

DRAFT WATERFRONT ADAPTATION STRATEGIES

Embarcadero Community Meeting

November 15, 2022



WELCOME

What to Expect



- Intros
- 45 min Presentation with Polls – we want to hear from you!
- 30 min Q&A – through the Chat or the “Raise Your Hand” function

VIDEO TO INTRODUCE DRAFT WATERFRONT ADAPTATION STRATEGIES



FRIENDLY REMINDERS

- Keep your device on mute unless you are speaking
- Use the chat function for quick feedback or to comment
- Use the “Raise Your Hand” function to indicate a request to speak
- Try not to talk over others
- Give each other time to gathers thoughts and comment before jumping in

TODAY'S AGENDA

Presentation Overview



- Understanding the Risks
 - *What we're facing*
- Waterfront Resilience Program
 - *What we're doing*
- Community Priorities
 - *What we've heard*
- Range of Possibilities
 - *What we're considering*
- Draft Waterfront Adaptation Strategies in the Embarcadero
- Next Steps
- Q&A



LAND ACKNOWLEDGEMENT

The Port of San Francisco acknowledges that we are on the ***unceded ancestral homeland of the Ramaytush Ohlone*** who are the original inhabitants of the San Francisco Peninsula.

As the indigenous stewards of this land and in accordance with their traditions, the Ramaytush Ohlone have never ceded, lost nor forgotten their responsibilities as the ***caretakers of this place***, as well as for all peoples who reside in their traditional territory.

As guests, we recognize that we benefit from living and working on their traditional homeland.

We wish to ***pay our respects*** by acknowledging the Ancestors, Elders and Relatives of the Ramaytush Community and by ***affirming their sovereign rights as First Peoples***.

POLL QUESTION #1

What part of the Embarcadero waterfront do you visit most often?

DRAFT WATERFRONT ADAPTATION STRATEGIES

Presentation Overview



The Port of San Francisco has developed seven high-level Draft Waterfront Adaptation Strategies through a collaborative interagency process and over five years of public engagement.

The draft Strategies are ready for public feedback, with a goal of reaching a Draft Waterfront Adaptation Plan by Summer 2023.

DRAFT WATERFRONT ADAPTATION STRATEGIES

Port-led, City of San Francisco Agencies, and USACE Partnered in Development Process



SAN FRANCISCO WATERFRONT COASTAL FLOOD STUDY



**US Army Corps
of Engineers®**

The Port and U.S. Army Corps of Engineers (USACE) are conducting a **waterfront coastal flood study** for San Francisco, which could result in **significant federal funding for flood risk reduction**.

This funding could also **improve shoreline stability** where USACE would fund coastal flood defenses and **provide other community benefits** that are part of a cost-effective plan. The Port and City have goals to further improve seismic resilience and provide other community benefits that will not be eligible for USACE funding.

Understanding the Risks *What We're Facing*



Waterfront Resilience Program

CLIMATE CHANGE HAS GLOBAL IMPACTS

Including Here In San Francisco



San Francisco Chronicle

S.F.'s Embarcadero needs to be raised as much as 7 feet to prepare for sea level rise, city says

John King
Nov. 3, 2021 | Updated: Nov. 11, 2021 6:20 p.m.



It was shot through floodwaters caused by surge water washing into Pier 14 along the Embarcadero in San Francisco in 2018. The first of 2018 flooding was caused by a storm surge that hit the area and is the latest in a series of storms that have hit the area.

