depth gauge, at the notch. However, in the short term, it is possible that boat access may be compromised during low tides, or when water exchange through the structure is at its peak. A portage would, therefore, be installed along the

banks of Corkscrew Slough for recreational users to have access around the flow restrictor. In the long term, slough channels would deepen by tidal scour thereby making them accessible for boating for longer periods of each tide cycle than current conditions. The flow-control structures would prevent any impacts to waterway accessibility; therefore the Action Alternatives are consistent with BCDC policies.

San Francisco Bay Regional Water Quality Control Board (RWQCB)

The Regional Water Quality Control Board has primary authority for implementing provisions of the federal Clean Water Act and California's Porter-Cologne Water Quality Control Act. These statutes establish the process for developing and implementing planning, permitting, and enforcement authority for waste discharges to land and water. The *Water Quality Control Plan, San Francisco Bay Region* (Basin Plan) establishes beneficial uses for surface and groundwater resources and sets regulatory water quality objectives that are designed to protect those beneficial uses (San Francisco Bay RWQCB 1995). Under the current Basin Plan, designated beneficial uses of the San Francisco Bay area's surface waters include municipal and domestic supply; agricultural supply; industrial service supply; groundwater recharge; contact and non-contact recreation; warm freshwater fish habitat; cold freshwater fish habitat; wildlife habitat; migration of aquatic organisms; and spawning, reproduction, and/or early development of fish.

The Plan provides a program of actions designed to preserve and enhance water quality and to protect beneficial uses. It meets the requirements of the U.S. Environmental Protection Agency and establishes conditions related to discharges that must be met at all times.

The implementation portion of the Basin Plan includes descriptions of specific actions to be taken by local public entities and industries to comply with the policies and objectives of the Plan. These actions include measures for urban runoff management and wetland protection.

The project would be designed to comply with RWQCB permitting requirements. The USFWS and CDFG would prepare and conform to a Storm Water Pollution Prevention Plan, as required under the State Water Resources Control Board implemented National Pollutant Discharge Elimination System (NPDES) Permit program for construction activities and conform to a Storm Water Pollution Prevention Plan (SWPPP), as required under the State Water Resources Control Board. The SWPPP would identify specific measures for reducing construction impacts such as erosion and sediment control measures.

The project would involve construction activities that could adversely affect water quality and therefore, all of the Action Alternatives would require acquisition of a Clean Water Act Section 401 water-quality certification from the RWQCB.

The San Francisco Bay RWQCB also has established sediment screening criteria and testing requirements for the beneficial reuse of dredged material (*e.g.*, wetlands creation and upland disposal). All sediment used for creation of upland habitat would be screened to meet wetland cover standards set by the Regional Water Quality Control Board (RWQCB).

The project would conform to the policies and objectives of the Basin Plan.

San Carlos Airport Master Plan[11]

The San Carlos Airport currently owns a portion of Inner Bair Island, which is maintained as a runway protection zone (RPZ). This area must be kept clear of any structures or stationary objects and ponded water that attract waterfowl. The project proposes to construct a levee around the Airport's parcel that would be large enough to provide emergency vehicles access in airport emergencies. The levee leading up to the RPZ would be gradually sloped and would be used as a public trail. Under Alternatives A and B, the Airport property behind the levee would be filled with dredged and fill material in order to raise the area above the mean high water level and avoid ponding hazards. Under Alternatives C and D, hydrologic flow-control structures would be installed on Inner Bair Island to control the changing water levels and avoid ponding hazards.

All of the Action Alternatives would conform to the policies and regulations of San Carlos Airport.

San Francisco Estuary Invasive *Spartina* Control Program

The *Spartina* Control Program (Control Program) proposes to implement a coordinated, region-wide eradication program, comprising a number of on-the-ground treatment techniques to stave off invasion of non-native cordgrass from the eastern United States. The Control Program would be focused within the nearly 40,000 acres of tidal marsh and 29,000 acres of tidal flats that comprise the shoreline areas of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma, and Sacramento Counties.

This proposed project assumes that the non-native plant species eradication and management included in the Action Alternatives would be consistent with the Control Program adopted in October 2003. An invasive Spartina control program would be implemented with the selected action alternative for two to three years prior to breaching any levees.

2.6 Permits Required

The following permits/approvals would be required from the agencies indicated:

Section 404 Permit	U.S. Army Corps of Engineers
Section 401 Water Quality Certification	San Francisco Bay Regional Water Quality Control Board
BCDC Consistency Determination	San Francisco Bay Conservation & Development Commission

[11] San Carlos Airport Master Plan Update Draft EIR, June 2002

SECTION 3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

NEPA CEQ Regulations, CEQA Guidelines, and professional judgment were used during the evaluation of environmental consequences to assess whether the alternatives would result in significant impacts. Both context and intensity were considered when establishing the level of significance. The context means that the significance of an action must be analyzed in several contexts such as the locale in which the project site is located. The intensity refers to the severity of the impact.

3.1 Vegetation and Wildlife[12]

3.1.1 Existing Setting

This section is primarily based upon an Existing Biological Conditions Report prepared by *H.T. Harvey & Associates*. This report is located in Appendix C of this EIR.

There are seven different habitat types identified as presently existing on Bair Island. These include tidal salt marsh, muted salt marsh, diked salt marsh, seasonally ponded wetlands, aquatic/open water, shell mounds, non-native grassland, and developed. The physical extent and locations of these habitats are shown on Figure 11 and the corresponding acreages of each habitat are listed in Table 2.

Bair Island consists of three sub areas: Inner, Middle and Outer Bair Islands. These areas are separated by slough channels, with only Inner Bair Island accessible without the use of a boat. The Bair Island area totals 2,635 acres: Inner Bair Island is 324 acres, Middle Bair Island is 896 acres, and Outer Bair Island is 1,415 acres.

Currently, pedestrians and bicyclists can access the levee loop trail on Inner Bair Island from a trail from the Bair Island parking lot along Bair Island Road.[13] There is signage that dogs are allowed on Inner Bair Island levee trails if they remain on the trails at all times; however, on numerous occasions during public-use surveys, dogs were not being controlled by their owner and were off the designated trails and in marshes.

[12] In the following text, all plants and animal species are referred to using their common names. An expanded discussion which contains both the common and scientific/Latin names of the various species is in technical Appendix C.

[13] Until June 2003, pedestrians and bicyclists took access at the trailhead to the Inner Bair Island levees from an unpaved area used for parking at the end of Whipple Avenue. The California Department of Transportation (Caltrans) owns this existing unpaved area along Whipple Avenue. As part of Caltrans' U.S. 101 Auxiliary Lanes Project from Ralston Avenue to Marsh Road, this area was closed off to parking by Caltrans in June 2003.

Figure 11: Habitat Map

Table 2: Habitat Areas for Inner, Middle and Outer Bair Islands		
Location	**Habitat**	**Acres**
Inner Bair Island	Aquatic	48.71
	Developed	8.47
	Diked Salt Marsh	9.06
	Non-native Grassland	187.89
	Seasonally Ponded Wetland	32.82
	Tidal Salt Marsh	36.90
	Total	323.83
Middle Bair Island	Aquatic	112.01
	Diked Salt Marsh	553.64
	Non-native Grassland	38.02
	Tidal Salt Marsh	192.54
	Total	896.21
Outer Bair Island	Aquatic	100.21
	Diked Salt Marsh	468.90
	Muted Salt Marsh	51.77
	Non-native Grassland	141.45
	Shell Mounds	5.63
	Tidal Salt Marsh	647.13
	Total	1,415.09
Overall Acreage		2,635.13
Source: H.T. Harvey & Associates, 2000		

Biotic Habitats

Tidal Salt Marsh

Tidal salt marsh occurs along the outboard side of the existing levees, as well as in the former salt ponds in the northwest section of Outer Bair Island where the levees have been allowed to breach. The tidal salt marsh within these former salt ponds is at a slightly lower elevation than the outboard marshes, which results in a plant community comprising an equal mix of cordgrass and pickleweed. Pickleweed is a native, salt marsh, plant species that supports a variety of wildlife species, but is especially important for the salt marsh harvest mouse. There is both a native species as well as an invasive non-native species of cordgrass present in San Francisco Bay. The native species provides prime habitat for the California Clapper Rail.

The slightly higher elevations found on the outboard marshes are predominantly composed of pickleweed. The outboard marsh serves as the ideal reference habitat for the restoration effort, with the marsh inside the former salt ponds on the west side of Outer Bair providing insight into the progression of the sites once tidal action is returned.

Other common plant species found in the tidal salt marsh are alkali heath, salt marsh dodder and jaumea. Marsh gumplant occurs at higher elevations, as well as along the transitional area between tidal salt marsh and non-native grassland habitat.

Tidal salt marsh is a very important habitat in the San Francisco Bay estuarine system and performs integral functions, such as a filter for sediments and pollutants, for the Bay ecosystem. The benthic organisms (those living in the mudflats or slough bottoms) and fish (which enter the channels of the marsh at high tide) found in this habitat support a rich assemblage of foraging shore and waterbirds, including the American Avocet, Black-necked Stilt, Sora, Semipalmated Plover, Long-billed Curlew, Great Blue Heron, Snowy Egret, and American White Pelican. The tidal salt marsh habitat also supports several species that are found only in these habitats, including the federally endangered California Clapper Rail and salt marsh harvest mouse, and the Alameda Song Sparrow and the salt-marsh wandering shrew, both California Species of Special Concern. Harbor seals use the waters around a marsh as a place to raise young and are known to haul out on the pickleweed and mudflats of Middle Bair and Outer Bair Island at low tide. Mammals such as raccoons, striped skunks and non-native red foxes may forage in this habitat. Although few reptiles or amphibians can reside here, species that live in nearby uplands may forage in this habitat including the southern alligator lizard and gopher snake.

Muted Tidal Salt Marsh

One pond on eastern Outer Bair Island contains deteriorated flapgate structures that are no longer functional and allow muted tidal action within the small leveed areas. This area (formerly a Least Tern nesting colony) was leveed off in a failed attempt to protect Least Tern nesting habitat. Currently, the area consists of a mix of cordgrass and pickleweed.

Muted tidal salt marshes support some of the same species as tidal salt marsh; however, the substantially reduced tidal influence reduces the value of this habitat relative to tidal wetlands for a number of species. For example, shorebirds typically feed on mudflats exposed by retreating tides and Alameda Song Sparrows are largely dependent on tidal marshes. California Clapper Rails reside in tidal marshes, and sometimes occur in muted tidal areas, but are typically not found in similar vegetation in non-tidal situations. Salt marsh harvest mice are found in muted tidal marshes, such as those found on Bair Island, if the marshes have robust pickleweed vegetation that is not inundated for long periods. The diked marshes of Middle and Outer Bair Islands contain pickleweed, however, during high rainfall years, the vegetation becomes covered with ponded rainwater resulting in a loss of most, if not all, harvest mice. Pickleweed vegetation in the tidal marshes is inundated for much shorter periods (extreme high tides) and, for the most part, provides higher areas of refuge, so mice are not lost as they are in some diked marshes.

Diked Salt Marsh

This habitat type is largely found on the interior of the former salt ponds on Inner, Middle and Outer Bair Islands. The diked salt marsh habitat generally consists of pickleweed interspersed with mudflats and small areas of open water. The quality of the habitat within the four former salt ponds varies highly from pond to pond. The former salt pond on Outer Bair Island provides the highest quality habitat with over 50 percent cover by pickleweed that has moderate vigor. The westernmost pond on Middle Bair Island has less than 50 percent cover by pickleweed of moderate to low vigor, while the two remaining diked salt marsh areas on Middle Bair Island have approximately 30 percent cover by pickleweed of low vigor. The latter two ponds also have a higher occurrence of brass buttons (a non-native species) and bare soil/salt pond.

Ponds within the diked salt marsh habitat have subsided between 2.2 and 3.4 feet below the elevation of the tidal salt marsh on the outboard side of the levee and the plants in these areas generally appear

to have a reduced vigor. This reduced vigor is likely related, in part, to periodic flooding that occurs in high rainfall years (*e.g.,* 1997-1998 El Niño years). During such events, the habitat is completely inundated. Other common plant species found within the diked salt marsh are alkali heath, brass buttons and salt grass at the high elevations.

Seasonally Ponded Wetlands

These wetlands are located in slightly lower topographic depressions within the levees of Inner Bair Island. The slight changes in topography responsible for small patches of seasonal wetlands are very numerous, which made precise field mapping of all the patches virtually impossible. However, soil pits were dug within Inner Bair Island to determine the status of these seasonal wetland areas, and the results were extrapolated to all of Inner Bair Island using the habitat signatures present on aerial photographs. These wetland areas, supported largely by incidental rainfall, were dominated by rabbitsfoot grass and brass buttons with patches of pickleweed, spearscale and alkali heath also occurring throughout. These ponds support foraging shorebirds in winter, as well as waterfowl and gulls.

Aquatic/Open Water

Aquatic habitat occurs within the low-flow channel of the creeks, slough channels and borrow-ditches throughout Bair Island. This deep-water habitat does not support either emergent or terrestrial vegetation.

Fish species that occur in the vicinity include the bay ray, bay pipefish, bay goby, shiner surfperch, starry flounder, and English sole. Birds likely to occur here include the Western Grebe, American Coot, gulls, and various waterfowl species such as scaup. Harbor seals occur here as well.

Shell Mounds

A few small areas of exposed shell mounds exist along the perimeter of Outer Bair Island along San Francisco Bay. These areas are largely devoid of vegetation and are readily visible from the ground as well as from the aerial photography. Shell mounds may provide nesting substrate for species such as the American Avocets and Killdeer, and roosting habitat for Brown Pelicans, and other birds.

Non-Native Grassland

Non-native grassland habitat is found in three primary locations on Bair Island. The first area is associated with the levee tops throughout all of Bair Island. Secondly, most of Inner Bair Island contains non-native grassland. This area was formerly a salt pond and thus, less vegetation occurs in the interior of Inner Bair Island. Third, there are several other non-native grassland areas along the eastern side of Middle and Outer Bair Islands at locations containing spoil-material disposal from past dredging of Redwood Creek. Other small, miscellaneous pockets of non-native grassland habitat exist throughout the project area, but are generally associated with either the levee system or with dredge spoil disposal.

The predominant non-native grassland species identified at Bair Island include Italian ryegrass, ripgut brome, black mustard, wild radish, Mediterranean barley, wild oats, yellow star-thistle, common sow thistle, bull thistle, bristly ox-tongue, rabbitsfoot grass, and brass buttons, as well as the native species alkali heath and coyote brush.

This habitat may support a variety of songbirds, such as Song Sparrows, House Finches, and Lesser Goldfinches. Various mammals, including brush rabbits and California voles are likely to occur here as well.

Developed Habitat

For the purpose of this analysis, developed habitat refers to the unvegetated trails present around the perimeter and across the middle of Inner Bair Island. The parking lot area adjacent to Whipple Avenue does contain some hardscape (*e.g.*, asphalt) material, but the developed areas are mostly compacted soil. These areas do contain sporadic vegetation, generally consisting of non-native grassland vegetation around the perimeter trail and some brass buttons in the low spots along the trail down the middle of Inner Bair Island.

This habitat provides few resources to wildlife species. Although some species associated with adjacent habitats likely forage here to some extent, use of this habitat by wildlife is expected to be very limited.

Existing Special-Status Plant Species

"Special-status" plants include those species that are State and/or Federally-listed threatened or endangered species, or species proposed for such listing, species which are candidates for federal listing, or species which are otherwise considered sensitive. Sensitive species are those that do not meet any of the listed, candidate, or proposed criteria, but generally are warranted special management consideration. These include species assigned the CNPS 1B designation, which includes plants rare, threatened, or endangered in California according to the CNPS (but not listed per se). Sensitive (CNPS 1B) plants may receive the same level of protection as federal candidate species, depending on the nature of populations to be impacted.

When assessing the site's potential suitability for special-status plant species, several factors are generally taken into consideration, including: 1) the proximity and date of known occurrences; 2) the presence and ecological condition of habitat found on-site; 3) past and current land use practices; 4) the existence of other species known to be found in conjunction with the special-status species (associate species); and 5) direct observation of plants as a result of optimally-timed, species-specific surveys. Reconnaissance-level surveys for special-status plant species were conducted during habitat mapping surveys between April 14th and 28th of 2000 within the project area.

The special-status plant species that occur regionally in habitats similar to those found in the project area are described below. The process of identifying special-status plant species for consideration involved the following two steps: first, a query of special-status plants in the California Natural Diversity Database (CNDDB), Redwood Point quadrangle, and eight adjoining quads; second, the California Native Plant Society (CNPS) Inventory and the CDFG Rarefind Database were used to produce a similar list for San Mateo County. Plants were considered on the basis of their occurrence in the broad categories of marshes and swamps, and valley and foothill grasses that are most similar to the salt marsh, seasonal wetland, and non-native grassland habitats on site.

A total of 41 special-status taxa occur in the region within habitats similar to those found on site, according to the CNPS inventory and the CDFG Rarefind Database. Of these, 38 species were not considered present due to the absence of suitable microhabitats including appropriate substrates (*i.e.,* serpentine soils) and/or lack of associate species. Suitable habitat exists in the project area for only

three special-status plant species: Congdon's tarplant, Point Reyes bird's beak, and Contra Costa goldfields. Suitable habitat for *Suaeda californica* exists on Bair Island outside of the footprint of this project. Although suitable habitat may be present on site, Point Reyes bird's-beak and Contra Costa goldfields are presumed absent from the Bair Island complex. The former is known only from historical occurrences in the Bay Area, the most recent dating back to 1917. Furthermore, CNPS reports that this species has been extirpated from San Mateo, Santa Clara and Alameda counties. Contra Costa goldfields are not known from San Mateo County and are believed to be extirpated from Santa Clara County. CNDDB Rarefind Database reports only historical occurrences of this species in the search area. An expanded description for Congdon's tarplant is provided below.

Congdon's Tarplant

This annual herb occurs in valley and foothill grasslands, particularly those with alkaline substrates on Clear Lake or Pescadero clay soils, and in sumps or disturbed areas where water collects. The blooming period extends from June through November. The reported range of this species has been reduced to Monterey, San Luis Obispo, Santa Clara, and Alameda counties, and does not include San Mateo County (CNPS Inventory, 6th Edition). The closest known population is approximately 15 miles away in Alviso, Santa Clara County. Suitable habitat is present on site within the non-native grassland habitats. Protocol-level field surveys were not conducted for this species; it is possibly present.

Existing Special-Status Wildlife Species

Federal or State Endangered or Threatened Species

Steelhead

The steelhead is listed as federally Threatened and has state listing status of a Species of Special Concern. The steelhead is an anadromous (return to natal rivers to breed) form of rainbow trout that migrates upstream from the ocean and bay to spawn. Steelhead usually migrate upstream to spawning areas in late fall or early winter, when flows are sufficient to allow them to reach suitable habitat in far upstream areas that may contain little water at other times of the year. Spawning occurs between December and June. Steelhead eggs remain in gravel depressions, known as redds for one and one-half to four months before hatching. After hatching, young steelhead using the deeper reaches of streams as rearing areas remain in freshwater streams for a year or two (range one to four) before migrating to the ocean. After migration, these fish typically grow rapidly for two to three years before returning to freshwater streams to spawn. Unlike salmon, steelhead trout do not necessarily die after spawning. Many adults survive and return to the ocean after spawning, only to come back and spawn another season or two. Steelheads may occasionally be present in the slough channels at Bair Island, but do not currently spawn in any streams near the proposed project site. Although spawning may have occurred historically in local streams, there is currently no connectivity between Redwood Creek or Steinberger Slough and any spawning stream. NMFS concurs with the USFWS that the proposed project will not likely result in adverse effects to listed salmonids (NMFS 2005).

Chinook Salmon

The chinook salmon is an anadromous fish, spawning in freshwater rivers and streams, but spending most of its adult life at sea. Chinook salmon populations have suffered effects of over-fishing by

commercial fisheries, degradation of spawning habitat, added barriers to upstream migration, and reductions in winter flows due to dams. Almost all chinook salmon occurring in San Francisco Bay are from the Sacramento-San Joaquin watershed. There are four races of Sacramento-San Joaquin chinook: winter, spring, fall, and late-fall, as defined by the timing of adult migration upstream to spawning areas. Spring-run chinook are state and federally listed as Threatened, and winter-run chinook are listed by both agencies as Endangered. Fall/late-fall chinook are listed as a California Species of Special Concern.

Chinook salmon have not historically spawned in streams flowing into South San Francisco Bay. Since the mid-1980s, however, small numbers of fall-run chinook salmon have been found in several such streams, including Coyote Creek, Los Gatos Creek, and the Guadalupe River. These fish are probably strays from Central Valley runs. These fall-run chinook salmon typically arrive in South San Francisco Bay streams in October or later, although on rare occasions, adult chinook salmon have been detected in these streams in summer, and spawning has been observed on Los Gatos Creek in early September. No spawning occurs in streams adjacent to Bair Island. Juvenile fish of all runs could forage in tidal wetlands throughout San Francisco Bay, including those around Bair Island. NMFS concurs with the USFWS that the proposed project will not likely result in adverse effects to listed salmonids (NMFS 2005).

California Clapper Rail

The California Clapper Rail is a permanent resident of salt and brackish marshes around San Francisco Bay. The only remaining populations occur in the San Francisco Bay. Since the mid-1800s, about 80 percent of San Francisco Bay's marshlands have been eliminated through filling, diking, or conversion to salt evaporation ponds. As a result, the California Clapper Rail lost most of its former habitat, the population declined severely, and the species was listed as Endangered.

Clapper rails along the Pacific Coast prefer salt marshes and brackish marshes dominated by cordgrass and marsh gumplant; in brackish marshes they also frequent areas supporting bulrushes. These birds also require shallow areas or mudflats for foraging, particularly channels with overhanging banks and vegetation (Goals Project 2000). Clapper rails forage on crabs, mussels, clams, snails, insects, spiders, worms, and occasionally mice and dead fish. As a refuge from extreme high tides and as a supplementary foraging area, rails move to the upper marsh vegetation where it intergrades with upland vegetation. These birds have no requirement for fresh water.

California Clapper Rails nest from early March through August in the tallest vegetation along tidal sloughs, particularly in California cordgrass and marsh gumplant. They are non-migratory, although juveniles disperse during late summer and autumn. In the San Francisco Bay area, Gill (1979) found densities during the breeding season to range from 0.3 to 1.6 rails per hectare (ha), with non-breeding season densities ranging from 0.1 to 1.1 rails. Harvey (1981) estimated a density of 1.2 rails per ha during the winter.

Clapper rails were reported at Bair Island by Gill (1979); other surveys found them in marshes immediately adjacent to Bair Island (*e.g.*, Harvey, 1980). In December 1993, 3 Clapper Rails were detected on Outer Bair Island during a survey conducted by CDFG (CDFG, unpubl. data). This was the first record of Clapper Rails in the restored area of Outer Bair Island. Total numbers of Clapper Rails detected during recent winter surveys at Bair Island include 9 (January 1993), 7-8 (December 1993), 10 (December 1995), 13 (December 1998); and 21 (December 1999, CDFG unpubl. data). All sightings are from Outer Bair Island or along Corkscrew Slough. Based on: (1) the relatively

limited amount of habitat for Clapper Rails that will be permanently lost; (2) the relatively low number of Clapper Rails that may be harassed, harmed, or killed; and (3) the large amount of habitat that will be restored with successful implementation of the proposed action, the Biological Opinion of the United States Fish and Wildlife Service (USFWS) concurs with the determination that the Bair Island restoration project, as proposed, is not likely to jeopardize the continued existence of the California Clapper Rail (USFWS 2006).

Salt Marsh Harvest Mouse

The salt marsh harvest mouse is listed as a Federal and State Endangered species. The salt marsh harvest mouse inhabits pickleweed marshes of the San Francisco Bay. This species is most abundant in deep, dense pickleweed in marshes providing areas with vegetation cover that do not become submerged during high winter tides (Shellhammer et al. 1982). Although this species makes some use of grasses and salt-tolerant forbs at the upper margins of salt and brackish marshes, it is closely tied to the cover of dense pickleweed, and it makes little use of pure alkali bulrush or cordgrass stands (Wondolleck et al. 1976, Shellhammer 1977). These mice inhabit both marshes that are open to tidal action and diked marshes, provided that suitable pickleweed habitat is present.

Although no recent surveys have been conducted, many of the areas of Bair Island dominated by pickleweed provide high-quality potential habitat for this species. This is especially true of the tidal marshes of the entire study area, and the muted tidal and diked marshes of Outer Bair Island. The diked marshes of Middle Bair Island contain less pickleweed and it is patchier, less dense, and shorter than the pickleweed habitat in the diked marshes of Outer Bair Island. The pickleweed habitats in Middle Bair Island provide salt marsh harvest mouse habitat that ranges from fair to non-existent. The area that makes up Inner Bair Island does not provide much habitat for the mouse, as pickleweed is found only as strips along waterways and standing water. The overall habitat value of Inner Bair Island to salt marsh harvest mice is generally poor. Most of the levees between areas in Middle Bair Island have moderate cover and it seems likely that salt marsh harvest mice may be able to move between levees, at least sporadically. Based on: (1) the relatively limited amount of habitat for salt marsh harvest mice that will be permanently lost; (2) the relatively low number of harvest mice that may be harassed, harmed, or killed; and (3) the large amount of habitat that will be restored with successful implementation of the proposed action, the Biological Opinion of the United States Fish and Wildlife Service (USFWS) concurs with the determination that the Bair Island restoration project, as proposed, is not likely to jeopardize the continued existence of the salt marsh harvest mouse (USFWS 2006).

California Species of Special Concern

State endangered species legislation gives plant and animal species special status. The CDFG has produced three lists (amphibians and reptiles, birds, and mammals) of "species of special concern" that serve as "watch lists." Species on these lists either are of limited distribution or the extent of their habitats have been reduced substantially, such that threat to their populations may be imminent.

Double-crested Cormorant

Double-crested Cormorants are yearlong residents along the entire coast of California and on inland lakes, in fresh, salt, and estuarine waters. Breeding occurs at undisturbed sites, typically in trees or on man-made structures, beside water on islands or mainland. This species is known to nest on some electrical transmission towers on Outer Bair Island (CNDDB 2003).

Northern Harrier

The Northern Harrier is commonly found in open grasslands, agricultural areas, and marshes. Nests are built on the ground in areas where long grasses or marsh plants provide cover and protection. Harriers hunt for a variety of prey, including rodents, birds, frogs, reptiles, and insects by flying low and slow in a traversing manner utilizing both sight and sound to detect prey. Northern Harriers are known to occur on Bair Island (CNDDB 2003) and likely breed as well as forage on Middle and Outer Bair Islands. Nesting is unlikely on Inner Bair Island, because of human recreational use.

Short-eared Owl

Short-eared Owls occur in open habitats such as grasslands, wet meadows, and marshes. They require tules or other tall grasses for nesting or daytime refuge. Although Short-eared Owls are now uncommon, a pair was confirmed breeding at Greco Island in 1994 (Sequoia Audubon Society 2001). Short-eared Owls could currently nest on Outer Bair Island.

Borrowing Owl

The Borrowing Owl is a small, terrestrial owl of open country. Borrowing Owls favor flat, open grassland or gentle slopes and sparse shrubland ecosystems. These owls prefer annual and perennial grasslands, typically with sparse or nonexistent tree or shrub canopies. In California, Borrowing Owls are found in close association with California ground squirrels. Owls use the abandoned borrows of ground squirrels for shelter and nesting. Borrowing Owls have been recorded on the site and possible nesting habitat is present along the levees, primarily on Middle and Outer Bair Island. Borrowing Owls are more often found on Bair Island during the winter. They are rare on Inner Bair Island because of human disturbance (Morris, personal communication).

Loggerhead Shrike

Loggerhead Shrikes prefer open habitats interspersed with shrubs, trees, poles, fences, or other perches from which they can hunt. Loggerhead Shrikes are primarily monogamous and are very territorial throughout the year. They breed between early February and late June with the peak of breeding between mid-March and late June. Loggerhead Shrikes breed nearby (Sequoia Audubon Society 2001), and are known to occur on Bair Island at least in the winter (Morris, personal communication). They may breed as well as forage on the site.

Salt Marsh Common Yellowthroat

The Salt Marsh Common Yellowthroat inhabits emergent vegetation and breeds in fresh and brackish marshes and associated upland areas in the San Francisco Bay area. This subspecies (one of the approximately twelve subspecies of common yellowthroat recognized in North America) breeds from mid-March through early August and pairs frequently raise two clutches per year (Goals Project 2000). Because these subspecies cannot be reliably distinguished in the field, determination of the presence of Salt Marsh Common Yellowthroat can be achieved only by locating a nest in the breeding range known for this subspecies, or by observing them during the summer months when only the Salt Marsh Common Yellowthroat is present. Although little is known regarding the movements of this taxon, the wintering areas have been described as coastal salt marshes from the San Francisco Bay region to San Diego County. The Salt Marsh Common Yellowthroat is likely sparse on Bair Island owing to a lack of willow thickets and rushes (used for nesting). However, the

species is known to occur on site and may breed as well as forage in the area (Morris, personal communication). Breeding would be limited to areas where rushes and other tall vegetation occur.

Alameda Song Sparrow

The Alameda Song Sparrow is one of three subspecies of song sparrow breeding only in salt marsh habitats in the San Francisco Bay area. Locally, it is most abundant in the taller vegetation found along tidal sloughs, including salt marsh cordgrass and marsh gumplant. Although it is occasionally found in bulrushes in brackish marshes, the Alameda Song Sparrow is very sedentary and is not known to disperse upstream into freshwater habitats (Goals Project 2000). Populations of the Alameda Song Sparrow have declined due to the loss of salt marshes around the Bay, although within suitable habitat it is still fairly common. The Alameda Song Sparrow is expected to be fairly common in the salt marshes of Middle and Outer Bair Islands.

Salt-marsh Wandering Shrew

The salt-marsh wandering shrew inhabits medium-high marsh one to eight feet above sea level where abundant driftwood and pickleweed exist. It has been found to prefer the moister portions of pickleweed marshes, avoiding higher, drier areas. Salt-marsh wandering shrews have been found on Bair Island (CNDDB 2003), and are expected to occur on site.

Other Special-Status Wildlife Species

White-tailed Kite

The White-tailed Kite is medium-sized raptor listed as Fully Protected by the state of California. White-tailed Kites forage for small rodents and other prey primarily in open grassy or scrubby areas. They nest in large shrubs or trees adjacent to this habitat. Kites have been documented nesting on Bair Island (CNDDB 2003). They could potentially nest wherever large shrubs (*e.g.*, coyote brush) provide nesting habitat.

Pacific Harbor Seal

Pacific harbor seals are currently the only marine mammals that are permanent residents of San Francisco Bay. Harbor seals are protected under the federal Marine Mammal Protection Act, and are sensitive to human disturbance. Pacific harbor seals occur along the Pacific coast of North America from Alaska south to Baja California. In San Francisco Bay, harbor seals haul out at a number of sites to rest and pup (give birth). Most pupping occurs during spring, with a peak in April. Haul-out sites are typically mudflats far from areas used regularly by humans, and near deeper water, where seals forage. Primary haul-out sites in San Francisco Bay are Mowry Slough (243 seals in 1999), Castro Rocks, near the Richmond-San Rafael Bridge (107 seals in 1999), and Yerba Buena Island (72 seals in 1999; Lidicker and Ainley 2000). Use of haul-out sites varies over time, and other sites, including Newark Slough, Corte Madera, and Greco Island have been important haul-outs historically (Kopec and Harvey 1995). More than 10 sites around the Bay may be used by seals at any given time (Lidicker and Ainley 2000). At Bair Island, seals use haul-outs on the outer shore of Outer Bair Island, and several sites within Corkscrew Slough. The primary haul-out in Corkscrew Slough is along the west bank of the slough, near the bend closest to Redwood Creek. Secondary sites (used at high tide) are across from the primary site (on the east bank), and west of the middle of the slough, along the north bank. The primary site is used moderately (maximum of 20 seals in

1992), and pups have been recorded there (Kopec and Harvey 1995). During a site visit in February 2003, seven seals were hauled out at this site.

3.1.1.1 Existing Regulated Habitats

Waters of the United States Regulations Overview

Areas meeting the regulatory definition of "Waters of the U.S." (jurisdictional waters) are subject to the jurisdiction of the U.S. Army Corps of Engineers (USACE) under provisions of Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act. These waters may include all waters used, or potentially used, for interstate commerce, including all waters subject to the ebb and flow of the tide, all interstate waters, all other waters (intrastate lakes, rivers, streams, mudflats, sandflats, playa lakes, natural ponds, etc.), all impoundments of waters otherwise defined as "Waters of the U.S.," tributaries of waters otherwise defined as "Waters of the U. S.," the territorial seas, and wetlands (termed Special Aquatic Sites) adjacent to "Waters of the U.S." (33 CFR, Part 328, Section 328.3). Wetlands on non-agricultural lands are identified using the *Corps of Engineers Wetlands Delineation Manual Environmental Laboratory 1987*.

A Wetland Technical Assessment was prepared in June 2000 as a general guidelines approach used by resource agencies in identification of jurisdictional wetlands.

Prior to the assessment, topographic maps and aerial photographs of the study area were obtained from several sources and reviewed. These sources included the U. S. Geological Survey Map for the Redwood Point and Palo Alto Quadrangles, National Wetlands Inventory Maps for the Redwood Point and Palo Alto Quadrangles, and aerial photographs contained in the *Soil Survey of San Mateo County, Eastern Part, and San Francisco County, California (Soil Conservation Service, 1991).*

Approximately 1,993 acres of potential jurisdictional wetlands were mapped within the Bair Island. The extent and distribution of these wetlands, including tidal salt marsh, diked salt marsh, muted tidal salt marsh, and seasonally ponded wetland are shown in Figure 9. In addition, 'other waters' (as defined in the first paragraph of this section, *i.e.*, aquatic habitat), are shown in Figure 9.

California Department of Fish and Game Jurisdiction

Field surveys were also conducted within the project boundaries for habitats potentially under the regulatory jurisdiction of the CDFG as described under Division 2, Chapter 6, Section 1600-1607 of the Fish and Game Code of California. The CDFG potentially extends the definition of stream to include "intermittent and ephemeral streams, rivers, creeks, dry washes, sloughs, blue-line streams, and watercourses with subsurface flows. Canals, aqueducts, irrigation ditches, and other means of water conveyance can also be considered streams if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife" (Environmental Services 1994). Such areas on site were determined using methodology described in *A Field Guide to Lake and Streambed Alteration Agreements, Sections 1600-1607* (Environmental Services 1994).

Under Section 1600-1607 of the Fish and Game Code of California, the CDFG does not claim jurisdiction over saltwater habitats, including diked-, muted-, and tidal salt marsh similar to that found within the Bair Island complex.

3.1.2 Methodology and Significance Criteria for Vegetation & Wildlife Impacts

State CEQA Guidelines and NEPA CEQ Regulations were used to determine the significance of vegetation and wildlife impacts. Impacts on vegetation and wildlife were assessed by comparing the quantity and quality of the marsh habitat predicted to develop over time under the Action Alternatives with marsh habitat conditions under the No Action Alternative. A major assumption is that conditions predicted to result with implementation of each action alternative would occur within 50 years of project implementation.

Potential impacts of the project on vegetation and wildlife resources were characterized by evaluating direct, indirect, temporary, and permanent impacts. Direct impacts include the direct removal or loss of vegetation or individual animals within the footprints of ground disturbing actions such as levee breaches. Indirect impacts result from changes to habitat or wildlife that are incidental to project implementation. Wildlife species that occur or have potential to occur at the project site were presumed to be indirectly affected if the quantity or quality of habitats within which they are typically associated would be affected. Temporary impacts have a short duration, and vegetation would be expected to recover or be restored with a few years after implementation. An example would be the removal of vegetation to install infrastructure, followed by vegetation recolonizing the site. A permanent impact would involve the long-term alteration of vegetation or wildlife habitat. An example would be the conversion of diked salt marsh area to tidal salt marsh.

Under NEPA CEQ Regulations, significant impacts may be beneficial or adverse and are considered equally. An example of a significant beneficial impact would be the conversion of non-native grassland or diked salt marsh habitat to habitat with greater function and values for salt marsh harvest mouse and California Clapper Rail (listed as endangered by the US Fish and Wildlife Service on October 13, 1970).

Thresholds of Significance

The following criteria were used to determine significant vegetation and wildlife effects under the State CEQA Guidelines. A vegetation and wildlife impact is considered significant if the project would:

- have a substantial adverse affect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status-species [including listed species] in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service; or
- have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service; or
- have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filing, hydrological interruption, or other means; or
- interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery site; or
- conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan; or

- have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of major periods of California history or prehistory.

Based on NEPA CEQ Regulations the project would have a beneficial impact if it would:

- result in a substantial increase in the quantity or quality of tidal marsh habitat or habitat for threatened or endangered species.

Impact Analysis Approach

Impacts were evaluated by assessing all of the proposed project implementation components, including the maturation of habitats anticipated to develop during the life of the project (50 years). Direct and indirect changes in wildlife habitat (increases and decreases) that would occur during the initial decades following project implementation were compared to the ultimate areas of wildlife habitat that would exist by the end of the 50-year implementation period. This approach assumes that habitats would fully establish within 50 years of the project's initial implementation and that site evolution would allow some habitats to form immediately or within several years of construction.

Furthermore, all of the alternatives, including the No Action Alternative, would eventually restore tidal action and create tidal salt marsh habitat except at Inner Bair Island, where no tidal action would be restored under the No Action Alternative. However, the Tidal Marsh Restoration approach (Alternatives A and B) would restore the highest habitat functions and values in the shortest period of time. Predicted habitat changes under the all of the alternatives are shown in Table 3.

Potential Sources of Impacts From the Proposed Action

Several components of the proposed restoration plan could have substantial effects on the existing biotic resources of Bair Island. These include:

- the use of dredged and/or fill material to raise the elevation of Inner Bair Island;
- the operation of equipment during construction, including dredges, boats, barges, excavators, dump trucks, and graders on and around Bair Island;
- the breaching of outboard levees;
- the placement of borrow-ditch blocks on Middle and Outer Bair Islands;
- the creation of channel blocks in Corkscrew and Smith Sloughs; and
- the introduction of tidal flooding to all areas of Bair Island, thereby modifying existing habitats.

An assumption of this impact analysis approach is that non-native plant species eradication and management would be consistent with the San Francisco Estuary Invasive *Spartina* Control Program and the impacts from that program have been addressed in a separate Program EIS/EIR prepared by the California State Coastal Conservancy and the US Fish and Wildlife Service in April 2003.

Any impacts associated with off-site transport of fill material to Inner Bair Island are not included in this document. This activity may require additional environmental review that would be addressed by the "project(s)" providing fill material to Inner Bair Island.

Table 3: Predicted Habitat Evolution at Bair Island

	No Action			Alternatives A & B			Alternatives C & D		
Habitat Type	**Existing Condition (acres)**	**Several Years After Implementation (acres)**	**50+ Years After Implementation (acres)**	**Existing Condition (acres)**	**Several Years After Implementation (acres)**	**50+ Years After Implementation (acres)**	**Existing Condition (acres)**	**Several Years After Implementation (acres)**	**50+ Years After Implementation (acres)**
Inner Bair									
Diked salt marsh	9.1	9.1	9.1	9.1	0	0	9.1	0	0
Non-native grassland	187.9	187.9	187.9	187.9	12.9	12.9	187.9	12.9	12.9
Seasonally ponded wetlands	32.8	32.8	32.8	32.8	3.1	3.1	32.8	3.1	3.1
Managed marsh	0	0	0	0	0	0	0	260.6	274.4
Tidal salt marsh	36.9	36.9	36.9	36.9	260.6	274.4	36.9	0	0
Mudflat/Aquatic	48.7	48.7	48.7	48.7	38.8	25.0	48.7	38.8	25.0
Middle Bair									
Diked salt marsh	553.6	553.6	0	553.6	0	0	553.6	0	0
Non-native grassland	38.0	38.0	20.0	38.0	30.0	20.0	38.0	30.0	20.0
Tidal salt marsh	192.5	192.5	673.1	192.5	242.5	673.1	192.5	242.5	673.1
Mudflat/Aquatic	112	112	203	112	623.6	203	112	623.6	203
Outer Bair									
Muted salt marsh	51.8	51.8	51.8	51.8	51.8	51.8	51.8	51.8	51.8
Diked salt marsh	468.9	468.9	128.5	468.9	128.5	128.5	468.9	128.5	128.5
Non-native grassland	141.5	141.5	119.5	141.5	133.5	119.5	141.5	133.5	119.5
Tidal salt marsh	647.1	647.1	953.5	647.1	695.1	953.5	647.1	695.1	953.5
Mudflat/Aquatic	100.2	100.2	156.2	100.2	400.6	156.2	100.2	400.6	156.2
Shell mounds	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6

Note: Developed areas are not included in the totals

Predicted changes in habitat type and impact to habitat associated with natural levee failure at Bair Island under the No Action Alternative are described in the following section. The impacts of the four Action Alternatives are then described and compared.

3.1.3 Vegetation & Wildlife Impacts

3.1.3.1 No Action Alternative

Overview

The No Action Alternative would restore substantially less tidal salt marsh habitat within the 50 year planning horizon than the four Action Alternatives. The difference that would result in the reduced quantity of habitat include the uncontrolled breaching of the levees, the lack of channel blocks to isolate the Steinberger Slough side of the system from Redwood Creek, and the very low rates of sedimentation on part of Middle Bair Island. Areas of Middle Bair Island most distant from the natural breaches would likely remain unvegetated throughout the 50-year planning horizon. (These areas currently consist of sparsely vegetated diked salt marsh.)

Compared to the other four alternatives, there would be a substantial delay in habitat restoration due to both, length of time until natural levee failure (10-50 years) and the likely inefficient, haphazard location of natural breaches. Natural levee breaches would not occur in areas that would maximize sediment distribution into the restoration sites. Furthermore, engineered cut-off berms would not be placed in borrow-ditches that presently exist throughout the system. Borrow ditches, instead of historic slough channels, would capture the tidal-channel flows. Sediment distribution would be reduced which would further lengthen the time necessary to achieve target habitats on Middle and Outer Bair Islands.

The No Action Alternative would cause temporary and/or permanent loss of several habitats including tidal salt marsh, and diked salt marsh. No significant changes would occur to the habitats on Inner Bair Island, as minimal levee maintenance activities would continue to protect the existing airport safety zone and the SBSA sewer line.

Impacts to Biotic Habitats

Temporary Loss of Tidal Salt Marsh

There would be temporal losses of tidal salt marsh habitat under the No Action Alternative. Subsequent to the predicted erosion and uncontrolled breaching of levees on Middle and Outer Bair Islands, the increased flow velocity would cause erosion of the existing tidal salt marshes located on the outboard side of levees along slough channels. Also, some tidal salt marsh habitat would be lost due to erosion at each natural breach location. It is not possible to predict exactly how much tidal salt marsh would be lost to erosion. However, concurrent with the loss of tidal salt marshes on the outboard side of levees from erosion, new tidal salt marsh would be forming in Middle and Outer Bair Islands. As the surface elevation of Middle and Outer Bair Islands rises, the tidal prism in adjacent slough channels would begin to decrease, slowing flow velocities. With a slowing of flow velocities, natural sedimentation would allow tidal salt marsh to redevelop along some portions of the slough channels. Although there would be some initial loss of tidal salt marsh habitat on the outboard side of the levees due to increased erosion, there would be subsequent, long-term gain of hundreds of acres of salt marsh habitat throughout Bair Island.

Although it is not possible to precisely quantify the losses of tidal salt marsh habitat from levee breaching and erosion under the No Action Alternative, the loss of tidal salt marsh habitat from the No Action Alternative would likely be greater than under the Action Alternatives. This loss would be from uncontrolled levee breaching.

- **The loss of existing tidal salt marsh habitat under the No Action Alternative would be less than significant because of the substantial net increase of tidal salt marsh habitat. (Less Than Significant Impact)**

Conversion of Diked Salt Marsh to Tidal Salt Marsh or Tidal Mudflat

Under the No Action Alternative, levee failures would result in the conversion of diked salt marsh on Middle and Outer Bair Islands to tidal salt marsh or tidal mudflat habitats. While it is very difficult to predict levee failures, it is likely that the restoration of Middle and Outer Bair Islands would be delayed at least 10 years (5-25 years are possible). With a 10 year delay, tidal salt marsh would probably be restored to the entire area within the 50 year planning horizon. If the delay approaches 25 years, then half or more of the approximate 900 acres could still be mudflat at the 50 year horizon. The diked salt marsh habitat generally consists of pickleweed interspersed with salt pannes, bare ground, and small open water areas. The vigor of the pickleweed within this habitat on Bair Island ranges from low to moderate, and cover is highly variable. The conversion of this habitat to intertidal habitats, most of which would be tidal salt marsh, would ultimately result in a healthier and more floristically diverse marsh, providing better habitat for wildlife than the existing conditions.

It is likely that there would be less conversion to tidal salt marsh and more conversion to intertidal mudflats with the No Action Alternative due to the low starting elevation of the existing diked salt marshes on Middle and Outer Bair. If levee breaches are not optimized to maximize sediment delivery to all marsh areas, then accretion is likely to be significantly slower. The No Action Alternative would ultimately restore intertidal habitats to Middle and Outer Bair Islands, although it would do so on a slower timeline. In addition, this alternative would not restore any intertidal habitats to Inner Bair Island.

- **The No Action Alternative would result in the conversion of diked salt marsh to tidal salt marsh and tidal mudflat habitats on Middle and Outer Bair Islands. (CEQA: Less Than Significant Impact) (NEPA: Significant Beneficial Impact)[14]**

Impacts to Special-Status Plant Species

Loss of Congdon's Tarplant

Suitable habitat for Congdon's tarplant occurs in the non-native grassland habitat and along the margins of seasonally ponded wetlands within Inner Bair Island. It is possible that the species occurs on-site. Under the No Action Alternative, all of the levee slopes around this island would be kept in a condition similar to that now present on site.

- **Suitable habitat conditions for Congdon's Tarplant on Inner Bair Island would not be substantially altered under the No Action Alternative. (Less Than Significant Impact)**

[14] Under CEQA "significant effects on the environmental means a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project…" Under NEPA, impacts may be beneficial or adverse.

Impacts to Special-Status Wildlife Species

Temporary Loss of Habitat for the Salt Marsh Harvest Mouse

Under the No Action Alternative, natural levee breaches would result in the loss and conversion of tidal and diked salt marsh habitats, which would constitute a temporary loss of salt marsh harvest mouse habitat until the marsh regenerates naturally over a period of 5 – 50 or more years (based upon the specific location within Bair Island). The conversion of diked salt marsh to tidal salt marsh would ultimately result in a healthier and floristically more diverse marsh, providing better habitat and increasing the carrying capacity at Bair Island for this species. Within 10 to 50 years when the outboard levees breach, tidal water would flood the diked marshes. As floodwaters enter the marsh, any salt marsh harvest mice living in the area would presumably seek higher ground, and/or enter adjoining marshes by crossing over a levee. As this tidal flooding occurs, water would enter the marsh at a rate that would allow the animals to move away from the rising water. However, these animals would encounter other salt marsh harvest mice, voles and house mice. The outboard marshes would likely not support an influx of new animals. The net result would be a short-term loss of habitat and the associated carrying capacity in the marshes.

Before the levees break, the population of salt marsh harvest mice will be impacted by flooding from winter rainfall. In periods of high rainfall, the entire diked pickleweed marsh is covered by water, resulting in loss of most, or all, of the existing mice. Natural levee breaks would allow tidal exchange and prevent the ponding of winter rains thereby eliminating long periods of flooding of pickleweed habitat (except for short periods during high tide events) that result in the loss of salt marsh harvest mice. Therefore, in the long-term, this would result in better habitat for the mice.

Additionally, some animals would be lost from the uncontrolled breach in the levees. The animals lost during this conversion process would not reduce the local population below a level sufficient to populate the nearby created habitat.

The net benefit of restoring the diked salt marsh back to tidal influence would far outweigh immediate impacts on individual animals. This conversion of diked salt marsh to tidal salt marsh would positively affect the greater salt marsh harvest mice population and would contribute to the recovery of the species as a whole. As it stands, this area of diked salt marsh provides poor to moderate quality habitat for salt marsh harvest mice. In the future, this area could represent a healthier and floristically more diverse marsh habitat for the species.

- **During and shortly after uncontrolled levee breaching, the No Action Alternative would result in the temporary loss of habitat for salt marsh harvest mice and loss of some individual animals. In the long-term the substantial increase in habitat and the associated population expansion associated with the new habitat, would offset both the temporary reduction in habitat and loss of individual animals. (Less Than Significant Impact)**

Disturbance to Breeding California Clapper Rails

Public access in the vicinity of nesting California Clapper Rails has the potential to disrupt breeding. There are situations where rails are known to nest in close proximity to public trails (*e.g.,* Palo Alto Baylands, Laumeister Tract, Greenbrae boardwalk, and numerous trails within the Don Edwards San Francisco Bay National Wildlife Reserve (NWR)). Rails nesting in areas with public use may

become somewhat accustomed to people, but they are very vulnerable to dogs. The reproductive success of these birds is unknown. A substantial increase in public use of the area, especially associated with unleashed dogs, may result in some disturbance. Disturbance of rails and other nesting waterbirds can lead to abandonment of nests and chicks, resulting in decreased reproductive success (Albertson 1995, Rodgers and Smith 1995, Carney and Sydeman 1999, USFWS 2001).

The No Action Alternative would support the current level of public use at Inner Bair Island, and the suitable habitat for the Clapper Rail would consist of the narrow strip of outboard marsh. However, after five or more years, the trail system would likely be closed as a result of no maintenance, eliminating terrestrial access for recreation. This would result in a decrease in human use, although most of the current use is not close to suitable rail habitat. Thus, no change, or a slight decrease would occur in the level of disturbance over existing conditions.

- **The No Action Alternative retains the same level or slightly lower level of potential disturbance to Clapper Rails. (Less Than Significant Impact)**

3.1.3.2 Alternative A: Tidal Marsh Restoration and Intermediate Public Access (*Proposed Action*)

Impacts to Biotic Habitats

Conversion of Diked Salt Marsh to Tidal Salt Marsh

Approximately 894 acres of diked salt marsh would be converted to tidal salt marsh with the implementation of Alternative A. The diked salt marsh habitat generally consists of pickleweed interspersed with salt pannes, bare ground and small open water areas. The pickleweed observed within this habitat on Bair Island ranges from low to moderate vigor, and is highly variable in cover. As discussed earlier, these diked salt marshes periodically are inundated by heavy rainfall, which can cover virtually all of the pickleweed and other plant species present. The proposed loss and conversion of this habitat to tidal salt marsh, including restoring historical tidal drainages, would ultimately result in a healthier and more floristically diverse marsh, providing much better habitat for wildlife. Introducing tidal influence and restoring tidal salt marsh habitat has a net benefit to water quality, aquatic habitats and the aquatic species of San Francisco Bay (Goals Project 2000).

- **Implementation of Alternative A would result in conversion of approximately 894 acres of diked salt marsh to tidal salt marsh during the life of the project. (CEQA: Less Than Significant Impact) (NEPA: Significant Beneficial Impact)** [15]

Loss of Tidal Salt Marsh

Construction of levee breaches, flow-control structures, infrastructure protection and levee widening would cause the direct loss of approximately 3.2 acres of currently existing tidal salt marsh habitat. Most of this area would convert to tidal slough channels. Levee breaching and the subsequent restoration of historic, tidal, drainage channels within Inner, Middle and Outer Bair Islands would result in colonization and establishment of tidal salt marsh vegetation, ultimately restoring at least 1,400 acres of tidal salt marsh habitat within Bair Island. Several hundred acres of tidal salt marsh would be restored within the first three years of project implementation, with the remaining salt marsh evolving over the next 50 years (refer to Table 3).

- **In the short-term, approximately 3.2 acres of existing tidal salt marsh habitat would be lost under Alternative A. Several hundred acres of tidal salt marsh would be restored within the first three years of implementation, and up to 1,400 acres would be restored within 50 years. The large net increase in tidal salt marsh habitat would reduce impacts associated with the loss of 3.2 acres of tidal salt marsh habitat to a less than significant level. (CEQA: Less Than Significant Impact) (NEPA: Significant Beneficial Impact)**

Loss of Seasonally Ponded Wetlands

Under Alternative A, approximately 29.7 acres of seasonally ponded wetlands within Inner Bair Island would be converted to tidal salt marsh. These wetlands are largely supported by incidental rainfall, and currently contain low-to-moderate quality upper marsh plant species with low overall cover. These wetlands provide foraging habitat for a variety of shorebird species. However, the

[15] Under CEQA "significant effects on the environmental means a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project…" Under NEPA, impacts may be beneficial or adverse.

conversion of 29.7 acres of ponded wetlands to tidal salt marsh (within Inner Bair Island) would result in a more floristically diverse habitat with greater plant cover, providing high-quality habitat for wildlife (including shorebirds), especially for several rare, threatened and endangered species. In addition, levee breaching and changing the elevation of Inner Bair Island via the placement of dredged materials would restore the natural, historic tidal drainage flows, thereby allowing the tidal salt marsh to perform its integral functions (such as filter for sediments and pollutants) to the Bay ecosystem. Additionally, shorebird species that typically forage in such seasonal wetlands primarily forage on tidal mudflats. Implementation of the proposed restoration-plan alternative would provide additional intertidal mudflat habitat for a number of years, while vegetation becomes established. The final tidal marshes would include intertidal drainages, and drainage-divide ponds. Thus, there would be both short-term and long-term benefits for these species.

San Carlos Airport Safety Zone

To minimize adverse impacts to the San Carlos Airport safety zone while converting approximately 175 acres of upland habitat to wetlands, it would be necessary to fill approximately 6.4 acres of seasonally ponded wetlands. These wetlands would be filled to become upland habitat as required for the safety zone for the San Carlos Airport (on San Carlos Airport property located on Inner Bair Island). An approximately 11-acre portion of Inner Bair Island adjacent to the airport would be filled with dredged and fill material to create this upland habitat. Placement of dredged and fill material would minimize the amount of ponded open water areas and provide an upland area near the end of the runway within the Airport's flight path. This 11-acre area is currently comprises of non-native grassland and seasonally ponded wetlands.

The FAA Advisory Circular number 150/5200-33 recommends a distance of 5,000 feet between the airport and new wildlife attractants such as wetlands. The circular also provides for exceptions to the recommended distance when the wetland in consideration provides "unique ecological functions, such as critical habitat for threatened or endangered species." The goal of the Bair Island restoration project is to provide habitat for the California Clapper Rail and the salt marsh harvest mouse, and therefore clearly falls within the outlined exceptions. In addition, the airport is surrounded by existing aquatic and wetland habitat that already serves as an attraction for wildlife.

Due to concerns about the potential for bird-strikes at San Carlos Airport, a site specific approach for restoration and management near the San Carlos Airport was developed in coordination with airport personnel, FAA, and USDA Wildlife Services. The proposed filling of approximately 6.4 acres of seasonally ponded wetlands within the airport safety zone is proposed to limit the attractiveness of adjacent habitats to wildlife that would pose the greatest threat to aircraft landing or taking off from the airport.

The existing seasonally ponded wetlands in the vicinity of the airport are largely supported by incidental rainfall, and comprise low to moderate quality, upper-marsh plant species (including several non-native plant species). Some small area of seasonal wetlands may redevelop in depressions following dredge material consolidation in the airport safety zone. These seasonal wetlands would be similar to those impacted.

As discussed previously, implementation of the restoration plan would result in habitat conversions on Outer, Middle and Inner Bair Island that would benefit shorebird species that typically forage in seasonally ponded wetlands. These benefits would occur in both the short-term and long-term. The project would also restore 1,400 acres of tidal salt marsh, including the conversion of over 175 acres

of upland habitat to tidal salt marsh habitat on Inner Bair Island. Overall, the project's restoration of these habitats would reduce the adverse effects from the permanent loss of seasonal wetlands on Inner Bair Island to a less than significant level.

- **Implementation of Alternative A would result in the conversion of approximately 32.3 acres of seasonally ponded wetlands to upland and tidal salt marsh habitat. Considering the overall increase in tidal salt marsh habitat and habitat for shorebirds, this alternative would not result in substantial adverse impacts to sensitive habitats. (Less Than Significant Impact)**

Impacts to Special-Status Plant Species

Loss of Congdon's Tarplant

Suitable habitat for Congdon's tarplant occurs in the non-native grassland habitat and along the margins of seasonally ponded wetlands within Inner Bair Island. It is possible that the species occurs on-site. Although the species is on the CNPS List 1B, (plants rare, threatened, or endangered in California and elsewhere), relatively large populations of Congdon's tarplant occur in Santa Clara and Alameda counties. A combined total of approximately 950,000 plants was observed in 1998 at three locations in the Livermore/Dublin area. Also in 1998, a population of approximately 7,000 plants was reported in the Warm Springs District in Fremont, and a population of approximately 2,500 plants was observed in Alviso, north of Highway 237. Numerous other large populations of Congdon's tarplant have been recently reported in Alameda County, particularly in the Livermore/Dublin area, and in Contra Costa County. Specific locations of each of these populations are maintained by the California Natural Diversity Database. Over the last several years, relatively large populations of this species have been found scattered throughout the nine Bay Area counties. As awareness of Congdon's tarplant increases with professional botanists, resource agencies, and the public, more and more populations continue to be discovered. Due to the highly invasive nature of this species, and tolerance for disturbance, any populations of Congdon's tarplant currently within the study area would be expected to recolonize disturbed upland habitats after work is completed. Based on the abundance of this species in the region, and given the relatively small predicted potential of impact to Congdon's tarplant on site due to habitat conversion, any impacts to populations of this plant species would be less than significant.

- **The conversion of seasonally ponded wetlands could result in the loss of Congdon's Tarplant on Inner Bair Island. Based on the abundance of this species in the region and the relatively small impact to possible populations of Congdon's tarplant, impact would be less than significant. (Less Than Significant Impact)**

Impacts to Special-Status Wildlife Species

Impacts to the Salt Marsh Harvest Mouse

The purpose of the project is to restore tidal salt marsh to provide substantial, long-term benefit to endangered species, including the salt marsh harvest mouse. The increase in tidal salt marsh would provide a permanent net benefit to this species. Nonetheless, there would be some initial effects of the restoration on individual salt marsh harvest mice. These are described below, as are considerations for trying to minimize those initial effects.

The broad tidal salt marshes on site provide high-value habitat for the federally and state endangered salt marsh harvest mouse. Narrow strip marshes, which occur in some tidal locations, have value as corridors or refuges, but do not support the densities of mice found in the broader marshes. The diked salt marsh presently existing on site provides poor to moderate quality habitat for this species. As described previously, Alternative A would cause approximately 3.2 acres of tidal salt marsh to convert to aquatic habitat and approximately 894 acres of diked salt marsh to convert to tidal salt marsh habitat. The process of converting these habitats would cause a temporary loss of harvest mouse habitat at some locations until the marsh regenerates naturally over a period of years (5 – 50 years based upon the specific location within Bair Island). However, the conversion of diked salt marsh to tidal salt marsh would ultimately result in a healthier and floristically more diverse marsh, providing better habitat and increasing the carrying capacity at Bair Island for the species. The total area of tidal salt marsh habitat that would evolve over the life of the project (including over 200 acres of new pickleweed-dominated marsh on Inner Bair Island) would greatly exceed the current amount of tidal salt marsh and diked salt marsh on site, benefiting mouse populations. Population densities of salt marsh harvest mice in large tidal marsh far exceed those in sparse diked marshes such as those currently present on Middle Bair Island (H.T. Harvey & Associates, 1990).

Flooding Impacts

When the outboard levees are breached, tidal waters would flood the diked marshes. Each scheduled breach would be done systematically, with the Outer Bair Island selected levees to be breached first then Middle Bair Island levees and Inner Bair Island levees. As floodwaters enter the marsh, any salt marsh harvest mice living in the area would presumably seek higher ground, and/or enter adjoining marshes by crossing over a levee (Fisler 1965, Shellhammer 1982). As this tidal flooding occurs, water would enter the marsh at a rate that would provide ample time for mice to move away from the water. However, these animals would encounter other salt marsh harvest mice, voles and house mice. The outboard marshes would not be able to support all of this influx of new animals. The net result would be a short-term loss of habitat and associated carrying capacity in the marshes.

