ISLAIS CREEK
SOUTHEAST MOBILITY ADAPTATION STRATEGY
LIFELINES COUNCIL MEETING

CORE TEAM:
Lisa Fisher, ICSMAS Project Director
Resilience & Sustainability Lead, Planning

Luiz Barata, ICSMAS Project Manager
City Design, Planning

Tim Doherty, Manager: Policy and
Long-Range Planning, SFMTA

Kari Kilstrom, Special Projects, Port

Sarah Minick, Utility Planning Manager,
SFPUC Wastewater

CONSULTANTS: AECOM, Pathways Climate,
Fehr & Peers, Lotus Water, Civic Edge,
Andrea Baker Consulting

JUNE 22, 2022
1. PROJECT CONTEXT
2. FRAMING & APPROACH
3. OVERVIEW OF STRATEGIES
4. DELIVERABLES & NEXT STEPS
WATERFRONT RESILIENCE PROGRAM & CITY EFFORTS: ISLAIS CREEK DISTRICT

PORT-WIDE
Adapt Plan
USACE Coastal Flood Study
Floodproofing the Piers
Waterfront Adaptation Strategies

EMBARCADERO
Embarcadero Seawall
Multi-Hazard Risk Assessment
Early Projects
Living Seawall Pilot

MISSION CREEK / MISSION BAY
Initial Southern Waterfront Earthquake Assessment
Mission Bay Port-SPUR Adaptation Study

ISLAIS CREEK / BAYVIEW
Islaís Creek Mobility Adaptation Strategy

RELATED PORT PROJECTS
Historic Pier Rehabilitation
Project Sea Level Rise Adaptations
Utilities Projects
Waterfront Plan

Port Jurisdiction

1 2 3

3.5 mi
7.5 mi
2.5 mi
1.5 mi

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**ICSMAS PROJECT PROCESS & TIMELINE**

### 2019–Sept 2020
- Existing Conditions Analysis
- Combined Flood Model
- Key Assets Selection

#### Engagement
- ✓ 3 In-Person Workshops
- ✓ I Am Islais Campaign
- ✓ Community Vision & Goals
- ✓ Walking Tour
- ✓ Y-Plan Youth Engagement
- ✓ CBO Meetings

#### Adaptation (Exploratory) Scenarios

### Oct 2020–May 2021
- Adaptation Strategies & Pathways
  - o Asset Scale
  - o District Scale

#### Engagement
- ✓ CBO Meetings
- ✓ Stakeholder Circle-Back Event
- ✓ Commission & Board Hearings

#### Economic Analysis
- Implementation & Financing Strategy

### June 2021
- Planning Commission

#### Final Deliverables
- o Conclude reviews
- o Incorporate comments
- o Final report to Caltrans

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**ONGOING Multi-Agency Coordination & Integration**
1. PROJECT CONTEXT
2. FRAMING & APPROACH
3. OVERVIEW OF STRATEGIES
4. DELIVERABLES & NEXT STEPS
I AM ISLAIS

“The climate is changing and I want to protect my cousins. We live down the hill and the flood can get to her. We have to stay together as a community to be prepared for floods.”

[Image of a bridge over a river with people gathered around it]

[Image of a young girl smiling]

[Image of a man holding a baby]

[Image of a group of people standing on a bridge]

[Image of a woman looking at the camera]
Islaic Creek adapts to flood risks while ensuring healthy and resilient communities.

1. A socially and environmentally resilient neighborhood
2. Authentic and transparent public engagement during and beyond planning
3. A transportation system that is resilient and adaptable to flood risk
4. A healthy environment for residents, workers, and ecologies
5. A sustainable economy that benefits local residents, workers, and industries
FLOOD ADAPTATION (PROTECTION) TOOLKIT: HARD / NATURE BASED / EARTERN / EVENT-BASED

