



San Francisco  
**Planning**



US Army Corps  
of Engineers®



Waterfront Resilience Program

USACE/Port Flood Study Webinar  
July 18, 2019

# WEBINAR AGENDA

## WE WILL COVER

Thank you for joining us today!

- City/Port of San Francisco Resilience
- Related Projects and Efforts
- U.S. Army Corps of Engineers/Port Flood Study
- Assessment and Engagement Work
- Next Steps



# PORT'S WATERFRONT RESILIENCE PROGRAM

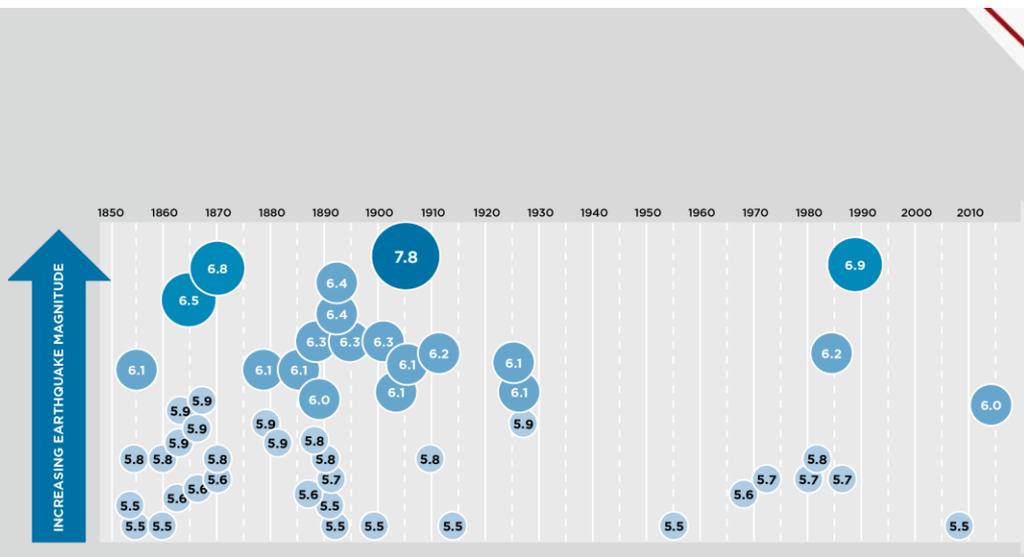


THE WATERFRONT RESILIENCE PROGRAM IS FOCUSED ON REDUCING SEISMIC AND FLOOD RISKS TO ENSURE A RESILIENT AND THRIVING PORT

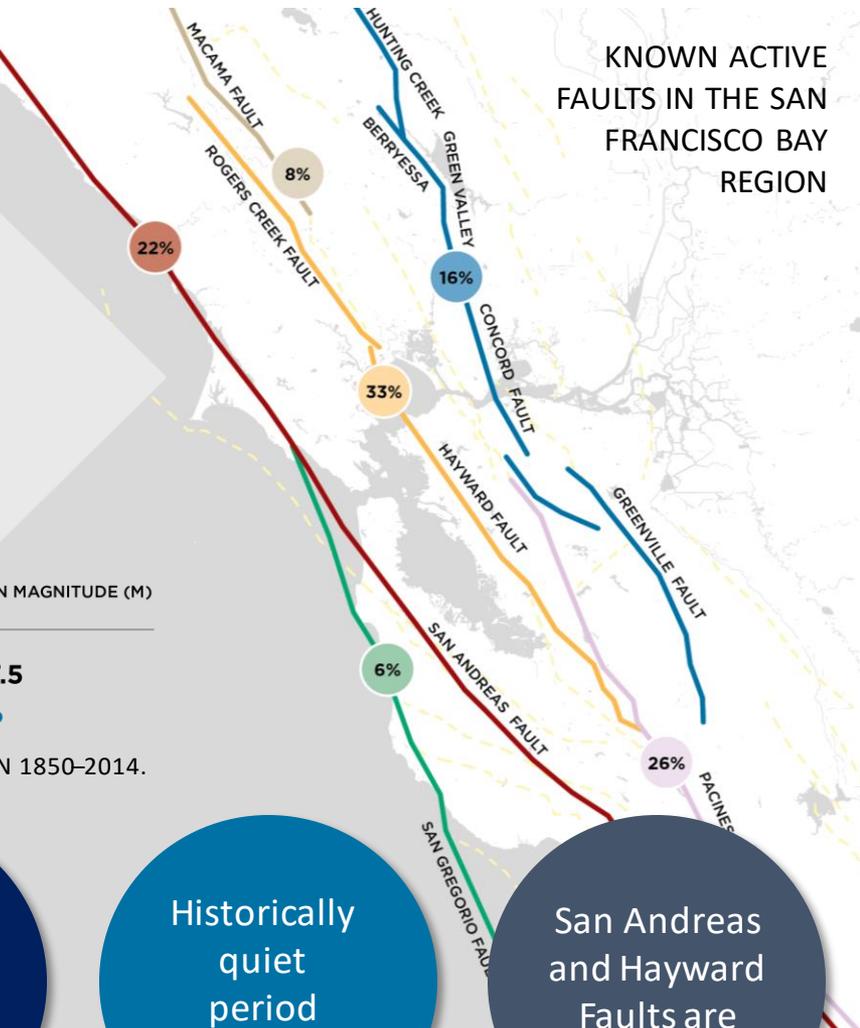


Waterfront Resilience Program  
USACE/Port Flood Study Webinar | July 2019

# WATERFRONT RESILIENCE PROGRAM: EARTHQUAKE RISK



TIMELINE OF MAGNITUDE 5.5 AND GREATER EARTHQUAKES IN THE SAN FRANCISCO BAY REGION 1850-2014.