Without the levees breaches, the population of salt marsh harvest mice are impacted by flooding from winter rainfall. In periods of high rainfall, the entire diked pickleweed marsh is covered in water resulting in the loss of most or all of the existing mice. Levee breaches would allow tidal exchange and prevent the ponding of winter rains thereby eliminating long periods of flooding of pickleweed habitat (except for short periods during high tide events) that result in the loss of salt marsh harvest mice. Therefore, in the long-term, this would result in improved habitat for the mice.

Consideration was given to methods that could minimize take of the salt marsh harvest mouse. The possibility of relocating animals prior to flooding was examined. This would entail trapping the affected area before flooding and moving all captured animals away from the site. Attempts to re-introduce small mammals such as rodents have been difficult. Bright and Morris (1994) showed that it was hard to re-introduce dormice (*Muscardinus avellanarius*); in most cases successful re-introductions required the provision of supplemental food. Danielson and Gaines (1987) noted that it was very difficult to re-introduce prairie voles (*Microtus ochrogaster*) into habitats already occupied by conspecifics. The situation in voles is considered to be the general situation for most small rodents. Salt marsh harvest mouse translocations have proven unproductive in the past (H. T. Harvey & Associates 1984, 1999). A later study (H. T. Harvey & Associates 1999) documented the ability of the salt marsh harvest mouse to return to the area of disturbance, in spite of extensive efforts to prevent that return. Forty nine unique individuals were captured and relocated during the study. Twenty seven times, an individual that had been relocated returned to the area within the exclusion

fence. Some of these individuals were recaptured even after being moved a distance of over 900 feet. The majority of the recaptured animals were males apparently returning to their home territories. Relocated juveniles did not return to the site. Females were also recaptured but not as frequently as males. Depending upon the small mammal assemblage present at the relocation site, introducing new animals has the potential to cause serious disruptions to the existing makeup of the small mammal community. Overcrowding and exceeding carrying capacity are some possible detrimental effects. The most vulnerable animals under these circumstances would be the translocated mice. Being unfamiliar with their new surroundings, translocated mice would be more susceptible to predation and inter- and intra-species competition. All of these factors could work together to render an active translocation of highly questionable value. Allowing animals to passively seek new habitats may result in higher survival rates, although there is no experimental evidence to support that possibility. In situations where there is a large undisturbed marsh with suitable habitat for the salt marsh harvest mouse adjoining the area of disturbance, the value of exclusion trapping is questionable. This adjoining marsh can provide a source for recolonization of the disturbed area. Neither exclusion trapping (that was used in this case) nor vegetation removal is likely to increase the probability of persistence of the local population.

Additionally, some animals would be lost from the initial breach in the levees. However, the net benefit of restoring the diked salt marsh back to tidal influence would far outweigh any immediate impacts on individual animals. This restoration would positively affect the greater salt marsh harvest mice population and would contribute to the recovery of the species as a whole. As it stands, this area of diked salt marsh provides poor to moderate quality habitat for salt marsh harvest mice. In the future, this area could represent one of the most prolific areas for the species.

Potential Impacts From Construction Equipment

Heavy equipment would be used for placement of dredged material, levee breaches, and installation of channel controls. Some of this activity would occur in existing salt marsh harvest mouse habitat. The use of exclusion fences has been tested in the past to keep animals out of the footprint of construction. This method attempts to avoid take of listed species from of heavy equipment use and other invasive construction activity. Salt marsh harvest mice are one of the smallest mammals in North America, making even the most negligible tear in the fence an easy entrance into the construction site. Salt marsh harvest mice also can and do move under fences through cracks in the mud channels. Therefore, exclusion fences are not very effective for keeping salt marsh harvest mice out of an area. Exclusion fences surrounding areas to be dredged would provide little, if any, protection to salt marsh harvest mice. No other method to exclude the animals has been identified. Before construction takes place in areas with suitable habitat for the salt marsh harvest mouse, the vegetation will be removed by hand starting in the middle and working outward. This should reduce the presence of mice during the construction period. As described above, the net long-term benefits to the species and populations on Bair Island reduce the overall effects of the project on the species to a less than significant level.

Comparison to No Action Alternative

The same short-term loss of both individual salt marsh habitat mice and their habitat during flooding from levee breaches would also occur from the implementation of the No Action Alternative, albeit at a later undetermined date. It occurs now, on a periodic basis, due to high rainfall years where the marshplains are inundated. This situation creates what is known as a population "sink". Specifically, areas are colonized by salt marsh harvest mice, but those individuals are periodically

forced out due to high water, and may perish. As with the No Action Alternative, loss of individual salt marsh harvest mice during implementation of Alternative A would not cause the population to fall below a level that can not repopulate the newly created habitat in the future.
There would be no construction-related impacts from the No Action Alternative, since no construction activities would occur in or adjacent to salt marsh harvest mouse habitat.

- **During and shortly after the levee breaching, Alternative A would result in the temporary loss of habitat for salt marsh harvest mice, and loss of some individual animals. In the context of the substantial increase in habitat and the associated population expansion associated with the new habitat, both the temporary reduction in habitat and loss of individual animals would not result in a net loss of habitat. (CEQA: Less Than Significant Impact) (NEPA: Significant Beneficial Impact)**

Impacts to Breeding California Clapper Rails During Construction

The primary purpose of the project is to restore tidal marsh to provide benefits to endangered species, including the California Clapper Rail. The project has been designed to maximize that restoration potential. The increase in tidal salt marsh would, under Alternative A, provide a net benefit to the species. Nonetheless, there could be some initial effects of the restoration on California Clapper Rails. These are described below, as are considerations for trying to minimize those initial effects.

Restoration of the marshes would involve constructing levee breaches through tidal marsh. These breaches would eliminate approximately 3.2 acres of tidal salt marsh. Additionally, while the method of construction of those breaches has not been determined (*i.e.,* dredging from the channels or dredging from levee tops), there would likely be movement of construction equipment along the existing levees in some areas. While no rails have been known to use Smith Slough, installation of channel controls in Corkscrew Slough, in which Clapper Rails have been found, might impact rails because access by boat, and probably along levees, would be required. Levees would be lowered in selected locations to provide fill for borrow-ditch blocks, and to enhance restoration. These construction activities could disrupt breeding and cause disturbance that impacts Clapper Rails. As stated previously, breeding Clapper Rails do tolerate disturbance in some locations, but it is assumed that some disruption to rails would occur.

Consideration was given to limiting the activities described to the four months of the non-breeding season to minimize impacts to California Clapper Rails and associated indirect effects such as disturbance from construction activities near rail habitat. If the disturbance was extended over two or more years or seasons, there would be a much longer period of time during which individual rails (which are sensitive to disturbance) would be impacted. It would be better to confine the impacts to one season, and prevent extended disturbance over multiple seasons.

Comparison to the No Project Alternative

The No Action Alternative would not be likely to have construction-related impacts to nesting Clapper Rails similar to Alternative A. Although some work would occur (e.g., levee maintenance) in or adjacent to pickleweed habitat at Inner Bair Island, rails have not been recorded at Inner Bair Island, and are not expected to occur there under current conditions of high human use. Under the No Action Alternative, the public will continue to access the entire trail for approximately 5 years when the trail will be closed. Although public disturbance to the wildlife at Inner Bair Island will decrease at that time, the area will not be restored and therefore not contain habitat for Clapper Rails.

- **The increase in tidal salt marsh habitat under Alternative A would provide a net benefit to California Clapper Rail in terms of increased breeding and foraging habitat. Construction activities associated with the implementation of Alternative A may result in disturbance to nesting California Clapper Rail during a single nesting season. Limiting construction activities to a single season would not, however, substantially impact the long-term breeding success of California Clapper Rail on Bair Island. (CEQA: Less Than Significant Impact) (NEPA: Significant Beneficial Impact)**

Future Disturbance to California Clapper Rails

Public access in the vicinity of nesting California Clapper Rails has the potential to disrupt breeding. There are situations where rails are known to nest in close proximity to public trails (*e.g.*, Palo Alto Baylands, Luameister Tract, Greenbrae boardwalk, and numerous trails within the Don Edwards San Francisco Bay National Wildlife Reserve (NWR)). Rails nesting in areas with public use may become somewhat accustomed to people, but they are very vulnerable to dogs. The reproductive success of these birds is unknown. A substantial increase in public use of the area, especially associated with unleashed dogs, may result in some disturbance. Disturbance of rails and other nesting waterbirds can lead to abandonment of nests and chicks, resulting in decreased reproductive success (Albertson 1995, Rodgers and Smith 1995, Carney and Sydeman 1999, USFWS 2001).

The trail around Inner Bair will no longer be a 3.3-mile loop trail to facilitate the restoration of Smith Slough to its historic meander. Because of the large variety of boat types that will be using Smith Slough, a trail bridge cannot be installed over the breaches without interfering with boating. In addition, a complete loop trail around Inner Bair Island will lessen the quality of restored Clapper Rail habitat.

Moderate public access under Alternative A would not increase public access in new areas, and leash restrictions, if followed, may reduce the potential for such disturbance. Additionally, the extensive tidal restoration proposed for Inner Bair Island would provide extensive, more isolated, nest locations than, the current strip marsh surrounding Inner Bair Island. However, the new habitat created under Alternative A will provide nesting habitat for rails in close proximity to areas used by humans. This potential for disturbance from humans and dogs on rails will be offset somewhat by a decrease in the total length of the recreation trail from 3.3 miles to 1.8 miles. The pedestrian bridge access at the east end of Inner Bair Island will incorporate design features to discourage predator passage, thus limiting terrestrial access by predators. The potential for long-term disturbance therefore is less than significant.

- **The proposed public access may result in some disturbance to California Clapper Rails, but the impact would not be a substantial increase compared to existing conditions. Future habitat would result in an improvement in available nesting sites compared to existing conditions. (Less Than Significant Impact)**

Loss of Harbor Seal Haul-out Access

Harbor seals haul-out on three sections of Corkscrew Slough year-round, using the mudflats of the slough as pupping sites during spring, their primary mating season. The primary areas used are in eastern Corkscrew Slough, with a secondary site in central Corkscrew Slough. The western haul-out site receives minimal use because, at low tide, suitably deep water for seals to escape is lacking (Kopec and Harvey 1995, Trulio et al. 2003). The proposed flow restrictor would be placed to the

west (Steinberger Slough side) of the commonly used eastern haul-out sites close to the seldom used middle haul-out site. The restrictor could potentially impede access to the middle haul-out site, as seals are only known to enter the slough from Redwood Creek (Trulio et al. 2003). In addition, a viewing platform is proposed (accessible by boat) at the flow restrictor. Human presence at the viewing platform would likely reduce the use of this site by harbor seals. The primary haul-out site, to the east of the block, would not be affected. Additional haul-out sites on Outer Bair Island would also not be affected by Alternative A. There are numerous other haul out sites in the South Bay, including areas such as Mowry Slough. Corkscrew Slough is a relatively small haul out, with a maximum count in the early 1990's of 25 seals, compared with 40 at nearby Greco Island, and more than 200 in Mowry Slough (Kopec and Harvey 1995). Seals currently also use the recently restored tidal marshes on Outer Bair Island as haul-out sites, which is analogous to the conditions that would be created by the restoration of the remainder of Bair Island. Therefore, as the restoration process progresses, additional mudflats and emergent marsh would be created and would likely serve as new haul-out areas for harbor seals. While access to and use of the existing middle haul-out site that receives minimal use would be impeded, there are a number of other sites available to harbor seals in the area, and substantial new sites would be created by the project.

Compared to Alternative A, the No Action Alternative would not block access to haul-out site for harbor seals because the flow restrictions would not be constructed.

- **Although Alternative A would block access to a harbor seal haul-out site that receives minimal use along Corkscrew Slough, there are a number of other haul-out sites available in the area and new suitable sites would be created as part of the restoration activities. (Less Than Significant Impact)**

3.1.3.3 Alternative B: Tidal Marsh Restoration and Restricted Public Access

The majority of the effects of implementing the restoration plan under Alternative B on vegetation and wildlife are identical to those of Alternative A. However, Alternative B will reduce impacts to wildlife relative to Alternative A, including the endangered California Clapper Rail and salt marsh harvest mouse by eliminating the public access trail at the east end of Inner Bair Island and eliminating impacts from dogs. See *Section 3.1.3.2* for descriptions of the effects of implementing the restoration plan including: Loss of tidal salt marsh during construction, conversion of diked salt marsh to tidal salt marsh, loss of seasonally ponded wetlands, loss of Congdon's tarplant, impacts to salt marsh harvest mice, impacts to breeding California Clapper Rails and loss of harbor seal haul-out access. These impacts are identical to those of Alternative B.

Under the Restricted Public Access of Alternative B, California Clapper Rails and other wildlife may have somewhat reduced impacts from disturbance by dogs, depending on how well the leash restrictions are observed under Alternative A. Dogs may be perceived by rails as predators, causing rails to abandon nests or chicks, and dogs off-leash have the potential to step on or depredate nests, chicks, or adult rails. Studies of Piping Plovers and Snowy Plovers have shown that birds react at closer distances to dogs than to pedestrians (USFWS 2001). However, with the leash restrictions under Alternative B (and the prohibition of dogs under Alternative A if the leash law is regularly violated), disturbance impacts under Alternative B are not expected to be substantially different from those under Alternative A.

Under Alternative B, there will be a seasonal closure of Corkscrew Slough to prevent disturbance to pupping harbor seals. From March 15 to June 15, the slough will be closed to all boat traffic. Boat

traffic can disturb seals, causing them to flush from haul-out sites (Allen et al. 1984, Suryan and Harvey 1999). During the pupping season, disturbance could potentially lead to abandonment of pups. A closure to boating during this time period would prevent unnecessary disturbance. However, research has shown that with some precautions, such as speed limits on boats and buffer areas around haul-outs, seals will tolerate human use of adjacent waters (Terhune and Brillant 1996, Suryan and Harvey 1999). Under Alternative A, educational signs will be posted at nearby marinas directing boaters how to avoid impacts to harbor seals, and a no-wake speed limit will be imposed in Corkscrew Slough. Thus, a significant difference in disturbance to harbor seals between Alternatives A and B is not expected. Both Alternatives A and B are expected to lead to a decrease in disturbance to harbor seals over current conditions. Under the no action alternative, disturbance to harbor seals will continue at current levels for several years, but eventually Corkscrew Slough will become unsafe for boating, and will be closed to boats. At that time, potential impacts to harbor seals from human disturbance would be eliminated.

3.1.3.4 Alternative C: Tidal and Managed Marsh Restoration and Moderate Public Access

Impacts to vegetation and wildlife from the implementation of Alternative C are nearly the same as described for the Tidal Marsh Restoration Alternatives (Alternatives A and B) except on Inner Bair Island. The effects of implementing the restoration plan are identical to those of Alternatives A and B at Middle and Outer Bair Islands, since there are no differences in the restoration plan at these sites. See *Section 3.1.3.2* for descriptions of effects of implementing the restoration plan including: loss of tidal salt marsh, conversion of diked salt marsh to tidal salt marsh, impacts to salt marsh harvest mice and California Clapper Rails, and loss of harbor seal haul-out access.

Under Alternative C, the hydrologic structures would be used to direct limited tidal flows onto Inner Bair Island. The existing unmanaged seasonal wetlands and upland habitats on Inner Bair would be largely replaced by a complex of managed, diked, salt marsh and seasonal wetlands. This complex would create habitat for the salt marsh harvest mouse, but would not create habitat for the California Clapper Rail. Compared to Alternatives A and B, approximately 260 acres less tidal marsh habitat suitable for the California Clapper Rail would be created. There would be longer trails under this alternative and it would, therefore, have a greater impact on sensitive species than the other alternatives.

Compared to the No Action Alternative, this alternative would create at least 200 more acres of diked salt marsh suitable for the salt marsh harvest mouse.

3.1.3.5 Alternative D: Tidal and Managed Marsh Restoration and Restricted Public Access

Impacts to vegetation and wildlife from implementation of Alternative D are already stated under Alternatives B and C. The public-use plan will be the same as that in Alternative B and therefore, the impacts will be the same as listed for public use in Section 3.1.3.3. The impacts from implementation of the restoration of tidal marsh on Middle and Outer Bair Islands and managed marsh on Inner Bair Island will be the same as that in Alternative C and therefore, the impacts will be the same as listed in Section 3.1.3.4

Conclusion: All of the alternatives, including the No Action Alternative, would eventually restore tidal action and create tidal salt marsh habitat. The differences between the alternatives involve how

quickly tidal salt marsh habitat is created, how much marsh is ultimately restored, quality of the restored habitat and amount of impact from public use. The No Action Alternative would restore the least amount of high-quality salt marsh habitat over longest amount of time. Alternatives A and B would create the greatest amount of high-quality tidal marsh habitat in the shortest amount of time however, there would be less impact from public use under Alternative B. Alternatives C and D would not restore tidal salt marsh to Inner Bair; therefore there would be less tidal salt marsh than Alternatives A and B. However, since public use would be more restricted in Alternative D (as it is in Alternative B), there would be less impact from public use under Alternative D than Alternative C.

All of the alternatives, including the No Action Alternative, would result in less than significant adverse impacts to vegetation and wildlife. In addition, all of the alternatives including the No Action Alternative would result in significant beneficial impacts, in accordance with NEPA CEQ Regulations, *to tidal salt marsh habitat.*

3.2 Hydrology and Water Quality

3.2.1 Existing Setting

This section is primarily based upon an Existing Hydrologic Conditions Assessment prepared by *Philip Williams & Associates,* located in Appendix D of this EIS/EIR.

Historic Conditions

Bair Island was once part of a continuous band of tidal salt marsh wetland along the southwest shoreline of southern San Francisco Bay. From the time of initial submergence (approximately 10,000 years ago) until large-scale reclamation began (about 150 years ago), the aerial extent of the Bay's tidal marshes was determined by the interaction of sea level rise, estuarine sedimentation, and wind-wave erosion. Initially, salt marsh sedimentation and organic accumulation were not able to keep pace with the rapid rise in sea level, and the Bay supported only a thin, discontinuous fringe of salt marsh along its perimeter. The rate of sea level rise slowed to its current rate approximately 6,000 years ago, and allowed a continuous marsh fringe around the Bay as marsh accretion (slow addition to land by deposition of water-borne sediment) kept pace with sea level rise.

Near the turn of the century, portions of Bair Island were included in several attempts to reclaim marshplain land for agricultural use. The reclaimed areas eventually reverted back to marsh due to levee failure and tidal inundation. Between 1948 and 1952, most of Middle and Outer Bair Islands were leveed for use as salt evaporation ponds. Commercial salt production continued until 1965, when the ponds were drained and abandoned. Although not documented in the literature, it is believed that Inner Bair was leveed at the same time as Middle and Outer Bair Islands. Levee placement along Inner Bair included cutting off a large meander of Smith Slough and adding an area to Inner Bair Island that was formerly part of Middle Bair. Borrow ditches, or trenches in the soil, were created throughout Bair Island by excavation for construction of the levees. Tidal inundation was restored to a large portion of Outer Bair through a series of planned and unplanned levee breaches in the late 1970s and early 1980s, after the land was transferred to the California State Lands Commission as mitigation for the development of Redwood Shores.

Although the locations of the major slough channels have remained essentially unchanged between 1857 and the present, flow patterns have changed over time. The most significant change has been the increased conveyance through Redwood Creek due to dredging, which has captured a large portion of the tidal prism that once drained through Steinberger Slough. Since dredging in Redwood Creek began in 1955, Corkscrew and Smith Slough tidal flows have shifted toward Redwood Creek, making Steinberger Slough shallow due to lack of tidal scour. This pattern of shifting tidal flows has resulted in Smith Slough, the lower reach of Steinberger Slough, and the western portion of Corkscrew Slough all draining to Redwood Creek under existing conditions. (The sloughs and Redwood Creek are all shown in Figures 12).

Tidal Characteristics

San Francisco Bay experiences mixed semidiurnal tides, with two unequal high tides and two unequal low tides each day. Tides are modified with respect to their height and phase as they propagate through the Bay. Tidal data collected in Redwood Creek by the National Ocean Service

(NOS, 1987) are summarized in Table 4. The 10- and 100-year estimated high tides are from the U.S. Army Corps of Engineers (USACE, 1984) and represent extreme events.

Table 4: Tide Characteristics at Redwood Creek, Channel Marker No. 8, San Francisco Bay

	Elevation Relative to MLLW (feet)	Elevation Relative to NGVD (feet)
Estimated 100-Year High Tide	11.2	7.3*
Estimated 10-Year High Tide	10.5	6.6
Mean Higher High Water (MHHW)	7.96	4.05
Mean High Water (MHW)	7.35	3.44
Mean Tide Level (MTL)	4.27	0.36
National Geodetic Vertical Datum, 1929 (NGVD)	3.91	0.00
Mean Low Water (MLW)	1.19	-2.72
Mean Lower Low Water (MLLW)	0.00	-3.91

Sources: NOS (1987), USACE (1984), PWA analysis
Note: Elevations are for the 1960 to 1978 tidal epoch
* Adopted elevation: adopted by the USACE from the smoothed profile to calculate 100-year tides

Tidal influences are observed throughout the slough network at Bair Island, with no appreciable damping or phase difference of high water levels. However, the shallow depths of Steinberger Slough retard ebb flow to some degree during lower low tides.

Regional Drainage Patterns

Three major creeks – Redwood, Cordilleras, and Pulgas Creeks – convey surface runoff from the hillsides southwest of Bair Island to San Francisco Bay. Redwood Creek continues all the way to the Bay, while Cordilleras and Pulgas Creeks flow into borrow-ditches adjacent to the southwestern border of Inner Bair and from there to Smith and Steinberger Sloughs (refer to Figure 12). The storm drain systems of Redwood City and San Carlos discharge runoff into Redwood Creek and Pulgas Creek, respectively, through a combination of gravity drainage and pumping.

Redwood Creek

Redwood Creek drains 9.3 square miles of a largely developed watershed, almost entirely within the limits of Redwood City. The U.S. 101 bridge over Redwood Creek is well above the 100-year tide and allows for unrestricted passage of high flows as they drain to the Bay. Redwood City began a major storm drain improvement and channelization project on Redwood Creek in 1967, which extended and enlarged the storm drain system, added pump stations, and lined portions of the creek channel with concrete.

Most of the flows from low-lying areas of the Redwood Creek watershed are collected by nine pump stations, eight of which discharge directly to Redwood Creek. The remaining pump station drains into a leveed storage basin between U.S. 101 and Inner Bair, and then through a culvert to the eastern Inner Bair borrow-ditch. A limited area drains to Redwood Creek via gravity drainage.

Figure 12: Bair Island Waterways

Cordilleras Creek

Cordilleras Creek drains a 3.6-square mile watershed and forms much of the border between Redwood City and San Carlos. Most of the channel remains in its natural state, without significant human alterations. The creek passes through three 12-foot by 6-foot concrete box culverts under U.S. 101 before discharging into the western Inner Bair borrow-ditch. Tidal influence extends approximately 1,000 feet up the creek from the Bay to Redwood High School. Cordilleras Creek is not connected to the main storm drain systems of either Redwood City or San Carlos.

Pulgas Creek

Pulgas Creek collects surface runoff from a 3.6-square mile area in central San Carlos and a small part of Belmont. The creek is confined to culverts in its lower watershed, including three 12-foot by 6-foot concrete box culverts under U.S. 101. Portions of Pulgas Creek have been channelized or lined with levees to protect adjacent areas against tidal flooding. A pump station at Industrial Road pumps floodwaters from nearby street conduits into the creek, while the remainder of the watershed appears to be gravity-drained.

Steinberger Slough and San Francisco Bay

Three main drainage areas northwest of Bair Island discharge to Steinberger Slough or directly to San Francisco Bay. Storm water runoff from San Carlos Airport is accommodated by several on-site pump stations that drain directly to Steinberger Slough. Runoff from northern San Carlos and Belmont drains to a holding pond in Phelps Slough, before being pumped into Steinberger Slough. Runoff from Redwood Shores is routed to a controlled interior lagoon, from which flows are collected by pump stations or stored until they can be released via gravity drainage at low tide to Steinberger Slough or to the Bay.

Regional Water Quality

Water quality varies throughout the San Francisco Bay Estuary due to variability in discharges of pollutants, tidal stage, and hydrodynamic circulation. Salinity and the concentrations of total suspended sediment (TSS) are two of the most fundamental water quality parameters that describe basic habitat and water chemistry. These parameters also influence chemical and physical processes, such as density stratification and vertical mixing of bay waters. Long-term monitoring has shown that South San Francisco Bay experiences large variability in surface salinity, with levels fluctuating between nearly zero to nearly marine values (about 32 parts per thousand, (ppt)). Variations in salinity occur on seasonal and inter-annual time scales, largely in response to freshwater inputs derived from local watersheds, as well as the Delta. Large river flows have a strong effect on TSS in Suisan and San Pablo Bays, but a weaker influence on concentrations in South Bay, where inputs from the local watersheds affect TSS values. In general, large gradients in salinity and TSS are observed during the wet season due to intense watershed inputs, but are damped during the dry season when discharge from the watersheds are reduced. Changes from dry to wet conditions may occur rapidly. For example, salinities in the South Bay dropped from 28-30 ppt to about 10 ppt between January 1 and February 8, 1998, in response to a series of El Nino-driven storms (SFEI 2000).

Existing Bair Island Drainage

Water levels in the inactive salt ponds on Inner, Middle and Outer Bair Islands are a function of ponding of direct rainfall, evaporation, and levee seepage. A slide-gated culvert on Inner Bair offers some level of drainage between the pond interior and Smith Slough, although its function is limited due to blockage by debris.

Beginning in the late 1970s or early 1980s, water in Middle and Outer Bair was siphoned periodically during the rainy season to minimize mosquito production. The San Mateo County Mosquito Abatement District discontinued siphon operations in 2000 due to lack of funds and staffing, although the PVC pipes are still visible at the site. Siphon operations were never carried out at Inner Bair since the area is easily accessible for other types of mosquito abatement.

Flooding Conditions

Flooding on and around Bair Island usually occurs in winter or early spring, and is most severe when a large frontal storm coincides with an extreme high tide. Current Federal Emergency Management Agency (FEMA) flood mapping shows Bair Island completely within the 100-year floodplain (FEMA 1982), although recent surveys in 1993 demonstrated that limited levee improvements around Inner Bair appear to provide protection against 100-year flooding. Off-site flooding has been observed due to levees being overtopped by high tides (tidal flooding), or due to a combination of high tides and high rainfall runoff at the downstream reaches of creeks (creek flooding).

Tidal flooding has been documented in portions of Redwood City and San Carlos, especially in areas east of U.S. 101 (FIA 1977). Prior to the 1967 storm drain project, flood events along Redwood Creek seem to have been caused by high creek flows and overtopping of channel banks. Later flood events along this creek appear to be caused by limited culvert capacity and debris blockage in the storm drain system. Flooding along Cordilleras Creek is exacerbated by erosion in the upper watershed, resulting in deposition and blockage in the flat, low-lying areas. Overflow from Pulgas Creek causes flooding in the industrial area between U.S. 101 and El Camino Real. Due to persistent minor flooding, Caltrans has recently improved the culverts under U.S. 101 along Pulgas Creek, and other improvements along surface streets further upstream are planned.

3.2.2 Methodology and Significance Criteria for Hydrology and Water Quality Impacts

State CEQA Guidelines and NEPA CEQ Regulations were used to determine the significance of hydrology and water quality impacts. Impacts on hydrology and water quality were assessed by comparing expected conditions in the future under each alternative scenario against the current hydrologic conditions. A major assumption is that conditions predicted to result with implementation of each action alternative would occur within 50 years of project implementation.

Potential impacts of the project on hydrology and water quality were characterized by evaluating direct, indirect, temporary, and permanent impacts. Temporary hydrologic and water quality impacts have a short duration, and would be expected to recover or be restored with a few years after implementation. A permanent impact would involve the long-term alteration of vegetation or wildlife habitat because the project would result in the removal or change in the vegetation type.

Under NEPA CEQ Regulations, significant impacts may be beneficial or adverse and are considered equally.

The following criteria were used to determine significant hydrologic and water quality effects under the State CEQA Guidelines. A hydrologic and water quality impact is considered significant if the project would:

- substantially alter existing drainage patterns in terms of direction or magnitude in a manner which would result in substantial erosion or siltation on-or off-site; or
- place structures within the 100-year flood hazard area that would impede or redirect flood flows; or
- increase the risk of substantial property loss, injury, or death as a result of flooding; or
- violate water quality standards; or
- substantially degrade water quality; or
- create a safety hazard for people boating in the project area.

Based on NEPA CEQ Regulations, the project would have a beneficial hydrology and water quality impact if it would:

- reduce the risk of flooding that could cause substantial property loss, injury, or death as a result of flooding; or
- result in modifications to surface drainage patterns that restore hydrologic conditions that support wetland structure and functions.

Impact Analysis Approach

Existing (2003) conditions were used as the baseline for the analysis of hydrologic and water quality impacts. Therefore, impacts related to the alternatives under consideration, including the No Action Alternative, were established by comparing expected conditions in the future under each alternative scenario against current hydrologic conditions. Note that hydrologic conditions change significantly under the No Action Alternative, as mentioned in the description of alternatives.

3.2.3 Hydrology and Water Quality Impacts

3.2.3.1 No Action Alternative

Modification of Surface Drainage Patterns

Tidal inundation at the inactive salt ponds at Middle and Outer Bair Islands could be expected to occur over the next decade or two, as levees fail due to discontinued maintenance. Compared to current 2003 conditions, this impact would result in drainage patterns closer to the historic configuration. Regular tidal inundation will facilitate nutrient and sediment transport into the inactive salt ponds, which is necessary for sustainable wetlands, including tidal salt marsh. The primary source of nutrients and sediment would be the waters of San Francisco Bay. However, the benefits of unplanned tidal inundation under the No Action Alternative would be substantially less than under the other alternatives since breaches would not be optimized for habitat restoration, and temporary poor drainage would result in slower sedimentation rates on the marshplains, more tidal muting inside the ponds, and lower rates of vegetation colonization.

Potential for Increased Siltation of the Redwood Creek Shipping Channel

Uncontrolled levee breaches and tidal inundation under the No Action Alternative would roughly triple the amount of sediment-laden water from the Bay that passes through the Redwood Creek Shipping Channel during a typical tidal cycle. Despite this increase in tidal prism, current velocities through the channel would remain relatively low due to maintenance dredging which keeps the channel artificially deep and its cross-sectional area large. The increase in volume of sediment-laden water drawn, coupled with the relatively low current velocities, would substantially increase the rate of sedimentation along the deep shipping channel. Numerical modeling indicates that the existing sedimentation rate along the shipping channel could approximately triple (PWA 2002). This rapid reduction in depth (shoaling) would have adverse effects to deep-draft access to the Port of Redwood City, which is served by the Redwood City Shipping Channel. This reduction in the depth of the shipping channel would reduce the size of the ships that would be able to access the Port facilities or would require more frequent dredging of the shipping channel. Both the reduction in the size of the ships using the Port and/or increased dredging of the Shipping Channel would have a negative financial impact on the Port. This impact is considered significant.

- **The No Action Alternative would result in substantially increased sedimentation that would decrease the depth of the Redwood Creek. (Significant Impact)**

Increases in Flow Velocities at Pete's Outer Harbor

Unplanned tidal inundation at the inactive salt ponds due to levee failures would increase the tidal prism passing through Smith Slough since much of the flow would be preferentially routed toward Redwood Creek. This would lead to an increase in peak current velocities.

- **The No Action Alternative would increase velocities at Pete's Outer Harbor, which would be greater than existing peak tidal velocities and could result in exceeding safe navigation requirements for small water craft. (Significant Impact)**

3.2.3.2 Alternative A: Tidal Marsh Restoration and Intermediate Public Access (*Proposed Action*)

Modification of Surface Drainage Patterns

The proposed restoration activity would reestablish tidal exchange over the inactive salt ponds and increase tidal flows through Steinberger Slough, modifying the surface drainage patterns in the project area. Regular tidal inundation will facilitate nutrient and sediment transport into the inactive salt ponds, which is necessary for sustainable wetlands, including tidal salt marsh. The primary source of nutrients and sediment would be the waters of San Francisco Bay.

Human-induced changes, over the past century, such as the construction of salt pond levees, have significantly altered wetland functions on Bair Island. The Action Alternatives, including Alternative A, would reestablish a drainage pattern closer to the historic hydrologic configuration that supported wetland structure and functions along the margins of San Francisco Bay. Although existing surface drainage patterns and sedimentation rates would be altered, this would constitute a beneficial, rather than an adverse, environmental effect at this location.

- **Alternative A would modify surface drainage patterns in the sloughs by restoring historic drainage patterns. The restoration of regular tidal inundation to portions of Bair Island will facilitate nutrient and sediment transport that supports wetland structure and functions. (CEQA: Less Than Significant Impact) (NEPA: Significant Beneficial Impact)[16]**

Protection of Infrastructure on Inner Bair

Alternative A includes levee improvements to protect against unplanned tidal inundation, specifically at the San Carlos Airport safety zone and along the South Bay System Authority (SBSA) sewer line. Under this alternative, the restoration design of Inner Bair includes construction of a levee around the perimeter of the San Carlos Airport safety zone to provide the same amount of flood protection as under existing conditions and would add additional fill within the safety zone which would raise the elevation above the high tide mark which would be an improvement over existing conditions. Additionally, a portion of the Inner Bair Island levee along the SBSA force main would be reinforced to provide increased protection against erosion as well as inspection and maintenance access.

- **The construction of a levee around and adding fill to the Airport Safety Zone and improvements to the SBSA levee on Inner Bair Island would result in protection of infrastructure against unplanned tidal inundation. (CEQA: Less Than Significant Impact) (NEPA: Significant Beneficial Impact)**

Short-Term Flooding Impacts

Alternative A would re-direct Pulgas and Cordilleras Creeks' flows away from Redwood Creek and toward Steinberger Slough in order to address other project constraints. As previously discussed, persistent flooding has been documented along the lower reaches of Redwood, Pulgas, and Cordilleras Creeks. Until flood management actions are implemented to reduce these problems, any increases in water surface elevations along these creeks caused by downstream flow re-routing could increase the severity of existing flood hazards. PWA (2002) conducted numerical hydrodynamic modeling to assess possible changes in peak flood water levels at the Highway 101 crossings of Pulgas and Cordilleras Creeks. The modeling applied several combinations of Bay tides and upstream discharges, consistent with methods used by FEMA (1981) and Caltrans (Peterson 2000).

Based on the flood modeling, Alternative A is expected to increase peak water levels at Highway 101 by approximately 0.05 ft (less than an inch) during a 100-year flood event. This estimate is for initial conditions immediately after breaching and the increment of change would decrease as Steinberger Slough deepens over the first months and years. The magnitude of this change is also expected to decrease with distance upstream from Highway 101, although the flood assessment did not extend to these upstream areas. Increases in peak water levels were less for more frequent flood events (*i.e.,* the 10- and 50-year events) (PWA 2002).

One source of uncertainty in the above peak water level increase estimate is how closely the actual hydraulic characteristics of the flow control structures placed in Corkscrew and Smith Sloughs would match those simulated in the modeling. Flood performance would be affected if the flow control structures allow more or less flow than modeled. To address this uncertainty, Alternative A includes

[16] Under CEQA a "significant effects on the environmental means a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project…" Under NEPA, impacts may be both beneficial and adverse.

performance monitoring and adaptive management of the flow control structures as needed. The monitoring plan (HTH & PWA 2003) includes measurement of tide elevations and flow velocities at Year 0, immediately after project implementation. The measurements would be used to evaluate whether the structures are functioning per the design criteria given in the Restoration and Management Plan and incorporated into the model. The USFWS would be responsible for adjustments to the structures after construction that may be needed to meet the design criteria. The structures would be designed to allow adjustments (such as the addition or removal of rip-rap, or adjustment of weir elevations) for flexibility of post-construction management.

Increases in peak flood water levels of the magnitude predicted (less than an inch) are considered less than significant. This predicted change in estimated flood elevations is less than may result from errors, uncertainties, and effects that are typically disregarded in flood assessments, such as blockage by debris, in-channel sedimentation, errors in survey data and the assignment of roughness values, and the change in downstream boundary conditions due to sea level rise.

- **Alternative A would not result in significant short-term flooding impacts because the peak flood water level would increase less than one inch. (Less Than Significant Impact)**

Long-Term Flooding Impacts

As described above with respect to short-term impacts, small initial increases in potential peak flood elevations are expected to decrease over the first months and years as Steinberger Slough scours and deepens. In the long-term, the improvements in flood conveyance through Steinberger Slough would be partially offset by sedimentation in the restored ponds. Sedimentation in the ponds would decrease the flood conveyance of the marshplains, which function similarly to river floodplains in conveying flow. While slough scouring and deepening is expected to occur relatively quickly, marshplain sedimentation would occur more slowly, over decades.

PWA (2002) conducted numerical hydrodynamic modeling to assess potential long-term changes in peak flood water levels at the Highway 101 crossings of Pulgas and Cordilleras Creeks. The modeling is the same as that described above for short-term flood impacts, except that it uses long-term predictions of site evolution (marshplain sedimentation and slough deepening) and 50 years of predicted sea level rise.

Based on the modeling, flood impacts are expected to be less in the long-term than in the short-term. Alternative A is expected to increase peak flood water levels above what would otherwise occur by only a small amount, 0.02 ft, during a 100-year flood event. Flood impacts decrease over time because increases in Steinberger Slough conveyance more than offset decreases in marshplain (*i.e.*, floodplain) conveyance. The magnitude of the potential project-related change in peak water levels is expected to decrease with distance upstream from Highway 101. Increases in peak water levels were less for more frequent flood events (*i.e.*., the 10- and 50-year events) (PWA 2002).

Predictions of long-term flood impacts are less certain than predictions of short-term impacts because of uncertainties in future slough erosion and marshplain sedimentation. Based on the flood modeling, a "worst case" potential increase was estimated to cause a peak flood level impact of 0.06 ft for long-term conditions. This scenario assumes no scour of Steinberger Slough and full marshplain sedimentation in the restored ponds.

Increases in peak flood water levels of the magnitude predicted – 0.02 ft, with a possible range as high as 0.06 ft (both values are less than an inch) – are considered less than significant. Consistent with the short-term flood impacts discussion, these increases are less than other effects on upstream flood elevation estimates that are typically disregarded in flood assessments, such as blockage by debris, in-channel sedimentation, errors in survey data and the assignment of roughness values, and the change in downstream boundary conditions due to sea level rise. For context, sea level rise over the next 50 years is predicted to range between 0.16 and 0.92 ft, with a median value of 0.51 ft (IPPC 2001).

- **Implementation of Alternative A would not result long-term flood impacts. (Less Than Significant Impact)**

Short-Term Drainage Impacts

Steinberger Slough is currently undersized compared to the volume of the additional tidal prism associated with Alternative A, and damped tidal amplitudes[17] that have elevated low water surface elevations are expected along the landward reach of the slough immediately following restoration. In other words, the tidal volumes would spread out, resulting in higher water levels. These damped tides would affect gravity drainage from areas adjacent to Bair Island that drain to Steinberger Slough.

Steinberger Slough receives pumped storm water runoff from the San Carlos Airport, northern San Carlos, and Belmont. Runoff from Redwood Shores is either routed to a controlled interior lagoon, collected at pump stations, or stored until it can be released to Steinberger Slough or to the Bay. Although the damped tides would raise the low water surface elevation in Steinberger Slough, there are no known gravity drainage to reaches of Steinberger Slough that are expected to be affected by the damped tides.

- **While there is a potential short-term impact for slower drainage in the low-lying areas of Bair Island immediately after restoration, there are no developed areas that utilize gravity drainage to this reach of Steinberger Slough. (Less Than Significant Impact)**

Incremental Changes to Hydrology at Bair Island

Increased Sediment in Redwood Creek

Tidal restoration at Bair Island would increase the amount of sediment-laden waters entering the slough system from the Bay, representing a potential increase in the amount of sedimentation along the Redwood Creek shipping channel. An increase in tidal prism through Redwood Creek would lead to higher rates of deposition and the need for more frequent dredging, since sediments would settle out due to the slow flow velocities through the oversized shipping channel. Alternative A includes design elements (*e.g.,* flow control structures in Smith and Corkscrew Sloughs) to divert restored tidal flows through Steinberger Slough and maintain the existing tidal prism that passes through Redwood Creek. Therefore, Alternative A would not increase sedimentation in Redwood Creek. Regular monitoring of the flow control structures and the hydrodynamic response of the slough system (including cross-sections collected across the Redwood Creek shipping channel) will provide information to assess and maintain the performance of the proposed restoration action.

[17] Damped tidal amplitudes refers to a reduction in the tide range.

Increased Flow Velocities at Pete's Outer Harbor

The changes proposed in Middle and Inner Bair Islands would result in an increase in the amount of tidal prism conveyed through the slough network. Current tidal velocities at Pete's Outer Harbor would increase accordingly if the restored tidal prism were routed through Redwood Creek and into Smith Slough. However, flow control structures and breach locations included in the proposed restoration alternative have been designed to direct the restored tidal flows toward Steinberger Slough, such that peak tidal currents at Pete's Outer Harbor would be less than the existing levels.

Short-Term Increases in Turbidity

Under Alternative A, tidal exchange to the restored ponds would initially scour sediment from the channel beds (and possibly the newly placed dredged material) and lead to short-term increases in turbidity. However, the area of increased turbidity is expected to be confined to the immediate vicinity of the sloughs and near areas of incising inside the inactive salt ponds. Additionally, these geomorphic adjustments are expected to occur over several months or a few years. Alternative A would result in short-term increases in turbidity, however due the limited extent of tidal scour and time frame over which erosion occurs; this impact would not be significant.

Impacts from Wave Erosion

Increasing the area of open water over which wind blows over the restored ponds may raise heights of wind-waves, and potentially lead to erosion along Steinberger Slough. However, the extent of levee lowering along Steinberger Slough is limited under Alternative A, and thus would still provide wind breaks. Therefore, this impact would be less than significant.

- **Implementation of Alternative A would not substantially alter flows in Redwood Creek or at Pete's Outer Harbor or result in increased turbidity or wave erosion. (Less Than Significant Impact)**

Undermining Steinberger Slough Levees

Steinberger Slough is expected to scour and deepen in response to the increase in tidal prism following implementation of Alternative A, potentially undermining levees that protect Redwood Shores and the San Carlos Airport. Steinberger Slough is currently overly wide and shallow compared to similar flow channels, as a result of several decades of weakening tidal currents and associated deposition. Even with the restoration, the channel remains wide for the tidal prism to be conveyed. Tidal scour would deepen Steinberger Slough until a new equilibrium channel shape is reached. Conditions are expected to approach close to equilibrium in one to two decades, with significant changes toward equilibrium in the shorter term (~five years) (PWA 2002). The risk of undermining levees due to channel erosion is so small it is considered less than significant.

- **Implementation of Alternative A would not result in substantial channel scour that would undermine levees along Steinberger Slough. (Less Than Significant Impact)**

Short-Term Construction-Related Water Quality Impacts

Construction activities associated with Alternative A could result in temporary water quality impacts, from an increase in turbidity near the levee breaches. Suspended sediment transport would be

relatively minor. Once erosion rates decrease (within approximately five years), suspended sediment transport would return to normal levels. Preparation of the levees by removing excess material prior to breaching and timing the breaching to coincide with the flood tide cycle would minimize turbidity.

- **Water quality impacts from suspended sediment during construction would not be substantial under Alternative A. (Less Than Significant Impact)**

Water Quality Impacts Associated with Placement of Dredged Material

Quality for Wetland Cover

Water quality and aquatic habitats may be adversely affected by contaminants in dredge and/or fill material placed in Inner Bair. To minimize contaminants in the material, sediment would be screened to meet wetland cover standards set by the Regional Water Quality Control Board (RWQCB)[18]. Only dredged and/or fill material that meets RWQCB standards would be used in the tidal restoration areas on Inner Bair Island. These standards include concentrations of various metals and other constituents, below which adverse biologic effects are less than significant. All material used in the construction of the upland safety zone would also meet applicable standards for this area of Inner Bair Island.

Short-term Increases in Turbidity

Surface water quality may be adversely affected by discharge of decanted water during placement of dredge material. This is expected to be a small, temporary increase in turbidity as decant waters are discharged over weirs into an existing drainage channel leading to Smith Slough. Similar application of dredged material for wetland restoration has occurred previously in San Francisco Bay, and it is expected that the proposed action will comply with waste discharge requirements set by the RWQCB that limit the effects of the decant waters on the ambient water quality conditions and are intended to keep adverse impacts below the level of significance.

- **Alternative A includes compliance with the RWQCB cover standards for dredge material and would not a have an adverse effect on water quality through the placement of dredged material and discharge of decant waters. (Less Than Significant Impact)**

Increased Salinity Levels

Given the former land use of the site as salt pond evaporator ponds, elevated salinity levels are expected be found in the existing soil. These salts gradually leach from the soil once tidal action is restored, and will be exported to the surrounding sloughs and eventually the South Bay. Previous studies (Josselyn & Perez 1982, LSA 1999) have shown that leaching of soil salt following tidal restoration at former salt ponds occurs on a timescale of approximately one year (*e.g.,* they would not pose a chronic problem), with minimal effects on Bay water quality. At the Hayward Marsh, across the Bay from Bair Island, soil salinities dropped from 181 parts per thousand (ppt) to 10-22 ppt within 10 months of tidal restoration (Josselyn & Perez 1982). More recent tests carried out for Eden Landing (LSA 1999) indicate that leaching of salts from soils at the Baumberg Tract (also a former collection of salt ponds in the South Bay) associated with tidal restoration would produce at most a 2-3 ppt increase in water salinities. This maximum salinity increase does not account for the dilution

[18] RWQCB, "*Recommended Sediment Chemistry Screening Guidelines" for Wetland Surface Material.* 1985

as overlying water is discharged from the ponds into the sloughs and mixes with Bay water. Accounting for this dilution, increases in water salinities are expected to be negligible compared to natural variability in the Bay. Although the soil salinities at Bair Island are unknown, the effects of leaching is expected to be similar to those observed at the Baumberg Tract due to their similar historic functions as salt pond evaporator ponds. This impact will be less than significant.

- **Implementation of Alternative A would not result in a substantial adverse water quality impact from increased salinity levels in the Bair Island sloughs and San Francisco Bay. (Less Than Significant Impact)**

Improved On-Site Water Quality

Under existing conditions, water levels in the inactive salt ponds on Middle and Outer Bair Islands are controlled by ponding of direct rainfall, evaporation, and levee seepage. Limited drainage on Inner Bair occurs through the existing culvert to Smith Slough. Although no testing was performed, it is likely that the extended periods of ponding and lack of regular tidal exchange has led to degraded quality of water and wetland soils. This degradation often includes high pH values and low levels of dissolved oxygen that inhibit normal plant growth and affects the availability of nutrients in the soil. Alternative A would improve on-site water quality by restoring regular tidal action throughout Inner, Middle, and Outer Bair Islands and create conditions favorable for plant and wildlife uses by establishing a more neutral pH and oxygen levels through the continual wetting process of tidal inundation.

- **Implementation of Alternative A would result in substantially improved on-site water quality through restoring tidal action at Bair Island. (CEQA: Less Than Significant Impact) (NEPA: Significant Beneficial Impact)[19]**

3.2.3.3 Alternative B: Tidal Marsh Restoration and Restricted Public Access

Since the only difference between Alternative B and Alternative A is the amount of public recreational access, hydrologic impacts associated with the Alternative B are the same as those associated with Alternative A.

3.2.3.4 Alternative C: Tidal and Managed Marsh Restoration and Moderate Public Access

Under Alternative C, the restoration design at Middle and Outer Bair Islands and the flow control structures in Corkscrew Slough are the same as in the alternatives above. Therefore, impacts of Alternative C are nearly the same as those associated with Alternative A. The differences in impacts are described below.

Protection of Inner Bair Infrastructure

Under Alternative C, hydraulic structures would allow for limited tidal action on Inner Bair, and water surface elevations would vary between mean lower low water and the existing marshplain elevation at about the mean tide level. As in Alternative A, implementation of Alternative C would

[19] Under CEQA a "significant effects on the environmental means a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project…" Under NEPA, impacts may be both beneficial and adverse.

include construction of a levee around the perimeter of the San Carlos Airport safety zone and improvement of a portion of the Inner Bair Island levee along the SBSA force main. Since water levels on Inner Bair would be maintained well below the high tide elevation, the amount of earthwork required for infrastructure protection is less than under Alternative A.

- **The construction of a levee around the Airport Safety Zone and improvements to the SBSA levee on Inner Bair Island would result in protection of infrastructure against unplanned tidal inundation. (CEQA: Less Than Significant Impact) (NEPA: Significant Beneficial Impact)[20]**

Modification of Surface Drainage Patterns

Alternative C would reestablish tidal exchange over the inactive salt ponds and increase tidal flows through Steinberger Slough, modifying the surface drainage patterns in the project area. Although existing surface drainage patterns would be affected, human-induced changes have significantly altered functions from their natural conditions. Since Alternative C does not include restoration of tidal flow through the historic meander in Inner Bair, beneficial impacts to the surface drainage patterns are somewhat less than for Alternative A but would be closer to the historic conditions than the No Action Alternative.

- **Implementation of Alternative C, would reestablish a drainage pattern closer to the historic configuration than the No Action Alternative. The restoration of limited tidal flows to Inner Bair Island will facilitate some nutrient and sediment transport that supports wetland structure and functions. (CEQA: Less Than Significant Impact) (NEPA: Significant Beneficial Impact)**

Improved On-Site Water Quality

Under existing conditions, water levels in the inactive salt ponds on Middle and Outer Bair Islands are controlled by ponding of direct rainfall, evaporation, and levee seepage. Limited drainage in Inner Bair occurs through the existing culvert to Smith Slough. Although no testing was performed, it is likely that the extended periods of ponding and lack of regular tidal exchange has led to degraded quality of water and wetland soils. This degradation often includes high pH values and low levels of dissolved oxygen which inhibit normal plant growth and affects the availability of nutrients in the soil. Alternative C would improve on-site water quality by restoring regular tidal action throughout Inner, Middle, and Outer Bair Islands and create conditions favorable for plant and wildlife uses by establishing a more neutral pH and oxygen levels through the continual wetting process of tidal inundation. The water quality on Inner Bair Island would be less than the water quality improvement on Middle and Outer Bair Islands because there would be less tidal exchange under this restoration approach.

- **Implementation of Alternative C would result in substantially improved on-site water quality through restoring tidal action at Bair Island. (CEQA: Less Than Significant Impact) (NEPA: Significant Beneficial Impact)**

[20] Under CEQA a "significant effects on the environmental means a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project…" Under NEPA, impacts may be both beneficial and adverse.

3.2.3.5 Alternative D: Tidal and Managed Marsh Restoration and Restricted Public Access

Hydrologic impacts for Alternative D are the same as for Alternative C since there is no change to the marsh restoration components.

Conclusion: The No Action Alternative would result in significant adverse impacts to siltation of Redwood Creek and increase flow velocities at Pete's Outer Harbor. All of the Action Alternatives would have significant beneficial impacts to water quality. None of the Action Alternatives would result in significant hydrology or water quality impacts.

3.3 Land Use

3.3.1 Existing Setting

Existing Land Uses

The site currently consists of leveed, inactive salt ponds, restored tidal marsh, uplands resulting from past disposal of dredged material, and remnant historic marsh that are part of a large open space area adjacent to San Francisco Bay. The Inner Bair Island levees are currently used as trails by the public. Part of Inner Bair Island is owned by the San Carlos Airport and is maintained as a safety area for emergency landings.

Most of Bair Island is part of a federal wildlife refuge. Redwood Creek, Steinberger Slough, Corkscrew Slough, and Smith Slough, the major tidal channels adjacent to Inner, Middle, and Outer Bair Islands are used by recreational boaters. Infrastructure within the Bair Island area includes the South Bayside System Authority (SBSA) sewer line, PG&E transmission towers, and a slide-gated culvert at Inner Bair Island (refer to Figure 13). The SBSA line runs northwest underneath the Inner Bair Island levee from the Whipple Avenue interchange, across/under the western Inner Bair Island Pulgas Creek borrow-ditch, and along the San Carlos Airport property. Infrastructure also includes many abandoned levees.

The San Carlos Airport approach path is located over a western portion of Inner Bair Island. This portion of the site owned by the San Carlos Airport falls under a Federal Aviation Administration (FAA) established runway protection zone (RPZ). FAA defines the runway protection zone as "an area off the runway end to enhance the protection of people and property on the ground." Since the airport property is subject to federal aviation regulation, it must be keep clear of any structures or stationary objects. As part of its protection zone function, the levee for the airport property must be large enough to allow emergency vehicles to reach the area in the event of a plane crash.

Adjacent and to the south of Inner Bair Island, located off Bair Island Road, is approximately two acres of property that is also part of the proposed project site (refer to Figure 13). Pacific Gas and Electric (PG&E) has an easement that runs through this property owned by the USFWS. This narrow strip of land located on the east side of Bair Island Road is a paved parking lot that is presently available for Bair Island visitors. Across the Bair Island Road on the west side is a partially maintained trail connecting the parking lot to the Bair Island trailhead. As the connector trail passes the adjacent residential development, the trail rapidly deteriorates into a narrow dirt path.

There are two parallel electrical transmission lines, a 230-kilovolt (kV) line and a 115-kV line, both suspended from steel truss towers approximately 204 feet in height located adjacent to the Bair Island parking lot. The two towers in the parking lot connect to a PG&E substation adjacent to Seaport Boulevard to the east, and to towers on Bair Island to the west. One of the PG&E transmission towers is located on the Inner Bair Island levee, near the eastern tip of the island. The transmission lines then run northeast toward the bay.

General Plan and Zoning Designations

Bair Island is located within the City of Redwood City. Middle and Inner Bair Island have a General Plan designation of *Future Development Expanding Limits of Urbanization,* and are zoned *Tidal*

Figure 13: Existing Conditions on Inner Bair Island

Plain. Outer Bair Island has a General Plan designation of *Unimproved Areas (Land or Water) Devoted to Preservation of Natural Resources, the Managed Production of Resources, Outdoor Recreation, or Public Health and Safety,* and is zoned *Tidal Plain*. The project area where the existing parking lot is located has a General Plan designation of *Office Park* and is zoned *General Commercial*.

Adjacent Land Uses

Various land uses surround Bair Island (refer to Figure 14). To the northwest across Steinberger Slough is an area within Redwood City consisting of low and medium density residential uses, commercial and office uses, open space and the SBSA Facility Buildings. To the west is the City of San Carlos, including the San Carlos Airport, US 101, and existing industrial uses. South of Inner Bair Island is the interchange of U.S. 101 and Whipple Avenue, surrounded by office park and research and development uses. Located to the southeast are mixed commercial and residential uses, research and development, and the Port of Redwood City. To the north and east is the San Francisco Bay.

Also adjacent to Bair Island is Pete's Harbor. The Pete's Harbor property is approximately 13.21 acres, including approximately 2.90 acres of water area. Vehicular access to the property is provided by Bair Island Road. The Pete's Harbor marina is an active marina, which consists of 116 inner and 147 outer marina slips. Within the Inner and Outer Pete's Harbor marinas, a total of approximately 90 boats are currently in use as live-aboard units.[21] Boat access to the Pete's Outer marina is provided by Redwood Creek and by Smith Slough; boat access to the inner marina is provided by Redwood Creek. The Pete's Harbor property is currently occupied by a variety of small-scale uses, including a restaurant, a harbor master's office (within the restaurant building), a recreational vehicle repair shop, storage containers, several occupied recreational vehicles and a mobile home, surface parking, and temporarily stored vehicles, including inventory from nearby, off-site auto dealerships.[22]

Redwood Creek is dredged for use as a shipping channel to service the Port of Redwood City. The deepwater Shipping Channel through South San Francisco Bay is located approximately 6,000 feet offshore of Outer Bair Island.

There are existing industrially zoned and developed properties directly across Redwood Creek and Smith Slough from the project area. The closest industrial uses to the Inner Bair Island levee trails are approximately 580 feet across U.S. 101. An industrial business may include substantial outdoor activities, heavy truck use, hazardous materials use and storage, generation of noise, dust, odors, litter, and similar potential sources of annoyance to a sensitive land use.

[21] City of Redwood City, *Marina Shores Village Project EIR,* February 2003.
[22] City of Redwood City, *Marina Shores Village Project EIR,* February 2003.

Figure 14: Surrounding Land Uses

3.3.2 Methodology and Significance Criteria for Land Use Impacts

State CEQA Guidelines and NEPA CEQ Regulations were used to determine the significance of land use impacts. The potential impacts of the project were analyzed qualitatively, focusing on consistency between planned and permitted uses under applicable land use plans.
The following thresholds were used to determine significant land use effect under the State CEQA Guidelines. A land use impact is considered significant if the project would:

- result in or threaten a violation of Federal, State or local law or requirements imposed for the protection of persons or the environment; or
- result in a change in land use which is incompatible with the surrounding land uses; or
- disrupt or divide an established neighborhood/community; or
- conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.

3.3.3 Land Use Impacts

3.3.3.1 No Action Alternative

Under the No Action Alternative, the Refuge would only undertake minor repairs to the existing levee to protect the SBSA sewer line and the San Carlos Airport safety zone on Inner Bair Island. No tidal action would occur on Inner Bair Island with implementation of the No Action Alternative. On-going levee maintenance at Middle and Outer Bair Islands would be discontinued. Levees on Middle and Outer Bair Islands would gradually deteriorate and eventually fail, allowing tidal action.

Deterioration of the levees would result in increased tidal velocities near Pete's Outer Harbor and would increase the siltation rate of Redwood Creek Shipping Channel. This would result in unsafe conditions and navigability for recreational boaters and live-aboard boats and could adversely impact the viability of that activity and may cause safety impacts to small water craft using the docks.

Public trails would not be accessible on Inner Bair Island in the long-term, eliminating most human activities on Bair Island.

- **The No Action Alternative would result in significant land use conflicts. The increased velocities would adversely affect the viability of Pete's Harbor and the additional siltation of Redwood Creek Shipping Channel would adversely affect the Port of Redwood City. (Significant Impact)**

3.3.3.2 All Action Alternatives

The Action Alternatives would allow low intensity uses on Inner Bair Island, consistent with FAA requirements for the San Carlos Airport. All four Action Alternatives are designed to ensure compliance with applicable Airport/FAA, local and state and federal restrictions and policies.

Any land uses that would compromise airport runway protection zones, such as placement of structures, concentrations of people, or features that could attract birds, are excluded from the Plan

for this part of Bair Island. Proposed observations decks are located outside the runway protection zone. The Action Alternatives would schedule levee breaches on Inner Bair Island to avoid ponding water, which attracts birds.

Under the Action Alternatives, the configuration of the trail on Inner Bair Island would change from an approximately 3.3 mile loop trail to a 1.8 to 2.3 mile out and back trail, depending on the selected alternative. This configuration would provide increased protection to wildlife resources from public disturbance while slightly decreasing the amount of linear trail. Therefore, the public interface with the nearby industrial uses would not change with the implementation of the Action Alternatives.

The Action Alternatives would create high quality habitat for sensitive plant and wildlife species. This high value habitat would be a sensitive land use. Special-status species can be susceptible to negative impacts from industrial land uses. The closest industrial uses to the newly created wetlands on Middle and Outer Bair Islands would be located approximately 500 feet to the east at office/research and development park across Redwood Creek and approximately 500 feet to the west at San Carlos Airport. The industrial users nearest Inner Bair Island are located approximately 580 feet across U.S. 101.

Based on the distance between the existing industrial uses and the Inner Bair Island trails, it is unlikely that the proposed improvements would be impacted directly by the adjacent industrial uses. The implementation of the Action Alternatives would not result in significant land use compatibility impacts.

Compared to the No Action Alternative, the four Action Alternatives would result in fewer land use impacts. The No Action Alternative would result in unscheduled levee breaches, unsafe velocities in Pete's Outer Harbor and increased sedimentation in Redwood Creek that would conflict with existing recreational boating use. Unscheduled levee breaches on Inner Bair Island could result in bird hazards for airplanes arriving and departing from San Carlos Airport, although, the Refuge would work with the Airport and SBSA to minimize impacts to their infrastructure.

- **The Action Alternatives would be consistent with applicable land use plans and adjacent land uses and would not result in any significant environmental impacts associated with the proposed land uses. (Less Than Significant Impact)**

Conclusion: No significant land use compatibility impacts would occur for any of the action alternatives. The No Action Alternative would result in significant land use impacts.

