

## 1. INTRODUCTION

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Phase 2 of the South Bay Salt Pond (SBSP) Restoration Project is a collaborative effort among federal, state, and local agencies working with scientists and the public to develop and implement project-level plans and designs for habitat restoration, flood management, and wildlife-oriented public access. The Project Area is mostly within portions of the former Cargill Inc. (Cargill) salt ponds in South San Francisco Bay (Bay), which were acquired by the USFWS and CDFW in 2003. The former salt ponds included in this Final Environmental Impact Statement/Environmental Impact Report (EIS/R) are part of the United States Fish and Wildlife Service (USFWS)-owned and managed Don Edwards San Francisco Bay National Wildlife Refuge (Refuge), and cover approximately 9,600 acres in the South Bay. The Refuge ponds in Phase 2 are collectively nearly 2,400 acres in size.

This Final EIS/R was prepared by the USFWS and the California State Coastal Conservancy (SCC), partnering with the California Department of Fish and Wildlife (CDFW), formerly the California Department of Fish and Game (CDFG); the United States Army Corps of Engineers (USACE), the Santa Clara Valley Water District (SCVWD), the City of Mountain View, the City of Redwood City, and others to evaluate the potential environmental impacts of the proposed South Bay Salt Pond (SBSP) Restoration Project, Phase 2.

This Final EIS/R provides a project-level evaluation and analysis of the SBSP Restoration Project, Phase 2 (this document is referred to throughout as the “Final EIS/R”; its public draft version is referred to as the “Draft EIS/R”). The 2007 South Bay Salt Pond Restoration Project Programmatic EIS/R (2007 EIS/R) (USFWS and CDFG 2007) analyzed the larger, program-wide details of the SBSP Restoration Project and also included a full project-level analysis for the Phase 1 actions. Where feasible and appropriate, this Final EIS/R uses information and analysis from the 2007 EIS/R for analysis of the project-level impacts of the SBSP Restoration Project, Phase 2.

### 1.1 Overview of the SBSP Restoration Project

The SBSP Restoration Project is a multi-agency effort to restore tidal marsh habitat, reconfigure managed pond habitat, maintain or improve flood protection, and provide recreation opportunities and public access in 15,100 acres of former salt-evaporation ponds purchased from and donated by Cargill in 2003.<sup>1</sup> Immediately after the March 2003 acquisition and subsequent transfer of those ponds from Cargill, the landowners, USFWS and CDFW, began implementation of the Initial Stewardship Plan (ISP) (USFWS and CDFG 2003), which was designed to maintain open water and unvegetated pond habitats with enough water circulation to preclude salt production and maintain habitat values and conditions until long-term restoration actions of the SBSP Restoration Project are implemented. The longer-term planning effort involves a 50-year programmatic-level plan for restoration, flood protection, and public access. This effort has already seen the implementation of Phase 1 projects, which are described in the 2007 EIS/R. That longer-term planning was facilitated by the SCC and was completed in January 2009. It was

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<sup>1</sup> The former salt-production ponds are no longer used for that purpose, and, in many cases, they are no more saline than San Francisco Bay itself. Some are only seasonal ponds that are filled by rainfall, and others have been opened to tidal flows by previous actions and are no longer ponds. However, for consistency with previous documents associated with the SBSP Restoration Project, this Final EIS/R has retained the convention of referring to them as “salt ponds” or “ponds”. These are not to be confused with actual salt evaporation ponds still being operated by Cargill.

through that planning process that the SBSP Restoration Project created the projects goals and objectives that are discussed further under Section 1.2.1, Purpose and Objectives. These goals and objectives continue to guide the project to the present day.

The decision-making and management structure for the SBSP Restoration Project involves a network of partnerships between public agencies, private organizations, environmental advocates, and the public. The Project Management Team (PMT) provides the day-to-day leadership and management for the project and oversees adaptive management planning and implementation; fundraising; dispute resolution; and outreach to the public, stakeholders, and regulatory and other government agencies. The membership on the PMT consists of representatives from the SCC, the landowning agencies (USFWS and CDFW), local flood protection agencies (SCVWD and the Alameda County Flood Control and Water Conservation District [ACFCWCD]), the East Bay Regional Park District (EBRPD), and the United States Geological Survey (USGS) (the USGS representative serves as the project's Lead Scientist). The Lead Scientist facilitates ongoing communication between scientists working on relevant research and ensures scientific outputs are incorporated into PMT decision making as much as possible. An Executive Project Manager coordinates and leads the PMT. A representative from the Center for Collaborative Policy also participates in the PMT meetings to maintain ongoing outreach efforts, including those for the project's Stakeholder Forum. The Stakeholder Forum consists of invited representatives from agencies, nonprofit organizations, local business organizations, and elected officials. The Stakeholder Forum advises the PMT on proposed project decisions and represents the project within their communities. The San Francisco Estuary Institute created and maintains the project's website at [www.southbayrestoration.org](http://www.southbayrestoration.org) to provide outreach on events, updates on the project status, and presentations on scientific research that is relevant to project. The PMT has met monthly since its inception in 2003.

The planning phase of the SBSP Restoration Project was completed in January 2009 with the publication of the final 2007 EIS/R. Phase 1 implementation in the Refuge began immediately and was completed in until December 2014. Phase 1 involved the construction of 3,040 acres of tidal or muted tidal wetlands, 710 acres of enhanced managed ponds, 7 miles of new public access trails, and habitat islands and improved levees.<sup>2</sup> The selection of and planning for the Phase 2 projects started in 2010 and continues with this Final EIS/R. The ponds that were not part of Phase 1, nor planned to be part of Phase 2, will continue to be actively managed according to the goals set forth in the Initial Stewardship Plan until further implementation planning and the appropriate adaptive management studies are completed.

The following sections describe the goals, objectives, and planning approach set forth in the 2007 EIS/R; how they were used to select Phase 1 projects, and how these principles continued to guide the project with the selection of the Phase 2 projects.

### 1.2 Purpose and Need

The Phase 2 actions described in this Final EIS/R tier from the 2007 EIS/R for the SBSP Restoration Project and consist of project-level implementation of the SBSP Restoration Project for some areas of the Refuge. Phase 2 also includes options for incorporating some non-Refuge areas into the project planning

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<sup>2</sup> The SBSP Restoration Project refers to all former salt pond levees as "levees" even though they were not designed or constructed to perform as true flood protection levees. They are largely earthen berms intended to isolate water for salt production. In keeping with this project's established terminology, this Final EIS/R maintains the term "levees" throughout.

and design, though collaboration with the cities and private entities that own those areas (more detail on this is in Section 1.5, below). Phase 2 would implement actions to move toward achieving the overall purpose and need, goal, and objectives developed for the SBSP Restoration Project as a whole. The purpose and need, goal, and objectives were developed for the 2007 EIS/R by the SBSP PMT with input from the Stakeholder Forum, Science Team, and Regulatory and Trustee Agency Group. As such, Phase 2 has the same purpose and need, goal, and objectives as the SBSP Restoration Project as a whole.

The goal, objectives, and purpose and need are discussed in the following sections.

### 1.2.1 Goal and Objectives

The overarching Goal and six Objectives developed for the SBSP Restoration Project, which were adopted by the SBSP Restoration Project Stakeholder Forum on February 18, 2004, and presented in the 2007 EIS/R, apply to Phase 2.

#### Goal

The Goal of Phase 2 of the SBSP Restoration Project is the restoration and enhancement of wetlands in South San Francisco Bay while providing for flood management and wildlife-oriented public access and recreation.

#### Objectives

The Objectives of Phase 2 of the SBSP Restoration Project are:

1. Create, restore, or enhance habitats of sufficient size, function, and appropriate structure to:
  - Promote restoration of native special-status plants and animals that depend on South San Francisco Bay habitat for all or part of their life cycles.
  - Maintain current migratory bird species that utilize existing salt ponds and associated structures such as levees.
  - Support increased abundance and diversity of native species in various South San Francisco Bay aquatic and terrestrial ecosystem components, including plants, invertebrates, fish, mammals, birds, reptiles, and amphibians.
2. Maintain or improve existing levels of flood protection in the South Bay.
3. Provide public access and recreational opportunities compatible with wildlife and habitat goals.
4. Protect or improve existing levels of water and sediment quality in the South Bay and take into account ecological risks caused by restoration.
5. Implement design and management measures to maintain or improve current levels of vector management, control predation on special-status species, and manage the spread of non-native invasive species.
6. Protect the services provided by existing infrastructure (e.g., power lines, railroads).