RISING TO THE CHALLENGE

San Francisco Faces Urgent Seismic, Coastal, and Inland Flood Risks Today

SEISMIC RISKS



San Francisco, 1906



Marina, 1989

COASTAL FLOODING

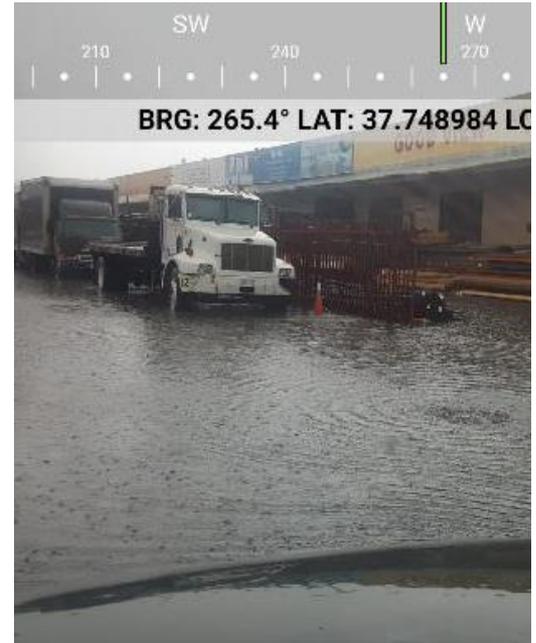


Recology



The Embarcadero

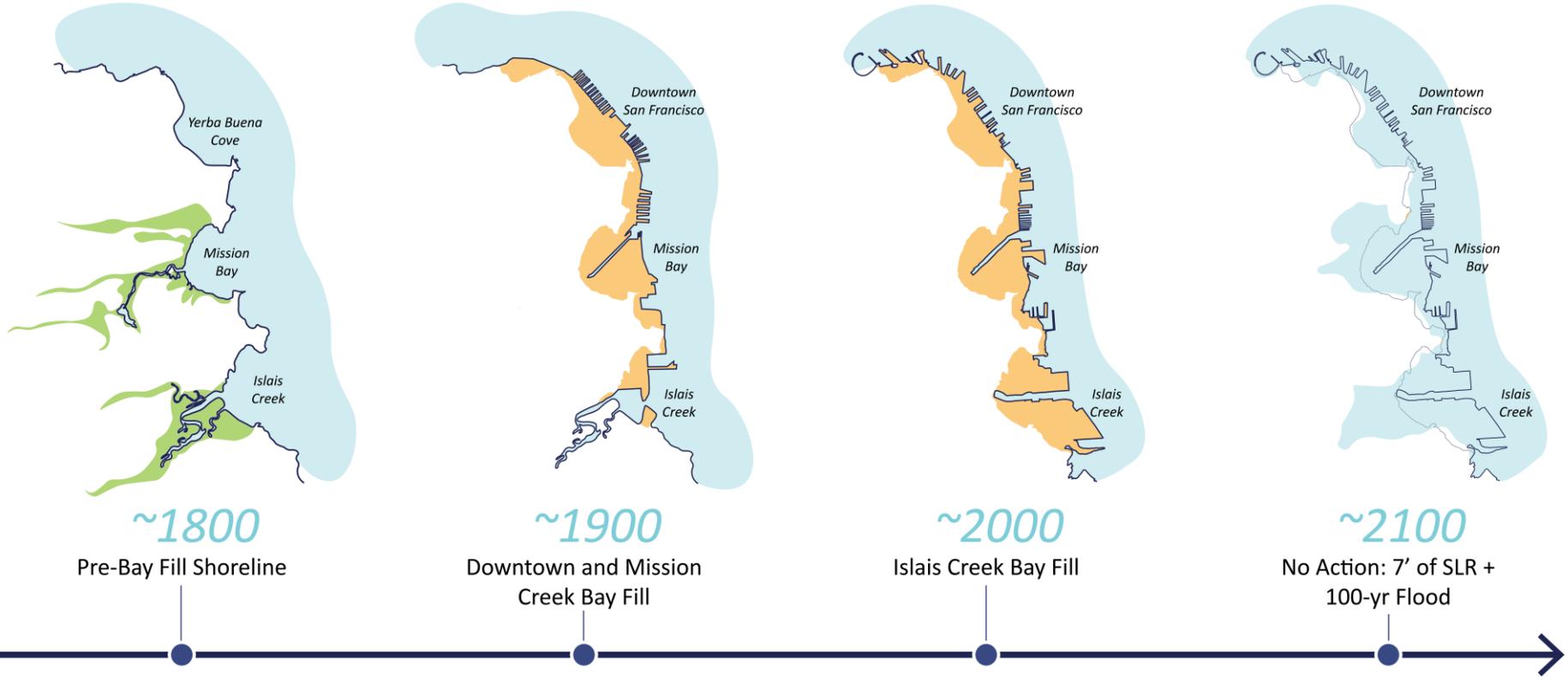
INLAND FLOODING



Islais Creek outfall and Marin St.