3.4 Air Quality

3.4.1 Existing Setting

The project is located within the San Francisco Bay Air Basin. During the summer, winds flowing from the northwest are drawn inland through the Golden Gate and over the lower portions of the San Francisco Basin. Northwest winds are most common in Redwood City, reflecting the orientation of the Crystal Springs gap within the mountains of the San Francisco Peninsula. Winds are persistent and strong, providing excellent ventilation and carrying pollutants downwind. This area generally experiences dry, mild summers and cool, winters with an annual mean temperature of 58 degrees Fahrenheit.

The Federal and California Clean Air Acts mandate that concentrations of certain air pollutants which are commonly found in urban areas be reduced. Under the Acts, acceptable air quality is attained in an air basin if concentrations of the specified pollutants do not exceed certain levels more than once each year. Since these select pollutants set the criteria for attainment of good air quality they are referred to as "criteria" pollutants. Ozone, carbon monoxide (CO) and airborne particles are among the criteria pollutants. Concentrations of these three pollutants have exceeded standards in the San Francisco Bay area in the past, although air quality has been improving. Table 5 identifies the major criteria pollutants, characteristics, health effects and typical sources.

The U.S. Environmental Protection Agency (EPA) has classified the San Francisco Bay Area as a "nonattainment" area for ozone. In 1998, the Bay Area was reclassified from a nonattainment area to a "maintenance" area for CO. With regard to State standards, the Bay Area does not meet either the ozone or the particulate standards.

Concentrations of the criteria pollutants and some others are monitored by the Bay Area Air Quality Management District (BAAQMD). BAAQMD monitors air quality conditions at 31 locations throughout the Basin. The Redwood City monitoring station is located about 1,600 feet west of the Bair Island complex. The criteria pollutants monitored at the Redwood City monitoring station are ozone, carbon monoxide (CO), nitrogen dioxide (NOx), and particulate matter (PM_{10}). Table 6 shows that the only consistent local air quality problem is violation of the state standard for particulate matter.

Table 5: Major Criteria Pollutants			
Pollutant	**Characteristics**	**Health Effects**	**Major Sources**
Ozone	A highly reactive photochemical pollutant created by the action of sunshine on ozone precursors (primarily reactive hydrocarbons and oxides of nitrogen. Often called photochemical smog.	• Eye Irritation • Respiratory function impairment.	The major sources ozone precursors are combustion sources such as factories and automobiles, and evaporation of solvents and fuels.
Carbon Monoxide	Carbon monoxide is an odorless, colorless gas that is highly toxic. It is formed by the incomplete combustion of fuels.	• Impairment of oxygen transport in the bloodstream. • Aggravation of cardiovascular disease. • Fatigue, headache, confusion, dizziness. • Can be fatal in the case of very high concentrations.	Automobile exhaust, combustion of fuels, combustion of wood in woodstoves and fireplaces.
Nitrogen Dioxide	Reddish-brown gas that discolors the air, formed during combustion.	• Increased risk of acute and chronic respiratory disease.	Automobile and diesel truck exhaust, industrial processes, and fossil-fueled power plants.
Sulfur Dioxide	Sulfur dioxide is a colorless gas with a pungent, irritating odor.	• Aggravation of chronic obstruction lung disease. • Increased risk of acute and chronic respiratory disease.	Diesel vehicle exhaust, oil-powered power plants, industrial processes.
Particulate Matter	Solid and liquid particles of dust, soot, aerosols and other matter which are small enough to remain suspended in the air for a long period of time.	• Aggravation of chronic disease and heart/lung disease symptoms.	Combustion, automobiles, field burning, factories and unpaved roads. Also a result of photochemical processes.

Table 6: Summary of Air Quality Data for Redwood City Monitoring Station[23]				
Pollutant	**State Standard[24]**	**Number of Days Above State Standard**		
		1999	2000	2001
Ozone	0.09 ppm (hourly)	0	0	1
Carbon Monoxide	9.0 ppm (8-hour)	0	0	0
Nitrogen Dioxide	0.25 ppm (hourly)	0	0	0
Particulate Matter	50μ/m^3 (24-hour average)	3	1	4

Sensitive Receptors

The Bay Area Air Quality Management District defines sensitive receptors as facilities where sensitive receptor population groups (children, the elderly, the acutely ill and the chronically ill) are likely to be located. These land uses include residences, school playgrounds, child care center, retirement homes, convalescent homes, hospitals and medical clinics. Sensitive land uses adjacent to the Bair Island site include residential development located to the northwest and south.

3.4.2 Methodology and Significance Criteria for Air Quality Impacts

Criteria based on the State CEQA Guidelines and federal, state, and local air pollution standards and regulations, were used to determine the significance of air quality impacts. For the purposes of this project, an air quality impact is considered significant if the action would:

- expose sensitive receptors to substantial pollutant concentrations; or
- not conform to the Federal or California Clean Air Plan; or
- create objectionable odors affecting a substantial number of people.

3.4.3 Air Quality Impacts

3.4.3.1 No Action Alternative

Currently, there is limited traffic to the site mostly during non-peak hours, which does not substantially impact local and regional air quality. Under the No Action Alternative, traffic to and from the site would eventually end when trails and other public facilities deteriorate to unsafe conditions within 5 to 25 years. Thus there would be no long-term air quality impacts.

- **The No Action Alternative would not result in air quality impacts. (No Impact)**

3.4.3.2 Action Alternatives

Recreational trails on Inner Bair Island are used by pedestrians and bicyclists and boaters use the sloughs and creeks in the area. There are no large, active recreation areas or uses such as ball fields proposed under the action alternatives that could generate large numbers of vehicle trips and associated emissions.

[23] California Air Resource Board, California Air Quality Data, Annual Summaries, 1999 – 2001, BAAQMD, Air Currents, 2002

[24] PPM = Parts per Million; μ/m^3 = Micrograms per Cubic Meter

Currently there is traffic to and from the site. This traffic would continue with implementation of any of the Action Alternatives. However, once construction begins throughout Bair Island, there would be increased air quality emissions associated with the operation of construction equipment. These short-term impacts associated with construction are discussed in *Section 3.13 Construction Impacts.*

The Action Alternatives may result in slight increases of traffic to and from the Bair Island parking lot once the public improvements (*i.e.*, restrooms, improved trails, and observation decks) have been completed. Since the land uses would remain the same and existing parking is adequate to serve the site, the Action Alternatives are not anticipated to generate trips that would result in substantial long-term air quality impacts.

The Action Alternatives would not result in substantial long-term air quality impacts compared to the No Action Alternative.

- **None of the Action Alternatives would result in substantial long-term air quality impacts. (Less Than Significant Impact)**

Conclusion: None of the alternatives would result in significant air quality impacts.

3.5 Socio-Economics and Environmental Justice

NEPA requires an EIS to include an assessment of a project's effect on the socio-economic environment. The Council of Environmental Quality (CEQ) regulations for implementation of NEPA (40 CFR 1500-1508) define (Section 1508.8) "effects" to include, among others things, economic and social effects, whether direct, indirect, or cumulative. Closely related to this requirement, Executive Order 12898 ("Environmental Justice" dated February 11, 1994) requires Federal agencies to address disproportionately high and adverse human health or environment effects of their activities of their activities on minority populations and low-income populations.

3.5.1 Existing Setting

Population and Labor Characteristics

The project is located within Redwood City, California. Redwood City is located in the southeastern portion of San Mateo County. Redwood City had a population of 99,210 in the year 2000 and has the second largest population San Mateo County. San Mateo County had a population of 395,890 in 2000. Redwood City had 62,000 jobs in 2000 and San Mateo County had 395,890 jobs in 2000.

3.5.2 Methodology and Significance Criteria for Socio-Economics and Environmental Justice Impacts

State CEQA Guidelines and NEPA CEQ Regulations were used to determine the significance of socio-economic/environmental justice impacts. The following thresholds were used to determine a significant effect under the State CEQA Guidelines. For the purposes of this project, a socio-economic/environmental justice impact is considered significant if the action would:

- disrupt or divide an existing neighborhood or cohesive community (including the isolation of a portion of a neighborhood or an ethnic group); or
- adversely affect cultural or religious facilities in the community; or
- impact a minority or low-income population to a disproportionate degree when compared to impacts to non-minority and non-low-income populations.

3.5.3 Socio-Economics and Environmental Justice Impacts

3.5.3.1 No Action Alternative

Impacts to Port of Redwood City

As discussed in *Section 3.2 Hydrology and Water Quality*, increased siltation would occur in Redwood Creek Shipping Channel due to uncontrolled levee breaches and tidal inundation. The No Action Alternative would roughly triple the amount of sediment-laden water from the Bay that passed through the Redwood Creek Shipping Channel during a typical tidal cycle. The increase in volume of sediment-laden water drawn, coupled with the relatively low current velocities, would substantially increase the rate of sedimentation along the deep shipping channel. Numerical modeling indicates that the existing sedimentation rate along the shipping channel could approximately triple (PWA 2002). This rapid reduction in depth would have adverse effects to deep-draft access to the Port of Redwood City, which is served by the Redwood City Shipping Channel.

- **Under the No Action Alternative, the increased sedimentation that would decrease the depth of Redwood Creek would result in an adverse impact to the Port of Redwood City business. (Significant Impact)**

Impacts to Pete's Outer Harbor Marina

As discussed in *Section 3.2 Hydrology and Water Quality* and *Section 3.3 Land Use*, unplanned tidal inundation at the inactive salt ponds due to levee failures would increase the tidal prism passing through Smith Slough. This would lead to an increase in peak current velocities at Pete's Outer Harbor marina. This would result in unsafe conditions and navigability for recreational boaters and live-aboard boats and could effect the economic viability of Pete's Harbor marina.

- **The No Action Alternative would increase velocities at Pete's Outer Harbor that could result in an adverse impact to Pete's Outer Harbor. (Significant Impact)**

3.5.3.2 All Action Alternatives

Implementation of any of the Action Alternatives would not require removal of any residences or businesses. These alternatives would not adversely affect the affordability of housing or the availability of employment in the project area. In the short-term, the Action Alternatives would create construction jobs; however, these jobs would not be permanent and would have no new impact on population movement. The action alternatives would not disrupt or divide any neighborhoods. No cultural or religious facilities would be impacted by these alternatives.

- **None of the Action Alternatives would result in any significant socio-economic or environmental justice impacts. (Less Than Significant Impact)**

Conclusion: None of the Action Alternatives would result in any socio-economic or environmental justice impacts. The No Action Alternative would result in significant socio-economic impacts.

3.6 Geology

3.6.1 Existing Setting

Bair Island is located on the southwestern shore of San Francisco Bay in Redwood City. The region is characterized by northwest-trending ridges and valleys that parallel northwest-trending folds and strike-slip faults. In the site vicinity, bedrock of the Franciscan Assemblage underlies alluvial and estuarine deposits at a depth of approximately 400 feet.[25]

Inner, Middle and Outer Bair Islands are flat, tidal lands composed primarily of estuarine sediments. Tidal flows have been modified by the construction of levees for former ranching and salt production activities. Elevations on the site range from approximately -0.8 National Geodetic Vertical Datum (NGVD) in the subsided, diked marsh, to nine feet NGVD at the levee crests, to over 11 feet NGVD where dredge spoils have been deposited. Soils mapped on the site consist of Reyes clay, with some areas of Novato clay.[26] The Reyes series consists of very deep somewhat poorly drained soils that formed in alluvium derived from various kinds of rock. The Novato series consists of very deep, very poorly drained soils in tidal marshes. Fill has been used to construct levees bordering Steinberger Slough, Smith Slough and Corkscrew Slough.

Near-surface deposits on the site include Bay Mud, alluvium from local creeks, and unengineered fill materials. Bay Mud consists of unconsolidated, dark organic-rich plastic clay and silty clay. Bay Mud can be relatively weak and compressible. Alluvial deposits consist of interbedded layers of material, ranging from clays to sands. Alluvium is found associated with channels and under the Bay Mud. Fill placed in the Bair Island area dates back to the middle of the nineteenth century. Unengineered fill has been placed to drain marsh areas and for salt pond construction.

Bair Island is largely surrounded by water, with the exception of Inner Bair Island. Waterways bordering the site include Redwood Creek, Smith Slough, Steinberger Slough and Corkscrew Slough.

Seismicity

No active faults cross the Bair Island complex. Many faults capable of producing earthquakes exist in the San Francisco Bay Area, which can cause strong ground shaking in the project area. Regional faults include the San Andreas, Hayward, and San Gregorio faults, as well as many smaller ones. The San Andreas Fault is located approximately eight miles southwest of the Bair Island complex. The Hayward and San Gregorio faults are located approximately 22 miles northeast and 22 miles west of the Bair Island complex, respectively. Because there are no faults on Bair Island or on adjacent properties, there is no known risk of surface rupture during an earthquake.

Soil liquefaction is a phenomenon in which saturated (submerged) granular soils, most notably loose, clean, saturated, uniformly graded, fine grained sand, experience a temporary loss of strength (liquefy) when subjected to earthquake ground shaking. Lateral spreading is failure within a nearly horizontal soil zone, commonly associated with liquefaction, which causes the overlaying soil mass to move towards a free face or down a gentle slope. The project area contains some saturated sand layers below the Bay Mud that may liquefy and result in seismically induced ground settlement.

[25] City of Redwood City. Marina Shores Village EIR, February 2003.
[26] Soil Conservation Service; (SCS) 1991. *Soil Survey of San Mateo County, Eastern Part, and San Francisco Bay*

3.6.2 Methodology and Significance Criteria for Geologic Impacts

State CEQA Guidelines and NEPA CEQ Regulations were used to determine the significance of geology impacts. Impacts on geology were analyzed qualitatively based on a review of soils and existing geologic data of the project site.

The following criteria were used to determine significant geology effects under the State CEQA Guidelines. A geology impact is considered significant if the project would:

- be located on a site with geologic features which pose a substantial hazard to property and/or human life (*e.g.*, active fault, an active landslide); or
- expose people or property to major geologic hazards that cannot be mitigated throughout the use of standard engineering design and seismic safety techniques; or
- cause substantial erosion or siltation.

3.6.3 Geologic Impacts

3.6.3.1 No Action Alternative

Under the No Action Alternative, levees would continue to deteriorate, primarily through erosion caused by wind-wave action within the salt ponds.

Since no ongoing maintenance would occur under the No Action Alternative except minor repairs to the existing levee on Inner Bair, strong seismic activity could cause already deteriorating levees to fail.

- **The No Action Alternative could result in substantial erosion associated with levee failure. (Significant Impact)**

3.6.3.2 All Action Alternatives

Seismicity

The Bair Island complex is underlain by Bay Mud that can be compressible or weak. Underlying mostly discontinuous layers of sand, which may liquefy and result in seismically induced ground settlement during a seismic event are also reported to occur in the area. For the Action Alternatives, repairs and upgrades to existing levees and construction of new, engineered levees would be completed. All new improvements would be engineered to withstand seismic events in accordance with acceptable levels of risk for the proposed uses.

- **Implementation of the Action Alternatives would not result in geologic or seismic hazards that pose a substantial hazard to property or human life. (Less Than Significant Impact)**

Erosion and Siltation

As discussed in *Section 3.2 Hydrology and Water Quality*, the Action Alternatives would increase the amount of sediment-laden waters entering the slough system from the Bay, representing a potential increase in the amount of sedimentation along the Redwood Creek shipping channel.

However, the Action Alternatives include design elements (*e.g.,* flow control structures in Smith and Corkscrew Sloughs) to divert restored tidal flows through Steinberger Slough and maintain the existing tidal prism that passes through Redwood Creek and thus reduce sedimentation.

The Action Alternatives would increase the area of open water over which wind blows over the restored ponds and may raise heights of wind-waves, and potentially lead to erosion along Steinberger Slough. However, the extent of levee lowering along Steinberger Slough is limited under the Action Alternatives, and thus the levees would still provide a wind break and avoid or limit accelerated erosion.

- **Implementation of the Action Alternatives would result in less than significant erosion and sedimentation impacts. (Less Than Significant Impact)**

Conclusion: None of the alternatives would result in significant geologic impacts except the No Action Alternative.

3.7 Farmlands

There are no farm or agricultural lands within or adjacent to the Bair Island complex. Therefore, no farmland impacts would occur if any of the alternatives including if the No Action Alternative is implemented.

3.8 Wild and Scenic Rivers

There are no waterways designated as Wild and Scenic Rivers in the project area. The closest rivers with the designation are over 110 km (70 miles) from the project area. Therefore, no impacts to Wild and Scenic Rivers would occur if any of the alternatives including the No Action Alternative were implemented.

3.9 Coastal Zones and Coastal Barriers

Bair Island is not within or near areas covered by the Coastal Barriers Resource Act (1982). The Bair Island complex is within areas covered by the Coastal Zone Management Act (1972). The San Francisco Bay Conservation and Development Commission (BCDC), is responsible for administering the federal Coastal Zone Management Act within the San Francisco Bay segment of the California coastal zone to ensure that federal activities reflect Commission policies. Since the Commission is charged with regulating all filling and dredging in San Francisco Bay (which includes sloughs and certain creeks and tributaries that are part of the Bay system, salt ponds and certain other areas that have been diked-off from the Bay), a Consistency Determination would be required for dredging, filling and shoreline improvements, in order to implement the any of the Action Alternatives. The No Action Alternative would continue maintenance on Inner Bair Island on an as needed basis. Work on any routine maintence project cannot be started until the Commission has been notified that the project has been preauthorized by one of the Commission's regionwide permits.

Impacts to coastal zone resources are described through the document. See sections 3.1. and 3.2 for complete descriptions.

3.10 Public Health and Safety

This section is primarily based upon a Phase I Environmental Site Assessment prepared by Levine Fricke Recon in March 1997, an Environmental Site Assessment Level I Survey Checklist prepared by the Environmental Contaminants Division of the Fish and Wildlife Service in November 2001, and information from Redwood City's Marina Shores Village Project DEIR dated February 2003.

3.10.1 Existing Setting

Site History

Bair Island was diked in the late 1800s and early 1900s for agricultural uses, including cattle grazing. Bair Island was converted to salt evaporation ponds starting in 1946, and the ponds remained in production until 1965. The lands were drained and eventually sold to a series of real estate development companies. Several small wooden hunters' cabins and boat docks have been built along the navigable channels over the years, but no structures currently remain on the island. Historical aerial photographs from 1955, 1972, and 1995 show virtually no change in site use through the period, and fluctuation in pond water levels are the only visible variation.

There is no historical or reconnaissance evidence that hazardous substances have been stored on the site. The only recorded commercial use of the site has been for salt production, which does not involve industrial processes or chemicals.

Existing Setting

Currently, Bair Island is a known breeding location for the California salt marsh mosquito, which would develop extremely dense, pestiferous populations if left untreated (San Mateo County Mosquito Abatement District (SMCMAD), 1997). Mosquito control included surveillance, siphoning of diked salt ponds, and larvicide and insecticide application from the ground and the air. Beginning in the late 1970s or early 1980s, water in Middle and Outer Bair was siphoned periodically during the rainy season to minimize mosquito production. The San Mateo County Mosquito Abatement District discontinued siphon operations in 2000 due to lack of funds and staffing, although the PVC pipes are still visible at the site. Siphon operations were never carried out at Inner Bair since the area is easily accessible for other types of mosquito abatement. The SMCMAD confirmed that three types of mosquito chemicals have been used on the site, with the trade names of Altocid, Golden Bear, and Bti (*Bacillus thuringiensis* var. *israelensis*). According to an SMCMAD representative, none of the pesticides persist in the environment for more than three days and the chemicals are used specifically for their general environmental safety.[27] Currently, large numbers of mosquito larvae develop in rainwater collecting behind the dikes in the former salt pond on Bair Island.

Storm surge and high-tide debris were observed at various locations along the channel shorelines, but these materials were limited to non-hazardous plastic, paper, and wood debris during the site reconnaissance. It is possible that containers of paint, lubricants, solvents and other "household hazardous waste" occasionally are a component of the tidal debris.[28]

[27] Levine Fricke Recon, *Phase I Environmental Site Assessment*, March 1997.
[28] Levine Fricke Recon, *Phase I Environmental Site Assessment*, March 1997.

Electrical power is delivered to the area through overhead and underground transmission lines. The transformers are owed and maintained by Pacific Gas and Electric (PG&E). There are two parallel electrical transmission lines, a 230-kilovolt (kV) line and a 115-kV line, suspended from steel truss towers approximately 204 feet in height located adjacent to the Bair Island parking lot. These two towers in the parking lot connect to a PG&E substation adjacent to Seaport Boulevard to the east and extend to towers on Bair Island to the west. One of the PG&E transmission towers is located on the Inner Bair Island levee, near the southeastern tip of the island. The transmission lines then run northeast toward the bay (refer to Figure 13, page 75). According to PG&E, none of the PG&E maintained transformers in the vicinity contain PCBs.

A sanitary sewer pipeline is situated beneath the south levee on Inner Bair Island, delivering effluent from the developed areas of Belmont and Redwood City to the wastewater treatment plant located approximately 1,500 feet southeast of the site. The pipeline is maintained by the South Bayside System Authority (SBSA), and according to the plant manager, leaks occur in this pipeline with relative frequency. Leakage is normally discovered as muddy areas on the levee during the dry season. Municipal wastewater may contain pathogens, inorganic chemicals and metals, synthetic organic compounds, and chemical additives such as chlorine and fluorine. No evidence of sewage contamination, such as odors or saturated areas at the surface of the south levee on Inner Bair Island, was observed during the site reconnaissance.

The San Carlos Airport approach path is located over a western portion of Inner Bair Island. This portion of the site owned by the San Carlos Airport falls under a Federal Aviation Administration (FAA) established runway protection zone (RPZ). FAA defines the runway protection zone as "an area off the runway end to enhance the protection of people and property on the ground." Since the airport property is subject to federal aviation regulation, it must be keep clear of any structures or stationary objects.

Adjacent Uses

A review of published agency documents, agency files, and other pertinent documents was performed for properties within a one mile radius of the site. There are numerous recorded contaminated and hazardous material storage sites adjacent to and near Bair Island. Major local sources of these contaminants include industrial facilities in the vicinity of Seaport Boulevard within 2,320 feet of Inner Bair Island, the Port of Redwood City (within 5,800 feet) and San Carlos Airport within 300 feet. Railways and US 101 traversing the area also are potential sources of accidental releases of toxics. Accidental release of airborne toxics from these sources could possibly reach the proposed project site, as could an accidental spill that may flow into Redwood Creek, Smith Slough or Steinberger Slough. Off-site soil and groundwater contamination, however, would not likely affect the site.[29]

[29] Levine Fricke Recon, *Phase I Environmental Site Assessment*, March 1997.

There is one Leaking Underground Storage Tank (LUST) case referenced as a spill of diesel fuel at the Lockheed facility located at 888 Seaport Road, approximately 1,500 feet southeast of Inner Bair Island. The case was closed after investigation and/or appropriate mitigation. That site is separated hydrologically from Bair Island by Redwood Creek.

The San Carlos Airport currently has two underground fuel storage tanks and is planning to add 10,000 gallons in additional storage.

3.10.2 Methodology and Significance Criteria for Public Health and Safety Impacts

State CEQA Guidelines and NEPA CEQ Regulations were used to determine the significance of public health and safety impacts. Potential impacts attributed to the presence of hazards to the project site were assessed by identifying potential receptors, exposure scenarios and exposure pathways for each alternative.

The following criteria were used to determine significant public health and safety effects under the State CEQA Guidelines. A public health and safety impact is considered significant if the project would:

- create a significant hazard to the public or the environment from existing hazardous materials contamination by exposing future occupants or users of the site to contamination in excess of soil and groundwater cleanup goals developed for the site; or
- create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment; or
- be located on or adjacent to a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment; or
- for a project located with an airport land use plan or within two miles of a airport, would the project result in a safety hazard for people residing or working in the project area; or
- impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan.

Based on NEPA CEQ Regulations, the project would have a beneficial public health and safety impact if it would:

- reduce hazards to the public, including reducing habitat for disease vectors.

3.10.3 Public Health and Safety Impacts

3.10.3.1 No Action Alternative

Mosquito Abatement

As stated above, there are large numbers of mosquito larvae that develop in ponding rainwater on Bair Island. Under the No Action Alternative ponding water would continue to occur on Middle and Outer Bair Islands until the levee breach and tidal action occurs. Therefore, the need for mosquito abatement on Bair Island would be similar to existing conditions.

- **The No Action Alternative would not result in significant public health and safety impacts. (Less Than Significant Impact)**

Electromagnetic Field (EMF) Hazards

In recent years there has been considerable controversy regarding the potential health effects resulting from long-term exposures to electric and magnetic fields (EMFs). EMF is a term used to describe electric and magnetic fields that are created by electric voltage[30] (electric field) and electric current (magnetic field). While EMF occurs naturally and is present in everything from visible light to radio waves to X-rays, attention has focused on whether exposure to EMF associated with alternating current electricity is hazardous. Hundreds of laboratory and epidemiological studies have been conducted on the relationship between EMF exposure and health effects. Scientists to date have found no threshold value, dose response or causative relationship that demonstrates evidence of any adverse physical effect of EMF.[31]

Two electric transmission lines, a 230 kV and a 115 kV transmission line, extend through portions of the Bair Island complex. Two transmission towers are located adjacent to the existing parking lot along Bair Island Road and the transmission lines cross the existing levee trail in the southeast portion of Inner Bair Island and also run adjacent to the connector trail from the parking lot to the trailhead.

Pedestrians and bicyclists using the parking lot and existing trails are currently exposed to higher than background levels of EMF as they approach and cross under the existing transmission lines. Exposure of recreational users to EMFs from the existing transmission lines is not prolonged, however, as trail users enter and exit the parking lot or travel on the trails.

- **The No Action Alternative would not result in additional EMF exposure to visitors at Bair Island. (Less Than Significant Impact)**

[30] Electric voltage is a measure of electric potential or potential difference between two points in a conducting wire.
[31] City of Santa Clara. 2003. NRS 230 kV Transmission Line Project, Final EIR.

3.10.3.2 Alternative A (*Proposed Action*) and Alternative B

Mosquito Abatement

As stated above, there are large numbers of mosquito larvae that develop in ponding rainwater on Bair Island. Currently pesticides are used for mosquito abatement on Bair Island. Alternative A and Alternative B would improve conditions by opening five diked salt ponds to tidal action, thus reducing the amount of breeding habitat. The Technical Committee for the Development of Vector Prevention Standards (1986) proposed a series of guidelines for marsh restorations project. These include providing for free tidal flow through deep channels, adequate levee breaches to ensure proper tidal circulation, and avoiding the creation of areas that would pond water. All of these design elements were taken into consideration during the restoration design of Bair Island.

Alternative A and Alternative B would greatly limit mosquito breeding on Bair Island and thus reduce the need for the application of pesticides. Full tidal inundation is expected to occur on Bair Island as the levees are systematically breached.

- **Alternative A and Alternative B would reduce habitat for disease vectors on Bair Island and would not increase mosquito breeding or result in the need for expanding the mosquito abatement on Bair Island. (CEQA: Less Than Significant Impact) (NEPA: Significant Beneficial Impact)**

Hazardous Materials

As previously discussed, hazardous materials are used at industrial facilities in the vicinity of Seaport Boulevard, at the Port of Redwood City and at San Carlos Airport. Hazardous materials are also transported in trucks along US 101 and in railcars on Southern Pacific Rail Road (SPRR) and spur lines serving the Port of Redwood City. Some of the industrial facilities, and the railways and highways traversing the area, are potential sources of accidental releases of airborne toxic gases.

Alternative A and Alternative B allow visitor use by pedestrians and bicyclists along levee trails. The trails would be used by mobile adults and children at a low intensity. The location of industrial uses and the trails on Inner Bair Island does not appear to pose a substantial risk to current or future recreational users based on the distance between the industrial uses and the site, the type of proposed users, the relatively low number of people using the trails at any one time, the ventilation and dilution provided by winds near San Francisco Bay, and the likelihood of a worst-case accidental release of toxic substances from an industrial facility or truck on the highway.

The SBSA is responsible for ongoing monitoring and maintenance of their pipeline. If a significant leak occurs along the effluent pipeline that crosses the south margin of Inner Bair Island, SBSA would be notified. Depending on the extent of the leak, subsurface sampling and analysis for typical municipal wastewater constituents may be warranted to determine the extent of contamination and to identify appropriate mitigation measures.

- **Alternative A and Alternative B would not expose people to significant risks from hazardous materials contamination or from the storage, use and/or disposal of hazardous materials. (Less Than Significant Impact)**

Airport Safety Hazards

The San Carlos Airport approach path is located on a western portion of Inner Bair Island. This portion of the site owned by the San Carlos Airport falls under a Federal Aviation Administration (FAA) established runway protection zone (RPZ). FAA defines the runway protection zone as "an area off the runway end to enhance the protection of people and property on the ground." Since the airport property is subject to federal aviation regulation, it must be keep clear of any structures or stationary objects. The levee for the airport property must be large enough to allow emergency vehicles to reach the area in the event of a plane crash.

Alternative A and Alternative B would allow low intensity uses on Inner Bair Island, which is consistent with the FAA requirements. The alternatives have been designed to ensure compliance with applicable Airport/FAA, local and state and federal restrictions and policies. The only changes that would occur within the RPZ would be improvements to the cross-levee system protecting the safety zone. The levee surrounding the airport safety zone would be large enough to allow emergency vehicles access in the event of a plane crash. The outside of the levee would be sloped gradually leading up to the airport property. The area would be filled with dredged and/or fill material to an elevation that is above mean higher high water (MHHW).

Any land uses that would compromise airport runway protection zones, such as placement of structures, concentrations of people, or features that could attract birds, are excluded from the Plan. Alternative A and Alternative B would schedule placement of dredged and/or fill material and levee breaches on Inner Bair Island to avoid ponding water, which attract birds.

- **Implementation of Alternative A or Alternative B would not result in an airport safety hazard. (Less Than Significant Impact)**

Electromagnetic Field (EMF) Hazards

None of the Action Alternatives would change the existing access to and from the Bair Island trailhead and therefore would not result in new or increased exposure of the public to sources of EMF.

- **Alternatives A, B, C, and D would not result in increased exposure to EMF. (Less Than Significant Impact)**

3.10.3.4 Alternative C and Alternative D

Mosquito Abatement

Alternative C and D would create tidal action on all but Inner Bair Island which would become managed marsh. Mosquito abatement is less of a problem in open water or tidal marshes with good tidal flow such as would be created on Outer and Middle Bair. However, shallowly flooded, vegetated areas with little tidal flow can be large mosquito sources. If Alternatives C or D is selected for implementation, mosquito problems would be prevented by following the Technical Committee for the Development of Vector Prevention Standards (1986) guidelines for marsh restoration projects. Therefore, Alternatives C and D would greatly limit mosquito breeding on Bair Island and thus reduce the need for the application of pesticides to Bair Island.

- **The Alternatives C and D would limit mosquito breeding and reduce the need for expanding the mosquito abatement on Bair Island. (CEQA: Less Than Significant Impact) (NEPA: Significant Beneficial Impact)**

Hazardous Materials

Alternative C and Alternative D hazardous materials impacts would be the same as Alternative A and Alternative B.

- **The Alternative C and Alternative D would not expose people to significant risks from hazardous materials contamination or from the storage, use and/or disposal of hazardous materials. (Less Than Significant Impact)**

Airport Safety Hazards

The restoration approach for Alternatives C and D create managed wetlands at Inner Bair Island. This alternative allows the reestablishment of some salt marsh habitat on Inner Bair Island, while limiting the creation of open water habitat that would contribute to bird-strike hazards. Hydraulic control structures (*i.e.,* slide-flap gated culverts, float-activated gates) would also be installed on Inner Bair Island to allow water management within Inner Bair. As stated above, any land uses that would compromise airport runway protection zones, such as placement of structures, concentrations of people, or features that could attract birds, are excluded from the Plan. Since rainfall and former sloughs and borrow-ditches would contribute to ponding on Inner Bair Island under Alternatives C and D, these alternatives include water management to allow tidal inflow periodically on a managed basis that would prevent open water ponding. Pumps may also be installed to facilitate drainage, should unusual ponding occur.

- **Implementation of Alternative C or Alternative D would include design features to reduce airport safety hazards. (Less Than Significant Impact)**

Electromagnetic Field (EMF) Hazards

As stated above, Alternative C and Alternative D would not change the existing access to and from the Bair Island trailhead and therefore would not result in new or increased exposure of the public to sources of EMF.

- **The Alternative C and Alternative D would not result in increased exposure to EMF. (Less Than Significant Impact)**

Conclusion: None of the alternatives, including the No Action Alternative, would result in significant public health and safety impacts.

3.11 Cultural Resources

The following discussion is based upon a record search and field survey prepared for the project by the U.S. Fish and Wildlife Service, Cultural Resources Team in December 2000 and June 2003.

3.11.1 Existing Setting

Before modern era alterations Bair Island was a tidal marsh and tidal mudflat area.

Recent geological and human actions have significantly altered the landscape of the Bay. Nearly constant complex geophysical actions have raised, lowered, or tilted the Bay. From about 15,000 years ago melting continental glaciers started to raise sea levels. By 8,000 years ago the water had reached into what is now called the San Francisco Bay. Around 3,000 years ago vibrant estuaries and marshland habitats were well established. With the ocean, marshes, mudflats, low hills and diverse forests San Francisco Bay had a broad and dense diversity of wildlife.

With the advent of hydraulic gold mining in the mid-19th century, the Bay, particularly the northern end, lost depth, becoming choked with the silt from washing gold. Market hunting, habitat destruction and the presence of a dense human population greatly reduced the variety and numbers of wildlife. Mudflats and tidal marshes were diked, used for salt production or filled in to provide space for construction.

Cultural Setting

Ethnographic accounts from the last 230 years show the southern San Francisco Bay Area was inhabited by a plethora of groups. Around the project area were several bands of Native Americans, referred to as Costanoan in this area, meaning coastal people. Recently the name Ohlone, derived from the name of a tribelet, has supplanted the broader term. Archaeological and linguistic evidence indicates that the ancestors of the Ohlone moved to the Bay Area about 1,500 years ago.

Spanish Missions were established in the last quarter of the 18th century. Disease and social change precipitated a drastic drop in the Ohlone population.

Shell Mounds

Shell mounds or middens are piles of discarded shells, often including fish bone, mammal bone, and fire cracked rock that provide evidence of human occupation. Work early in the 20th century recorded hundreds of shell mounds, demonstrating use of the rich salt marsh areas, which contained an abundance of shell fish, mollusks, fish and waterfowl. Occasionally human remains have been encountered within a Bay area shell mound. The abundant calcium carbonate contributes to the excellent morphological preservation of bone. The northeast edge of Outer Bair Island has an abundance of shells in a privately owned area. A small concentration of shell occurs in the southeastern edge of Middle Bair Island. During the survey no evidence was found of anything but shells at this location.

Fish Camp

Around 1869 Thomas A. McCollam diked off about 10 acres of marshland near the junction of Redwood Creek and Corkscrew Slough to create a fishing village. This station was operated as the Chinese-McCollam Fish Camp, where primarily shrimp and shellfish were harvested. Years later several hunters' shacks were at the fishing village location.

Morgan Oyster Company

In 1877, The Morgan Oyster Company built an oyster house on an island at the entrance of Steinberger Slough, which was used for their headquarters. Reportedly this house was moved to Redwood City, possibly at Spring Street and Chestnut Street. In the first part of the 20th Century less than ideal conditions for the growing of oysters caused a collapse in the industry. Many of the oyster beds were bought by the Pacific Portland Cement Company.

Pacific Portland Cement Company

In 1924, the Pacific Portland Cement Company established a processing plant on Redwood Creek, east of Bair Island. They used oyster dredged from the bay in creating cement. The San Mateo Bridge is built with cement derived from oyster shell recovered when digging the bridge footings.

Salt Production

The gathering of salt from the sea came late to Bair Island, but has a long history in the South Bay. There is more sun and less rain than in San Francisco or the North Bay. Natural occurring pools of sea water evaporated creating crusts of salt. Records from Spanish missionaries indicate the Native Americans gathered this salt. The Spanish took control of the salt trade.

Commercial production began in 1846 using a common technique of capturing sea water in shallow basins and allowing the water to evaporate. Used world wide for seasoning and in the preservation of food, salt also served the Silver mining boom the late 19th century. Sodium chloride is used in the refining process to separate silver from other minerals. In the late 19th century, dozens of salt companies appeared in the Bay Area. Eventually various companies were bought up and consolidated into the Leslie Salt Company.

After World War II, Leslie expanded production, and converted portions of Inner and Middle Bair Island into salt ponds. Within a few years it was deemed unprofitable and by 1968 production was halted.

Development

Triangulation Station Marsh on the northeast corner of Outer Bair Island was filled by the U.S. Army Corps of Engineers in the early 1900s as part of a dredging project in Redwood Creek. In 1945, the Bair Island Corporation planned to develop the tip of the island as a railroad terminal. They constructed a road and a railway grade extending to Redwood Point but the project was then abandoned.

With the decline in salt and the rising value of land in the late 1960s the salt ponds around Redwood City were drained for development. Housing and commercial properties were developed on former

salt ponds east and west of Bair Island, but a succession of development plans for Bair Island were never implemented.

Previously Recorded Sites and Previous Fieldwork Reports

A search of the files of the Northwest Information Center, Sonoma State University, revealed that no previously recorded archaeological sites occur in of near the project area (NW Info Center # 00-54). Four archaeological surveys have been conducted near, and in conditions similar to the project area.

The project's Area of Potential Effects (APE) for archaeology encompasses the proposed project site. No archaeological site or reported cultural resources are situated in or adjacent to the APE.

3.11.2 Methodology and Significance Criteria for Cultural Resources Impacts

State CEQA Guidelines and NEPA CEQ Regulations were used to determine the significance of cultural resource impacts.

Under the National Historic Preservation Act (NHPA), cultural resources include archaeological resources, historic properties, objects of antiquity, cultural items, and traditional/religious values. Historic properties are "any prehistoric or historic district, site, building, structure or object included in, or eligible for inclusion in, the National Register of Historic Places" [16 U.S.C. 470w (5)]. The criteria used to evaluate National Register eligibility are as follows:

- The quality of significance in American history, architecture, archaeology, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and:
  - that are associated with events that have made a significant contribution to the broad patterns of our history; or
  - that are associated with the lives of persons significant in our past; or
  - that embody the distinctive characteristics of a type, period or method of construction; or
  - that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguished entity whose components may lack individual distinction; or
  - that have yielded or may be likely to yield information important in prehistory or history.

The 1992 NHPA amendments specify that properties of traditional religious and cultural importance to an Indian Tribe or Native Hawaiian organization (traditional cultural properties) may meet the criteria for listing on the National Register.

3.11.3 Cultural Resources Impacts

A project of this scope has the potential to disturb both exposed and buried cultural resources. The Service has the responsibility to protect these resources and comply with Section 106 of the National Historic Preservation Act (NHPA). The Service, the Advisory Council on Historic Preservation, and the California State Historic Preservation Officer (SHPO), pursuant to section 800.13 of the regulations (36 CFR 800.13) implementing Section 106 of the NHPA, have entered into a Programmatic Agreement (Agreement) to streamline the cultural resource compliance process for low impact projects. Initial survey and reporting for the Bair Island project has been reported and submitted to the SHPO under this agreement October of 2002. Additional survey and research was subsequently undertaken.

3.11.3.1 All Alternatives including No Action Alternative

Evident shell concentrations lay outside the project area of potential effects. Further, without detailed study it is not possible determine if the shells seen near the project area are remnants of Native American processing, planted oysters, or stockpiles for the cement company. It is likely that all three are commingled.

The Chinese-McCollam Fish Camp also lies outside of the project area of potential effects and is not managed by USFWS. There are evident pilings, building remnants, but no standing structures, in the location.

The bulk of the project area consists of former salt ponds. Although constructed more than 50 years ago, the former salt ponds and associated levees do not meet any criteria as historic properties. The integrity and association have been lost through years of abandonment. They do not convey a strong association with the importance of salt production. There is no physical evidence remaining of occupation by an important person. No buildings remain, and linear structures (levees) have been modified and do not constitute a significant feat of engineering. The few structures that remain (possible brine control structures in small internal levees) are greatly deteriorated.

As no historic properties were identified, no effect on cultural resources is anticipated under any alternative including the No Action Alternative. Although it is unlikely that buried cultural materials would be encountered during excavation for levee breaches or routine maintenance, the appearance of cultural properties can never be predicted with certainty. Therefore, there is the potential for subsurface deposits in this project location.

- **Implementation of any of the Alternatives could result in a significant impact to buried cultural resources that could be present on the site. (Significant Impact)**

3.11.4 Mitigation Measures

Although it is unlikely that buried cultural materials would be encountered, the appearance of cultural properties can never be predicted with certainty. Since there is the potential for subsurface deposits in this project location the following measure is included for all construction and maintenance activities that involve excavation or disturbance to existing ground surface.

- Should any cultural deposits be encountered during any phase of the project, work shall halt and the Refuge Manager notified. If human bones are found, the

appropriate County authority (Coroner, Sheriff, or Medical Examiner), the Native American Heritage Commission, and the Service's Regional Archaeologist would be contacted immediately. An assessment of the deposits would be made by the Regional Archaeologist, or other similarly qualified individual, before work may resume in the area of discovery.

- **Incorporation of the above mitigation measure would reduce any cultural resources impacts to a less than significant level. (Less Than Significant Impact with Mitigation)**

Conclusion: None of the alternatives including the No Action Alternative would result in significant cultural resources impacts that could not be mitigated to a less than significant level.

3.12 Visual/Aesthetics Resources

3.12.1 Existing Setting

The visual quality of the overall bayfront area is created by the openness associated with marshes, waterways, and the Bay beyond. Clear and unobstructed views, a broad visual horizon, and an uninterrupted expanse of sky are key elements.

Bair Island is visible from a number of vantage points including U.S. 101, the residential community on Redwood Shores, Bair Island Road, and from Redwood City hillsides and Edgewood Park.

3.12.2 Methodology and Significance Criteria for Visual/Aesthetic Impacts

State CEQA Guidelines and NEPA CEQ Regulations were used to determine the significance of visual/aesthetic impacts. The impacts on visual impacts were analyzed qualitatively. There would be a significant impact on visual/aesthetic resources if the action would have a substantial adverse effect on a scenic vista.

The following criteria were used to determine significant visual/aesthetic effects under the State CEQA Guidelines. A visual/aesthetic impact is considered significant if the project would:

- substantially alter existing views of scenic vistas or resources; or
- remove important aesthetic features; or
- produce substantial light or glare, such that it poses a hazard or nuisance, or interferes with nearby land uses.

3.12.3 Visual/Aesthetic Impacts

3.12.3.1 No Action Alternative

Under the No Action Alternative there would be no restoration of Bair Island and no improvements to public access. There would therefore be no visual changes occurring at Bair Island.

- **The No Action Alternative would not result in any visual impacts (No Impact)**

3.12.3.2 Alternative A: Tidal Marsh Restoration and Intermediate Public Access (*Proposed Action*)

Alternative A would not substantially alter existing views of the project area. The visual change resulting from the tidal marsh restoration alternative would be minimal. The only clearly visible change would be the public access improvements. The parking lot along Bair Island Road would include public restroom facilities and would be expanded to accommodate school buses. The parking lot would connect with the ADA upgraded trail via a predator resistant bridge. On Inner Bair Island there would be two observation decks located along Smith Slough. These observation decks would be approximately 30 feet by 15 feet and located approximately three feet above the levee. On Middle Bair there would be a viewing platform located at the channel restriction on Corkscrew Slough. Access to this observation platform would only be by boat, and access beyond the observation platform would not be permitted. None of these improvements to Bair Island would substantially

alter the existing visual character of the surrounding area, which is currently characterized by open and expansive natural views. From most of the viewpoints listed above there would be no visible change to Bair Island itself. A small restroom building would be visible from Bair Island Road and adjacent residential development. However this new structure is not considered a substantial change in the visual character of the site. As a result, Alternative A would not have a substantial adverse effect on surrounding scenic vistas and would not significantly alter public views and view corridors.

Under the No Action Alternative, none of the public access improvements would be constructed. However with or without the public access improvements, Bair Island's visual quality would remain similar to existing conditions.

- **Implementation of Alternative A would not degrade the existing visual character or quality of the site and its surroundings. (Less Than Significant Impact)**

3.12.3.3 Alternative B: Tidal Marsh Restoration and Restricted Public Access

The visual and aesthetic impacts for Alternative B would be similar to Alternative A, except that Alternative B would not have a levee trail or observation deck on the southeastern side of Inner Bair Island. Alternative B would therefore have slightly less visual impact than Alternative A, but a larger visual impact than the No Action Alternative.

3.12.3.4 Alternative C: Tidal and Managed Marsh Restoration and Moderate Public Access

The visual and aesthetic impacts for Alternative C would be identical to Alternative A.

3.12.3.5 Alternative D: Tidal and Managed Marsh Restoration and Restricted Public Access

As in Alternative B, this alternative would not have a levee trail or observation deck on the southeaster side of Inner Bair Island. Therefore, the visual and aesthetic impacts from Alternative D would be the same as those for Alternative B.

Conclusion: None of the alternatives would result in significant impacts to the visual or aesthetic environment.

3.13 Construction Impacts

3.13.1 Methodology and Significance Criteria for Construction Impacts

State CEQA Guidelines and NEPA CEQ Regulations were used to determine the significance of construction impacts.

The following criteria were used to determine significant construction effects under the State CEQA Guidelines. A construction impact is considered significant if the project would:

- result in the closure of a major traffic-carrying street or a navigable waterway for an extended period of time (one month or more); or
- disrupt a business for a period of three months or more; or
- construction of the project would cause a disruption in any utility service for a period of 24 hours or more; or
- generate substantial amounts of dust; or
- generate noise or vibration which substantially affects nearby sensitive receptors (*e.g.*, residences, schools, parks, etc.).

3.13.1.1 No Action Alternative

Under the No Action Alternative no construction or maintenance would occur on Bair Island except minor repairs to the existing levee on Inner Bair Island in the vicinity of the San Carlos Airport safety zone and the South Bayside System Authority sewer line

In order to avoid or reduce safety impacts, the San Carlos Airport may be required by the FAA to undertake improvements to the levee around the perimeter of their safety zone on Inner Bair Island. In addition, the SBSA may need to undertake measures to maintain the portion of the levee on Inner Bair Island that protects their existing force main pipeline. The Refuge would work with the Airport and SBSA to avoid or reduce these impacts. These maintenance and/or construction activities may result in short term air quality impacts, but the construction is outside of the scope of this project and may require sequential environmental review at a future time.

- **The No Action Alternative would not result in any significant construction impacts. (No Impact)**

3.13.1.2 Alternative A: Tidal Marsh Restoration and Intermediate Public Access (*Proposed Action*)

Navigable Waterway Impacts

Alternative A would install channel modifications at Smith and Corkscrew Sloughs to avoid impacts to the Redwood Creek shipping channel and Pete's Outer Harbor. A flow-blockage control structure would be installed in Smith Slough in order to restore its historic meander through Inner Bair Island. In Corkscrew Slough a flow restrictor would be installed. There would be warning information signs near the flow restrictor and at all three boat ramps. A 30-foot notch for boat passage would be installed, along with a depth gauge, at the notch. In addition, a portage would be installed along the banks of Corkscrew Slough to allow boaters to carry their boat out of the water and to the other side

of the structure. This portage would only be able to accommodate small boats that can be manually carried out of the water. Currently only small boats are able to pass through Corkscrew Slough easily, and no boats are able to use the western end of the Slough at low tide, so the accessibility would not substantially change. However in the long-term it is expected that passage through Corkscrew and Smith Sloughs would improve.

In the short-term while the potential tidal prisms of the ponds are highest and low water drainage in the slough system is poor, the water levels across these structures will induce high current velocities in their immediate vicinity. High current velocities would occur during low tides. Current velocities through the flow control structures will diminish in time, as Steinberger Slough and Corkscrew Slough deepen and the ponds fill with sediments. During periods of high tides, water levels across the flow control structures are expected to be the same on both sides and thus will not impact boat passage. Current velocities during high tides will be consistent with the rest of the sloughs.

During construction of these channel structures, barges may be present in the sloughs while placing the structures. During construction, it may be difficult or unsafe to pass the through the flow restrictor at low tide and when the tide is rapidly falling over the flow restrictor. Therefore, the Refuge may require temporary closure of portions Steinberger Slough, Corkscrew Slough, and Smith Sloughs at various phases of construction to protect the public. However, these closures would be for short periods and would not substantially impact navigable waterways during construction.

- **Alternative A would not result in significant impacts to navigable waterways during construction. (Less Than Significant Impact)**

Impacts to Business and Utilities During Construction

There are no anticipated impacts to any business during the construction of Alternative A. No utility relocation would be required to implement Alternative A.

- **Alternative A would not disrupt a business for a period of three months or more or require a disruption in any utility service for a period of 24 hours or more. (Less Than Significant Impact)**

Air Quality Impacts During Construction

Construction equipment would include dredges, boats, barges, excavators, dump trucks and graders on and around Bair Island. These construction activities, including construction vehicle traffic and wind blowing over exposed earth, would generate exhaust emissions and fugitive particulate matter (*i.e.*., dust) emissions that would affect local and regional air quality. Construction activities are also a source of organic gas emissions. Solvents in adhesives, thinners, and some construction materials would evaporate into the atmosphere and would participate in the photochemical reaction that creates urban ozone.

Construction dust could affect local air quality at various times during construction of the project. The dry, windy climate of the area during the summer months creates a high potential for dust generation, when the dredged material is exposed to the atmosphere.

The effects of construction activities would be increased dust and higher levels of particulates downwind of construction activity. Construction dust has the potential for creating a nuisance at

nearby properties, and may constitute a health impact for children or persons with chronic health problems. Given the proximity of the residences and recreational users in the Bay this potential impact could be significant.

Alternative A would involve the use of dredged material to raise the elevation on Inner Bair which would take approximately five to six months. The placement of dredged and fill material has the potential to create unpleasant odors due to the presence of decaying organic material in the mud.

Due to the increase in wetland vegetation on the project site over time, net air quality should improve as a result of this project. There may be short term negative impacts during placement of dredge and fill material and construction, especially in terms of dust and odor production, but this should be only during construction. The odor should not differ significantly from a low tide event in the area which also exposes sediments containing decaying organic material.

- **Construction from the implementation of Alternative A could result in significant air quality impacts associated with dust generation. (Significant Impact)**

3.13.1.3 Alternative B: Tidal Marsh Restoration and Restricted Public Access

Alternative B would have similar construction impacts as Alternative A with the exception that it would have fewer public access improvements on Inner Bair Island and therefore would result in slightly fewer impacts to air quality.

3.13.1.4 Alternative C: Tidal and Managed Marsh Restoration and Moderate Public Access

Alternative C would have similar construction impacts as Alternative A with the exception that this alterative would have longer trails and would not involve the placement of dredged material and thus would reduce odor impacts.

3.13.1.5 Alternative D: Tidal and Managed Marsh Restoration and Restricted Public Access

Alternative D would have the same construction impacts as the Alternative C with the exception that it would have fewer public access improvements (shorter trail on Inner Bair Island) and therefore would result in slightly fewer impacts to air quality.

3.13.2 Mitigation Measures

The Bay Area Air Quality Management District (BAAQMD) has prepared a list of feasible construction dust control measures that can reduce construction impacts to a level that is less than significant. Except when it is raining, the following construction practices would be implemented during construction of any of the alternatives:

- Sweep streets daily (preferably with water sweepers) if visible soil material is carried onto adjacent public streets;

- Limit traffic speeds on unpaved areas to 15 mph;

- Replant vegetation in disturbed areas;
- Water or cover all stockpiles of soil that can be blown by the wind;
- Sweep daily (with water sweepers) the paved access roads, parking areas, and staging areas at construction site.

Conclusion: With implementation of the mitigation measures listed above, the Action Alternatives would not result in significant construction impacts. The No Action Alternative would not result in any significant construction impacts.

3.14 Recreational Impacts

The following existing setting discussion is based upon the Bair Island Visitor Use Survey, prepared by the Sequoia Audubon Society in December 2000.

3.14.1 Existing Setting

Recreational activities that currently take place at Bair Island include jogging, hiking/walking, bicycling, boating and hunting, (hunting is only allowed by boat at portions of Middle and Outer Bair Islands). Pedestrians and bicyclists use the 3.3-mile levee loop trail on Inner Bair Island starting from a narrow and deteriorated connector trail from the Bair Island parking lot along Bair Island Road.[32] This existing paved parking lot is owned and maintained by the Refuge (refer to Figure 13).

Pedestrians and Bicyclers

A survey was prepared of visitors using the 3.3-mile loop trail on Inner Bair Island who walk/hike, jog, or bicycle. Based on this survey it is estimated that approximately 250,000 individuals visit Inner Bair Island annually. Sunday has the highest volume of visitors to Bair Island, followed by Saturday. Wednesday and Friday are the least busy days of the week. In addition, mornings are busier than afternoons. Most of the visitors walk or hike and of the percentage of visitors that hike, jog, or bicycle, 38 percent of them bring dogs. Based on the survey, only 44 percent were on a leash. Currently dogs are allowed on Inner Bair Island levee trails and are required to remain on the designated trails and under control at all times, however, on numerous occasions during public use surveys dogs were located off the designated trails.[33] Redwood City requires all dogs to be on a leash but this has not been enforced on Bair Island.

Boating

Approximately five high schools with about 200 to 250 members, two universities (Stanford and Santa Clara) with about 75 to 100 members, and four adult clubs (Bair Island Aquatic Center, Los Gatos, Stan Rowing Club, and Redwood Creek Rowing Club) with about 200 to 300 members, use the Bair Island waterways for non-motorized boating. The Cortez Racing Association also hosts a number of regattas each year on Redwood Creek. Additionally there are three to four non-motorized races held each year that go clockwise from Redwood Creek to Smith Slough to Steinberger Slough to Corkscrew Slough and back to Redwood Creek. Most boating classes and events are held from July through November.

Waterfowl hunting is allowed per state regulations by boat on portions of Middle and Outer Bair Islands and Corkscrew Slough except at the confluence of Redwood Creek and Steinberger Slough. Fishing is permitted from boats in Smith Slough, Corkscrew Slough, Steinberger Slough and Redwood Creek.

[32] Before June 2003, pedestrians and bicyclists would take access at the trailhead to the Inner Bair levees from an unpaved area used for parking at the end of Whipple Avenue. The California Department of Transportation (Caltrans) owns this existing unpaved area along Whipple Avenue. As part of Caltrans' U.S. 101 Auxiliary Lanes Project from Ralston Avenue to Marsh Road, this area was closed off to parking by Caltrans in June 2003.

[33] The Refuge will start requiring dogs to be on a maximum six-foot leash at the end of the public review period for this EIS/EIR. The new rule will be added to the signage at Bair Island.

Motorized boaters and larger sailboats are mostly limited to Redwood Creek because Smith Slough, Steinberger Slough, and Corkscrew Slough are too shallow. The only motorized boats that do use these sloughs are smaller and can only use them at high tides. Each year one of the local yacht clubs hosts an event at high tide for the larger boats through the Corkscrew Slough, Steinberger Slough, and Smith Slough loop.

3.14.2 Methodology and Significance Criteria for Recreational Impacts

State CEQA Guidelines and NEPA CEQ Regulations were used to determine the significance of recreational impacts. The impacts on recreation were analyzed qualitatively, focusing on the existing and proposed policies related to the project area, the types of changes expected to result, and the potential of the restoration changes to adversely affect current and proposed recreational uses at Bair Island.

The following criteria were used to determine significant recreational effects under the State CEQA Guidelines. A recreational impact is considered significant if the project would:

- increase the use of recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated; or
- include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment; or
- conflict with existing or planned recreational use and recreation policies; or
- conflict with existing or planned public access plans.

3.14.3 Recreational Impacts

3.14.3.1 No Action Alternative

In the short term (approximately five years), the No Action Alternative would allow continued limited public use consistent with protection of wildlife and habitat and compatibility with Refuge purposes and the National Wildlife Refuge System mission and with the Bay Trail Plan. In the long term, the Refuge would not maintain the existing levee for public use of Inner Bair Island. After approximately five years, trails are expected to become unsafe and would not be accessible to the public. Fishing and boating would not change in the short term. However, as the levees of Middle and Outer Bair Islands wear down and breach, some areas may become unsuitable for fishing and boating. The Refuge's Bair Island parking lot along Bair Island Road would be closed, once public access is no longer allowed. No trail improvements would be made. No additional infrastructure would be constructed.

The City of Redwood City and BCDC both have public access policies that recommend enhancement of public recreational opportunities along the San Francisco Bay. The No Action Alternative would not be consistent with existing public access plans and polices for Bair Island because public access would eventually be eliminated from Bair Island. The existing recreational facilities would deteriorate and become unsuitable for public use.

- **The No Action Alternative would result in significant adverse recreational impacts. (Significant Impact)**

3.14.3.2 Alternative A: Tidal Marsh Restoration and Intermediate Public Access (*Proposed Action*)

Consistency with Existing or Proposed Public Access Plans

Currently the Bay Trail Plan has a designated spur trail along Inner Bair Island. This segment of the spur trail extends from the westernmost point on the levee on Inner Bair Island to the trailhead at Whipple Avenue, then continues on the narrow path that connects to Bair Island Road. The Bay Trail Plan also shows a future bay trail (planned but not developed) connecting Redwood Shores Bay Trail through San Carlos Airport property (along Steinberger Slough) and bridging the Airport property to Inner Bair Island. However, this connection through the Airport is not presently viable for public access because of safety rules and regulations and safety concerns, and would not be permitted by the Federal Aviation Administration (FAA). Alternative A does not propose this connection to the San Carlos Airport and it is beyond the scope of this project because it is located on the Airport property. Alternative A would improve the designated Bay Trail on Inner Bair Island and the connector trail to the parking lot along Bair Island Road. Alternative A is consistent with the proposed Bay Trail Plan within the Refuge.

The No Action Alternative would result in greater conflicts with policies and plans for the site than Alternative A because recreation and public access would eventually be eliminated or substantially reduced in the long-term.

- **Implementation of Alternative A is consistent with the existing Bay Trail Plan along Inner Bair Island. (Less Than Significant Impact)**

Impacts to Recreational Facilities

After raising the elevation on Inner Bair Island (estimated to be approximately six months), the public access improvements would be made on Inner Bair Island. Public access for pedestrians and bicyclists on Inner Bair Island would change from a 3.3-mile loop trail to a non-loop 1.8-mile levee trail. Access to Inner Bair Island will originate via a new "predator resistant" pedestrian bridge located near the Refuge parking lot on Bair Island Road at the eastern edge of Inner Bair Island. The trail base will be upgraded to meet ADA standards and the parking lot on Bair Island Road will be expanded to accommodate school buses. Sanitary facilities would be provided at the Bair Island parking lot. Orientation kiosks would be provided at the trailhead and park lot and two 30 by 15 foot viewing/environmental education platforms would be provided at the ends of the levee trails, overlooking Smith Slough. Additional interpretive signs will be installed along the trail. Restoring wildlife habitat and providing the orientation kiosks and wildlife viewing platforms along and at the ends of the trails would help meet the project purpose of enhancing the public appreciation and awareness of the unique resources of Bair Island.

Alternative A would include channel modifications at Smith and Corkscrew Sloughs to avoid impacts to the Redwood Creek shipping channel and Pete's Outer Harbor. A flow-blockage control structure would be installed in Smith Slough in order to restore its historic meander through Inner Bair Island. This would prevent unsafe flow velocities for boaters using the sloughs and creek. Boats would be able to use the realigned Smith Slough as they have used the existing Smith Slough.

In Corkscrew Slough a flow restrictor would be installed. There would be warning and information signs near the flow restrictor and at the boat ramp. A 30-foot notch for boat passage would be

installed, along with a depth gauge, at the notch. In addition, a portage and observation deck would be installed along the banks of Corkscrew Slough in order to allow recreational users to have access around the flow restrictor when it is not possible during the construction phase at low tides. In the long-term, the shallow slough channels (Smith, Corkscrew, and Steinberger Sloughs) which are currently too shallow to be used by boats at low tide, would be scoured by increased tidal action. This will result in these waterways being usable by boats for much longer periods of the tidal cycle.

As described in *Section 3.1 Vegetation and Wildlife,* under Alternative A the overall habitat quality would improve for many species. As habitat improves, recreational uses are expected to increase. As discussed above, upgrades to the existing recreational facilities would include widening and improving the trail and the trailhead, creation of viewing platforms, and installing public restrooms. The specific impacts from constructing these facilities are discussed in the appropriate sections of this document. The improved access may increase use of the facilities, including by domestic dogs. Dogs may cause disturbances to wildlife, including endangered species, and Refuge visitors, however, the Refuge will be conducting a monitoring program on dog use to identify if owners are violating the Refuge dog walking regulations. If the monitoring plan demonstrates that dog owners are violating the dog walking regulations above the established wildlife protective standard, dogs will no longer be allowed on Bair Island (see Dog Use Monitoring Plan in Appendix A of this EIS/EIR).