### 1.2.2 Purpose and Need for Action

The SBSP Restoration Project is needed to address the following:

- Historic losses of tidal marsh ecosystems and habitats in San Francisco Bay and concomitant declines in populations of endangered species (e.g., Ridgway’s rail [*Rallus obsoletus obsoletus*; formerly California clapper rail]), salt marsh harvest mouse [*Reithrodontomys raviventris*]);
- Increasing salinity and declining ecological value in several of the ponds within the project area;
- Long-term deterioration of non-certifiable levees (for Federal Emergency Management Agency [FEMA] purposes) within the project area, which could lead to levee breaches and flooding;
- Long-term tidal flood protection; and
- Limited opportunities in South San Francisco Bay for wildlife-oriented recreation.

The purpose of the SBSP Restoration Project is to meet the needs described above through implementing various alternatives to restore tidal marsh habitat, reconfigure managed pond habitat, maintain flood protection, and provide recreation opportunities and public access.

### 1.2.3 Restoration

The 2007 EIS/R describes a mix of tidal habitat and managed pond habitat restoration intended to balance the trade-offs between several of the project’s ecological goals and objectives. The 2007 EIS/R stated that the project’s preferred alternative was Programmatic Alternative C, which would restore up to 90 percent of the project’s ponds to tidal wetlands, in phases, through an adaptive management framework. Programmatic Alternative B would have set a target at 50 percent tidal marsh and 50 percent enhanced managed ponds. In choosing Programmatic Alternative C, the PMT left itself flexibility to work towards that end goal while still acknowledging that the 50/50 balance from Alternative B and the 90/10 balance from Alternative C represented “bookends” of what the long-term restoration outcomes would be and that the actual stopping point of restoration would likely be somewhere between these extremes.

Although restoration of tidal habitat would benefit special-status and native species (Project Objective 1a), enhancement of managed pond habitats would help maintain the migratory bird species using the existing ponds (Project Objective 1b). Both habitat types would support an increased abundance and diversity of the native species of the South Bay (Project Objective 1c). The project’s success in balancing these objectives will be evaluated through the Adaptive Management Plan (AMP), which not only helps the ongoing and short-term management actions and decisions of the project ponds but also helps determine future restoration targets for each of the ponds to balance tidal marsh restoration with enhancement of managed ponds and the eventual stopping point between the 50/50 and 90/10 bookends described above. Successfully balancing the types of restoration actions means that the project can continue to restore tidal marsh in subsequent phases without undesired impacts to the environment.

Other planning considerations that supported the project’s objectives were taken into account. Tidal marsh restoration projects were located where they would eventually create a continuous band of tidal marsh (a “tidal marsh corridor”) along the edge of the Bay to provide connectivity of habitat for tidal-marsh-dependent species, particularly the Ridgway’s rail and the salt marsh harvest mouse. Also, areas adjacent to the major sloughs that serve as migration corridors for anadromous fish were identified as a

high priority for tidal restoration. Where possible, the project seeks to restore broad tidal areas protected from human and predator access.

As an adaptation to future sea level rise, the project is proposing the creation of habitat transition zones as part of Phase 2 actions. Habitat transition zones involve the beneficial reuse of material to create transitional habitats from the pond or marsh bottom to the adjacent upland habitat along portions of the upland edge. These “habitat transition zones”, are sometimes referred to elsewhere as “upland transition zones,” “transition zone habitats,” “ecotones,” or “horizontal levees”; this document uses “habitat transition zones” for these constructed features. Transition zones are specifically called out in documents such as the U.S. Fish and Wildlife Service’s Tidal Marsh Recovery Plan and the recent Science Update to the Baylands Ecosystem Habitat Goals Project Report. A gradual transition from submerged Baylands, ponds, or open waters to uplands is largely missing in the current landscape of the South Bay, where there is often an abrupt boundary between the bay or ponds and the built environment. The SBSP Restoration Project’s intention in including habitat transition zones in the Phase 2 alternatives is to restore this missing habitat feature. Doing so would:

1. Establish areas in which terrestrial marsh species can take refuge during high tides and storm events, thereby reducing their vulnerability.
2. Expand habitat for a variety of special status plant species that occupy this specific elevation zone.
3. Provide space for marshes to migrate upslope over time as sea-level rise occurs.

Before proposing these features, the SBSP Restoration Project examined the landscape to see if there are any areas adjacent to the project site where this could occur naturally. In general, the best locations for building these features would be located adjacent to open space or park land where the project can provide an even greater extent of transition into upland habitats.

However, at the edge of the Bay, these open space areas are largely former (now closed and capped) landfills which present a variety of challenges for creating the missing upland habitat. First, the existing elevation gradient between the restored marsh and the edge of the landfill is usually too steep to provide a gradual transition. Secondly, these landfills would otherwise pose a water quality risk from erosion if tidal action were introduced immediately adjacent to the protective clay liner or un-engineered rip rap slopes. In these instances, it is necessary that the project place material inside the former salt ponds to create the desired slope (15:1 to 30:1). At other locations, the actual elevations landward of the project sites are too low to create an uphill slope with the desired habitat functions. Therefore, once new levees are built to protect that area from tidal flooding, the only area remaining to build the transition zones is into the salt ponds. Finally, most of the adjacent property is not within the SBSP Restoration Project’s ability to acquire, whether or not it has the desired elevation profile, because it is currently developed. In addition to being very expensive to acquire these areas, it would be infeasible to relocate all of the residences and businesses that have been built adjacent to the salt ponds.

For these reasons, the project plans to use fill from upland excavation projects to create habitat transition zones inside the former salt ponds. The transition zones would improve the habitat quality of the restored marsh, particularly for endangered and threatened species, and improve resiliency of the shoreline over time as sea levels rise.

The approach to enhancing the managed ponds was to reconfigure the former salt production ponds to provide many of the ecological benefits, though in a smaller footprint, by providing enhanced water

flows, pond depth, and salinity regimes for target species, especially migratory shorebirds and waterfowl, but also nesting terns and shorebirds. The creation of roosting and nesting islands was identified as part of pond enhancement. The reconfigured managed ponds would be located in accessible areas to provide for ease of operations and maintenance (O&M) and dispersed so they are readily available to birds traveling between the ponds and other habitats throughout the South Bay. The project expects to rely on gravity-flow structures as much as possible to minimize the costs of pumping while providing adequate pond habitat to support high densities of birds. Ponds near interpretive opportunities, such as the historical salt works, are to be managed as appropriate to preserve the historic resources of interest.

#### 1.2.4 Flood Management

The second goal of the SBSP Restoration Project is (and also Project Objective 2) “to maintain or improve existing levels of flood protection in the South Bay Area”. The project and adjacent areas are in low-lying Bay shoreline that could be vulnerable to coastal flooding from storms and sea-level rise. Recognizing that the changing hydrology in these areas requires the expertise and funding available from local flood protection agencies, the SBSP Restoration Project’s management team invited these agencies to join the planning team early in the process. The approach to managing flood risks with tidal restoration projects was to locate the projects in areas where they would not increase the existing flood risk; in addition, existing levees were to be improved to provide increased, if still limited, protection or to raise existing high-ground areas with fill. In areas where this approach was not sufficient, the project sought to work with local flood protection agencies to implement the appropriate flood protection measures to protect adjacent areas and allow for tidal and other habitat restoration.

In Santa Clara County, the SBSP Restoration Project is currently working with USACE and SCVWD to complete and implement the South Bay Shoreline Study (Shoreline Study), the first portion of which is intended to protect areas adjacent to the community of Alviso, within the City of San Jose (near Ponds A9 through A18). A representative from USACE participates in the PMT meetings as a liaison between the Shoreline Study and the SBSP Restoration Project to ensure coordination between the two projects. In San Mateo County, the project is coordinating with the Strategy to Advance Flood Protection, Ecosystems and Recreation along the Bay (SAFER Bay) project, an effort led by the San Francisquito Creek Joint Powers Authority to provide needed fluvial and coastal flood protection in San Mateo County. In Alameda County, the SBSP Restoration Project is working with ACFCWCD to address flood risks at Eden Landing. See Section 1.2.8, Phase 2 Planning Process, which provides details about why efforts to plan and obtain environmental clearance for Phase 2 actions at Eden Landing are being conducted separately from those in Santa Clara County and San Mateo County.