KNOWN ACTIVE FAULTS IN THE SAN FRANCISCO BAY REGION

72% likelihood of a major earthquake by 2043

Historically quiet period since 1906

San Andreas and Hayward Faults are highest risks



Waterfront Resilience Program



# SAN FRANCISCO'S FLOOD RISK

San Francisco faces increasing flood risk

100-year flood event would create significant disruptions

SAN FRANCISCO SEA LEVEL RISE MAP

SAN FRANCISCO IS PLANNING FOR UP TO

3'

BY 2050, AND A POSSIBLE

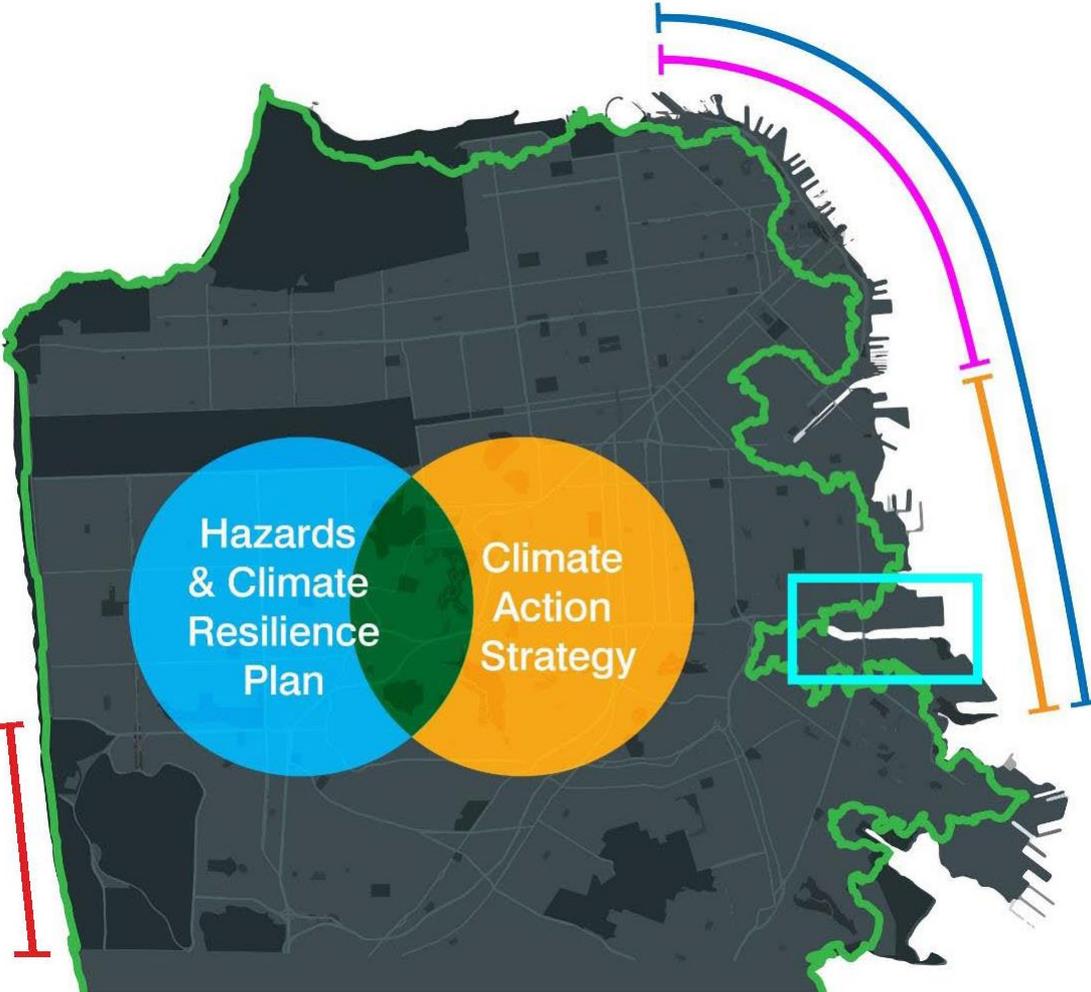
6'-10'

BY THE YEAR 2100

5.5' OF SEA LEVEL RISE + 100 YEAR FLOOD HAZARD AREA



# CITYWIDE RESILIENCE EFFORTS



## CITYWIDE PLANS AND STRATEGIES

- Sea Level Rise Action Plan (Vulnerability & Consequence Analysis)
- Hazards & Climate Resilience Plan
- Climate Action Strategy

## SHORELINE ASSESSMENTS AND PROJECTS

- Southern Waterfront Assessment
- Embarcadero Seawall Program
- USACE/Port Flood Study
- Islais/Southeast Mobility Adaptation Strategy
- Ocean Beach Implementation



# PORTWIDE RESILIENCE



The Port Commission directed the expansion of the Port's resilience efforts and supported the partnership between USACE and the Port. The result is a far more robust, collaborative, and integrated effort: the Waterfront Resilience Program

