SAN FRANCISCO WATERFRONT FLOOD STUDY

Draft Report and Public Feedback

January 26 – March 29, 2024

2/8/2024 Briefing: Mission Bay Citizens Advisory Committee

PORT OF SAN FRANCISCO

Waterfront Resilience Program

US Army Corps of Engineers®

WHAT IS THE FLOOD STUDY?

- The **Flood Study** analyzes **coastal flood risk** and the effects of **sea level rise** to the San Francisco waterfront along the Port's 7.5-mile jurisdiction over the next 100 years.
- The **Draft Plan** will inform subsequent stages of funding and design in order to develop targeted construction projects.
- The proposed solutions are estimated to cost **$13 billion** (high-level, preliminary cost estimate) and the federal government will pay **65% of the cost**, if approved by U.S. Congress.
- The Flood Study is led by the **U.S. Army Corps of Engineers** in collaboration with the **City of San Francisco**.

US Army Corps of Engineers + PORT OF SAN FRANCISCO

San Francisco Waterfront Flood Study

San Francisco Planning · ONESF Building Our Future · CLIMATESF · SFMTA · San Francisco Water Power Sewer · San Francisco Public Works

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WHAT'S AT RISK?

Potential Sea Level Rise by 2100

The **Flood Study** encompasses the Port's jurisdiction, which includes **7.5 miles of shoreline** - a substantial piece of our City's waterfront.

Without a Federal project, modeling shows:

- By 2050, ***100 to 500 structures*** and ***assets*** will be vulnerable to flooding
- By 2140, damages could amount up to ***$23 billion***

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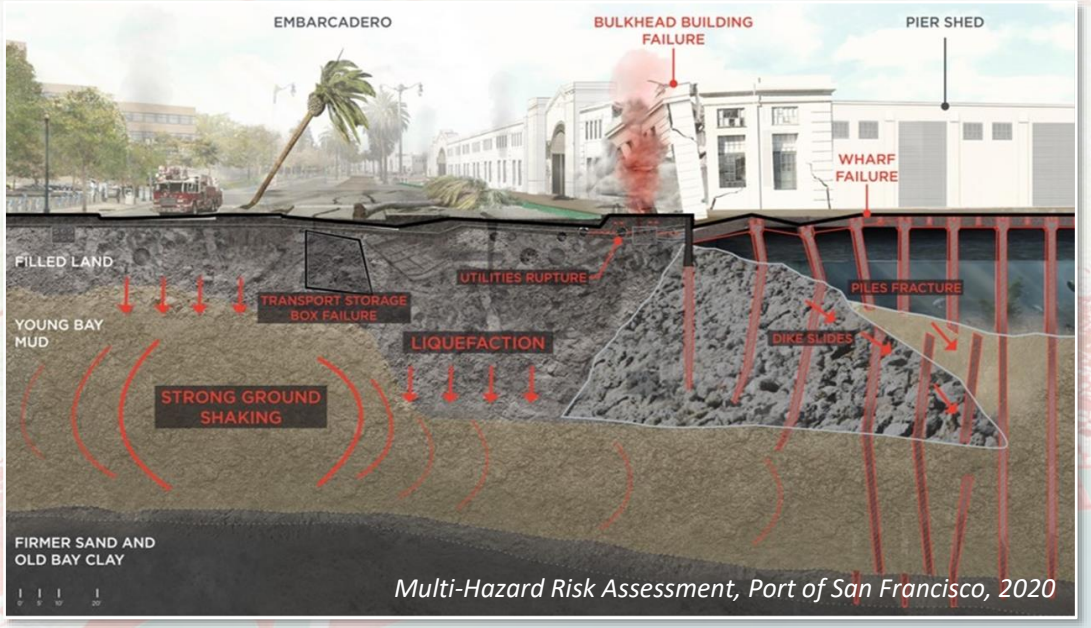
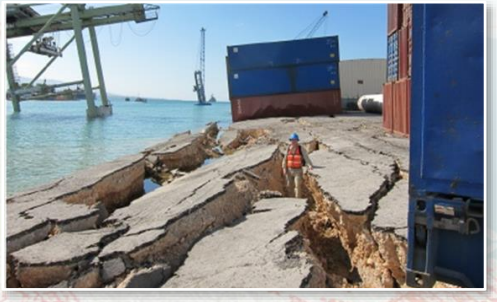
WHAT'S AT RISK?

Seismic Hazard



Multi-Hazard Risk Assessment, Port of San Francisco, 2020



Up to ***40,000*** people could be at risk on Port property
if an earthquake occurs during the day

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WHERE ARE WE IN THE FLOOD STUDY PROCESS?