- **Implementation of Alternative A would not result in physical deterioration or an adverse effect to recreational facilities. (Less Than Significant Impact)**

3.14.3.3 Alternative B: Tidal Marsh Restoration and Restricted Public Access

The impact of Alternative B would be similar to the impacts from Alternative A except that the public access plan would have a shorter trail on Inner Bair Island (1.8 miles) and would not allow dogs and would establish a seasonal closure of Corkscrew Slough to protect harbor seals. This would reduce potential disturbance to endangered species, other wildlife and Refuge visitors.

- **Implementation of Alternative B would reduce the length of trails available to the public on Inner Bair Island; however, it would not result in an adverse effect to recreational facilities. (Less Than Significant Impact)**

3.14.3.4 Alternative C: Tidal and Managed Marsh Restoration and Moderate Public Access

The impacts of Alternative C would be the same as impacts from Alternative A.

3.14.3.5 Alternative D: Tidal and Managed Marsh Restoration and Restricted Public Access

The impacts of Alternative D would be the same as impacts from Alternative B.

Conclusion: None of the Action Alternatives would result in significant recreational impacts except the No Action Alternative would have significant impacts.

3.15 Cumulative Impacts

A cumulative impact is the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR 1508.7).

This discussion summarizes the potential cumulative impacts associated with the alternatives. This discussion would analyze the potential cumulative effects of this tidal marsh restoration project combined with other past, present, and reasonably foreseeable tidal restoration projects within the project vicinity and flood management projects within Redwood City.

The following projects were considered during the cumulative impact analysis:

Table 7: Cumulative Project List

Project	Location	Use	Size
Moseley Tract Project	Menlo Park	Tidal Restoration	54 ac.
Foster City Marsh Project	Foster City	Tidal Restoration	31.35 ac.
San Mateo Shoreline Parks Project	San Mateo	Tidal, Non-Tidal restoration	7.7 ac.
Knapp Tract	San Jose	Tidal Restoration	382 ac.
South Bay Salt Pond Restoration Project	San Mateo Co. Santa Clara Co.	Tidal Marsh Restoration	8,946 ac.
South Bay Salt Pond Restoration Project	Hayward, Alameda Co.	Enhancement Restoration	4,748 ac.
Hayward Shoreline Enhancement Project	Hayward	Restored Managed Marsh	134 ac.
Pond A4	San Jose	Tidal Restoration	310 ac.
San Francisco Estuary Invasive *Spartina* Project	*All 9 Bay Area Counties*	*Spartina* Control and Management	69,000 ac.

3.15.1 Cumulative Thresholds of Significance

For the purposes of this project, a cumulative impact is considered significant if the project would:

- in conjunction with other projects proposed or reasonably foreseeable, would result in an impact that exceeds the significance criteria identified elsewhere in this document for a particular resource.

The following resources were found not to have the potential to contribute to cumulative impacts because the effects were extremely minor, were temporary, or had no potential to be additive and therefore contribute to cumulative impacts: land use, short-term water quality, long-term air quality, socio-economics, environmental justice, geology, farmlands, wild and scenic rivers, coastal zones, public health and safety, cultural resources, visual resources, and recreation.

3.15.2 Cumulative Impacts

Vegetation and Wildlife

Invasion of Atlantic Cordgrass (Spartina) Associated with Disturbance from Tidal Marsh Restoration Projects

Sheltered mudflats and immature tidally restored baylands are highly susceptible to invasion by Atlantic cordgrass. Atlantic cordgrass is capable of colonizing mudflats at a lower elevation (and therefore earlier) than the native marsh species. Breached salt ponds that will rely on natural sedimentation processes to bring the elevations up to heights suitable for marsh establishment will be susceptible to invasion by Atlantic cordgrass. The implementation of other large-scale restoration projects could also result in the expansion of invasive non-native cordgrass populations. The project proponents are working closely with the San Francisco Bay Invasive *Spartina* Program to ensure that any activities at Bair Island are consistent with the goals and procedures of the bay-wide eradication program. It is expected that an Invasive Cordgrass control program will be conducted on Bair Island 2-3 years before breeching any levees. It is likely that control on invasive cordgrass as part of the San Francisco Bay Invasive *Spartina* Program will occur at Bair Island even under the No Action Alternative.

- **All of the alternatives (including No Action Alternative), along with other tidal restoration projects, could contribute to the creation of additional habitat in the Bay Area that would be susceptible to invasion by Atlantic cordgrass. (Significant Cumulative Impact)**

Hydrology and Water Quality

Impacts to Mudflat Habitat

The existing aerial extent of mudflat habitat in South San Francisco Bay may decrease in response to future decreases in delivery of sediment from contributing watersheds, accelerated sea level rise, subsidence, and sediment demands associated with large-scale tidal wetland restoration projects such as those planned for the South Bay Salt Ponds. Although tidal restoration at Bair Island would add to the overall sediment demand within the South Bay, all of the alternatives including the No Action Alternative would create intertidal mudflat habitat at Middle and Outer Bair Islands. This creation would increase the extent of intertidal mudflat relative to existing conditions, and is expected to persist to at least some extent over the planning horizon, as intertidal mudflat is slowly converted to vegetated marshplain through natural sedimentation and vegetative colonization.

- **All of the alternatives including the No Action Alternative are not expected to contribute to the reduction of intertidal mudflat habitat that may occur in the future due to changes in the sedimentation processes in South Bay. (Less Than Significant Cumulative Impact)**

Impacts to Flooding

None of the other tidal restoration projects planned in the area would contribute to a cumulative impact to flooding. Further urbanization in the watersheds of Pulgas and Cordilleras Creeks could increase the amount of runoff, and worsen flood impacts. However, no substantial further development is expected in the cities of Belmont, San Carlos, and Redwood City within the watershed.

The predicted sea level rise over the next 50 years could range from 0.16 to 0.92 feet. Sea level rise would be independent of future foreseeable projects. A cumulative impact is defined as an impact which is created as a result of the combination of the proposed project together with other projects causing related impacts (CEQA Guidelines Sec. 15355 & 15130(a)(1). While changes in sea level are not, technically, a "project", sea level rise could effect flood levels, to an unknown extent.

- **The Action Alternatives along with planned development in the watershed is not expected to result in significant flooding impacts. (Less Than Significant Cumulative Impact)**

3.15.3 Mitigation Measures

The discussion below identifies potential mitigation, where it can be identified, for the cumulative impacts identified above.

Mitigation for Cumulative Vegetation and Wildlife Impacts

Invasion of Atlantic Cordgrass (Spartina) Impacts

All of the Alternatives, including the No Action, include controls for non-native *Spartina* species within the Bair Island restoration site and follow many of the suggestions and methods contained within the *Spartina* Control Program. The Bair Island Restoration and Management Plan would be reviewed by California State Coastal Conservancy and the US Fish and Wildlife Service for consistency with the *Spartina* Control Program. If necessary, the control methods in the Bair Island Restoration and Management Plan would be modified to remain consistent with the final approved version of the San Francisco Estuary Invasive *Spartina* Control Program EIS/EIR.

Therefore, implementation of proper non-native *Spartina* treatment at the Bair Island site in accordance with the *Spartina* Control Program would not cumulatively contribute to the spread of invasive *Spartina* to the San Francisco Estuary.

Conclusion: The proposed restoration alternatives, along with other local restoration project may cumulatively result in short-term impacts to vegetation and wildlife. However, the proposed restoration alternatives would result in substantial long-term benefits to endangered species and aquatic resources by creating a substantial amount of new tidal salt marsh habitat.

Implementation of appropriate non-native Spartina treatment at the Bair Island site would avoid contributing to the spread of invasive Spartina in the San Francisco Bay.

3.16 Irreversible or Irretrievable Commitments of Resources

The project would result in the irretrievable commitment of fossil fuels and other energy sources to build, operate, and maintain the wetlands.

3.17 Relationship Between Short-Term Uses of the Environment and the Maintenance and Enhancement of Long-Term Productivity

Short-term uses of the environment that would occur with restoration include the impacts on existing wetlands and habitat and those from construction-related activities. However, in the long-term, the site is expected to be substantially more productive for habitat and wildlife values.

3.18 Growth-Inducing Impacts

Section 15162.2(d) of the State CEQA Guidelines requires that an EIR address the potential growth-inducing impacts of a proposed project. Specifically, the EIR shall "discuss the ways in which a project could foster economic or population growth, or the construction of additional housing either directly or indirectly, in a surrounding environment". Projects which could remove obstacles to population growth (such as a major public service expansion) must also be considered in this discussion.

While the Action Alternatives would incrementally increase recreational opportunities, such facilities are not a known constraint to population growth in the Bay area. The proposed improvements to Bair Island are unlikely to induce or encourage additional population growth or development elsewhere.

The growth inducement associated with the alternatives is anticipated to have a less than significant impact on the environment.

3.19 Environmentally Preferred/Superior Alternative

NEPA states that an EIS shall identify the environmentally preferable alternative from the range considered. The environmentally preferable alternative is the alternative that best promotes the national environmental policy expressed in NEPA. This means the alternative that causes the least damage to the environment and best protects biological and physical resources. CEQA Guidelines state that an EIR shall identify an environmentally superior alternative. In addition, if the No Project alternative is identified as environmentally superior, then the EIR also must identify the environmentally superior alternative among the other alternatives.

As this is a restoration project, by definition all alternatives would benefit the biological and physical environment and are designed to enhance natural resources in the project area. Alternatives A (Tidal Marsh Restoration and Intermediate Public Use) and B (Tidal Marsh Restoration and Restricted Public Use) both would result in the highest quality tidal marsh habitat in the shortest amount of time compared to the other alternatives.

Subsequent to the publication of the Draft EIS/EIR, Alternative A was modified to lessen the amount of public disturbance to special status species. These modifications include a shorter public access

trail and a new "predator resistant" pedestrian bridge from the parking lot. In addition, dog access would be subject to a three month trial period to determine compliance with refuge regulations designed to protect wildlife. Changes made to Alternative A would result in similar, but not the same, potential disturbance to special-status species as Alternative B. Although Alternatives A and B would provide a public access trail of the same length (1.8 miles), they each would have a different alignment on Inner Bair Island. Alternative B would still have a slightly lower potential for disturbance to special-status species because this alternative would not allow dogs or public access at the east end of Inner Bair Island adjacent to restored marsh habitats and it includes a seasonal closure of sloughs to protect harbor seals. Alternative B is considered the environmentally preferred alternative because it would result in the highest quality tidal marsh habitat in the shortest amount of time *and* would result in the least amount of public disturbance to special-status species.

Alternatives C and D would also restore high quality tidal marsh habitat but would not restore as much as Alternatives A and B including reduced available California Clapper Rail habitat. Construction-related impacts for Alternative B would be equivalent to Alternatives A, C and D. Implementation of Alternative A would not result in an unacceptable level of disturbance to special status species populations (See Section 2.2 and Section 3.1.3.3.).

The No Action Alternative is not considered the environmentally preferable alternative because of the continued deterioration of the site and hydrology, recreation, and public health and safety impacts.

SECTION 4. ACRONYMS, ABBREVIATIONS AND DEFINITIONS OF TERMS

ABAG	Association of Bay Area Governments
BAAQMD	Bay Area Air Quality Management District
Breach	An excavation through an earth levee through which tidal exchange is provided to and from the restored island
Borrow ditch	Human-constructed channels adjacent to levees created by the process of "borrowing" material to build the levee. They tend to be straighter and offer less habitat complexity than natural channels.
CDFG	California Department of Fish and Game (Lead Agency for CEQA)
CEQA	California Environmental Quality Act
Cut-off berm	Earth fill that crosses an existing borrow-ditch to inhibit flow.
Damping	(tidal damping) a reduction in the tide range at a location due to frictional losses between the location and the boundary tide.
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
Environmentally preferable alternative	The environmentally preferable alternative is the alternative that best promotes the national environmental policy expressed in NEPA. This means the alternative that causes the least damage to the environment and best protects biological and physical resources.
Fetch	(wind fetch) An area of open water over which wind blows to generate waves.
Headcut	An erosion point in a channel that occurs where there is an abrupt drop in the channel bottom elevation in the downstream direction.
MHHW	Mean higher high water, average of the higher of two daily high tides.
MLLW	Mean lower low water, average of the lower of two daily low tides.
MTL	Mean tide level; the existing marshplain elevation.
NHPA	National Historic Preservation Act
NEPA	National Environmental Policy Act

NGVD	National Geodetic Vertical Datum A fixed vertical datum at the mean sea level of 1929. Used in this study for consistency with previous ground surveys. NGVD has been superceded by NAVD88, which came into common use in the San Francisco Bay Area during the course of this study.
Proposed Action	The proposed action is a term used in this restoration project to identify the recommend alternative of the draft restoration and management plan.
SBSA	South Bayside System Authority (owners of sewer line on Inner Bair Island).
Shoaling	To gradually become shallow.
SHPO	State Historic Preservation Officer
Slough	In general use, a tidal channel. In this project the term may also refer specifically to the major (named) tidal channels between the ponds (*e.g.*, Steinberger Slough, Smith Slough, Corkscrew Slough, etc.).
Subsidence	The sinking of earth. In this context, the settling of constructed earth fill.
Thalweg	The deepest point or a line joining the deepest points of a stream channel.
Tidal capture	An increase in the amount of tidal prism through a slough or channel due tidal waters preferentially flowing through routes with greater hydraulic efficiency.
Tidal damping	A decrease in tidal range at a location due to frictional losses between the location and the boundary tide.
Tidal muting	Reduction of the tide range caused by undersized inlets or engineered structures that limit the volume of water as the tide waves passes from more open water. The degree of muting is a function of the relative sizes of the inlet and estuary.
Tidal prism	Volume of water that flows into or out of an area during the diurnal tide. In the San Francisco Estuary, the diurnal tide is between MHHW and MLW.
USFWS	United States Fish and Wildlife Service (Lead Agency for NEPA)

SECTION 5. DRAFT EIS/EIR DISTRIBUTION LIST

The Draft EIS/EIR was made available for public review at the following locations:

Don Edwards San Francisco Bay National Wildlife Refuge Headquarters Visitors Center, Newark, California.

Redwood City Downtown Main Public Library, 1044 Middlefield Road, Redwood City.

San Carlos Public Library, 610 Elm Street, San Carlos, California.

Online at http://www.southbayrestoration.org/Bair-EIR-EIS.html

The Draft EIS/EIR was distributed to the following agencies, organizations, and individuals:

Agencies

Association of Bay Area Governments, San Francisco Bay Trail
California Department of Boating and Waterways
California Department of Conservation
California Department of Fish and Game
California Department of Parks and Recreation
California Department of Toxic Substances Control
California Department of Transportation District 4
California Department of Water Resources
California Resources Agency
California State Coastal Conservancy
California State Clearinghouse
California State Lands Commission
City of San Carlos
City of Redwood City
City of Redwood City Police
County of San Mateo
Native American Heritage Commission
Regional Water Quality Control Board, Region 2
San Carlos Airport
San Francisco Bay Conservation and Development Commission
San Mateo County Mosquito Abatement District
San Mateo Transportation Authority
South Bayside System Authority
State Water Resources Control Board, Division of Water Quality
US Army Corps of Engineers
US Department of Commerce, National Oceanic and Atmospheric Administration
US Department of Transportation Federal Aviation Administration
US Environmental Protection Agency
US Fish and Wildlife Service
US Geological Survey
US National Marine Fisheries Service

Other Organizations

California Native Plant Society
California Waterfowl Association
Citizens to Complete the Refuge
Ducks Unlimited
Friends of Redwood City
Marine Science Institute
National Audubon Society, Sequoia Chapter
Pacific Gas and Electric Company
Peninsula Access for Dogs
Peninsula Conservation Center
Peninsula Open Space Trust
Peninsula Yacht Club
Pete's Harbor
Point Reyes Bird Observatory
Port of Redwood City
San Carlos Airport Pilots' Association
San Francisco Bay Bird Observatory
Save the Bay
Sequoia Yacht Club
San Francisco Bay Wildlife Society
Wildlife Stewards

Other Interested Persons

All individuals on the Bair Island Restoration and Management Project mailing list were notified of the availability of this report.

SECTION 6. REFERENCES CITED

Albertson, J.D. 1995. Ecology of the California Clapper Rail in south San Francisco Bay. M.A. Thesis, San Francisco State University. 200 pp.

Allen, S.G., D.G. Ainley, G. W. Page and C.A. Ribic. 1984. The effect of disturbance on harbor seal haul-out patterns at Bolinas Lagoon, California. Fish. Bull. 82:493-500.

Baye, P.R., P.M. Faber, and B. Grewell. 2000. Tidal marsh plants of the San Francisco Estuary. *In* (P.R. Olofson, editor) Goals Project. Baylands Ecosystem Species and Community Profiles. Prepared by the San Francisco Bay Area Wetlands Ecosystem Goals Project. San Francisco Bay Regional Water Quality Control Board, Oakland, CA.

Bright, P. W. and P. A. Morris. 1994. Animal translocation for conservation: performance of dormice in relation to release methods, origin and season. J. Applid Ecol., 31: 699-708.

California Air Resources Board, *California Air Quality Data, Annual Summaries, 1999-2001, BAAQMD, Air Currents,* 2002.

California Department of Fish & Game (1999). *Draft EIR Eden Landing Ecological Reserve (Baumberg Tract*).

[CNDDB] California Natural Diversity Data Base. 2001. Rarefind. California Department of Fish and Game.

[CNDDB]. California Natural Diversity Data Base. 2003. Rarefind. California Department of Fish and Game.

[CNPS] California Native Plant Society. 2001. Inventory of Rare and Endangered Plants of California (6th edition). Rare Plant Scientific Advisory Committee, David P. Tibor, Convening Editor. California Native Plant Society. Sacramento, California.

California State Coastal Conservancy and US Fish and Wildlife Service, San Francisco Estuary Invasive *Spartina* Project: *Spartina* Control Program EIR. April 2003.

Carney, K.M., and W.J. Sydeman. 1999. A review of human disturbance effects on nesting colonial waterbirds. Waterbirds 22:68-79.

Danielson, B. J. and M. S. Gaines. 1987. The influences of conspecific and heterospecific residents on colonization. 1987. Ecology, 86(6)1778-1784.

Environmental Services (California Department of Fish and Game). 1994. A field guide to lake and streambed alterations sections 1600-1607. January. Sacramento, CA.

FEMA (Federal Emergency Management Agency). Flood Insurance Rate Map, City of Redwood City, San Mateo County, California. Community Panel Numbers 060325 0001-0016B. Approximate Scale 1"=400'. 1982.

FEMA (Federal Emergency Management Agency). *Flood Insurance Study*, City of Redwood City, San Mateo County, California, November 1981.

FIA (Federal Insurance Administration), U.S. Department of Housing and Urban Development. *Flood Insurance Study*, City of San Carlos, San Mateo County, California, September 1977.

Fisler, G. F. 1965. Adaptations and speciation of harvest mice in the marshes of San Francisco Bay. U. C. Press, Berkeley. 108pp.

Gill, R., Jr. 1979. Status and distribution of the California Clapper Rail (*Rallus longirostris obsoletus*). California Fish and Game 65: 36-49.

Goals Project. 2000. Baylands Ecosystem Species and Community Profiles. Prepared by the San Francisco Bay Area Wetlands Ecosystem Goals Project. P.R. Olofson, editor. San Francisco Bay Regional Water Quality Control Board, Oakland, CA.

H.T. Harvey & Associates. 1984 Hayward Marsh Expansion Salt Marsh Harvest Mouse Experimental Translocation. A study of the translocation of salt marsh harvest mice from the Hayward Marsh Expansion Site to the San Francisco Bay National Wildlife Refuge. Report for East Bay Regional Park District. H. T. Harvey & Associates, San Jose, California 13pp.

H. T. Harvey & Associates. 1990. San Jose Permit Assistance Program salt marsh harvest mouse trapping surveys, Spring and Summer, 1990. H. T. Harvey & Associates, San Jose, California. Project 477-11.

H. T. Harvey & Associates. 1999. *Chevron Oil Pipeline Salt Marsh Harvest Mouse Exclusion Trapping Grizzly Island Wildlife Refuge*. Report for resource insights. H. T. Harvey & Associates, San Jose, California 17pp.

H.T. Harvey & Associates, *Bair Island Restoration and Management Plan: Biological Resources Section*, July 3, 2003.

Harvey, T.E. 1980. California Clapper Rail Survey, 1978-1979. California Dept Fish and Game. Job Final Report, Project E-W-3. Sacramento.

Harvey, T.E. 1981. A breeding season survey of the California Clapper Rail (*Rallus longirostris obsoletus*) in south San Francisco Bay, California. Unpubl. Report, San Francisco Bay National Wildlife Refuge, Newark.

IPPC (Intergovernmental Panel on Climate Change), 2001. Climate Change 2001: The Scientific Basis. Houghton, J.T., Y. Ding, D.J. Griggs, M. Noguer, P.J. van der Linden, X. Dai, K. Maskell, and C.A. Johnson (eds.). Cambridge University Press.

Josselyn M. and R. Perez (1982). *Salt marsh restoration from salt evaporation ponds: vegetation establishment and sediment properties (poster abstract*). IN: Josselyn M (ed). *Wetland restoration and enhancement in California*. California Sea Grant Program no. T-CSGCP-007, La Jolla, California.

Kopec, A.D., and J.T. Harvey. 1995. Toxic pollutants, health indices, and population dynamics of harbor seals in San Francisco Bay, 1989-1992. Moss Landing Marine Labs. Tech. Publ. 96-4, Moss Landing, CA.

Levine Fricke Recon, *Phase I Environmental Site Assessment Bair Island*, March 14, 1997.

Lidicker, W.Z., Jr., and D.G. Ainley. 2000. Harbor seal (*Phoca vitulina richardsi*). Pp. 243-246 *in* Goals Project. Bayland Ecosystem Species and Community Profiles: Life histories and environmental requirements of key plants, fish and wildlife. Prepared by the San Francisco Bay Area Wetlands Ecosystem Goals Project. P.R. Olofson, ed. San Francisco Bay Regional Water Quality Control Board, Oakland, CA.

LSA Associates (1999). Draft EIR Eden Landing Ecological Reserve (Baumberg Tract). Prepared for the Wildlife Conservation Board c/o CDFG.

[NMFS] National Marine Fisheries Service. 2005. Section 7 Endangered Species Act consultation letter. Ref: 151422SWR2005SR00351:DPW.

Peterson, J. *Design Criteria for Sizing of Triple 12x6 RC, Memorandum*. Prepared for Caltrans District 04 Engineering and Services Hydraulics Branch, January 2000.

Philip Williams & Associates, *Bair Island Restoration and Management Plan: Existing Hydrologic Conditions Assessment,* June 30, 2000.

Philip Williams & Associates, *Bair Island Preliminary Flood Assessment Memorandum.* October 2002.

Philip Williams & Associates, *Bair Island Restoration and Management Plan: Hydrologic and Water Quality Impact Analysis Section,* June 11, 2003.

Redwood City, City of, *City of Redwood City Strategic General Plan*, January 22, 1990.

Redwood City, City of, *City of Redwood City General Plan Land Use Map*, October 24, 2002.

Redwood City, City of, *City of Redwood City Zoning Ordinance*, December 2002.

Redwood City, City of, Marina *Shores Village Project Draft EIR,* February 2003.

Regional Water Quality Control Board. *Basin Plan,* 1995.

Rodgers, J.A., Jr., and H.T. Smith. 1995. Set-back distances to protect nesting bird colonies from human disturbance in Florida. Cons. Biol. 9:89-99.

San Francisco Bay Trail Plan: http://www.abag.ca.gov/bayarea/baytrail/baytrailplan.html

San Francisco Bay Wildlife Society and U.S. Fish and Wildlife Service, San Francisco Bay National Wildlife Refuge, *Bair Island Restoration and Management Plan,* November 11, 2002.

San Francisco Estuary Institute (SFEI 2000). Patterns of Water-Quality Variability in San Francisco Bay During the Fist Six Years of the RMP, 1993-1998. Prepared by USGS. Prepared for the Regional Monitoring Program for Trace Substances. January 2000.

San Mateo, County of, *San Carlos Airport Master Plan Update Airport Modernization Project Draft Environmental Impact Report*, June 2002.

San Mateo County Mosquito Abatement District. 1997. Biennial Report. 34 pp.
Santa Clara, City of, *NRS 230 kV Transmission Line Project, Final EIR,* 2003.

Sequoia Audubon Society. 2001. San Mateo County Breeding Bird Atlas. Sequoia Audubon Society, Redwood City, CA.

Shellhammer, H. S. 1982. *Reithrodontomys raviventris.* Mammalian Species 169. 3pp.

Shellhammer, H. S., R. Jackson, W. Davilla, A. M. Gilroy, H. T. Harvey, and L. Simons. 1982. Habitat preferences of salt marsh harvest mice (*Reithrodontomys raviventris*). Wasmann Journal of Biology, 40:102-114.

Shellhammer, H. S. 1977. Of mice and marshes. San Jose Studies, San Jose State Univ. 3:23-35.

[SCS] Soil Conservation Service. 1991. The Soil Survey of San Mateo County, Eastern Part, and San Francisco County, California. U.S. Department of Agriculture.

Suryan, R.M., and J.T. Harvey. 1999. Variability in reactions of harbor seals, *Phoca vitulina richardsi*, to disturbance. Fish. Bull. 97:332-339.

Terhune, J.M. and S.W. Brillant. 1996. Harbor seal vigilance decreases over time since haul out. Anim. Behav. 51:757-763.

Trulio, L., and students of Environmental Studies 191. 2003. An observational study of harbor seal activity and boat traffic near Corkscrew Slough at Bair Island. Unpubl. Rep., submitted to Don Edwards San Francisco Bay National Wildlife Refuge, Newark, CA.

United States Department of Agricultural Soil Conservation Service, Soil Survey of San Mateo County, Eastern Par and San Francisco County, California.

United States Department of the Interior, Fish and Wildlife Service Region I, *Bair Island Unit, Don Edwards San Francisco Bay National Wildlife Refuge; Cultural Resources Review for Restoration and Management Planning* December 2000, and June 2003.

[USFWS] United States Fish and Wildlife Service. 2006. Biological Opinion , endangered species consultation for the proposed Bair Island Restoration and Management Plan, Don Edwards San Francisco Bay National Wildlife Refuge, San Mateo County, California. No. 1-1-05-F-0121.

[USFWS] United States Fish and Wildlife Service. 2001. Human disturbance on shorebirds and rails. In: Letter from Sacramento Fish and Wildlife Office to Bay Conservation and Development Commission, dated March 20, 2001. 9 pp.

Wondolleck, J., W. Zolan, and L. Stevens. 1976. A population study of harvest mice in the Palo Alto Salt Marsh. Wasmann J. Biology 34:52-64.

Persons Contacted

Audrey Darnel, City of San Carlos, Planning Department, November 5, 2003.
Clyde Morris, USFWS, Don Edwards San Francisco Bay NWR, January 2004
Tom Passansis, City of Redwood City, Planning Department, October 6, 2003.

SECTION 7. LIST OF PREPARERS AND CONTRIBUTORS

The following individuals were principally responsible for preparing this EIS/EIR and/or technical studies upon which the EIS/EIR is based:

United States Fish and Wildlife Service San Francisco Bay National Wildlife Refuge

Clyde Morris, Manager of Don Edwards San Francisco Bay NWR
MPA, Brigham Young University, Utah
BS, Resource Planning and Interpretation, Humboldt State University, CA
Years Experience: 30+

Marge Kolar, Refuge Complex Manager
San Francisco Bay National Wildlife Refuges
MS, Fisheries and Wildlife, Michigan State University
BS, Physics and Math, University of Detroit
Years of Experience: 30+

Joelle Buffa, Supervisory Wildlife Biologist, San Francisco Bay NWR Complex
BS, Fisheries and Wildlife Biology, Iowa State University, Ames, Iowa
Years of Experience: 26

Joy Albertson, Wildlife Biologist
MA, Conservation Biology, San Francisco State University
BS, Zoology, North Dakota State University
Years of Experience: 14

California Department of Fish and Game, Central Coast Region

Carl Wilcox, Habitat Conservation Manager
MS, Biology, New Mexico Highlands University
BS, Biological Conservation, California State University, Sacramento
Years of Experience: 22

David J Powers & Associates

Michelle Yesney, Vice President, Principal
BA History, Fresno State University
Years Experience: 30+

Nora Monette, Project Manager
MS, Soil Science, University of California, Berkeley
BS, Soil and Water Science, University of California, Davis
Years Experience: 19

Julie Mier, Project Manager
BA, Environmental Studies, University of California, Santa Barbara
Years Experience: 5

Stephanie Grotton, Graphic Artist
Years Experience: 3

H.T. Harvey & Associates

Ronald R. Duke, Principal-in-Charge
MA, Animal Ecology, University of Colorado
BA, Biological Sciences-Ecology, University of California, Berkeley
Years of Experience: 25

John Bourgeois, Project Manager
MS, Biology, University of Louisiana-Lafayette
BS, Ecological, Evolutionary and Organismal Biology, Tulane University
Years of Experience: 9

Eric Webb, Wetland Ecologist
PhD, Oceanography & Coastal Sciences, Louisiana State University
MS, Biology, Morehead State University
BS, Biology, Ohio Dominican University
Years of Experience: 11

Dan Stephens, Senior Restoration Ecologist
BS, Biology, Humboldt State University
Years of Experience: 23

Howard Shellhammer, Senior Mammologist
PhD, Zoology, U.C. Davis
AB, Zoology, U.C. Davis
Years of Experience: 43

Scott Terrill, Senior Ornithologist
PhD, Biology/Ecology, State University of New York, Albany
MS, Zoology, Arizona State University
BS, Zoology, Arizona State University
Years of Experience: 23

Kurt Flaig, Plant Ecologist
MS, Range Ecology, Colorado State University
BS, Natural Resource Management, Colorado State University
Years of Experience: 5

Ginger Bolen, Wildlife Biologist
PhD, Integrative Biology, University of California, Berkeley
BS, Wildlife Science, Purdue University
Years of Experience: 4

Laird Henkel, Wildlife Biologist
MS, Marine Science, Moss Landing Marine Laboratories
BA, University of California, Santa Cruz
Years of Experience: 9

David Thomson, Wetland Ecologist
MS, Biology, Southeastern Louisiana University
BS, Biology, Seattle University
Years of Experience: 3

Philip Williams & Associates

Philip B. Williams, Ph.D., P.E., President, Philip Williams & Associates, Ltd.
Ph.D., Hydraulics (specializing in fluvial sediment hydraulics), University of London, UK
B.Eng., Civil and Structural Engineering, Sheffield University, UK
Years Experience: 27

Michelle K. Orr, P.E., Associate Principal, Philip Williams & Associates, Ltd.
M.S., Water Resources Engineering (Civil), University of California, Berkeley
B.A., History of Science, *magna cum laude*, Harvard University, Cambridge, MA
Years Experience: 10

Donald G. Danmeier, Ph.D., Senior Associate, Philip Williams & Associates, Ltd.
Ph.D., Ocean Engineering, Massachusetts Institute of Technology
M.S., Naval Architecture and Offshore Engineering, University of California at Berkeley
B.S., Mechanical and Environmental Engineering, University of California at Santa Barbara
Years Experience: 4

SECTION 8. INDEX

SECTION 9. COMMENTS AND RESPONSES ON THE DRAFT EIS/R

9.1 Overview

The U.S. Fish and Wildlife Service, Don Edwards San Francisco Bay National Wildlife Refuge (Refuge) and the California Department of Fish and Game (CDFG) circulated the Draft Environmental Impact Statement/ Environmental Impact Report (DEIS/R) for the Bair Island Restoration and Management Plan (SCH # 2003022049) for a 47-day public review period ending on October 12, 2004. Copies of the DEIS/R were distributed to state, regional, and local agencies, as well as to any requesting individuals and organizations, for their review and comment. The Refuge held a public meeting during the review period on September 22, 2004 to explain the project and DEIS/R, and to solicit public input on the document and the project. This chapter contains written comments on the DEIS/R received during that period and the Lead Agencies' responses to those comments.

Pursuant to the requirements of the California Environmental Quality Act (CEQA), the CDFG, as the CEQA lead agency, is required to evaluate the comments received on the DEIS/R and prepare written responses to the comments received. The US Fish and Wildlife service has similar responsibilities under NEPA. Responses are provided in this chapter for each of the significant environmental points raised in the review, comment and consultation process.

All changes to the DEIS/R referred to in this Comments and Responses chapter have been incorporated into the DEIS/R text, resulting in this Final EIS/R.

Pursuant to NEPA, the Refuge will prepare a Record of Decision (ROD), a summary of the decisions made by the Refuge on the project. In brief, under NEPA, the ROD describes the decision and reasoning of the federal agency, identifies all alternatives, including the environmentally preferable alternative, that were considered by the agency, discusses whether or not all practical means to avoid or minimize environmental harm have been adopted and, if not, why they were not, and includes a summary of the monitoring and enforcement program that the agency has adopted. 40 C.F.R §1505.2 The ROD must be published in the Federal Register.

Under CEQA, before approving the project under the Restoration and Management Plan (Plan), the CDFG will need to certify that the Final EIS/R is complete and adequate in order to make the necessary findings for project approval. The CDFG may require the mitigation measures identified in this Final EIS/R as conditions of project approval. In connection with approval of the Plan, the CDFG must also adopt a separate document, prepared pursuant to CEQA Guidelines Section 15091 and 15093, containing a set of required CEQA "Findings" with respect to each significant environmental effect, and a "Statement of Overriding Considerations" for any effects that are unavoidable or infeasible to mitigate. Also included in the Findings document is a Mitigation Monitoring Program that must be adopted in accordance with California Public Resources Code Section 21081.6.(a)(1).

9.2 Comments and Responses

[1] This comment letter included six attachments related to Redwood City's proposal and plan for Bair Island.
[2] This comment letter included nine attachments related to Redwood City's proposal and plan for Bair Island, some which are overlap of the September 22, 2004 Redwood City comment letter.

Comment
No. 1

DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, US ARMY CORPS OF ENGINEERS
333 MARKET STREET,
SAN FRANCISCO CALIFORNIA 94105-2197

October 7, 2004

Mr. Clyde Morris
San Francisco Bay National
Wildlife Refuge Complex
P.O. Box 524
Newark, CA 94560

Dear Mr. Morris:

The Corps of Engineers, San Francisco District supports the proposed Bair Island Restoration and Management Plan described in the Draft EIS/EIR, particularly since it will allow us to beneficially use dredged material from the Redwood City Harbor Federal Navigation Channel.

Our support is based on the understanding that the restoration plan will have annually maintained flow restrictors in both Smith and Corkscrew Sloughs and that these flow restrictors will be effective in minimizing sediment releases into the Federal Navigation Channel. 1-A

Hydraulically dredged material must be pumped into the project area directly from the dredging site. Therefore, the EIS/EIR for this project should assess the impacts to existing habitat, listed species, safe navigation, and recreation from placing a transfer pipeline within the waterway and across levees for discharge and placement of slurried material. 1-B

The EIS/EIR should also more thoroughly assess and describe potential impacts to groundwater and surface water from the containment of dredged material in the disposal site, including releasing decanted water back into the Bay. 1-C

If you have any questions about our comments, please contact Steve Chesser at 415-977-8679.

Sincerely,

Phillp T. Feir
Lieutenant Colonel, U.S. Army
Commanding

RESPONSES TO COMMENT NO. 1
US DEPARTMENT OF THE ARMY, US ARMY CORPS OF ENGINEERS

Response to Comment 1-A
The primary objective of the flow restrictors is to route as much restored tidal prism and sediment-laden Bay water through Steinberger Slough as possible, while not adversely affecting flood risk. Numerical modeling conducted during planning indicated that these structures can meet the desired criteria. Monitoring of water levels, current velocities and slough channels has been proposed to provide information on the function of the structures once the project is implemented. The proposed Monitoring Plan also includes twice-a-year inspection of the structures.

Response to Comment 1-B
To minimize impacts, the pipe would enter on the north side of Bair Island where the shore is eroded almost up against the levee and would travel up on top of the levee to the airport safety zone site. Minimal pickleweed habitat at the pipeline entry point would be impacted. Currently, small craft navigation along Smith Slough is limited due to shallow water depths in Steinberger and Corkscrew Sloughs. Access along Smith Slough will be temporarily affected during placement of dredge spoils.

Response to Comment 1-C
Per regulatory requirements, Best Management Practices will be employed to minimize adverse impacts related to the placement of dredge spoils in Inner Bair. Discharge of decanted water is expected to result in a minor, temporary increase in turbidity. However, the project will comply with RWQCB permit requirements, as was done when the USACE placed dredge spoils at the Sonoma Baylands Wetlands Demonstration Project, which is expected to keep impacts to surface waters below the threshold of significance. Impacts to groundwater (e.g., raising of the water table) are expected to be less than significant, due to the presence of existing surface water in the immediate vicinity at comparable elevations (i.e., Smith Slough). New text has been added to the EIS/EIR to address the discharge of decanted water (see Section 3.2.3.2 on page 73 of this document).

Comment No. 2

U.S Department of Transportation
Federal Aviation Administration

Western-Pacific Region
Airports Division
San Francisco Airports District Office

831 Mitten Road, Suite 210
Burlingame, CA 94010-1300

October 11, 2004

Mr. Clyde Morris
Refuge Manager
U.S. Fish and Wildlife Service
San Francisco Bay National Wildlife Refuge Complex
P.O. Box 524
Newark, CA 94560

Dear Mr. Morris:

RE: Request for Public Comments, Draft Environmental Impact Statement/ Environmental Impact Report (DEIS/DEIR) Bair Island Restoration and Management Plan

The Federal Aviation Administration (FAA), San Francisco Airports District Office (ADO) has reviewed the alternatives presented in the public notice regarding the Bair Island Restoration and Management Plan. We have evaluated the alternatives for impacts to airport program development and land use compatibility requirements that are within the program authority of the FAA Airport Improvement Program (AIP).

The proposed alternatives should avoid land use activity that will create hazards to aviation at the San Carlos Airport. The airport land use compatibility criteria contained in the *State of California Airport Land Use Planning Handbook* and FAA Advisory Circular, 150/150-5200-33, *Hazardous Wildlife Attractants on or Near Airports* and AC 150/5300-13, *Airport Design*, should be used to define restrictive use boundaries of the Inner Bair Island restoration and land management plan. San Mateo County has accepted Federal funds and has an obligation to limit public access and restrict land use activities that conflict with the airport safety zones as depicted on the Airport Layout Plan (ALP).

2-A

Any alternative that includes a land use dedicated for public access trails within the boundary of the airport would not be acceptable. The FAA runway safety program requires the County to restrict pedestrian access within the airport. The County is obligated to maintain the undeveloped areas on the airport in manner that limits wildlife attractions. The land adjacent to Runway 30 must remain clear of obstructions or land use activity that would not be consistent with the grant agreement terms for land use compatibility as specified in the airport grant agreements, *Airport Sponsor Part V Assurances*, no. 21.

The County has an obligation to enact land use policies and zoning to protect the airspace required for safe arrival and departure corridors for the San Carlos Airport. The introduction of a land use that would allow a congregation of people on airport property or at the approach end of the runways must be avoided. The standards for airport land use compatibility requires the County to control the height of structures, the growth of natural vegetation, and type of property development on airport property. The airspace needed for the runway operations includes the Runway Protection Zone (RPZ), Runway Safety Area (RSA),

and outer runway approach protection surface areas as specified in Federal Aviation Regulation (FAR) Part 77, *Objects Affecting Navigable Airspace* and AC 150/5300-13.

We therefore request that the selected alternative restrict activities that have the potential for creating a hazard to airport operations. The preferred alternative for the restoration plan should consider the following objectives:

1. Follow the guidelines outlined in FAA AC 150/5200-33, Section 1 to avoid the development of manmade or natural areas that would increase the potential for bird strikes. We note that the existing wetlands do not meet the standard contained in the AC, but where practicable wildlife management plans should be prepared to limit bird strikes. Improvements that would enhance habitat to attract waterfowl should be minimized. Biological studies of the changes to existing dikes and levees should evaluate the increase in the potential for bird strikes within the aircraft approach zone southeast of the San Carlos Airport runway. The FAA recognizes the unique wetland functions of the Bair Island plan and is available to consult with the Department of Interior upon request. 2-B

2. Use the criteria found in AC 150/5300-13, paragraphs 211 and 212 to establish restrictive use boundaries to control pedestrian and single-track bicycle activities. No observation/scenic benches or trailheads should be created within the area of the extended RPZ boundaries to reduce the potential for the congregation of people within the property southeast of the at San Carlos Airport runway. 2-C

3. To provide for airport emergency response continued long-term access from Whipple Avenue and along the levee on airport property on Inner Bair Island should be reserved and maintained for County emergency or service vehicle use. 2-D

4. Follow the notification requirements of FAR Part 77 to ensure all restoration, construction, maintenance and other activities comply with the federal requirements for the identification of hazards to aviation prior to the mobilization of equipment for proposed construction projects. The responsible official of the department of Interior should file a FAA form 7460-1, *Notice of Proposed Construction or Alteration*. The form is available on the FAA website at faa.gov. 2-E

5. We recommend that San Francisco Bay Wildlife Refuge Manager continue to work closely with the San Mateo County Airports Manager, Mr. Mark Larson, regarding airport property management regulations and notification of proposed construction activities. 2-F

Thank you for the opportunity to provide comments on the proposed restoration and management plan. If you have additional questions regarding FAA airspace and airport design standards, you may contact me at (650) 876-2805.

Sincerely,

Joseph R. Rodriguez
Supervisor, Environmental Planning and Compliance Section

CC: Mark Larson, San Mateo County

RESPONSES TO COMMENT NO. 2
US DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

Response to Comment 2-A
The Proposed Action has been designed to comply with FAA guidelines to avoid the development of man-made or natural areas that would increase the potential for bird-strikes. The Proposed Action also avoids placing public trails or allowing congregations of people or any other incompatible activity on airport property.

Response to Comment 2-B
The proposed restoration of Inner Bair Island in Alternative A will decrease the potential for bird-strikes in the vicinity of the San Carlos Airport. Using dredge spoils/fill material to increase the marsh elevation to support upland habitat and decrease winter ponding should decrease waterfowl populations in the area nearest the airport (See Appendix C). Both the FAA and USDA wildlife services were regularly consulted in the development of the Alternatives.

Response to Comment 2-C
The Proposed Action was changed to move the trail from the levee closest to the airport runway to the new levee between the airport's safety zone and the restored marsh on Inner Bair Island. A short, one strand fence with signs will separate the trail from the safety zone to keep pedestrians and bikes off the airport property.

Response to Comment 2-D
There will be no public access at Whipple Avenue. However, access will continue to be maintained at Whipple Avenue for emergency and service vehicles.

Response to Comment 2-E
The Refuge will comply with all FAA regulations pertaining to identification of hazards to aviation prior to mobilization of equipment for proposed construction activities.

Response to Comment 2-F
This comment is noted.

Comment
No. 3

October 12, 2004

Clyde Morris
Refuge Manager
San Francisco Bay National Wildlife Refuge Complex
P.O. Box 524
Newark, CA 94560
[Originally sent VIA FAX to 510-792-5828]

Subject: Bair Island Restoration and Management Plan Draft Environmental Impact Report/Environmental Impact Statement

Dear Mr. Morris:

I am writing to submit comments from the San Francisco Bay Trail Project on the Bair Island Restoration and Management Plan Draft Environmental Impact Report/Environmental Impact Statement (DEIR/EIS). The Bay Trail Project is a nonprofit organization administered by the Association of Bay Area Governments (ABAG) that plans, promotes and advocates for implementation of the Bay Trail. The Bay Trail Plan calls for a continuous 500-mile bicycling and hiking corridor that, when complete, will encircle San Francisco and San Pablo bays, linking the shoreline of all nine Bay Area counties, passing through 47 cities and crossing the major toll bridges in the region. To date, more than half of the trail alignment is complete.

Thank you for the opportunity to review and comment on the DEIR/EIS. We are pleased that the public access component of Alternative A – the Preferred Alternative – both maintains and enhances public access at Inner Bair Island by adding interpretive sites and allowing for a variety of uses and experiences (i.e., bicycling). Yet while the DEIR/EIS presents quality public access, the Restoration and Management Plan does not recognize the official continuous Bay Trail alignment within the project area, as designated in the Bay Trail Plan. 3-A

Presently, the Bay Trail spine is incomplete near Inner Bair Island. While there is public access and adopted Bay Trail along Inner Bair Island in a "spur trail" form, continuous access north to Redwood Shores would be inadequate as a "spine trail". Bay Trail users on Inner Bair must travel along a fenced trail directly adjacent to Highway 101 and are then forced onto Sky Way, which is a street without good access for bicyclists, pedestrians and wheelchair users. There is no direct completed connection to existing trails at Redwood Shores and Bay Trail users are left to find their way through a troublesome intersection. This is problematic as it is an interruption in the Bay Trail, and the trail under construction adjacent to Highway 101 is not compatible with Bay Trail

Administered by the Association of Bay Area Governments
P.O. Box 2050 • Oakland California 94604-2050
Joseph P. Bort MetroCenter • 101 Eighth Street • Oakland California 94607-4756
Phone: 510•464•7935
Fax: 510•464•7970

aesthetic principles and is otherwise not optimal for multiple uses, such as pedestrians, bicyclists, and accommodation of wheelchair users.

The Bay Trail supports the efforts of the City of Redwood City to improve public access in the Bair Island project area. We feel some of the proposals in the City's plan are consistent with the adopted Bay Trail alignment, such as building bicycle/pedestrian bridges that would complete our preferred spine alignment, while some elements are not consistent with the Bay Trail Plan, such as the lack of bicycle use on Inner Bair. Furthermore, we recognize that construction of the bridge segments of this alignment raises safety and predator control issues. Looking at each bridge individually, there are clear reasons the Bay Trail would support each one. The potential bridge at the south end of Inner Bair Island would enhance access by creating a direct link from the U.S. FWS parking lot to the Inner Bair Island trail, thereby allowing easier access to all user groups. The potential bridge at the north end of Inner Bair Island could provide an effective link in the Bay Trail Plan's preferred spine alignment. 3-A

Overall, we recognize the sensitivity of the existing and potential endangered species habitat and the potential for impacts from either bridge. The Bay Trail supports trail connections and alignments that are consistent with BCDC policies regarding wildlife-dependent recreational use.

We look forward to working with the U.S.FWS to accommodate and accomplish the goals of the Bay Trail within the context of the Bair Island Restoration Plan. I can be reached at (510) 464-7935 or at LauraT@abag.ca.gov if you have any questions about the comments in this letter or if you would like additional information about the Bay Trail.

Sincerely,

Laura Thompson

Laura Thompson
Bay Trail Project Manager

2

RESPONSES TO COMMENT NO. 3
ASSOCIATION OF BAY AREA GOVERNMENTS
SAN FRANCISCO BAY TRAIL

Response to Comment 3-A
These comments are noted and may be considered by the CDFG and USFWS decision-makers in their evaluation of the project. Please note that the CDFG and USFWS have made modifications to Alternative A (Proposed Action), which may speak to some of the public access concerns expressed in this letter; see pages 15-17 of this document.

Public safety issues in the vicinity of the San Carlos Airport were an important consideration in the inability to link this project to the Bay Trail Plan (also see Comment No. 2 from the FAA). Redwood City is considering building a footbridge from the existing trail near the San Carlos Airport to the portion of Inner Bair Island owned by the Airport. This would be a separate project from this restoration plan.

Comment No. 4

Pacific Gas and Electric Company

Steve Willoughby
Planning Analyst
Corporate Real Estate

(415) 973-2509
Internet: sewb@pge.com

245 Market Street, Room 1054A
San Francisco, CA 94105

Mailing Address:
Mail Code N10A
P.O. Box 770000
San Francisco, CA 94177

October 12, 2004

Via Facsimile: (510) 792-5828

Mr. Clyde Morris
Refuge Manager
Don Edwards SF Bay National Wildlife Refuge
P.O. Box 524
Newark, CA 94560

Bair Island Restoration and Management Plan (DEIS/EIR)

Dear Mr. Morris,

Thank you for the opportunity to comment on the Draft Environmental Impact Statement/Environmental Impact Report for the Bair Island Restoration and Management Plan dated August 2004. As you know, Pacific Gas and Electric Company (PG&E) owns, operates and maintains several major electric transmission lines crossing Bair Island that could be significantly impacted by plans proposed to restore the Island to a tidal salt marsh. These electric transmission lines are critical components in our electric transmission system serving the peninsula region and the City and County of San Francisco. Any component of your project that would adversely impact our ability to access, maintain, and repair these facilities would need to be mitigated. Examples of problems that PG&E has encountered in conjunction with projects of this nature include but are not limited to:

4-A

- Constrained access to our towers by crews for normal routine inspections and maintenance functions.
- imited access to our towers via watercraft.
- Decreased tower footing stability as a result of changes in levels of the bay mud and/or increased tidal action.
- Impacts to our ability to maintain conductor-to-ground clearances mandated by State regulations.
- Public safety issues resulting from increased accessibility of our facilities.
- Implementation of more restrictive policies in the vicinity of sensitive species that prohibit PG&E from maintaining its facilities in accordance with State and Federal regulations in a timely manner.

We look forward to working cooperatively with your staff to ensure that any such impacts are avoided or mitigated through specific agreements for our utility activities. I would also like to take this opportunity to open the dialogue with your office regarding future such projects around the bay. Perhaps we can establish the framework for any future interaction between PG&E and the United States Fish and Wildlife Service (Service) so that we are not revisiting the same issues time and time again.

Currently, PG&E has a limited time window during the year in which to perform necessary operation and maintenance activities on these electric transmission lines. This time period cannot be further reduced otherwise it could severely affect our ability to perform normal routine maintenance on these facilities. Proactive maintenance of our facilities helps avoid having to deal with issues as an unplanned emergency. We do not believe that responding to facility failures under emergency circumstances is in the best interest of either the general public or the species of concern. PG&E is concerned that this Project could introduce additional special status species to the area which could further reduce the window which PG&E is able to inspect and maintain these lines.

4-A

In summary PG&E would appreciate continuing to be a part of your planning process. We firmly believe that our goals are not mutually exclusive and welcome any opportunity to establish an on-going dialogue on this project. This will provide many benefits to both the Service and PG&E for future projects of this nature. Please feel free to contact me at (415) 973-2509 if you would like to discuss any of our comments further.

Thank you for your time and consideration.

Sincerely,

Steve Willoughby
Planning Analyst

RESPONSES TO COMMENT NO. 4
PACIFIC GAS AND ELECTRIC COMPANY

Response to Comment 4-A
The Refuge currently works closely with PG&E to meet their access needs to PG&E facilities in the vicinity of sensitive species. The Refuge expects to continue to do the same at Bair Island. The project would not significantly affect access via watercraft from along Redwood Creek, nor from eastern Corkscrew Slough – the only channels deep enough to provide boat access under existing conditions.

The remaining comments are primarily related to the relationship between PG&E's priorities and the Proposed Action. These are noted and may be considered by the CDFG and USFWS decision-makers in their evaluation of the project. No further responses or analysis is required here, as this comment does not ask any questions regarding the factual information or environmental analysis in the EIS/EIR.

Comment No. 5

PORT OF REDWOOD CITY
San Francisco Bay
675 Seaport Boulevard
Redwood City, California 94063-2794
650 306 4150 FAX 650 369 7636
E-mail: portofrc@redwoodcityport.com

October 11, 2004

Clyde Morris, Refuge Manager
San Francisco Bay National Wildlife Refuge Complex
P.O. Box 524
Newark, CA 94560

Dear Mr. Morris:

The Port of Redwood City has reviewed with interest the draft EIS/EIR for the Bair Island Restoration and Management Plan. We appreciate the opportunity to comment on this document which represents an important step in the restoration of this unique environmental resource.

Throughout its history, one of the Port's closest "neighbors" has been Bair Island. At one time, the Port was the property owner of a portion of Bair Island known as "Deepwater Slough Island" which has been the site of a wetlands restoration project. The Port has closely monitored the various plans and proposals for the use and environmental protection of Bair Island, including the proposed plan for restoration and management and the inclusion of Bair Island in the Don Edward's San Francisco Bay National Wildlife Refuge.

The Port of Redwood City generally supports the goals of the Plan which are to:

- Restore Bair Island to tidal salt marsh habitat.
- Provide habitat for endangered species and other native wildlife.
- Enhance the public's appreciation and awareness of the unique resources of Bair Island.

5-A

Of particular importance to the Port is that the Plan includes under the Proposed Action Alternative A, and Alternative B, the use of dredged material from the Redwood City navigation channel to raise the level of Inner Bair Island and enhance the creation of tidal salt marsh. The use of dredged material for this purpose will have several benefits.

First, the Port has supported alternatives to the current practice of open water disposal at the Alcatraz site of dredged material from the Redwood City channel project. The beneficial reuse of dredged material for tidal salt marsh restoration on Bair Island would meet the regional goals of the Long Term Management Strategy (LTMS) project by reducing in-Bay disposal.

Second, the use of dredged material has the potential to reduce the cost of maintenance dredging of the Redwood City channel and provide placement of material for marsh restoration at zero cost. Currently, the cost for maintenance dredging and the transportation/disposal costs to an in-Bay site range from $8-$12 per cubic yard. The alternative of disposal at the designated deep water ocean site would cost approximately three times the in-Bay cost alternative. Pumping dredged material the relatively short distance from the Redwood City channel to Inner Bair

PORT OF REDWOOD CITY
San Francisco Bay

October 11, 2004
Clyde Morris, Refuge Manager
San Francisco Bay National Wildlife Refuge Complex
Page 2

Island would significantly reduce the cost of disposal of dredged material to $3-$5 per cubic yard, including the mobilization and demobilization costs. As pointed out in Appendix A, report by H. T. Harvey & Associates, the costs for placing large volumes of dredged material on Inner Bair Island are highly variable. However, in the case of material from maintenance dredging of the channel, the Port believes that the cost could be zero. 5-A

Recognizing the environmental benefits to San Francisco Bay and the project cost benefits to U.S. Fish and Wildlife Service, the U.S. Army Corps of Engineers, and the Port, we recommend that the Plan include the development of a Memorandum of Understanding between the three agencies to develop and utilize Inner Bair Island for dredged material placement and tidal marsh restoration. 5-B

The "No Action Alternative" is not supported by the Port. It would result in no tidal marsh restoration on Bair Island. Therefore, it would not provide the opportunity for beneficial reuse of dredged material from the channel. Furthermore, assuming the levees are not maintained under the no action alternative and eventually fail, it is estimated that the unmanaged tidal inundation of Bair Island would cause greater siltation in the Redwood City channel. This would present a hazard to navigation and, depending on the rate of additional siltation, cause a closing of the channel to deep draft ships. At a minimum, increased siltation would result in higher costs for channel maintenance and an increase in in-Bay disposal of dredged material.

The Port of Redwood City supports the Plan alternatives which include the construction of flow control structures in Smith Slough and Corkscrew Slough. These would mitigate the potential impact of increased siltation due to the increase of tidal flow. The studies and siltation modeling conducted by H. T. Harvey & Associates conclude that installation of the flow control structures would result in siltation rates in the channel at, or slightly lower than, historic averages. 5-C

The Port has thoroughly reviewed the DEIS/EIR, including the appendices with information on siltation and hydrology. However, the Port staff does not have the

knowledge and experience to analyze these studies in detail. A marsh restoration project of the size and scope proposed in the Bair Island Plan has never been conducted in South San Francisco Bay and there is no real world experience on the impacts of such a large scale change in hydrology. The variables that influence the movement of sediment and siltation in the South Bay are very complex. The impacts of increased sedimentation in the channel would cause significant harm to the Port, the shipping companies that rely on the Port, and ultimately the entire marine transportation system in San Francisco Bay.

PORT OF REDWOOD CITY
San Francisco Bay

October 11, 2004
Clyde Morris, Refuge Manager
San Francisco Bay National Wildlife Refuge Complex
Page 3

Therefore, the Port recommends that the USFWS conduct further studies, including "peer review" by the Corps of Engineers, on the impacts of the Plan on siltation in the channel and the use of the proposed flow control structures to mitigate increased siltation. The Project monitoring program proposed in the Plan (page 25) should include monitoring of the siltation rates in the Redwood City harbor and channel. 5-C

The Port recognizes the unique characteristics of Bair Island and the opportunities presented by the Plan to increase public awareness of the Bay and its natural resources. The Port provides recreational facilities for boaters and public walkways/bike paths along the waterfront which provide waterside and visual access to Bair Island. The restoration Plan should provide opportunities for future "eco-tourism" of Bair Island and its natural environment. 5-D

The Port has reviewed the City of Redwood City's Plan for Bair Island Restoration. The Port supports the City's plan because it includes the use of dredged material for tidal marsh restoration on Inner Bair Island. It also includes public access enhancements which will balance the protection of the environmental features of Bair Island while providing opportunities for low-intensity public access. A copy of a letter from the Port to the City of Redwood City, dated September 21, 2004, supporting its plan for the restoration of Bair Island has been sent to you previously.

We look forward to working with USFWS to finalize the Plan for the restoration of Bair Island and to undertake this exciting and important project.

Sincerely,

Michael J. Giari
Executive Director

Cc: J. Ira, City of Redwood City
Lt. Col. Fier, U.S. Army COE
E. Johnck, Bay Planning Coalition
Board of Port Commissioners

RESPONSES TO COMMENT NO. 5
PORT OF REDWOOD CITY

Response to Comment 5-A
These comments are noted and may be considered by the CDFG and USFWS decision-makers in their evaluation of the project. No further responses or analysis is required here, as this comment does not ask any questions regarding the factual information or environmental analysis in the EIS/EIR.

Response to Comment 5-B
A Memorandum of Understanding between the USACE and the USFWS to cooperate in the use of dredged material on Inner Bair Island was signed in February, 2006. The Port of Redwood City helped develop this document.

Response to Comment 5-C
The conceptual-level design described in the EIS/R was supported by a calibrated numerical model, as described in Appendix B of the Restoration and Management Plan. More modeling may be carried out if the hydraulic characteristics of the flow restrictors change during final design. Additionally, monitoring has been proposed, included collection of cross sections along Redwood Creek Shipping Channel, to inform the assessment of the structures' performance. The proposed monitoring includes measurements of tidal current velocities and multiple channel cross-sections along Redwood Creek. This information will inform how restoration actions are affecting channel form and patterns of shoaling.

Response to Comment 5-D
These comments are noted. Future changes to public use not included in this management plan and EIS/R will be covered in future NEPA documents and the USFWS's Compatibility Determination Process. Please note that the CDFG and USFWS have made modifications to Alternative A (Proposed Action); see pages 15-17 of this document.

Comment No. 6

1017 Middlefield Road
P.O. Box 391
Redwood City, California 94064-0391
Telephone (650) 780-7220
FAX (650) 261-9102
www.redwoodcity.org

September 22, 2004

Mr. Clyde Morris
San Francisco Bay National Wildlife Refuge Complex
P.O. Box 524
Newark, CA 94560

Subject: Redwood City's Official Comment on the Draft Environmental Impact Statement/Environmental Impact Report for the Bair Island Restoration and Management Plan

Dear Mr. Morris:

Thank you for the opportunity to provide comments to the official public record regarding the Draft Environmental Impact Statement/Environmental Impact Report (DEIS/EIR) for the Bair Island Restoration and Management Plan.

For inclusion in the public record, the City of Redwood City has prepared and adopted a restoration plan to supplement and enhance that prepared by the Fish and Wildlife Service. Further, our oral presentation during the public meeting on September 22, 2004 in Redwood City is also intended to be made part of the public record on this matter. The City's plan, along with additional written information, is attached.

We look forward to working with you and the Fish and Wildlife Service/National Wildlife Refuge System in the restoration of Bair Island. 6-A

Sincerely,

Jeff Ira
Mayor

Attachments:
- Redwood City Plan for the Restoration of Bair Island
- Summary of Redwood City Goals for Bair Island
- Summary comparison of Redwood City plan and Fish and Wildlife plan
- Summary of Redwood City recommendations
- Letter from Craig Manson, Assistant Secretary for Fish and Wildlife and Parks, United States Department of the Interior
- City Staff Report and Resolution adopting the Redwood City plan

Table of Contents

Comment
No. 6
Attachments

EXECUTIVE SUMMARY

The objective of the Mayor and City Council of the City of Redwood City can be condensed to one very powerful statement. It is the stated objective of the City "to preserve and protect potentially the largest, urban wildlife refuge in the western United States."