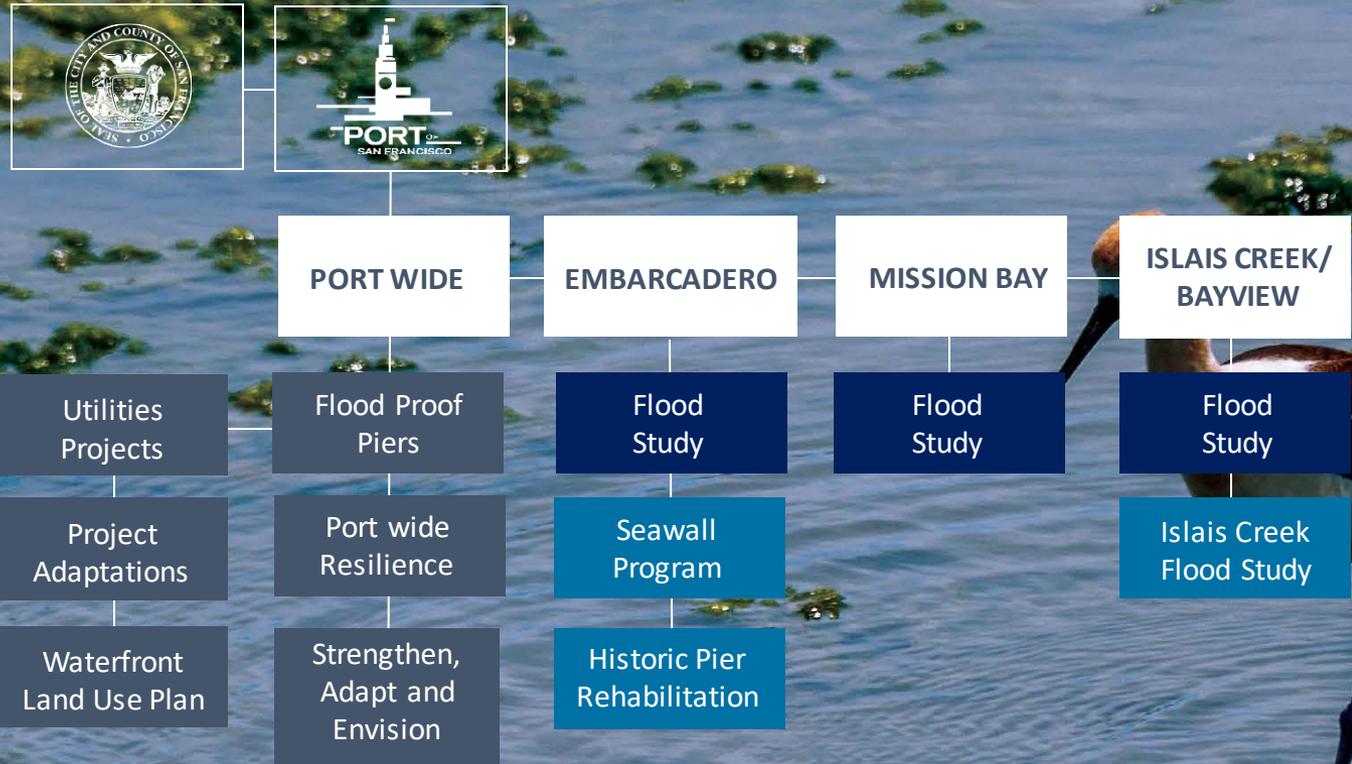
Broadening focus from the Embarcadero Seawall Program \$500 M Phase 1

USACE/Port Flood Study could be up to a \$1 billion effort

Aligns with efforts already underway along Port's 7.5 miles



# PORT OF SAN FRANCISCO'S WATERFRONT RESILIENCE WORK



# WATERFRONT RESILIENCE PROGRAM ADAPTATION FRAMEWORK



**STRENGTHEN ELEMENT**

**Objective:** Immediately implement highest priority disaster response and life safety projects along the Embarcadero Seawall.



**ADAPT ELEMENT**

**Objective:** A plan that is updated every five years and includes policies and projects to reduce remaining seismic and increasing flood risks, that can respond to changing priorities and will provide a framework for the Port to adapt over time.



**ENVISION ELEMENT**

**Objective:** Develop visions that can respond to higher water levels, changes in priorities and science and result in a waterfront that is resilient to 2100 and beyond.



# PROJECT RESILIENCE: SCALE AND SCOPE EXAMPLES

ASSET: 3<sup>rd</sup> ST. BRIDGE



SYSTEM: MUNI METRO



REACH: FLOOD STUDY



CITYWIDE: SLR AND HCR



# RELATED PORTWIDE WORK: WATERFRONT PLAN UPDATE

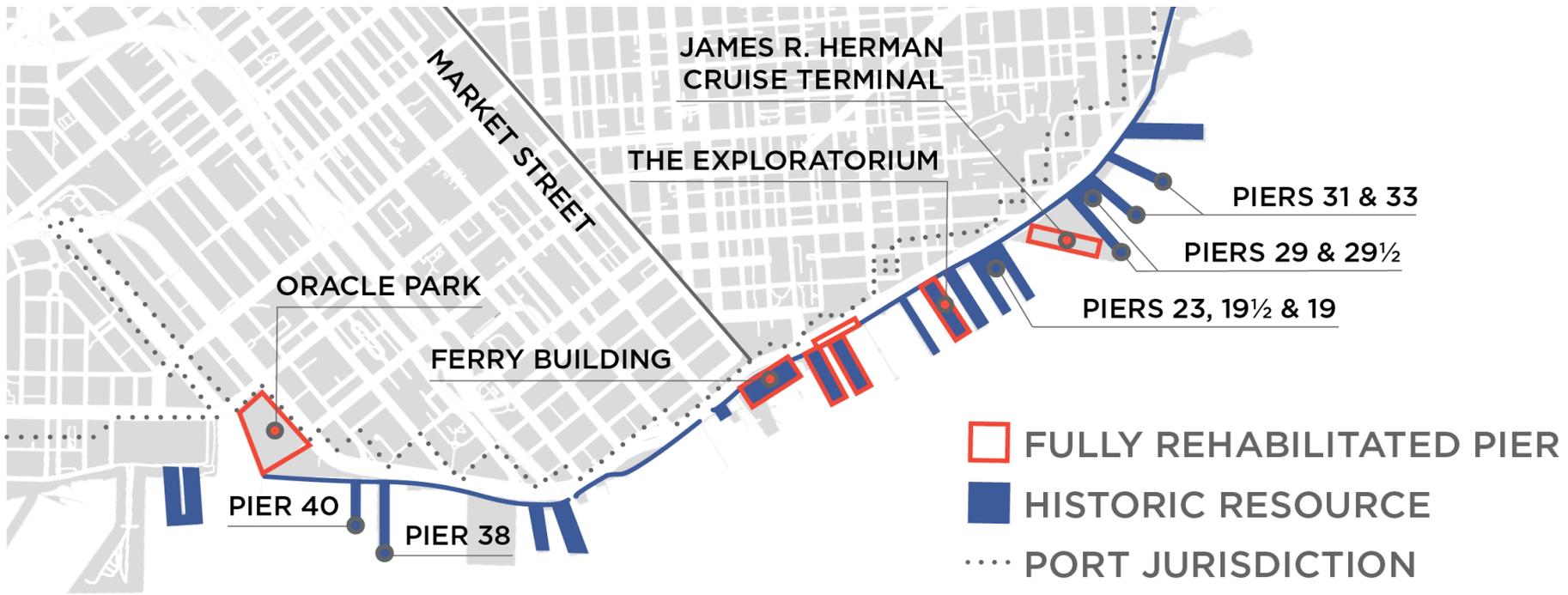
## WATERFRONT PLAN

The Port of San Francisco's Waterfront Plan update will guide the Port's land use and improvements. The update includes:

- **Nine goals** including economic and environmental sustainability, resilience and historic and maritime preservation
- An updated Waterfront Plan to be **adopted in Winter 2020**
- Includes a framework for improving historic piers
- **Plan supports enhancement and preservation of existing uses**



# HISTORIC PIER REHABILITATION PROGRAM



A primary initiative of the Waterfront Plan update

Critical effort for the resilience of the Embarcadero Historic District

RFP process to pursue ideas for improvements that include economic, cultural and public improvements

Pier 45  
(Fisherman's Warf) to Pier 48  
(China Basin)

6 successful historic rehabilitation projects

16 facilities yet to be repaired and improved



# WATERFRONT RESILIENCE PROGRAM: EMBARCADERO SEAWALL PROGRAM

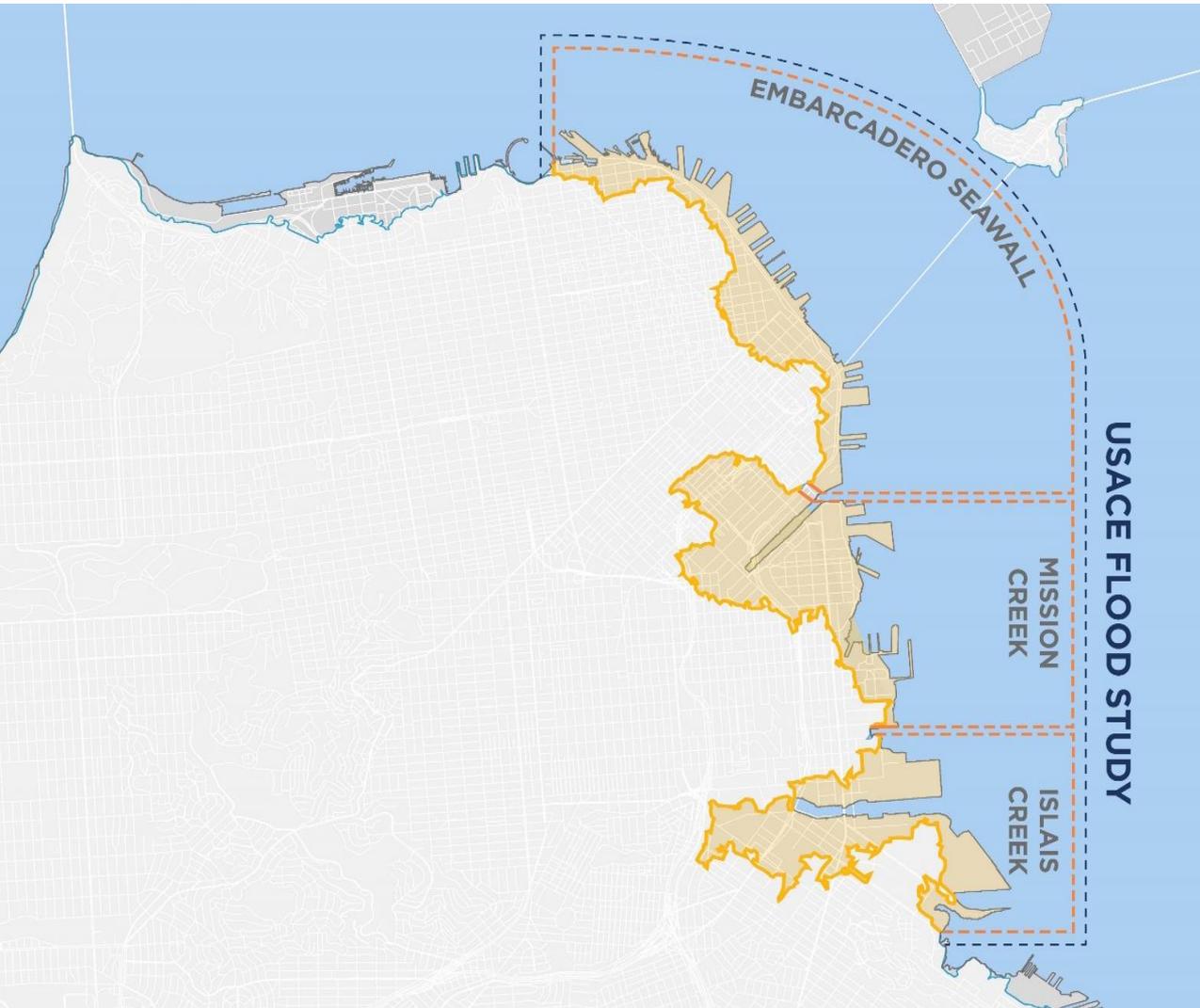


## SEAWALL PROGRAM OVERVIEW

- First priority is to protect **life safety** and **emergency response** from seismic events
- Approximately \$5 billion over 30+ years
- Funding and financing from **City, state, federal and private**
- Will address as much flood risk as possible and **create a foundation** for addressing flood risk
- Focus on **Citywide impacts** of seismic and flood risk-**life safety, emergency response, transportation, utilities, jobs**