We are here
Release of Draft Plan

What to expect

Draft Report release (Draft Plan) for public engagement and technical reviews *(Winter 2024)*, and **Final Report** with Recommended Plan *(2025)*

What to expect

USACE Chief of Engineers recommends project to Congress to authorize Funding.

What to expect

Detailed design and engineering, implementation, and phasing pending Congressional funding

What to expect

Phased construction of coastal flood protection infrastructure, related seismic stabilization, and other improvements

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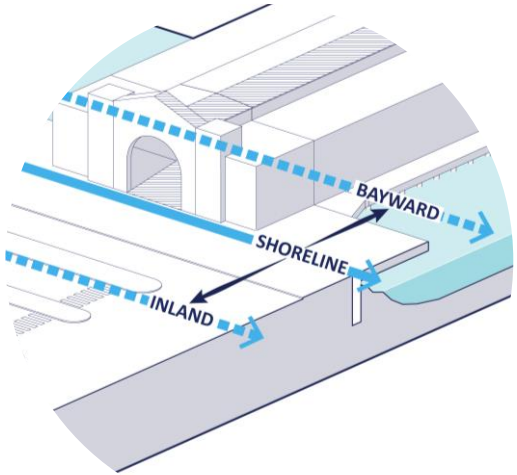
Note: Dates are approximate and subject to change. Projects will occur in phases. Many first actions will not be ready for implementation or construction in 2030, 2050 respectively. The Draft Plan will be prioritized so not everything described will be done.

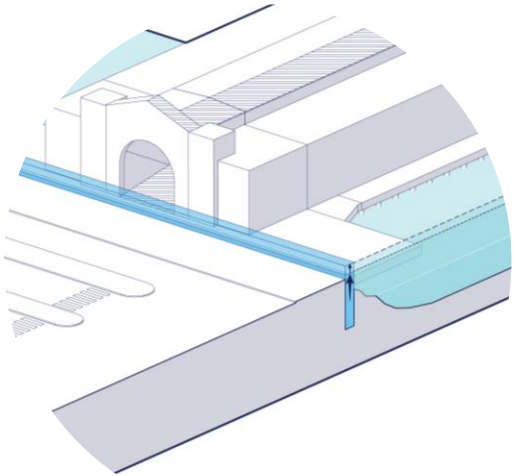
WHAT IS IN THE DRAFT PLAN?

Where to build flood defenses



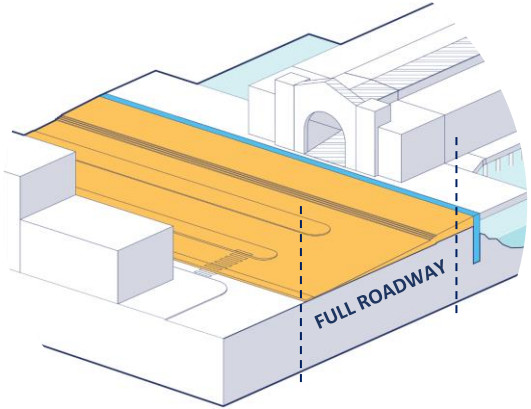
Have we located the flood defenses in the right place?

How high to build flood defenses



Should we invest in higher levels of protection first, or adapt in multiple phases?

How much space to use



More space provides more flexibility but is associated with more disruption. Less space means more abrupt grade changes.

*...and How flood defenses can **be adapted** in the future*

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What's not being decided at this stage?

The Draft Plan **does not include** the following:

- Detailed designs for flood defenses
- Designs for waterfront streets, open spaces, and infrastructure (including pumping stations)
- Timing and sequencing of construction
- Funding plan

These elements will be developed during later project phases with the public, Army Corps and City Agencies.

The Draft Plan is not:

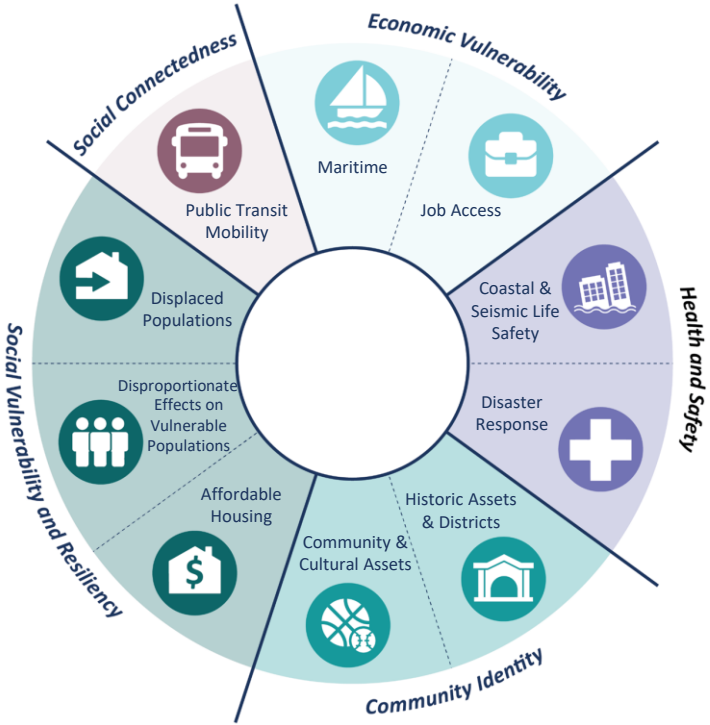
- A design for the future waterfront
- A plan for the Embarcadero Historic District, the Ferry Building and public plazas and roadway, and creek and shoreline amenities
- Project plans and implementation strategies will leverage other opportunities, align with other public and private projects, and reflect what the City can afford given other capital obligations

A COMPREHENSIVE COST BENEFIT ANALYSIS THAT ELEVATES EQUITY

This plan is a ***first*** for the Army Corps of Engineers.

Typical plan selection maximizes national economic benefits. This plan incorporates analysis across:

+ Regional economic impacts (including jobs)
+ Environmental quality, consequences, and compliance (including pollution)
+ **Other social effects (including disproportionate effects on vulnerable populations)**



Other Social Effects (USACE Analysis) data included in Alternative Selection

PHASED ACTIONS THAT ARE ADAPTABLE OVER TIME

The Draft Plan

Early Projects
Now until 2030

Addresses highest risk areas through Proposition A General Obligation Bond

First Actions
~2030 and beyond

Defends against 1.5 to 3.5 feet of sea level rise, actions prioritized and phased

Monitoring

(Sea Level Rise, Climate Indicators)

Subsequent Actions
Timing driven by monitoring

Defends against 3.5 to 7 feet of sea level rise

Future Adaptation

Federal Actions

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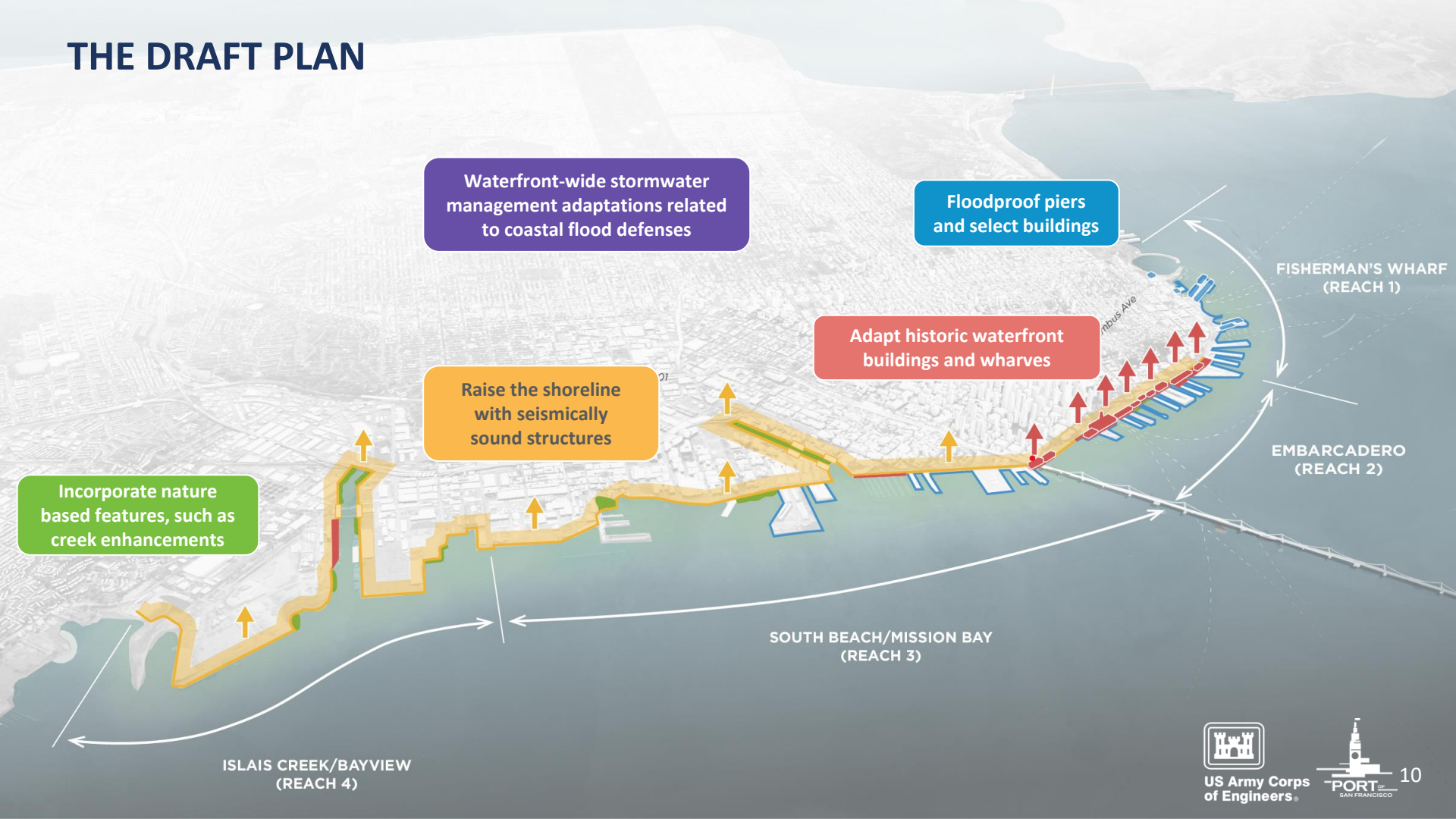
Note: Dates are approximate and subject to change. Projects will occur in phases.