Goals

In addition to habitat protection and development for these endangered species, Redwood City sees the following goals as tantamount to its plan:

- To educate regional citizens and visitors to refuges and conservation values as they relate to an urban setting;
- To create a unique educational tool for Bay area students to learn varied aspects of estuarial lifecycles, ecological design and environmental principles;
- To provide opportunities for handicapped persons, seniors and other sub-populations to use and enjoy the refuge in a manner consistent with the refuge mission;
- To form a working partnership with the National Wildlife Refuge System and the Fish & Wildlife Service for the long-term security of the refuge and the endangered species;
- To fulfill long-standing local and regional goals for public access and involvement with nature and the ecological history of California; and
- To provide a legacy of attention to environmental education and community collaboration.

The City of Redwood City believes that in order for the Bair Island portion of the Don Edwards National Wildlife Refuge to achieve the vision and goals expressed within, the City must become a partner with the National Wildlife Refuge System in the restoration of Bair Island.

Redwood City sees a unique opportunity to forge a mutually beneficial partnership with the Refuge that will enhance and expand the restoration plan to benefit all stakeholders. These stakeholders include the environmental community, the residents of both Redwood City and the greater Bay Area community, the National Wildlife Refuge System and the National Fish & Wildlife Service.

Critical time sensitive issues

Redwood City has several critical economic as well as health and safety issues that it believes could produce long-term detrimental effects if there are further delays in the process.

- Dredge spoils from the Port of Redwood City and other nearby locations are an integral part of any restoration plan for Bair Island. The Port of Redwood City must be adequately dredged to reduce costs at the Port and address the load limits of container ships using the Port. Timely utilization of dredge spoils for the benefit of the habitat will provide an economic opportunity in a time of regional economic strain.
- A program for regular maintenance of critical infrastructure, such as the South Bayside System Authority's (SBSA) primary force main under Bair Island and the San Carlos Airport has a safety zone, must be addressed.

Vision for the Future

Redwood City, through much time, energy and resources, has looked at the complex problem in its entirety and believes it has a strong case for a viable and long term solution to both the restoration of Bair Island and the re-opening of the Redwood Shores Levee System for public use.

The public will benefit from the protection of species as well as by attention to urban needs; environmental education, filling the needs of special and sensitive sub-populations, and highlighting the good work done in conservation of the San Francisco Bay in an urban setting. By working to restore Bair Island, a new and far more extensive habitat for the endangered California clapper rail and salt marsh harvest mouse can be developed. By working to restore Bair Island, a new and far more extensive habitat for us all is the promise.

Comment
No. 6
Attachments

REDWOOD CITY PLAN AND PROPOSAL

NATIONAL WILDLIFE REFUGE INTERFACE WITH AN URBAN MUNICIPAL CORPORATION AND REGIONAL GOVERNANCE.

REDWOOD CITY COMMENTS

A VISION FOR THE FUTURE

The Redwood City Plan and Proposal for Bair Island (Redwood City Plan or Plan) included here is in partial response to the National Wildlife Refuge Service (NWRS) Bair Island Restoration and Management Plan (NWRS plan) for the Don Edwards San Francisco Bay National Wildlife Refuge (Refuge) Bair Island Ecological Reserve. An Environmental Impact Statement/Environmental Impact Report (EIS) has been caused to be prepared by the U.S. Fish and Wildlife Service (FWS). The FWS EIS has been compiled and, late in the drafting of this Redwood City Plan, was published in the Federal Register on August 27, 2004.

Redwood City: Working for Conservation's Future.

In compiling this report many interviews and discussions were held with environmental, professional, political and recreational experts and advocates. City department heads, county representatives, and operators of the San Carlos Airport, the port of Redwood City, and Pete's Harbor were solicited for their views and input on long-term solutions to the issues facing Redwood City in the open space habitat adjoining the San Francisco Bay. One is struck, when discussing habitat issues with Redwood City residents and officials, by the nearly unanimous preference for sound environmental principles and compassion for endangered species. One is also struck by the desire to promote, protect and improve on the habitat that has been protected from development. The City of Redwood City encourages the rapid rehabilitation of the habitat at the Bair Island Complex.

Comment
No. 6
Attachments

REDWOOD CITY PLAN

COMMENTS, COOPERATION AND CONSERVATION ON THE BAIR ISLAND NATIONAL WILDLIFE REFUGE

Prepared by:

W.H. FAWCETT
PERKINS COIE LLP

With Appendices prepared by:

Terry Huffman
Huffman Broadway Group

Prepared for:
The City of Redwood City

In this region of the country, environmentally-aware attitudes are shared by many citizens and it is reflected in their government. It is possible to find common ground between people involved in this issue. As residents and stewards of Redwood City most persons already feel the obligations to environment and quality of life.

The Redwood City Plan was developed without advantage of the final NWRS Plan or access to the pre-draft FWS EIS. Federal law prohibited the City from being able to review and therefore comment on the completed EIS and plan. The baseline assumptions used to develop this Plan were based on conversations with responsive and responsible NWRS and FWS staff. Final written comments on the draft EIS will be submitted by the City to the FWS and NWRS within the regulatory timeframe for public comment on the EIS. The information included in this Plan is subject to careful review of the final draft EIS published in the Federal Register.

Figure 1 - Redwood City Plan for Inner Bair Island

The Redwood City Plan for Inner Bair Island

These comments were based on limited physical and rhetorical evidence of a possible preferred NWRS alternative. Further, the City would have been within its right to request a delay of the draft EIS until this Redwood City Plan was fully

considered by the NWRS. However, the City Council was requested by representatives from the environmental community to avoid any action that might delay publication of the draft EIS and NWRS plan. As an act of good faith and in a desire to see rehabilitation and improvement of Bair Island progress, the City agreed not to request delay, but, rather, in a further showing of its commitment to a community environment requested expedition in FWS and Department of Interior consideration of the EIS.

CONSERVATION, COOPERATION, COMMUNICATION AND COLLABORATION

For the NWRS, Bair Island is a major priority for restoration and an integral part of the extensive wetland complex within the Refuge. Bair Island restoration is, for NWRS, a solution to the preservation and perhaps recovery of endangered species

For the City of Redwood City, restoration of Bair Island is just the beginning of an even bigger picture. The City Council sees Bair Island's future as a "metaphorical center of recovery" for species, children, and sensitive sub-populations. Bair Island is a historic part of the City of Redwood City. It represents our national, environmental and cultural heritage. The relationship between the Island and the City is unique. The Mayor and City Council of Redwood City take a broad view of what restoration of the Island can mean to species and citizens alike. Opportunities to improve the quality of life of all species abound. Through this document they offer the NWRS and FWS a unique and mutually beneficial partnership in shaping the future of Bair Island

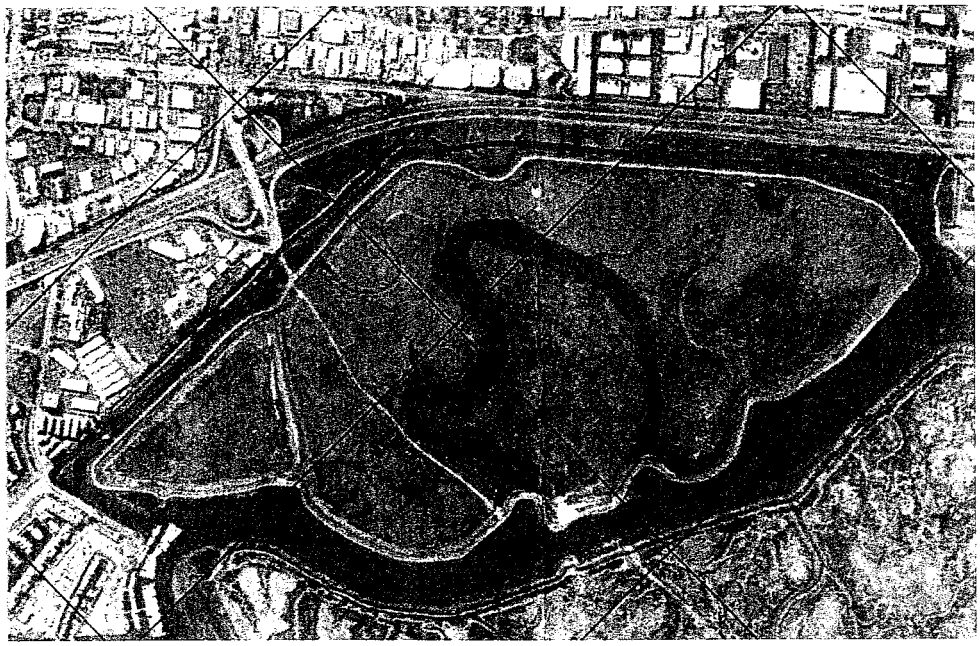
Restoration of Inner Bair Island will require the existing subsided soils to be filled and groomed before it can be used for habitat. Dredge spoils from Redwood Creek will be deposited on Inner Bair to bring the site above sea-level so that gentle inundation of soils, rather than lake pooling, feeds the habitat. Because of this the City feels that an opportunity exists to work with the NWRS to design contours and elevations on Inner Bair Island with future public use in mind. The City recommends that dredge spoils from the Redwood Shores lagoons and the port of Redwood City be used by the NWRS for Inner Bair rehabilitation. On Inner and Middle Bair historical sloughs will be opened to expose the existing and new habitat to inter-tidal flow. Pickleweed and cordgrass, native salt tolerant marshland plants indicating habitat for endangered species at the site, should be planted and reestablished on the island.

The City's vision contemplates higher use of the Refuge to fulfill educational goals for local schoolchildren, recreational goals for special needs citizens and low impact regional transportation goals. Failure to have adequate parking, including parking for school buses and tour buses, will frustrate the long-term plan for

integration of the refuge into Redwood City. Redwood City believes that the site should be served by two parking lots: one shown on the NWRS plan on Redwood Creek, the other at a location near the San Carlos Airport. Both lots should be planned for school buses, have restroom facilities and informational material in covered kiosks.

The City recommends against a long unimproved 0.5-mile trail that lies between a residential neighborhood complex and directly adjacent to unprotected critical habitat outside of the refuge boundaries. Failure to provide adequate control and supervision of this area over the next decades may result in invasive intrusions into the peace and quiet of nearby residents. Encouraging access in this area will leave unprotected critical habitat for the salt marsh harvest mouse. An additional 1-mile walk may provide a deterrent to handicapped persons and sensitive sub-populations desiring to share in a refuge experience.

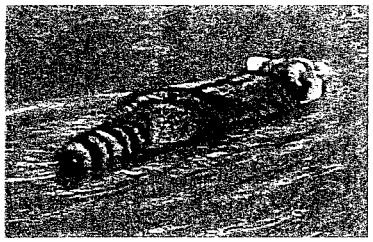
FWS reports that one of the largest threats to endangered clapper rails and harvest mice, after habitat loss, is predation by domestic dogs and cats and wild fox and raccoon. Given this information, Redwood City must recommend against a Whipple Street entrance to the refuge.



Inner Bair Predator Risk Comes From the Land

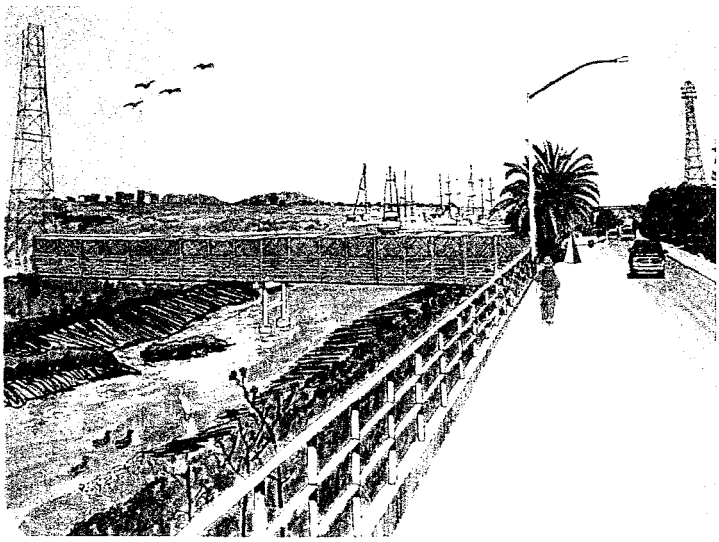
If one looks at a map, the largest area of potential and continuing ingress and egress from the habitat area is the landward border of the refuge. It is this contiguous landward border that is the largest threat to species. The City recommends closing access at Whipple and joining with the NWRS to encourage redesign of the Whipple Street access to discourage predator intrusion. Maintaining a long common border of the refuge with its largest potential threat is counterproductive. An attractive, yet predator-proof fence along the landward contiguous boundary of the Refuge will provide more protection to the species than open Whipple Street access.

The most common terrestrial predators of clapper rail and salt marsh harvest mice (raccoons and fox) are all capable of swimming. Unfortunately, because we did not have access to the NWRS plan or draft EIS we are unable to study plans the refuge has to control the waters surrounding Bair Island. Nor could we evaluate a predator control plan on Bair Island.



Common predators swim easily

Instead, the City recommends that access to the refuge be strictly limited to pedestrian access bridges. The bridges to Bair Island should be designed to protect the refuge from access by predator. Special care should be given to the design of the bridges to ensure that predators cannot use them to access the island. One possible design is similar in concept to an aviary entrance, the bridge should be covered with a mesh or chain link and have doors at either side. The doors on either side of the bridge should remain closed at all times. Handicapped access on both sides of the bridge will both serve a need to visitors but also protect against accidental entrance of animals onto

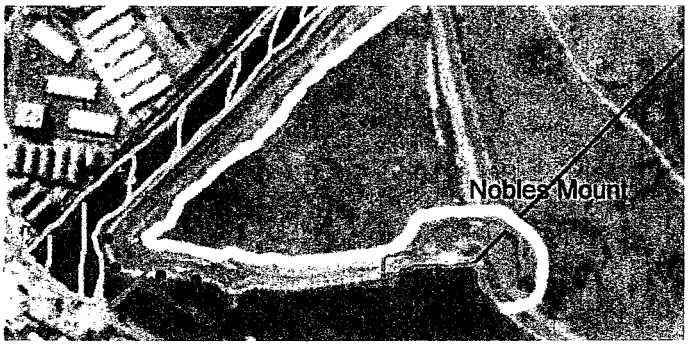


Narrowing Predator Access: Entry through a Secure Bridge

the Island. The environmental message is clear, in order to reach the Bair Island Complex it is man, not the species that must enter a cage.

In its recommendations the City has attempted to reflect its vision for the better future of the refuge. The Refuge will be a City constituent and neighbor and, in turn, it will contribute to the City's quality of life. For safety and security the City recommends that refuge consider opening and closing at dusk and dawn to increase after hour's security. The bridge doors should be lockable and self closing to increase security. The City also recommends informational signage explaining that the purpose of the doors is to protect the refuge from predators that might frustrate our shared goal of endangered species recovery.

On Inner Bair Island under the Redwood City plan visitors to the refuge would be directed to either the Interpretive Center or towards "Nobles' Mount." One need have only a nodding knowledge of the history of the estuaries and the Bay to know of the considerable involvement of Mr. and Mrs. Ralph Nobles. Indefatigable advocates for Bay habitat, the Nobles fought for Bair Island and sought its preservation and rehabilitation. The City believes that it is a fitting monument to these environmental pioneers that one of the overlooks planned for Bair Island be named after the Nobles.



Nobles Mount. Bridge and Berm.

The City recommends that on Bair Island the interior public area of the refuge be defined by a berm of approximately 3 feet in height. Such a berm would provide unmistakable evidence of the care taken to channel visitors to the refuge into areas that limit by design their impact on critical habitat.

The City recommends that Nobles Mount (and the Mount on the opposite side of the Island) provide a handicap accessible rise in elevation of about fifteen feet. (The ramp rise ratio for wheeled access may require a ramp in excess of 180 feet of compact soil or other approved surface. The City recommends dredging the Redwood Creek and Redwood Shores Lagoons for this purpose.) The City recommends the NWRS seek the cooperation of the Redwood City administrative departments on handicap access and other requirements. The City believes that

innovative approaches to handicap access and transportation should be used at Bair Island. To this end the City is also willing to facilitate meetings between experts in handicap access and transportation and the NWRS.

Access Northern California, a non-profit organization dedicated to facilitating greater access to travel and recreational opportunities in Northern California for people with physical disabilities, has agreed to participate with the City. Nobles Mount will have a 360 degree view that includes Bair Island, Pete's Harbor, Middle and Outer Bair Islands. Signage at Nobles Mount should inform the viewer of the struggle to protect what can be a jewel in the crown of the refuge system and the people who have given of their lives to make this refuge a reality. This approach differs from the NWRS approach in that the City plan reduces direct conflicts between persons and species at the critical interchange area at the mouth of the rehabilitated Inner Bair slough.

Instead of encroaching on the important Smith Slough transition area to be created with a levee breach, visitors will be able to view but not affect this rich habitat. The City agrees with NWRS that Inner Bair Island should be completely filled with dredge spoils and sculpted to provide prime habitat and prime views. In this way we can ensure Bair Island's promise while at the same time restricting access and limiting impacts. This new transition zone will allow tidal inundation of Bair Island. Harbor seals and dolphins frequent this zone. The City believes that this area can become an end destination for day travelers seeking a wildlife experience in an urban setting. Boaters and kayakers should be encouraged to view the Refuge on Bay and use Pete's Harbor so long as endangered species are not taken under the ESA.

The City recommends that pedestrian flow on Inner Bair Island proceed at a human pace. Bicyclers seeking to traverse the area have the Cal Trans lanes adjacent to US 101 to get them quickly from place to place. Traffic within the refuge should be limited to walkers and runners. A wildlife refuge must remain a place of education, conservation and rehabilitation.

The City recommends that the Whipple Street entrance planned by the Refuge as the main entrance to the refuge be closed. Whipple Street access should be for emergency and authorized vehicles only. Further, the City is willing to join with the refuge to cooperate and encourage redesign of the Whipple Street entrance to provide improved vehicular approach to the refuge parking lot.

The City recognizes the opportunity the refuge provides to explore innovative approaches to education. Urban interface with refuge operations means that we should exploit the teaching role of the refuge for Redwood City and regional education. Currently, the school system supports Redwood creek restoration and Bair Island restoration is a natural follow-on role for our schools. The City has

contacted both the Redwood City School System and the Marine Science Institute to inquire into their willingness to participate in such a plan. Both have agreed to explore this new concept in education and refuge management.

The Interpretive Center should provide more than just information about the refuge; it should be designed from the beginning as a pioneering multi-age teaching center. Class appropriate teaching tools should be incorporated into interactive exhibits on the Island. The Center will be able to educate with curricula on ecological interconnections at multiple levels depending on grade. Refuge managers and the School System should be seamlessly blended to take advantage of each other's disciplines and teach local school children our shared values of environmental stewardship. Integration of Bair Island into the community benefits both and creates a synergism that pays generational dividends.

Estuary Education: Good for Kids!

The City recognizes the countless efforts made on behalf of bay ecosystems such as the *Baylands Ecosystem Habitat Goals*. The City not only wishes to join this effort but seeks to expand the circle of stewardship and wise use through conservation principles. The City plan is designed to address specific concerns to the Bair Island habitat while balancing public access and natural resource protection. Existing programs, such as the task force for South Bay Restoration and slough restoration plans can be integrated into school and community projects. The Student and Landowner Education and Watershed Stewardship (SLEWS) program, sponsored by the National Fish and Wildlife Foundation and local partners such as Audubon California, has engaged students in restoring wildlife habitat in Yolo and Solano counties

By recognizing and utilizing existing programs and incorporating them into the active life of our community we can educate and broaden our citizens to make them aware of the needs and value of the refuge. A mobilized and educated citizenry will provide a willing work force for environmental restoration. Partnering the agencies responsible for restoration of the refuge with the City and community members can develop additional resources and the political will needed to ensure the future of the refuge.

The Bair Island Complex is one of the most urban wildlife refuges in the nation. It is in many ways an experiment to see if wildlife conservation can proceed within an urban context. As the most urban part of the Don Edwards National Wildlife Refuge, the City on behalf of the community, must initiate a deeper discussion into

Comment
No. 6
Attachments

REDWOOD CITY PLAN AND PROPOSAL

NATIONAL WILDLIFE REFUGE INTERFACE WITH AN URBAN MUNICIPAL CORPORATION AND REGIONAL GOVERNANCE.

the complex interaction between the urban environment and the ecological environment in which the endangered species habitat exists. To isolate habitat in an urban area is to risk wasting the value of the habitat and subjecting it to abuse and degradation. For example, the Redwood City Marsh near Bird Island is a jumble of flotsam and jetsam from Bay area shipping and recreational boating. These lands must be cared for, nurtured and restored. The City and community members have successfully demonstrated through the successful Aqua-terra Project that they can cleanup and help restore areas that have been neglected. Through efforts like these, the community has accepted their role in preservation and now values the habitat and their investment in it.

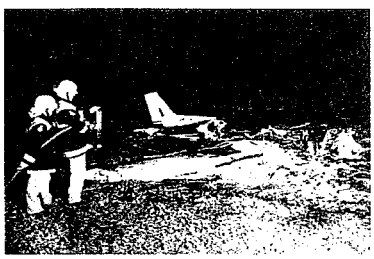
The California clapper rail and the salt marsh harvest mouse Recovery Plan does not mention domestic pets as a contributing factor to predation. Hawks and falcons are the main predators listed in the plan. The City recommends the NWRS study and, if appropriate, mitigate against low perch opportunities for raptors within the refuge critical habitat. However, even though pets are not targeted as a limiting factor in the Recovery Plan, it takes little scientific knowledge to know that uncontrolled cats and dogs can pose a problem for mice and birds.

NWRS Environmental Impact Statement recommends a trial period allowing dogs on leashes within the refuge. If a particular percentage of violations over a specified period of time were exceeded, dogs would be prohibited from the refuge. The City supports the refuge in this trial approach.

In cooperation with the refuge, and in furtherance of the refuge's goals, the City is willing to enact such codes and ordinances as are necessary to protect critical habitat and endangered species within its borders. The City is willing to enforce those laws with Redwood City Police and animal wardens.

NWRS will recommend that enhanced construction safeguards be included in the levee wall construction containing the wastewater pipeline owned and operated by the South Bayside System Authority. In order to protect against catastrophic failure, enhanced construction standards are necessary and sufficient maintenance right-of ways must be secured.

Redwood City Police and Fire Departments are the designated first-responders for any airplane accident on Bair Island. Currently, the San Carlos Airport is served by Fire emergency vehicles by Station 9, in Redwood City proper and Station 20, on the Redwood Shores peninsula. Response time to an incident at Bair Island would be greatly

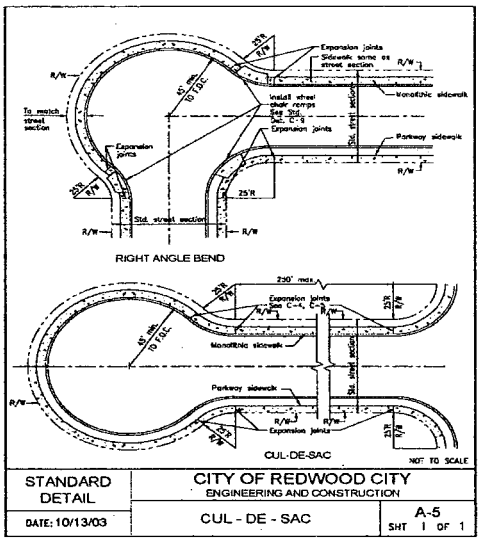


Redwood City Fire is the Bair Island First Responder

enhanced by providing secondary reinforced vehicular access from Station 20 with access to Bair Island without having to use US 101 or surface streets. Much discussion was devoted to this requirement with Redwood City Police and Fire. Air crash incidents have occurred at Bair Island. However, in consideration of the intended use of Bair Island in approach to the San Carlos Airport, Redwood City safety services is willing to accede to the request if a secondary pedestrian access bridge is provided.

Similarly, Redwood City Fire has requirements related to emergency vehicle safety and turnarounds that have not yet been solicited by the NWRS. The City recommends that California and Redwood City Codes, Plans and Ordinances apply to the future development of the refuge for NWRS purposes. Surfaces, lane widths, substructure and turnarounds should be planned into the common areas of the Refuge.

Redwood City also believes that secondary access from the San Carlos Airport area to Bair Island in a configuration to be agreed upon to reduce or eliminate negative factors, is necessary to provide sufficient parking for the refuge and necessary to effectuate the long-terms goals of access of Bay Trails.



The Refuge Should Comply with Redwood City Fire Requirements.

REDWOOD CITY GOALS

Goals: By submission of these comments the City of Redwood City declares these goals in service to its citizens and as a member of the San Francisco Bay community:

1. To protect critical salt marsh habitat and endangered species within and outside of the refuge.

2. To provide opportunities for handicapped persons and other sensitive sub-populations to use and enjoy the refuge in a manner consistent with the refuge mission. Redwood City feels that special attention should be paid to integrating refuge operations with the needs of citizens who might otherwise not have an opportunity to experience a national refuge.

3. To create a unique educational tool for Bay area students to learn varied aspects of estuarial lifecycles, ecological design and environmental principles. A phased curriculum serving age-grouped students at designated grade levels will allow the refuge to grow as the students do. Support the refuge caretakers of the future by developing their awareness and appreciation for the refuge.

4. To educate regional citizens and visitors to refuges and conservation values. The refuge is within one of the most urban national traffic corridors in the nation, with an estimated 250,000 vehicles per day passing its borders.

5. Fulfill long-standing local and regional goals for public access and involvement with nature and the ecological history of California. Integrate Bair Island into the adjoining non-refuge properties and uses and further fundamental Bay area recreational goals.

6. Form a working partnership between the City and the NWRS and the FWS for the long-term security of the refuge and the habitat of endangered species.

RECOMMENDATIONS

1. The City recommends that dredge spoils from the Redwood Shores lagoons also be used by the NWRS for Inner Bair rehabilitation.

2. Redwood City recommends that the Bair Island Complex be served by two parking lots; one as shown on the NWRS plan on Redwood Creek, the other at a location near the San Carlos Airport. Two parking lots will provide ample areas for trash bins restroom facilities and protect the refuge from human litter.

3. The City recommends against including a 0.5-mile trail that lies between a residential neighborhood complex and directly adjacent to unprotected critical habitat outside of the refuge boundaries.

4. Redwood City recommends closing the Whipple Street entrance to the refuge and will join with the NWRS to encourage redesign of the Whipple Street access to discourage uncontrolled predator intrusion and to eliminate Whipple Street access to all but emergency and authorized vehicles.

5. The City recommends that access to the refuge be strictly limited to pedestrian access bridges at Redwood Creek and the San Carlos Airport.

6. The City recommends the bridges to Bair Island be designed as covered bridges with handicap assisted doors at either end of the bridge to protect the refuge from unauthorized access. The bridge doors should be lockable.

7. The City recommends that refuge consider opening and closing hours of the refuge at dawn and dusk.

8. The City recommends that the two overlooks or mounts included in the City plan provide a handicap accessible ramp with a rise in elevation to approximately fifteen feet.

9. The City recommends that the two overlooks or mounts be pulled away from the environmentally sensitive mixing zone at the confluence of Smith Slough and the breeched levee portions of Inner Bair Island.

10. City recommends that on Bair Island the interior public area of the refuge is defined by a berm of approximately 3 feet.

11. The City recommends that pedestrian flow within the refuge should be limited walkers, joggers and walked bicycles.

12. The City recommends the NWRS study and, if appropriate, mitigate against low perch opportunities for raptors within the critical habitat.

13. The City supports the refuge in its trial opportunities for walked pets on leash within the refuge.

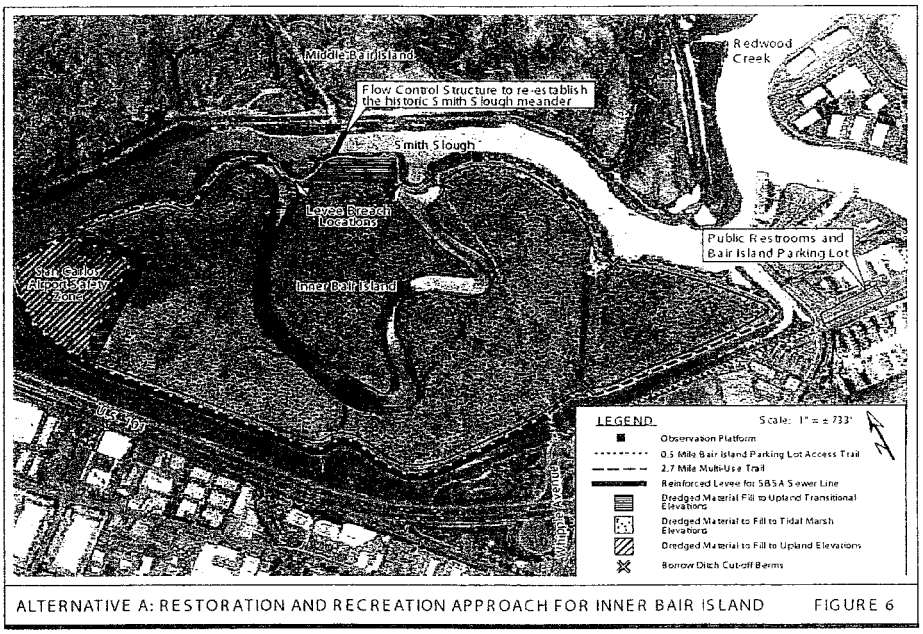
14. The City supports enhanced construction safeguards be included in the levee wall construction containing the wastewater pipeline owned and operated by the SBCA.

15. The City recommends the refuge comply with the requirements of the Redwood City Fire Department for levee wall widths, construction standards, and turnarounds.

In consideration of the foregoing, the City of Redwood City shall adopt such ordinances necessary to protect the critical habitat and endangered species within the Redwood City portions of the refuge by emplacing restrictions on use of the refuge properties and adjoining areas. Redwood City shall enforce such ordinances in a manner calculated to provide a safe, secure and protected environment for the refuge in perpetuity.

THE NWRS BEST ALTERNATIVE FOR BAIR ISLAND

When evaluating the plan put forward by the NWRS, we should employ a caveat to our future comments. It is always bold business to put forth a plan for consideration by others. Any individual's understanding of the various preferences of the agencies of the federal government and the comments of the general public is by definition a distillation of sometimes conflicting goals and needs.



National Wildlife Refuge System - Preferred Alternative for Bair Island

In evaluating the plan put forth by the NWRS we want to take particular pains to ensure that our comments are not interpreted as a criticism of the good work that has been done by the NWRS in presenting a plan for the rehabilitation of the Bair Island Complex. Redwood City's comments on the alternative presumptively selected by the NWRS are directed and based entirely on the rehabilitation plan for Inner Bair Island. Middle and Outer Bair rehabilitation is not addressed by these comments. Other than protecting the public by implementation of City goals, interests and standards, Redwood City can generate no comment on those plans until further review of the draft EIS published in the Federal Register.

Facts here are interpreted through a lens of community goals and principles. The preservation of the endangered species within the boundaries of Redwood City and the rehabilitation of their habitat is the most important goal of this plan. It is also ethically our most important principle. The current Redwood City Mayor and Council, and the management of the City, have shown extraordinary concern with protecting endangered species on Bair and Bird Islands while at the same time striking a reasonable balance between those needs and the continuing interests of their citizens. The observations and preferences embodied in the instant report have also had the benefit of input from various City agencies and community advocates. The City also must balance its comments between over-restriction of public use and the great sensitivity to long-held regional governance concerns, such as Bay Trails.

We should begin to interpret the plan put forward by the NWRS in Alternative A where all activity begins for the refuge: in the Bair Island parking lot as identified in Alternative A. The Bair Island parking lot was built by the NWRS for access to Bair Island. The intent was to divert citizen parking from the Whipple Street access.

The NWRS lot, maintained by Redwood City, has approximately 20 parking spaces. The City believes that the number of parking spaces reserved by the NWRS for the Bair Island refuge should be increased, especially for weekend use. A San Francisco Bay Trail *Wildlife and Public Access Study* shows a predictable increase for trail users on weekend days. It is important to emphasize that visitor use of trails in Redwood City is well below visitor use at similar trails in the San Francisco Bay in habitat with the same endangered species. Although it is impossible to predict refuge use, visitors to the completed Bair Island Wildlife Refuge in Redwood City should exceed current casual use of existing Bay Trails. Coupling that with the complete elimination of Whipple Street parking and it is evident that more parking should be made available. Similarly, school classes or organized expeditions that would logically travel to the refuge in groups have no bus parking available in the NWRS lot.

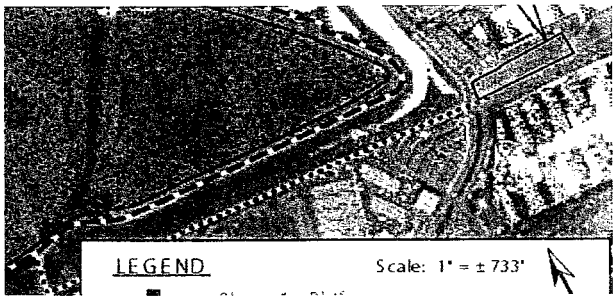
Unprotected Pickleweed Habitat Outside of Refuge boundaries.

Exiting the parking lot, according to the NWRS plan, a refuge visitor must then walk 0.5 miles along the Bair Island parking lot access trail to reach the Whipple Street entrance to the refuge. While traveling to the refuge entrance this higher level of pedestrian traffic will use an unimproved path between residential

developments and an area of pickleweed critical habitat (designated in yellow). We are not aware of any FWS harvest mouse studies or counts in this area but with the amount of pickleweed habitat available it is likely salt marsh harvest mouse critical habitat. The City believes that using the Whipple street trailhead entrance will encourage public access, including unleashed dogs, in conflict with existing residential structures and will encourage transit along an unprotected stretch of occupied habitat outside of the refuge boundaries.

During operating hours of the refuge, the Whipple Street refuge entrance will remain open. The City is concerned that maintaining the Whipple Street entrance will discourage a permanent parking solution for Bair Island Refuge visitors. The current unregulated parking situation at the Refuge will be encouraged under the refuge plan. This will result from the lack of sufficient parking in the NWRS lot or by persons who have grown used to Whipple Street parking for access. The Whipple Street entrance is an open invitation to common predators who would seek easy prey on the Bair Island refuge. This issue will be explored in further detail in describing the City plan for the Bair Island refuge.

Under the NWRS plan once a visitor has entered at Whipple Street entrance they can walk on either of two trails that terminate with an observation platform at either of the two levee breach locations at Smith Slough. If one were to measure the distance from the parking lot to the nearest observation platform that would constitute a total travel distance of over 1.5 miles. Travel distances to the overlook on the airport side of Bair Island would exceed 2 miles. The City believes that this distance is too long.



Long Refuge Access Trail Greets Visitors in the NWRS plan.

The City of Redwood City believes that it can assist the NWRS in addressing the interface between a National Wildlife Refuge and an urban American city. Any urban city must consider delivery of services to a wide variety of constituents. The City must consider the needs of physically challenged citizens, sensitive subpopulations, school age children and seniors. Furthermore, modern facility planning must find a way to integrate the needs of these special communities into services provided to all citizens in conformity with the goals of that City.

Under the NWRS plan, the refuge trail extends to the trail terminus near the area where the interior Inner Bair Island slough meets Smith Slough. With tidal flow

restored on Inner Bair, the interchange area where the slough on Inner Bair rejoins the waters of Smith Slough are rich feeding places for fish, birds and mammals. The City recognizes that there are conservation priorities that must be employed at Inner Bar Island by the NWRS. These conservation priorities include reducing predator and human intrusion. Maintaining an open entrance for predators and extending human use into the slough violate those priorities. The City believes that development of refuge user overlooks or mounts so near to the interchange area between the Inner Bair slough and Smith Slough is an unnecessary intrusion into an important area of habitat to be created under the plan. As will be seen in this report, the City prefers to relocate these overlooks away from this interchange area to reduce the impact and human intrusion in the refuge interchange zone.

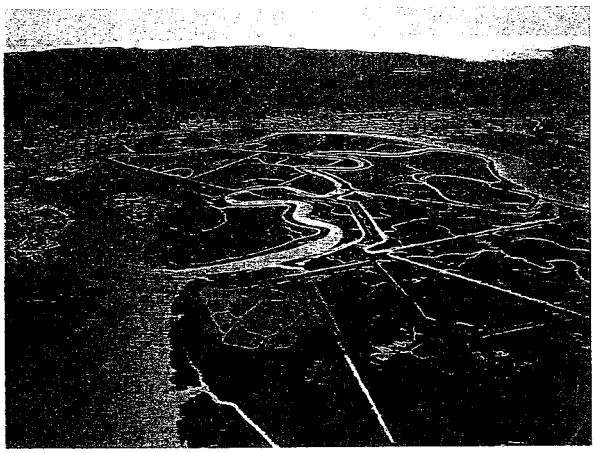
Inner Bair Island has, after years of diking, lost its tidal habitat features, dried and subsided. If the NWRS were to inundate the interior of the island by simply breaching the levee wall, the interior of Bair Island would "lake up." A sheet of water would cover the island attracting ducks and geese that would, in turn, be a continuing danger to aircraft landing at nearby San Carlos Airport. Instead, the NWRS will need to increase the elevation of the interior of Bair Island to allow tidal inundation without lake ponding.

The NWRS plans to use dredge spoils from Redwood Creek to build the elevation of the interior of the island. This means that virtually everything a visitor today seeks at Inner Bair will be covered with a layer of dredge spoils. The area designated in the plan as the San Carlos Airport Safety Zone would be permanently increased in height, above the height of the dredge spoils on Inner Bair, roughly equal to the levee top.

The City agrees with the NWRS on the use of dredge spoils as an economical way to raise elevation thereby decreasing the likelihood of conflicts between commuter aircraft and refuge species. However, the City would urge the NWRS consider the utilization of Redwood Shores lagoon dredge spoils as an additional resource. The lagoons at Redwood Shores will need to be dredged in the near future. The cost of dumping dredge spoils is high in the San Francisco Bay. The City is in need of a place to dispose of dredge spoils and the refuge has more than enough need for dredge spoils to provide habitat on Inner Bair Island.

CONDITIONS PRECEDING THIS PLAN

Bair Island and Redwood Shores, in the City of Redwood City, were a part of a larger complex of former tidal salt marsh. Diked in the late 1800's the Redwood City marsh habitat was used initially for cattle grazing and later as evaporative salt ponds. Bair Island is divided into three islands separated by slough channels: Inner, Middle and Outer Bair. Inner Bair Island is connected to Redwood City and can be directly accessed by Whipple Street. A current loop trail surrounds Inner Bair on the levee top. Inner Bair is separated from Middle Bair by Smith Slough. Middle Bair is separated from Outer Bair by Corkscrew Slough.



A New Perspective on the Bair Island Complex

Inner Bair Island is the smallest of three salt marsh habitat islands within the city limits of Redwood City. The island is within the Don Edwards National Wildlife refuge (refuge), a non-contiguous refuge of San Francisco Bay estuarial habitat. The National Wildlife Refuge System (NWRS), starting with its office at the refuge and then the regional office in Sacramento, will propose a plan for rehabilitation and use of Bair Island according to the mission of the refuge system. An Environmental Impact Statement (EIS) with the preferred alternative included will soon be published in the Federal Register for public comment.

The land is now a mosaic of habitats including tidal salt marsh, mud flats, seasonal wetlands, former diked salt ponds and dry upland. The Bair Island complex is composed of 3200 acres of potential quality habitat.

The San Carlos Airport, operated by an independent airport authority, adjoins Bair Island as does the Redwood City harbor at the opposing end. San Carlos Airport owns fee interest in a portion of Inner Bair Island, designated as Airport Safety Zone. Adjoining U.S. 101,the Bair Island Complex will see over 250,000 vehicle trips per day passing its borders.

In 1997, the Peninsula Open Space Trust (POST) purchased the remaining portions of Bair Island in private ownership and turned it over to the NWRS as a part of the Don Edwards National Wildlife Refuge. The Bair Island complex is the last and one of the most import pieces of salt marsh habitat remaining unrestored on the San Francisco Bay. Inner Bair Island, which on all NWRS alternatives serves at the location of human use, is over 323 acres. Rehabilitation of Inner and Middle Bair, breaching the levees to allow tidal flow and restoring Inner Bair to accommodate that flow, will cost the federal government millions of dollars.

Redwood Shores has been developed into a high quality residential development on the San Francisco Bay. The housing development is protected from flooding by a levee wall. At the top of the levee wall a pedestrian path allowed foot and bicycle traffic in conformance with the recommendations of the Bay Trail Committee for San Francisco Bay access and transportation. The U.S. Army Corps of Engineers (Corps) determined that a levee height increase was necessary to protect the existing Redwood shores development from inter-tidal San Francisco Bay inundation. The Corps, as the designated action agency on the project, determined that the levee height increase "may affect" the habitat of the California clapper rail and the salt marsh harvest mouse pursuant to the Endangered Species Act (ESA or "the Act"). The Corps sought informal consultation with the U.S. Fish and Wildlife Service (FWS) under Section 7 of the ESA.

At issue was the protection of endangered California clapper rails and the salt marsh harvest mouse on Bird Island which lies off of the shores of Redwood Shores. Bird Island is a salt marsh habitat for clapper rails. During a period of high tide, the rail seeks refuge in elevations above high tide. The rail forages on Bird Island but nests on pickleweed, a native plant, elevated on a platform of stems without a canopy. The fear of the FWS was that as a result of the raised elevations of the levees there would be less usable habitat available for refugia. Without sufficient institutional controls one of the main predators of the clapper rail, domestic pets, would be able to access and extirpate the rails foraging on Bird Island.

Bird Island at Redwood Shores.

After a period of failed negotiations with the City, all pedestrian access to the levee trail at the eastern border of Redwood Shores was prohibited as a condition of a biological opinion issued by the FWS to the Corps. No similar restrictions had been

placed on any California clapper habitat in the past and no such restriction has been instituted since.

The California clapper rail was reclassified as a geographically distinct species in 1880. The clapper rail *(Rallus obsoletus)* is one of the largest species of the genus that extends to South America. The rail has a hen-like appearance, strong legs with long toes, a long slightly decurved bill, and white undertail feathers. Rails typically occur in salt water marshes dominated by pickelweed and cordgrass. Loss of habitat throughout its salt marsh range is the main factor in the reduction in the number of California clapper rails. The rail is secretive, but once flushed, can be approached easily. They are described as tolerant of human beings. Rails consume the introduced horse mussel, spiders, clams, and yellow shore crabs. With a stabilizing habitat picture, the main factor in mortality is predation. The recovery plan for the California clapper rail states that, "(A)dult clapper rails are taken by several avian predators including the northern harrier, red-tailed hawk and peregrine falcon. Downey young and eggs are also vulnerable to predation by Norway rats."

Figure 2 - California Clapper Rail (Rallus longirostris obsoletus)

The salt marsh harvest mouse (*Reithrodontomys raviventris*) is a small native rodent found in the marshes of Corte Madera, Richmond and South San Francisco Bay. Salt marsh harvest mice are critically dependent on dense cover and their preferred habitat is pickleweed (*Salicornia virginica*). Harvest mice are seldom found in cordgrass or alkali bulrush. In marshes with an upper zone of salt-tolerant plants, mice use this vegetation to escape the higher tides. Mice also move into the adjoining grasslands during the highest winter tides.

Salt Marsh Harvest Mouse (Reithrodontomys raviventris)

Salt marsh harvest mice probably live on leaves, seeds and stems of plants and drink brackish water. In winter, they seem to prefer fresh green grasses. The rest of the year, they tend toward pickleweed and saltgrass. They swim very well.

Comment
No. 6
Attachments

CONCLUSION

The City of Redwood City and we as a community, have a unique opportunity. We have been given the opportunity to accept a National Wildlife Refuge where once there was only an open place. Shell mounds on Outer Bair Island indicate man's pre-historic use of the Islands. Bair Island has been home to all of us here on the Bay for a very long time. As we accept the Refuge we hope the NWRS and the FWS can accept that this Refuge is in our City – and integral part of what we consider our homes.

We have all, through the years and through this process, changed the way we look at the Bair Island complex (I use the word complex because the majority of people don't know there are separate islands so it depends on who we want to target). We took the goal of protecting these treasured national assets, the endangered species of the Islands, and we redefined the true nature of protection of the species. Fence off the landward boundary; and do not maintain open pathways for invasive species which do not contribute to recovery. Make citizen access to the Refuge easy, and use that access to further control access by threats. Increase human use and decrease human intrusion. Contour the land to create habitat and instructive views of nature's operation.

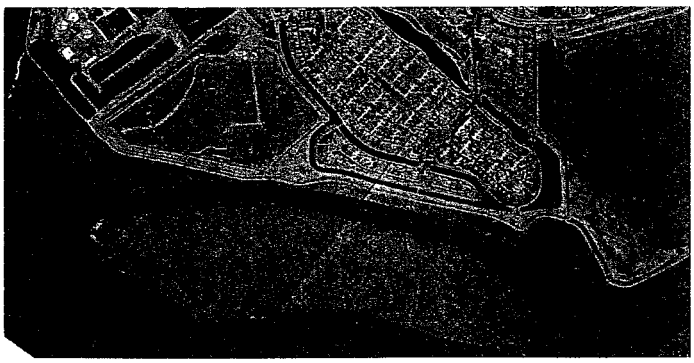
We have seen this Refuge; all that it is and all that it can be. Once we adopt the strictures of wise use and conservation we can use the Refuge to teach our children and ourselves. We can bring a higher quality of life to those who need those margins of improvement the most. We can bring this lesson of acceptance and responsibility to other communities.

We have seen that the power of the City's approach is in how it welcomes the Refuge and how it says goodbye to that use which has come before it. The Bair Islands and Bird Island are part of the same future stable system. It is a fortunate oasis in an urban paradise on the San Francisco Bay. But, it is an oasis that must be adaptively managed. Use of the Refuge beyond the passive, instructive use envisioned by the City, must be monitored and it must be measured to ensure it meets the Refuge's purpose.

Adaptive management means active management. The City offers the Refuge its good offices to facilitate wise use and incorporate the community into the care of the Refuge. The City of Redwood City offers as well to facilitate the Refuge's quest for a place in our homes.

APPENDIX – REDWOOD SHORES

When the FWS issued its 1996 biological opinion to the Corps for the public safety levee elevation, Bird Island was considered an isolated piece of a mosaic of rapidly disappearing rail and mouse habitat. This attitude can be read throughout the biological opinion. The Service was concerned that existing habitat in the Bay was becoming fragmented, losing its tidal features and its micro-habitats. One can feel the crisis that this species will be lost when reading the biological opinion today.



Bird Island Completely Inundates During High Tide

The City believes that the conditions underlying the rather draconian restrictions imposed in the biological opinion have changed. The development and restoration of the Bair Island Complex will put Bird Island, the levee wall and the FWS restrictions in their proper places. In the intervening years, development of the Bair Island Complex into the Don Edwards Wildlife refuge has proceeded and many of the assumptions that gave rise to the conditions imposed on Redwood City have proved to be of less impact or importance than once thought to be.

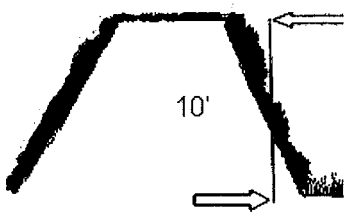
The perspective that has driven the relationship between the Fish and Wildlife Service and the City of Redwood City has changed. Where once there was a contentious relationship, now great unanimity exists.

Seen today, it is hard to believe that the actions dictated in the biological opinion presented a long-term solution. Citizen attitudes toward their environment and the goals of conservation generally cannot be defined with chain link fence or secured with locks. It is the view of the City that with knowledge, understanding and education comes respect for one's environment. With sensitivity and concern for the urban neighbors of an urban refuge come cooperation, fellowship and protection of federal reserves. Today, flotsam and jetsam from the Bay litters Bird Island and the Redwood City marsh. Citizens, completely denied accesses of a view of the Bay, may break down into two categories. The majority will grumble at the inconvenience and intemperance of the decisions and take another way. A small but reckless few will

break the fences, surmount the obstructions and treat that place with the same lack of concern they feel has been shown them as residents and visitors to this place.

Although the Recovery Plan for the California Clapper Rail and the Salt Marsh Harvest Mouse does not allege domestic pets or human contact as a limiting factor in recovery, the biological opinion focused on it. In the sections of the opinion referring to humans and domestic pets the helping verb goes from "is-shall-will," when describing the effects of the "best science" of natural predation, to "may-should-could," when subjectively describing supposed urban effects.

The controversy at the Redwood Shores levee grew because the habitat was viewed in isolation from the rest of the Bair Island Complex. The controversy was focused solely on a small strip of a sloping levee wall. The assumed fragility of the Bird Island ecosystem was based in large part on the uncertain status of the Bair Island Complex. It drove many assumptions.



Levee Height and Refugia

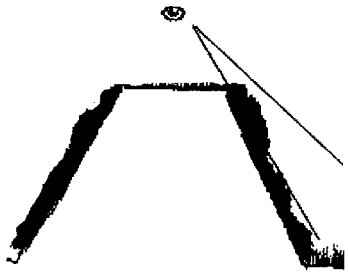
Now, with the acquisition of the Bair Island Complex, these governments can use a broader palette to paint the future together. They can spread their plans out and distribute any impacts over a broader geography. New perspective means that we can, with better understanding, address the wider relationship of Bird Island with the greater refuge.

In its proper perspective, Bird Island is additional habitat for California Clapper Rail on Outer Bair Island across Steinberger's Creek and adjacent to upland habitat and tidal refugia across Bay Slough. Clapper Rail survey data show a population on Bird Island of fewer than 10 birds. Since the rail data is gathered in the winter, we have no data to show if Bird Island is used as a rail nesting habitat. If rails are nesting at Bird Island, the results of that union (generally clutches range from 5 to 14 eggs) are not populating Bird Island. The Bird Island population, if a stable resident population at all, remains small. Bair Island has a much larger population and will always be the source population for the birds of Bird Island.

On Bird Island, chicks and young adults are most likely either lost to predation (Redwood City Marsh, in FWS ownership, contains low elevation perch opportunities for raptors from abandoned pilings) or relocation to the larger habitat on Outer Bair Island.

The levees at Redwood Shores were raised to a uniform 10 feet in order to protect public safety. Bird Island is marginal habit for the California Clapper rail.

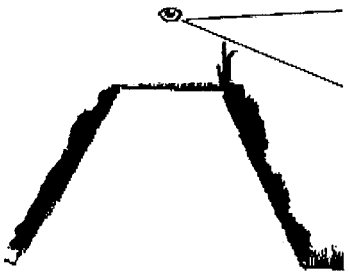
Rails build elevated nests out of grasses and sticks that are observable from above. In fact, the nests float with the tide. Clapper rail nests are perfectly adapted to protect eggs from rising water. Made of hollow, buoyant stems of cordgrass, they float up slightly with the tide. Rails build their nests far into the marsh where eggs and chicks are protected from predators. If surrounding vegetation doesn't provide adequate cover, the rails will cover the nest with loosely woven canopy of living or dead plant material. Bird Island is completely inundated during Bay high tide events. Although winter bird surveys show "pairing" behavior on the Island, there have been no known reports of completed rail nesting behavior on Bird Island.



Current Levee Vegetation Gives No Visual Cover

Outside of nesting behavior, the Bird Island habitat becomes completely inundated during high tide events. During inundation rails seek refuge in elevated areas such as the levee wall at Redwood Shores. It is the extent of danger rails could be exposed to during these events that are crucial. Rails are uncommonly tolerant of human beings, and human beings have no reason to harass rails. If we can isolate potential contact with rails to those instances when the rails would be near the levee tops because of a tidal event, we can likewise isolate and prevent the opportunity for a "take" of rails. By coordinating a "rail" closure of the levee top during periods of potential rail use, we can manage the habitat for the benefit of people and for the rails.

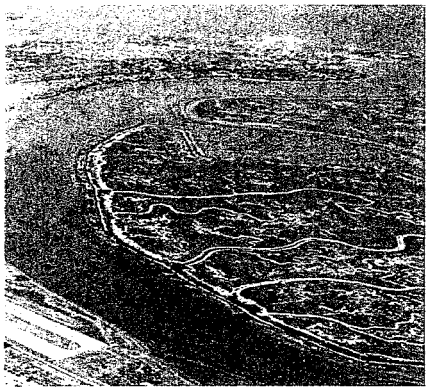
Besides the closure of the levee tops during periods when human/rail contact is as likely as it will ever be, we should strive to provide what the California Clapper rail needs. Native cover, and non-native screening plants (like wild anise that currently grows on the levee top) must be encouraged and maintained to provide a dense natural cover wall. Those areas of cover observed between the SBCA facility and the levee wall are approximately 3 feet in height and excellent cover for animals.



Adding vegetation adds visual security

Unfortunately, dogs are incompatible in this area. Dog walkers, with dogs on leash, must be restricted from the levee wall. Uncontrolled dogs with negligent dog owners allowing them off leash are a danger to rails and mice and must be prohibited. It is unfortunate, but necessary until such time as dogs are willing to accept the Endangered Species Act. Redwood City will, in consideration of an agreed to phased opening of the levee top, adopt such ordinances as are necessary to enforce and protect this portion of the Bair Island Complex.

The City also believes that the best protection this portion of the refuge can have is a cooperative relationship with its neighbors. The residents of Redwood Shores must be well informed, motivated to adopt this precious portion of their natural heritage and empowered to alert officials when incompatible uses are observed. A vigilant public provides more hours of supervision and more eyes to watch than either agency can afford to provide. It is in the best interest of all to motivate citizen involvement.



New Perspectives New Solutions

The question very carefully stated is, "How can we re-introduce human access onto the levees without taking the habitat of the species." In the light of changed circumstances, the acquisition of the Bair Island Complex, a revision of the assumptions applied in 1996, and new tide data, the City has contacted the FWS in informal discussion to revisit the biological opinion. We have developed a working protocol that, when reviewed by expert scientific analysis, will result in both renewed access to the citizens of Redwood City and a higher degree of security for the endangered species because of the commitment to conservation and protection fostered by the City. We must be careful to acknowledge that until we have completely satisfied the FWS, no commitment on their part should be suggested or solicited.

BIBLIOGRAPHY

U.S. Fish and Wildlife Service, *Salt Marsh Harvest Mouse and California Clapper Rail Recovery Plan*, November 16, 1984.

Goals Project. 1999. *Baylands Ecosystem Habitat Goals. A report of habitat recommendations prepared by the San Francisco Bay Area Wetlands Ecosystem Goals Project.* U.S. Environmental Protection Agency, San Francisco, Calif./S.F. Bay Regional Water Quality Control Board, Oakland, Calif.

H.T. Harvey & Associates, *Bair Island Restoration and Management Plan: Existing Biological Conditions,* San Francisco Bay Wildlife Society, July 5, 2000.

H.T. Harvey & Associates and Phillip Williams & Associates, *Administrative Draft Bair Island Restoration and Management Plan,* San Francisco Bay Wildlife Society, November 30, 2000.

Phillip Williams & Associates, *Bair Island Restoration and Management Plan: Existing Hydrologic Conditions Assessment,* June 30, 2000.

Medlin, Joel A., Field Supervisor, U.S. Fish and Wildlife Service, *Endangered Species Formal Consultation on the Redwood Shores Levee Rehabilitation Project, Steinberger, Belmont, and Bay Sloughs and San Francisco Bay, Redwood City, San Mateo County California (Public Notice No. 19783S49,* Letter to Lt. Col. Richard G. Thompson, District Engineer, U.S. Corps of Engineers, September 5, 1996.

Morris, Clyde, Don Edwards San Francisco Bay National Wildlife Refuge Manager, *California Clapper Rail Winter Survey Data 1995-96 to 2001-2002,* August 22, 2002.

Trulio, Lynne and Sokale, Jana, *Wildlife and Public Access Study, Spring/Summer 2001 Semi-Annual Report,* September 26, 2002.

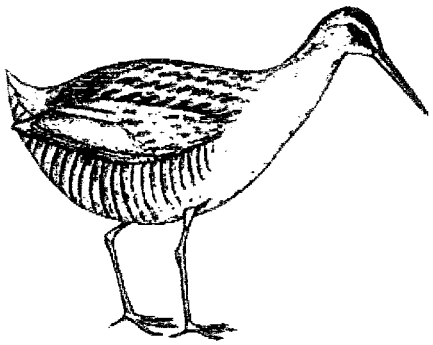
Permit, City of Redwood City, No. 19783S, Department of the Army, April 8, 1987.

StonyBrook Associates, Inc., *South Bayside System Authority, Force Main Easement – Inner Bair Island.*

South Bayside System Authority, *Background Position Paper on South Bayside System Authority's Easement and Pipeline through a Portion of Bair Island,* June 27, 1997.

California clapper rail (*Rallus longirostris obsoletus*) in the Redwood Shores Area*

Perennial inhabitant of greater San Francisco Bay tidal marshes.



Federal endangered species: 35 *Federal Register* 16047 – 16048 (13 October 1970).
California endangered species: Title 14, *California Code of Regulations*, § 670.5 (27 June 1971).

Description. The California clapper rail, a secretive, "henlike" waterbird, is one of the largest rails, measuring approximately 13 to 19 inches from bill to tail and weighing about 250 to 300 grams. The bird has a long slightly downward-curving orange bill, a cinnamon-buff colored breast, olive-brown upper parts, black and white barred flanks, and white undertail coverts. The brown back feathers are edged with gray. Males are slightly larger than the females. The young have a pale bill and dark plumage.

Distribution. California clapper rail populations are currently limited to San Francisco Bay, San Pablo Bay, Suisun Bay, and the tidal marshes associated with estuarine sloughs that drain into these bays.

History. Historically, California clapper rails ranged within coastal tidal marshes from Humboldt Bay southward to Elkhorn Slough and Morro Bay and from the estuarine marshes of San Francisco and San Pablo bays to the Carquinez Strait (LSA, 2004). The highest density of clapper rails historically was found in south San Francisco Bay. In 1880, the California clapper rail was classified as a distinct species, reclassified as a clapper rail population in 1926, and recognized as one of numerous clapper rail subspecies in 1977 (Erlich *et al.*, 1992). Before about 1900, "thousands" of clapper rails were reportedly killed by hunters each week (Thelander, 1994). The Migratory Bird

---

* PREPARED BY MS. TUNSTALL LANG, JD, REA, OF THE HUFFMAN-BROADWAY GROUP, INC.

Treaty Act of 1918 prohibited clapper rail hunting and its numbers rebounded. However, destruction of much of the salt marsh habitat for the bird caused its numbers to dwindle precariously. Of the 193,800 acres of tidal marsh bordering San Francisco Bay in 1850, only slightly more than 30,000 acres remain. When listed as endangered in 1970 (U.S.) and 1971 (CA), the California clapper rail population was estimated at 4,200 to 6,000 birds; the all-time historical low is about 500 individuals, with about 300 of these in the south part of San Francisco Bay. The population has subsequently rebounded (see below) as a result of predator management activities. The south San Francisco Bay population is now estimated to be between 500 and 600 birds, with some 200 to 300 pairs occurring in the north part of San Francisco Bay. Likely causation of the diminution of the population is a combination of the fragmentation of the clapper rail's habitat and increased predation, described in more detail below (CDWR-IEP).

Habitat. California clapper rail habitats typically have the following features: (1) marshes that support an extensive system of tidal sloughs having direct tidal circulation sufficient to allow the full tidal cycle, (2) pickleweed (*Salicornia virginica*) is the predominant vegetation, with extensive Pacific cordgrass (*Spartina foliosa*) at lower marsh elevations, (3) abundant, dense high marsh cover (tall stands of pickleweed, gumplant [*Grindelia* spp.], and wrack), and (4) abundant invertebrate populations. The preferred habitat is *Spartina* marsh (CDWR-IEP), which dominates the middle marsh zone in the south Bay (USFWS-Sac). Optimum California clapper rail habitat needs both high marsh, with dense vegetation for nesting, and low marsh, with sparse vegetation and tidal sloughs for foraging (Albertson, 1996). Additionally, buffer areas between marsh and upland are critical aspects of rail habitat, for use as escape cover from predators during high tide (Albertson & Evens, 2000).