HISTORIC SHORELINE + BAY FILL

From the 1800s



~1800

Pre-Bay Fill Shoreline

~1900

Downtown and Mission
Creek Bay Fill

~2000

Islais Creek Bay Fill

~2100

No Action: 7' of SLR +
100-yr Flood



Marsh

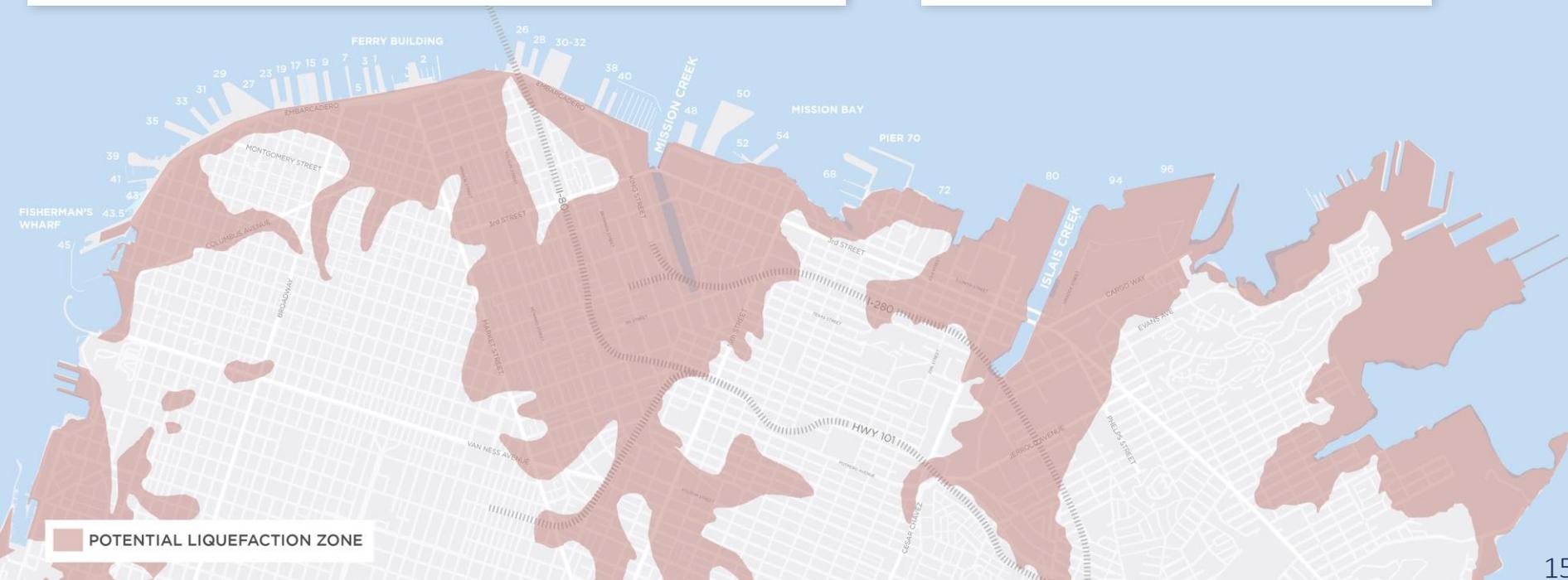
Bay Fill

WATERFRONT WIDE EARTHQUAKE HAZARDS

Very High Earthquake “Liquefaction” Risk

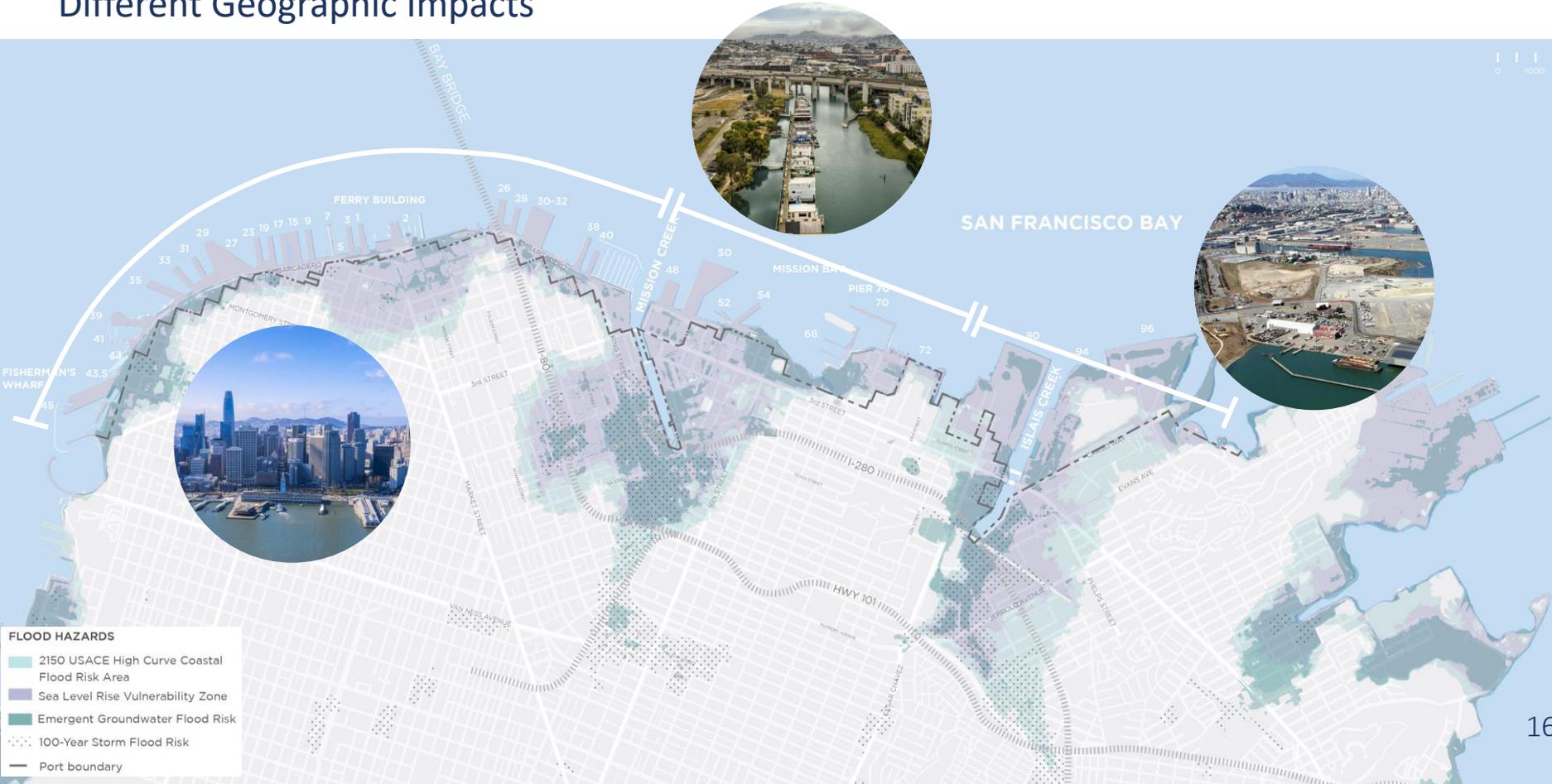
Liquefaction occurs when water-saturated sediment (like sand) temporarily loses strength and acts as a fluid

