

6. PHASE 2 PREFERRED ALTERNATIVE AND OTHER NEPA/CEQA ALTERNATIVES

This chapter describes the Preferred Alternative for the Phase 2 actions at Eden Landing Ecological Reserve (ELER or Reserve). It also identifies the Environmentally Superior Alternative, a California Environmental Quality Act (CEQA) requirement.

Action alternatives are described in detail in Chapter 2 and analyzed thoroughly in Chapter 3. The potential for Cumulative Impacts is discussed in Chapter 4. Chapter 5 presents other National Environmental Policy Act (NEPA) and CEQA considerations. This chapter is organized as follows:

- Section 6.1 is about the Preferred Alternative.
 - Section 6.1.1 identifies and provides an overview of the Preferred Alternative, its main components, and the process by which it was developed and selected.
 - Section 6.1.2 discusses how the Preferred Alternative was developed from the action alternatives presented in the Draft Environmental Impact Statement/Report (EIS/R) and describes what modifications, if any, were made to components of the action alternatives. It also describes how the Preferred Alternative fits into the impact analysis presented in the Draft EIS/R.
 - Section 6.1.3 presents a summary of the significance determinations for the Preferred Alternative.
- Section 6.2 discusses the Environmentally Preferred Alternative.
- Section 6.3 discusses the Environmentally Superior Alternative.

6.1 Preferred Alternative for Phase 2 at ELER

6.1.1 Identification of the Preferred Alternative

This section identifies the Preferred Alternative, as it would be implemented for Phase 2 at ELER. The state lead agency (the CDFW) along with the Project Management Team and other project partners did not identify a Preferred Alternative in the Draft EIS/R for Phase 2 at ELER. By waiting until this Final EIR to make that decision, the project proponents were able to incorporate input received from the public, regulatory agencies, and other stakeholders on the Draft EIS/R into the decision regarding which combination of elements to select for the Preferred Alternative. As described in the 2007 Final EIS/R and other project planning documents, the SBSP Restoration Project's approach has been to allow the lessons learned from each project phase, the ongoing applied studies, and other scientific research and monitoring to inform future phases of the project and to determine the ultimate outcome. These resources and results were used to shape the selection of the Preferred Alternative.

Finally, the selection of what to include in the Preferred Alternative was shaped by a sense of how the SBSP Restoration Project's goals and objectives could be met while maximizing benefits and/or minimizing the environmental impacts associated with project implementation. These factors drove many of the decisions. Other decisions were driven by feasibility, constructability, or regulatory constraints.

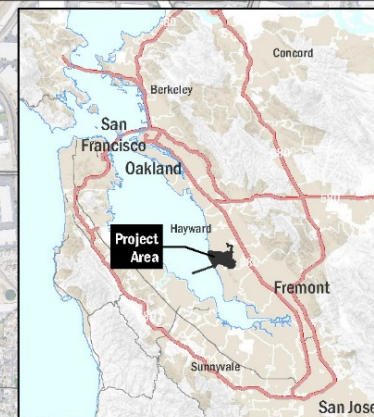
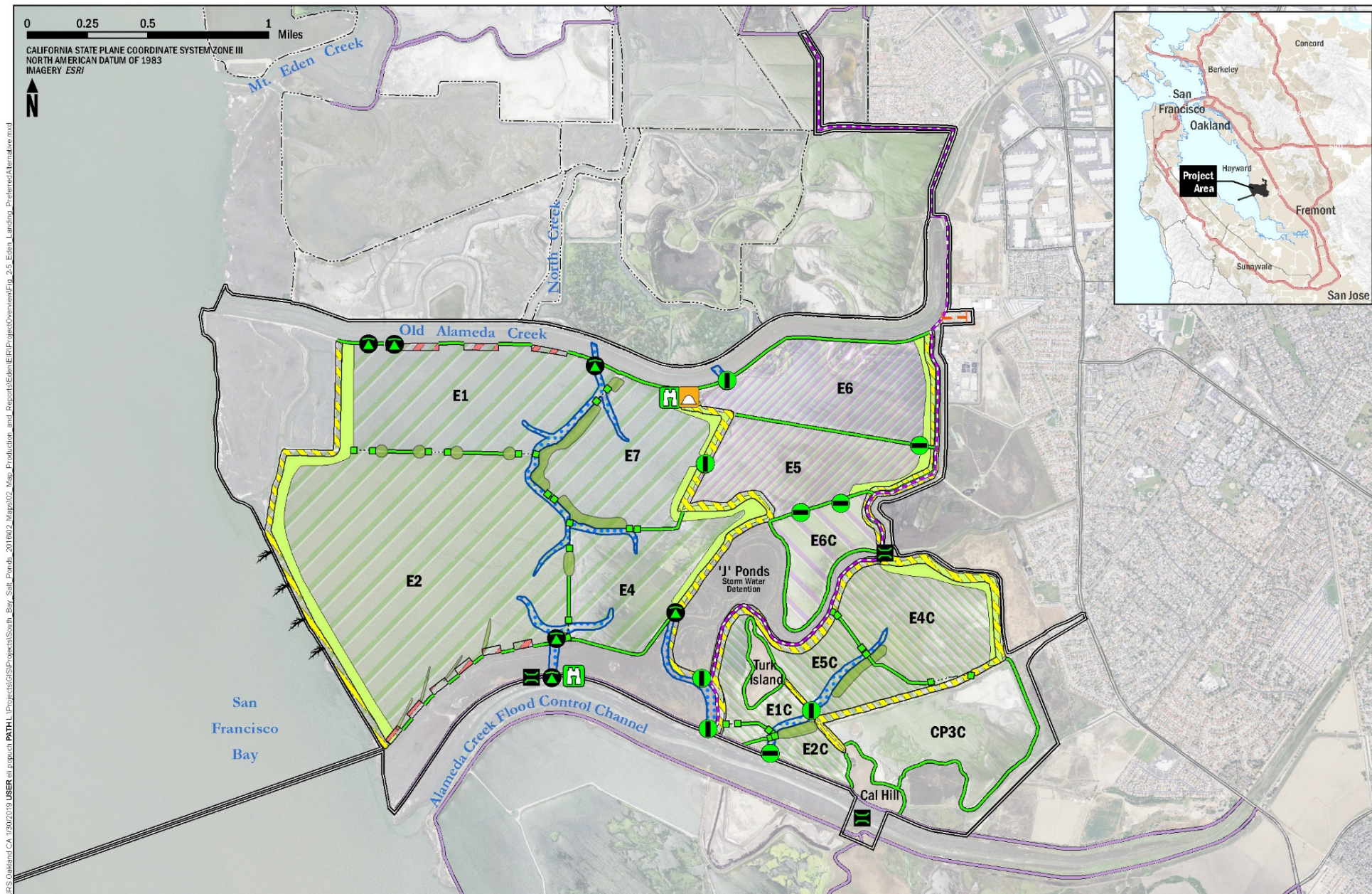
Figures 6-1 and 6-2 illustrate the Preferred Alternative. Figure 6-1 shows the first phase of restoration and Figure 6-2 shows the second phase of restoration which is subject to adaptive management as per the practices and processes in the Project's Adaptive Management Plan, which was adopted as part of the 2007 Final EIS/R. The Preferred Alternative provides habitat restoration, maintains or improves flood risk management, and provides wildlife compatible public access and recreation features, consistent with the project's Phase 2 goals and objectives. As indicated above, the Preferred Alternative is made up of the individual components that were presented and analyzed in the Draft EIS/R in Chapters 3 to 5 with some modifications. In a few cases, clarifications and refinements to the individual components were made in response to comments and suggestions received on the Draft EIS/R. These changes do not increase, and often decrease, the potential for significant environmental impacts. Although the combination of the components is different in the Preferred Alternative than those presented in the action alternatives, there are no new significant impacts and no new mitigation measures are required.