# WATERFRONT RESILIENCE PROGRAM: USACE/PORT FLOOD RESILIENCY STUDY



## HIGHLIGHTS

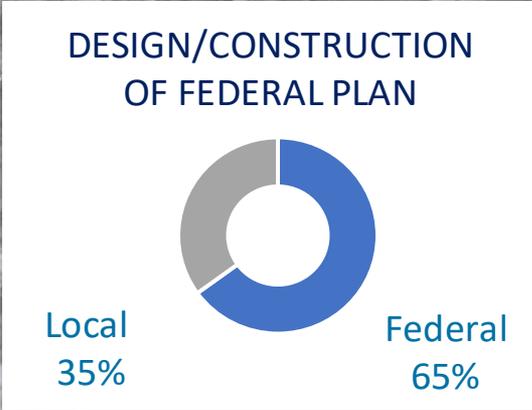
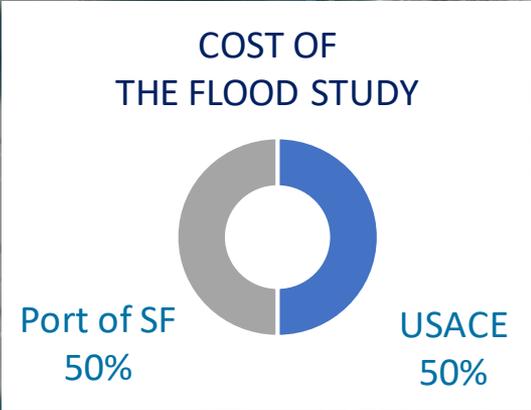
- Federal funding
- Port is the local sponsor
- Entire Port jurisdiction + Aquatic Park
- ~3-5 years, ~\$10M, 50/50 cost share
- Opportunity to phase other areas

## STUDY OVERVIEW

- Evaluate flood risk to develop and assess a range of alternatives
- Culminates in a recommendation to Congress of selected plan
- Design/construction of federal plan cost shared 65% fed / 35% local



# USACE/PORT FLOOD STUDY FUNDING



Locally preferred plan can be selected, City/Port pay additional costs

Recommendations for funding the selected alternative will be made in the final Army Corps recommendation to Congress in 2022 or later