THE DRAFT PLAN



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FISHERMAN'S WHARF: FIRST ACTIONS

Floodproofing structures

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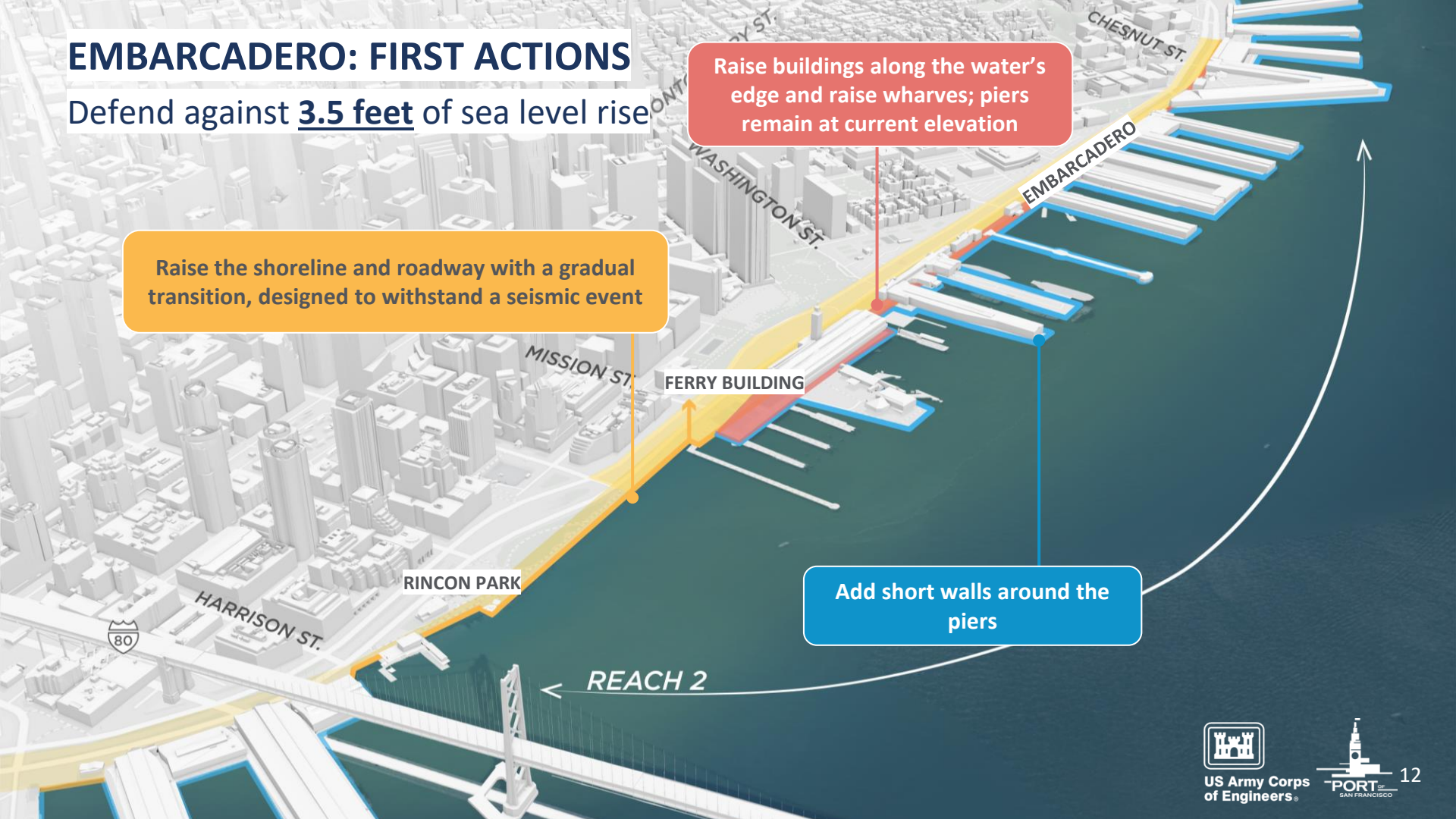
EMBARCADERO: FIRST ACTIONS