6.1.2 Preferred Alternative

Description and Explanation

The Preferred Alternative has components from each of the action alternatives. Table 6-1 compares the project components selected for the Preferred Alternative to those analyzed in the action alternatives. Clarifications and refinements of the individual components are noted in Table 6-1 and discussed in this section.

Similar to Alternative Eden D, the Preferred Alternative would include tidal restoration of the Bay Ponds and adaptive management-informed phased restoration of Pond E5, Pond E6, and Southern Ponds. The Inland Ponds (Ponds E5, E6, and E6C) are not included for tidal restoration during the first phase of restoration. The project needs to balance multiple types of habitat restoration and enhancement actions. The long-term operation of those ponds as enhanced managed ponds may be necessary to achieve the full balance of the project's intended ecological goals unless monitoring and implementation of the Adaptive Management Plan (or AMP) provide a basis for determining that tidal restoration of Ponds E6 and E5 is more beneficial. Unlike Alternative Eden D, Pond E6C is proposed to be enhanced and maintained as seasonal habitat for western snowy plover and other pond nesting birds in the summer, while providing deeper open water for overwintering diving ducks and dabbling ducks, among other migratory bird species during the spring and fall migration periods. Maintaining Pond E6C as a permanent enhanced managed pond was analyzed under Alternative Eden C. The Southern Ponds would be opened to muted tidal flows through a culvert system during the first phase of restoration. However, based on the outcome of adaptive-management informed monitoring activities, those ponds could be operated as enhanced managed ponds and not left open to constant muted tidal flows during the second phase of restoration. Phased restoration of the Southern Ponds was described under Alternative Eden D and effects of immediately introducing tidal flows through new water control structures in the Southern Ponds is described under Alternative Eden B.