Feeding. A 1941 study by Moffitt (cited in CDWR-IEP) found that by volume, most (>85 percent) of the stomach contents of clapper rails was animal matter, 14.5 percent was vegetable matter. Of the animal matter, 56.5 percent was plaited horse mussel (*Modiolus volsetta demissus*); the remainder comprised spiders (15 percent), macoma clams (7.6 percent), mud crabs (3.2 percent), and bones from brush rabbits, the latter presumably from carrion. The California clapper rail feeds by walking a few steps, thrusting its beak into the mud up to eye level, then walking a few more steps and repeating its probing (Wilbur and Tomlinson, 1976, cited in CDWR IEP). CDFG cites Zembel and Massey (1983) indicating that the clapper rail forages in higher marsh vegetation, along the mudflat/vegetation interface, and along tidal creeks; the rail "gleans, pecks, probes, and scavenges from [the] surface," and takes mice during high tides, and may scavenge dead fish (www.dfg.ca.gov/whdab/html/B144.html). Another writer indicates that clapper rails, although opportunistic feeders, prefer crabs and crayfish (Garrison, 2000).

Reproduction. The breeding season begins in February, when pair bonds are typically established (USFWS-Goude, 2002), with nesting extending from mid-March into August. The breeding season is typically considered to end at the end of August, by which time the eggs laid during re-nesting efforts have hatched and the young are mobile (USFWS, Sacramento on line). Clutch sizes are variously reported as ranging from 5 to 14 eggs (USFWS-Sac), 6 to 8 (Garrison, 2000), 6 to 10 (CDWR-IEP), and an average of 7.6, with a hatching success rate in the Bay Area of 38 percent (Harvey, 1980, *in* LSA, 2004). Both the male and female incubate the eggs for 18 to 29 days (LSA, 2004). The young are precocial, i.e., they are covered with down and capable of moving about when hatched (www.pwrc.usgs.gov). The young usually accompany their parents for about 8 weeks, learning to forage on their own. They fledge at about 10 weeks (Albertson & Evens, 2000). Garrison states (2000) that high tides and heavy spring rains may destroy up to half of clapper rail nests, but that the clapper rail will re-nest up to five times.

Clapper rail nests are normally built by the males and are described as a "mass" or "heap" of vegetation, deep-cupped and woven to adjoining live plant material in a manner that allows it to float during extreme high tides, although they are somewhat buoyant, they are not sturdy enough to withstand a series of high tides (Zucca 1954 in CDWR-IEP). According to Harvey (1980) and Zembel and Massey (1983), in saline emergent wetlands, the birds nest mostly in lower zones near tidal sloughs and where cordgrass is abundant; nests are constructed as high as necessary to prevent inundation while maintaining sufficient natural vegetation cover. Harvey (CDFG B144 online) reports that the clapper rail builds a platform hidden by a canopy of woven cordgrass stems or pickleweed and gumweed, but may use dead drift vegetation as a platform. In brackish to fresh water, nests may be built in dense cattail or bulrush.

Diurnal cycle. Peak California clapper rails activity occurs in the early morning and late evening, when they forage; frequently they roost at high tide during the day (USFWS/Sacramento).

Behavior. Clapper rails are considered to be non-migratory, although post-breeding dispersal in the fall and early winter has been documented (Albertson & Evens, 2000). They show strong site tenacity, with scant movement between seasons and a small core-use area (about 0.87 hectare) they defend throughout the year (Albertson & Evens, 2000). They spend most of the time hidden in dense marsh vegetation, so they are difficult to observe. When flushed, they will usually fly only a short distance before landing, and then frequently they can be approached. They are more likely to walk or run than fly, and generally walk upright. To evade discovery, they will freeze, hiding in small sloughs or under overhangs. They run or hide from predators. They swim only to cross sloughs or escape imminent threats at high tide, although they swim well. The birds can produce several sounds; the most common is a series of keks or claps (Goude/USFWS, 2002). Rails call to contact each other, advertise breeding status, and defend their nesting territories; if rails are too far apart to hear each other, they may not be able to find a mate or breed (http://desfbay.fws.gov/Archives/Clapper/carail2.htm). They mostly vocalize during the night (Harvey, 1990, *in* LSA, 2004), at twilight, and before sunrise (Harvey-CDFG).

Ecological threats. The principal ecological threat to California clapper rails today is the loss and fragmentation of salt marsh habitat. Tidal marshes in San Francisco Bay have been reduced from historical conditions by 84 percent since 1850 (193,800 acres in 1850; about 30,100 acres today). Remaining Bay Area marshlands are frequently deemed unsuitable habitat for the clapper rail due to their small size, geographic separation from other habitats, lack of natural transition zones between the marsh and upland habitat, lack of tidal channel systems and other microhabitat features, and proximity to urban and industrial development. Simulation models cited by Albertson & Evens (2000) demonstrate that populations of fewer than 10 pairs (in one model) to 25 pair (in another model) are inherently unstable and could tend toward extinction; hence subpopulation persistence my depend on the contiguity of marsh parcels that would facilitate the ability of rails to disperse among sites

Additionally, in the South Bay, tidal amplitudes are greater than in San Pablo or Suisun bays, so many tidal marshes become completely submerged during high tides, which limits escape habitat for the birds, potentially resulting in higher predation rates and more nesting failures (CDWR-IEP). Additionally, continued diversion of freshwater inflow from north San Francisco Bay, contamination from urban runoff, industrial discharges, and sewage effluent, and a progressive rise in sea level may impact clapper rails (CDWR-IEP). Conversion of salt marshes to brackish marshes resulting from freshwater discharge from sewage treatment plants is another impact, creating lower quality habitat.

Invasion of non-native plant species, especially smooth cordgrass (*Spartina alterniflora*) and its hybrids, can result in degradation of habitat. Smooth cordgrass invasion causes excessive sedimentation, which can clog tidal sloughs used for foraging. The San Francisco Estuary Invasive Spartina Project is a coordinated regional effort among local, state and federal organizations dedicated to preserving coastal biological resources through the elimination of introduced species of Spartina (cordgrass). Cordgrasses are highly aggressive invaders that significantly alter both the physical structure and biological composition of our tidal marshes, mudflats and creeks (www.spartina.org). Maps on the Spartina Project website indicate that colonies of introduced Spartina occur in the vicinity of Redwood Shores and Bair Island. Appendix G of the Final Programmatic EIS/EIR for the Spartina Project (2003) identifies Best Management Practices for avoiding and minimizing indirect impacts from Spartina control activities on the California clapper rail.

In a Biological Opinion regarding the Redwood Shores Levee Rehabilitation Project, the USFWS stated in 1996 that mercury accumulation in eggs was "perhaps the most significant contaminant problem affecting clapper rails in San Francisco Bay, with the south Bay containing the highest mercury levels." On the basis of data the Service collected in 1991 and 1992 in the southern portion of the estuary, the Service concluded that "the current accumulation of mercury in rail eggs occurs at potentially harmful levels"; the mean percentage of non-viable eggs was 29 percent (Medlin/USFWS, 1996).

A 1992 study wherein 22 failed California clapper rail eggs from four south Bay tidal marshes were analyzed for organochlorines and eggshell thicknesses were measured. The study found that concentrations of all organochlorines except PCBs appeared to have declined since the mid 1980s, and eggshell thicknesses were statistically indistinguishable from those of pre-1932 museum eggs (Schwarzbach *et al.*).

Predators. Dikes and levees serve as corridors for predators to access clapper rail habitats. Most predation occurs during the higher tides, when tidal channels are full of water and much of the vegetation is flooded; very high tides are more common in the wintertime (Albertson, 1996). At least 12 native and 3 non-native species prey on the clapper rail throughout its lifespan (Medlin/USFWS, 1996). The non-native red fox (*Vulpes fulva*), Norway rat (*Rattus norvegicus*), and feral cats (*Felis domesticus*), are particular threats. To manage red fox predation, deemed potentially the most serious threat to clapper rail populations, the San Francisco Bay National Wildlife Refuge in 1991 implemented a predator management program, which has been somewhat successful. The program includes predator barriers, removal, and habitat management to make it less suitable for the predators. In addition, riprap installed along shorelines provides habitat for Norway rats, which prey on clapper rail eggs. Urban development close in to salt marsh habitat has increased predation by native raccoons, and electric power transmission lines that cross marsh habitats, provide hunting perches for raptors.

The U.S. Department of Agriculture Animal and Plant Health Inspections Service Wildlife Services (WS) entered into a cooperative agreement with the city of Redwood City to conduct predator management activities at Redwood Shores Peninsula to protect the California clapper rail and salt marsh harvest mouse from mammalian predators. The agreement is part of a requirement of the USFWS Biological Opinion dated September 5, 1996, regarding the Endangered Species Formal Consultation on the Redwood Shores Levee Improvement Project (Medlin/USFWS, 1996). Predator management activities began May 22, 2000, and have continued to the present. The following table summarizes information on the predators trapped by WS, based on periodic letter reports from WS to Mr. Peter Vorametsanti, Senior Civil Engineer, Redwood City (WS, 2000a, 2000b; 2001, 2002, 2004a, 2004b):

Mammalian Predators Trapped at Redwood Shores Peninsula, May 22, 2000 – December 31, 2003

Inclusive Dates	Number & Type of Predators Trapped	Disposition of Predators (following transport to PHS)*
FY 2000 (October 1, 1999 – September 30, 2000)	12 feral cats (*Felis domesticus*), 4 raccoons (*Procyon lotor*), & 1 striped skunk (*Mephitis mephitis*).	2 cats returned to owners, 3 cats adopted, 5 cats euthanized, 1 pending at time of report, 1 escaped; 3 raccoons & 1 skunk microchipped and released w/in 3 miles of capture site per CDFG policy; 1 raccoon euthanized.
FY 2001 (October 1, 2000 – September 30, 2001)	6 feral cats, 2 raccoons.	1 cat returned to owner, 3 cats adopted, 1 injured cat euthanized; 1 raccoon euthanized, as it had been captured the preceding year; 1 raccoon microchipped and released w/in 3 miles of capture site per CDFG policy
FY 2002 (October 1, 2001 – September 30, 2002)	12 feral cats, 5 raccoons, 1 skunk.	9 cats turned over to the Homeless Cat Network; 1 cat euthanized because it would not adapt to captivity; disposition of 2 cats is unknown; 4 raccoons and 1 skunk microchipped and released w/in 3 miles of capture site per CDFG policy; 1 raccoon euthanized because it had symptoms of distemper.
FY 2003 (October 1, 2002 – September 30, 2003)	3 feral cats, 4 raccoons.	2 cats returned to owners; 1 cat euthanized as too sick or wild to rehabilitate; 4 raccoons microchipped and released w/in 3 miles of capture site per CDFG policy
October 1, 2003 – December 31, 2003)	2 raccoons	2 raccoons microchipped and released w/in 3 miles of capture site per CDFG policy

* Peninsula Humane Society.

In addition to the trapping described in the table above, predator management personnel have monitored the levee for signs of predators and observed nocturnal predator activity through periodic spotlight surveys. The following summarizes observations reported in WS's annual or quarterly reports to Redwood City:

- *Signs of predators*: Canine tracks and scat of domestic dogs have been frequently observed. In September 2000, tracks and scat of red fox were observed on the levee. Recent reports indicate that some predators are showing trap shyness; predator tracks circling traps have been observed, with predators not entering the traps.
- *Nocturnal observations*: Observations include: feral cats hunting in the marsh, on the levee, and in section H; eye shine of predators in section H; raccoons, skunks and red fox hunting in the marsh, on the levee, and in section H.
- *Direct observations*: October 8, 2002, WS personnel observed a red fox outside the Marine Parkway entrance on the west side of the site; the fox crossed under a fence and proceeded into section H. As of December 31, 2003, there have been no further confirmed observation s of red fox in the area, although WS personnel have observed eye shine of unidentified predators in section H.

- *Trespassers*: WS staff encounter trespassers who walk and ride bicycles around gates or through holes cut in the fences. Trespassers have been observed after sunset and before sunrise. WS staff have occasionally been unable to access the property due to problems with gates and locks, and there have been instances where WS personnel have found gates left open. Additionally, WS equipment has been tampered with, including occurrences of traps being closed or with bait missing that can be attributed to tampering by humans or animals.

- *Recommendations*: WS has recommended (1) extending fencing from the gates down into the water to exclude trespassers and dogs and (2) more generally, improving fencing to limit access to the site.

Interaction with humans. Hman -related disturbance during construction or similar activities occurring during the clapper rail breeding season, if too near individual rails and nests, "could result in increased competitive interactions, territory boundary shifts, or territory abandonment," suggesting that "increased human activity and associated noise within a rail's established territory can significantly alter the normal behavioral patterns of rails during the breeding season, possibly resulting in extensive movements, lack of reproductive success, or territorial abandonment" (Medlin/USFWS, 1996). Appropriate mitigation would include working between September 1 and February 1, except during periods of extreme high tides, when heightened predator activities have been observed.

Studies have found that as the level of human activity increases in sensitive areas, the width of buffer zones needs to be increased proportionally to minimize disturbance. Albertson and Evens (2000) state that human disturbance from "recreational use, utilities maintenance, and high-intensity adjacent uses can disturb rails and cause homerange abandonment with subsequent nesting failure." Another effect of increased human activity is a potential increase in the number and types of predators, drawn by increased food availability. Medlin (1996) cites the example of the clapper rail population along the Greenbrae boardwalk in the Corte Madera Ecological Preserve: four rail breeding territories were documented there in 1983; in 1993, no rail breeding territories were identified, although rail habitat conditions remained unchanged. Disappearance of breeding territories was attributed to a greater number of domestic and feral dogs and cats in the area due to an increase in the residential population.

Recovery Plan. *Salt Marsh Harvest Mouse and California Clapper Rail Recovery Plan.* 1984. The Tidal Marsh Ecosystem Recovery Plan, which is under development, will supersede the 1984 plan. The 1984 recovery plan focused on restoration and enhancement of salt marsh habitat to benefit the rail. The plan identifies Inner Bair Island and parts of neighboring Middle and Outer Bair islands as a "Priority 1" area for restoration as habitat essential to the survival and recovery of the clapper rail (Recovery Task 1224). "Priority 1" actions "must be completed to avert an irreversible population decline or extinction of the species" (Medlin/USFWS, 1996).

Bair Island is to be protected in perpetuity as part of the Don Edwards San Francisco Bay National Wildlife Refuge. In March 1999, the Peninsula Open Space Trust (POST), through private fund-raising, together with federal and state funds already in place, purchased 1,626 acres of Bair Island, which means that the entire 3,200 acre island can become protected habitat (POST, 1999).

Recent Bird Counts In the Redwood Shores Area

Clapper rail winter surveys completed annually in the Redwood Shores area between 1995-1996 and 2000-2001 found the following birds:

Location	Year						
	1995-1996	1996-1997	1997-1998	1998-1999	1999-2000	2000-2001	2001-2002
Belmont Slough	No survey	No survey	No survey	5	5	4	No survey
Bird Island	2*	1*	3*	0*	3	9	No survey
Redwood City Levee	3*	4	2	4	1	2	No survey
Redwood City Marsh	No survey	0*	0*	1	0	0	No survey
Steinberger Slough	No survey	0*	0*	0*	No survey	0*	No survey
Bair Island**	10	3	3	13	21	No survey	No survey

* Survey incomplete due to poor tides.

** Survey conducted by California Department of Fish and Game.

Recent clapper rail population estimates for the entire South Bay are as follows:

California Clapper Rail South Bay Population Estimates*

Year	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00	00/01	01/02
Average	250	545	600	600	550	550	675	650	650	550	550
Low	200	--	--	--	500	500	650	600	600	500	500
High	300	--	--	--	600	600	700	700	700	600	600

* Source: Joy Albertson, SF Bay National Wildlife Refuge Complex, 510-792-0222; 99/00, 00/01, 01/02 data from Joy on 1/18/02. Decrease in the South Bay Clapper Rail numbers only; other locations are doing better, thus Joy believes something is happening locally to decrease the population.

References:

Albertson, Joy. 1996. Restoring salt marsh habitat for the recovery of California clapper rails. *Tideline*. Vol 16 No. 4 1-3.

Albertson, Joy D., and Jules G. Evens. 2000. California Clapper Rail *in* Goals Project's *Baylands Ecosystem Species and Community Profiles*: Life Histories and Environmental Requirements for Key Plants, Fish and Wildlife. Prepared by the San Francisco Bay Area Wetlands Ecosystems Goals Project. P.R. Olafson, editor. San Francisco Bay Regional Water Quality Control Board, Oakland, California.

California Department of Fish and Game, Habitat Conservation Planning Branch. 2000. The Status of Rare, Threatened, and Endangered Animals and Plants in California, California Clapper Rail.

California Department of Water Resources Interagency Ecological Program. California Clapper Rail, in Wildlife of the Suisun Marsh. On-line at http://iep.water.ca.gov.

California State Coastal Conservancy and the U.S. Fish and Wildlife Service. 2003. *Final Programmatic Environmental Impact Statement/Environmental Impact Report, San Francisco Estuary Invasive Spartina Project: Spartina Control Program*. September.

Erlich, Paul R., D.S. Dobkin, & D. Wheye. 1992. *Birds in Jeopardy: The Imperiled and Extinct Birds of the United States and Canada, Including Hawaii and Puerto Rico.* Stanford, California: Stanford University Press.

Garrison, Bob. 2000. Clapper Rails, in *Outdoor California.* March/April.

Goude, Cay.C. 2002. Endangered Species Formal Consultation on the Proposed Foster City Lagoon Dredge Disposal Project, Foster City, San Mateo County, California (Corps No. 22149S). U.S. Fish and Wildlife Service, Sacramento Field Office. July 18. Letter to Mr. Calvin C. Fong, Chief, Regulatory Branch, U.S. Army Corps of Engineers, San Francisco District.

Harvey, T. Clapper Rail, on-line at California Department of Fish and Game, California Interagency Wildlife Task Group. http://www.dfg.ca.gov/whdab/html/B144.html.

LSA Associates, Inc. 2004. California Clapper Rail, in *Solano HCP/NCCP*, Solano County Water Agency, Species Descriptions. March.

Medlin, Joel A. 1996. Endangered Species Formal Consultation on the Redwood Shores Levee Rehabilitation Project; Steinberger, Belmont, and Bay Sloughs and San Francisco Bay; Redwood City, Can Mateo County, California (Public Notice No. 19783S49). U.S. Fish and Wildlife Service, Sacramento Field Office. September 5. Letter to Lt. Col. Richard G, Thompson, District Engineer, U.S. Army Corps of Engineers, San Francisco District.

Peninsula Open Space Trust. 1999. Bair Island: You Did It! in *Landscapes.* Summer.

Schwarzbach, S.E., J.D. Henderson, C.M. Thomas, and J.M. Albertson. Organochlorine Concentrations and Eggshell Thickness in Failed Eggs of the California Clapper Rail from South San Francisco Bay, in *The Condor.* Vol. 103, No. 3, pp.620-624. No date. On-line at http://www.bioone.org.

South Bay Salt Pond Restoration Project, on-line at http://www.southbayrestoration.org/index.html.

Thelander, Carl. G. 1994. *Life on the Edge: The Endangered Wildlife of California.* Santa Cruz, California: Biosystems Books.

U.S. Department of Agriculture Animal and Plant Health Inspections Service Wildlife Services , San Luis District (WS). 2000a. *Annual Report for Redwood Shores.* Letter report from Mark A. Jensen, District Supervisor, to Peter Vorametsanti. January 11.

_____. 2000b. *Annual Report for Redwood Shores.* Letter report from Mark A. Jensen, District Supervisor, to Peter Vorametsanti, Senior Civil Engineer, City of Redwood City. October 23.

_____. 2001. *Annual Report for Redwood Shores.* Letter report from Joe R. Bennett, Acting District Supervisor, and Brian Popper, Wildlife Specialist, to Peter Vorametsanti, Senior Civil Engineer, City of Redwood City. October 01.

_____. 2002. *Annual Report for Redwood Shores.* Letter report from Brian Popper, Wildlife Specialist, and Joe Bennett, District Supervisor, to Peter Vorametsanti, Senior Civil Engineer, City of Redwood City. December 04.

_____. 2004a. *Annual Report for Redwood Shores.* Letter report from Brian Popper, Wildlife Specialist, and Joe Bennett, District Supervisor, to Peter Vorametsanti, Senior Civil Engineer, City of Redwood City. January 12.

_____. 2004b. *Redwood Shores Predator Management Quarterly Report (Oct. 1 – Dec.31, 2003).* Letter report from Brian Popper, Wildlife Specialist, and Joe Bennett, District Supervisor, to Peter Vorametsanti, Senior Civil Engineer, City of Redwood City. April 08.

U.S. Fish and Wildlife Service, Sacramento Fish and Wildlife Office. Species Account: California Clapper Rail. On-line at http://sacramento.fws.gov/es/animal_spp_acct/clapper_rail.htm.

U.S. Geological Survey, Patuxent Wildlife Research Center. Biological and Ecotoxicological Characteristics of Terrestrial Vertebrate Species Residing In Estuaries, Clapper Rail. On-line at http://www.pwrc.usgs.gov/resshow/rattner/bioeco/clapper.htm.

Salt Marsh Harvest Mouse (*Reithrodontomys raviventris raviventris*) in the Redwood Shores Area*

Perennial inhabitant of greater San Francisco Bay tidal marshes.

Federal endangered species: 35 *Federal Register* 16047 – 16048 (13 October 1970).
California endangered species: Title 14, *California Code of Regulations*, § 670.5 (27 June 1971).

Salt marsh harvest mice are members of the Cricetidae family, which includes field mice, lemmings, muskrats, hamsters, and gerbils (USFWS-Sacramento). There are two subspecies of salt marsh harvest mouse. The northern subspecies, *Reithrodontomys raviventris haliocoetes*, is found in Marin, Napa, Sonoma, Solano, and northern Contra Costa counties. The southern subspecies, *R. r. raviventris*, occurs in San Mateo, Alameda, and Santa Clara counties, and in disjunct areas on the Marin peninsula. In the South Bay, populations of *R.r. raviventris* primarily occur south of a imaginary line across the Bay from Redwood City to Hayward. The two subspecies show some differences in chromosome shape, which may indicate that "genetic isolating mechanisms are beginning to form between them" (Shellhammer, 2000). This report addresses the southern subspecies, *R.r. raviventris*.

Description. Salt marsh harvest mice are among the smallest rodents in the U.S. Their bodies are 69 to 76 mm long (2.75 to 3 inches) and they weigh 8 to 12 grams (0.3 ounce), somewhat less than a nickel. The species name, *Reithrodontomys raviventris*, means groove-toothed mouse with a red belly (Shellhammer, 1998). Their backs are dark brown, their bellies and sides are pinkish-cinnamon to tawny (Cal/EPA DPR, on line). The mouse's tail can be bicolored and as long as or longer than the body.

The Salt marsh harvest mouse is similar to the western harvest mouse, but has darker ears and dorsal areas; tails that are thicker, less pointed, and more uniform in color; and frequently darker bellies. *R. r. raviventris* has a cinnamon orange or rufous color on the venter.

Habitat. Salt marsh harvest mice require dense cover (USFWS-Sacramento). Preferred habitat is tidal and diked coastal salt marshes characterized by dense growth of pickleweed (*Salicornia virginica*). They are seldom found in cordgrass or alkali bulrush. Adjacent grasslands are also used by the mice, according to the Cal/EPA DPR, when new grass growth provides suitable cover.

A University of Vermont Faxonomia report (Vermont 1996) describes preferred habitat for the mouse as having the following characteristics:

- Areas having 100 percent cover.
- Depth of vegetation at summer maximum of 30 – 50 cm.
- Vegetation composed of 100 percent pickleweed to 50 percent pickleweed with other halophytes, particularly fat hen (*Atriplex patula*) and alkali heath (*Franklin grand folia*).
- Few to no areas of salt grass (*Disticlis spicata*), brass buttons (*Cotula coron opifolia*), alkali bulrush, other *Scirpus* species or *Typha.*
- Large marsh areas.
- No openground or water bifurcating the vegetation.
- Minimal disruption.

In marshes where there is an adjacent zone of salt-tolerant plants, the mice will use this zone to escape form higher tides, and "may even spend a considerable portion of their lives there," as well as in adjoining grasslands (USFWS-Sacramento).

Migration and Home Ranges. There is some movement from pickleweed marsh to higher grasslands in the spring and summer, or when plant cover provides escape from predators. This behavior appears to occur daily, rather than as shifts in habitat (CDFG on line). According to Shellhammer (1977 in CDFG online), individual mice do not move between marshes. However, Bias and Morrison (1999) found that the mice readily cross barren dikes, roads, and tidal channels greater than 2 meters wide (Bias, 2001). Similarly, Geissel *et al.* 1988) observed that barren areas do not serve as effective barriers to movements between populations of the mice (Bias 2001). Bias and Morrison found that the greatest distances traveled by the mice occur in June (Bias 2001).

Geissel reported home ranges of the mice to be approximately 1,550 m^2 in males and about 1,300 m^2 in females (cited in Bias 2001); Bias and Morrison found ranges approximately 150 percent larger (cited in Bias 2001), although different techniques were employed in the two studies. Both Geissel and Bias and Morrison reported that males move farther than females (caducks.org). In narrow elongated marshes, ranges appear to be smaller; in one marsh north of Alviso, Rice (n.d., cited in fwie.fw.vt.edu) observed home ranges varying from 20 to 300 meters long by 5 meters wide, i.e., 100 m^2 to 1,500 m^2, with most ranges in the 100 to 150 m^2 range.

Feeding. Salt marsh harvest mice are presumed to feed on seeds, grasses, and forb. Pickleweed and salt grass are the most common foods, with fresh green grasses the food of choice in the winter (Cal/EPA DPR online). They have longer intestines than the western harvest mouse (USFWS-Sacramento), indicative of a primarily herbivorous diet (CDFG on line).

They are capable of drinking salt water, as well as brackish and freshwater (Cal/EPA DPR online). Although the northern subspecies can drink pure seawater, the southern subspecies cannot subsist solely on sea water; however, R. r. raviventris prefers moderately salty water over fresh (USFWS-Sacramento).

Reproduction. The mice breed from spring to fall, having one to two litters per year (Cal/EPA DPR online). The breeding season for *R. r. raviventris* begins in March. An average female will have one litter of three to four young, although some may have two litters (Shellhammer, 1998). Fisler (1995), cited in LSA (2004), indicates that the southern subspecies may have two litters per year, but that the shorter (May forward) breeding season in the northern subspecies typically limits breeding to one litter per season.

Unlike the northern subspecies, which builds nests of grass or uses abandoned birds' nests, the southern subspecies often do not make nests at all (USFWS-Sacramento); rather, they may construct "loosely organized structures of dry grasses" (LSA 2004)
Little genetic information is available (Shellhammer, 1998), nor is there available information regarding weaning or the age of sexual maturity (Cal/EPA DPR online).

Lifespan. Because of their small size, they are not long-lived; a span of nine months is exceptional (Shellhammer, 1998).

Behavior. Salt marsh harvest mice are"... much calmer-acting than their grassland cousins, the western harvest mice, and most other mice. . . (Shellhammer, 1998). Shellhammer (2000) terms their behavior "placid," to the extent that their behavior is used as a secondary criterion for characterizing them to the species level.

Salt marsh harvest mice are quite buoyant because their fur does not get saturated quickly, and they are good swimmers and climbers (Cal/EPA DPR online). During the highest water tides, they move into higher grasslands (Veloz 2003)

They are primarily nocturnal, but under laboratory conditions, they have been observed to be active at twilight or before sunrise (Cal/EPA DPR online). *R. r. raviventris* can become torpid, especially in the early morning; neither the northern subspecies nor the closely related western harvest mouse exhibits this behavior (CDFG on line)
They are active all year round (Cal/EPA DPR online).

Ecological threats. The 1984 USFWS Recovery Plan listed the principal reasons for the decline of the salt marsh harvest mouse: habitat loss, fragmentation of remaining marshes, widespread loss of the high marsh zone through backfilling, land subsidence, and changes in vegetation. Over the long term, the mice may be threatenedby a sea level rise as great as 1.2 meters predicted to occur within the next 100 years, which could result in a permanent decrease in marsh habitat. In addition, upstream water diversions and/or dams reduce sediment supply per habitat by 45 percent, according to one estimate (DWR IEP). Changes in water salinity, which impact the saline vegetation that is primary habitat for the mouse. Additionally predators contribute to the decline of the mouse.

Dilution of salt water. San Jose's sewage treatment plant pumps about 120 million gallons per day of treated water into San Francisco Bay near Alviso, which can dilute the salt content of the marshes, ultimately changing marsh ecology. The salt water turns brackish, causing some plants and animals to die off, including pickleweed, a necessity for salt marsh harvest mice (Rendon 1999).

Predators. With development around the Bay margin, access to salt marsh harvest mice by predators such as feral and house cats and red foxes has become easier. Native predators include hawks, owls, heron, and clapper rails (Shellhammer, 1998). Other predators include egrets and night herons (Cal/EPA DPR online).

Mammalian Predators Trapped at Redwood Shores Peninsula, May 22, 2000 – December 31, 2003

Inclusive Dates	Number & Type of Predators Trapped	Disposition of Predators (following transport to PHS)*
FY 2000 (October 1,	12 feral cats (*Felis*	2 cats returned to owners, 3 cats adopted, 5

Mammalian Predators Trapped at Redwood Shores Peninsula, May 22, 2000 – December 31, 2003

Inclusive Dates	Number & Type of Predators Trapped	Disposition of Predators (following transport to PHS)*
1999 – September 30, 2000)	*domesticus*), 4 raccoons (*Procyon lotor*), & 1 striped skunk (*Mephitis mephitis*).	cats euthanized, 1 pending at time of report, 1 escaped; 3 raccoons & 1 skunk microchipped and released w/in 3 miles of capture site per CDFG policy; 1 raccoon euthanized.
FY 2001 (October 1, 2000 – September 30, 2001)	6 feral cats, 2 raccoons.	1 cat returned to owner, 3 cats adopted, 1 injured cat euthanized; 1 raccoon euthanized, as it had been captured the preceding year; 1 raccoon microchipped and released w/in 3 miles of capture site per CDFG policy
FY 2002 (October 1, 2001 – September 30, 2002)	12 feral cats, 5 raccoons, 1 skunk.	9 cats turned over to the Homeless Cat Network; 1 cat euthanized because it would not adapt to captivity; disposition of 2 cats is unknown; 4 raccoons and 1 skunk microchipped and released w/in 3 miles of capture site per CDFG policy; 1 raccoon euthanized because it had symptoms of distemper.
FY 2003 (October 1, 2002 – September 30, 2003)	3 feral cats, 4 raccoons.	2 cats returned to owners; 1 cat euthanized as too sick or wild to rehabilitate; 4 raccoons microchipped and released w/in 3 miles of capture site per CDFG policy
October 1, 2003 – December 31, 2003)	2 raccoons	2 raccoons microchipped and released w/in 3 miles of capture site per CDFG policy

* Peninsula Humane Society.

In addition to the trapping described in the table above, predator management personnel have monitored the levee for signs of predators and observed nocturnal predator activity through periodic spotlight surveys. The following summarizes observations reported in WS's annual or quarterly reports to Redwood City:

- *Signs of predators*: Canine tracks and scat of domestic dogs have been frequently observed. In September 2000, tracks and scat of red fox were observed on the levee. Recent reports indicate that some predators are showing trap shyness; predator tracks circling traps have been observed, with predators not entering the traps.
- *Nocturnal observations*: Observations include: feral cats hunting in the marsh, on the levee, and in section H; eye shine of predators in section H; raccoons, skunks and red fox hunting in the marsh, on the levee, and in section H.
- *Direct observations*: October 8, 2002, WS personnel observed a red fox outside the Marine Parkway entrance on the west side of the site; the fox crossed under a fence and proceeded into section H. As of December 31, 2003, there have been no further confirmed observation s of red fox in the area, although WS personnel have observed eye shine of unidentified predators in section H.
- *Trespassers*: WS staff encounter trespassers who walk and ride bicycles around gates or through holes cut in the fences. Trespassers have been observed after sunset and before sunrise. WS staff have occasionally been unable to access the property due to problems with gates and locks, and

there have been instances where WS personnel have found gates left open. Additionally, WS equipment has been tampered with, including occurrences of traps being closed or with bait missing that can be attributed to tampering by humans or animals.

- *Recommendations*: WS has recommended (1) extending fencing from the gates down into the water to exclude trespassers and dogs and (2) more generally, improving fencing to limit access to the site.

Recovery Plan. *Salt Marsh Harvest Mouse and California Clapper Rail Recovery Plan.* 1984. The Tidal Marsh Ecosystem Recovery Plan, which is under development, will supersede the 1984 plan. The 1984 recovery plan focused on restoration and enhancement of salt marsh habitat to benefit the rail. The plan identifies Inner Bair Island and parts of neighboring Middle and Outer Bair islands as a "Priority 1" area for restoration as habitat essential to the survival and recovery of the clapper rail (Recovery Task 1224). "Priority 1" actions "must be completed to avert an irreversible population decline or extinction of the species" (Medlin/USFWS, 1996).

Bair Island is to be protected in perpetuity as part of the Don Edwards San Francisco Bay National Wildlife Refuge. In March 1999, the Peninsula Open Space Trust (POST), through private fund-raising, together with federal and state funds already in place, purchased 1,626 acres of Bair Island, which means that the entire 3,200 acre island can become protected habitat (POST, 1999).

References:

Bias, M.A. 2001. "Conservation and ecology of the Salt Marsh Harvest Mouse," in *Valley/Bay Habitats*. Fall. Produced by Ducks Unlimited, Inc., Western Regional Office. On line at www.caducks.org/Habitats%20Fall%202001.pdf.

California Department of Fish and Game, Habitat Conservation Planning Branch. 2000. The Status of Rare, Threatened, and Endangered Animals and Plants in California, Salt Marsh Harvest Mouse. On line at http://dfg.ca.gov/hcpb.

California Department of Fish and Game, California Interagency Wildlife Task Group. Salt Marsh Harvest Mouse. On line at http://dfg.ca.gov/whdab/html/M114.html.

California Department of Water Resources Interagency Ecological Program. Salt Marsh Harvest Mouse in Wildlife of the Suisun Marsh. On-line at http://iep.water.ca.gov.

LSA Associates, Inc. 2004. "Salt Marsh Harvest Mouse," in *Solano HCP/NCCP*, Solano County Water Agency, Species Descriptions. March.

Peninsula Open Space Trust. 1999. Bair Island: You Did It! in *Landscapes*. Summer.

Rendon, Jim. 1999. "Mouse Pad, The salt marsh harvest mouse holds onto its habitat for dear life," on line at www.metroactive.com/papers/metro/11.24.99/cover/species6-9947.html.

Shellhammer, Howard. 1998. "A Marsh is a Marsh is a Marsh. . . But not Always to a Salt Marsh Harvest Mouse." *Tideline*, Vol. 18, No. 4 1-3, online at http://desfbay.fws.gov/Archives/Salty/salty.htm.

Shellhammer, Howard S. 2000. "Salt Marsh Harvest Mouse," in *Goals Project. Baylands Ecosystem Species and Community Profiles: Life histories and environmental requirements of key plants, fish and wildlife.* Prepared by the San Francisco Bay Area Wetlands Ecosystem Goals Project. P.R. Olofson, editor. San Francisco Bay Regional Water Quality Control Board, Oakland, CA.

South Bay Salt Pond Restoration Project, on-line at http://www.southbayrestoration.org/index.html.

U.S. Department of Agriculture Animal and Plant Health Inspections Service Wildlife Services , San Luis District (WS). 2000a. *Annual Report for Redwood Shores.* Letter report from Mark A. Jensen, District Supervisor, to Peter Vorametsanti. January 11.

_____. 2000b. *Annual Report for Redwood Shores.* Letter report from Mark A. Jensen, District Supervisor, to Peter Vorametsanti, Senior Civil Engineer, City of Redwood City. October 23.

_____. 2001. *Annual Report for Redwood Shores.* Letter report from Joe R. Bennett, Acting District Supervisor, and Brian Popper, Wildlife Specialist, to Peter Vorametsanti, Senior Civil Engineer, City of Redwood City. October 01.

_____. 2002. *Annual Report for Redwood Shores.* Letter report from Brian Popper, Wildlife Specialist, and Joe Bennett, District Supervisor, to Peter Vorametsanti, Senior Civil Engineer, City of Redwood City. December 04.

_____. 2004a. *Annual Report for Redwood Shores.* Letter report from Brian Popper, Wildlife Specialist, and Joe Bennett, District Supervisor, to Peter Vorametsanti, Senior Civil Engineer, City of Redwood City. January 12.

_____. 2004b. *Redwood Shores Predator Management Quarterly Report (Oct. 1 – Dec.31, 2003).* Letter report from Brian Popper, Wildlife Specialist, and Joe Bennett, District Supervisor, to Peter Vorametsanti, Senior Civil Engineer, City of Redwood City. April 08.

U.S. Fish and Wildlife Service, Sacramento Fish and Wildlife Office. Species Account: Salt Marsh Harvest Mouse. On-line at http://sacramento.fws.gov/es/animal_spp_acct/salt_marsh_harvest_mouse.htm

University of Vermont. 1996. Salt Marsh Harvest Mouse Taxonomy. On line at http://fwie.fw.vt.edu/www/esis/lists/e051004.htm

Veloz, F. 2002. "Reighrodontomys raviventris," on line at Animal Diversity web (http://animaldiversity.ummz.umich.edu/site/accounts/information/Reithrodontomys_raviventris.html)

1017 Middlefield Road
P.O. Box 391
Redwood City, California 94064-0391
Telephone (650) 780-7220
FAX (650) 261-9102
www.redwoodcity.org

Redwood City Goals for the Restoration of Bair Island

- Protect Species First.
- Provide Access and Opportunity for Handicapped and other Sensitive Sub-Populations consistent with the Refuge Mission.
- Create a Unique Educational Tool for Bay Area Students.
- Educate Citizens and Visitors to Refuges and Conservation Values.
- Form a Working Partnership for the Long-Term Security of the Refuge and Habitat for Endangered Species.
- Fulfill Long-standing Local and Regional Goals for Open Public Access.

1017 Middlefield Road
P.O. Box 391
Redwood City, California 94064-0391
Telephone (650) 780-7220
FAX (650) 261-9102
www.redwoodcity.org

Comparison of Bair Island Restoration Plans

Redwood City	FWS
Bridge Access to Refuge Means Greater Accessibility.	Use Existing NWRS Lot. Require Visitors to Traverse a Long Trail Enter Refuge.
Whipple Entrance for Emergency Use Only. Limit Predators by Limiting Open Access Points.	Maintains an Open Whipple St. Entrance Inviting Traffic Conflict and Predator Access.
Ramped Overlooks Designed To Accommodate Physically Challenged Citizens.	Special Accommodations for the Physically Challenged Not Addressed.
Human Intrusion Limited. Land Contours Designed to Maximize Views and Habitat.	Designed Overlooks Intrude on Critical Slough Intermix Zone.

Redwood City Enforcement of Pet Restrictions. Help Turn Inner Bair into an Island Again.	Does Not Address Predator Intrusion from Landward Boundary of the Refuge.
Uses Secondary Access to Reduce Emergency Response Time.	No Second Bridge to Protect Refuge from People.
Planned Parking Expansion Makes Group Visitations Possible and Accessible	Existing Parking Lot Inadequate for Refuge Uses.
Refuge Integrated Into the School System, the Health System and the Community.	Ignores the Urban Environment

1017 Middlefield Road
P.O. Box 391
Redwood City, California 94064-0391
Telephone (650) 780-7220
FAX (650) 261-9102
www.redwoodcity.org

Redwood City Recommendations

- Provide Easy Access to the Refuge
- Plan Now for Use Conflicts.
- Close the Whipple Street Refuge Entrance. STOP Predators at the Border.
- Use available dredge spoils to cut taxpayer cost.
- Inner Bair Transit – Walking Speed Only Please!
- Bridge Access to the Refuge means Security
- Safety and Enforcement go Hand in Hand
- Plan for those that don't need Obstacles.
- Protect the environmentally sensitive mixing zone. Use fill land contours to improve habitat and viewing.
- Protect the Habitat from the Public with Berm Walls.
- Eliminate Raptor Low Perch Opportunities by Removing Pilings.
- The Refuge is Right On Dogs.
- Protect Critical Infrastructure. Maintain SBCA Line.
- Redwood City Fire Department Standards Should be Met.

Comment
No. 6
Attachments

United States Department of the Interior

OFFICE OF THE SECRETARY
Washington, DC 20240

TAKE PRIDE in AMERICA

September 13, 2004

The Honorable Jeff Ira
Mayor
City of Redwood City
1017 Middlefield Road
P.O. Box 391
Redwood City, California 94064-0391

Dear Mayor Ira:

Thank you for your letter of July 14, 2004, regarding the planning process for the restoration of Bair Island, a portion of Don Edwards National Wildlife Refuge (Refuge). In response to your letter, we have taken steps to ensure that the planning process continues in a timely manner.

I also want to thank you for your willingness to work together as a partner with the Fish and Wildlife Service (Service) as we move forward with the planning process for restoration efforts on the Refuge. I share your goal "to preserve and protect what can possibly become the largest urban wildlife refuge in the Western United States."

As you are aware, the Service has developed a Draft Environmental Impact Statement (DEIS) covering the restoration of 1,600 acres of three segments of Bair Island (Outer, Middle and Inner Bair Island) as well as public access to the area. This DEIS is now available for public comment with a public meeting scheduled for September 22, 2004. I understand that the City has developed an alternative public access proposal for Inner Bair Island which will be considered along with the public access alternatives in that DEIS. In order to assure full public knowledge of this new alternative, the Service has asked the City to present this proposal at the public meeting. I encourage you to continue to work closely with the Service to develop a plan that, consistent with refuge purposes, achieves your goals of access for all citizens, environmental education, and conservation of important wildlife and habitat.

Your letter also mentioned the interests of the Port of Redwood City, the South Bayside System Authority and the San Carlos Airport in the Bair Island project. The Service has been working with the Port of Redwood City and the U.S. Army Corps of Engineers regarding use of dredge materials from future dredging projects for the Bair Island restoration. We believe this would be a mutually beneficial project for both the Port and the Refuge. The Service is also working with the System Authority to assure that maintenance of their sewer pipeline through the refuge is not interrupted and is working with the Airport to assure that their "safe zone" on Inner Bair Island remains both safe and accessible.

I believe the Bair Island restoration project will provide great benefits to both wildlife and the public in central and south San Francisco Bay and would be pleased to discuss this project further with you.

Sincerely,

Craig Manson
Assistant Secretary for Fish and Wildlife and Parks

Comment
No. 6
Attachments

7.A-1

REPORT

To the Honorable City Council
From the Mayor

September 13, 2004

Subject
Resolution adopting the "Redwood City Plan and Proposal" for the restoration of Inner Bair Island

Recommendation
Approve the Resolution adopting the "Redwood City Plan and Proposal" for the restoration of Bair Island and authorizing the Mayor and/or City Manager to submit the Plan to the appropriate federal authorities, to advocate on its behalf and to seek funding for implementation of the Plan

Background
Bair Island, part of the Don Edwards National Wildlife Refuge, encompasses approximately 3,000 acres of wetlands in San Francisco Bay at the foot of Whipple Road. The area is divided into three distinct portions: *Inner Bair Island* is connected to the mainland at Whipple Avenue at Highway 101. *Middle Bair Island* is separated from the inner island by Smith Slough, while Corkscrew Slough separates *Outer Bair Island* from the middle island.

This entire urban wildlife refuge is of inestimable importance to our community for both its inherent environmental, biological, and habitat values, as well as for its value as a beautiful and peaceful low-intensity recreational destination, attracting an estimated 250,000 visitors annually. The area is permanently preserved as an urban wildlife refuge.

The U.S. Fish and Wildlife Service and the California Department of Fish and Game are proposing to restore to natural tidal action some 1,400 acres of former salt ponds on Inner Bair Island, and have created a restoration plan to accomplish this objective. This is an important and commendable objective in that it will make great strides in restoring natural habitat for native plants and wildlife, including two endangered species.

Mayor Ira, Vice Mayor Pierce, and Councilmember Foust, as an ad-hoc committee, have been involved with and have closely monitored the development of the restoration plan, and note that the FWS plan, while wholly addressing the environmental and habitat issues, does not sufficiently incorporate Bair Island's value to the community as a low-intensity recreational destination, and does little to provide for what the City and the community would consider adequate public access.

The ad-hoc committee recognizes that this is an opportunity for the City to become a fully engaged partner in this project with the FWS and NWRS, and to ensure that the needs and desires of the local community are addressed in the final restoration plan.

To accomplish this partnership and best work toward the protection and public involvement and

7.A-2

appreciation of this irreplaceable natural treasure, the City hired a consultant, Mr. W.H. Fawcett of the law firm Perkins Coie (with specialists in environment and natural resources). The committee and Mr. Fawcett developed an alternative restoration plan to supplement and enhance the FWS plan, and designed to offer full protection to Bair Island's inherent environmental features and habitat values, while providing the opportunity for low-intensity public access to and appreciation of the island's unique qualities.

It is the ad-hoc committee's belief that only through public involvement, education, and appreciation can the greater Redwood City and peninsula community gain a full understanding of Bair Island's environmental values and thereby embrace the need for long-term, sensitive stewardship of this open space, in the midst of an urban setting.

The FWS has scheduled a public hearing on September 22nd at 7:00 pm at the Veterans Memorial Senior Center to gather public input on the draft EIS/restoration plan. If it is the Council's desire, members of the ad-hoc committee will present the City's alternative plan at that meeting so that the City's concerns, comments, ideas, and desire to form a partnership for the long term management of Bair Island are made part of the official record. Following that hearing, the ad-hoc committee and staff will continue to work with the agencies involved in order to best represent the community's desires for the future of Bair Island.

Redwood City Community Development Services staff is in the process of formal review of the technical aspects of the FWS plan and its Draft Environmental Impact Statement/Environmental Impact Report, and will submit any resulting comments to the FWS prior to the close of the official comment period.

Bair Island is an integral part of our community, evoking powerful feelings in those who value and desire to protect its biological diversity, its environmental qualities, and its significance as wonderful place for people to escape from our hectic lives and renew our spirit. As this urban refuge is within Redwood City's jurisdiction, it is our responsibility to develop and propose options for its restoration and public use that we believe fully address community issues, and safeguard its endangered species and wildlife habitat.

Alternative
The Council could choose not to approve this resolution, and therefore accept the FWS restoration plan once it is finalized.

Fiscal Impact
There is no fiscal impact associated with the approval of this resolution.

Jeff Ira	Barbara Pierce	Rosanne Foust
Mayor	Vice Mayor	Councilmember

Attachments
Draft Resolution
September 2, 2004 Update Memo to Council
Fish and Wildlife Service Notice of Availability of Draft EIS/EIR
Redwood City Plan and Proposal for Bair Island

09/13/04

ORIGINAL

RESOLUTION NO. 14606

RESOLUTION ADOPTING THE "REDWOOD CITY PLAN AND PROPOSAL" FOR THE RESTORATION OF BAIR ISLAND AND AUTHORIZING THE MAYOR AND/OR THE CITY MANAGER TO SUBMIT THE PLAN AND PROPOSAL TO APPROPRIATE FEDERAL AUTHORITIES; TO ADVOCATE ON BEHALF OF THE PLAN; AND TO SEEK FUNDING FOR IMPLEMENTATION OF THE PLAN

WHEREAS, the National Wildlife Refuge System has caused to be prepared an Environmental Impact Statement (EIS) for the restoration of the Bair Island portion of the Don Edwards San Francisco Bay National Wildlife Refuge within the municipal boundaries of the City of Redwood City, as published in the Federal Register; and

WHEREAS, the stated objective of the Mayor and City Council of the City of Redwood City is to preserve and protect the endangered species and habitat on Bair Island and develop it into a part of what may be the largest urban wildlife refuge in the western United States; and

WHEREAS, the City of Redwood City has caused to be prepared a Redwood City Plan and Proposal for the rehabilitation, conservation, and public use of the Bair Island Refuge in order to integrate the refuge into the community and to bring community values, appreciation, and participation to bear in the development of a refuge plan; and

WHEREAS, the City of Redwood City believes that the Redwood City Plan and Proposal for Bair Island addresses the critical interface between the Bair Island Refuge and the urban center in which it is located, and offers the necessary protection to Bair Island's inherent environmental values, while providing the opportunity for low-intensity public access and appreciation of the island's unique qualities; and

WHEREAS, the City of Redwood City desires to form a partnership with the National Wildlife Refuge System and the United States Fish and Wildlife Service, to ensure that the needs and desires of the local community are addressed in the final restoration plan; and

WHEREAS, the City of Redwood City believes that the Plan and Proposal affirmatively addresses the needs of local and regional stakeholders in such a way as to create a legacy of conservation, environmental education, and habitat restoration within Redwood City.

NOW, THEREFORE, BE IT RESOLVED BY THE MAYOR AND CITY COUNCIL OF THE CITY OF REDWOOD CITY THAT:

Atty/Reso/Reso.1489
090904

14606
Muff # 304

Comment
No. 6
Attachments

09/13/04

SECTION 1. That the Redwood City Plan and Proposal, attached hereto and made a part of this resolution by reference, be adopted by the City Council of the City of Redwood City.

SECTION 2. That the Mayor and/or City Manager of the City of Redwood City be authorized to submit the Redwood City Plan and Proposal to the National Wildlife Refuge System and the United States Fish and Wildlife Service during the public comment period for the EIS; to advocate on behalf of the Redwood City Plan and Proposal; and to seek funding sources for implementation of the Redwood City Plan and Proposal.

* * *

Atty/Reso/Reso.1489
090904

14606
Muff # 304

Comment
No. 6
Attachments

Passed and adopted by the Council of the City of Redwood City at a Regular Meeting thereof held on the 13th day of September, 2004 by the following votes:

A YES, and in favor of the passage and adoption of the foregoing resolution,

Council members: Bain, Foust, Hartnett, Howard, Pierce, and Mayor Ira

NOES: Ruskin

ABSTAIN: None

ABSENT: None

JEFF IRA
Mayor of the City of Redwood City

Attest:

Patricia Howe
City Clerk of Redwood City

I hereby approve the foregoing resolution this 14th day of September, 2004.

JEFF IRA
Mayor of the City of Redwood City

14606

RESPONSES TO COMMENT NO. 6
REDWOOD CITY

Response to Comment 6-A
Redwood City's supplemental restoration plan and additional attachments to their letter have been incorporated into the environmental record. These comments are noted and may be considered by the CDFG and USFWS decision-makers in their evaluation of the project.

After a thorough review of the information included in this letter, and its attachments, the CDFG and USFWS concluded that some modifications to Alternative A (Proposed Action); (see pages 15-17 of this document) could be made that would be supportive of many of the "recommendations" made in this comment letter.

Comment No. 7

1017 Middlefield Road
P.O. Box 391
Redwood City, California 94064-0391
Telephone (650) 780-7220
FAX (650) 261-9102
www.redwoodcity.org

October 8, 2004

Clyde Morris
San Francisco Bay National Wildlife Refuge
P.O. Box 524
Newark, CA 94560

Dear Clyde:

Enclosed is a packet of letters and resolutions in support of Redwood City's *"Proposal and Plan for the Restoration of Bair Island."* Please include this information as part of the official public record of comments on the Draft Environmental Impact Statement/Environmental Impact Report for the Bair Island Restoration and Management Plan. In addition to the resolution passed by the City Council of Redwood City, I am including resolutions or letters from:

- San Mateo County Board of Supervisors
- City of San Carlos
- Sequoia Union High School District
- San Mateo County Community College District
- Redwood City School District
- Belmont/Redwood Shores School District
- Marine Science Institute
- South Bayside System Authority (water treatment plant)
- Port of Redwood City

7-A

We believe that this widespread support is indicative of the local and regional interest and commitment to making our plan a part of the Fish and Wildlife plan for restoration of Bair Island.

The City of Redwood City stands ready to work closely with the Fish and Wildlife Service and the National Wildlife Refuge System in ensuring that Bair Island is provided with the necessary restoration efforts, and the community which supports it is given the opportunity to fully appreciate and contribute to its unique and wonderful environmental qualities.

Sincerely,

Jeff Ira
Mayor

Oct-06-04 10:32am From-COUNTY OF SAN MATEO +6503631916 T-592 P.02/04 F-487

066960

RESOLUTION NO. _____

BOARD OF SUPERVISORS, COUNTY OF SAN MATEO, STATE OF CALIFORNIA

* * * * *

RESOLUTION SUPPORTING THE "REDWOOD CITY PLAN AND PROPOSAL" FOR THE RESTORATION OF BAIR ISLAND

RESOLVED, by the Board of Supervisors of the County of San Mateo, State of California, that

WHEREAS, efforts are underway for the restoration of the Bair Island portion of the Don Edwards San Francisco Bay National Wildlife Refuge to preserve and protect the endangered species and habitat on Bair Island and to develop the island into a part of one of the largest urban wildlife refuges in the western United States; and

WHEREAS, the City of Redwood City has prepared a "Redwood City Plan and Proposal" for the rehabilitation, conservation and public use of the Bair Island Refuge in order to integrate the refuge into the community and to bring community values, appreciation and participation to bear in the development of a refuge plan; and

WHEREAS, the County of San Mateo concurs with the City of Redwood City that the "Redwood City Plan and Proposal" offers the necessary protection to Bair Island's inherent environmental values, while providing the opportunity for public access and appreciation of the island's unique qualities; and

WHEREAS, the County of San Mateo supports the City of Redwood City's efforts to work collaboratively with the National Wildlife Refuge System and the United States Fish and Wildlife Service to ensure that the needs and desires of the local community are addressed in the final restoration plan; and

066960

Comment No. 7 Attachments

066960

NOW, THEREFORE, BE IT RES OLVED that the Board of Supervisors of the County of San Mateo, State of Californi hereby supports the "Redwood City Plan and Proposal" for the restoration of Bair Islar d for its balanced approach of enhancing the community's interest and physical and e ducational access to the island's pristine wildlife refuge while preserving and protecting t ie natural habitat and endangered species for future generations to enjoy.

: *****

066960

Comment No. 7 Attachments

066960

Regularly passed and adopted this 5th day of October, 2004

AYES and in favor of said resolution
Supervisors: MARK CHURCH

JERRY HILL

RICHARD S. GORDON

ROSE JACOBS GIBSON

MICHAEL D. NEVIN

NOES and against said resolution:
Supervisors: NONE

Absent Supervisors: NONE

Mark Church

President, Board of Supervisors
County of San Mateo
State of California

Certificate of Delivery

I certify that a copy of the original resolution filed in the Office of the Clerk of the Board of Supervisors of San Mateo County has been delivered to the President of the Board of Supervisors.

Barbara Heinaman

Barbara Heinaman, Deputy
Clerk of the Board of Supervisors

066960

City of San Carlos 10/6/2004 10:50 PAGE 2/3

RESOLUTION NO 2004 – 105

RESOLUTION OF THE CITY COUNCIL OF THE CITY OF SAN CARLOS SUPPORTING REDWOOD CITY'S PLAN FOR THE RESTORATION OF BAIR ISLAND

WHEREAS Bair Island part of the Don Edwards National Wildlife Refuge is one of the nation s premier urban wildlife refuges cherished by the citizens of the peninsula and the entire San Francisco Bay Area and

WHEREAS the Refuge contains sensitive wildlife habitat a variety of waterfowl shorebirds and other native wildlife including the endangered Clapper Rail and Salt Marsh Harvest Mouse provides its visitors with beautiful vistas to the San Francisco Bay the foothills and the east bay and is enjoyed through low-intensity public access by an estimated 250 000 visitors annually and

WHEREAS the United States Fish and Wildlife Service (FWS) has prepared a Restoration Plan for Inner Bair Island which will result in restoring the natural tidal flow to the island re-establishing it as natural tidal salt marsh recovering and creating crucial habitat realigning the trail layout and providing for a natural recovery of the entire site and for which a Draft Environmental Impact Statement/Environmental Impact Report (DEIS/EIR) has been prepared and is currently undergoing public review and

NOW, THEREFORE, BE IT RESOLVED that the City of San Carlos supports and endorses the Redwood City Plan for Restoration of Bair Island and urges the United States Fish and Wildlife Service and the National Wildlife Refuge System to accept and incorporate Redwood City s Plan into their restoration plan and hereby submits this endorsement into the official record as part of the public review process for the DEIS/EIR

I Christine D Boland hereby certify that this Resolution was passed and adopted by the City Council of the City of San Carlos at a regular meeting held on the 27th day of Sept 2004 by the following vote

AYES, COUNCILMEMBERS TIEGEL DOHERTY, DAVIDS, GROCOTT, KING

NOES, COUNCILMEMBERS NONE

ABSENT, COUNCILMEMBERS EATON

Christine D Boland
City Clerk of the City of San Carlos

APPROVED

MAYOR of the City of San Carlos

Comment
No. 7
Attachments

Sequoia Union High School District

480 JAMES AVENUE, REDWOOD CITY, CALIFORNIA 94062-1098

Administrative Offices (650) 369-1411

September 21, 2004

Refer to: PRG 513

Mayor Jeff Ira
City of Redwood City
1017 Middlefield Road
Redwood City, CA 94063

Dear Mayor Ira:

It is with pleasure that I write this letter to express the Sequoia Union High School District's support of Redwood City's Plan for the Restoration of Bair Island. As one of the nation's premier urban wildlife refuges, it is appealing that the City of Redwood City has approved a plan which includes the active involvement of residents as well as opportunities to educate students and others in the community about this sensitive habitat.

The City is to be commended for going beyond the standard Environmental Impact Report and creating a supplement which will enable controlled use of this wonderful natural resource. The Sequoia District is pleased that accommodations will be provided for student use in an environmental studies context. This is particularly important because many of our students would not be exposed to environmental concerns.

As always, I am impressed with the City's facility for working with other agencies such as the National Fish and Wildlife Service, Redwood City Fire Department, Redwood City Police Department, San Carlos Airport, Sequoia Union High School District, and Redwood City School District in protecting this delicate habitat while creating a plan which helps the community become better stewards of Bair Island.

Sincerely,

Patrick R. Gemma, Ed. D.
District Superintendent

Carlmont • Menlo-Atherton • Redwood • Sequoia • Woodside

Comment
No. 7
Attachments

SAN MATEO COUNTY
COMMUNITY COLLEGE DISTRICT

Office of the Chancellor

Cañada College, Redwood City
College of San Mateo, San Mateo
Skyline College, San Bruno

October 5, 2004

Mayor Jeff Ira
City of Redwood City
1017 Middlefield Road
Redwood City, CA 94063

Dear Mayor Ira,

I am writing to express the San Mateo County Community College District's support for the City of Redwood City's *Proposal and Plan for the Restoration of Bair Island*, which is part of the Don Edwards National Wildlife Refuge. We understand that the City's Plan will both enhance and complement the restoration plan developed by the United States Fish and Wildlife Service (USFWS), providing additional access and educational opportunities for County residents.

While the City's Plan is consistent with the purpose of the refuge and supports the protection and development of habitat for protected species, it will also provide appropriate low-intensity public access for sensitive sub-populations (handicapped, children, elderly) and offer new educational opportunities for our community. We particularly endorse the elements of the City's Plan that integrate Bair Island into school and education communities in order to offer a greater understanding and appreciation of the environmental treasures of the area. Our three Colleges—Cañada College, CSM, and Skyline College—would like to participate in the educational planning for the area.

The San Mateo County Community College District endorses the City's Plan and urges the United State Fish and Wildlife Service to incorporate this plan into the Service's restoration plan for Bair Island. We believe that the community will benefit greatly from this joint effort by the City and the USFWS to protect and enhance the irreplaceable natural features of Bair Island.