#### 1.2.5 Recreation and Public Access

To meet the third goal and Project Objective 3 (“provide public access and recreation opportunities compatible with wildlife and habitat goals”), the SBSP Restoration Project incorporates public access features into project design. The 2007 EIS/R describes actions to complete the missing segments of the Bay Trail spine, to create new spur trails, and to provide interpretive signage and guided or self-guided walks to cultural features and interpretive stations at strategic locations along the trail network. These stations would be of varying sizes and scope and may include interactive features that can operate independently or be enhanced with the assistance of docents. Viewing platforms were recommended at vista points with interpretive panels or signage to link the viewer with the site location. Altogether, these public access and recreation features should provide increases in high-quality, varied aesthetic experiences and encourage recreation for greater numbers and varieties of visitors.

Where levees are improved or proposed, trails are to be integrated with the levee structure, without interrupting the flood control function. Tidal access and recreation areas are designed to withstand periodic inundation, if appropriate, and may be in locations that would have more limited access or use, depending on tidal location and habitat requirements. Research on the effects of recreation on habitat is ongoing and new information will be incorporated into the adaptive management process. Access points are designed to be as barrier-free as possible to provide access for visitors of varying abilities and to comply with the Americans with Disabilities Act (ADA). The designs consider city and county standards and would strive to harmonize with existing facilities.

### 1.2.6 Adaptive Management

The 2007 EIS/R acknowledged that significant uncertainties remain with the project because of its geographic and temporal scale. To address these uncertainties, the project was planned to be carefully implemented in phases, with learning from the results incorporated into management and planning decisions. This adaptive management approach is described in the AMP (Appendix D of the 2007 EIS/R), which is a comprehensive plan and program to generate information (applied studies, monitoring, and research) that the PMT can use to make decisions about both current management of the project area and future restoration actions to meet project objectives and avoid harmful impacts to the environment.

Adaptive management is essential to keeping the project on track to meet its objectives, and adaptive management was the primary tool that the 2007 EIS/R identified for avoiding significant impacts to the environment. Without adaptive management (and its associated information collection), the PMT would not understand the restored system and would not be able to explain its management actions to the public. Furthermore, responses to unanticipated changes would be based on guesswork, which could exacerbate problems. For these reasons, adaptive management is integral to the project, and construction projects are expected to feature applied studies, as called for in the AMP, so that the PMT can learn from project implementation.

Although the preferred alternative in the 2007 EIS/R was Programmatic Alternative C, which would restore up to 90 percent of the project's ponds to tidal wetlands in phases, the document also states that if that alternative is not possible without causing undesired environmental impacts, as detected through the adaptive management monitoring and applied studies, then the project would stop converting ponds to tidal wetlands. The actual amount of tidal wetlands restored at the end of the 50-year project horizon could be less than 90 percent.

Adaptive management continues to be a significant part of Phase 2. As described below, data will be collected through the AMP-guided Phase 2 project evaluation and design.

### 1.2.7 Phase 1 Projects

The 2007 EIS/R was not just a planning document but also included project-level analysis of several restoration, enhancement, recreation, and flood protection projects that would help fulfill the SBSP Restoration Project's goals and objectives. The selection of the Phase 1 projects considered a variety of factors. The criteria, as listed in the 2007 EIS/R, were available funding, likelihood of success, ease of implementation, visibility and accessibility, opportunities for adaptive management and applied studies, value in building support for the project, and certainty of investment.

Phase 1's restoration actions were successfully completed in December 2010; the last of the public access and recreation features were completed in April 2016. At the end of Phase 1, 1,600 acres of tidal and

1,440 acres of muted tidal habitats were opened to tidal inundation. The tidal areas already show signs of estuarine sedimentation and natural vegetative colonization. These tidal habitats will contribute to the recovery of endangered, threatened, and other special-status species; tidal-marsh-dependent species; and the recovery of South Bay fisheries. Also, 710 acres of managed ponds were constructed at a range of water depths to create a variety of depth, hydrology, and salinity regimes through the use of flow control structures, grading, and other means. In addition, approximately 7 miles of new trail were built, providing new recreational opportunities. Small habitat transition zones were constructed in Eden Landing Pond E14 and vegetated with native upland species by volunteers. Islands were constructed in Ponds SF2, A16, and E12 and E13.

### 1.2.8 Phase 2 Planning Process

In 2010, the PMT kicked off Phase 2 planning with a design charrette. The PMT confirmed that the project objectives had not changed from those stated in the 2007 EIS/R. The primary evaluation criteria used were similar to those used in Phase 1 project selection: likelihood of progress toward project objectives, opportunities for resolving adaptive management uncertainties, value in continuing to build support for the project, readiness to proceed, and dependency on precedent actions. The last criterion was added because the PMT recognized that with the completion of Phase 1 projects, subsequent project phases were increasingly likely to require completion of other projects or adaptive management studies before SBSP Restoration Project actions could occur. For example, in some areas, proposed flood protection projects needed to be completed to provide sufficient flood protection before ponds were opened to tidal action. Or, in other areas, additional data were needed to assess the long-term response of species occupying a particular pond to changes in the project area before a pond could be opened to the tides. The secondary criteria considered were visibility and accessibility, availability of funding, and balance (meaning both a geographic balance of project locations and a balance between the project goals of restoration, public access, and flood protection). Again, the balance criterion was added to Phase 2 because as more projects are completed, it will require more of the PMT's attention to maintain the geographical balance and the project purpose balance when selecting projects.

The design charrette created a list of initial options that was presented to the Stakeholder Forum, regulatory agencies, and interested parties in 2010. A report on that Phase 2 charrette is provided as Appendix P to this Final EIS/R. After the initial feedback on the design charrette, the PMT proceeded to hire a professional environmental services firm to undertake the required technical analysis of the project elements. The initial project elements included restoration, public access, and flood protection actions in all three pond complexes: Alviso, Ravenswood, and Eden Landing.<sup>3</sup> However, early in the design process the PMT realized that the proposed alternatives for Eden Landing would take significantly longer to develop and analyze and that a separation of Phase 2 into landowner-specific design and environmental clearance processes would be necessary. The following paragraphs provide a brief explanation of this separation, after which, the discussion of the Phase 2 planning at the Refuge continues.

### Phase 2 at Eden Landing

Phase 2 at Eden Landing was likely to include a large flood protection component to be developed with technical assistance from the Alameda County Flood Control and Water Conservation District. Due to the

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<sup>3</sup> The term "pond complex" refers to each of the separate regional groups of ponds. In the SBSP Restoration Project, there are three pond complexes: Eden Landing, Alviso, and Ravenswood. These pond complexes are described in detail in Section 1.3, Phase 2 Project Location, below.



technical complexity of the Eden Landing Phase 2 project and other constraints having to do with land ownership, flood control, and funding requirements, the PMT decided to pursue those actions under a separate EIS/R process. However, that does not mean that Eden Landing was excluded from the scope of Phase 2 planning. Indeed, Eden Landing was included in the scoping processes discussed in Appendix P, and information about the ponds and restoration actions being considered for Phase 2 at Eden Landing was presented at stakeholder forums and regulatory agency meetings, as well as on the SBSP Restoration Project's website and newsletters.

The Council on Environmental Quality (CEQ) regulations for implementing the National Environmental Policy Act (NEPA) (CEQ 2015b) and the *2014 California Environmental Quality Act (CEQA) Statute and Guidelines* (hereafter "CEQA Statute and Guidelines") (AEP 2014) for the California Environmental Quality Act (CEQA) discuss tiering an environmental analysis from program-level documents to project-level documents on the actual issues ripe for decision. Because the Eden Landing Phase 2 actions are not well defined at this time, those project components are not ripe for decision making. Separating out the Eden Landing Phase 2 actions from those at Alviso and Ravenswood is not "piecemealing" (an unacceptable practice in which projects are analyzed incrementally by parts to make the environmental impacts appear smaller to the overseeing agencies) because the three pond complexes are geographically separated and distinct and do not have substantial interactions between them. Some wildlife species may make use of two or more of these pond complexes, for example, but the complexes are otherwise quite independent. Further, actions implemented at the project area would have independent utility.

Appendix Q to this Final EIS/R includes a memorandum describing the development and screening of the conceptual alternatives for Eden Landing. It is important to note, however, that more recent hydraulic modeling done to evaluate whether those concepts would satisfy both the restoration and the flood control requirements of the project indicate that some changes to these concepts are likely to be required. While the general restoration, flood protection, and public access concepts discussed in that document will remain, the details of those conceptual alternatives are likely to be different.