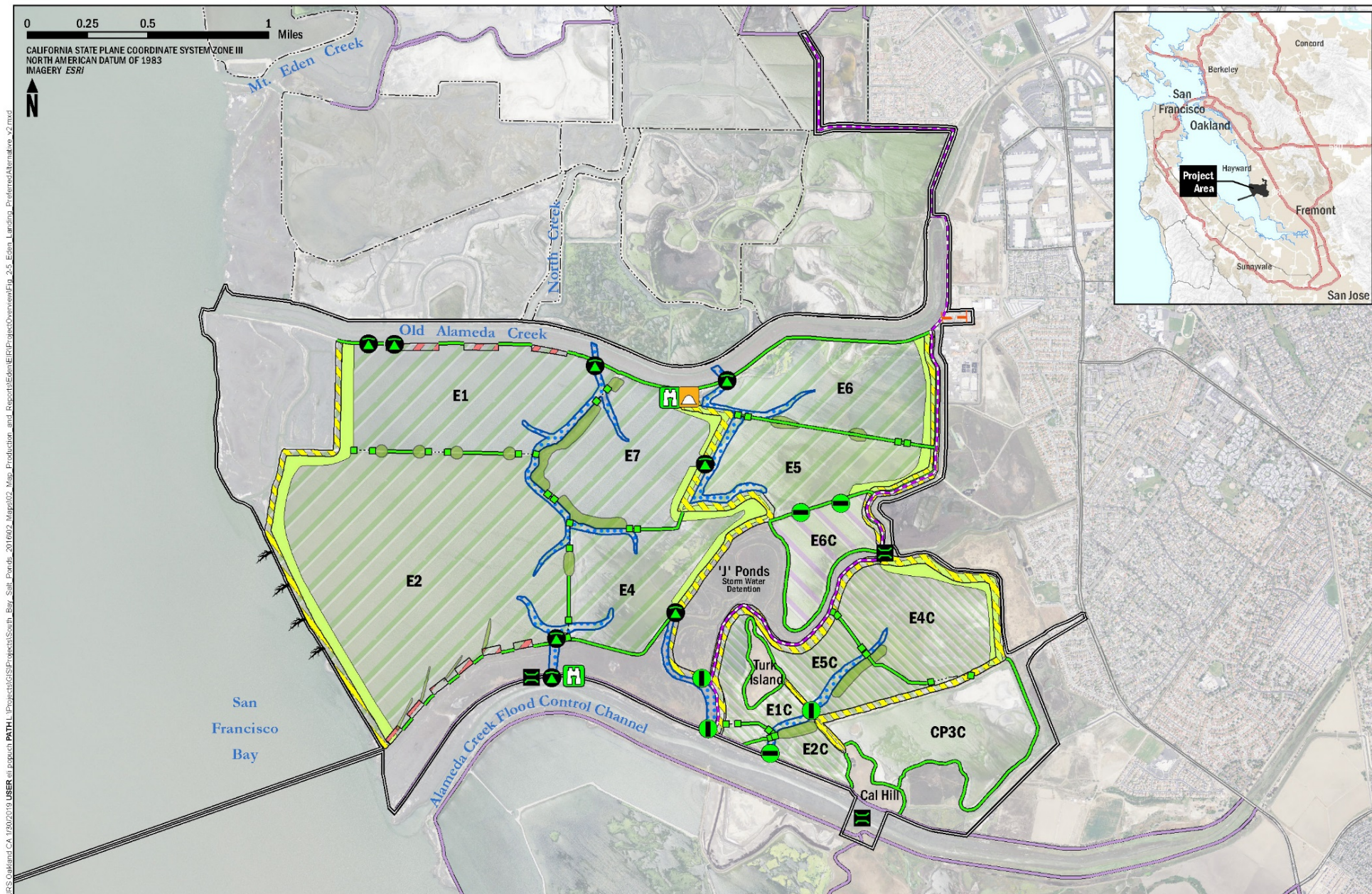
LEGEND

- | | | | | | | |
|-----------------------------------|--|-----------|-----------------------------------|---|-------------------------|--|
| Existing Alvarado Salt Works site | Water Control Structure (New) | Breach | Existing Trail | Community Connection | Island/Mound | Phase 2 Goal
Managed Pond, Permanent
Managed Pond, Possibly Converting to Tidal Marsh
Tidal Marsh, Permanent
Muted Tidal Marsh (via Culverts) |
| Bridge | Existing Water Control Structure (Repair/Replace as Necessary) | Root Wads | Proposed Trail | Boundary of Current or Former ELER Pond | Pilot Channel | |
| Viewing Platform | | | Existing/Residual Levee | Internal Levee Breach | Improved Levee | |
| | | | Eden Landing Phase 2 Project Area | | Habitat Transition Zone | |
| | | | | | Lowered Levee | |

AECOM

South Bay Salt Pond Restoration Project

Figure 6-1
Eden Landing Preferred Alternative



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- | | | | | | | |
|-----------------------------------|--|-----------|-----------------------------------|---|-------------------------|----------------------------------|
| Existing Alvarado Salt Works site | Water Control Structure (New) | Breach | Existing Trail | Community Connection | Island/Mound | Phase 2 Goal |
| Bridge | Existing Water Control Structure (Repair/Replace as Necessary) | Root Wads | Proposed Trail | Boundary of Current or Former ELER Pond | Pilot Channel | Managed Pond, Permanent |
| Viewing Platform | | | Existing/Residual Levee | Internal Levee Breach | Improved Levee | Tidal Marsh, Permanent |
| | | | Internal Levee Breach | | Habitat Transition Zone | Muted Tidal Marsh (via Culverts) |
| | | | Eden Landing Phase 2 Project Area | | Lowered Levee | |

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South Bay Salt Pond Restoration Project

Figure 6-2

Eden Landing Preferred Alternative with Adaptive Management

Table 6-1. Comparison of the Action Alternatives to the Preferred Alternative

Component	Alternative Eden B	Alternative Eden C	Alternative Eden D	Preferred Alternative
Restoration goal	Tidal restoration of the Bay, Inland, and Southern Ponds	Tidal restoration of the Bay Ponds and the Inland and Southern Ponds become permanent enhanced managed ponds	Tidal restoration of the Bay Ponds and adaptive management-informed phased restoration of the Inland and Southern Ponds (managed ponds then tidal marsh)	Similar to Alternative Eden D except Pond E6C is a permanent enhanced managed pond and the Southern Ponds receive muted tidal flows via culverts during the initial phase of restoration
Perimeter levee breaches and pilot channels	Levee breaches in Ponds E1, E6 and E2 with associated pilot channels	Levee breaches in Ponds E1 and E4 with associated pilot channels	Levee breaches at Pond E1 with associated pilot channels	Similar to Alternatives Eden B and C with an armored breach in the ACFCC near Pond E2, small breaches in Pond E1, and adaptive management-informed phased restoration that can include a breach in Pond E6 and a breach between Ponds E5 and E7
Internal levee breaches	Internal levee breaches and habitat islands/mounds in the Bay, Inland, and Southern Ponds	Internal levee breaches in the Bay and Southern Ponds; habitat islands/mounds in the Bay Ponds	Internal levee breaches and habitat islands/mounds in the Bay and Southern Ponds	Similar to Alternative Eden D with internal breaches in the Inland Ponds implemented if needed during phased restoration
Water control structures	New or repaired water control structures in the Southern Ponds and the ACFCC	New or repaired water control structures in the Inland and Southern Ponds and the ACFCC	New or repaired water control structures in the Inland and Southern Ponds and the ACFCC	Similar to Alternative Eden C with fewer water control structures in the Inland and Southern Ponds
Lowered levees	Lowered levees at Pond E1 north, Pond E2 south, and west levees	Lowered levees at Pond E1 north, Pond E2 south, and west levees	Lowered levees at Pond E1 north and Pond E2 south	Similar to Alternative Eden D
Landside levees	Improved landside levee and habitat transition zone at Ponds E6, E5, E6C, and E4C	Landside levee not improved	Improved landside levee	Similar to Alternative Eden B with a steeper habitat transition zone, if needed, and no habitat transition zone in Pond E6C
Mid-complex levee(s)	Internal levee breaches, habitat islands/mounds, and pilot channels at the boundary between the Bay and Inland Ponds.	Improved mid-complex levee and habitat transition zone at the boundary between the Bay and Inland Ponds	Temporary mid-complex levee and pilot channels at the boundary between the Bay and Inland Ponds	Similar to Alternative Eden C with a steeper habitat transition zone, if needed