Sincerely,

Ron Galatolo
Chancellor

RG:kp

3401 CSM Drive, San Mateo, California 94402-3699 ◆ V:(650) 574-6550 F:(650) 574-6566

Comment
No. 7
Attachments

REDWOOD CITY SCHOOL DISTRICT
REDWOOD CITY, CA
Resolution 5 2004-2005
In Support of Redwood City Restoration Plan for Bair Island

Whereas, Bair Island, part of the Don Edwards National Wildlife Refuge, is one of the nation's premier urban wildlife refuges, cherished b the citizens of the peninsula and the entire San Francisco Bay Area; and

Whereas, the Refuge contains sensitive wildlife habitat, a variety of waterfowl, shorebirds, and other native wildlife including the endangered Clapper Rail and Salt Marsh Harvest Mouse, provides its visitors with beautiful vistas to the San Francisco Bay, the foothills, a the east bay, and is enjoyed through low-intensity public access by an estimated 250,000 visitors annually; and

Whereas, the protection of these sensitive habitats, the endangered species, and the other irreplaceable natural treasures on the site is of paramount importance to the communities in which it resides; and

Whereas, community involvement, education, access, and appreciation are crucial in order to best accomplish the maximum level of protection of the sensitive ecosystems that are part of Bair Island; and

Whereas, it is through this level of public involvement that the community will best gain a full understanding of Bair Island's environment values and thereby embrace the need for long-term, sensitive stewardship of this open space, in the midst of an urban setting; and

Whereas, the United States Fish and Wildlife Service (FWS) has prepared a Restoration Plan for Inner Bair Island, which will result in restoring the natural tidal flow to the island, re-establishing it as natural tidal salt marsh, recovering and creating crucial habitat, realigning t trail layout, and providing for a natural recovery of the entire site, and for which a Draft Environmental Impact Statement/Environmental Impact Report (DEIS/EIR) has been prepared and is currently undergoing public review; and

Whereas, in its duty and obligation to comment on the DEIS/EIR, the City of Redwood City has prepared an alternative Plan for restoratior which complements, enhances, and supplements that prepared by the FWS, and calls for a close working relationship between the FWS and the surrounding communities in order to move forward together to accomplish the mutual goals for long-term protection of the irreplaceable natural features of Bair Island; and

Whereas, as compared to the FWS plan, the City's Plan for the Restoration of Bair Island will:

- more appropriately provide for low-intensity public access and accessibility for sensitive sub-populations (children, handicapped, elderly, etc.)
- include enhanced protections against predators entering the island
- reduce the level of human intrusion on the very sensitive "slough intermix zone" of the site
- provide for improved enforcement of pet restrictions
- offer secondary access to reduce emergency response time
- plan for expansion of off-site parking areas to accommodate visitors more safely
- integrate Bair Island into the school and education communities in order to offer a greater understanding and appreciation throughout the community of the treasure of unique environmental and natural qualities of this priceless community asset, and thereby to enhance the quality of life for children, seniors, families, and our environment.

Now, therefore, be it resolved that the Redwood City School District Board of Education supports and endorses the "Redwood City Plan for Restoration of Bair Island" and urges the United States Fish and Wildlife Service and the National Wildlife Refuge System to accept and incorporate the City's Plan into their restoration plan, and hereby submits this endorsement into the official record as part of the public review process for the DEIS/EIR.

NOES AND AGAINST SAID RESOLUTION

IN FAVOR OF SAID RESOLUTION

Ronald F. Crates, Ed.D.
Secretary, Board of Trustees

Dated: September 22, 2004

Comment No. 7 Attachments

OCT-08-2004 10:14 P.02/02

2004-2005
BELMONT-REDWOOD SHORES SCHOOL DISTRICT

BAIR ISLAND WILDLIFE PLAN
RESOLUTION #9

WHEREAS, Bair Island, part of the Don Edwards National Wildlife Refuge, is one of the nation's premier urban wildlife refuges, cherished by the citizens of the Peninsula and the entire San Francisco Bay Area; and

WHEREAS, the Refuge contains sensitive wildlife habitat, a variety of waterfowl, shorebirds, and other native wildlife including the endangered Clapper Rail and Salt Marsh Harvest Mouse, provides its visitors with beautiful vistas to the San Francisco Bay, the foothills, and the East Bay, and is enjoyed through low-intensity public access by an estimated 250,000 visitors annually; and

WHEREAS, the protection of these sensitive habitats, the endangered species, and the other irreplaceable natural treasures on the site is of paramount importance to the communities in which it resides; and

WHEREAS, community involvement, education, access, and appreciation are crucial in order to best accomplish the maximum level of protection of the sensitive ecosystems that are part of Bair Island; and

WHEREAS, it is through this level of public involvement that the community will best gain a full understanding of Bair Island's environmental values and thereby embrace the need for long-term, sensitive stewardship of this open space, in the midst of an urban setting; and

WHEREAS, the United States Fish and Wildlife Service (FWS) has prepared a Restoration Plan for Inner Bair Island, which will result in restoring the natural tidal flow to the island, re-establishing it as natural tidal salt marsh, recovering and creating crucial habitat, realigning the trail layout, and providing for a natural recovery of the entire site, and for which a Draft Environmental Impact Statement/Environmental Impact Report (DEIS/EIR) has been prepared and is currently undergoing public review; and

WHEREAS, in its duty and obligation to comment on the DEIS/EIR, the City of Redwood City has prepared an alternative Plan for restoration which complements, enhances, and supplements that prepared by the FWS, and calls for a close working relationship between the FWS and the surrounding communities in order to move forward together to accomplish the mutual goals for long-term protection of the irreplaceable natural features of Bair Island; and

WHEREAS, as compared to the FWS plan, the City's Plan for the Restoration of Bair Island will:

- more appropriately provide for low-intensity public access and accessibility for sensitive sub-populations (children, handicapped, elderly, etc.)
- include enhanced protections against predators entering the island
- reduce the level of human intrusion on the very sensitive "slough intermix zone" of the site
- provide for improved enforcement of pet restrictions
- offer secondary access to reduce emergency response time
- plan for expansion of off-site parking areas to accommodate visitors more safely
- integrate Bair Island into the school and education communities in order to offer a greater understanding and appreciation throughout the community of the treasure of unique environmental and natural qualities of this priceless community asset, and thereby to enhance the quality of life for children, seniors, families, and our environment.

THEREFORE BE IT RESOLVED, that the Governing Board of the Belmont-Redwood Shores School District supports and endorses the "Redwood City Plan for Restoration of Bair Island" and urges the United States Fish and Wildlife Service and the National Wildlife Refuge System to accept and incorporate the City's Plan into their restoration plan, and hereby submits this endorsement into the official record as part of the public review process for the DEIS/EIR.

Regularly passed and adopted this 8th day of October 2004.

AYES AND IN FAVOR OF RESOLUTION	NOES AND AGAINST SAID RESOLUTION

APPROVED/FILED
Clerk of the Board

ABSENT:

MARINE SCIENCE INSTITUTE
DISCOVERING OUR BAY

Bair Island, part of the Don Edwards National Wildlife Refuge, is one of the nation's premier urban wildlife refuges, cherished by the citizens of the Peninsula and the entire San Francisco Bay Area. The Refuge contains sensitive wildlife habitat, a variety of waterfowl, shorebirds, and other native wildlife including the endangered Clapper Rail and Salt Marsh Harvest Mouse, provides its visitors with beautiful vistas to the San Francisco Bay, the foothills, and the east bay, and is enjoyed through low-intensity public access by an estimated 250,000 visitors annually.

Because the protection of these sensitive habitats, the endangered species, and the other irreplaceable natural treasures on the site is of paramount importance to the communities in which it resides, community involvement, education, access, and appreciation are crucial in order to best accomplish the maximum level of protection of the sensitive ecosystems that are part of Bair Island. It is through this level of public involvement that the community will best gain a full understanding of Bair Island's environmental values and thereby embrace the need for long-term, sensitive stewardship of this open space.

The United States Fish and Wildlife Service (FWS) has prepared a Restoration Plan for Inner Bair Island, which will result in restoring the natural tidal flow to the island, re-establishing it as natural tidal salt marsh, recovering and creating crucial habitat, realigning the trail layout, and providing for a natural recovery of the entire site, and for which a Draft Environmental Impact Statement/Environmental Impact Report (DEIS/EIR) has been prepared and is currently undergoing public review. The City of Redwood City has prepared an alternative Plan for restoration which complements, enhances, and supplements that prepared by the FWS, and calls for a close working relationship between the FWS and the surrounding communities in order to move forward together to accomplish the mutual goals for long-term protection of the irreplaceable natural features of Bair Island.

As compared to the FWS plan, the City's Plan for the Restoration of Bair Island will:

- more appropriately provide for low-intensity public access and accessibility for sensitive sub-populations (children, handicapped, elderly, etc.)
- include enhanced protections against predators entering the island
- reduce the level of human intrusion on the very sensitive "slough intermix zone" of the site
- provide for improved enforcement of pet restrictions
- offer secondary access to reduce emergency response time
- plan for expansion of off-site parking areas to accommodate visitors more safely
- integrate Bair Island into the school and education communities in order to offer a greater understanding and appreciation throughout the community of the treasure of unique environmental and natural qualities of this priceless community asset, and thereby to enhance the quality of life for children, seniors, families, and our environment.

The *Marine Science Institute* supports and endorses the "Redwood City Plan for Restoration of Bair Island" and urges the United States Fish and Wildlife Service and the National Wildlife Refuge System to accept and incorporate the City's Plan into their restoration plan, and hereby submits this endorsement into the official record as part of the public review process for the DEIS/EIR.

Sincerely,

Marilou Seiff
Executive Director
Marine Science Institute

500 Discovery Parkway • Redwood City, CA 94063-4746 • (650) 364-2760 • FAX: (650) 364-0416

Comment No. 7 Attachments

RESOLUTION NO. SBSA 04- 04-50

RESOLUTION SUPPORTING AND ENDORSING REDWOOD CITY PLAN FOR RESTORATION OF BAIR ISLAND

WHEREAS, Bair Island, located in the City of Redwood City, is included in the San Francisco Bay Don Edwards National Wildlife Refuge; and

WHEREAS, the United States Fish and Wildlife Service ("FWS") has prepared a Restoration Plan for Inner Bair Island ("FWS Plan") that includes restoring the Island as a tidal salt marsh wildlife habitat and the realignment of public trail access to the Island; and

WHEREAS, the FWS has prepared a Draft Environmental Impact Statement/Report ("DEIS/EIR") for the FWS Restoration Plan which is currently undergoing public review; and

WHEREAS, the South Bayside System Authority ("Authority") owns and operates a wastewater transmission force main that is located in a portion of Inner Bair Island, the physical integrity of which is essential to the preservation of the public health, welfare and safety; and

WHEREAS, the City of Redwood City has prepared an alternative restoration plan for Bair Island entitled, "Redwood City Plan for Restoration of Bair Island" ("Redwood City Plan"); and

WHEREAS, both the Redwood City Plan and the FWS Plan recognize the need to protect the Authority's force main; and

WHEREAS, this Commission supports the goal of the Redwood City Plan to recognize and respond to local public concerns and needs pertaining to the restoration of Bair Island;

NOW, THEREFORE;

BE IT RESOLVED BY THE COMMISSION OF SOUTH BAYSIDE SYSTEM AUTHORITY, as follows:

1. This Commission hereby supports and endorses the Redwood City Plan for Restoration of Bair Island as a tidal marsh wildlife habitat in the City of Redwood City and urges the United States Fish and Wildlife Service and the

Comment No. 7 Attachments

National Wildlife Refuge System to incorporate the provisions of the Redwood City Plan into the restoration of Bair Island to its natural condition.

2. The above support and endorsement is made and given upon the understanding that said restoration shall, in all necessary particulars, recognize and adhere to the property rights of the South Bayside System Authority with regard to its wastewater transmission force main located in Bair Island and that said restoration and the operation and maintenance of Bair Island as a wildlife refuge shall be conducted in such manner as to protect the physical integrity of said force main.

3. The Secretary of the Authority is hereby authorized and directed to transmit copies of this resolution to the U. S. Fish and Wildlife Service and to the National Wildlife Refuge System for inclusion in the official record of the FWS Plan DEIS/EIR review.

* * *

The foregoing resolution was duly passed and adopted by the Commission of South Bayside System Authority at a regular meeting thereof held on the 6th day of October 2004, by the following vote:

Comment No. 7 Attachments

AYES, and in favor of the passage and adoption of said Resolution:
Thomas J. Davids, San Carlos; Ronald W. Shepherd, West Bay Sanitary District; Coralin Feierbach, Belmont; Jeff Ira, Redwood City.

NOES, and against the passage and adoption of said resolution:
None.

ABSENT: None

SOUTH BAYSIDE SYSTEM AUTHORITY

By: _____
Chair

ATTEST:

_____
Secretary

Comment No. 7 Attachments

PORT OF REDWOOD CITY
San Francisco Bay

675 Seaport Boulevard
Redwood City, California 94063-2794
650 306 4150 FAX 650 369 7636
E-mail. portofrc@redwoodcityport.com

September 21, 2004

Mayor Jeff Ira
Members of the Redwood City Council
1017 Middlefield Road
Redwood City, CA 94064

Dear Mayor Ira:

The Port of Redwood City's closest "neighbor" throughout its history has been Bair Island. Over the years the Port has closely monitored the various plans and proposals for the use and environmental protection of Bair Island, including the current proposed inclusion of Bair Island in the Don Edward's National Wildlife Refuge.

Recently we have had the opportunity to review the City of Redwood City's Plan for the Restoration of Bair Island. On behalf of the Board of Port Commissioners, I would like to offer our support for the Redwood City Plan. The Plan presents a balance of protecting the environmental features of Bair Island while providing opportunities for low-intensity public access.

Of particular importance to the Port is that the Plan includes the beneficial reuse of dredged material from the Redwood City navigation channel to raise the level of Inner Bair Island and enhance the creation of tidal salt marsh. Approximately 1 million cubic yards of dredged material would be used to create 1,400 acres of tidal salt marsh. The restoration of this critical habitat for the clapper rail and other endangered species will occur much more quickly with the placement of dredged material than if the levees of Inner Bair Island were breached and sedimentation was to accumulate through tidal action.

As the City's Plan points out, the restoration of Bair Island using dredged material is a critical time sensitive issue for the Port. The Redwood City Channel must be regularly and adequately dredged in order to allow safe and efficient navigation for ships using the Port. Due to serious federal budget constraints, the Channel has not been dredged to its fully authorized depth of minus 30 feet in three years. This situation has caused shippers using the Port to delay shipments, light load vessels, and take other measures which have resulted in raising the cost of construction materials, including cement, which are shipped through the Port. The increased cost of construction materials is negatively impacting local and regional construction projects and the overall economic recovery.

RESPONSES TO COMMENT NO. 7
REDWOOD CITY

Response to Comment 7-A
Redwood City's resolution and other resolutions and letters to their letter have been incorporated into the environmental record. As stated in the cover letter from Redwood City, the purpose of the attached documents is to advocate for specific modifications to the project design not to address the analysis of the environmental impacts.

These comments are noted and may be considered by the CDFG and USFWS decision-makers in their evaluation of the project. Please note that the CDFG and USFWS have made modifications to Alternative A (Proposed Action); see pages 15-17 of this document. No further responses or analysis is required here, as this comment does not ask any questions regarding the factual information or environmental analysis in the EIS/EIR.

Comment
No. 8

WATER TRANSIT AUTHORITY

WTA

October 7, 2004

Mr. Clyde Morris
Refuge Manager
Don Edwards San Francisco Bay NWR
U.S. Fish and Wildlife Service
P.O. Box 524
Newark, CA 94560

Dear Clyde,

On behalf of the San Francisco Bay Area Water Transit Authority (WTA), I am writing to submit our agency's comments about the *Draft Environmental Impact Statement/Environmental Impact Report* regarding the Bair Island Restoration and Management Plan prepared by the U.S. Fish & Wildlife Service and the California Department of Fish & Game.

As you know, the WTA's Implementation & Operations Plan adopted by the State of California in 2003 includes a new water-transit route between Redwood City and San Francisco. Additionally, we are continuing to study the viability of service between Redwood City and the East Bay.

8-A

As part of our study process mandated by the State of California, the WTA produced a Program EIR of our proposed new and expanded ferry service, including the Redwood City service. This environmental document was certified in 2002.

Our Program EIR contains a number of findings that were adopted by the WTA's Board of Directors which will guide the operations of new ferry service, and, we believe, enable Redwood City ferry service to co-exist with, and in fact enhance, the goals of the proposed Bair Island Restoration and Management Plan.

San Francisco Bay Area Water Transit Authority • 120 Broadway, San Francisco, CA 94111 • P: 415.291.3377, F: 415.291.3388
www.watertransit.org

WATER TRANSIT AUTHORITY

WTA

These findings include the air emissions criteria for our new vessels and various operational guidelines, including: shoreline impact mitigations that incorporate speed restrictions in selected areas such as Redwood Creek (it is notable that we are currently considering a 5 mph speed restriction there, the same as you recommend for the smaller and narrower Smith and Corkscrew Sloughs), minimum distance from seal haul-out areas that exceed current generally accepted limits, and avoidance of significant impacts to waterfowl, including rafting birds and Clapper Rail. As we continue to refine our IOP and prepare for site-specific environmental studies in advance of terminal construction, we are performing additional studies, including wake-wash, emissions and rafting bird impacts.

Specific to Redwood City, the WTA has been working with the City, the Port of Redwood City and stakeholders in the Port area to determine the best site for a new ferry terminal. In this regard, I want to thank you again on behalf of our agency for participating in this Redwood City Discussion Group, and in particular, for hosting a water tour of Redwood Creek and West Point Slough to show everyone the habitat of this area.

8-A

To date, we have narrowed the list of possible terminal sites to:

- Pacific Shores, near the confluence of Redwood Creek and West Point Slough,
- Wharf 5, on Redwood Creek, and
- F-Dock, on Redwood Creek

Our target date for new Redwood City ferry service is 2012. Each of these potential sites will be subject to further discussion and study, both by the WTA and the City within its General Plan Update process, even before we move forward with our own site-specific EIR/EIS. But because each of these potential ferry terminal sites are across Redwood Creek from Outer and Middle Bair Islands, and the proposed route to/from the Redwood City ferry terminal is through the existing shipping channel that passes by Outer Bair Island, we have reviewed your document with interest and have several comments.

San Francisco Bay Area Water Transit Authority • 120 Broadway, San Francisco, CA 94111 • P: 415.291.3377, F: 415.291.3388
www.watertransit.org

WATER TRANSIT AUTHORITY

WTA

General Comments

The stated goals of the Bair Island Restoration Project are to:

- Restore Bair Island to tidal salt marsh habitat
- Provide habitat for endangered species and other native wildlife, and
- Enhance the public's appreciation and awareness of the unique resources of Bair Island

The WTA applauds these goals and is committed to working with your agency and partners to ensure they are achieved. In particular, we believe that we not only can operate new ferry service in a manner that co-exists with habitat restoration and wildlife protection, but in fact our service can help you deliver on the third goal by providing a means for the "public's appreciation and awareness of the unique resources of Bair Island." Because your preferred alternative provides no direct public access to Outer Bair Island except under special guided circumstances, our ferries will give members of the general public who do not have access to a private vessel the opportunity to view Outer Bair's habitat from the channel as passengers on passing ferries. If both our projects are implemented and you would like to discuss how the WTA could enhance the public's appreciation of the refuge by providing restoration project information on our vessels, we would be delighted to engage in this with you.

8-A

We also believe our project will support the stated objectives of the Bair Island Restoration Project by ensuring ferries are operated in a manner that generate no significant impacts to endangered species or habitats restoration, and again, by providing enhanced public-awareness opportunities.

And to highlight this point again, we are obligated to complete certified site-specific environmental studies of our project that will incorporate these and other issues before new ferry service is implemented.

That said, we have a few specific comments to share regarding the Bair Island Restoration and Management Plan Draft EIR/EIS:

San Francisco Bay Area Water Transit Authority • 120 Broadway, San Francisco, CA 94111 • P: 415.291.3377, F: 415.291.3388
www.watertransit.org

WATER TRANSIT AUTHORITY

WTA

3.2.2 Hydrography

We are pleased to note that your criteria for selecting a preferred alternative includes a priority of minimizing silting of Redwood Creek. Because our three terminal alternatives are sited on Redwood Creek, we are interested in minimizing dredging while ensuring that it remains navigable for ferries, recognizing of course that our vessels will draw considerably less than the commercial ships serving the Port of Redwood City.

Otherwise, we will be reviewing your wind data with interest, as we are planning to conduct wake-wash studies around the Bay and are in particular continuing our studies of wind-generated waves and their impact on various types of shoreline.

3.2.3 Biological

As previously mentioned, we will be developing operational guidelines to avoid significant shoreline impacts, including those to shell mounds. We note your mapping of them in Figure 7 and will be accounting for them in our further studies.

8-A

3.2.4 Special-status Plant Species

The statement on page 17, "Bair Island is a significant distance from the Bay mouth and is subject only to low-energy wind and waves" should be subject to further study to measure the naturally occurring wave action impacts in this area.

3.2.5 Listed Wildlife Species

We note your listings of endangered, threatened and special-concern species and will incorporate your findings into our work.

5.0 Design Approach

We agree with the criteria of not worsening siltation in the Redwood Creek shipping channel.

San Francisco Bay Area Water Transit Authority • 120 Broadway, San Francisco, CA 94111 • P: 415.291.3377, F: 415.291.3388
www.watertransit.org

WATER TRANSIT AUTHORITY

WTA

5.2.3 Redwood Creek Shipping Channel Siltration

We note with interest your finding from preliminary hydrodynamic and sediment transport modeling that one of your alternatives could lead to an approximate tripling of the existing siltation rates in the shipping channel, as well as the observation that the "highest sedimentation occurs in a one-mile segment of the dredged channel that includes the junctions of West Point Slough and Corkscrew Sough." This area is of interest to our agency because this confluence must be crossed to serve any of the three possible new ferry terminals from the existing shipping channel into the Bay. 8-A

Thus, to avoid the need for extra dredging, we urge the adoption of a plan that avoids creating such excessive siltation in Redwood Creek.

Alternative 3: Moderate Public Access (Recommended Alternative)

Regarding the vessel access and speed restrictions described on pp. 40-41, we would like further clarification that these restrictions apply only to Smith and Corkscrew Sloughs and not to the existing shipping channel that passes East of Outer Bair Island or Redwood Creek. 8-B

7.3 Restoration Design Features

We support features such as channel flow control structures that prevent increased siltation in Redwood Creek. 8-C

7.5.3 Channel Flow Control Structures

We support features such as channel flow control structures that prevent increased siltation in Redwood Creek.

7.5 Public Use Plan

Regarding the vessel access and speed restrictions described on pp. 60-61, we would like further clarification that these restrictions apply only to Smith and Corkscrew Sloughs and not to the existing shipping channel that passes east of Outer Bair Island or Redwood Creek. 8-D

San Francisco Bay Area Water Transit Authority • 120 Broadway, San Francisco, CA 94111 • P: 415.291.3377, F: 415.291.3388
www.watertransit.org

WATER TRANSIT AUTHORITY

WTA

7.8 Phasing/Breach Timing

We support this approach due to the fact that it would limit additional silting of the shipping channel.

7.9.2 Middle and Outer Bair

The WTA will want additional information regarding the timing of Outer Bair excavation and the existence/use of temporary landings for transfer of barge-transported equipment. Should that work occur during ferry operations, we want to ensure it would not require ferry operational restrictions, such as speed and route, that would significantly impact ferry operations. 8-E

7.9.3 Channel Flow Control Structures

We support features such as channel flow control structures that match existing flow conditions and prevent increased siltation in Redwood Creek.

Thank you very much for the opportunity to comment on the Draft EIR/EIS regarding the Bair Island Restoration and Management Plan. We hope these comments are helpful and we look forward to helping any way we can to support your project's success.

Sincerely,

Steven Morrison
Manager, Special Projects
San Francisco Bay Area Water Transit Authority

cc: Steve Castleberry, CEO, WTA

San Francisco Bay Area Water Transit Authority • 120 Broadway, San Francisco, CA 94111 • P: 415.291.3377, F: 415.291.3388
www.watertransit.org

RESPONSES TO COMMENT NO. 8
WATER TRANSIT AUTHORITY

Response to Comment 8-A
These comments relate to the Water Transit Authority's operations and the letter writer's belief that most of the project alternatives addressed in the DEIS/EIR are compatible with proposed ferry service. The comments are noted and may be considered by the CDFG and USFWS decision-makers in their evaluation of the project. No further responses or analysis is required here, as this comment does not ask any questions regarding the factual information or environmental analysis in the EIS/EIR.

Response to Comment 8-B
The access speeds apply only to Smith and Corkscrew Sloughs and are described in the EIS/EIR in Section 2.2.2 (Recreational Approach).

Response to Comment 8-C
These comments are noted.

Response to Comment 8-D
See response 8-B.

Response to Comment 8-E
The timing of Outer Bair excavation will be provided to WTA as soon as the information is available.

The proposed ferry operations are restricted to Redwood Creek and the existing navigation channel for the Bay approach to the creek. The only breaches to Outer Bair Island are located on Steinberger Slough and Western Corkscrew Slough. The Outer Bair Island breaching would not be expected to impact future ferry operations. However, if ferries are operating by the time Outer Bair Island is breached, they will be notified of the breaching plan and timing.

Comment No. 9

AIRCRAFT OWNERS AND PILOTS ASSOCIATION
421 Aviation Way • Frederick, MD 21701-4798
Telephone (301) 695-2000 • FAX (301) 695-2375
www.aopa.org

October 12, 2004

Mr. Clyde Morris
San Francisco Bay National Wildlife Refuge Complex
P.O. Box 524
Newark, California 94560

Dear Mr. Morris:

RE: Bair Island Restoration and Management Plan

The Aircraft Owners and Pilots Association (AOPA) represents the general aviation interests of more than 400,000 members, over two-thirds of the nation's pilots. Approximately 50,000 members live in the state of California. On behalf of our membership, AOPA is committed to ensuring the future viability and development of general aviation airports and their facilities as part of the national transportation system.

It has come to AOPA's attention that some alternatives included in the draft Bair Island Restoration and Management Plan would provide for pedestrian and bicycle traffic through the Runway Protection Zone (RPZ) at the south end of San Carlos Airport. AOPA is opposed to any public access to the RPZ because of safety and security concerns. The Federal Aviation Administration (FAA) defines a RPZ as, "An area off the runway end to enhance the protection of people and property on the ground." FAA guidelines further state that there should be no concentrations of people or wildlife attractants within the RPZ (See FAA Circular 150/5300-13, Airport Design). Consequently, public access should not be allowed into the RPZ. 9-A

As the former manager of the FAA's San Francisco Airports District Office, I am very familiar with the FAA's requirements for RPZ's specifically and airport compatible land uses in general. It is AOPA's understanding that the RPZ is owned by the County of San Mateo, is dedicated as airport property, and may have been purchased with federal funds. Any uses of airport property must be depicted on an Airport Layout Plan which is approved by the FAA. Therefore, we urge you to solicit from the FAA an opinion on the appropriate use of the RPZ prior to making any decision on selecting an alternative.

Thank you for considering our views. If we can be of further assistance, please call me at (530) 226-5117.

Sincerely,

John L. Pfeifer

John L. Pfeifer
California Regional Representative

Cc:
Mr. Roger Cohen, Vice President, Regional Affairs, AOPA
Mr. Mark McClardy, Manager, FAA Western-Pacific Region Airports Division
Mr. Andy Richards, Manager, FAA San Francisco Airports District Office
Mr. Austin Wiswell, Chief, California Division of Aeronautics

RESPONSES TO COMMENT NO. 9
AIRCRAFT OWNERS AND PILOTS ASSOCIATION

Response to Comment 9-A
Alternative A proposes low intensity uses on Inner Bair Island, which is consistent with FAA requirements. Please note that the CDFG and USFWS have made modifications to Alternative A (Proposed Action); see pages 15-17 of this document. The Proposed Action has been changed to move the trail from the levee closest to the airport runway to the new levee between the airport's safety zone and the restored marsh on Inner Bair Island. A short, one strand fence with signs will separate the trail from the safety zone to keep pedestrians and bikes off the airport property. The only changes that would occur within the RPZ would be improvements to the cross-levee system protecting the safety zone.

Comment No. 10

BAY PLANNING COALITION
10 Lombard Street, Suite 408
San Francisco, CA 94111-6205
415/397.2293 fax:415/986.0694

October 13, 2004

Clyde Morris
Refuge Manager
San Francisco Bay National Wildlife Refuge Complex
P.O. Box 524
Newark, CA 94560

Subject: Bair Island Restoration and Management Plan Draft EIS/EIR

Dear Mr. Morris:

The Bay Planning Coalition is a nonprofit, membership organization representing a broad spectrum of the maritime industry, local governments, homebuilders and related associations of Bay-Delta users. Our membership represents a combined total of over 2,000 public and private sector entities. Over the past 21 years, we have been a stalwart advocate for balanced and fair regulations, as well as innovative program and projects, which achieve economic prosperity and environmental health of the Bay-Delta region.

We are writing to express our support for the Bair Island Restoration and Management Plan, for which a Draft EIS/EIR was recently prepared. We believe that this project exemplifies the integrative approach embodied by the Long Term Management Strategy (LTMS). By combining restoration with beneficial reuse of dredged material, this project and others like it allow critical dredging of port facilities and navigation channels to continue in an environmentally sustainable and beneficial manner. 10-A

The combined economic and environmental health of the Bay-Delta is of great importance to all of us. We look forward to working with you on the Bair Island Restoration and Management Plan to achieve the goal of a successful habitat restoration as well as maintain a thriving Port of Redwood City.

Sincerely yours,

Ellen Joslin Johnck
Executive Director

Cc: Michael Giari, Port of Redwood City
LTC Tom Feir, US Army Corps of Engineers

RESPONSES TO COMMENT NO. 10
BAY PLANNING COALITION

Response to Comment 10-A
These comments convey the opinion of its author regarding the project. The comments are noted and may be considered by the CDFG and USFWS decision-makers in their evaluation of the project. No further responses or analysis is required here, as this comment does not ask any questions regarding the factual information or analysis in the EIS/EIR.

Comment
No. 11

California Pilots Association

The Airport Defenders

P.O. Box 6868, San Carlos, California 94070-6868 - Tel. 800-319-5286

October 11, 2004 FAX TRANSMISSION (510) 792-5828

Mr. Clyde Morris
San Francisco Bay National Wildlife Refuge Complex
P.O. Box 524
Newark, CA 94560

Re: Inner Bair Island Restoration and Management Plan, DEIS/EIR

Dear Mr. Morris:

The California Pilots Association supports Alternative A: Tidal Marsh Restoration and Moderate Public Access for Inner Bair Island. This Alternative would assist in the preservation of San Carlos Airport as a safe and efficient part of the transportation system.

San Carlos Airport is the region's on-ramp and off-ramp for the nation's aerial highways. It is included by the Federal Aviation Administration in the National Plan of Integrated Airport Systems. It is a designated reliever airport for small aircraft that would otherwise create congestion landing at San Francisco International Airport.

11-A

The runway protection zone (RPZ) is designed to protect pilots and passengers from structures or other hazards while in flight. It is also designed to provide a relatively safe touch down area in the event a pilot should be forced to make an off airport landing. The design calls for excluding or limiting the number of persons in the RPZ who would be exposed to injury in the event of an off airport landing.

We are concerned that any access to Inner Bair Island from the San Carlos Airport area would jeopardize persons using the access route as well as persons using the airport.

Thank you for the opportunity to comment on this very important plan.

Yours truly

Jay C. White, President

RESPONSES TO COMMENT NO. 11
CALIFORNIA PILOTS ASSOCIATION

Response to Comment 11-A
The CDFG and USFWS are not proposing to connect the San Carlos Airport with Inner Bair Island. Please refer to Figure 6 on page 16 of this document.

Comment
No. 12

Golden Gate Audubon Society
2530 San Pablo Avenue, Suite G • Berkeley, CA 94702
Phone: (510) 843-2222 • Fax: (510) 843-5351 • E-mail: ggas@goldengateaudubon.org
Americans Committed to Conservation • A Chapter of the National Audubon Society

September 30, 2004

Clyde Morris, Refuge Manager
Don Edwards San Francisco Bay National Wildlife Refuge
PO Box 524
Newark CA, 94560

RE: Draft Environmental Impact Statement/Environmental Impact Report (EIS/EIR)
Bair Island Restoration and Management Plan
Don Edwards San Francisco Bay National Wildlife Refuge
Bair Island Ecological Reserve; San Mateo County, California

Dear: Mr. Morris:

Golden Gate Audubon (GGA) is strongly supportive of the restoration of Bair Island as proposed in Alternative B of the above referenced Draft EIS/EIR. The Bay Area Audubon Council, of which GGA is a member, is proud of the role it played in making the purchase of Bair Island a reality. That purchase, in turn, made it possible for this exciting restoration project to take place.

We are, however, greatly disturbed by your selection of Alternative A as the preferred Alternative. We believe that the amount of public access provided for in Alternative A far exceeds a level that is compatible with two of the major the goals of the project; to "[M]aximize the function and values of tidal salt marsh habitats in a timely manner"; and, "[P]rovide habitat for endangered species and other native wildlife (S2)."

12-A

For that reason we urge you to reject Alternative A as your Preferred Alternative and, instead to chose Alternative B as your Preferred Alternative. Both Alternative A and Alternative B would result in the same amount of tidal restoration on Inner Bair Island but alternative B provides a much more reasonable amount of public access that is consistent with the goal of restoring endangered species and other wildlife habitat. Alternative A would jeopardize those goals due to the well-known impacts of human intrusion on wildlife and endangered species.

The scientific literature discussing human public access impacts on wildlife resources is extensive. Nearly, if not all, of the scientific studies performed on this issue demonstrate that public access has significant negative impacts on avian wildlife. For example,

"...Conflicts arise when migratory birds and humans are present in the same areas (Boyle and Samson 1985). Response of wildlife to human activities includes: departure from site (Owen 1973, Burger 1981, Kaiser and Fritzell 1984, Korschgen et al. 1985, Henson and Grant 1991, Kahl 1991, Klein 1993), use of suboptimal habitat (Erwin 1980, Williams and Forbes 1980), altered behavior (Burger 1981, Korschgen et al. 1985, Morton et al. 1989, Ward and Stehn 1989, Havera et al. 1992, Klein 1993), and an increase in energy expenditure (Morton et al. 1989, Belanger and Bedard 1990). Altered behavior that increases energy expenditure, can cause a decline in body condition (Morton et al. 1989, Belanger and Bedard 1990, Morton 1991). Waterfowl in poor condition experienced higher mortality rates (Haramis et al. 1986, Hepp et al. 1986). Body condition and lipid reserves during winter and spring migration can affect reproductive success of waterfowl (Ankney and MacInnes 1978, Raveling 1979, Krapu 1981). On Back Bay NWR Laskowski et al. (1993), studied behavior of snowy egrets, female mallards, and greater yellowlegs within 91.4 meters of impoundment dikes used by the general public. Behavior of snowy egrets was recorded during August and September 1992 to represent post-breeding marsh and wading birds. Mallards were monitored during migration (November 1992) and during the winter January (1993). Greater yellowlegs' behavior was observed during the northward shorebird migration (May 1993). Behavior was monitored during the typical public activities of walking, bicycling, and driving a vehicle past the sample sites.
The study found that snowy egret resting behavior decreased and alert behavior increased in the presence of humans...Maintenance behavior (combined feeding, resting, and preening) decreased when humans were present for all study species. In addition, this decrease was accompanied by an increase in escape behavior by each species (Compatibility Determination, Chincoteague NWR, June 1994)..."

12-A

And,

"...McNeal et al. (1992) found that many waterfowl species avoid disturbance by feeding at night instead of during the day. Studying the effects of human visitation on waterbirds at J.N. "Ding" Darling NWR, Klein (1989) found resident waterbirds to be less sensitive to disturbance than migrants; she also found that sensitivity varied according to species and individuals within species. Ardeids were quite tolerant of people but were disturbed as they took terrestrial prey; great blue herons, tricolored herons, great egrets, and little blue herons were observed to be disturbed to the point of flight more than other birds. These birds are also found on Chincoteague Refuge, and Kushlan (1987) found that the need of these birds to move frequently while feeding may disrupt interspecific and intraspecific relationships. In addition, Batten (1977) and Burger (1981) found that wading birds were extremely sensitive to disturbance in the northeastern U.S. Klein (1993) in a studying waterbird response to human disturbance found that as intensity of disturbance increased, avoidance response by the birds increased and found that out-of-vehicle activity to be more disruptive than vehicular traffic; Freddy et al. (1986) and Vaske (1983) also found the latter to be true. In regards to waterfowl, Klein (1989) found migratory dabbling ducks to be the most sensitive to disturbance and migrant ducks to be more sensitive when they first arrived, in the late fall, than later in winter (Compatibility Determination, Chincoteague NWR, July 1994)..."

We believe that the present DEIS/DEIR does not adequately address the potential impacts to the California Clapper Rail from the increased public access proposed in Alternative A. Two small paragraphs are allotted to this task.

12-B

"Public access in the vicinity of nesting California Clapper Rails has the potential to disrupt breeding. There are situations where rails are known to nest in close proximity to public trails (e.g., Palo Alto Baylands, Laumeister Tract, Greenbrae boardwalk, and numerous trails within the Don Edwards San Francisco Bay National Wildlife Reserve (NWR)). Rails nesting in areas with public use may become somewhat accustomed to people, but they are very vulnerable to dogs. The reproductive success of these birds is unknown. A substantial increase in public use of the area, especially associated with unleashed dogs, may result in some disturbance. Disturbance of rails and other nesting waterbirds can lead to abandonment of nests and chicks, resulting in decreased reproductive success (Albertson 1995, Rodgers and Smith 1995, Carney and Sydeman 1999, USFWS 2001)(pg. 48, 49 DEIS/DEIR)."

And, *"The moderate public access under Alternative A would not increase public access in new areas, and leash restrictions if followed may reduce the potential for such disturbance. Additionally, the extensive tidal restoration proposed for Inner Bair Island would provide extensive, more isolated, nest locations than does the current strip marsh surrounding Inner Bair Island. However, the new habitat created under Alternative A will provide nesting habitat for rails in close proximity to areas used by humans. This potential for disturbance from humans and dogs on rails will be offset somewhat by a decrease in the total length of the recreation trail from 3.3 miles to 2.7 miles. The potential for long-term disturbance therefore is less than significant. The proposed public access may result in some disturbance to California Clapper Rails, but the impact would not be a substantial increase compared to existing conditions. Future habitat would result in an improvement in available nesting sites compared to existing conditions. (Less Than Significant Impact)(pg. 56, DEIS/DEIR)."*

12-B

We believe DEIS/DEIR understates the threat of public access to this species at a site that is specifically being restored to increase that endangered species population. We believe that the Bair Island/Greco Island complex is a critical one for the Clapper Rail and, at this site at least, concern for the Rails should temper the extent of public access. The fact that, "*...the impact would not be a substantial increase compared to existing conditions...*" is not comforting considering the poor population size of Clapper Rails at the site presently.

The goal of the project is not just to increase Clapper Rail habitat, but also to increase usable Clapper Rail habitat. Obstacles to that use should be minimized not ignored. And, while, "*[F]uture habitat would result in an improvement in available nesting sites compared to existing conditions.*" That is again not saying much since existing nesting conditions are so poor. And since, *"[P]ublic access in the vicinity of nesting California Clapper Rails has the potential to disrupt breeding...*", the newly restored tidal marshes along nearly the entire perimeter of Inner Bair Island will be removed as potential Clapper Rail nesting habitat as a result of the of the trail proposed in Alternative A.

The Final EIS/EIR should estimate what distance into the marsh human disturbance on Clapper Rails extends and using that number estimate the number of acres removed from likely Clapper Rail nesting habitat.

Furthermore, Clapper Rails prefer to nest in higher elevation channels towards the end of sloughs (channels less likely to be totally inundated or flooded). Diagrams of the Inner Bair restoration seem to show many channels ending near the enclosing levees. These levees are also the public access pathway of Alternative A and thus will invite the public to exactly the same area that provides the best Clapper Rail nesting habitat. The FEIS/FEIR should show where Clapper Rail nesting habitat is most likely to exist under restored tidal conditions and whether those sites are near the levee trail.

The DEIS/DEIR fails to discuss the potential impacts on other wildlife of allowing human access around three fourths of Inner Bair Island as proposed in Alternative A.

We believe, supported by the material quoted at the beginning of this letter, that the amount of public access allowed in Alternative A would significantly effect waterfowl and other waterbird populations that will increasingly use the tidal sloughs and the surrounding waters. The restoration of habitat specifically for these species would then be negated by the impacts of the increased human access. For this reason we ask you to reconsider your choice of Alternative A and, instead, urge you to adopt Alternative B as your preferred Alternative. 12-B

Alternative B allows for the same habitat restoration as in Alternative A and also allows for public access. It simply reduces the amount of public access. Alternative B would still allow for ample public access to Inner Bair Island and would completely satisfy one of the other major goals of the project: "[E]nhance the public's appreciation and awareness of the unique resources of Bair Island."

Alternative A would allow, as a pilot project, the presence of leashed dogs on the Inner Bair Island trail. We do not believe that this proposal is consistent with the goal of providing habitat for endangered species. Off-leash dogs can have significant negative impacts on waterfowl, waterbirds and endangered species such as the California Clapper Rail. From personal observations, we are convinced that leashed dogs quickly become off-leash dogs on trails such as that proposed at Inner Bair Island. Dog walkers are particularly interested in giving their dogs in-water experiences. Dogs swimming in the tidal sloughs and channels will surely impact the Clapper Rail. 12-C

Even though the pilot program proposes that if the leashed-dogs-only rule is violated the trail will revert to no dogs, once dog-users believe that they have been given a trail for their use it is very difficult to then retract that permission and attempt to impose a non-dog rule. The fact that dog users are on the levee trail presently does not negate the importance of starting to impose a no-dog rule as restoration begins and it becomes obvious to the public that this is no longer the same Bair Island they used to use. If allowed to bring dogs onto the restored Bair Island, it will be very difficult to remind people it was only an experiment. For this reason, Alternative A should be rejected and Alternative B, with its no-dog component, should be adopted as the Preferred Alternative.

We do not support Alternatives C or D not only for public access reasons but because they fail to achieve the maximum mount of tidal restoration possible and this, we believe, should be the most important goal of this restoration project. 12-D

The City of Redwood City proposes public access similar to that described in Alternative B, but even more restricted to just that part of the levee trail parallel to HWY 101. They also propose two bridges to implement this trail alignment. We agree with the City that this is the best trail alignment, superior even to that in Alternative B. However we do not agree with the construction of bridges. Bridges provide excellent routes for predators to reach wetland species such as the endangered California Clapper Rail. We do not believe there exists a predator-proof bridge. Any self-closing door mechanism can fail, and I have personally seen such a failure at the Crissy Field wetland. It only takes one failure to put an endangered species at risk. The Whipple Avenue access should remain the only access point. 12-E

To conclude, we urge you to reject Alternative A and to choose instead, Alternative B as your Preferred Alternative. We also suggest that you further reduce the access in Alternative B to that proposed by the city of Redwood City, that portion of the levee trail that parallels HWY 101, but without the bridges.

Thank you for your attention to our concerns.

Sincerely yours,

Arthur Feinstein
Director of Conservation

RESPONSES TO COMMENT NO. 12
GOLDEN GATE AUDUBON SOCIETY

Response to Comment 12-A
The National Wildlife Refuge System's mission is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations. The Don Edwards San Francisco Bay National Wildlife Refuge was established to preserve and enhance significant wildlife habitat in South San Francisco Bay; protect migratory birds and other wildlife, including threatened and endangered species, and to provide opportunities for wildlife-oriented recreation and nature study. Combining habitat restoration and wildlife protection with public access is a necessary balance to meet the goals of the Refuge and was considered important by many members of the public. Please note that the CDFG and USFWS have made modifications to Alternative A (Proposed Action) to provide additional wildlife protection and minimize public access to sensitive areas; see pages 15-17 of this document.

Based upon studies prepared by H.T. Harvey & Associates for this project (see page 58), the Proposed Action (Alternative A) will increase California Clapper Rail nesting areas on Bair Island. The increased habitat will offset any anticipated public access impacts.

Response to Comment 12-B
California Clapper Rails currently are not present on Inner Bair Island; therefore, trail use will not affect any existing habitat. The project design will greatly increase potential California Clapper Rail habitat over existing conditions. In addition, the reduced length of the public access trail (1.8 miles) from the current loop trail length (3.3 miles) will lessen impacts to future California Clapper Rails habitat in developing tidal marsh on Inner Bair Island. Please note that the CDFG and USFWS have made modifications to Alternative A (Proposed Action) to provide additional wildlife protection and minimize public access to sensitive areas; see pages 15-18 of this document and pages 15-16 of the Biological Opinion (Appendix B).

Response to Comment 12-C
After careful consideration, Alternative A was selected as the Proposed Action, which allows for dogs on a six foot leash. This alternative also includes a three month trial monitoring period, during which adherence to the leash requirement will be evaluated. If the Refuge finds that this requirement is not being met, the Refuge reserves the right to discontinue dog use on Inner Bair Island.

Response to Comment 12-D
These comments convey the opinion of its author regarding the project. The comments are noted and may be considered by the CDFG and USFWS decision-makers in their evaluation of the project.

Response to Comment 12-E
These comments are noted and may be considered by the CDFG and USFWS decision-makers in their evaluation of the project. As noted above, the CDFG and USFWS have made modifications to Alternative A (Proposed Action); see pages 15-17 of this document. No further responses or analysis is required here, as this comment does not ask any questions regarding the factual information or analysis in the EIS/EIR.

Comment No. 13

San Carlos Airport Pilots Association

P. O. Box 1183 • San Carlos, CA 94070

October 12, 2004

Mr. Clyde Morris
San Francisco Bay National Wildlife Refuge Complex
P.O. Box 524
Newark, CA 94560

Dear Mr. Morris,

On behalf of the San Carlos Airport Pilots Association (SCAPA), which represents pilots, users and businesses at San Carlos Airport, I am commenting on the August 2004 DEIS/EIR for the Bair Island Restoration and Management Plan.

Upon a thorough review of the DEIS/EIR, we support Alternative A: Tidal Marsh Restoration and Moderate Public Access. In addition to providing habitat for endangered species and other native wildlife and enhancing the public's awareness of the unique resources at Bair Island, Alternative A protects the interests of San Carlos Airport and its users.

SCAPA appreciates that the U.S. Fish & Wildlife Service, the Don Edwards San Francisco Bay National Wildlife Refuge, and the California Department of Fish and Game recognize in Alternative A that the portion of Inner Bair Island owned by the San Carlos Airport is an established runway protection zone (RPZ) and that placement of structures, concentrations of people, or features that could attract birds would compromise the safety of the RPZ. Alternative A proposes to raise the elevation of the land within the RPZ in order to reduce bird strike hazards and does not include secondary access to Inner Bair Island from the San Carlos Airport. 13-A

SCAPA is opposed to any plan that would increase access to Inner Bair Island from the San Carlos Airport because it would compromise the safety of the runway protection zone (RPZ) and result in an airport safety hazard. We believe that the City of Redwood City will be able to achieve the goals outlined in its plan without secondary access to Inner Bair Island from the San Carlos Airport.

Thank you for your consideration.

Sincerely,

Colleen Turner, President
San Carlos Airport Pilots Association

RESPONSES TO COMMENT NO. 13
SAN CARLOS AIRPORT PILOTS ASSOCIATION

Response to Comment 13-A
These comments are noted and may be considered by the CDFG and USFWS decision-makers in their evaluation of the project. Please note that the CDFG and USFWS have made modifications to Alternative A (Proposed Action); see pages 15-17 of this document. No further responses or analysis is required here, as this comment does not ask any questions regarding the factual information or analysis in the EIS/EIR.

Comment
No. 14

SAVE THE BAY

October 12, 2004

Clyde Morris
San Francisco Bay National Wildlife Refuge Complex
P.O. Box 524
Newark, CA 94560

FAX: 510-792-5828
E-Mail: sfbaynwrc@r1.fws.gov

Dear Clyde:

Save The Bay is pleased to offer our comments on the Draft Environmental Impact Statement/Report (Draft EIR/S) for the *Bair Island Restoration and Management Plan.*

As the oldest and largest membership organization working exclusively to celebrate, protect and restore San Francisco Bay, we recognize the *Bair Island Restoration and Management Plan* is an important step in the revitalization of San Francisco Bay wetlands, which are critical to the health of the Bay ecosystem.

The purpose of the Bair Island project, as described in the Plan, is:

- to restore a significant wetland complex to high quality tidal salt marsh
- maximize tidal function and habitat values relatively quickly
- enhance habitat for endangered species and native Bay wildlife
- provide enhanced opportunities for the public to enjoy and learn about the Island's unique resources.

14-A

Save The Bay supports the purpose and objectives of the Bair Island restoration plan and finds that the plan is a beneficial balance of wetland enhancement and public use.

Need for Actions to Restore Bair Island

The Don Edwards San Francisco Bay National Wildlife Refuge is the nation's largest wildlife refuge within a large urban area. The Refuge is a primary habitat for the endangered California clapper rail and salt marsh harvest mouse, which are found only in San Francisco Bay. The Refuge is also a key wintering area for migrating waterfowl and shore birds and a major stopover for migratory birds along the Pacific Flyway.

Human-induced changes over the past century, such as the construction of levees and salt evaporation ponds, have significantly altered wetland functions on Bair Island, causing loss of

critical habitat for native wildlife, degraded water quality, contributing to an increase in mosquito breeding habitat, and increased siltation in slough channels.

The Bair Island Restoration Plan actions will provide significant benefits to wildlife and habitat.

- **Restore Channel Flows**
  Previous levee placement along Inner Bair cut off a large meander of Smith Slough and added to Inner Bair Island an area that was formerly part of Middle Bair. Borrow ditches, or trenches in the soil, were excavated throughout Bair Island to supply material for the levees. Although the locations of the major slough channels have remained essentially unchanged since 1857, channel flow patterns have changed over time. The most significant change has been the increased flows through Redwood Creek due to dredging, which now captures much of the tidal flow that used to drain through Steinberger Slough, which is now shallow due to lack of tidal scour.

- **Improve Water Quality**
  Under existing conditions, water levels in the inactive salt ponds on Middle and Outer Bair Islands are the result of ponding of rainfall, evaporation, and levee seepage. Inner Bair has limited drainage via a culvert to Smith Slough. The extended periods of ponding and lack of regular tidal exchange are likely connected to the degraded quality of water and wetland soils at the site.

14-A

- **Expand and Enhance Habitat for Endangered California Clapper Rail and California Salt Marsh Harvest Mouse**
  Dramatic declines in populations of wildlife species native to San Francisco Bay have occurred over the last hundred years, mostly from loss of their prime habitat. The diked salt marsh presently at the Bair Island complex provides poor to moderate quality habitat for these species. The remnant populations of the Salt Marsh Harvest Mouse at Bair Island are adversely affected by flooding from winter rainfall. In periods of high rainfall, the entire diked pickleweed marsh is covered in water resulting in the loss of most or all of the existing mice. Levee breaches would allow tidal exchange and prevent the ponding of winter rains, mostly eliminating long periods of flooding of pickleweed habitat that result in the loss of salt marsh harvest mice.

- **Reduce Mosquito Breeding Conditions**
  Large numbers of mosquito larvae develop in rainwater ponding behind the dikes in the former salt pond on Bair Island. Bair Island is a known breeding location for the California salt marsh mosquito, which develop extremely dense, pestiferous populations if left untreated.

  Mosquito control at Bair has included surveillance, siphoning of diked salt ponds, and larvicide and insecticide application from the ground and the air. Beginning in the late 1970s or early 1980s, water in Middle and Outer Bair was siphoned periodically during the rainy season to minimize mosquito production. The San Mateo County Mosquito Abatement District discontinued siphon operations in 2000 due to lack of funds and staffing, although

the PVC pipes are still visible at the site. Currently pesticides are used for mosquito abatement on Bair Island; none of the pesticides persist in the environment for more than three days and the chemicals are used specifically for their general environmental safety.

"No Action" Alternative Will Not Create Adequate Marsh Habitat

The No Action Alternative would restore the least amount of high quality salt marsh habitat in the longest amount of time. Under the No Action Alternative, levee failures would result in the conversion of diked salt marsh on Middle and Outer Bair Islands to tidal salt marsh or tidal mudflat habitats. This scenario would restore substantially less tidal salt marsh habitat within the 50 year planning horizon than the other Alternatives. In addition to a reduced quantity of habitat, the No Action Alternative would adversely affect sedimentation rates necessary to create marsh conditions on Middle Bair Island, which would probably remain unvegetated.

The No Action Alternative would roughly triple the amount of sediment-laden water from the Bay that passed through the Redwood Creek Shipping Channel during a typical tidal cycle. This would likely triple the amount of sediment needing to be dredged from the shipping channel.

Public access would be curtailed by the No Action Alternative.

Eventually, increases in current velocities would cause waterways within the Bair Island complex to become unsafe for boating and would be closed to boats. Public trails would not be maintained, eventually resulting in unsafe trail conditions. 14-A

Comparison of Action Alternatives

Although all of the Action Alternatives would reestablish a drainage pattern closer to the historic hydrologic configuration, only Alternatives A and B have potential to create the most high quality tidal marsh habitat in the shortest amount of time. Neither Alternative C nor D would restore tidal salt marsh to Inner Bair Island. Public access is provided in all the Alternatives, but the highest level of access also increases the risk of disturbance to wildlife.

Save The Bay Supports Alternative A Because It Would Provide Maximum Restoration With Improved Public Access

- **Restores full tidal action**
  The proposed restoration activity would **reestablish tidal exchange over the inactive salt ponds** by restoring historic drainage patterns. Approximately 894 acres of diked salt marsh would be converted to tidal salt marsh with the implementation of Alternative A. Tidal inundation will facilitate nutrient and sediment transport into the inactive salt ponds, which is necessary for sustainable wetlands, including tidal salt marsh. The primary source of nutrients and sediment would be the waters of San Francisco Bay.

  Implementation of Alternative A would result in **substantially improved on-site water quality** by restoring regular tidal action throughout Inner, Middle, and Outer Bair Islands and create conditions favorable for plant and wildlife uses by establishing a more neutral pH and

oxygen levels through the continual wetting process of tidal inundation. Introducing tidal influence and restoring tidal salt marsh habitat has a net benefit to water quality, aquatic habitats and the aquatic species of San Francisco Bay (Goals Project 2000).

- **Restores Tidal Salt Marsh at Inner Bair Island**
  Under Alternative A, approximately 29.7 acres within Inner Bair Island which now receive only seasonal rainfall would be returned to tidal salt marsh. Restoration to tidal salt marsh (within Inner Bair Island) will create a more floristically diverse habitat with greater plant cover, providing high quality habitat for wildlife (including shorebirds), especially for several rare, threatened and endangered species.

  Levee breaching and increasing the elevation of Inner Bair Island via the placement of dredged materials would restore the natural, historic tidal drainage flows, thereby allowing the tidal salt marsh to perform its integral functions (such as filter for sediments and pollutants) to the bay ecosystem.

- **Increases and Enhances Habitat for San Francisco Bay Wildlife**
  The California Clapper Rail and the Salt Marsh Harvest Mouse, both on the federal Endangered Species List, stand to benefit from restoration of the Bair Island complex to tidal salt marsh and associated marsh habitat. Currently, both species are present in substantial numbers in the tidal marshes of Outer Bair Island. The rail breeds only in the fully tidal salt marsh portions of Outer Bair Island. 14-A

  The total area of tidal salt marsh habitat that would evolve over the life of the project (including over 200 acres of new pickleweed-dominated marsh on Inner Bair Island) would greatly exceed the current amount of tidal salt marsh and diked salt marsh on site, benefiting mouse populations. As it stands now, the diked salt marsh provides poor to moderate quality habitat for the endangered Salt Marsh Harvest Mouse. With tidal restoration this area could be one of the most abundant habitats for this species and would contribute to the recovery of the species.

  Other special status species including the Western Snowy Plover, California Least Tern, and California Brown Pelican as well as Steelhead and Chinook salmon migrate through the area. The protected harbor seal also hauls out and pups along the banks of Corkscrew Slough. All these species will benefit from expansion and enhancement of the Bair Island tidal marsh complex.

- **Reduces channel velocities and stabilizes sedimentation in Redwood Creek**
  Alternative A would **install channel modifications at Smith and Corkscrew Sloughs** to avoid impacts to the Redwood Creek shipping channel and Pete's Outer Harbor. A flow-blockage control structure would be installed in Smith Slough in order to restore its historic meander through Inner Bair Island.

- **Provides 3.2 miles of public access trail and improved visitor facilities**

The Bair Island Trail is one of the most popular trails in the Refuge complex. Alternative A would provide 3.2 miles of trail from the parking lot on Bair Island Road to the observation decks at Inner Bair Island. The parking lot would include public restroom facilities and the connector trail from the parking lot to the trailhead would be widened and improved for safety. Restoration of the tidal channel at Inner Bair Island will require removing a .6 mile piece of the levee trail that now cuts off the island from Smith Slough. Two observation decks would be built at the terminus of each trail overlooking the new channel breach; the observation decks would be approximately 12 feet by 12 feet several feet above the levee. On Middle Bair, a viewing platform, accessible only by boat, would be built at the channel restriction on Corkscrew Slough.

- **Increases boat access**
  A 30-foot notch for boat passage would be installed, along with a depth gauge, in Steinberger Slough. A portage would be installed along the banks to allow boaters to carry their boat out of the water to the other side of the structure. Currently, only small boats are able to pass through Corkscrew Slough easily, and no boats are able to use the western end of the Slough at low tide. It is expected that passage through Corkscrew and Smith Sloughs would improve over time.

14-A

- **Reduces Mosquito Breeding Sites**
  Alternative A would greatly limit mosquito breeding on Bair Island, reducing the need for application of pesticides. Full tidal inundation is expected to occur on Bair Island as the levees are systematically breached.

Public Access and Risks to Wildlife

New habitat created under Alternative A will provide nesting habitat for rails in close proximity to areas used by humans. A survey taken of visitors using the 3.3-mile loop trail on Inner Bair Island estimated that approximately 250,000 individuals visit Inner Bair Island annually; 38 percent of them bring dogs (90,000 dog-visits). Based on the survey, only 44 percent of the dogs were on a leash. It has been noted during the surveys that many dogs were not being controlled by their owners and were wandering off the designated trails and into the marshes.

Rails nesting in areas with public use may become somewhat accustomed to people, but they are very vulnerable to dogs. Dogs may be perceived by rails as predators, causing rails to abandon nests or chicks, and dogs off-leash have the potential to step on or depredate nests, chicks, or adult rails. Disturbance of rails and other nesting waterbirds can lead to abandonment of nests and chicks, resulting in decreased reproductive success.

Save The Bay supports the maximum possible public experience of the wetlands that is protective of its fragile ecosystem and endangered wildlife. Restored Clapper Rail habitat on Inner Bair Island will be in close proximity to the public access trail. All reasonable means should be taken to reduce potential predation and disturbance by dogs and other animals. This could be accomplished with additional signage, or with imposition of a "no-dogs" policy.

Comments On The Redwood City Plan Alternative

We would also like to take this opportunity to comment on the Redwood City alternative plan presented by members of the Redwood City Council at the public hearing hosted by the Refuge on September 22, 2004.

We commend the City for showing such enthusiasm for the protection and restoration of Bair Island. Save The Bay strongly encourages the City to work with the Refuge to ensure that all suggested plans are protective of wildlife and habitat and meet criteria as set by the National Wildlife Refuge System. Following are our specific comments on the Redwood City plan.

- **Proposed bridge connecting the Refuge parking lot and Inner Bair should be studied.** The Redwood City plan advocates building a pedestrian bridge connecting the Refuge parking lot to Inner Bair. We think this proposal should be studied because based on our experience in leading educational trips to the Bair Island complex the proposed bridge may facilitate easier and safer access to Inner Bair. Currently, we must guide student groups along the unfinished trail to the Whipple Avenue entrance, which can take considerable time away from the educational programs.

  The Redwood City Plan also suggests building a second pedestrian bridge from the San Carlos Airport area to Inner Bair. We do not think this second bridge is necessary. The Refuge parking lot is sufficient for the number of visitors who drive to visit Bair Island. Pedestrians coming from the San Carlos Airport have the benefit of a newly constructed trail that leads them conveniently and safely to the Whipple Avenue entrance.

  In addition, a previous proposal to build a two-bridge system was rejected by the U.S. Fish and Wildlife's Ecological Services Division as being inconsistent with wildlife protection.

14-B

- **All the dredge material needed for the Refuge's restoration plan has been identified.** The Refuge Plan identifies the amount of dredge material from the Port of Redwood City that is necessary for the restoration project. The Redwood City plan calls for use of dredge material from both the Port of Redwood City and the Redwood Shores Lagoons. The Port of Redwood City dredging project has already been permitted, is ready to move forward, and benefits the Bay Area economy. However, the privately-owned Redwood Shores Lagoons, which have never been dredged, is a project that is not ready to move forward and raises myriad permitting issues that may hold up the restoration project. The restoration of Bair Island should not become a dumping ground for the City's future dredging needs.