Defend against **3.5 feet** of sea level rise



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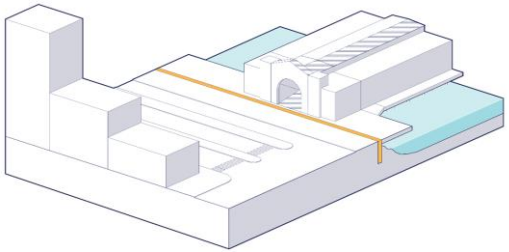
ACTIONS EXPLAINED

Elevate buildings and wharves

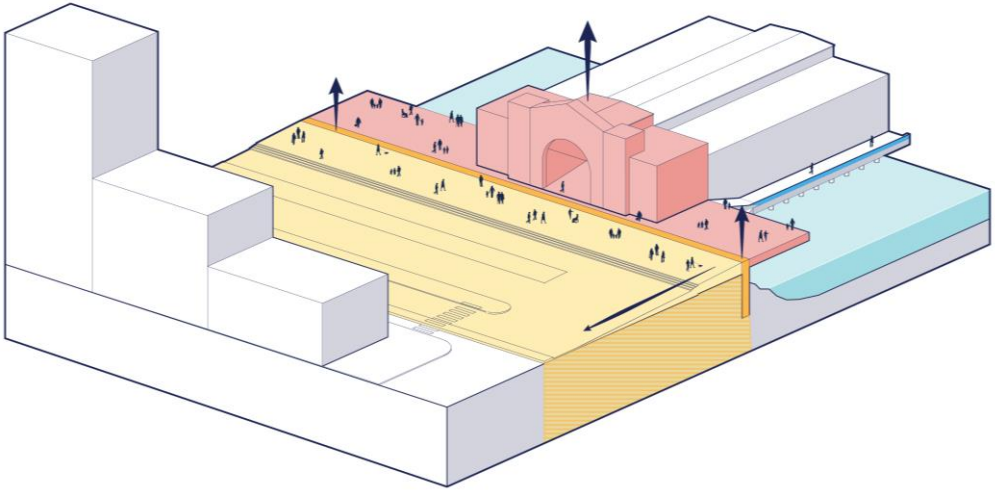
Elevate buildings and wharves along the water's edge, including the Ferry Building and historic bulkhead buildings. Enhance seismic stability.



Current condition

Add short walls around piers

Build two-foot walls around piers to manage flood risks and defend against intermittent high water.