Table 6-1. Comparison of the Action Alternatives to the Preferred Alternative

Component	Alternative Eden B	Alternative Eden C	Alternative Eden D	Preferred Alternative
Bayward levees	Lowered levees at Pond E1 west and northwest Pond E2 (bordering Cargill Mitigation Marsh and Southern Whale's Tale Marsh)	Improved bayside levee at Pond E2; levee lowering on Pond E1 west and northwest Pond E2	Improved bayside levee and habitat transition zone at Pond E1 and E2	Similar to Alternative Eden D with a steeper habitat transition zone, if needed
Southern levees	Improved southern levees at Ponds E4C and E5C and connections to Turk Island and Cal Hill	Southern levees not improved	Improved southern levees at Ponds E4C and E5C and connections to Turk Island and Cal Hill	Similar to Alternatives Eden B and D
Other levee improvements (recreational trails)	Improved levees at Ponds E6C south, E5C north, and E1C north	Improved levee at a section of Pond E1C (at mid-complex)	Improved levee at a section of Pond E1C (at mid-complex)	Similar to Alternative Eden B except that the northern levee at Pond E4C and a section of Pond E5C would be improved instead of the southern levee at Pond E6C
Recreational trail alignment	Through-trail from northern Eden Landing to the Southern Ponds, three trail route options, and two community connectors	Through-trail from northern Eden Landing to the Southern Ponds, three trail route options, two community connectors, and a spur trail to the Alvarado Salt Works	Through-trail from northern Eden Landing to the Southern Ponds, three trail route options, and two community connectors	Similar to Alternative Eden B with Trail Route 1 and one community connector at Veasy Street
Bridges	Two footbridges over the connection to the J-ponds	Bridge over the ACFCC at the Alameda Creek Regional Trail and two footbridges over the connection the J-ponds	Two footbridges over the J-pond connector	Similar to Alternative Eden C except with only one footbridge over the connection to the J-ponds
Dredge materials	Beneficial reuse of dredge materials in the Bay and Inland Ponds	Beneficial reuse of dredge materials in the Bay Ponds	Beneficial reuse of dredge materials in the Bay and Inland Ponds	Similar to Alternative Eden B and D, except no material would be placed in Pond E6C
Water use connections	Water reuse connections on the landside levee	No water reuse connections	No water reuse connections	Similar to Alternatives Eden C and D
Root-wads and enhancement features	Rootwad enhancement features on Pond E2's bay-facing levee	No rootwads and enhancement features on Pond E2's bayfacing levee	No rootwads and enhancement features on Pond E2's bayfacing levee	Similar to Alternative Eden B with rootwads and related enhancement features (gravels/coarse grain materials) located on Pond E2's bayfacing levee north of the existing shoal

Similar to components found in Alternative Eden B or Eden C, tidal flows would enter into the Bay Ponds in the Preferred Alternative through levee breaches in Ponds E1, E2, and E4. The pilot channels associated with these breaches would support draining these ponds. In the Preferred Alternative, the water control structure and pump at Pond E1 that is currently being used to supply circulation flows to the Bay and Inland Ponds would also be removed, creating two additional small openings in Pond E1's northern levee. Furthermore, to facilitate fish passage between the ACFCC and the tidally restored ponds, the connection to the ACFCC from Pond E2 would no longer be through large culverts as initially described, but instead through a full breach. This breach would be armored to prevent additional scour and uncontrolled widening, providing bank stability for a new public access bridge on the Alameda Creek Regional Trail. Although additional approvals would be required to breach ACFCC, construction of a breach and its long-term operational effects would be similar to the breaches described on OAC with added fisheries restoration benefits through a larger connection at ACFCC.

For the Preferred Alternative, internal levees would be breached and the material from the breaches would be used to create new habitat islands and mounds in the Bay and Southern Ponds similar to Alternative Eden D. The levee located on the northern side of Pond E1 and the southern side of Pond E2 would also be lowered, as shown in Alternative Eden D.

The Preferred Alternative would use new or repaired water control structures to manage flow in the Inland and Southern Ponds similar to Alternative Eden C. However, under the Preferred Alternative, the system would be effectively managed with a reduced number of new water control structures. In addition, if monitoring and implementation of the Adaptive Management Plan provides a basis for determining that tidal restoration of Ponds E6 and E5 is most beneficial, then the water control structure in Pond E6 and a water control structure in Pond E5 would be removed in the second phase of restoration and replaced with additional breaches at those locations.

The Preferred Alternative includes levee improvements in several areas: the landside levee would be improved and a habitat transition zone would be constructed west of the levee in Ponds E4C, E5, and E6, as in Alternative Eden B; an improved mid-complex levee and habitat transition zone would be constructed between the Bay and Inland Ponds, as in Alternative Eden C; and the bayside levee would be improved and a habitat transition zone would be constructed east of the levee in Ponds E1 and E2, as in Alternative Eden D. The southern levees at Ponds E4C and E5C would be improved, as would levees connecting to Turk Island and Cal Hill, as in Alternatives Eden B and Eden D. And finally, one of the two levees separating the Inland Ponds and J-ponds from the Southern Ponds would be improved, similar to Alternative Eden B, except with the variant that the northern levee at Pond E4C and a section of the northern levee at Pond E5C would be improved instead of the southern levee at Pond E6C.

The trail alignment in the Preferred Alternative includes the through-trail from northern Eden Landing to the Southern Ponds, Trail Route 1 from the proposed trail options, and one community connector at Veasy Street. Trail Route 1 would be constructed on improved levees (elevation 12 feet, NAVD88, the same height as the mid-complex levee), as in Alternative Eden B. However, as mentioned above, there would be a variant on the trail route that includes the northern levees at Ponds E4C and E5C instead of the southern levee at Pond E6C to minimize potential disturbance of western snowy plover at Pond E6C. For the Preferred Alternative, only one footbridge would be required over the connection to the J-ponds, instead of two. In addition, the bridge over the ACFCC at the Alameda Creek Regional Trail would also be included in the Preferred Alternative, as described in Alternative Eden C. (See Appendix J, Master Comment Response 6, regarding the need for cooperation between partner agencies to successfully implement this feature.)

Beneficial reuse of dredge material in the Bay and Inland Ponds would be similar to what is described under Alternatives Eden B and D, except that dredge materials would not be placed in Pond E6C. It should also be noted that the availability of dredge materials and supplemental upland fill materials could affect the final design slope of the habitat transitions zones.

Water reuse connections on the landside levee are not proposed under the Preferred Alternative, but rootwads and other enhancement features are proposed along Pond E2's bayfacing levee. Rootwads would be concentrated in the section of the bayfacing levee located north of an existing shoal to help trap sediment and form beach-like areas while providing some erosion protection. Rootwads are expected to be cabled in place to new rip-rap or large boulders placed near the toe of the levee. Rootwads would be anchored in a manner that would not reduce erosion protection and would not cause stability issues with the existing rip-rap. Gravels or other coarse materials would be placed at or near the rootwads to provide habitat complexity and increase resistance to erosion. Gravels are expected to be placed along approximately 300 linear feet at the toe of the bayfacing levee as a pilot project for a potential larger habitat enhancement and erosion-resistance project. Placement of these gravels constitute fill in Bay waters which is similar to the other bayfacing enhancement feature included in the Preferred Alternative (rootwads), except that the gravels would not need to be anchored in place.

The Preferred Alternative also includes the operation and maintenance (O&M) activities common to the action alternatives, as described in Chapter 2.