# USACE/PORT FLOOD STUDY BROAD OUTCOMES

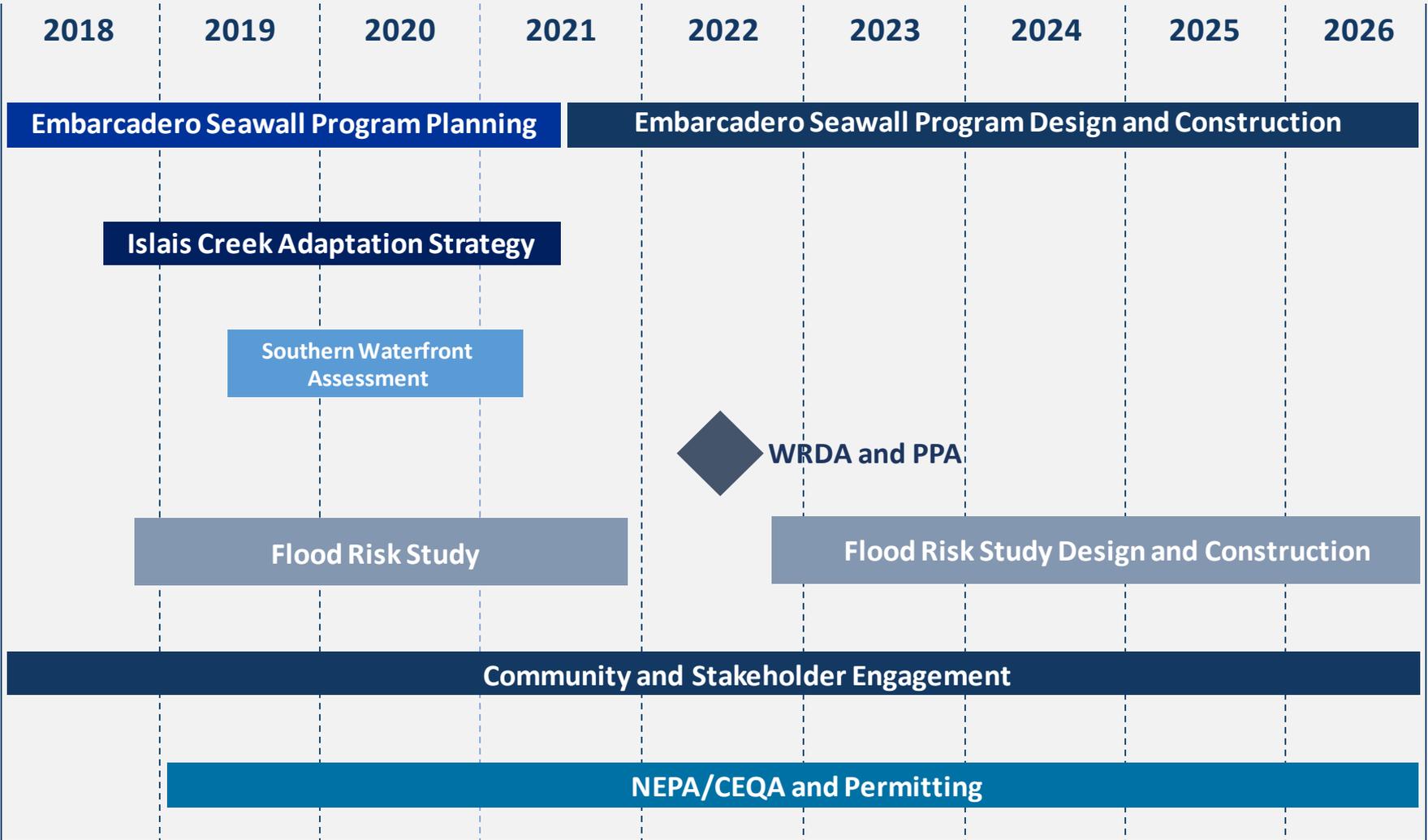


## FLOOD STUDY OUTCOMES

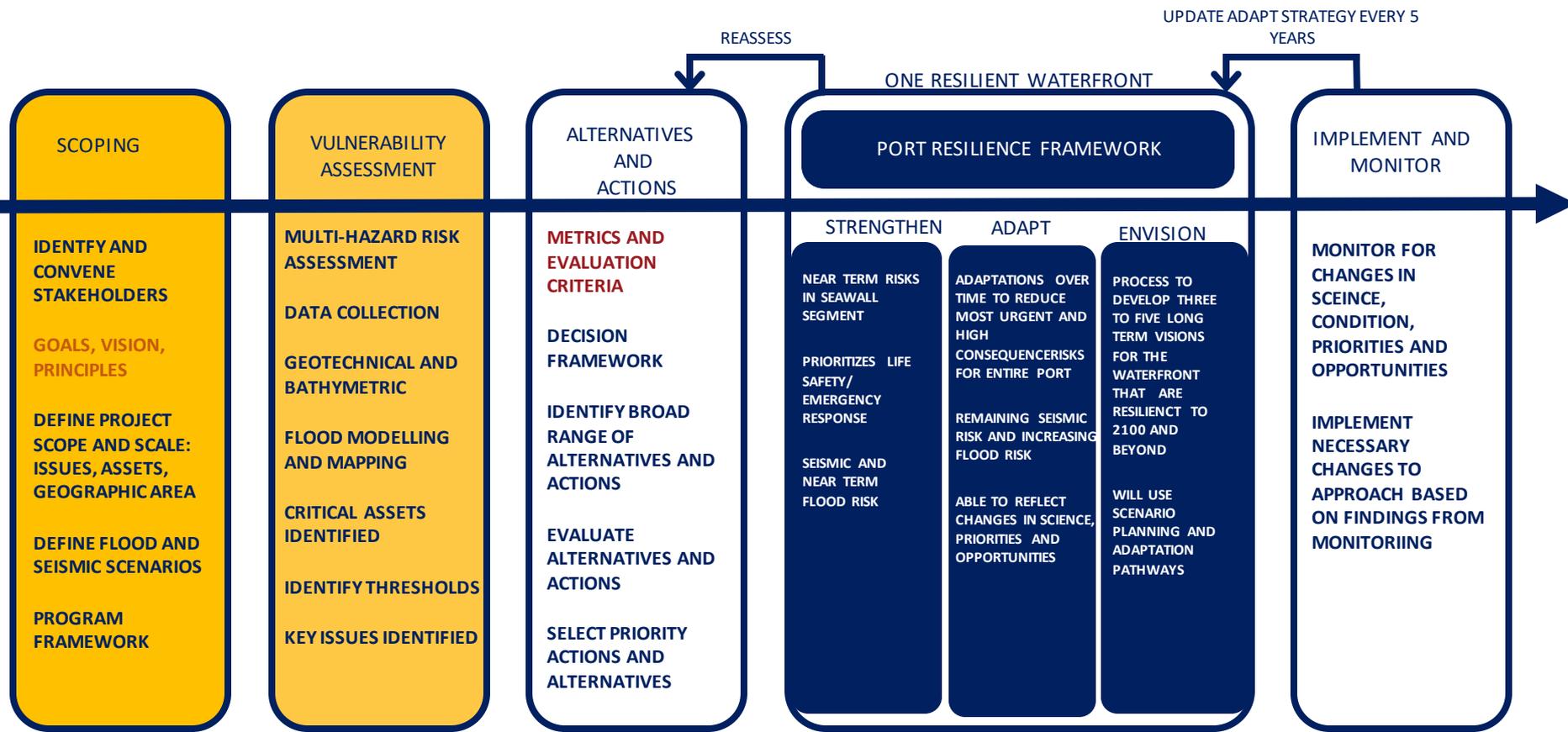
- Better understanding of the hazards
- Opportunity to identify what is important to the community and what would happen if there was damage and disruption
- Engagement with stakeholders to shape the alternatives
- Selection of a preferred alternative to reduce flooding
- Federal expertise and possible funding for that preferred alternative