Various levels of lateral spreading risk along the shoreline



COASTAL AND INLAND FLOOD RISK

Different Geographic Impacts



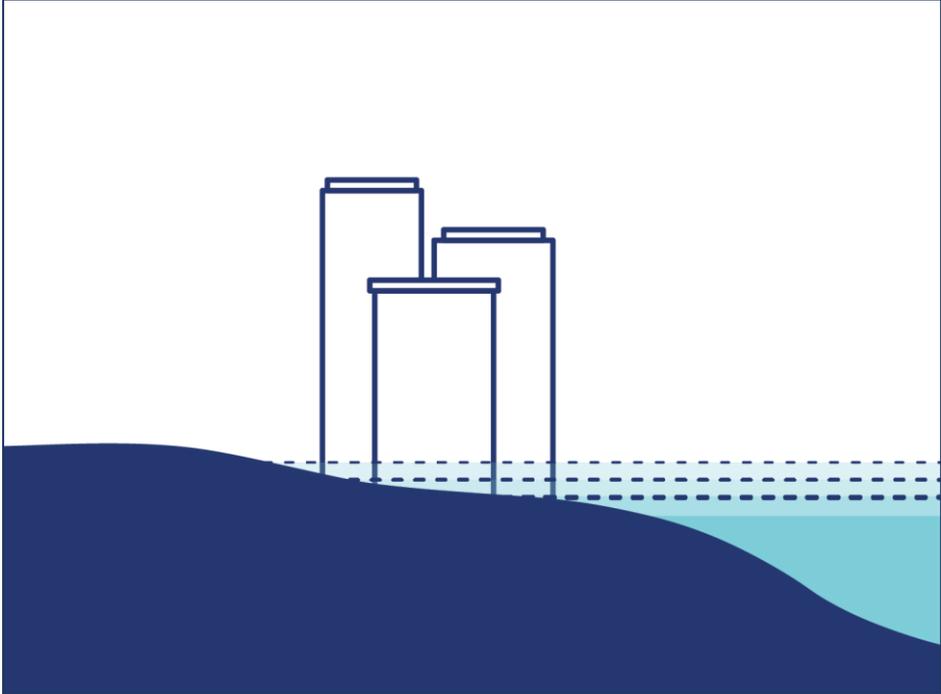
- FLOOD HAZARDS**
- 2150 USACE High Curve Coastal Flood Risk Area
 - Sea Level Rise Vulnerability Zone
 - Emergent Groundwater Flood Risk
 - 100-Year Storm Flood Risk
 - Port boundary