Summary of Impact Analysis from Chapter 3

Each component of the Preferred Alternative would be similar to one or more of the components analyzed in the action alternatives. The potential for adverse environmental impacts from each of the components in the Preferred Alternative, as well as the expected benefits, would therefore be very similar to those discussed in Chapters 3 to 5 of the Draft EIS/R and Final EIR. Potential adverse effects due to the recombination of the individual components in the Preferred Alternative are discussed in this section.

As explained in Table 6-1 and in the preceding subsection, the Preferred Alternative includes multiple levee improvements and habitat transition zones in southern Eden Landing. These levee improvements and habitat transition zones are expected to provide benefits to both flood risk management and habitat restoration. Habitat connectivity is also provided through multiple connections to OAC and the ACFCC. The inclusion of these multiple elements have the potential to change the amount of earthwork (cut and fill), dredge material placement, traffic congestion, and air quality emissions associated with the project. These potential effects are discussed below.

Earthwork. The Preferred Alternative is expected to require the import of approximately 50,000 cubic yards of upland fill material for levee improvements as well as the import of 9,000 cubic yards of base materials for upland trail improvements and 2,000 cubic yards of gravels/course grain sediments for habitat enhancements on the bayfacing levee. The imported fill would be in addition to the dry compacted material excavated from levee lowering and external breaches which would be reused onsite for levee improvements; this assumption is consistent with the preliminary design for the action alternatives. Habitat transition zones would be constructed from a combination of dredge materials and upland fill materials. As such, the total amount of imported fill material for the Preferred Alternative is expected to be similar to Alternative Eden D, which would require up to 154,000 cubic yards of fill imported by truck. These estimates are based on a preliminary level of design and the estimated amounts of imported fill will be refined in the design process.

Dredge Materials. The beneficial reuse of dredge materials is also included in the Preferred Alternative. Similar to Alternative Eden B and D, up to 6 million cubic yards of dredge materials would be placed in the Bay and Inland Ponds to raise the pond bottom elevations and build habitat transition zones. However, dredge materials would not be placed in Pond E6C. Instead, dredge materials would be used for construction of multiple habitat transition zones.

Traffic Congestion. The Preferred Alternative is expected to have similar issues with traffic congestion as those identified in Alternative Eden D because the amount of imported fill materials is expected to be similar. To assess the greatest possible impact on traffic congestion, the traffic analysis assumed a maximum of 200 truckloads per day over a 10-hour work day using an 11-cubic yard capacity haul truck. This was also assumed for the Preferred Alternative, as haul routes and construction access constrictions at the site would be the same as those evaluated in the action alternatives. Note that Section 3.11 of the EIR indicates that in all likelihood this assumption is overly conservative, as substantial amounts of upland fill material would need to be available at the same time, requiring the material to be hauled in and placed within southern Eden Landing over a relatively short duration which may require subsequent stockpiling and double-handling. In all likelihood, the upland fill material would not be ready at the same time and it would only be imported at the rate it became available from different sources.

Air Quality. As discussed in the EIR, dredged material movement and placement could use a diesel-powered offloading facility and pumps or be powered by electricity. Construction activities would also result in emissions from earthmoving activities, exhaust from off-road equipment and worker commute activity, and other miscellaneous construction-related activities. Because earthwork, import of upland fill materials, import of dredge materials, and worker activity are expected to be similar to Alternative Eden D, the Preferred Alternative is expected to generate similar amounts of construction emissions as Alternative Eden D during a similar or slightly longer duration.

6.1.3 Significance Determinations for the Phase 2 Preferred Alternative

Table 6-2 presents the results of the significance determinations by impact for the Preferred Alternative. For reference, the table also presents the significance determinations made in Chapter 3 for the action and no action alternatives.

The impact analysis and significance determination conducted for this Final EIR identified the potentially significant impacts listed below. These are those impacts that could not be reduced to a less-than-significant level, even after implementation of project-specific mitigation measures or because no appropriate project-level mitigation measures exist that would have that effect. In these rare cases, these impacts are significant.

- Eden Landing Phase 2 Impact 3.6-5, Result in the temporary construction-related closure of adjacent public parks or other recreation facilities, making such facilities unavailable for public use: The temporary closure of existing trails and recreation facilities would be necessary under each of the action alternatives to bring materials and equipment to the project area and to provide public safety during construction activities. The Preferred Alternative would also have significant and unavoidable impacts from construction activities resulting in temporary closure of existing trails and recreation facilities.
- Eden Landing Phase 2 Impact 3.11-1, Potential short-term degradation of traffic operations at intersections and streets due to construction: A traffic impact analysis was prepared to analyze

the impact of construction-related traffic on each of the action alternatives. This study found that at the AM peak hour the impact is considered significant. The optimization of the I-880 Southbound Ramps/Whipple Road/Dyer Street intersection would mitigate the impact to less than significant; however, this mitigation is not feasible as this intersection is part of a synchronized series of intersections. The Preferred Alternative would also cause a significant and unavoidable impact due to construction-related traffic at the AM peak hour.

- Eden Landing Phase 2 Impact 3.13-1, Short-term construction-generated air pollutant emissions: Construction-generated average daily NOx emissions would exceed applicable regional significance thresholds during import and placement of dredge materials in the action alternatives. Project-specific mitigation measures will be used to reduce NOx emissions to the greatest extent feasible, but for those options where diesel fuel (instead of electrical power) is used to power the offloading facility and booster pumps, NOx emissions would still exceed the regional threshold of significance. Therefore, significant and unavoidable impacts would occur for each of the action alternatives if diesel fuel is used to power the construction equipment during import and placement of dredge materials.¹ The Preferred Alternative would also cause significant and unavoidable impacts to air quality if diesel fuel is needed to power the construction equipment during import and placement of dredge materials.

¹ Annual emissions would be below General Conformity de minimis levels with incorporation of the project-specific mitigation measures. Therefore, construction-related emissions associated with diesel powered construction equipment would conform to the State Implementation Plan, and a formal conformity analysis would not be required.