# WATERFRONT RESILIENCE PROGRAM TIMELINE



# WATERFRONT RESILIENCE PROGRAM STEPS



Community and Stakeholder Engagement

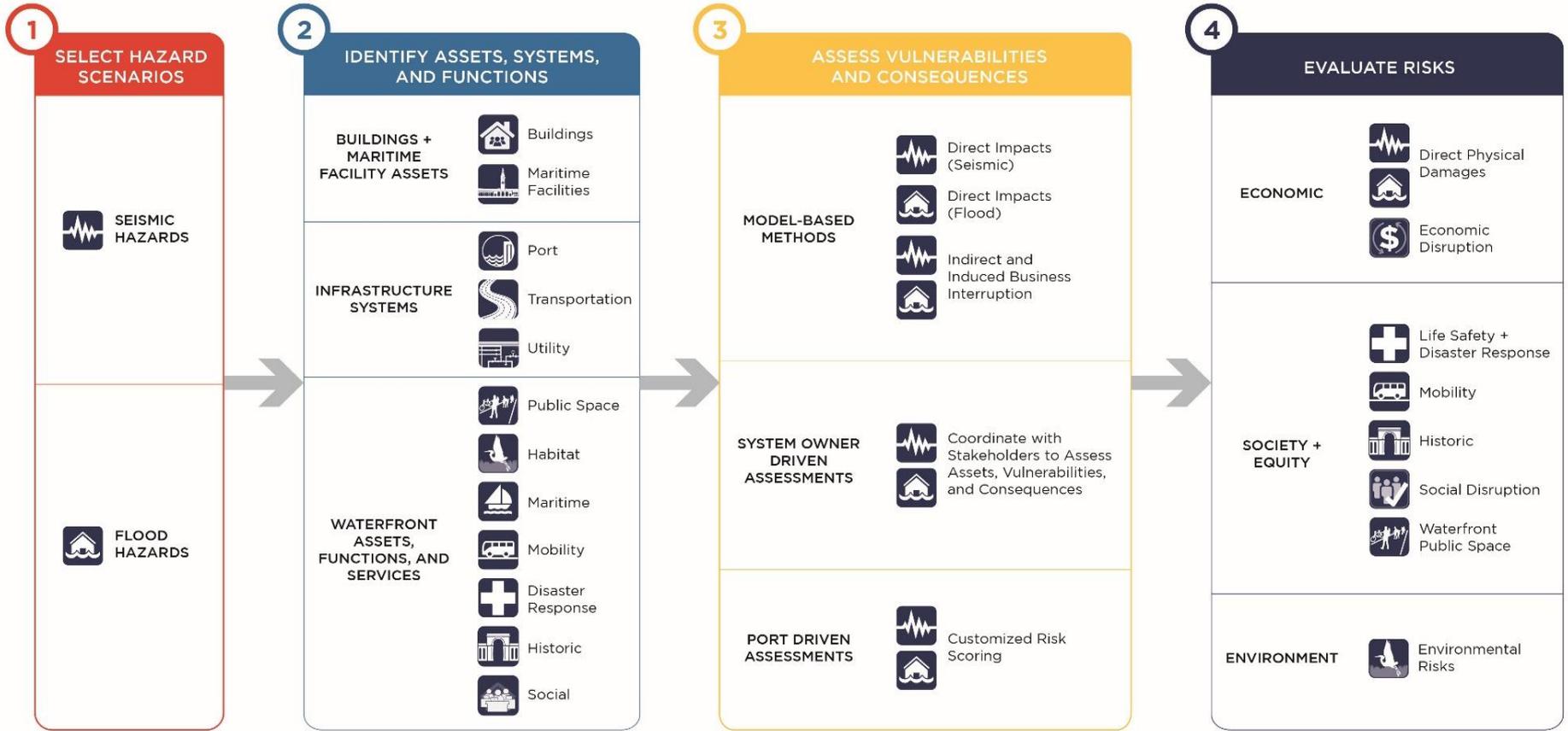
# MULTIHAZARD RISK ASSESSEMENT METHODOLOGY

## What are the hazards?

## What's at stake?

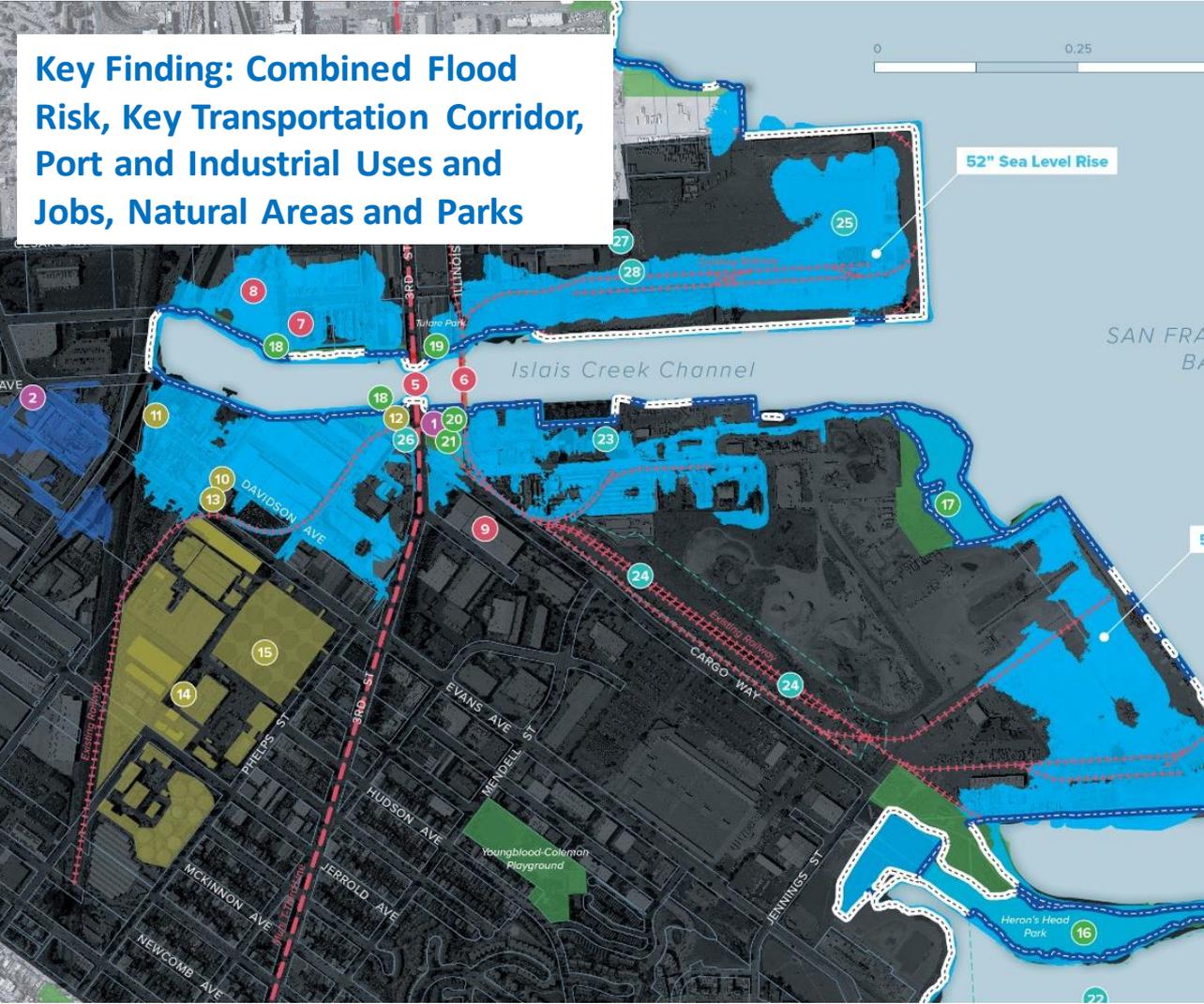
## How will we measure?