The Phase 2 planning process for the Eden Landing pond complex will design and analyze potential alternatives for the entirety of southern Eden Landing (everything between the Alameda Creek Federal Flood Control Channel and Old Alameda Creek). As discussed in Appendix Q, the Phase 2 alternatives at Eden Landing are expected to include a range of restoration options including (1) full restoration to tidal marsh in a single implementation phase, (2) phased restoration to tidal marsh, and (3) restoring the outer, Bay-facing ponds to tidal marsh and retaining some or all of the interior, landward ponds as enhanced managed ponds. Options (2) and (3) would allow either a temporary or a permanent separation of these ponds to permit different types and rates of restoration, including the option to keep some of the landward ponds as enhanced managed ponds for pond-dependent wildlife species. That decision will be informed by the results of the ongoing applied science and by other wildlife responses to prior SBSP Restoration Project actions, the NEPA/CEQA process for Eden Landing itself, and outcomes of other restoration and management efforts around San Francisco Bay.

In sum, while the Phase 2 ponds and large-scale plans for all three pond complexes (Ravenswood, Alviso, and Eden Landing) were developed together, the project-level conceptual alternatives, designs, and the NEPA/CEQA documents are being developed separately. In this EIS/R, the Phase 2 actions at Eden Landing are treated as a separate project. Therefore, the potential cumulative impacts are analyzed in Chapter 4 – Cumulative Impacts. The section below describes the rest of the design process to prepare this Final EIS/R for the Phase 2 projects in the Alviso and Ravenswood ponds.

## Phase 2 at the Refuge Ponds

In 2012, Opportunities and Constraints Memoranda were prepared for the suite of Stakeholder Forum-created initial options at each pond complex. The Opportunities and Constraints Memoranda re-examined the initial options to see if other innovative restorations, flood control, or recreation components could be added to the optional actions. Also, these memoranda were circulated to the PMT, and the results were discussed at the Stakeholder Forum in 2012. The proposed options were grouped together as appropriate to make multi-objective project alternatives in each pond complex. For example, at the Ravenswood pond complex, sets of public access, flood protection, pond enhancement, and tidal restoration options in Ravenswood Ponds R3, R4, R5, and S5 have become the Ravenswood Ponds Phase 2 project alternatives.

Through this outreach to the community and stakeholders, several new project elements not initially considered as part of the 2010 design charrette were developed. These included the opportunities to work with the City of Redwood City to improve protection from the fluvial flooding associated with outflows into Flood Slough (described further in Section 2.2.5, Ravenswood Ponds) and to add additional fill along the southeastern side of the levee in Pond A8S to enhance the habitat transition between the pond bottom and the adjacent upland levee (described further in Section 2.2.4, Alviso A8 Ponds). Because these project opportunities were consistent with the goals and objectives of the SBSP Restoration Project as a whole and the selection criteria within it, the PMT included these additional actions in the Phase 2 projects.

The PMT also decided to include the City of Mountain View-owned Charleston Slough in the alternatives development process. Although Charleston Slough is not part of USFWS's lands, it was identified in the 2007 EIS/R as an area for possible future incorporation into the SBSP Restoration Project and had been discussed at the 2010 charrette. (Section 2.2.3, Alviso-Mountain View Ponds, described the restoration objectives for Charleston Slough and several other actions that could be implemented.)

The project selection and refinement process has also incorporated additional outreach to other project stakeholders. In 2011, working groups for each of the three pond complexes met to discuss the proposed project actions. Annual meetings of the PMT with teams of scientists conducting monitoring and applied research studies have been held since 2011 to enhance coordination between scientists and the members of the PMT. The proposed Phase 2 actions have been discussed with the Science Team at each meeting to incorporate their feedback and to ensure that Phase 2 was considering opportunities for resolving some the key project uncertainties identified in the AMP.

In early 2013, these preliminary alternatives were evaluated for engineering feasibility. The result of this process was a set of two or three Action Alternatives and the required No Action Alternative (also referred to as a "No Project Alternative" under CEQA, but the NEPA term will be used throughout this Final EIS/R) for each of the pond complexes.

In mid-2013, work on the conceptual designs for those alternatives began. Those sets of alternatives were presented at a public scoping meeting in September 2013 and to the Stakeholder Forum later that fall. The public comments from the public scoping meeting were presented as Appendix A, Scoping Comments, to the Draft EIS/R. The Draft EIS/R's Appendix B, Alternatives Analysis, explains in detail the processes by which the alternatives were developed, screened, modified, and ultimately selected for inclusion in the Draft EIS/R. The impact analyses for the alternatives that are included in the Draft EIS/R began in October of 2013. In July of 2015, the Draft EIS/R was released, and the public review and comment period was extended beyond its initial 60 days (July 24-September 22, 2015) to October 30, 2015.

Revisions to the document and responses to comments began in November 2015. Those comments and the responses to them are provided as Appendix R to this Final EIS/R.

### 1.3 Phase 2 Project Location

The SBSP Restoration Project is in South San Francisco Bay in Northern California (see Figure 2-1). The portions of the SBSP Restoration Project covered in this Final EIS/R (i.e., Phase 2) consist of parts of two complexes of salt ponds and adjacent habitats in the South Bay that USFWS acquired from Cargill in 2003. The salt pond complexes consist of the 8,000-acre Alviso pond complex and the 1,600-acre Ravenswood pond complex, both of which are owned and managed by USFWS as part of the Refuge (see Figure 2-2). As explained above, Phase 2 actions are also being planned for implementation at the Eden Landing pond complex, which is owned and managed by the CDFW as part of the Eden Landing Ecological Reserve. Those project actions are being analyzed under a separate NEPA/CEQA compliance process.

The Alviso pond complex consists of 25 ponds on the shores of the South Bay in Fremont, San Jose, Sunnyvale, and Mountain View, within Santa Clara and Alameda Counties. The pond complex is bordered on the west by the Palo Alto Baylands Park and Nature Preserve and the City of Mountain View's Charleston Slough; on the south by commercial and industrial land uses, Mountain View's Shoreline Park, the National Aeronautics and Space Administration (NASA) Ames Research Center, and Sunnyvale Baylands Park; and on the east by Coyote Creek in San Jose and Cushing Parkway in Fremont.

The Phase 2 project actions in the Alviso pond complex focus on three clusters of ponds. The first cluster, containing Ponds A19, A20, and A21, is referred to as the Alviso-Island Ponds (or the Island Ponds) and is between Coyote Creek and Mud Slough near the eastern end of the Alviso pond complex. The Island Ponds were breached in 2006 as part of tidal marsh restoration actions covered by the Initial Stewardship Plan.

The second cluster, containing Ponds A1 and A2W, is referred to as the Alviso-Mountain View Ponds (or the Mountain View Ponds), is on the western edge of the Alviso pond complex. The City of Mountain View lies immediately to the south, and the Charleston Slough and the Palo Alto Flood Control Basin lie to the west.

The third cluster, containing Ponds A8 and A8S, is referred to as the Alviso-A8 Ponds (or the A8 Ponds) and is in the southern central portion of the Alviso pond complex. The A8 Ponds are west of the town of Alviso, north of Sunnyvale and State Route (SR) 237, and east of other parts of the Alviso pond complex. Ponds A8 and A8S were also included in the Phase 1 work; they were made reversibly tidal through the installation of a variable-size and reversible "notched" gate that opened in July 2010.

The Ravenswood pond complex consists of seven ponds on the bay side of the Peninsula, both north and south of SR 84, west of the Dumbarton Bridge, and on the bay side of the developed areas of the City of Menlo Park in San Mateo County. Bayfront Park in Menlo Park is directly west of the Ravenswood pond complex, and a portion of SR 84 and the Dumbarton rail corridor are along its southern border. The Phase 2 project actions in the Ravenswood pond complex are focused on the pond cluster that contains Ponds R3, R4, R5, and S5, here referred to as the Ravenswood Ponds.

## 1.4 NEPA and CEQA Overview

This Final EIS/R was prepared in accordance with the CEQ regulations for implementing NEPA (40 Code of Federal Regulations [CFR] 1500–1508) (CEQ 2015a, 2015b) and CEQA (Public Resources Code Section 21000 et seq.) (AEP 2014). The USFWS is the lead agency under NEPA. The SCC is the lead agency under CEQA.