Table 6-2. Impact Summary Table

IMPACT	EDEN	LANDING	PHASE 2	ALTS.	PREF ALT
	EDEN A	EDEN B	EDEN C	EDEN D	
3.2 Hydrology, Flood Management, and Infrastructure					
Eden Landing Phase 2 Impact 3.2-1: Increased risk of flooding that could cause injury, death, or substantial property loss.	LTS	LTS	LTS	LTS	LTS
Eden Landing Phase 2 Impact 3.2-2: Alter existing drainage patterns in a manner which would result in substantial erosion or siltation on- or off-site.	LTS	LTS	LTS	LTS	LTS
Eden Landing Phase 2 Impact 3.2-3: Create a safety hazard for people boating in the project area.	LTS	LTS	LTS	LTS	LTS
Eden Landing Phase 2 Impact 3.2-4: Potential effects from tsunami and/or seiche.	LTS	LTS	LTS	LTS	LTS
Eden Landing Phase 2 Impact 3.2-5: Place structures within the 100-year-flood hazard area that would impede or redirect flood flows.	NI	LTS	LTS	LTS	LTS
3.3 Water Quality and Sediment					
Eden Landing Phase 2 Impact 3.3-1: Degradation of water quality due to changes in algal abundance or composition.	LTS	LTS	LTS	LTS	LTS
Eden Landing Phase 2 Impact 3.3-2: Degradation of water quality due to low dissolved oxygen levels.	LTS	LTS	LTS	LTS	LTS
Eden Landing Phase 2 Impact 3.3-3: Degradation of water quality due to increased methylmercury production or mobilization of mercury-contaminated sediments.	LTS	LTS	LTS	LTS	LTS
Eden Landing Phase 2 Impact 3.3-4: Potential impacts to water quality from other contaminants.	LTS	LTS	LTS	LTS	LTS
Eden Landing Phase 2 Impact 3.3-5: Potential to cause seawater intrusion of regional groundwater sources.	LTS	LTS	LTS	LTS	LTS
3.4 Geology, Soils, and Seismicity					
Eden Landing Phase 2 Impact 3.4-1: Potential effects from settlement due to consolidation of Bay mud.	LTS	LTS	LTS	LTS	LTS
Eden Landing Phase 2 Impact 3.4-2: Potential effects from liquefaction of soils and lateral spreading.	LTS	LTS	LTS	LTS	LTS
Eden Landing Phase 2 Impact 3.4-3: Potential for ground and levee failure from fault rupture.	LTS	LTS	LTS	LTS	LTS
Eden Landing Phase 2 Impact 3.4-4: Potential effects from consolidation of Bay mud on existing subsurface utility crossings and surface rail crossings.	LTS	LTS	LTS	LTS	LTS
3.5 Biological Resources					
Eden Landing Phase 2 Impact 3.5-1: Potential construction-related loss of or disturbance to special-status, marsh-associated wildlife.	NI	LTS	LTS	LTS	LTS
Eden Landing Phase 2 Impact 3.5-2: Potential construction-related loss of or disturbance to nesting pond associated birds.	NI	LTS	LTS	LTS	LTS
Eden Landing Phase 2 Impact 3.5-3: Potential reduction in numbers of small shorebirds using San Francisco Bay, resulting in substantial declines in flyway-level populations.	NI	LTS	LTS/B	LTS	LTS
Eden Landing Phase 2 Impact 3.5-4: Loss of intertidal mudflats and reduction of habitat for mudflat-associated wildlife species.	NI	LTS	LTS	LTS	LTS
Eden Landing Phase 2 Impact 3.5-5: Potential habitat conversion impacts to western snowy plovers.	NI	PS	LTS	LTS	LTS

Table 6-2. Impact Summary Table

IMPACT	EDEN	LANDING	PHASE 2	ALTS.	PREF ALT
	EDEN A	EDEN B	EDEN C	EDEN D	
Eden Landing Phase 2 Impact 3.5-6: Potential reduction in the numbers of breeding, pond-associated waterbirds (avocets, stilts, and terns) using the South Bay due to reduction in habitat, concentration effects, displacement by nesting California gulls, and other Project-related effects.	NI	LTS	LTS	LTS	LTS
Eden Landing Phase 2 Impact 3.5-7: Potential reduction in the numbers of non-breeding, salt-pond-associated birds (e.g., phalaropes, eared grebes, and Bonaparte's gulls) as a result of habitat loss.	NI	LTS	LTS	LTS	LTS
Eden Landing Phase 2 Impact 3.5-8: Potential reduction in foraging habitat for diving ducks, resulting in declines in flyway-level populations.	NI	LTS	LTS	LTS	LTS
Eden Landing Phase 2 Impact 3.5-9: Potential reduction in foraging habitat for ruddy ducks, resulting in declines in flyway-level populations.	NI	LTS	LTS	LTS	LTS
Eden Landing Phase 2 Impact 3.5-10: Potential habitat conversion impacts on California least terns.	NI	LTS	LTS	LTS	LTS
Eden Landing Phase 2 Impact 3.5-11: Potential loss of pickleweed-dominated tidal salt marsh habitat for the salt marsh harvest mouse and salt marsh wandering shrew, and further isolation of these species' populations due to breaching activities and scour.	NI	LTS/B	LTS/B	LTS/B	LTS/B
Eden Landing Phase 2 Impact 3.5-12: Potential disturbance to or loss of sensitive wildlife species due to ongoing monitoring, maintenance, and management activities.	LTS	LTS	LTS	LTS	LTS
Eden Landing Phase 2 Impact 3.5-13: Potential effects of habitat conversion and pond management on steelhead.	LTS	LTS/B	LTS/B	LTS/B	LTS/B
Eden Landing Phase 2 Impact 3.5-14: Potential long-term effects to estuarine fish.	NI	LTS/B	LTS/B	LTS/B	LTS/B
Eden Landing Phase 2 Impact 3.5-15: Potential impacts to piscivorous birds.	NI	LTS	LTS	LTS	LTS
Eden Landing Phase 2 Impact 3.5-16: Potential impacts to dabbling ducks.	NI	LTS	LTS/B	LTS	LTS
Eden Landing Phase 2 Impact 3.5-17: Potential impacts to harbor seals.	NI	LTS/B	LTS/B	LTS/B	LTS/B
Eden Landing Phase 2 Impact 3.5-18: Potential recreation-oriented impacts to sensitive species and their habitats.	NI	LTS	LTS	LTS	LTS
Eden Landing Phase 2 Impact 3.5-19: Potential impacts to special-status plants.	NI	NI	NI	NI	NI
Eden Landing Phase 2 Impact 3.5-20: Colonization of mudflats and marsh plain by non-native <i>Spartina</i> and its hybrids.	LTS	LTS	LTS	LTS	LTS
Eden Landing Phase 2 Impact 3.5-21: Colonization by non-native <i>Lepidium</i> .	NI	LTS	LTS	LTS	LTS
Eden Landing Phase 2 Impact 3.5-22: Increase in exposure of wildlife to avian botulism and other diseases.	NI	LTS	LTS	LTS	LTS
Eden Landing Phase 2 Impact 3.5-23: Potential impacts to bay shrimp populations.	NI	LTS/B	LTS/B	LTS/B	LTS/B
Eden Landing Phase 2 Impact 3.5-24: Potential impacts to jurisdictional wetlands or waters.	NI	LTS	LTS	LTS	LTS
Eden Landing Phase 2 Impact 3.5-25: Potential construction-related loss of, or disturbance to, nesting raptors (including burrowing owls).	NI	LTS	LTS	LTS	LTS