- **SEAWALL**: A hardened vertical structure that is anchored into and above the ground on both sides.
- **RAISED EDGE**: Adding a hardened lip or wall to an existing shoreline structure.
- **RAISED PIER**: Raising a pier, either from underneath by increasing the height of the support structures, or by adding to the height of the pier surface itself.
- **REVCENTMENT**: Armoring placed on the slope of embankments or berms as a defense against erosion - revetments can be constructed from large rocks, tetrapods, etc.
- **WAVE ATTENUATION EDGE**: Structural armoring built on the slope of embankments, such as interlocking concrete tiles or steps.
- **RAISE INFRASTRUCTURE**: Elevating bridges, roads, or other infrastructure to be above flood waters. Raised infrastructure can also contribute to the protection of inland assets.
- **BEACH CREATION**: Supporting or creating a beach through strategic placements of fine or coarse sand – can attenuate waves in front of other structures.
- **NATURE BASED / HYBRID SHORELINE**: A variety of solutions that support flood protection and wave attenuation properties of natural shorelines.
- **LEVEE**: Engineered structure made of packed earth with an impermeable core.
- **AUTOMATIC BARRIERS**: Installed mechanical devices that can be raised during storm events.
- **DEPLOYABLE BARRIERS**: Flood barriers that can be temporarily installed during storm events.
- **FLOODABLE PARKS**: Shoreline recreation and open spaces that are designed to accommodate water during storm events without resulting in permanent damage.
- **LIVING EDGE**: A gently sloping earthen structure, possible backed by a levee, providing and ecotone slope for marsh vegetation and attenuating wave action.
- **REVCENTMENT**: Structures that are placed in the water offshore to attenuate wave action – may be hardened structures or green/living structures.
- **STORMWATER MANAGEMENT**: Diffuse inland green infrastructure strategies that absorb stormwater to prevent ponding and reduce peak flows during flood events.
- **LAND USE CHANGE**: Strategies that allow the shoreline edge to migrate inland, with associated land use changes behind.
- **BERM**: Earthen non-engineered mounds, potentially vegetated.
- **RAISE STRUCTURE**: Elevating individual structures inland to be above flood waters, with measures like pile supports or elevated foundations.
LOCAL TOPOGRAPHY & GEOLOGY

Silver Terrace Hill

Bernal Hill

Mission

Potrero Hill

Bayview Hill

India Basin

Island Creek

Warm Water Cove

San Francisco Bay

Land Created With Fill

Land Created With Fill

ORIGINAL SHORELINE

STUDY AREA

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TODAY'S FLOOD RISK: 100-YR COASTAL & RAIN EVENTS

COMBINED TEMPORARY FLOODING
2050: 23" SLR + 100-YR STORM = 64" COASTAL IMPACTS

COMBINED TEMPORARY FLOODING
SEA LEVEL RISE INUNDATION
2080: 52" SLR + 100-YR STORM = 93" COASTAL IMPACTS

COMBINED TEMPORARY FLOODING
SEA LEVEL RISE INUNDATION
**2080 SLR + COMBINED FLOOD IMPACTS**

**Combined Temporary Flooding**
- Sea Level Rise Inundation

**Loss of Community Amenities**
- Damage to Area Infrastructure (Recology MRF)
- Damage to Property Structure
- Damage to Property Cleanup
- Damage to Area Infrastructure (SE Treatment Plant)
- Transit Disruption: Citywide Bus Lines
- Transit Disruption: 3rd St Muni Line
- Interruption to Public Services
- Interruption to Businesses
- Interruption to Businesses

**Location:** San Francisco Bay, Silver Terrace
SUSTAINABLE ECONOMY

- PORT Pier 90-96
- Backlands
- PORT Pier 96
- Expanded Maritime/Industrial Jobs
- ENHANCE PDR & JOBS AREA
- Enhanced Pier & Jobs Area
- Illinois St Bridge
- konnte Creek Bridge
- Warm Water Cove
- San Francisco Bay
- Bayview
- India Basin
- Dogpatch
- US-101
- Mission
- Potrero Hill
- Bernal Heights
- 3rd Street
- Silver Terrace
- Cargo Way
KEY STRATEGIES & COMMUNITY GOALS

HEALTHY ENVIRONMENT

GREEN STREETS

ECOLOGICAL ENHANCEMENTS

IMPROVED WATERFRONT AMENITIES

ECOLOGICAL ENHANCEMENTS

PORT Pier 90-96
Backlands

PORT Pier 96

ECOLOGICAL ENHANCEMENTS

India Basin

Horron’s Head Park

San Francisco Bay

Istais Creek

Istais Creek Bridge
Illinois St Bridge

PORT Pier 80

MTA Bus Yard

Marin Yard

STUDY AREA

Bernal Heights

Mission

Potrero Hill

Dogpatch

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KEY STRATEGIES & COMMUNITY GOALS: **SUMMARY**