- **The Redwood City Council should work with Save The Bay and others to provide education programs for Redwood City students**
  As described above, Save The Bay provides education programs for thousands of students and adults throughout the Bay Area. Through our partnership with the Refuge, Save The Bay will be offering 80 trips this year to Inner and Middle Bair Islands, leading volunteers and students in hands-on restoration projects. We encourage the Redwood City to work with us to provide its local residents Bay-oriented educational opportunities.

Thank you for the opportunity to comment on this plan.

Sincerely,

David Lewis
Executive Director

RESPONSES TO COMMENT NO. 14
SAVE THE BAY

Response to Comment 14-A
These comments summarize specific points and information in the EIS/EIR, and generally express opinions supportive of the analysis. Please note that the CDFG and USFWS have made modifications to Alternative A (Proposed Action); see pages 15-17 of this document.

Response to Comment 14-B
These comments convey the opinion of its author regarding the Redwood City Plan Alternative. The comments are noted and may be considered by the CDFG and USFWS decision-makers in their evaluation of the project. No further responses or analysis is required here, as this comment does not ask any questions regarding the factual information or analysis in the EIS/EIR.

Comment
No. 15

Sequoia Audubon Society

Clyde Morris
San Francisco Bay National Wildlife Refuge Complex
Box 524,
Newark, CA 94560

October 7. 2004

Dear Clyde,

Sequoia Audubon Society, the San Mateo County chapter of National Audubon Society, is pleased to be able to comment on the DEIS/EIR for Bair Island. Our Conservation Committee has prepared the following comments.

The Sequoia Audubon Society Conservation Committee, after careful study of the DEIS/EIR for Bair Island, supports Alternative B. After reviewing all alternatives we support this one as being the most favorable to the recovery of the two Endangered Species on site, the California Clapper Rail and the Salt Marsh Harvest Mouse. Since this is the mandate for this section of the refuge, the committee chose to focus on it.

The proposed public access path in Alternative B traverses several different habitat types where many species of birds can be seen by users. At low tide the exposed mudflats near the airport support the largest variety and number of shorebirds, as does the area along Smith Slough down to the proposed levee breach. The historic Smith Slough channel provides habitat for wintering duck species. Sequoia Audubon Society has led many field trips here to educate the public about what exists at Bair Island now. Access along the levee through these habitats will provide the greatest variety of wildlife for public viewing. Interesting changes will occur in this section when uplands are created at the airport end of Inner Bair, when Smith Slough is returned to its historic channel and when new tidal marsh is created. Thus it seems to us the prime area for public access and environmental education.

15-A

Sequoia Audubon Society monitored public use for a year and a half on Inner Bair Island when it became refuge property. Statistical analysis of the surveys projected 250,000 visitors a year with over a third of them bringing dogs. Many dog owners followed the rules about keeping dogs on the levee, while some consistently let their dogs run in the marshes and closed areas and allowed them to swim in the sloughs. Since the refuge is unable to have a ranger on site full time to implement the proposed dog policy, the committee supports having no dogs on Inner Bair Island. We see this as being more favorable to the recovery of the Endangered Species on Inner Bair Island.

P O Box 620292, Woodside, CA 94062-0292 AC 650 529-1454

With the same reasoning, we support a seasonal closure of Corkscrew Slough as important protection for the Harbor Seals at their haul out along the slough.

15-A

Sequoia Audubon Society supports the refuge in its restoration plan for Bair Island. We have followed the process with enthusiasm. Our members look forward to seeing the changes take place as the plan is implemented.

Yours truly,

Robin Winslow Smith

Robin Winslow Smith
Conservation Committee Chair

RESPONSES TO COMMENT NO. 15
SEQUOIA AUDUBON SOCIETY

Response to Comment 15-A
These comments are noted and may be considered by the CDFG and USFWS decision-makers in their evaluation of the project. Please note that the CDFG and USFWS have made modifications to Alternative A (Proposed Action); see pages 15-17 of this document. No further responses or analysis is required here, as this comment does not ask any questions regarding the factual information or analysis in the EIS/EIR.

Comment No. 16

SIERRA CLUB
FOUNDED 1892

LOMA PRIETA CHAPTER
San Mateo • Santa Clara • San Benito Counties

Clyde Morris, Refuge Manager
San Francisco Bay National Wildlife Refuge Complex
P.O. Box 524
Newark, CA 94560

October 12, 2004

FAX: 510-792-5828
E-Mail: sfbaynwrc@r1.fws.gov

Re: Bair Island Restoration and Management Plan EIR/S

The Loma Prieta chapter of the Sierra Club is pleased to offer our comments on the Draft Environmental Impact Statement/Report for the *Bair Island Restoration and Management Plan*. Not only do our 19,000 members live, play and work in close proximity to San Francisco Bay, our chapter led the effort to save Bair Island from development in the early 1980s. We have a special relationship with this conservation success story and are excited about the proposed restoration plan. We appreciate the important piece that Bair Island represents in the overall goal of restoring as much tidal marsh area as possible. We recognize that the Bair Island Restoration and Management Plan is an important step in the revitalization of San Francisco Bay wetlands, which are critical to the health of the Bay ecosystem. The purpose of the Bair Island project, as described in the Plan, is:

- to restore a significant wetland complex to high quality tidal salt marsh
- maximize tidal function and habitat values relatively quickly
- enhance habitat for endangered species and native Bay wildlife
- provide enhanced opportunities for the public to enjoy and learn about the Island's unique resources.

16-A

The Loma Prieta chapter supports the purpose and objectives of the Bair Island restoration plan and finds that the plan offers an appropriate balance of wetland enhancement and public use. The Don Edwards San Francisco Bay National Wildlife Refuge is the nation's largest wildlife refuge contained within the boundary of a large urban area. The Refuge is a primary habitat for the endangered California clapper rail and salt marsh harvest mouse which species are found only in the San Francisco Bay; it is also a key wintering area for migrating waterfowl and shore birds and a major stop in the migratory bird Pacific Flyway.

3921 E. Bayshore Road, Palo Alto, CA 94303 • 650.390.8411 *Fax*: 650.390.8497 • www.lomaprieta.sierraclub.org

Need for Actions to Restore Bair Island

Human-induced changes over the past century, such as the construction of salt pond levees, have significantly altered wetland functions on Bair Island causing loss of critical wetland habitat for native wildlife, degrading water quality, contributed to an increase in mosquito breeding habitat, and increasing siltation in slough channels.

- **Restore Channel Flows**

Previous levee placement along Inner Bair cut off a large meander of Smith Slough and added to Inner Bair Island an area that was formerly part of Middle Bair. Borrow ditches, or trenches in the soil, were excavated throughout Bair Island to supply material for the levees. Although the locations of the major slough channels have remained essentially unchanged since 1857, channel flow patterns have changed over time. The most significant change has been the increased flows through Redwood Creek due to dredging, which now captures much of the tidal flow that used to drain through Steinberger Slough, which is now shallow due to lack of tidal scour.

- **Improve Water Quality**

Under existing conditions, water levels in the inactive salt ponds on Middle and Outer Bair Islands are the result of ponding of rainfall, evaporation, and levee seepage. Inner Bair has limited drainage via a culvert to Smith Slough. The extended periods of ponding and lack of regular tidal exchange are likely connected to the degraded quality of water and wetland soils at the site.

16-A

- **Expand and Enhance Habitat for Endangered California Clapper Rail and California Salt Marsh Harvest Mouse**

Dramatic declines in populations of wildlife species native to San Francisco Bay have occurred over the last hundred years, mostly from loss of their prime habitat. The diked salt marsh presently at the Bair Island complex provides poor to moderate quality habitat for these species. The remnant populations of the Salt Marsh Harvest Mouse at Bair Island are adversely affected by flooding from winter rainfall. In periods of high rainfall, the entire diked pickleweed marsh is covered in water resulting in the loss of most or all of the existing mice. Levee breaches would allow tidal exchange and prevent the ponding of winter rains, mostly eliminating long periods of flooding of pickleweed habitat that result in the loss of salt marsh harvest mice.

- **Reduce Mosquito Breeding Conditions**

Large numbers of mosquito larvae develop in rainwater ponding behind the dikes in the former salt pond on Bair Island. Bair Island is a known breeding location for the California salt marsh mosquito, which develop extremely dense, pestiferous populations if left untreated.

The Chapter recognizes that the primary mission of the refuge system is to provide and maintain quality habitat for endangered and other species. Therefore the No-Action Alternative is not acceptable. We support Alternative A (the preferred alternative) as the best means for achieving the above goals and maintain a reasonable amount of public access to inner Bair Island.

General comments:

- We support a trial period for dog access to Bair Island and strongly urge that the pilot period be carefully monitored.
- We would like to see the existing access trail between the parking lot and Whipple Avenue entry improved for continued use.
- We encourage continued dialogue with Redwood City officials and residents to create a working partnership that maximizes the benefits of Bair Island for both wildlife and people.

16-A

Whipple Avenue Entrance Issues

Clarification is needed on what modifications, if any, to the Whipple Avenue entrance would be. Current use of this area is a hazard. If it is FWS' intent to modify the area to preclude any parking, we would like to see the space utilized for an information kiosk. Numerous local residents walk to Bair Island crossing the freeway on Whipple. Information about rules and uses of Bair Island at this location are necessary.

16-B

The Sierra Club advocates a consistent public policy to preserve and restore the hydrologic, biologic, and aesthetic values of wetlands as public assets. We place highest priority on the protection of existing natural wetlands. Because our goal is to reverse, not merely slow, the trend of wetlands destruction and degradation, we also support restoration of degraded wetlands. Wetlands protection should be promoted further by increased public understanding and enjoyment of wetland values through compatible uses. Alternative A represents the means by which these goals can be achieved.

Melissa Hippard
Chapter Director

RESPONSES TO COMMENT NO. 16
SIERRA CLUB
LOMA PRIETA CHAPTER

Response to Comment 16-A
These comments summarize information in the EIS/EIR, and generally express opinions supportive of the analysis. The commenter has made a recommendation to improve the existing trail between the parking lot and Whipple Avenue entry. It should be noted that Alternative A has been modified (see pages 15-17 of this document) to include a pedestrian bridge that will connect the parking lot to Inner Bair. This will eliminate the need for an access trail between the parking lot and Whipple Avenue.

The remaining comments are noted and may be considered by the CDFG and USFWS decision-makers in their evaluation of the project.

Response to Comment 16-B
The Whipple Avenue entrance will be closed to public access. The entrance will only be used for emergency and maintenance purposes and will not allow public parking near the entrance. All public parking will be located at the Bair Island parking lot along Bair Island Road. An information kiosk will be built when the existing parking lot is expanded and the bridge built to Inner Bair Island.

Comment No. 17

Peter R. Baye, Ph.D
Coastal Plant Ecologist
33660 Annapolis Road
Annapolis, California 95412
baye@earthlink.net 707.886.0515 / 415.310-5109

Clyde Morris
Refuge Manager
Don Edwards San Francisco Bay National Wildlife Refuge
P.O. Box 524
Newark, CA 94560
(via email and post)

October 12, 2004

Subject: **Comments on Bair Island Restoration and Management Plan DEIS**

Dear Mr. Morris:

Please consider the following comments on the Bair Island Restoration and Management plan. I look forward to the successful restoration and proper management of Bair Island, which I and many others have long awaited. I have some technical comments about the EIS, and some concerns about certain aspects of the restoration and management plan, as explained below. Many of these comments derive from my experience developing the administrative draft of the U.S. Fish and Wildlife Service recovery plan for tidal marsh ecosystems of Central and Northern California, including San Francisco Bay. They also reflect many years of participating in the San Francisco Bay Area Wetlands Ecosystem Goals Project as staff of the U.S. Army Corps of Engineers and U.S. Fish and Wildlife Service.

1. **Compatibility of Refuge endangered species conservation obligations, tidal marsh restoration, and public access plans**

I am concerned that the Refuge's preferred alternative includes public access plans that:

(a) retain island Inner Bair Island levees instead of restoring them to high salt marsh suitable as refugia or nest sites of the California clapper rail; 17-A

(b) propose more public access adjacent to restored endangered species habitat than "no action" alternative that would eventually restore the same type of habitat with less disturbance from public access; 17-B

(c) are informed by data that indicate 38% of visitors bring dogs to Inner Bair, and 44% of dogs are off-leash (p. 124, DEIS); 17-C

Peter R. Baye, Ph.D
Coastal Plant Ecologist
33660 Annapolis Road
Annapolis, California 95412
baye@earthlink.net 707.886.0515 / 415.305.2586

(d) place the burden of evidence on the recovery of endangered species and established Refuge policies regarding disturbance by humans and dogs in sensitive wildlife habitat, by instituting dog access with monitoring plans (p.127), instead of assessing risks before committing resources with prejudice favoring public access and lack of impacts.

The EIS should more fully state Refuge mandates for endangered species protection, and the specific mandates for the San Francisco Bay Refuge complex, in the discussion of Land Use impacts. The EIS leaves the reader with the impression that the Refuge has public recreation mandates comparable with those of the National Park Service. My understanding is that the balance between wildlife protection and public access/recreation interests differs between the Refuge system and National Parks. If so, this should be explained. The recent experience of the Golden Gate National Recreation Area (GGNRA) at reconciling endangered species protection in established urban recreation areas within its jurisdiction should be considered in the analysis of impacts. The degree of leash law compliance in GGNRA (which serves the Peninsula's dog-walker population) should also be cited and considered. I believe there is sufficient evidence available to draw a reasonable conclusion that the level of leash compliance will be low (based on information in the DEIS and in GGNRA studies). That conclusion establishes a valid presumption that public access as proposed on Inner Bair would significantly reduce or eliminate clapper rail nesting along the scarce potential high marsh zone along the proposed trail. It is significant that this loss of potential habitat would not occur with eventual spontaneous breaching of Inner Bair levees with the "no action" alternative. 17-D

In addition, the DEIS should consider more thoroughly the potential effects of having local concentrations of dog feces (and pathogens) near marsh edges with tidal connections to seal haul-outs. I recommend early informal consultation with the National Marine Fisheries Service on this matter.

I recommend the Refuge to reevaluate the public access design, and diligently pursue regional information about dog leash compliance in endangered species habitat.

2. **"Shell Mounds", sand beaches, and *Suaeda californica***

The DEIS erroneously assumes that California sea-blite (*Suaeda californica*) habitat would not naturally occur at Bair Island. I believe that there is a description in Zucca (1954; Wass. Journ. Biol. 12) of *Suaeda californica* in high marsh habitat near Ravenswood in the mid-20th century. The project consultants have misread background information on the species: it thrives on both well-drained sand and shell substrates, not just sand, in both Morro Bay (its extant habitat) and historic San Francisco Bay. In fact, the existing reintroduced population at Heron's Head Park in San Francisco spontaneously seeded itself into shell-hash (fragmented flakes of oyster shell) beach ridges from unsuccessful direct transplants into terrestrial soil. Ravenswood, Bair, Greco, and Bird Islands today have shell-hash beach ridge deposits (not "shell mounds", 17-E

Peter R. Baye, Ph.D
Coastal Plant Ecologist
33660 Annapolis Road
Annapolis, California 95412
baye@earthlink.net 707.886.0515 / 415.305.2586

which are archaelogical artifacts!) of variable stability. Many are quite suitable for reintroduction of *Suaeda californica*, as at Heron's Head. I recommend that this species be re-included in the restoration plan.

17-E

I believe *Suaeda californica*, as an endangered tidal marsh plant, deserves more consideration than Congdon's tarplant, a grassland species. Congdon's tarplant can readily be introduced to transition-zone terrestrial grassland communities, and should be treated as an opportunity rather than a constraint and impact for the project under NEPA.

3. **3 year threshold for invasive Spartina control.**

While the restoration plan proposes a maximum 3 year wait period for local control of *Spartina alterniflora* hybrids in and around the project site, this is no longer a reasonable, scientifically sound threshold for tidal restoration. The *Spartina alterniflora* hybrid invasion is undergoing exponential increase, and significant control has only begin in 2004. While seed dispersal from *S. alterniflora* hybrid colonies has been in the past the main concern for colonization, the production of hybrid seed by pure *S. foliosa* pollinated by long-distance hybrid pollen is now a potential mechanism for local colonization, and is likely to become more probable as pollen loads increase. Hybrid pollen is more abundantly produced and more fertile than native pollen. Please note that the Cooley Landing tidal marsh restoration near Bair Island, effectively no local hybrid clones as seed sources in fringing outboard marshes, has about 20% hybrid colonies at present.

17-F

Rather than set an arbitrary 3-year period for control, and breach to tidal flows regardless of the local hybrid cordgrass recruitment rate, it would serve the project objectives to link the timing of breaching to the attainment of ecologically insignificant (i.e. detectible, controllable) rates of hybrid cordgrass recruitment. This would involve monitoring rates of hybrid recruitment before breaching. Otherwise, the restored Bair Island would become predominantly vegetated by non-native hybrid cordgrass. This would probably eliminate small tidal creeks and retard or prevent succession to pickleweed marsh: hybrid cordgrasses can compete successfully in emerging marsh plains, and are favored by sea level rise. Although clapper rail densities may increase while hybrid cordgrass marshes are in a youthful successional stage, the typical short-form smooth cordgrass marsh that dominates mature salt marsh plains (with associated low density of tidal creeks) are marginal clapper rail habitats at best. Atlantic clapper rails (*Rallus longirostris crepitans*) inhabit tall cordgrass along banks of large creeks and marsh island edges, and generally do not nest within short-form marsh plains.

4. **Effects of dredged material placement on final creek densities of lower Bair Island.**

17-G

Another design element that is very likely to reduce the final density of small tidal creeks (key habitat controls for future clapper rail nesting in native habitat) is the placement of

Peter R. Baye, Ph.D
Coastal Plant Ecologist
33660 Annapolis Road
Annapolis, California 95412
baye@earthlink.net 707.886.0515 / 415.305.2586

dredged material to minimize waterbird hazards for the adjacent San Carlos Airport. Dredged material placement would bury the residual slough topography, and promote marsh plains with low drainage density. Clapper rails and native plant species diversity would benefit from high drainage density of historic slough patterns. If dredged material is used, relict slough patterns should be either protected or re-excavated after placement.

17-G

This concludes my comments. Thank you for considering them. I wish you support in reconciling conflicting demands for appropriate public access and endangered species conservation in the Refuge that was created especially to protect them.

Sincerely,

Peter Baye

RESPONSES TO COMMENT NO. 17
PETER BAYE

Response to Comment 17-A
It is not clear what the basis of the letter writer's concern is in this comment. Public access will be restricted to a shortened "out and back" trail on an upgraded pre-existing levee that is currently being used for public access. The Proposed Action will increase California Clapper Rail nesting areas on Bair Island that will offset impacts from allowing public access to continue in this limited location.

Response to Comment 17-B
Alternative A has also been modified to decrease disturbance to endangered species from public access (see pages 15-17 of this document). Uncontrolled breaching under the "No Action" Alternative would delay the onset of restoration, resulting in a temporal loss of habitat from the Proposed Action. Also, these uncontrolled breaches do not provide the highest quality habitat, as breach locations are unknown and borrow-ditches become the primary tidal channels, resulting in less optimal habitat structure and function.

Response to Comment 17-C
Inner Bair Island is the only area where dog use will be permitted and inclusion of some dog access was considered critical by many members of the public. Alternative A has been modified to decrease dog access to sensitive areas. Additionally, if the Refuge finds that the leash requirement is not being met, the Refuge reserves the right to discontinue dog use on Inner Bair Island.

Response to Comment 17-D
The National Wildlife Refuge System's mission is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations. The Don Edwards San Francisco Bay National Wildlife Refuge was established to preserve and enhance significant wildlife habitat in South San Francisco Bay; protect migratory birds and other wildlife, including threatened and endangered species, and to provide opportunities for wildlife-oriented recreation and nature study.

The Refuge has instituted a strict "dogs on leash and confined to the levee trail policy." A 3 foot high berm or fence will be built between the trail and the marsh to help delineate where the public including dogs can have access, and where they are excluded. The Refuge and the Ecological Services Office of the US Fish and Wildlife Service have determined that dogs that are on leash and on top of the levee will not impact wildlife in the marsh. Continued use of Inner Bair Island by dog owners is dependent on compliance with this policy. In order to protect sensitive habitat, the Refuge is reserving the right to discontinue access to Bair Island by dog users if the Refuge determines that dog owners are not complying with this policy. If the Refuge determines any of the proposed public uses have an unacceptable adverse impact on wildlife, the use will be revaluated. The length of the trail has also been reduced from a 3.3 mile loop trail to an "out and back" trail that is 1.8 miles in length. This shorter trail distance will further reduce the potential for habitat impacts or loss.

Dog use will only be allowed on the Inner Bair Island trail. This trail has been modified in Alternative A to include a shortened trail distance, and the observation platforms have been moved further from the major slough areas. This should result in less exposure than the current conditions.

Response to Comment 17-E
Suaeda californica habitat exists at the seaward edges of Outer Bair Island outside of the project area. Efforts will be made by the USFWS during implementation of the Restoration and Management Plan to explore opportunities to re-introduce *Suaeda californica* within appropriate habitat areas of the project.

Response to Comment 17-F
These comments refer to the Restoration and Monitoring Plan that has already been approved and is now several years old. The Refuge has been and will continue to work closely with the San Francisco Bay Invasive Spartina Program to ensure that any activities at Bair Island are up-to-date and consistent with the goals and procedures of the bay-wide eradication program (See Sections 3.15.2 and 3.15.3).

Response to Comment 17-G
As suggested, the placement of cut-off berms and additional channel excavation has been designed to preserve the existing slough networks and enhance the formation of small tidal creeks throughout Inner Bair Island. Enhancement of the slough topography will also be increased by restoration of the historic meander of Smith Slough through Inner Bair Island.

Comment
No. 18

"Peter Baye"
<baye@earthlink.net>

10/13/2004 10:34 AM

To: <Clyde_Morris@r1.fws.gov>, "Joy Albertson" <Joy_Albertson@r1.fws.gov>
cc: "Helen Dijkstra" <hdijkstra@harveyecology.com>, "max busnardo" <mbusnardo@harveyecology.com>, "dan stephens" <dstephens@harveyecology.com>, "john bourgeois" <jbourgeois@harveyecology.com>, "C/H High" <howardhigh1@comcast.net>, <Valary_Bloom@r1.fws.gov>, <James_Browning@fws.gov>, <ahutzel@scc.ca.gov>, "Carl Wilcox" <cwilcox@dfg.ca.gov>, "Robin Grossinger" <robin@sfei.org>
Subject: Suaeda californica historic records, reintroduction at Palo Alto

Clyde, Joy:

This is a technical note to follow up on one comment I had on the Bair Island EIS/R that pertains equally to the South Bay salt pond restoration, regarding:

(a) the historic distribution of endangered *Suaeda californica* in south San Francisco Bay,
(b) the presence of suitable habitat in existing conditions, and
(c) the feasibility of restoring habitat and populations along the San Francisco peninsula bayshore and bayback salt marshes as far south as Ravenswood.

Suaeda californica has a high affinity for well-drained estuarine beach ridges regardless of whether the sediments are sand or shell fragments. S. californica thrives in sandy high salt marsh marsh (Morro Bay west shore) as well as on modern oyster shell beaches (artificial disposal sites along Morro Bay's northeast shore, bluff toe), and in sandy wave-cut scarps in Pleistocene dune bluffs (Morro Bay east shore). One of the most dense and stable populations occurs in a rip-rapped marina shoreline!

18-A

In San Francisco Bay, the center of its abundance along the Alameda shoreline corresponds closely with Merritt sands (Pleistocene marine lagoon/dune deposits), from south Richmond to Bay Farm Island. But along the San Francisco Peninsula, S. californica ranged from San Francisco to Palo Alto (Ravenswood). Most of the beach ridges at salt marsh edges then and now are composed of oyster shell fragments. Very large oyster shell hash beach ridges and intertidal bars are still forming along the Foster City shoreline, and smaller ones occur at Bird Island, Bair Island, and Ravenswood. These are derived not from modern oyster beds, but from "fossil" deposits, the same ones that drew the cement industry to the area. They still erode, and still re-form shell beaches. Some are too dynamic for perennial plants, but most are vegetated partially by *Grindelia, Lepidium, Salsola, Distichlis,* or *Salicornia*. Grindelia is a good indicator for suitable shell beach ridge habitat for Suaeda.

Suaeda californica has spontaneously colonized shell hash beach ridges at its one successful pilot reintroduction site, Heron's Head Marsh in San Francisco (Pier 98; Port of San Francisco sponsored). Clones from a failed Presidio reintroduction experiment were transplanted to Heron's Head, but transplants eventually failed because of incorrect planting and site selection. They produced seed before they died out, however, and apparently natural seed dispersal resulted in colonization of thin pre-existing shell hash beach ridges at an unrestored shoreline site nearby that is used by fishermen. The population was over 20 mature plants, producing many tens of thousands of seeds in 2003. It appears to remain limited by suitable habitat and isolation along this urban shoreline.

There are indeed valid historic records of *Suaeda californica* near Bair Island. Wayne Ferren, the leading expert in Suaeda taxonomy, annotated and verified DS (Dudley Herb.) specimen 5907039 (merged with CAS (Cal. Acad. Sci), by James McMurphy, Jan 6, 1906, with collection locality given as "Bay back of Palo Alto. Santa Clara Co." CAS accessions, unfortunately, are not on electronic database yet; I had to go through the collections myself. In addition, on p. 139 of J.J. Zucca's classic 1954 paper on clapper rails in SF Bay (Wassman J. Biol. 12), he describes the vegetation of "Dumbarton Bridge Marsh" as the "west approach tothe Dumbarton Bridge....represents the remnant of Ravenswood Point Marsh"..."*Suaeda californica*...and *Frankenia grandifolia*...are found integrading with *Salicornia* in isolated areas". His misidentification of Atriplex semibaccata as *A. watsonii* was understandable, since keys available to him probably did not include A. semibaccata. There are few other species in this part of the Bay at his time that would readily be mistaken for *S. californica*. 18-A

Valary Bloom of USFWS Sacramento has a copy of a draft species account and recovery strategy for *S. californica*, including SF Bay. Most of the information above is found in that account (except Heron's Head information, which was subsequent to its preparation).

In my opinion, *Suaeda californica* would be highly feasible and justified for reintroduction within its historic range to shell hash beach ridges at Foster City, Bird Island, Bair Island, and Ravenswood. It would also be one of the least complicated and least costly endangered species recovery actions I know, because the species is an efficient and vigorous colonizer of disturbed substrate. It is primarily limited by isolation of populations, habitat, and historic factors (rapid mass extirpation). The most successful reintroductions would probably occur where some sparse Grindelia stricta occurs as mixed juvenile and reproductive plants, but where active seasonal erosion and accretion of shell hash sediments occur above retreating high marsh peat /mud scarps, fringing beaches, or small spits. Such features are widespread along the levee edges and eroding marsh edges throughout the Foster-Redwood City-Palo Alto area.

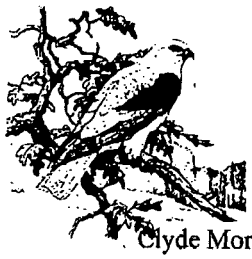
I hope you can find use for this information in your technical planning efforts.

Regards, Peter Baye

RESPONSES TO COMMENT NO. 18
PETER BAYE

Response to Comment 18-A
Suaeda californica habitat exists at the seaward edges of Outer Bair Island outside of the project area. Efforts will be made by the USFWS during implementation of the Restoration and Management Plant to explore opportunities to re-introduce *Suaeda californica* within appropriate habitat areas of the project.

Comment No. 19



Ohlone Audubon Society

A Chapter of the National Audubon Society
Serving Southern Alameda County
Our Mission: Study, Enjoy and Protect birds and other wild animals, and their habitats

Clyde Morris
San Francisco Bay National Wildlife Complex
P. O. Box 524
Newark, California 94560

Dear Mr. Morris,

Although I am not writing officially for Ohlone Audubon Society, I would like to register some concerns that would be important to the Ohlone Audubon membership.

Given the enormous potential for restoration already in the planning stages for 15,100 acres of salt ponds in the South Bay, it seems appropriate that the Bair Island restoration project would have some if not all the same goals for restoration of habitat for wildlife as those in the Salt Pond Restoration Project.

As I read the alternatives to be examined by the DEIR, I noticed as recurrent emphasis on public recreation availability on Bair Island. It is certainly a good idea to keep the public informed and involved in wildlife protection for the sake of both the wildlife, increased public appreciation and respect for the environment, and recreation activities. However, I think that the overriding emphasis must be on habitat restoration and wildlife protection. Trails should only be allowed where they would avoid disturbance to the wildlife. Dogs, if allowed at all, should be on a leash at all times. Boats, kayaks, canoes, and other watercraft should be motorless, and required to avoid sensitive areas, especially as it pertains to the harbor seals. 19-A

At a time when much of San Francisco Bay's tidal marshes have been lost to other uses, this is a unique opportunity to increase significantly the amount of marsh available which should ultimately lead to the increased forms of wildlife that have relied on the marshes for survival.

Yours truly,
Evelyn M. Cormier, President
Ohlone Audubon Society
31020 Carroll Avenue
Hayward, California 94544

Evelyn M. Cormier

RESPONSES TO COMMENT NO. 19
EVELYN CORMIER

Response to Comment 19-A
These comments convey the opinion of its author regarding the project. The comments are noted and may be considered by the CDFG and USFWS decision-makers in their evaluation of the project. No further responses or analysis is required here, as this comment does not ask any questions regarding the factual information or analysis in the EIS/EIR.

Comment
No. 20

October 11, 2004

Mr. Clyde Morris
U.S. Fish and Wildlife Service
San Francisco Bay National Wildlife Refuge
P.O. Box 524
Newark, CA 94560

Via FAX

Subject; Draft Environmental Impact Statement/ Environmental Impact Report for Bair Island Restoration and Management Plan. San Mateo County, California. Dated;August 2004.

Dear Mr. Morris;

In 1982 the citizens of Redwood City voted to prevent development on Bair Island. The intent of the vote was to preserve Bair Island (Inner, Middle and Outer Bair) for its beauty and valuable open space. Since Bair Island was now saved from development, the Fish and Wildlife Service realized that Bair Island would be an excellent site in San Francisco Bay to initate a plan for recovery of endangered California Clapper Rail and the Salt Marsh Harvest Mouse by converting Bair Island to tidal salt marsh.

First however, Bair Island would have to be purchased from a private owner to be able to carry out the recovery plans. The Citizens Committee to Complete the Refuge and Friends of Redwood City spearheaded the drive to have Bair Island purchased from the Japanese owner. 20-A

Now that Bair Island is in public ownership, there is concern that public access has become a dominant issue before the site has been restored for the purpose for which Bair Island was purchased.

WILDLIFE FIRST is the phrase that expresses our concerns. As the proposed plan to restore Bair Island is implemented, an evaluation for the increased populations of endangered species must be demonstrated before allowing expanded public activities on the site. Public access should be considered a lesser priority.

The Draft EIS/EIR lists various alternatives for restoration and management of Bair Island. To accomplish the project goals and to allow some public access, the public may be allowed on the southern border of Inner Bair. Dogs under leash control would be allowed on this border. The important issue here is to complete the recovery plan without interference from outside interests.

Clyde Morris
October 11, 2004
Page 2.

We are aware that USFWS and California Fish and Game agencies do not have the personnel nor the funds to pay personnel to monitor and manage the project for public use while trying to manage the recovery of Bair Island. With this in mind, it is best to restrict public access to a limited area in the beginning, and increase public access and amenities as personnel and funds are available. First, the restoration plan and recovery of endangered species must indicate successful population numbers are on site. 20-A

The Draft EIS/EIR states that hunting of waterfowl on portions of Middle and Outer Bair Islands would be allowed per state regulations. Has the population of waterfowl in San Francisco Bay area increased to the level that hunting of waterfowl will be allowed on Bair Island? It seems that restoration of Bair Island should be completed before human activity is encouraged. 20-B

We appreciate this opportunity to comment on this important project for wildlife in San Francisco Bay.

Sincerely yours,

Frank Delfino Janice Delfino

Frank and Janice Delfino
18673 Reamer Road
Castro Valley, CA 94546-1266
Phone; 510 537 2387

RESPONSES TO COMMENT NO. 20
FRANK AND JANICE DELFINO

Response to Comment 20-A
These comments convey the opinion of its author regarding the project is noted and may be considered by the CDFG and USFWS decision-makers in their evaluation of the project. No further responses or analysis is required here, as this comment does not ask any questions regarding the factual information or analysis in the EIS/EIR.

Response to Comment 20-B
Don Edwards NWR seeks to provide opportunities for wildlife oriented recreation and nature study. Hunting is one of the public oriented wildlife activities prioritized by Congress for National Wildlife Refuges. All Refuge hunting areas are also subject to city ordinances and county regulations regarding distances from populated areas. The Refuge closely monitors wildlife populations and provides hunting rules for Refuge hunting areas.

Pat Dixon

From: "Pat Dixon" <swaner@pacbell.net>
To: <sfbaynwrc@rl.fws.gov>
Sent: Saturday, October 09, 2004 12:47 PM
Subject: Bair Island EIS/EIR

PLEASE stick to your guns and refuse all other "plans" for Bair Island. What Redwood City Mayor Jeff Ira and Councilwoman
Rosanne Foust are suggesting - and hyping - is the same plan that was pushed some 5 or 6 years ago by Tom Huening and
Colleen Jordan to "cut through" by the San Carlos Airport. I understand there may be some differences now in that RWC wants entry into Bair Island at the end of Skyway Drive where the bike path starts.

All my friends and neighbors want RWC to keep their hands off Bair Island and to proceed with the F&G plans as were shown at a recent Presentation in the Redwood Room of the Red Morton Ctr. in Redwood City. It is also my understanding that this is the 'feeling' of the airport and now the Board of Supervisors after learning of how we all feel. 21-A

I am a native Californian from this area and I have about had it with all these "new" people coming into our area and wanting to make drastic changes. This, too, is what will happen with that Marina Shores project. I certainly wish - and hope- that you all could get involved and help us stop that horrendous project - 1930 units with some 17 towers between 18 and 21 stories high at the Pete's Harbor site.

Also, I would dearly love to have all the shooting stopped. Most of the RWS residents care deeply about our wildlife and to hear those guns going off in the early morning hours is not a pleasant way to wake up! Also some of the hunters are less than the required 500 feet from the nearest homes.

Patricia Dixon PD.
16 Admiralty Place
Redwood Shores, CA. 94065

650 - 591- 5455

See reverse -
E-mail returned

RESPONSES TO COMMENT NO. 21
PATRICIA DIXON

Response to Comment 21-A
The comments convey the opinion of its author regarding the project is noted and may be considered by the CDFG and USFWS decision-makers in their evaluation of the project. No further responses or analysis is required here, as this comment does not ask any questions regarding the factual information or analysis in the EIS/EIR.

Comment
No. 22

Memorandum

Date: October 11, 2004
To: Clyde Morris, Don Edward National Wildlife Refuge, Newark, California
From: Jules Evens, Principal, ARA.
RE: Comment on the "Draft Environmental Impact Report: Bair Island Restoration and management Plan, don Edwards San Francisco Bay National Wildlife Refuge Bair Island Ecological Reserve."

Comment: I would like to take this opportunity to comment on the draft EIR posted on the refuge's website: < http://www.southbayrestoration.org>.

As explicitly stated in the draft EIR, "Alternative B (Tidal Marsh Restoration and Restricted Public Use) is considered the environmentally preferred alternative because it would result in the highest quality tidal marsh habitat in the quickest amount of time and would result in the least amount of disturbance to special status species." We concur with this statement and consider Alternative B as "the environmentally superior alternative from the range considered." Alternative B most vigorously promotes the policy expressed by NEPA.

Specifically, we are concerned with disturbance to the federally-endangered California Clapper Rail (Rallus longirostris obsoletus). The South Bay is a population center for this tidal marsh dependent species. The California Clapper Rail has declined rather dramatically in portions of San Pablo Bay that were formerly considered population strongholds (Avocet Research Associates 2004), and it is not clear that the species is holding its own baywide. Until robust population estimates are available for the bay as a whole, and until there is some evidence that the population has stabilized or is on the increase, it would be dangerous to compromise the viability of any habitat with might sustain and bolster the rail population.

22-A

The access into the core of the site contemplated by Alternative A would multiply the opportunity and the likelihood of disturbance events to this critically-endangered marsh bird, especially during the nesting and fledging season (January-August). The most egregious disturbances would be direct impacts by human and animal traffic associated with the additional length of pathways described in the EIR. A path through or around the habitat would, in effect, increase the "edge effect" that would increase the vulnerability of rails to predation and other negative impacts associated with increased edge and decreased buffer habitat (see reference list, below).

It is imperative that restoration efforts aimed at increasing habitat for tidal marsh dependent species first create viable and functional habitat before compromising its value with paths and structures with unnatural elevations (relative to the tide), or access points that encroach into potential buffer zones or areas that could serve as high tide refuge for rails and other resident species.

Please consider changing the proposal to favor Alternative B. After the tidal marsh habitat is restored and rails have occupied the restored habitat, after their viability has been assured, that will be the judicious time to consider questions of increased public access.

Thank you for the opportunity to comment.

References
Albertson, J. and J. Evens. 2000. California Clapper Rail, Species Narrative. Chapter 7 in Baylands Ecosystem Species and Community

Profiles.' San Francisco Bay Estuary Habitat Goals Report.

Avocet Research Associates. 2004. California Clapper Rail (Rallus longirostris obsoletus) breeding season survey, San Pablo Bay and tributaries, 2004. Final report to Marin Audubon Society. May 2004.

Evens, J. and G.W. Page. 1986. Predation of Black Rails during high tides in salt marshes. Condor 88:107.

Lahti, D.C. 2001. The "edge effect on nest predation" hypothesis after 20 years. Biological Conservation 99:365-374.

Murcia, C. 1995. Edge effects in fragmented forests: implications for conservation. Trends in Ecology and Evolution 10:180-184.

Pickman, J., M.L. Milks, and M. Leptich. 1993. Patterns of predation on passerine nests in marshes—Effects of water depth and distance from edge. Auk 110:89-94.

Semlitsch, R.D. and J. R. Bodie. 2003. Biological criteria for buffer zones around wetlands and riparian habitats for amphibians and reptiles. Conservation Biology 17(5):1219-1228.

Trulio, L. and J. Evens. 2000. California Black Rail, Species Narrative. Chapter 7 in Baylands Ecosystem Species and Community Profiles. San Francisco Bay Estuary Habitat Goals Report.

cc:
Carl Wilcox, California Department of Fish and Game
Jim Browning, USFWS
Joy Albertson, USFWS

Bair I. EIR comment.doc

Jules Evens, Principal
Avocet Research Associates
P.O. Box 839
Point Reyes Station, CA 94956
phone 415/663-1148
fax 415/663-9235

RESPONSES TO COMMENT NO. 22
JULES EVANS

Response to Comment 22-A
The author's opinion regarding approval of Alternative B is noted and may be considered by the CDFG and USFWS decision-makers in their evaluation of the project. Please note that the CDFG and USFWS have made modifications to Alternative A (Proposed Action). The changes include a shorter public access trail, a new "predator resistant" pedestrian bridge from the parking lot, and dogs only would be allowed on Inner Bair Island for a three month trial period to determine compliance with refuge regulations designed to protect wildlife. See pages 15-17 of this document for a more detailed description of these modifications to Alternative A.

Comment
No. 23

"Tim Corrigan" <tcorrigan@scc.ca.gov>
09/23/2004 01:50 PM

To: "Clyde Morris" <Clyde_Morris@r1.fws.gov>
cc:
Subject: FW: SBSP Question/Comment submitted

Hi Clyde,
A dog-walker weighs in below...

A question or comment has been submitted at www.southbayrestoration.org

First Name: Denise
Last Name: Larsen
Organization:
Street Address: 12 Big Tree Way
Street Address2:
City: Woodside
State: CA
Zip Code: 94062
Country: USA
EMAIL: denise@slac.stanford.edu

Subject(s) of question or comment:
Public Access and Recreation;

Question or Comment:
My family loves to take our dog on leash to Bair Island. We also love to ride our bikes there. There are not many places in San Mateo where you can take a dog for a walk anymore, including all but one beach. Please let people walk their dogs on leashes at Bair Island!!
Thanks you, The Larsen Family

23-A

If you have questions about this automatically-generated message, please email sbrfeedback@sfei.org

RESPONSES TO COMMENT NO. 23
DENISE LARSON

Response to Comment 23-A
These comments convey the opinion of its author regarding the project is noted and may be considered by the CDFG and USFWS decision-makers in their evaluation of the project. No further responses or analysis is required here, as this comment does not ask any questions regarding the factual information or analysis in the EIS/EIR.

Comment
No. 24

Mr. Albert Roffey,
41 Wilderness Drive,
Scarborough,
Ontario,
Canada.
M1V 3P4
416-293-7845

21 August, 2004.

Refuge Manager,
U.S. Fish and Wildlife Service,
San Francisco Bay NWR Complex,
P.O. Box 524,
Newark,
California,
U.S.A.
94560

Re: Bair Island

Dear Mr. Morris:

I have been a member of the San Francisco Bay Wildlife Society for the past twenty years.

These are my comments on the restoration of Bair Island.

I favour "Alternative 2"; with the following provisions.

Boating in the sloughs and other waters adjacent to the islands should be prohibited all year.

24-A

Fishing in the sloughs and other waters adjacent to the islands should be prohibited all year.

Hunting on the islands and in the sloughs and other waters adjacent to the islands should be prohibited all year.

Public access to the middle and outer islands should be prohibited all year.

These regulations are necessary to ensure a sanctuary for nature.

Sincerely,

Albert Roffey

RESPONSES TO COMMENT NO. 24
ALBERT ROFFEY

Response to Comment 24-A
The author's opinion regarding approval of Alternative B (2) and the recommended provisions are noted and may be considered by the CDFG and USFWS decision-makers in their evaluation of the project. No further responses or analysis is required here, as this comment does not ask any questions regarding the factual information or analysis in the EIS/EIR.

Comment No. 25

U.S. Fish & Wildlife Service
California Department of Fish & Game

Bair Island Restoration and Management Plan Project

Public Meeting Comment Sheet
Wednesday, September 22, 2004

Comments sheets may be deposited in the comment box tonight or mailed to Refuge Manager, U.S. Fish and Wildlife Service, San Francisco Bay NWR Complex, P.O. Box 524, Newark, California 94560. Written comments may be sent by facsimile to (510) 792-5828 or by email to sfbaynwrc@r1.fws.gov.

Name: Marilou Seiff Date: 9/29/04

Affiliation (if applicable): Marine Science Institute Zip Code: 94063

Address: 500 Discovery Parkway Redwood City CA 94063

Phone/Fax/Email: 650-364-2760, 364-0416 (FAX) marilou@sfbaymsi.org

Please provide your comments or questions on the Environmental Impact Statement/ Environmental Impact Report (EIS/EIR). **All comments on the EIS/EIR must be submitted by Tuesday, October 12, 2004.**

Thank you for putting on a good presentation about the Bair Island Restoration on 9/22/04.

A couple of comments: (including kayaking)

Please address boating & public access in Corkscrew Slough during harbor seal pupping season. If the females get disturbed they will desert their pups.

We would like to see hunting access curtailed or not allowed at all so that the wildlife in the north & middle Bair Islands be undisturbed. We are also involved in restoration & education programs in these areas & would not want our students to be in any danger.

We back Redwood City's proposal that would

25-A

25-B

Please continue on backside.
Thank you for your comments.

close Whipple Ave. enhance & allow greater access to people with disabilities (& hopefully less access to predators). We are very excited about working with the city & the RWC schools to incorporate educational programs about Bair Island into the school curriculum. We have been teaching environmental education programs on Redwood Creek for 14 years, have watched Bair Island change owners & are now excited about watching & being involved in the restoration.

25-B

RESPONSES TO COMMENT NO. 25
MARILOU SCIFF

Response to Comment 25-A
The use of Corkscrew Slough by boaters and harbor seals during the pupping season has occurred for decades. There is no evidence that they are incompatible. Currently there is a study being done on boating impacts on harbor seals in Corkscrew Slough. If this study determines that there are unacceptable impacts, the Refuge will reevaluate boating in the Sough.

Response to Comment 25-B
Don Edwards NWR seeks to provide opportunities for wildlife oriented recreation and nature study. Hunting is one of the congressionally mandated priority public uses for National Wildlife Refuges. The Refuge closely monitors wildlife populations and provides hunting rules for Refuge hunting areas. These activities as proposed are consistent with wildlife habitat requirements.

The author's opinion regarding acceptance of Redwood City's plan are noted and may be considered by the CDFG and USFWS decision-makers in their evaluation of the project. No further responses or analysis is required here, as this comment does not ask any questions regarding the factual information or analysis in the EIS/EIR.

Comment
No. 26

160 Alta Mesa Rd
Woodside, CA. 94062

Clyde Morris
PO Box 524
Newark, CA 94560

Subject: Measure Q - Bair Island Development
Rezoning Ordinance passed by the
Redwood City Council

Dear Mr. Morris

Shame Shame Shame on the Redwood City Council for their total disregard of the dwindling natural resources upon which we depend for our health, our economy, and our sanity in this crazy overcrowded suburb of San Francisco with the "Best Climate in the World"! Redwood City!

This project should never have made it across the city planners desk at City Hall, much less than a scheduled hearing to mull over that which we already know — over and over again, with each and every project designed to fill in the bayfront lands with another overload of buildings, people, traffic and pollution. 26-A

For all concerned, listen to the environmentalists and give the goahead to restoring the natural healthy state of the wetlands without adding the high impact of another high rise, heavily trafficked development as its price tag.

Saving the wetlands is the kiss on the cheek
Building out Bair Island is the slap in our face.

Sincerely: Helen Sweeney - Woodside

RESPONSES TO COMMENT NO. 26
HELEN SWEYER

Response to Comment 26-A
These comments convey the opinion of its author regarding the Measure Q is noted. No further responses or analysis is required here, as this comment does not ask any questions regarding the factual information or analysis in the EIS/EIR.

Comment
No. 27

Carmen Leong-Minch
09/12/2004 10:39 AM

To: Clyde Morris/SFBAY/R1/FWS/DOI@FWS
cc:
Subject: Bair Island

Carmen Minch
Outdoor Recreation Planner
Don Edwards SF Bay NWR
510-792-0222 ext. 38
—— Forwarded by Carmen Leong-Minch/SFBAY/R1/FWS/DOI on 09/12/2004 10:39 AM ——

"Peter von Bleichert" <petervonbleichert@netzero.net>
08/24/2004 02:53 PM
Please respond to petervonbleichert

To: <SFBaynwrc@r1.fws.gov>
cc:
Subject: Bair Island

Dear Refuge Manager:

I am a user of Inner Bair Island and resident of Redwood City.

I would like to offer my support for Alternative 2, the Tidal Marsh Restoration with Restricted Public Access.

I also would like to mention that dog walkers should not be allowed regardless of final Alternative Plan. I have been bothered by unleashed dogs and the large amounts of feces on the levees. I have also witnessed unleashed dogs chasing/harassing wildlife in restricted areas. Dog owners have had ample opportunity to prove there adherence to regulations, but have consistently and selfishly ignored them.

27-A

Finally, I have witnessed many rabbits living in the Inner Bair Island/San Carlos airport approach area. I am concerned that plans to raise the islands level with dredge fill has ignored these creatures. I urge you to implement a catch and release program prior to construction.

Thank you for your time and this revolutionary approach to the health of our bay. You guys are doing wonderful work!

Sincerely yours,

Peter von Bleichert

RESPONSES TO COMMENT NO. 27
PETER VON BLEICHERT

Response to Comment 27-A
The author's opinion regarding approval of Alternative B (2) and concern with dogs are noted and may be considered by the CDFG and USFWS decision-makers in their evaluation of the project. No further responses or analysis is required here, as this comment does not ask any questions regarding the factual information or analysis in the EIS/EIR.

During construction, rabbits should be able to move to areas of the island that will not receive dredge fill.

Comment No. 28

Carmen Leong-Minch
10/17/2004 10:31 AM

To: Clyde Morris/SFBAY/R1/FWS/DOI@FWS
cc:
Subject: FW: Bair Island

Carmen Minch
Outdoor Recreation Planner
Don Edwards SF Bay NWR
510-792-0222 ext. 38
---- Forwarded by Carmen Leong-Minch/SFBAY/R1/FWS/DOI on 10/17/2004 10:31 AM ----

"Sandy Wagner" <papasandy@mindspring.com>
10/12/2004 08:53 PM

To: <sfbaynwrc@r1.fws.gov>
cc:
Subject: FW: Bair Island

Another bad address problem...

----- Original Message -----
From: "Linda Wagner" <scilinda@earthlink.net
To: <sfbaynwrc@rl.fws.gov
Sent: Tuesday, October 12, 2004 5:38 PM
Subject: Bair Island

Dear Clyde Morris,

I think that Palo Alto Baylands is a kind of model for what can happen at Bair Island. The inner portion of that marsh has parking lots, trails, and various kinds of recreation opportunities. Where sections of the marsh are more separated by water, the clapper rails live. In fact they are quite habituated to people peering from the boardwalk to see them bathing and feeding. If this model were applied to Bair Island, the more recreation-intensive area would be Inner Bair and Middle Bair would become the better clapper rail habitat.

28-A

Although I don't think the presence of a lot of people is good for a marsh, I know that when people have a marshy open space that they learn to love, they become sensitive to protecting it. They recognize its beauty and worth and they want to protect the good experiences they have in that setting.

I think that is why so many people feel strongly about keeping their access to Bair. It would be good to use those good feelings to educate people about the marsh and hope that they can contribute to the restoration of other areas around the Bay.

Linda Wagner

RESPONSES TO COMMENT NO. 28
LINDA WAGNER

Response to Comment 28-A
These comments convey the opinion of its author regarding the project is noted and may be considered by the CDFG and USFWS decision-makers in their evaluation of the project. No further responses or analysis is required here, as this comment does not ask any questions regarding the factual information or analysis in the EIS/EIR.

Comment
No. 29

Carmen Leong-Minch
10/17/2004 10:31 AM

To: Clyde Morris/SFBAY/R1/FWS/DOI@FWS
cc:
Subject: FW: Comment on Bair Island development

Carmen Minch
Outdoor Recreation Planner
Don Edwards SF Bay NWR
510-792-0222 ext. 38
----- Forwarded by Carmen Leong-Minch/SFBAY/R1/FWS/DOI on 10/17/2004 10:31 AM -----

"Sandy Wagner" <papasandy@mindspring.com>
10/12/2004 08:46 PM

To: <sfbaynwrc@r1.fws.gov>
cc:
Subject: FW: Comment on Bair Island development

Sent earlier to wrong address... hope this gets through...

From: Sandy Wagner [mailto:papasandy@mindspring.com]
Sent: Tuesday, October 12, 2004 4:57 PM
To: 'sfbaynwrc@rl.fws.gov'
Cc: Linda Wagner (scilinda@earthlink.net)
Subject: FW: Comment on Bair Island development

To Clyde Morris

While I would prefer to see no new development in any portion of the Bay, I realize that in the modern world it is often necessary to compromise. In that light I feel that the amount of public access contained in the draft report is appropriate. While that means public access to Inner Bair Island, and therefore threats to potential clapper rail habitat, I think that the greater good will be served if Middle and Outer Bair Islands will be saved and restored as outlined in the report.

29-A

Thank you and the staff for all the hard work in producing this fair and balanced draft report.

William J. (Sandy) Wagner

127 O'Connor Street
Menlo Park 94025

RESPONSES TO COMMENT NO. 29
WILLIAM WAGNER

Response to Comment 29-A
These comments convey the opinion of its author regarding the project. The comments are noted and may be considered by the CDFG and USFWS decision-makers in their evaluation of the project. No further responses or analysis is required here, as this comment does not ask any questions regarding the factual information or analysis in the EIS/EIR.

Comment
No. 30

20 Coyote Hill
Portola Valley, CA 94028
August 18, 2004

Mr. Clyde Morris
San Francisco Bay National Wildlife Refuge Complex
P. O. Box 534
Newark, California 94560

Dear Mr. Morris:

Thank you for sending me the draft DEIS/EIR for Bair Island.

I have often walked on Inner Bair Island, and my preference is for Alternative 2.

This alternative will protect harbor seals, both from boats and dogs. My experience with dog walkers is that, once away from view, leashes are removed and the dogs are free to chase whatever is around. And I have never seen a ranger to give oversight on Bair Island. 30-A

I have seen many kinds of birds on Inner Bair Island that would be disturbed from nesting by loose dogs. Because Bair Island is in the center of a highly populated area, it must be strongly protected.

For that, Alternative 2 is the best.

Sincerely,

Marilyn J. Walter

RESPONSES TO COMMENT NO. 30
MARILYN WALTER

Response to Comment 30-A
The author's opinion regarding approval of Alternative B (2) is noted and may be considered by the CDFG and USFWS decision-makers in their evaluation of the project. Please note that the CDFG and USFWS have made modifications to Alternative A (Proposed Action); see pages 15-17 of this document. No further responses or analysis is required here, as this comment does not ask any questions regarding the factual information or analysis in the EIS/EIR.

Comment
No. 31

WRIGHTDESIGNWORKS

419 Myrtle Street
Redwood City, CA 94062
PHONE 650.369.6830
FAX 650.369.6430
EMAIL kathywright@pacbell.net

DATE October 11, 2004

TO Clyde Morris
PS BOX 524
Newark, CA 94560
sfbaynwrc@rl.fws.gov
FAX (510) 7925828

Dear Mr Morris,

Thank you for the opportunity to voice my opinion about the future of Bair Island, certainly one of the most precious resources that we have been blessed to protect on the mid-peninsula.

There are so few natural places to take a dog for a walk these days, without fear of street traffic or deer ticks and particularly in a relatively safe and open environment for single women, so that they (we) can feel free and expressive and connected to the outdoors without having to fee "guarded", as many women are faced with as a result of the sad realities of our society.

I for one, don't feel safe to run alone in the woods, and their aren't many places that I can both exercise my dog, and get my cardiovascular workout in the same time, as I can at Bair Island. Jake and I run the 2.7 loop about 4 days a week, and he is yet to litter the path with empty Starbucks coffee cups or discarded bicycles. In fact, he always stays on the trail (he is afraid of water!).

31-A

And we are not alone. I greet familiar faces, yet don't know their names, and also new faces, as we take our daily exercise around the island. We used to run together in under 30 minutes, but now that Jake is 11 years old, we do it in about 45 minutes. It keeps him young, and it gives me the solitude to prepare for my day ahead. No commercials, no disco music, just nature. What a novelty is that?

I appreciate the return of the blue heron and I applaud the efforts to bring back the wildlife, but can't we share the area with both wildlife and domestic pets?

Consider this petition and please keep me informed. If I can help to distribute the progress or help recruit like-minded citizens such as myself, please feel free to contact me.

For future notifications to the general public, consider posting notices at the Bair Island entrance gate in Spanish as well as English, as so many of the visitors are Spanish speaking. I am sure they all would have wanted to have been appraised of the situation.

Thanks for the soapbox.

Kathy Wright
Redwood City

NEWS

Huge projects may shape Bayfront

BAYFRONT
continued from page 5

action, or should Inner Bair Island become a managed marsh that would support the endangered salt marsh harvest mouse, but not the California clapper rail?
■ How much public access should be allowed?

About 40 people gathered September 22 to hear the plans and weigh in on the issues described in the draft environmental impact statement/report (DEIS/EIR).

Restoration is important not only to restore some of the salt marsh that used to ring San Francisco Bay 150 years ago, said refuge manager Clyde Morris. If nothing is done, eventually levees will break, a lake will form, and tides will flush silt into Redwood Creek and Pete's Harbor. "Restoration will be better for wildlife, and you won't have that nasty mosquito habitat," he said.

Much of the restoration will depend on adjusting tidal flows distorted over 150 years of diking and filling. These have almost dried up Steinberger Slough, and increased the flow and siltation in Redwood Creek, Mr. Morris explained.

Some of the silt dredged every few years from the Port of Redwood City could be used for filling an area on Inner Bair Island that has subsided, and would otherwise become a mosquito-attracting duck pond instead of a marsh.

The main disagreements appear to be over public access. The draft report proposes access from the end of Whipple Avenue, with several alternatives for limited trails and viewing locations on Inner Bair Island.

INFORMATION

Bair Island
■ Deadline for public comment is October 12. The public may submit written comments to Clyde Morris, P.O. Box 524, Newark, CA 94560, or FAX to 510-792-5828, or email to sfbaynwr@dfg.fws.gov.
■ Copies of the draft environmental reports (DEIS/EIR) may be viewed at the Redwood City Library, or downloaded from www.southbayrestoration.org. For information or a compact disc, call the refuge at 510-792-0222.
■ For canoe trips or to volunteer for restoration work, contact Save the Bay at 510-452-9261, or www.savesfbay.org.

Measure Q
■ Measure Q asks Redwood City voters whether they wish to adopt an ordinance, unanimously passed by the Redwood City Council, to rezone property located at Peninsula Marina and Pete's Harbor for residential and commercial development, and for marinas, parks and open space. A simple majority "yes" vote would result in approval of the ordinance. For information on Measure Q, contact the San Mateo County Elections Department at 312-5222, or www.shapethefuture.org.
■ Proponents may be reached at 369-8601, or www.q4cs.com.
■ For No on Q, call 369-7268, or www.no-on-q.org.

Redwood City wants far more access for recreation and education of all sectors of the public, from school children to seniors and the disabled.

Under the Redwood City proposal, the Whipple Avenue access would be closed and replaced with two access points near the San Carlos Airport, and near Pete's Harbor. There would be a major parking lot at each access point, and two new bridges would give access to refuge trails on Inner Bair Island.

The deadline for public comment on the draft report is October 12. The final report, which will reflect the comments received, should be out by the end of the year, said refuge director Marge Kolar. The final decisions will be made by the California Department of Fish and Game and the U.S. Fish and Wildlife Service.

Then it will take another year to prepare engineering plans and get permits before major work can start. And that will be limited by the funding that can be obtained.

Meanwhile, refuge employees and volunteers are busy pulling up exotic weeds and getting rid of invading predators that like to feed on endangered mice and birds. "We've got rid of the red foxes. The blue herons are back," said Ms. Kolar.

Marina Shores

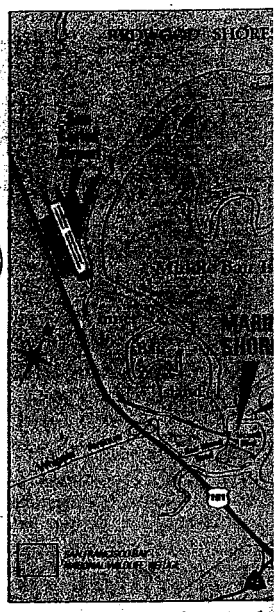
Ralph Nobles sees many parallels with the fight he led in 1982 that saved Bair Island — now being restored — from a development even bigger than the Marina Shores proposal for the area just across Smith Slough from Bair Island.

Marina Shores, which has been under study in Redwood City for four years, would be a "waterfront village" with canals and a marina on 46 acres of Pete's Harbor and the Peninsula Marina. It could include up to 1,930 housing units in some 17 towers up to 240 feet high, along with commercial, new offices, and a hotel.

The debate is furious in Redwood City, while people outside wonder about the larger effects — such as traffic on Bayshore, and availability of housing.

While the developers will pour $10 million into mitigating traffic by building a connection to Woodside Road and providing a downtown shuttle, opponents fear some 14,000 new cars a day would add to gridlock.

Proponents point to the increase in the Peninsula housing supply, including 15 percent of the units for below-market housing. Oppo-



Plans are moving ahead to restore 1,
Island to tidal marsh for habitat, endange
three islands were saved from developm
now they are part of the San Francisco B
Redwood City voters will decide on Nove
"village" across Smith Slough at Pete's H
If Measure Q passes, Marina Shores cou
towers up to 240 feet tall, plus stores, o

New sports complex at M-A

NEW GYM
continued from page 5

mous amount of work."

New M-A Principal Norman Estrada said the new facility will be a "focus for campus and community pride."

the main section of the building has five overhead industrial doors that roll up like garage doors for indoor-outdoor access. The floor also is striped for volleyball and badminton. Scoreboards at each side of the gym are designed for scoring of all sports. Bleachers

RESPONSES TO COMMENT NO. 31
KATHY WRIGHT

Response to Comment 31-A
The Refuge has posted some of its signs at the entrance to Bair Island in Spanish. The Refuge will continue to look for similar opportunities.

The remaining comments convey the opinion of its author regarding the project is noted and may be considered by the CDFG and USFWS decision-makers in their evaluation of the project. No further responses or analysis is required here, as this comment does not ask any questions regarding the factual information or analysis in the EIS/EIR.