Future condition

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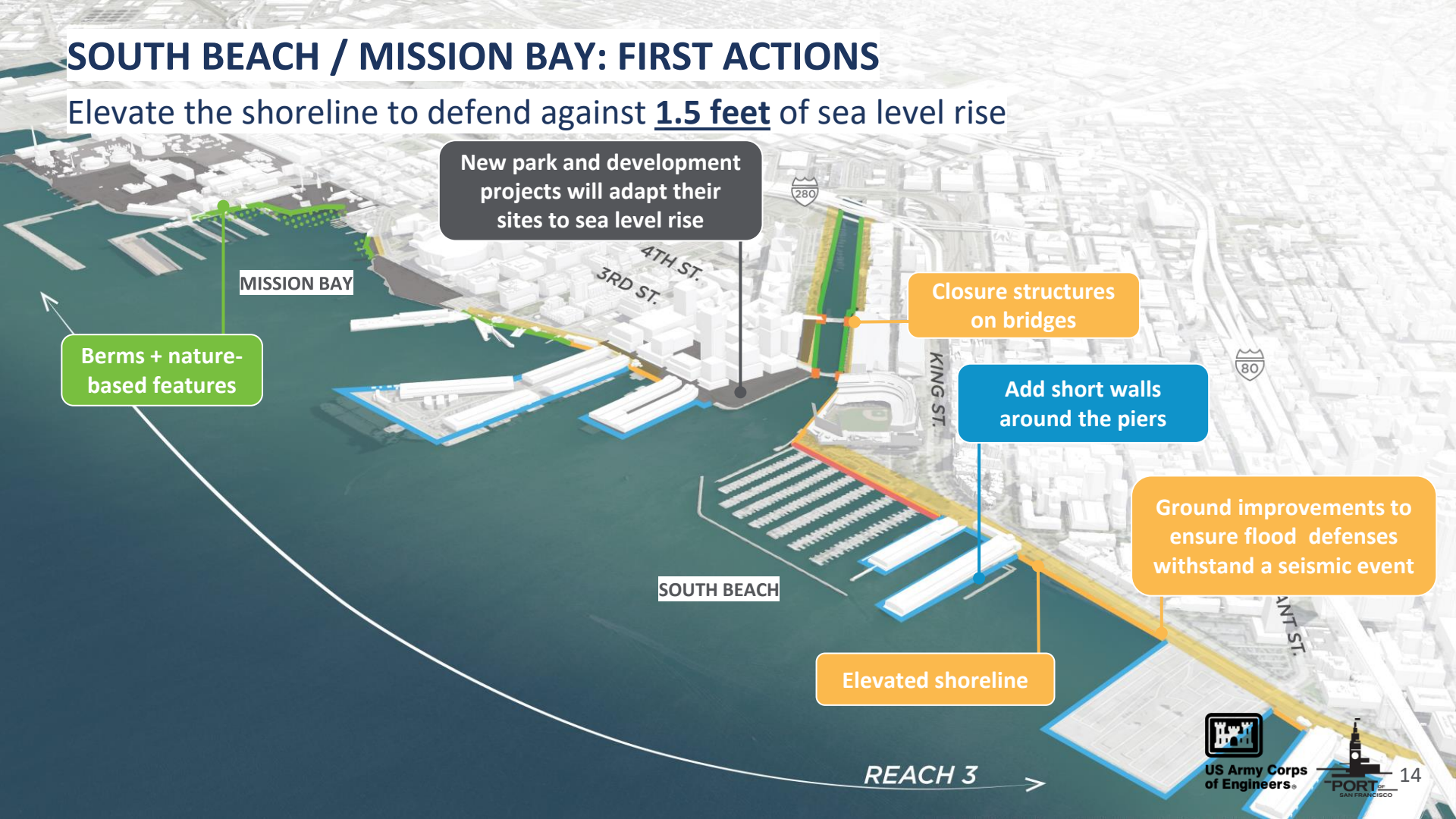
SOUTH BEACH / MISSION BAY: FIRST ACTIONS