COASTAL AND INLAND FLOOD RISK



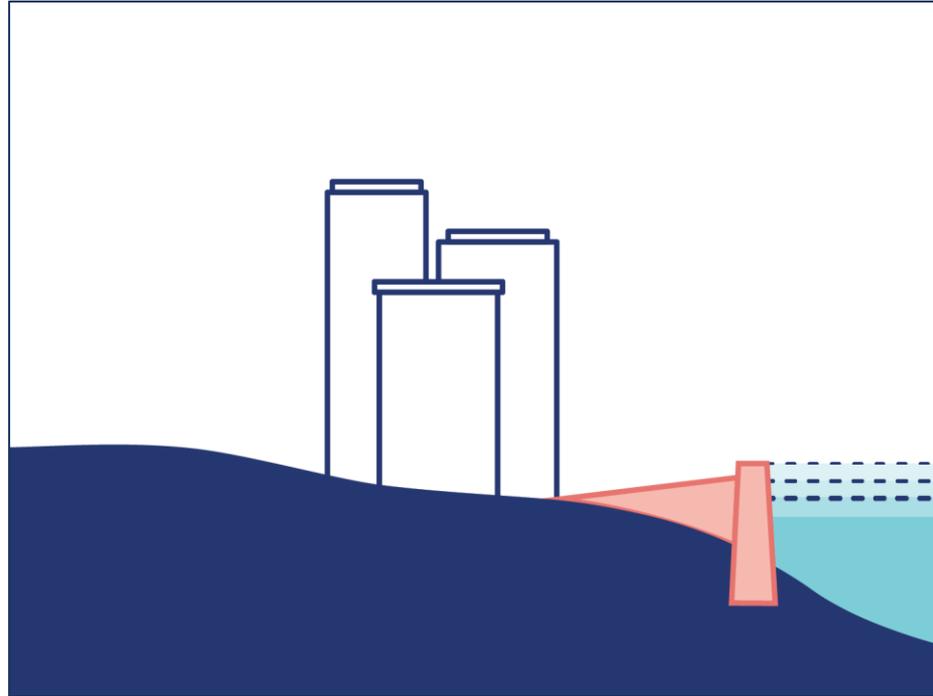
Existing conditions

COASTAL AND INLAND FLOOD RISK



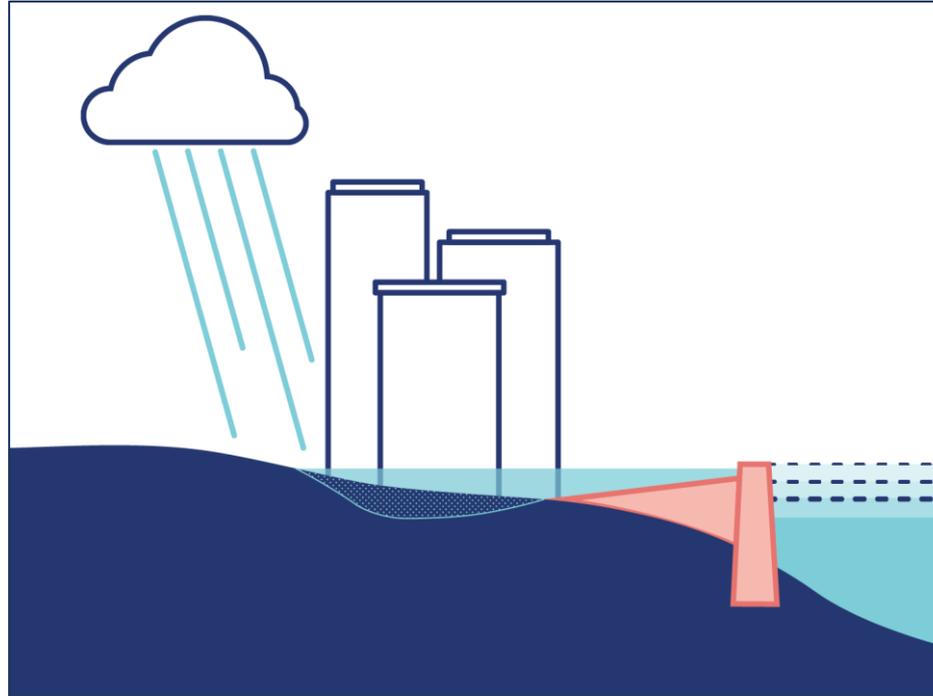
Sea levels rise

COASTAL AND INLAND FLOOD RISK



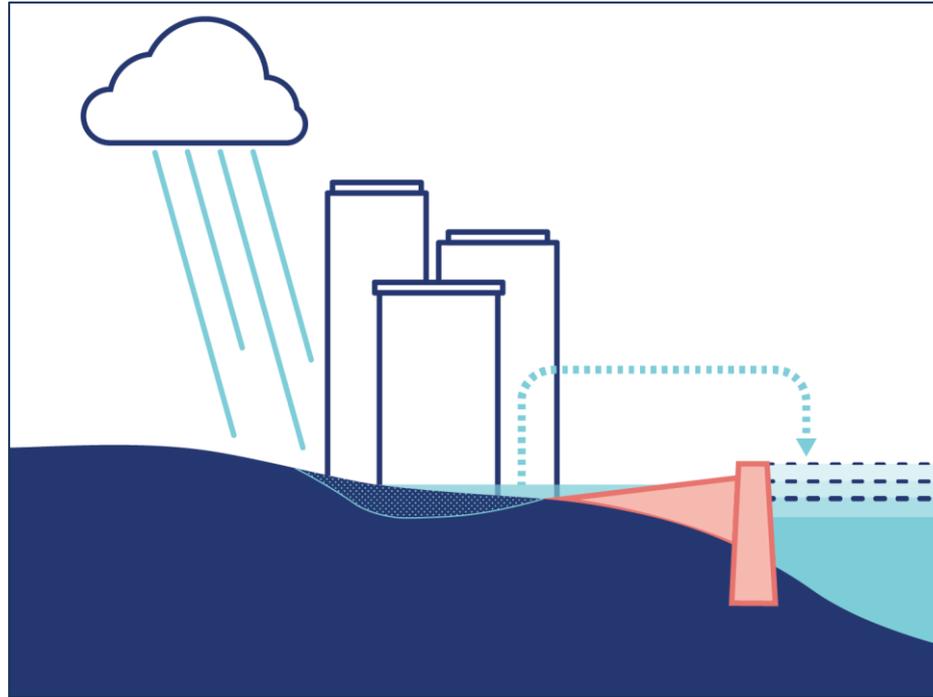
**Raise shoreline to defend
against sea level rise**

COASTAL AND INLAND FLOOD RISK



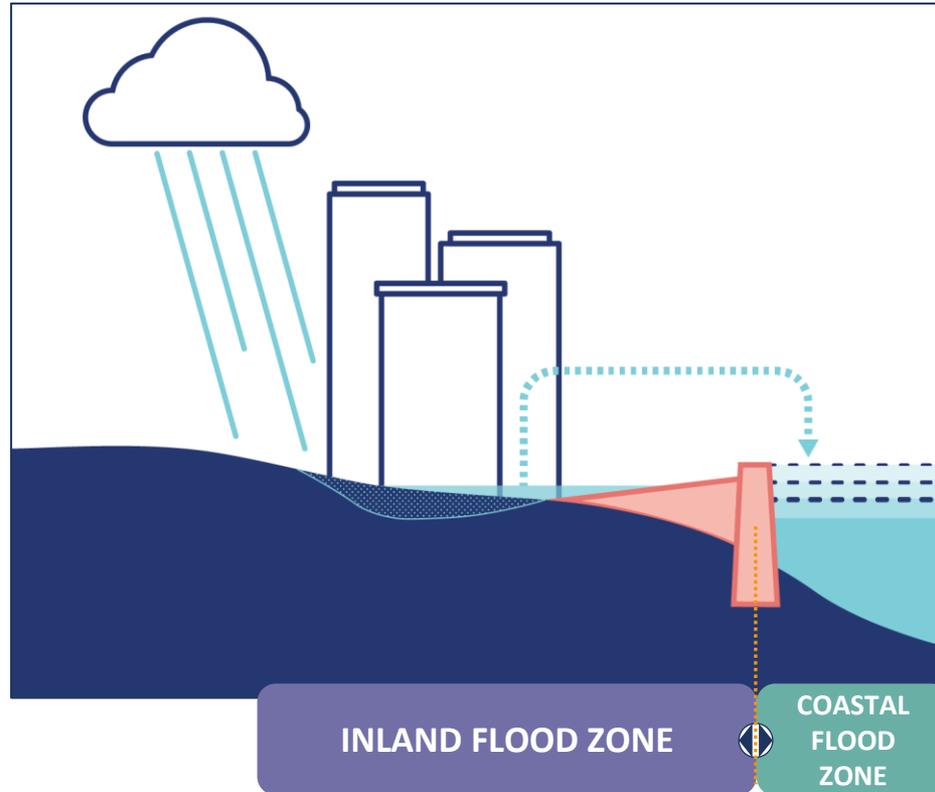
**Groundwater
and stormwater
flooding behind raised
shoreline**