In the 2007 EIS/R for the SBSP Restoration Project (USFWS and CDFG 2007), USACE and NASA were cooperating agencies<sup>4</sup> under NEPA; however, because NASA’s involvement is limited to activities adjacent to the NASA Ames Research Center, that agency has not been involved in Phase 2 planning. Responsible agencies<sup>5</sup> under CEQA include CDFW, the San Francisco Bay Regional Water Quality Control Board (RWQCB), ACFCWCD, SCVWD, the California State Lands Commission, the San Francisco Bay Conservation and Development Commission (BCDC), the City of Mountain View, the City of Redwood City, and the City of Menlo Park. The California Department of Transportation may also be a responsible agency if its ownership or rights-of-way are involved in the restoration. The California State Lands Commission is also a trustee agency.

A Regulatory and Trustee Agency Group formed for the program provides ongoing support to the regulatory agencies. This group includes staff of federal, state, local, and other regulatory agencies that provide endangered species recovery guidance and permitting authority for the SBSP Restoration Project.

USFWS, SCC, and CDFW jointly manage Phase 2 of the SBSP Restoration Project in collaboration with USGS, EBRPD, ACFCWCD, and SCVWD. Together, these agencies form the SBSP Restoration Project’s PMT.

### 1.4.1 Purpose of the EIS/R

This Final EIS/R is intended to provide the public and the cooperating, responsible, and trustee agencies with information about the potential environmental effects of the SBSP Restoration Project, Phase 2. It will be used by the lead agencies when considering approval of the project.

The CEQ regulations for implementing NEPA (40 CFR 1502.1) state that

“the primary purpose of an [EIS] is to serve as an action-forcing device to ensure that the policies and goals defined in [NEPA] are infused into the ongoing programs and actions of the federal government. An EIS shall provide full and fair discussion of significant environmental impacts and shall inform decision makers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment.”

<sup>4</sup> According to Section 1501.6 of the CEQ Regulations, “Upon request of the lead agency, any other Federal agency which has jurisdiction by law shall be a cooperating agency. In addition any other Federal agency which has special expertise with respect to any environmental issue, which should be addressed in the statement may be a cooperating agency upon request of the lead agency. An agency may request the lead agency to designate it a cooperating agency.”

<sup>5</sup> Responsible agencies is defined in Section 15381 of the CEQA Guidelines as “a public agency which proposes to carry out or approve a project, for which a Lead Agency is preparing or has prepared an EIR or Negative Declaration...[it] includes all public agencies other than the Lead Agency which have discretionary approval power over the project.” It includes both state and local agencies that issue permits or provide funding.

CEQA Section 21002.1 states that the purpose of an EIR is to identify the significant effects on the environment of a project, to identify alternatives to the project, and to indicate the manner in which those significant effects can be mitigated or avoided.

Both NEPA and CEQA encourage the preparation of combined environmental planning documents.

#### 1.4.2 Joint EIS/R

This document is a joint EIS/R. As noted above, NEPA and CEQA have similar purposes and thus use generally similar concepts and terminologies. In some cases, different terms are used to convey the same meaning. Examples of these differences in terminologies are shown in Table 1-1. This joint EIS/R primarily uses CEQA terminology; however, many NEPA terms are also used.

**Table 1-1 Terms Used in NEPA and CEQA Documents**

NEPA TERM	CEQA TERM
Action	Project
Lead Agency	Lead Agency
Cooperating Agency	Responsible Agency
Notice of Intent	Notice of Preparation
Environmental Impact Statement	Environmental Impact Report
Record of Decision	Findings
Purpose and Need for Action	Objectives of the Project
Affected Environment	Environmental Setting
Environmental Consequences	Impacts Analysis and Mitigation Measures
Effect	Impact
Historic Property	Historical Resource

#### 1.4.3 Tiering from a Programmatic Joint Document

Both NEPA and CEQA guidelines have generally the same definition for tiering, which refers to the coverage of general matters in a broader Environmental Impact Statement (EIS) or Environmental Impact Report (EIR), with subsequent narrower or ultimately site-specific EISs or EIRs incorporating by reference the general discussions and concentrating solely on the issues specific to the proposed project. NEPA and CEQA encourage agencies to tier the environmental analyses for separate, but related, projects to reduce repetition.

Tiering is appropriate when the sequence of analysis follows from an EIS or EIR prepared for a program to an environmental document for an action or project of lesser scope, as is anticipated for the subsequent phases of the proposed SBSP Restoration Project. The SBSP Restoration Project is being implemented in a series of phases over many years, on the order of several decades. The 2007 EIS/R covered the long-term and larger geographic-scale components of the project (i.e., the programmatic components). Therefore, this project-level tiered EIS/R tiers off the 2007 EIS/R for the SBSP Restoration Project as a whole. Each subsequent phase will require a separate project-level NEPA/CEQA impact analysis.

## NEPA

The CEQ regulations for implementing NEPA address the concept of program- and project-level impact analysis in their definition of “tiering” (43 Federal Register [FR] 56003 Section 1508.28). According to the CEQ regulations, “tiering” refers to the coverage of general matters in broader environmental impact statements (such as national program or policy statements) with subsequent narrower statements or environmental analyses (such as regional or basin-wide program statements or ultimately site-specific statements) incorporating by reference the general discussions and concentrating solely on the issues specific to the statement subsequently prepared. Tiering is appropriate when the sequence of statements or analyses is:

- (a) From a program, plan, or policy environmental impact statement to a program, plan, or policy statement or analysis of lesser scope or to a site-specific statement or analysis.
- (b) From an environmental impact statement on a specific action at an early stage (such as need and site selection) to a supplement (which is preferred) or a subsequent statement or analysis at a later stage (such as environmental mitigation). Tiering in such cases is appropriate when it helps the lead agency to focus on the issues which are ripe for decision and exclude from consideration issues already decided or not yet ripe.” (43 FR 56003 Section 1508.28)

## CEQA

Similarly, the *2014 California Environmental Quality Act (CEQA) Statute and Guidelines* discusses tiering (AEP 2014); Section 15385 provides the following definition for tiering:

“‘Tiering’ refers to the coverage of general matters in broader EIRs ... with subsequent narrower EIRs or ultimately site-specific EIRs incorporating by reference the general discussions and concentrating solely on the issues specific to the EIR subsequently prepared.”

Tiering is appropriate when the sequence of EIRs is:

- (a) From a general plan, policy, or program EIR to a program, plan, or policy EIR of lesser scope or to a site-specific EIR;
- (b) From an EIR on a specific action at an early stage to a subsequent EIR or a supplement to an EIR at a later stage. Tiering in such cases is appropriate when it helps the Lead Agency to focus on the issues which are ripe for decision and exclude from consideration issues already decided or not yet ripe.

### 1.4.4 EIS/R Format

This document is a project-level tiered EIS/R, which examines the environmental impacts of the specifics of the Phase 2 alternatives, including construction and operation. This Final EIS/R specifically considers whether Phase 2 alternatives would result in new significant impacts not identified in the 2007 EIS/R or if the Phase 2 alternatives would cause a substantial increase in the severity of previously identified impacts. This Final EIS/R also discusses any pertinent new information or changes in circumstances that could result in new significant impacts not identified in the 2007 EIS/R or a substantial increase in the severity of previously identified significant impacts.

Previous mitigation measures identified in the 2007 EIS/R are described in Section 2.3, General Mitigation Measures from the 2007 EIS/R, and would be implemented where relevant to Phase 2 alternatives. These mitigation measures have been revised or augmented as appropriate for Phase 2 actions. This Final EIS/R also identifies whether new mitigation measures are required.

#### 1.4.5 Environmental Review Process

##### Scoping

Scoping, or early consultation with persons or organizations concerned with the environmental effects of a project, is required when preparing a joint EIS/EIR. CEQ regulations for implementing NEPA (40 CFR 1506.6) require that agencies make diligent efforts to involve the public in preparing and implementing their NEPA procedures. Pursuant to NEPA, a Notice of Intent to prepare an EIS/R for Phase 2 of the SBSP Restoration Project was published in the Federal Register on September 9, 2013. Pursuant to the 2014 CEQA Statute and Guidelines, Section 15082, a Notice of Preparation was distributed to responsible agencies and the public on September 9, 2013. These notices announced a public review period during which comments were received on the appropriate scope of the Draft EIS/R.