Elevate the shoreline to defend against **1.5 feet** of sea level rise

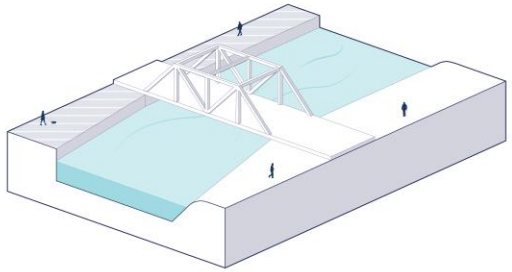


ACTIONS EXPLAINED

Closure structure on bridges

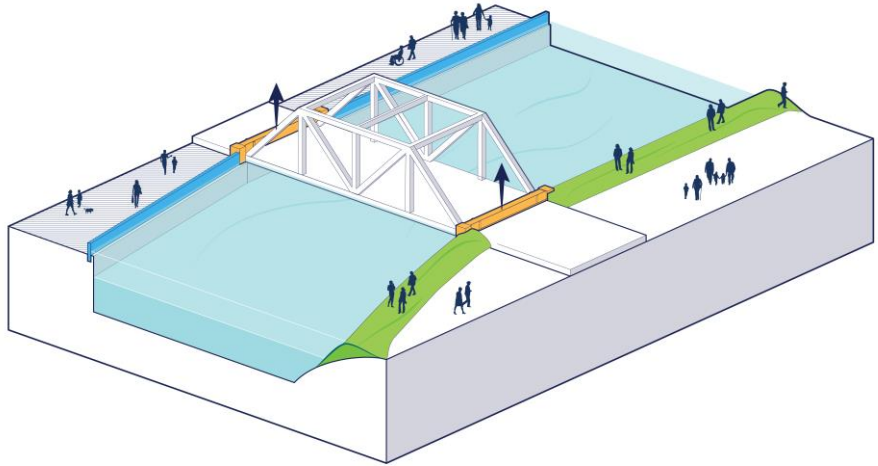
Closure structures on Third and Fourth Street Bridges close gaps in the elevated shoreline to prevent flooding.

It is anticipated that these closures would be infrequent (less than once a year) and used in anticipation of a large storm or tide event.



Current condition

Closure Structure



Future condition

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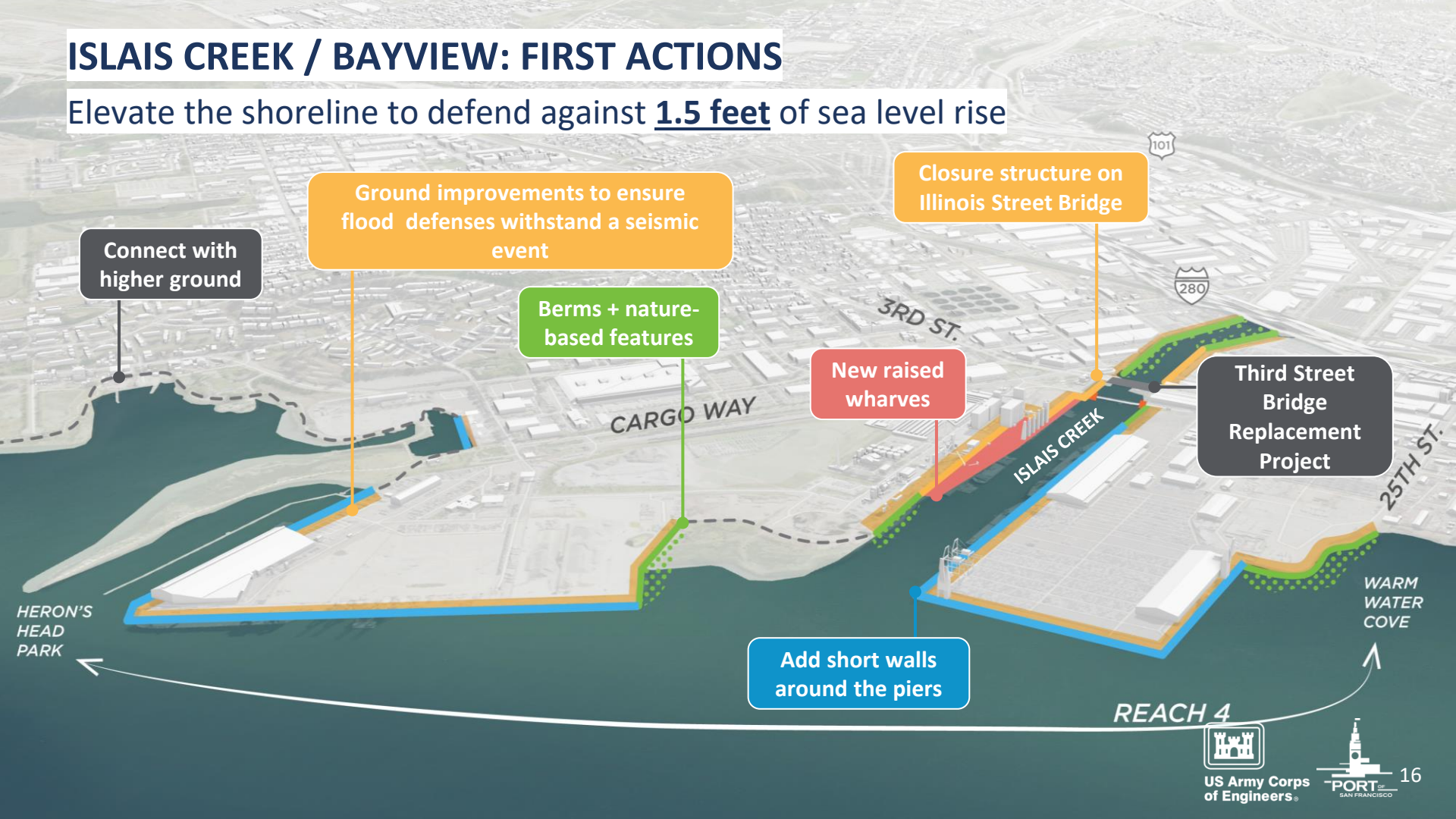
ISLAIS CREEK / BAYVIEW: FIRST ACTIONS