COASTAL AND INLAND FLOOD RISK



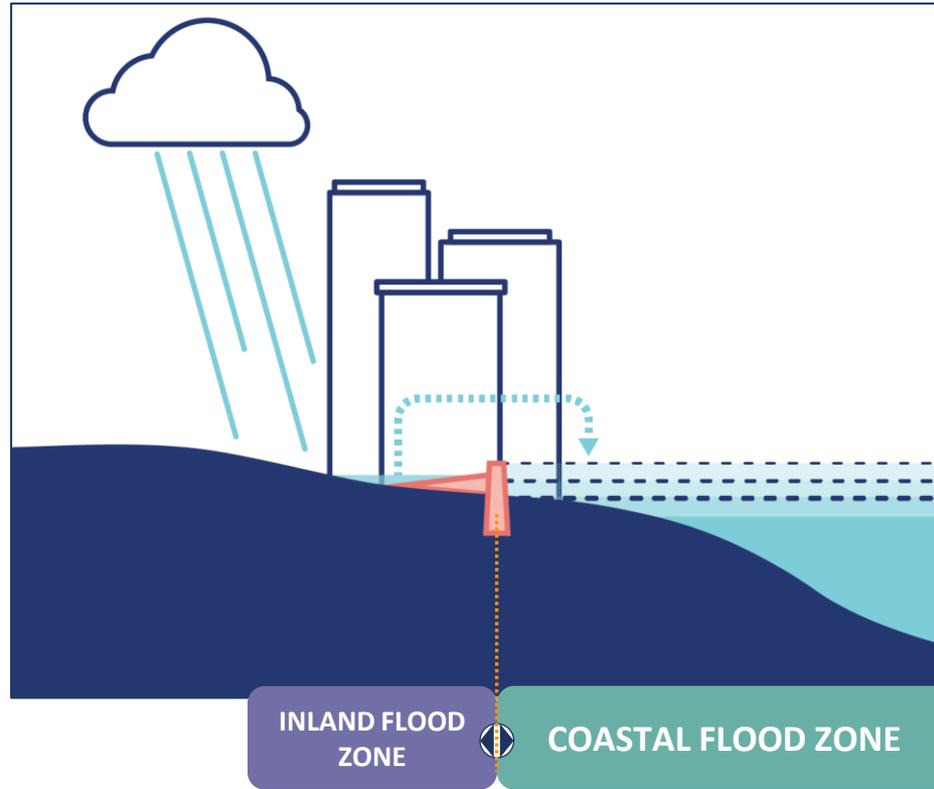
**Pumping reduces flooding
behind raised shoreline**

COASTAL AND INLAND FLOOD RISK



Two related forms of flooding

COASTAL AND INLAND FLOOD RISK



Shift based on the location of flood protection

Any solution endorsed by the City of San Francisco will aim to address **all three risks**:
seismic risks, **coastal flooding** and **inland flooding**.

POLL QUESTION #2

What impact from Sea Level Rise and inland flooding concerns you the most if you had to choose one?



Waterfront Resilience Program

What We're Doing

LADY FISH
SAN FRANCISCO, CA

BESHA II
SAN FRANCISCO



WATERFRONT RESILIENCE PROGRAM VISION STATEMENT

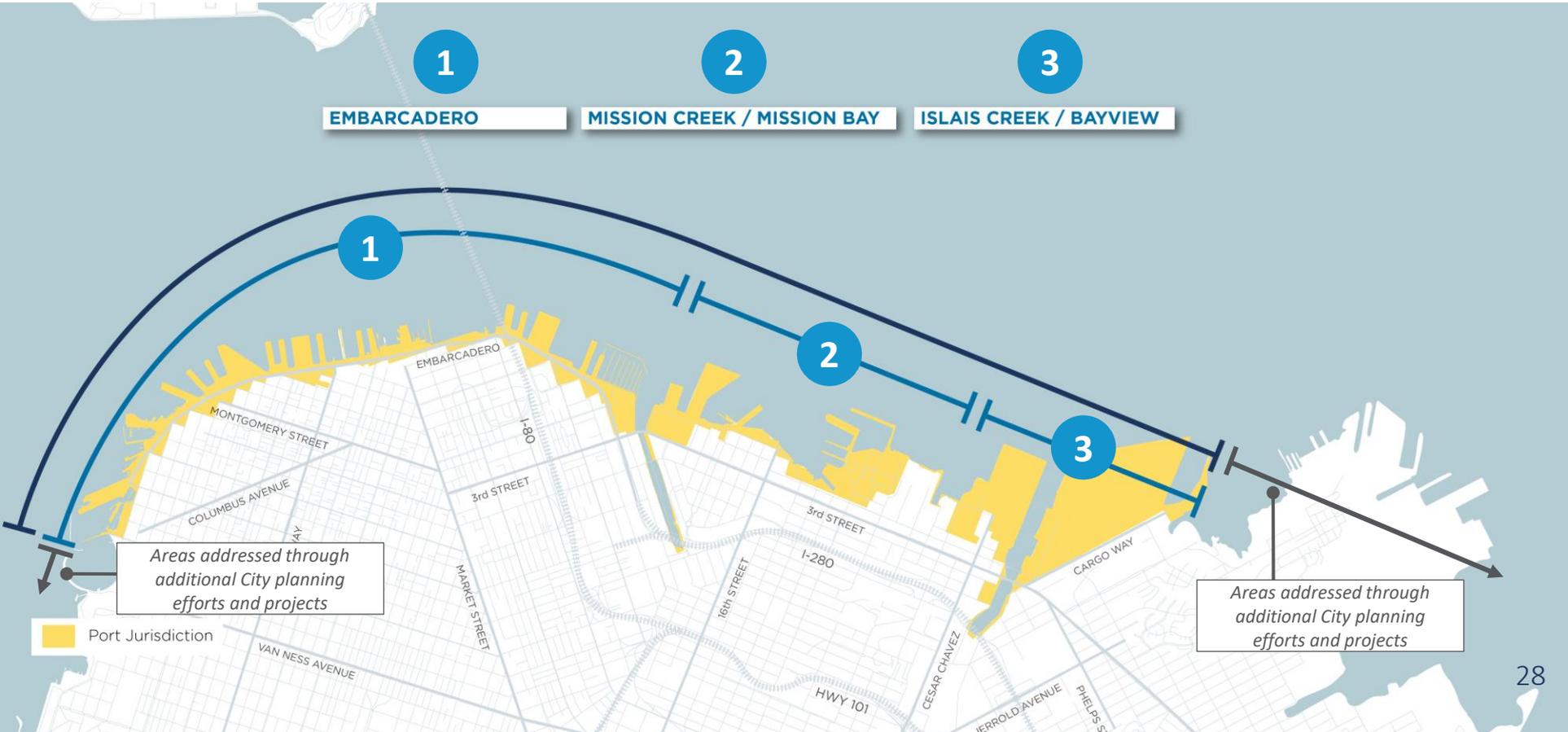
Affirmed through Robust Community Engagement