A public scoping meeting was held on September 24, 2013, to solicit comments on environmental issues to be addressed in the Draft EIS/R. The scoping comments received during the comment period—which extended beyond the minimum 30-day period to account for the federal government shutdown in November 2013—and additional comments received after the comment period are presented in Appendix A, Scoping Comments.

##### Draft EIS/R

A Notice of Availability (NOA) for the Draft EIS/R was published on July 24, 2015 in the Federal Register, advertisements were placed in several local newspapers, and the Draft EIS/R was filed with the United States Environmental Protection Agency (USEPA) for federal review in accordance with 40 CFR parts 1506.9 and 1506.10. The publication of the NOA also serves to meet CEQA requirements. Also, pursuant to the 2014 CEQA Statute and Guidelines, the Draft EIS/R, along with a Notice of Completion, was filed with the Office of Planning and Research (OPR) for state agency review. USFWS and the SCC sent notices to all who provided scoping comments, expressed interest in this project, or requested such notice in writing. Copies of the Draft EIS/R were available for public review on the SBSP Restoration Project website ([www.southbayrestoration.org](http://www.southbayrestoration.org)) and during regular office hours at the following locations:

- Visitor Center, Don Edwards San Francisco Bay National Wildlife Refuge, 2 Marshlands Road, Fremont, CA 94555, (510) 792-0222;
- California State Coastal Conservancy, 1330 Broadway, 13th Floor, Oakland, CA 94612, (510) 286-1015;
- Offices of the San Francisco District of the United States Army Corps of Engineers, 1455 Market Street, #16, San Francisco, CA 94103, (415) 503-6804; and
- Administrative offices of the Santa Clara Valley Water District, 5750 Almaden Expressway, San Jose, CA 95118-3686, (408) 265-2600.

The Draft EIS/R is also available for public review at the following libraries:

- Alviso Branch Library, 5050 N. First St., San Jose, CA 95002, (408) 263-3626.
- Biblioteca Latino America, 921 South First St., San Jose, CA 95110, (408) 294-1237
- California State University Library, 25800 Carlos Bee Blvd., Hayward, CA 94542, (510) 885-3000.
- Fremont Main Library, 2400 Stevenson Blvd., Fremont, CA 94538, (510) 745-1424.
- Menlo Park Library, 800 Alma St., Menlo Park, CA 94025, (650) 330-2500.
- Mountain View Library, 585 Franklin St., Mountain View, CA 94041, (650) 903-6337.
- Rinconada Library, 1213 Newell Rd., Palo Alto, CA 94303, (650) 329-2436.
- King Library, 150 E San Fernando St., San Jose, CA 95112, (408) 808-2000.
- Redwood City Main Library, 1044 Middlefield Road, Redwood City, CA 94063, (650) 780-7018;
- San Mateo County East Palo Alto Library, 2415 University Ave., East Palo Alto, CA 94303, (650) 321-7712.
- Santa Clara County Milpitas Library, 160 N Main St., Milpitas, CA 95035, (408) 262-1171.
- Santa Clara Public Library, 2635 Homestead Rd., Santa Clara, CA 95051, (408) 615-2900.
- Sunnyvale Public Library, 665 W Olive Ave., Sunnyvale, CA 94086, (408) 730-7300.
- Natural Resources Library, U.S. Department of the Interior, 1849 C Street NW, Washington, DC 20240-0001, (202) 208-5815.

The Draft EIS/R was circulated for a public and agency review period that was initially set for 60 days, beginning with the publication of that document (receipt of the Draft EIS/R from the State Clearinghouse and publication of the NOA in the Federal Register). The comment period was extended an additional 38 days, until October 30, 2015.

### *Final EIS/R*

Following the close of the review period, work began on the Final EIS/R. The USFWS and the SCC considered all comments made on the Draft EIS/R by the public and federal, state, and local agencies within the public review period. There were 312 individual comments from 35 comment letters. The comments and formal responses to them are presented as Appendix R to this document. That appendix also includes a set of master comment responses to address a number of cross-cutting topics that were commented on or asked about in multiple submissions.

This Final EIS/R was prepared to incorporate changes suggested by comments on the Draft EIS/R, as appropriate, and responds to all substantive comments received during the Draft EIS/R review period. The Final EIS/R is required to (1) provide a full and fair discussion of the proposed action's significant environmental impacts; and (2) inform the decision-makers and the public of reasonable measures and alternatives that would avoid or minimize adverse impacts or enhance the quality of the human environment. Concurrent with publication of this Final EIS/R, an NOA for the Final EIS/R was published



in the Federal Register and in local newspapers. The Final EIS/R was filed with U.S. Environmental Protection Agency pursuant to 40 CFR parts 1506.9 and 1506.10. The USFWS and SCC provided notices of the Final EIS/R to all who commented on the Draft EIS/R and others who had signed up for noticing. Copies of the Final EIS/R were made available for review on the SBSP Restoration Project, Phase 2, website ([www.southbayrestoration.org](http://www.southbayrestoration.org)) and at the locations listed above where the Draft EIS/R was available.

USFWS will not proceed with implementing the SBSP Restoration Project, Phase 2 any sooner than 30 days following the publication of the Final EIS/R (40 CFR part 1506.10) Under CEQA Guidelines, the Conservancy will send other agencies responses to the Draft EIS/R public comments at least 10 days prior to certification of the EIR. The comments and responses from the Draft EIS/R will be compiled and included as an appendix to the Final EIS/R.

## Future Steps

Future steps will involve preparing a Record of Decision, EIR certification, and a Mitigation and Monitoring Reporting Program (under CEQA).

### *Record of Decision*

The final step in the NEPA process is the preparation of the Record of Decision (ROD), which presents a concise summary of the decision made by USFWS. The ROD can be published immediately after the Final EIS/R comment period has ended. After the conclusion of the 30-day waiting period on the Final EIS/R, USFWS will begin to prepare the ROD regarding the SBSP Restoration Project, Phase 2. The ROD will summarize the proposed action and alternatives considered in the EIS/R, identify and discuss factors considered in the federal lead agency's decision, and state how these considerations entered into the final decision. If appropriate, the ROD will state how Phase 2 of the SBSP Restoration Project will be implemented and describe any associated mitigation measures. Final signature of the ROD will follow.

### *EIR Certification*

The final step in the CEQA process is certification of the EIR. In accordance with CEQA, the SCC would make one or more written findings for any significant CEQA impacts, accompanied by a brief explanation of the rationale for each finding. The findings constitute a binding set of obligations that will come into effect when the SCC approves the project. When making the findings, the lead agency must adopt a program for reporting on or monitoring the changes that it has either required in the project or made a condition of approval to avoid or substantially lessen significant environmental effects.

When a lead agency decides to approve a project that will result in significant unavoidable impacts (impacts that cannot be avoided or reduced to less-than-significant levels), the lead agency is required to prepare a Statement of Overriding Considerations. The statement must specify the reasons to support the lead agency's actions based on substantial evidence in the record. According to the 2014 CEQA Statute and Guidelines, Section 15093,

“CEQA requires the decision-making agency to balance, as applicable, the economic, legal, social, technological, or other benefits of a proposed project against its unavoidable environmental risks when determining whether to approve the project. If the specific economic, legal, social, technological, or other benefits of a proposed project outweigh the unavoidable

adverse environmental effects, the adverse environmental effects may be considered ‘acceptable.’”

A certified EIR indicates the following:

- The document complies with CEQA;
- The decision-making body of the lead agency reviewed and considered the Final EIR before approving the project; and
- The Final EIR reflects the lead agency’s independent judgment and analysis.

Within 5 working days after approval of the project, the CEQA lead agency, the SCC, is required to file a Notice of Determination (NOD) with OPR and the Alameda, Santa Clara, and San Mateo County Clerks.

#### *Mitigation Monitoring and Reporting Program (CEQA)*

CEQA Section 21081.6(a)(1) requires lead agencies to “adopt a reporting or monitoring program for the changes made to the project or conditions of project approval, adopted in order to mitigate or avoid significant effects on the environment.” The Mitigation Monitoring and Reporting Program (MMRP) required by CEQA need not be included in the Final EIR. However, throughout this EIS/R, measures have been clearly identified to facilitate establishment of an MMRP. Any mitigation measures adopted as a condition of approval of the project will be included in the MMRP for Phase 2 of the SBSP Restoration Project to verify compliance.