Table 6-2. Impact Summary Table

IMPACT	EDEN	LANDING	PHASE 2	ALTS.	PREF ALT
	EDEN A	EDEN B	EDEN C	EDEN D	
3.6 Recreation Resources					
Eden Landing Phase 2 Impact 3.6-1: Provision of new public access and recreation facilities, including the opening of new areas for recreational purposes and completion of the Bay Trail spine.	LTS	LTS	LTS/B (1 & 2); LTS (3)	LTS	LTS/B
Eden Landing Phase 2 Impact 3.6-2: Permanent removal of existing recreational features (trails) in locations that visitors have been accustomed to using and that would not be replaced in the general vicinity of the removed feature.	NI	LTS	LTS	LTS	LTS
Eden Landing Phase 2 Impact 3.6-3: Increase the use of existing neighborhood and regional parks or other recreational facilities, such that substantial physical deterioration of the facility would occur or be accelerated.	NI	LTS	LTS	LTS	LTS
Eden Landing Phase 2 Impact 3.6-4: Result in substantial adverse physical impacts associated with the provision of new or physically altered park and recreational facilities, or result in the need for new or physically altered park and recreational facilities, the construction of which could cause significant environmental impacts.	NI	LTS	LTS	LTS	LTS
Eden Landing Phase 2 Impact 3.6-5: Result in the temporary construction-related closure of adjacent public parks or other recreation facilities, making such facilities unavailable for public use.	NI	SU	SU	SU	SU
3.7 Cultural Resources					
Eden Landing Phase 2 Impact 3.7-1: Potential disturbance of known or unknown cultural resources.	NI	LTS	LTS	LTS	LTS
Eden Landing Phase 2 Impact 3.7-2: Potential disturbance of the historic salt ponds and associated structures which may be considered a significant cultural landscape.	NI	LTS	LTS	LTS	LTS
3.8 Land Use and Planning					
Eden Landing Phase 2 Impact 3.8-1: Land use compatibility impacts.	NI	LTS	LTS	LTS	LTS
3.9 Public Health and Vector Management					
Eden Landing Phase 2 Impact 3.9-1: Potential increase in mosquito populations.	LTS	LTS	LTS	LTS	LTS
3.10 Socioeconomics and Environmental Justice					
Eden Landing Phase 2 Impact 3.10-1: Displace, relocate, or increase area businesses, particularly those associated with the expected increase in recreational users.	NI	LTS/B	LTS/B	LTS/B	LTS/B
Eden Landing Phase 2 Impact 3.10-2: Change lifestyles and social interactions.	NI	LTS/B	LTS/B	LTS/B	LTS/B
Eden Landing Phase 2 Impact 3.10-3: Effects disproportionately placed on densely populated minority and low-income communities or effects or racial composition in a community.	NDE	NDE	NDE	NDE	NDE
3.11 Traffic					
Eden Landing Phase 2 Impact 3.11-1: Potential short-term degradation of traffic operations at intersections and streets due to construction.	NI	SU	SU	SU	SU
Eden Landing Phase 2 Impact 3.11-2: Potential long-term degradation of traffic operations at intersections and streets during operation.	NI	LTS	LTS	LTS	LTS

Table 6-2. Impact Summary Table

IMPACT	EDEN	LANDING	PHASE 2	ALTS.	PREF ALT
	EDEN A	EDEN B	EDEN C	EDEN D	
Eden Landing Phase 2 Impact 3.11-3: Potential increase in parking demand.	NI	LTS	LTS	LTS	LTS
Eden Landing Phase 2 Impact 3.11-4: Potential increase in wear and tear on the designated haul routes during construction.	NI	LTS	LTS	LTS	LTS
3.12 Noise					
Eden Landing Phase 2 Impact 3.12-1: Short-term construction noise effects.	NI	LTS	LTS	LTS	LTS
Eden Landing Phase 2 Impact 3.12-2: Traffic-related noise impacts during construction.	NI	LTS	LTS	LTS	LTS
Eden Landing Phase 2 Impact 3.12-3: Traffic-related noise effects during operation.	NI	LTS	LTS	LTS	LTS
Eden Landing Phase 2 Impact 3.12-4: Potential operational noise effects from O&M activities.	LTS	LTS	LTS	LTS	LTS
Eden Landing Phase 2 Impact 3.12-5: Potential vibration effects during construction and/or operation.	LTS	LTS	LTS	LTS	LTS
3.13 Air Quality					
Eden Landing Phase 2 Impact 3.13-1: Short-term construction-generated air pollutant emissions.	NI	SU/LTSM (diesel); LTSM (electric)	SU/LTSM (diesel); LTSM (electric)	SU/LTSM (diesel); LTSM (electric)	SU/LTSM (diesel); LTSM (electric)
Eden Landing Phase 2 Impact 3.13-2: Potential long-term operational air pollutant emissions.	LTS	LTS	LTS	LTS	LTS
Eden Landing Phase 2 Impact 3.13-3: Potential exposure of sensitive receptors to TAC emissions.	LTS	LTS	LTS	LTS	LTS
Eden Landing Phase 2 Impact 3.13-4: Potential odor emissions.	LTS	LTS	LTS	LTS	LTS
3.14 Public Services					
Eden Landing Phase 2 Impact 3.14-1: Increased demand for fire and police protection services.	NI	LTS	LTS	LTS	LTS
3.15 Utilities					
Eden Landing Phase 2 Impact 3.15-1: Reduced ability to access PG&E towers, stations or electrical transmission lines.	NI	NI	NI	NI	NI
Eden Landing Phase 2 Impact 3.15-2: Reduced clearance between waterways and PG&E electrical transmission lines.	NI	NI	NI	NI	NI
Eden Landing Phase 2 Impact 3.15-3: Reduced structural integrity of PG&E towers.	NI	LTS	LTS	LTS	LTS
Eden Landing Phase 2 Impact 3.15-4: Changes in water level, tidal flow and sedimentation near storm drain systems.	LTS	LTS	LTS	LTS	LTS
Eden Landing Phase 2 Impact 3.15-5: Changes in water level, tidal flow and sedimentation near pumping facilities.	LTS	LTS	LTS	LTS	LTS
Eden Landing Phase 2 Impact 3.15-6: Changes in water level, tidal flow and sedimentation near sewer force mains and outfalls.	NI	NI	NI	NI	NI
Eden Landing Phase 2 Impact 3.15-7: Disrupt Hetch Hetchy Aqueduct service so as to create a public health hazard or extended service disruption.	NI	NI	NI	NI	NI