Elevate the shoreline to defend against **1.5 feet** of sea level rise



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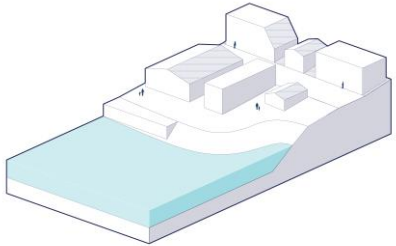
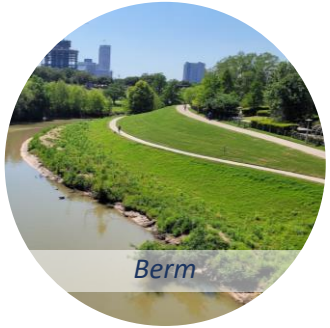
ACTIONS EXPLAINED

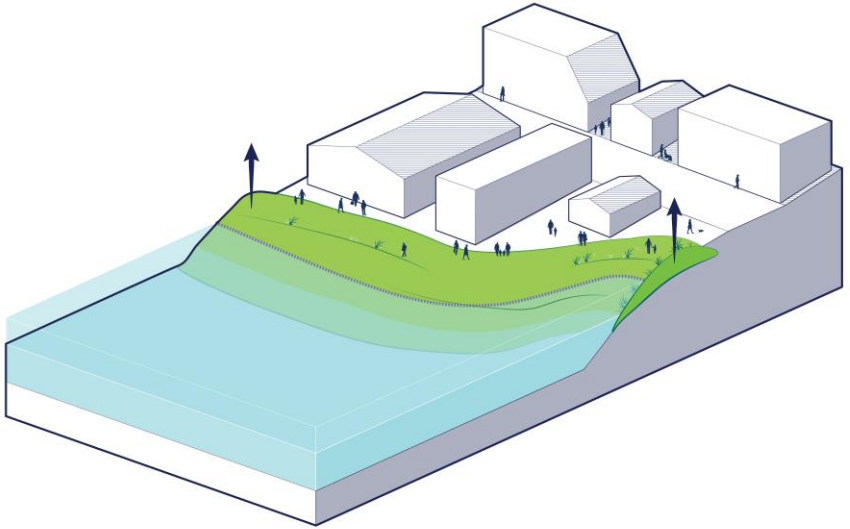
Berms + nature-based features

Berms are areas of raised ground that can help prevent flooding while maintaining waterfront access. They can include public space, such as walking or biking paths, and incorporate vegetation that support habitats.



Current condition





Future condition

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A CATALYST FOR A MORE RESILIENT SAN FRANCISCO

This is a once-in-a-century opportunity to:

Defend communities, assets, and infrastructure against coastal flooding

Improve **earthquake safety** related to flood protection projects

Invest in a **great public waterfront** along with flood protection projects

Safeguard resilient **transit and utility networks**

Secure funding through collaboration with the Federal government

Adapt **historic and cultural resources** to climate change

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WE WANT TO HEAR FROM YOU

USACE and the City are seeking public comment on the **Draft Plan and Environmental Review** through **March 29, 2024.**

Your public comment on the Draft Plan can help USACE and the City make decisions about how:

- To prepare for coastal flood risks from sea level rise and more intense storms caused by climate change
- To consider the potential environmental impacts from building coastal flood defenses

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HOW TO PROVIDE COMMENT

There are several ways that you can add a comment:

- Join USACE and the City for one of several **upcoming community workshops** being hosted along the waterfront. Each meeting will include the same presentation. Comment cards will be available, and a station will be set up to record verbal comments as well. Learn more at sfport.com/wrp.
- Share written comments via email: SFWFRS@usace.army.mil
- Share written comments via mail: U.S. Army Corps of Engineers, Tulsa District ATTN: RPEC-SFWS, 2488 E 81st St., Tulsa, OK 74137
- Share written comments online: learn more and comment online at sfport.com/wrp

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To stay in touch, please sign up for the Port of SF's Waterfront Resilience Program **eNewsletter and mailing list** by visiting sfport.com and clicking the Signup for e-newsletter in the footer and selecting Waterfront Resilience Program from the list in the form provided.

Thank you

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