## Why does it matter?



# FLOODING IN THE BAYVIEW AND ISLAIS CREEK

**Key Finding: Combined Flood Risk, Key Transportation Corridor, Port and Industrial Uses and Jobs, Natural Areas and Parks**



## BAYVIEW / ISLAIS CREEK

Islais Creek was once a broad creek and marsh area that was filled for agricultural and industrial uses in the late 1800s.

Sea level rise will expose much of the shoreline of the community to flood risk.

Filled areas are subject to liquefaction.

Seismic risk needs to be better understood for the area and is different in nature than the Embarcadero Seawall segment.

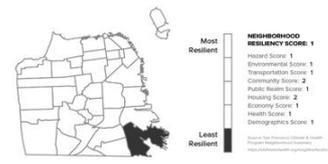
Redevelopment of the area considers these issues.



# FLOODING IN THE BAYVIEW AND ISLAIS CREEK



## Bayview South Hunters Point



- PUBLIC SAFETY**
  - 1 Hunters Point Superfund Site
  - 2 Hunters Point Shipyard Building
  - 3 Contaminated Land
- WASTE WATER**
  - 4 Sunnydale Major Pump Station
- OPEN SPACE**
  - 5 India Basin Shoreline Park
  - 6 Gilman Playground

■ Inundation at 66" Sea Level Rise   
 ■ Low Lying Land (at risk of inundation at 66")   
  Overtopping   
  No Overtopping



# UNDERSTANDING ASSETS & SERVICES AT ISLAIS CREEK



## ASSET MAPPING

The Port and the Army Corps are collecting information on existing assets with City agencies, partners and community stakeholders

### INFRASTRUCTURE



### URBAN AND CULTURAL



### PARKS AND ECOSYSTEMS



### MARITIME



### DISASTER RESPONSE



# WHAT DOES FLOOD RISK MEAN FOR BAYVIEW/ISLAIS CREEK?



## COMMUNITY CONSIDERATIONS

- Transportation and mobility
- Emergency response and recovery
- Disruption and damage to small businesses
- Disruption and damage to Port operations and tenants
- Disruption and damage to community assets and services including parks, roadways, schools, homes



# POTENTIAL FLOOD STUDY BENEFITS TO THE BAYVIEW



Identification of resilience alternatives for Islais Creek

Federal, state, and local investment in flood protection

Future projects with job creation opportunities



# UNDERSTANDING ASSETS & SERVICES AT MISSION CREEK



## ASSET MAPPING

The Port and the Army Corps are collecting information on existing assets with City agencies, partners and community stakeholders.

### INFRASTRUCTURE



### URBAN AND CULTURAL



### MARITIME



### PARKS AND ECOSYSTEMS



### DISASTER RESPONSE



# WHAT DOES FLOOD RISK MEAN FOR MISSION BAY/MISSION CREEK?



## COMMUNITY CONSIDERATIONS

- Transportation and mobility
- Emergency response and recovery
- Disruption and damage to residences and businesses
- Disruption and damage to community assets and services including parks, roadways, hospitals and healthcare centers, and commercial corridors

# RELEVANT STUDIES AND PROJECTS

CITY AND COUNTY OF SAN FRANCISCO

## SAN FRANCISCO SEA LEVEL RISE ACTION PLAN

WORKING TOGETHER TO BUILD SAN FRANCISCO'S RESILIENCE TO SEA LEVEL RISE | MAR 2016

## MISSION CREEK

SEA LEVEL RISE ADAPTATION STUDY  
WATERFRONT STRATEGIES FOR LONG TERM URBAN RESILIENCY | SEPTEMBER 2016

**PIER 70: CRANE COVE PARK AND PIER 70 WATERFRONT PARK**  
San Francisco, Central Bayshore

**Crane Cove Public Park, Part of SP**  
The design accommodates and/or enhances SLR by reconstructing major portions of the shoreline for flexible recreation and habitat use, as well as strategic site grading to allow the Bay to retreat portions of the site. The design allows slowness to inherently adapt to varying tides and the further shoreline advancement protect key street infrastructure.

**Pier 70 Spreader Use District (SUD)**  
The SUD's innovative waterfront planning provides safe and pleasurable public enjoyment of the Bayshore while accommodating potential future SLR conditions. The design incorporates a variety of land treatments, responding to specific site conditions. Based on the principle of living with the Bay, and managed retreat, a changing zone plan for creative adaptation to SLR rather than over-engineering spaces now.

Waterfront Resilience Program  
San Francisco Sea Level Rise Action Plan

**ISLAIS HYPER-CREEK  
A SOCIAL ECOSYSTEM**

Design Phase  
Final Report  
in May 2018

Facilitated by Design Bay Area Challenge

BC+DB+CH+ERM



# USACE/PORT FLOOD STUDY CONTRACTING OPPORTUNITIES



## SUPPORTING LOCAL BUSINESS

- The Port has many contracting opportunities, which are awarded to companies through a Request for Proposal (RFP) process
- The Port's policy is to ensure nondiscrimination and to create a level playing field on which small businesses, including Local Business Enterprises (LBE), can compete fairly
- The Port is the early stages of working with OEWD on workforce development to prepare the community for future workforce opportunities



# USACE/PORT FLOOD STUDY PUBLIC ENGAGEMENT



## JOIN US!

Public engagement and participation is how we get to a plan and a project.

- **Meeting 1:** Let's build this together
- **Meeting 2:** Shape the study goals
- **Meeting 3:** Envision alternatives
- **Meeting 4:** Evaluate alternatives
- **Meeting 5:** Identify actions and alternatives

There will be other opportunities for engagement, including meetings in the field, tours, and charrettes. Your suggestions are welcome!



# UPCOMING OPPORTUNITIES TO ENGAGE

- Map our waterfront assets and more on [sfseawall.com](http://sfseawall.com)
- Attend upcoming community meetings – next in September at SE Community Facility
- Sign up for waterfront walking and bike tours
- Ongoing outreach at events
- Request a presentation at your community group
- Fall speaker series



# THANK YOU!



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