SOUTH SAN FRANCISCO BAY SHORELINE ALVISO POND COMPLEX AND SANTA CLARA COUNTY

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PROJECT OVERVIEW

Multiple authorizations, initially for flood risk management and later ecosystem restoration with recreation elements, have shaped the development of this integrated, multi-purpose project that is vital to the South San Francisco Bay community's sustainability and quality of life. The project area, at the tip of the South San Francisco Bay in Santa Clara County, is home to the National Register of Historic Places community of Alviso; a regional wastewater treatment facility serving 1.4 million people including the technical hub of Silicon Valley; tidal marsh restoration efforts; a burgeoning regional recreation trail system; and of course, the expansive Ramsar Estuary of International Significance, San Francisco Bay.

Salt mining, established over a century ago in the Bay Area, spawned salt ponds with unengineered dikes that provide little resistance to sea-level rise and minimal flood risk management for surrounding communities. In addition, over the past 100 years, 90% of the tidal marsh lining San Francisco Bay has disappeared - a drastic change given the geologic life of the bay itself. The loss of tidal marsh has impacted surrounding ecology of the bay, as well as natural flood storage capabilities.

The South San Francisco Bay Shoreline project proposes to construct engineered levees to provide flood risk management for a community at significant risk due to adjacent unengineered dikes and elevations below sea level from historic groundwater overdrafts. Potential sea level change will increase its flood risk. To support the health and sustainability of the South San Francisco Bay, pond dike breaching to establish tidal exchange and transitional habitat built adjacent to the levees are proposed; this will allow for the restoration of 2,900 acres of historic tidal marsh habitat for fish and wildlife, such as migratory birds, and federal and state listed species. Lastly, proposed recreation features complement the ecosystem restoration effort, providing opportunities for environmental education, as well as pedestrian bridges and trails to connect to a regional trail system that supports community quality of life and regional tourism.

This project and its synergies across flood risk management and ecosystem restoration engineering exemplify how an integrated, multi-purpose project can increase the return on investment of a project – further solidifying it as an investment in the national interest.

RECOMMENDED PLAN

FLOOD RISK MANAGEMENT (FRM)

- Manages risk for population of ~5,500, ~1,100 structures, regional wastewater facility, and advanced water purification center
- Design is adaptable to future sea level change

ECOSYSTEM RESTORATION





2,900 acres of tidal marsh habitat restored using ponds A9 through 15

& A18 (shallow/deep water; mudflats; low, middle, and high marsh)

- 30:1 ecotone fill to expedite low, middle and high tidal marsh habitat
- (116 acres)
- Basic in-pond preparation prior to breaching:
 - Pilot channels through fringing marsh into ponds
 - Ditch blocks
 - ► Internal dike reinforcement or breaches
- Phasing:
 - ► 2019-2021: A12, 13 and 18 transitional habitat built (ecotone till
 - ► 2020-2021: A12 and 18 breached
 - ► 2025-2026: A9,10, and 11 breached
 - ► 2030-2031: A13, 14, and 15 breached
 - ► 2019-2041: Monitoring/adaptive management

RECREATION

 Trails, pedestrian bridges, observation platforms, signage, and benches

MONITORING

Evaluate progress of habitat restoration

ADAPTIVE MANAGEMENT

 Adjust timing of phased breaches, lower dikes, adjust in-pond features, import fill, and/or active seeding







BENEFITS



San José-Santa Clara Wastewater Facility

- Flood Risk Management (Community & Wastewater Facility at risk due to subsidence, unengineered dikes, and sea level change)
- 15.2-foot levee allows for FEMA levee accreditation throughout the period of analysis (2021-2071), assuming sea level rise under the USACE high sea level change scenario (2.5 feet)



Tidal marsh restoration providing habitat for fish and wildlife, including state & federal listed species, and natural flood storage and buffer

Shallow & Deep Water

Mudflats

Low, Medium, & High Tidal Marsh



U.S. ARMY CORPS OF ENGINEERS, SAN FRANCISCO DISTRICT