SOUTH SAN FRANCISCO BAY SHORELINE

Integrating flood risk management and ecosystem restoration along the bay’s edge

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STUDY PARTICIPANTS

NON-FEDERAL SPONSORS
- Santa Clara Valley Water District
- State Coastal Conservancy

LANDOWNERS
- U.S. Fish & Wildlife Service
- City of San Jose

CONSULTANTS
- HDR
- Northwest Habitat Institute
- Battelle

U.S. ARMY CORPS OF ENGINEERS
- Headquarters
- South Pacific Division
- San Francisco District
- Los Angeles District
- Jacksonville District
- Planning Centers of Expertise
  - Coastal Storm Risk Management
  - Flood Risk Management
  - Ecosystem Restoration
- Engineer Research & Development Center
- Agency Technical Review Team
- Independent External Peer Review Team
- Mandatory Cost Center of Expertise
PROJECT LOCATION & AUTHORITY

1976 WATER RESOURCES DEVELOPMENT ACT
Flood risk management in North & South San Francisco Bay

2002 STUDY RESOLUTION
South Bay focus w/added ecosystem restoration & recreation

2004 RECONNAISSANCE PHASE
Geographic scope = 9,000 acres/15 shoreline miles

2005 FEASIBILITY PHASE
Scope further reduced to Alviso Ponds and associated shoreline

2011 STUDY FOOTPRINT REDUCED
Northern San Jose area 2,900 acres/4 shoreline miles
SOUTH SAN FRANCISCO BAY SHORELINE  THE RISK OF NOT ACTING

INCREASED THREAT OF FLOODING
Community of Alviso & Surrounding Area (~5,500 people ~1,100 structures)
Increased vulnerability due to existing pond dikes

INCREASED THREAT OF FLOODING
Regional Wastewater Treatment Facility
Serves 1.4 Million People in 8-City Region

INCREASED THREAT OF FLOODING
Water Purification Center
Produces 8 million gallons/day of purified water matching CA drinking standards

LOST OPPORTUNITY TO RESTORE TIDAL WETLANDS
Rising sea levels & deeper water will prevent natural sedimentation from establishing tidal wetlands

CONTINUED LACK OF HABITAT CONNECTIVITY
To Support Wetland Wildlife
Existing residual tidal wetlands fragmented, narrow
Minimal refugial habitat for listed species at high tide

INCREASED THREAT TO LISTED SPECIES
2 Federal Endangered Species
Salt marsh harvest mouse
Ridgway’s rail

SEA LEVEL RISE & POTENTIAL FLOOD RISK

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PROJECT OVERVIEW

- **Flood Risk Management** - **$92M**
  - 4-mile long levee
  - Manages risk for population of ~5,500, ~1,100 structures, & regional wastewater facility

- **Ecosystem Restoration** - **$76M**
  - 2,900 acres of tidal wetlands including ecotone

- **Recreation** - **$6M**
  - Provides key connections to San Francisco Bay Trail & viewpoints

**TOTAL COST** - **$174 M**
**Tidal Marsh Restoration Features:**

**In-pond Preparation**
- Pilot channels through fringing marsh into ponds
- Ditch blocks
- Internal dike reinforcement or breaches

**Transitional Habitat**
- 30:1 Ecotone fill

**Pond Breach Phasing**
- A12, A18
- A9-A11
- A13-A15

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**Phased Pond Breaching + Transitional Habitat (Ecotone)**

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**Levee**

**Transitional fill/habitat**

*Between tidal marsh & levee*
Tidal Marsh Restoration Features

Example Restoration: Pond A21 (April 2008 - 2011)  Photo Credit: C. Benton

- Ditch Block (to direct flow toward center of site)
- Levee Lowering
- Breach
- Pilot Channels
ECOTONE TRANSITIONAL HABITAT

OPPORTUNITY FOR MORE DIVERSE HABITAT & MORE RESILIENT FLOOD RISK MANAGEMENT

TIDAL WETLAND ECOTONE (restored condition over time)

DEEP TO SHALLOW SUBTIDAL

TIDAL MUDFLAT

TIDAL MARSH (LOW MARSH)

TIDAL MARSH (MIDDLE & HIGH MARSH)

GRASSLAND/SEASONAL WETLAND MOSAIC & SEASONAL WETLAND/SPACE FOR SLC ADAPTATION

LEVEE CREST
POST-CONSTRUCTION ACTIONS

**Monitoring**
Evaluate Progress of Habitat Restoration

**Adaptive Management**
Adjust timing of phased breaches, lower dikes, adjust in-pond features, import fill, active seeding

LONG-TERM ACTIONS

**Operation, Maintenance, Repair, Replacement and Rehabilitation (OMRRR)**
by non-Federal sponsor

Total Estimated Cost for Monitoring ($1.7m) & Adaptive Management ($6.3M) = $8 million
LEGEND

- Observation Platforms
- Bench
- Levee Alignment w/ bridges
- Project Trails
- Other Existing or Future Trails

Trails, pedestrian bridges, benches, signage

BUILDING STRONG®

RECREATION

SR 237

ALVISO

Wastewater Facility

Coyote Creek

Artesian Slough

Artisan Slough

Guadalupe River

Alviso Slough

Trails, pedestrian bridges, benches, signage
Chief’s report: December 2015
Project Authorization: To be determined
Design Agreement: Spring 2016
Project Partnership Agreement: Spring 2017
Construction Contract Award: Spring 2018
Construction Begins: Summer 2018
### FEATURE

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<thead>
<tr>
<th>2,900 ACRE WETLAND RESTORATION</th>
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<tbody>
<tr>
<td>- partial breaching of existing dikes</td>
</tr>
<tr>
<td>- ditch blocks</td>
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<tr>
<td>- pond berms</td>
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<tr>
<td>30:1 slope ecotone fill</td>
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### BENEFIT

| Conditions restored for tidal wetland habitat (sedimentation & flows) |
| Connections restored between wetland restorations, as well as San Francisco Bay |
| More diversified tidal wetland habitat (ecotone) |
| Robust to long-term sea level rise |
| Risk managed for population of ~5,500, ~1,100 structures, businesses, & regional wastewater facility |
| Key connections to San Francisco Bay Trail |
| Key connections to San Francisco Bay Trail plus additional recreation enhancements |

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**INTEGRATED PROJECT: CRITICAL INVESTMENT**

- Levee Trails
- Pedestrian Bridges
- Observation Platform
- Signage
- Trails
- Benches

**NOT TO SCALE**

- Levee with Adjacent Ecotone Wetland Restoration
- Wetland Restoration
- Gates/Pedestrian Bridges
- Project Trails
- Existing Trails

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Questions?