- **Healthy Environment**
- **Robust Transportation**
- **Sustainable Economy**

- **Green Streets**
- **Enhanced Blue Greenway (Pedestrian/Bike Safety)**
- **Multi-Modal Enhancements (Pedestrian/Bike Safety)**
- **Improved Waterfront Amenities**
- **Enhance PDR & Jobs Area**
- **Bridge Replacements**
- **Ecological Enhancements**
- **Protected Transit Facilities**
- **New Blue Greenway Alignment**
- **Raised/Rebuilt Pier Edges & Berths**

**PORT Pier 96**

**PORT Pier 90-96**

**Backlands**

**INDIA Basin**

**Warm Water Cove**

**San Francisco Bay**
FIVE GEOGRAPHIC “REACHES” OPTIMIZE SYNERGIES
REACH EXAMPLE: #4 SOUTHWESTERN CREEK BANK

1. Convert Islais Creek Park to tidal marsh, after area has been remediated.
2. Expand Islais Creek Park and create wetlands where possible. Construct a shoreline berm.
3. Flood-proof or relocate Booster Pump Station.
4. Protect Artist Studios, flood proof existing structures and consider converting to park or multiuse opportunity areas as a public/private partnership.
5. Improve ecosystem of creek channel with floating eel grass beds or other suitable pilot studies.
6. Maintain and improve stormwater management, coordinate with SFPUC.
ADAPTATION PATHWAYS DIAGRAM EXAMPLE: REACH 4

NO ACTION / EXISTING CONDITION

1 Convert the western shoreline into tidal marsh
   Near Term | Construct shoreline floodwall
   Longer Term | Acquire and remediate properties (automotive, vacant)
   Longer Term | Convert to tidal marsh after areas have been remediated

2 Expand Islais Creek Park and waterfront access
   Near Term | Expand park (and create wetlands where possible)
   Near Term | Relocate or rehabilitate kayak / boat launch and coordinate with Islais Creek Bridge replacement
   Near Term | Construct shoreline berm
   Near Term | Construct creek trail for waterfront access
   Near Term | Construct new pedestrian crossing
   Longer Term | Adjust boat launch to maintain public water access
   Longer Term | Optional: raise shoreline berm / create opportunity area
   Longer Term | Construct second berm further inland
   Longer Term | Place trail on second inland berm around park
   Longer Term | Regrade and allow inland migration of wetlands/tidal marsh

LEGEND
- Coastal Defense Actions
- Planning and Support Actions
- Nature-Based Actions
- Stormwater Actions
- Threshold
- Trigger
- Trigger + Lead Time
- Action Implemented
- Decision Point
- Strategic Decision Point
- Action Effective
- End of Action Lifespan
- Action continues
# Funding & Financing: Funding, Grants, Strategies by Reaches and Dynamic Project List

## Funding & Financing Strategies for Near-Term Strategies

<table>
<thead>
<tr>
<th>Category</th>
<th>Implementation &amp; Financing</th>
<th>Description</th>
<th>Type</th>
<th>Strategy</th>
<th>Eligible Projects</th>
<th>Appropriability to USACE Projects</th>
<th>Cost</th>
<th>Contribution Fund</th>
<th>Net Benefits</th>
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<tbody>
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<td>Fees for Service</td>
<td>Public Infrastructure</td>
<td>Abatement of Eroded Property</td>
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<td>Low</td>
<td>Physical / Capital Expenses</td>
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<td>Environmental justice, economic gains</td>
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<td>Value Capture</td>
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<td>High</td>
<td>Physical / Capital Expenses</td>
<td>Significant</td>
<td>Economic gains, revitalization</td>
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## 2050 Strategies: Implementation Details

### REACH 1: NORTHEASTERN WATERFRONT

<table>
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<tr>
<th>Strategy &amp; Sub-Strategy</th>
<th>Near-Term Strategies</th>
<th>Project Type</th>
<th>Hard Cost</th>
<th>Cost with Markup &amp; Contingency</th>
<th>Potential Strategy Used</th>
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NEXT STEPS

• USACE Coastal Flood Study: ongoing coordination with the Waterfront Resilience Program

• Continue rich coordination with City agencies - funding strategies & project implementation

• Joint Benefits Authority investigations

• Combined flood model for area South of Heron’s Head park