Table 6-2. Impact Summary Table

IMPACT	EDEN	LANDING	PHASE 2	ALTS.	PREF ALT
	EDEN A	EDEN B	EDEN C	EDEN D	
Eden Landing Phase 2 Impact 3.15-8: Disruption of rail service due to construction of coastal flood levees and tidal habitat restoration.	NI	NI	NI	NI	NI
Eden Landing Phase 2 Impact 3.15-9: Reduced access to sewer force mains due to levee construction.	NI	LTS	LTS	LTS	LTS
Eden Landing Phase 2 Impact 3.15-10: Increased demands on regional energy supply or substantial increase in peak and base period electricity demand.	NI	LTS	LTS	LTS	LTS
3.16 Visual Resources					
Phase 2 Impact 3.16-1: Alter views of the SBSP Restoration Project Area and vicinity.	NI	LTS	LTS	LTS	LTS
3.17 Greenhouse Gas Emissions					
Eden Landing Phase 2 Impact 3.17-1: Construction-generated GHG emissions.	NI	LTS	LTS	LTS	LTS
Eden Landing Phase 2 Impact 3.17-2: Operational GHG emissions.	LTS	LTS	LTS	LTS	LTS
Eden Landing Phase 2 Impact 3.17-3: Conflicts with applicable GHG emissions reduction plan, policy, or regulation.	LTS	LTS	LTS	LTS	LTS

Notes:

Alternative Eden A is the No Action/No Project Alternative.

B = Beneficial; LTS = Less Than Significant; LTSM = Less Than Significant with Mitigation; NDE = No Disproportionate Effect; NI = No Impact; PS = Potentially Significant; SU = Significant and Unavoidable

The levels of significance for the impacts listed above assume that the program-level mitigation measures from the 2007 Final EIS/R and the elements of the Adaptive Management Plan are integral components of the Eden Landing Phase 2 project alternatives, and that management responses would be implemented based on ongoing monitoring and applied studies.

6.2 Environmentally Preferred Alternative

The Environmentally Preferred Alternative is defined by the Council on Environmental Quality as the alternative that best meets the criteria of Section 101(b) of NEPA (42 United States Code [USC] 4331).² The environmentally preferred alternative is a NEPA term for the alternative that will promote the national environmental policy as expressed in NEPA's Section 101. Ordinarily, this means the alternative that causes the least damage to the biological and physical environment, but it also means the alternative that best protects, preserves, and enhances historical, cultural, and natural resources. The SBSP Restoration Project's Phase 2 actions would provide benefits such as increased and improved tidal marshes and other habitats, additional public access and recreation opportunities, reduced risk of unplanned levee failure, and added potential for carbon sequestration. None of these benefits would be realized under the No Action Alternative.

The USFWS acted as the NEPA lead agency during preparation of the draft environmental document but has withdrawn as the NEPA lead agency for the final environmental document. Because this site-specific project is located on the CDFW-owned and managed ELER, and because the USFWS is not issuing a permit or funding the restoration, the USFWS does not have a decision to make under NEPA. However, this final document has been prepared to meet the requirements of both CEQA and NEPA and to facilitate permitting by another federal agency in the future (e.g., the USACE is expected to issue a Section 404 permit under the Clean Water Act and may undertake the NEPA process as part of that regulatory process). An Environmentally Preferred Alternative would be identified at a future date.

6.3 Environmentally Superior Alternative

CEQA Guidelines Section 15126.6 addresses the selection of the Environmentally Superior Alternative among the alternatives proposed. That section states that, if the environmentally superior alternative is the No Project Alternative, then the EIR must also identify an Environmentally Superior Alternative among the other alternatives. However, as noted above, the Environmentally Superior Alternative is not the No Project Alternative, nor would it achieve implementation of project goals and objectives. The SBSP Restoration Project's Phase 2 action alternatives would bring numerous benefits, none of which would be realized under the No Project Alternative.

To identify the Environmentally Superior Alternative, the action alternatives were evaluated based on significance thresholds and the potential adverse impacts identified. A potentially significant impact for biological resources was identified in one of the action alternatives and potentially significant and unavoidable impacts for recreation and public access, traffic, and air quality were identified in all of the action alternatives. Alternative Eden B was found to have potentially significant impacts to western

² The environmentally preferred alternative is the alternative that will promote the national environmental policy expressed in NEPA (Sec. 101 (b)), as follows:

- Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations.
- Ensure for all Americans safe, healthful, productive, and esthetically and culturally pleasing surroundings.
- Attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences.
- Preserve important historic, cultural, and natural aspects of our national heritage and maintain, wherever possible, an environment that supports diversity and variety of individual choice.
- Achieve a balance between population and resource use that will permit high standards of living and a wide sharing of life's amenities.
- Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

snowy plovers due to potential habitat conversion. All of the action alternatives were found to have significant and unavoidable impacts due to temporary closures of recreation and public access facilities during construction, short-term degradation of traffic operations at intersections and streets during construction, and short-term construction-generated air pollutant emissions if diesel fuel is needed to power the construction equipment during import and placement of dredge materials. All other potential impacts were either non-existent or less than significant.

Informed in part by the public and agency comments received on the Draft EIS/R as well as ongoing monitoring from the Adaptive Management Plan, the CDFW has made a preliminary identification of the Environmentally Superior Alternative. The Eden Landing Phase 2 Preferred Alternative is the Environmentally Superior Alternative. Implementing the Preferred Alternative would most effectively and efficiently meet the project goals while minimizing impacts on the natural environment, the built environment, and human communities; and also comply with environmental regulatory requirements.