The Port's Waterfront Resilience Program will take actions to **reduce seismic and climate change risks** that support a safe, equitable, sustainable, and vibrant waterfront.



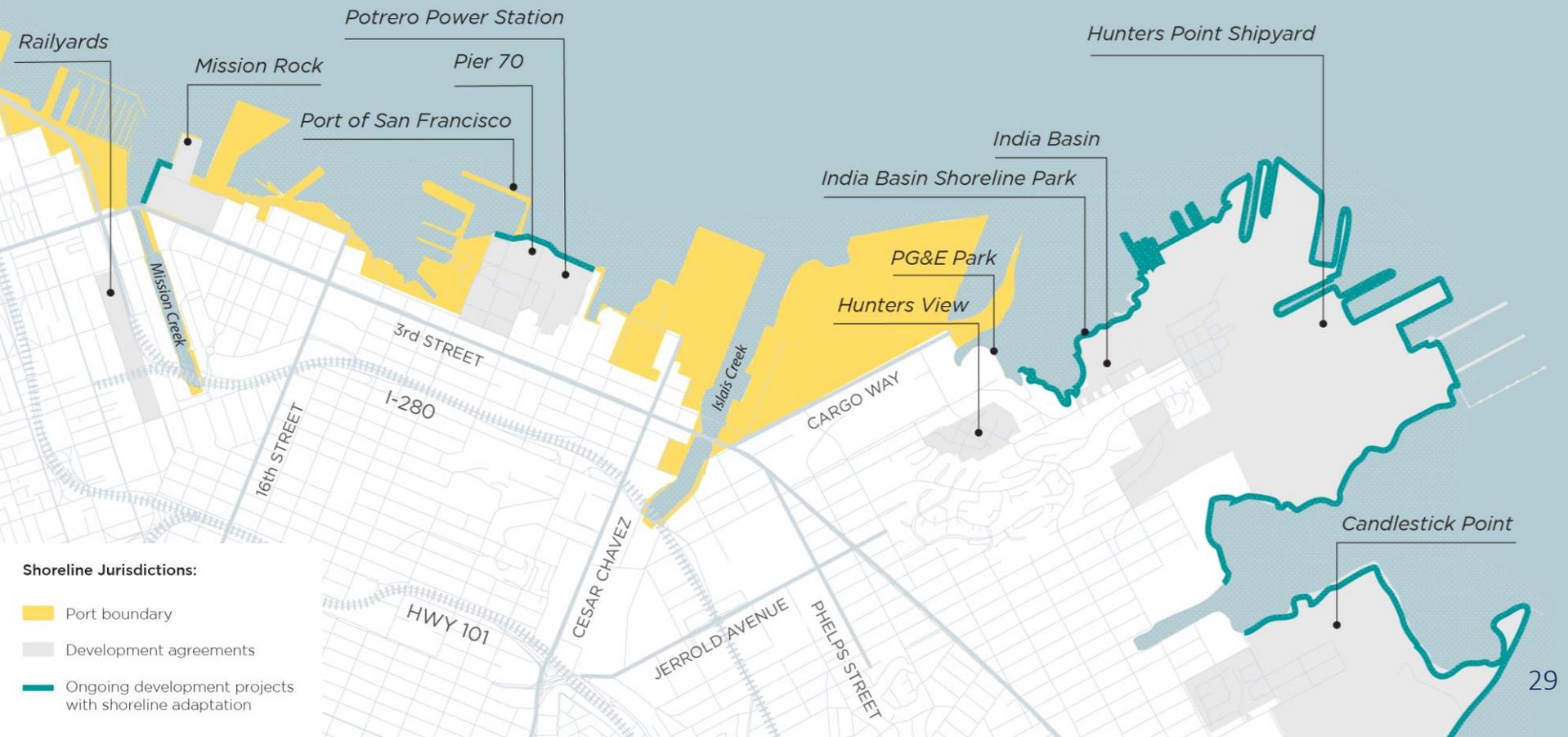
PROGRAM AREA

Focus is Conceptual-Level Strategies Within the Port's Jurisdiction



OTHER CITY ADAPTATION PROJECTS

Outside Port jurisdiction





Community Priorities

What We've Heard



DRAFT WATERFRONT ADAPTATION STRATEGIES

Community Input Helped Define the WRP

1

Focus on life safety & emergency response

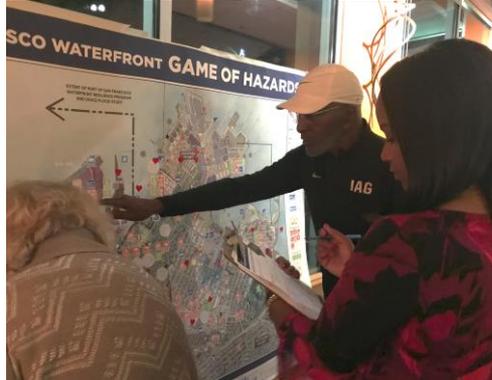
2

Prioritize assets most loved by the community and most important to the city

3

Put people first

Assets and services most prioritized: housing, disaster recovery facilities, utilities, transportation and businesses



WHAT WE HEARD – EMBARCADERO SPECIFIC

Community Input Helped Define the WRP



- Key community-prioritized assets include: Muni Tunnel, Ferry Building, Exploratorium, Fisherman’s Wharf
- Increased transportation options, open space and parks, and more family friendly activities
- Preserve and enhance jobs and diversity of jobs along the Embarcadero
- The Embarcadero Promenade is viewed as a critical asset and there is a strong desire to preserve and enhance it

NATURE BASED SOLUTIONS

Prioritize Nature and Healing the Bay



PUBLIC SPACES

Expand Open Spaces and the City's Connection to the Waterfront



EQUITY

Center Racial and Social Equity and Environmental Justice