## 1.5 Project Background

This section discusses the history of the South Bay tidal marsh, salt pond operations, and the Refuge. It also describes the acquisition of the former salt production ponds in 2003 and related restoration efforts in the South Bay.

### 1.5.1 Historic Tidal Marsh in South Bay

The San Francisco Bay Estuary was formed about 10,000 years ago, as the ocean entered the Coastal Range through the Golden Gate, and seawater began to fill the Bay. As the rise in water slowed approximately 3,000 years ago, sediments began accumulating in the shallows faster than the seas could cover them, allowing vegetation to begin to colonize and persist on the tidal mudflats along the estuarine margins (Cohen 2000; Collins and Grossinger 2004, as cited in the 2007 EIS/R). As recently as 150 years ago, the San Francisco Bay landscape was dominated by tidal marsh habitat. The open-water areas of the Bay were very nearly surrounded by broad expanses of tidal mudflats and even broader areas of tidal marsh (Goals Project 1999). However, that landscape began to undergo vast changes beginning with the earliest European settlements (Orlando et al. 2005). It is estimated that since 1800, over 80 percent of the tidal marsh habitat surrounding San Francisco Bay has been lost (Goals Project 1999). This loss equates to a loss of more than 150,000 acres of tidal marsh estuary-wide. In the South Bay, over 90 percent of the historic tidal marsh area has been lost due to conversions to salt ponds, agricultural areas, and urban developments (Foxgrover et al. 2004). Through the SBSP Restoration Project and other similar projects, that trend of loss is being reversed. Approximately 13,000 acres of tidal habitats around the Bay have been restored, and another 35,000 acres, including the acreage of the SBSP Restoration Project, are included in a restoration planning and design process.

### 1.5.2 Salt Pond Operations

Solar salt production through the conversion of tidal marsh areas to salt ponds began in the mid-1850s (Siegel and Bachand 2002). Early salt production efforts were small operations scattered throughout the Bay, but by 1936, the Leslie Salt Company emerged as the major player in the salt industry, consolidating the smaller companies into one large operation (EDAW 2005, as cited in 2007 EIS/R). In 1936, the Leslie Salt Company produced over 300,000 tons of salt annually on approximately 12,500 acres of salt ponds. By 1959, production had increased to 1 million tons of salt on tens of thousands of acres of salt ponds in the North and South Bay. Cargill acquired the Leslie Salt Company in 1978 and continued producing approximately 1 million tons of salt annually.

The solar salt production process takes several years, with the amount of time depending on seasonal variations in temperature, rainfall, and evaporation rates (Siegel and Bachand 2002). The process begins with the intake of Bay water into an “intake” pond, either through pumps or through a gate that opens at high tide. Once in the system, the Bay water is referred to as brine. The brine flows slowly through a series of ponds called “evaporator” or “concentrator” ponds, with salinity increasing from one pond to the next through evaporation.

When the brine becomes fully saturated with salt, the brine is pumped into “pickle” ponds for storage and then into crystallizer beds for eventual harvesting (Life Science! 2004). Within a crystallizer bed, evaporation continues and a layer of salt accumulates on the bed. This raw salt is mechanically harvested and sent to Cargill’s processing plant in Newark for further processing before it is ready for consumers. The remaining solution is an extremely saline liquid product known as bittern, which is commercially sold as a dust palliative and a de-icing product. Although much of the former Cargill salt ponds in the South Bay are targeted for restoration in Phase 2 of the SBSP Restoration Project, Cargill will continue to operate its Newark ponds and Newark and Redwood City processing plants, maintaining a production of approximately 600,000 tons of salt annually (Life Science! 2004).

### 1.5.3 History of the Refuge

The Don Edwards San Francisco Bay National Wildlife Refuge is the first urban national wildlife refuge established in the United States that is dedicated to preserving and enhancing wildlife habitat, protecting migratory birds, protecting threatened and endangered species, and providing opportunities for wildlife-oriented recreation and nature study for the surrounding communities. Congress created the Refuge in 1972 “...for the preservation and enhancement of highly significant habitat...for the protection of migratory waterfowl and other wildlife, including species known to be threatened with extinction, and to provide opportunity for wildlife-oriented recreation and nature study. . .” (Public Law [P.L.] 92-330, 86 Stat. 399 [June 30, 1972]). USFWS was directed by Congress to acquire up to 23,000 acres in the area depicted on a map entitled “Boundary Map, Proposed San Francisco Bay National Wildlife Refuge” dated July 1971. Between 1977 and 1988, USFWS acquired approximately 19,000 acres, by purchase, lease, or other means. Significantly, in 1979 USFWS acquired 15,347 acres from Leslie Salt (now Cargill Salt). At the time, Leslie Salt retained commercial salt-making rights on the property’s ponds in perpetuity. Also, in 1983 USFWS acquired Pond A6 from the Knapp family and The Nature Conservancy.

In 1988, Congress directed USFWS to expand the Refuge by authorizing the acquisition of an additional 20,000 acres, for a total of 43,000 acres. (P.L. 100-556, 102 Stat. 2780 [October 28, 1988]). The additional acres were to be in the vicinity of, and similar to, the land identified in the original 1972 legislation and “necessary to protect fish and wildlife purposes.” In 1990, USFWS completed an

Environmental Assessment and Finding of No Significant Impact (1990 EA) that evaluated potential acquisition of land to meet the Congressional purposes of establishing and expanding the Refuge. The 1990 EA identified what was then called the Authorized Expansion Boundary (since renamed the Approved Acquisition Boundary) on a map. (The 1990 EA and its maps are presented in Appendix P of the 2007 EIS/R. The Approved Acquisition Boundary is presented as part of the Refuge's Final Comprehensive Conservation Plan published in October 2012). Since 1990, USFWS has acquired land within the Approved Acquisition Boundary (through purchase, lease, or donation), including portions of the 15,100 acres acquired from Cargill in 2003 (see discussion below). As of 2012, the Refuge consists of approximately 30,000 acres. In 1995, the Refuge was renamed Don Edwards San Francisco Bay National Wildlife Refuge to honor Congressman Don Edwards, who spearheaded the effort to establish the Refuge.

#### 1.5.4 2003 Salt Ponds Acquisition

In October 2000, Cargill proposed to consolidate salt pond operations and transfer the land and salt production rights on 61 percent of its South Bay operation area. Negotiations headed by Senator Dianne Feinstein led to the signing of a Framework Agreement, which laid out the accord for the public acquisition of the South Bay salt ponds (including the acquisition of Cargill's salt-making rights retained on some ponds in 1979) and 1,400 additional acres of crystallizer ponds along the Napa River in the North Bay. The Framework Agreement was signed in May 2002 by the California Resources Agency, Wildlife Conservation Board, CDFG, the SCC, USFWS, Cargill, and Senator Feinstein. Additional negotiations were completed in December 2002 regarding the Phase-out Agreement, which lays out specific details regarding Cargill's responsibilities for halting salt production in the ponds in question.

The acquisition and restoration of the salt ponds has long been a goal of legislators, resource agencies, and non-governmental organizations (NGOs) working to protect San Francisco Bay. Supporters and signatories of the Framework Agreement included the San Francisco Bay Joint Venture, Save the Bay, National Audubon Society, Citizens Committee to Complete the Refuge, and many other agencies, organizations, and individuals.

The State of California approved the transfer of the salt ponds from Cargill on February 11, 2003. USFWS is now the landowner and land manager of the portions of the SBSP Restoration Project within the Refuge. Table 1-2 presents the Phase 2 ponds and their acreage. Other than the addition of Charleston Slough (which, as described below, is newly added and was not considered in the 2007 EIS/R), these acreages are the same as those presented in the 2007 EIS/R, and for consistency, these areas will be used throughout this document. Other estimates of individual ponds may appear in various documents, and these may differ because they may include the external levees instead of the internal levees, or they may have been sampled during different seasons or tidal cycles. Total areas of pond complexes or pond clusters might include uplands adjacent to them or to waterways or marshes between them. To avoid confusion, the approximate areas used in the 2007 EIS/R will be the standard in this document.

