WATERFRONT INFRASTRUCTURE RESILIENCE

AAPA Commissioners Seminar June 19, 2019

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PORT RESILIENCE FRAMEWORK

Objective:

STRENGTHEN ELEMENT

STRENGTEN

THE

SEAWALL

FOR PUBLIC

SAFETY

Immediately implement highest priority disaster response and life safety projects along the Embarcadero Seawall

Planning and Implementation Horizon: 2018 – 2026

Priorities: Current Seismic & Flood Risk

Geographic Focus: Embarcadero Seawall

Objective:

ADAPT

ELEMENT

ADAPT TO

MID-

CENTURY

RISKS

Identify policies and projects that will result in a Port that is resilient to seismic and increasing flood risks and that can respond to changing priorities. Projects will be integrated into city, regional, and private actions, resulting in coordinated actions to increase waterfront resilience.

Planning and Implementation Horizon:

2018 – 2050, Plan updated every five years

Priorities: Seismic Risk and Future Flood Risk

Geographic Focus: Entire Port Jurisdiction

Objective:

ENVISION

ELEMENT

ENVISION

THE

WATERFRONT

IN 2100

Develop visions that can respond to remaining seismic risk and increasing flood risks and have an ongoing public conversation about the trade-offs of different options.

Planning and Implementation

Horizon: 2018 – 2100, Vision Element updated every 10 years

Priorities:

Seismic Risk and Future Flood Risk

<u>Geographic Focus:</u> Entire Port Jurisdiction



THE EMBARCADERO SEAWALL







Scale # = 1-0"



SAN FRANCISCO FACES URGENT EARTHQUAKE RISKS









INCREASING FLOOD RISKS FROM SEA LEVEL RISE

- Muni and BART tunnels subject to flood risk today
- Up to 3 feet by 2050
- Up to 6-10 feet by 2100

U.S. ARMY CORPS OF ENGINEERS / PORT OF SAN FRANCISCO FLOOD STUDY

US Army Corps DANFRACISCO

A partnership of:



US Army Corps of Engineers_o





Aquatic Park

ancisco District Offi

Preliminary estimate of value of structures and contents in floodplain: \$22B

Heron's Head Park

n Francisco County an Mateo County



STUDY AREA

Approximately 7½ miles of waterfront between Aquatic Park (to the North) and Heron's Head Park (to the South)*

- Area based on preliminary assessment of coastal flood risk
- Significant cultural, historic and maritime assets
- Critical public infrastructure, including local and regional transit (above ground, below ground, and ferries) and wastewater treatment
- Dense residential, commercial, and industrial land use

*Other areas outside of study area should be a focus of future studies

OUTCOMES OF THE FLOOD STUDY





- A refined understanding of the hazards
- A refined understanding of the assets and services at risk and the consequences of disruption and damage
- Engagement with stakeholders to define goals, priorities and issues
- Education and outreach
- Identification of risk reduction alternatives
- Selection of a preferred alternative
- Federal expertise and possible funding for that preferred alternative

HOW IS THIS BEING FUNDED?



The cost of this study is shared 50/50 between the Army Corps and the Port.

Design/construction of federal plan cost shared 65% fed / 35% local.

Locally preferred plan can be selected, City/Port pays extra cost.

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



HISTORIC PIER REHABILITATION PROGRAM



HISTORIC PIERS AND RESILIENCE

- Time is now! The District is vulnerable to seismic and flooding risks due to sea level rise and faces threats due to deterioration and age. Opportunity to leverage \$500 million and \$5 billion Embarcadero Seawall Program and deliver benefits outlined in Waterfront Plan and past rehabilitation projects
- Embarcadero Historic District one of 11 most endangered national historic resources
- 24 million people visit the waterfront every year, drawn by the Ferry Building, Exploratorium, and other attractions

PROJECT RESILIENCE: DOWNTOWN FERRY TERMINAL

- New Pier and Terminal Expansion under construction
- 3 feet higher than prior terminals due to sea level rise
- Massive steel piles to withstand up to 6 feet of lateral spreading

PROJECT RESILIENCE: MISSION BAY FERRY LANDING



- Design addresses sea level rise projections through approximately 2070, able to be adapted for higher water levels
- Designed to be available for first response and evacuation
- Does not address access to site, utilities, the ferry network or surrounding uses

PROJECT RESILIENCE: PIER 70 & MISSION ROCK

PIER 70

- Mixed use development with 3000 homes, nine acres of parks
- Accommodates up to six feet of sea level rise
- Generates an estimated \$88 million to be used for adaptation

MISSION ROCK

- Mixed use development with homes and parks
- Accommodates up to six feet of sea level rise, including China Basin Park designed to accommodate periodic flooding
- Establishes an ongoing Shoreline Protection revenue stream

Projects do not address access, utilities, and surrounding assets and services







THANK YOU!

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