Table 1-2 Phase 2 Pond Acreage by Pond Complex

ALVISO POND COMPLEX		RAVENSWOOD POND COMPLEX	
Pond	Acres	Pond	Acres
A1	275	R3	270
A2W	435	R4	295
Charleston Slough	115	R5	30
A8	410	S5	30
A8S	160		
A19	265		
A20	65		
A21	150		
<b>Total Acreage</b>	<b>1,875</b>	<b>Total Acreage</b>	<b>625</b>
<b>Total Area</b>			<b>2,500</b>

### 1.5.5 Restoration in South San Francisco Bay

Phase 2 of the SBSP Restoration Project is a direct outgrowth of the acquisition of the Alviso and Ravenswood pond complexes (either in fee ownership or the salt-making rights) from Cargill in 2003 and the continued implementation of the larger SBSP Restoration Project laid out in the 2007 EIS/R. The project has focused on how best to manage and restore these lands. There are also existing habitat areas just outside the SBSP Restoration Project boundary that present opportunities to work with the owners of these areas to collaborate on restoration or environmental quality efforts. Agreements have been reached with those landowners to include them in the Phase 2 designs and planning, which is why they were included in the Draft EIS/R and were considered for inclusion in the Preferred Alternatives for Phase 2 discussed in this Final EIS/R.

One such opportunity involves Charleston Slough, which is adjacent to and just west of Pond A1 in the Alviso-Mountain View pond cluster. Charleston Slough is owned by the City of Mountain View and is being included in a coordinated planning and implementation effort, along with the Phase 2 project ponds. As a pre-existing permit condition from BCDC, the City of Mountain View is obligated to create 53 acres of vegetated tidal marsh with cordgrass and pickleweed. To assist the City of Mountain View in meeting this restoration goal, one of the Phase 2 alternatives at the Mountain View pond cluster includes components that would integrate Charleston Slough into the SBSP Restoration Project and assist the City of Mountain View in meeting that BCDC permit conditions, while speeding and enhancing the restoration, flood protection, and recreation/public access improvements near those ponds. More detail on Charleston Slough is presented in Chapter 2, Alternatives, and Chapter 3, Environmental Setting, Impacts, and Mitigation Measures, of this Final EIS/R. Those chapters fully describe and analyze the proposed actions and possible environmental impacts to Charleston Slough and its surroundings and are not tiered from the 2007 EIS/R because Charleston Slough was not included in that document.

A similar opportunity exists at the western end of the Ravenswood pond complex, where collaboration between the SBSP Restoration Project and the City of Redwood City would benefit both parties and

simultaneously improve habitat conditions and flood protection. Under one of the Action Alternatives at the Ravenswood pond complex, the City of Redwood City's Bayfront Canal and Atherton Channel Project would be integrated with the SBSP Restoration Project to reduce salinity in some of the enhanced managed ponds at the Ravenswood pond complex and provide temporary detention for peak stormwater runoff during heavy rainstorms. More detail on the Bayfront Canal and Atherton Channel Project is presented in Chapters 2 and 3 of this Final EIS/R, which again describes and analyses the actions and potential impacts of this opportunity without tiering from the 2007 EIS/R.

## 1.6 Intended Uses of the EIS/R and Required Approvals

The lead agencies will use this Final EIS/R when considering approval of the Phase 2 actions under the SBSP Restoration Project. Responsible agencies that have review and permit authority over the project will also use the Final EIS/R.

Agencies with responsibility for permit approval of certain project elements **may** include the following:

- USACE, under Section 404 of the Clean Water Act;
- USFWS and the National Marine Fisheries Service (NMFS), for Section 7 consultation pursuant to the federal Endangered Species Act regarding "take" of federally listed threatened or endangered species;
- NMFS, for Essential Fish Habitat consultation under the Magnuson-Stevens Fishery Conservation and Management Act;
- The San Francisco Bay RWQCB, for water quality certification under Section 401 of the Clean Water Act;
- The San Francisco Bay RWQCB, for a National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction Activity requiring preparation of a Storm Water Pollution Prevention Plan (SWPPP);
- BCDC, for permit and determination of conformity with the California Coastal Act, the McAteer-Petris Act, the Coastal Zone Management Act of 1972, and the San Francisco Bay Plan;
- The California State Lands Commission, for leases within its jurisdiction, including the submerged lands of the sloughs within the SBSP Restoration Project area and several small areas of state-owned land within the SBSP Restoration Project area;
- Bay Area Air Quality Management District (BAAQMD), may require permits to operate the proposed portable pumps;
- Cities with jurisdiction over the portions of the project area or access routes to it; and
- Encroachment permits from UPRR and Pacific Gas and Electric Company (PG&E).

Other required approvals include easements or modifications to existing easements from nearby landowners for proposed levees that provide flood protection and trail access.

## 1.7 Documents Incorporated By Reference

An EIS/R can incorporate by reference all or portions of another document that are a matter of public record or are generally available to the public (CEQ regulations for implementing NEPA [40 CFR 1502.21] and the 2014 CEQA Statute and Guidelines, Section 15150). Where all or part of another document is incorporated by reference, it has to be made available for inspection at a public place. Also, the document that is incorporated by reference must be briefly summarized or described in the EIS/R, and the relationship of the referenced document and the EIS/R shall be described.

“Incorporation by reference is most appropriate for including long, descriptive, or technical materials that provide general background but do not contribute directly to the analysis of the problem at hand” (2014 CEQA Statute and Guidelines Section 15150(f)). This statement clearly distinguishes those documents that are incorporated by reference from those that are included as appendices. Materials included as appendices to an EIS/R contribute substantively to the impacts analysis (such as modeling results).

The following documents below are incorporated by reference in this Final EIS/R.

- SBSP ISP and ISP EIR/EIS (SCH# 2003032079);
- SBSP Restoration Project Phase 2 Alternatives Analysis Report;
- SBSP Restoration Project Phase 2 Initial Opportunities and Constraints Summary Report;
- SBSP Restoration Project Hydrodynamics and Sediment Dynamics Existing Conditions Report;
- SBSP Restoration Project Levee Assessment Report;
- SBSP Restoration Project Flood Management and Infrastructure Existing Conditions Report;
- SBSP Restoration Project Water and Sediment Quality Existing Conditions Report;
- SBSP Restoration Project Biology and Habitats Existing Conditions Report;
- SBSP Restoration Project Public Access and Recreation Existing Conditions Report; and
- SBSP Restoration Project Final Cultural Resources Assessment Strategy Memorandum and Historic Context Report.

All of these documents are available for review on the SBSP Restoration Project’s official website ([www.southbayrestoration.org](http://www.southbayrestoration.org)) and at the SCC’s office at 1330 Broadway, 13<sup>th</sup> Floor, Oakland, CA 94612. The documents incorporated by reference are described in various chapters and sections of this Final EIS/R.

## 1.8 2007 EIS/R

The 2007 EIS/R evaluated a No Action Alternative and two Action Alternatives for restoring or enhancing the former salt ponds for the SBSP Restoration Project. The two Action Alternatives established a set of “bookends” for the long-term project goals. Under these bookends, Programmatic Alternative B would work toward a gradual restoration to tidal marsh of 50 percent of the total acreage in the area of the SBSP Restoration Project. The other 50 percent would be maintained or improved to

enhanced managed ponds. Programmatic Alternative C would continue past the 50 percent tidal marsh restoration goal and end at 90 percent of the total area of the SBSP Restoration area being restored to tidal marsh, leaving only 10 percent in enhanced managed ponds. Alternative A is the No Action Alternative, under which no actions would have been taken.

The 2007 EIS/R evaluated the environmental impacts of these alternatives and found that Programmatic Alternative A would not meet the project purpose and need to restore tidal marshes in South San Francisco Bay. The 2007 EIS/R selected Programmatic Alternative C at that time because the SBSP Restoration Project would need many years and multiple project-level phases to even approach the 50 percent tidal marsh goal of Programmatic Alternative B. As that level of tidal marsh restoration was being approached, the PMT and other stakeholders could use the findings of the AMP and the directed scientific research questions to determine whether to stop at the 50 percent tidal marsh goal or continue toward the 90 percent goal or to some other percentage in between those bookends.

As stated in the ROD, Programmatic Alternative C was chosen as the long-term goal. However, through application of the Adaptive Management Plan, the project restoration activities could stop before reaching the full goal of 90 percent tidal marsh restoration for that alternative. The Phase 2 project alternatives evaluated in this Final EIS/R would advance the program-level goals of both Programmatic Alternatives B and C. Completing Phase 2 would move the larger project closer to the 50 percent tidal marsh/50 percent managed ponds goal of Alternative B, but it would not reach it. Thus, completing Phase 2 would still allow the project to cease restoration activities at some point between the bookends of Programmatic Alternatives B and C.