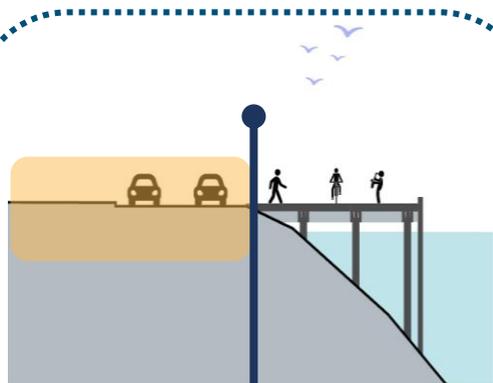




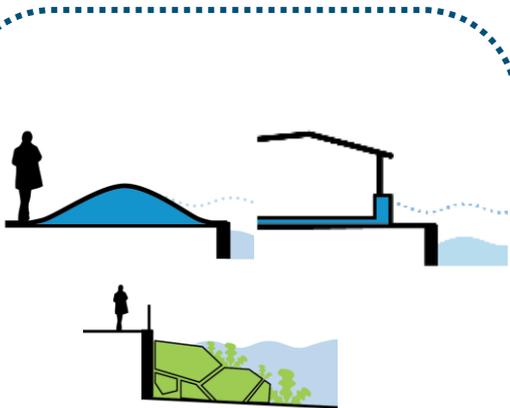
Range of Possible Solutions
What We're Considering

DRAFT WATERFRONT ADAPTATION STRATEGIES

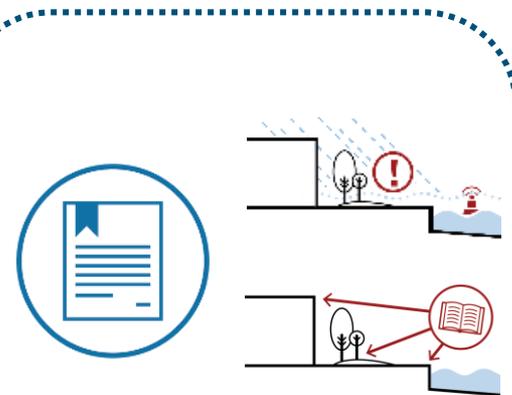
Key Components



**Coastal Flood Defense
Location + Height**
*And area of elevation
change*



Physical Changes
*Such as earthquake-
resilient berms,
floodproofing, and
nature-based features*



Policy Changes
*Such as resilient codes,
warning systems, and land
use changes*

USACE SAN FRANCISCO WATERFRONT COASTAL FLOOD STUDY

Driving Questions

What if...
we **did not adapt**
to mitigate the
risks?

What if...
we adapted by
floodproofing
and **moving**
buildings and assets,
without coastal flood
structures?

What if...
we address flooding
at a **lower rate** of
sea level rise?

What if...
we address flooding
at a **higher rate** of
sea level rise,
as recommended by
CA and SF guidance?

USACE SAN FRANCISCO WATERFRONT COASTAL FLOOD STUDY

Draft Waterfront Adaptation Strategies

What if...
we **did not adapt**
to mitigate the
risks?

STRATEGY A

What if...
we adapted by
floodproofing
and **moving**
buildings and assets,
without coastal flood
structures?

STRATEGY B

What if...
we address flooding
at a **lower rate** of
sea level rise?

STRATEGY C

STRATEGY D

What if...
we address flooding
at a **higher rate** of
sea level rise,
as recommended by
CA and SF guidance?

STRATEGY E

STRATEGY F

STRATEGY G

THE ROLE OF COMMUNITY FEEDBACK

Pathway to the Draft Waterfront Adaptation Plan



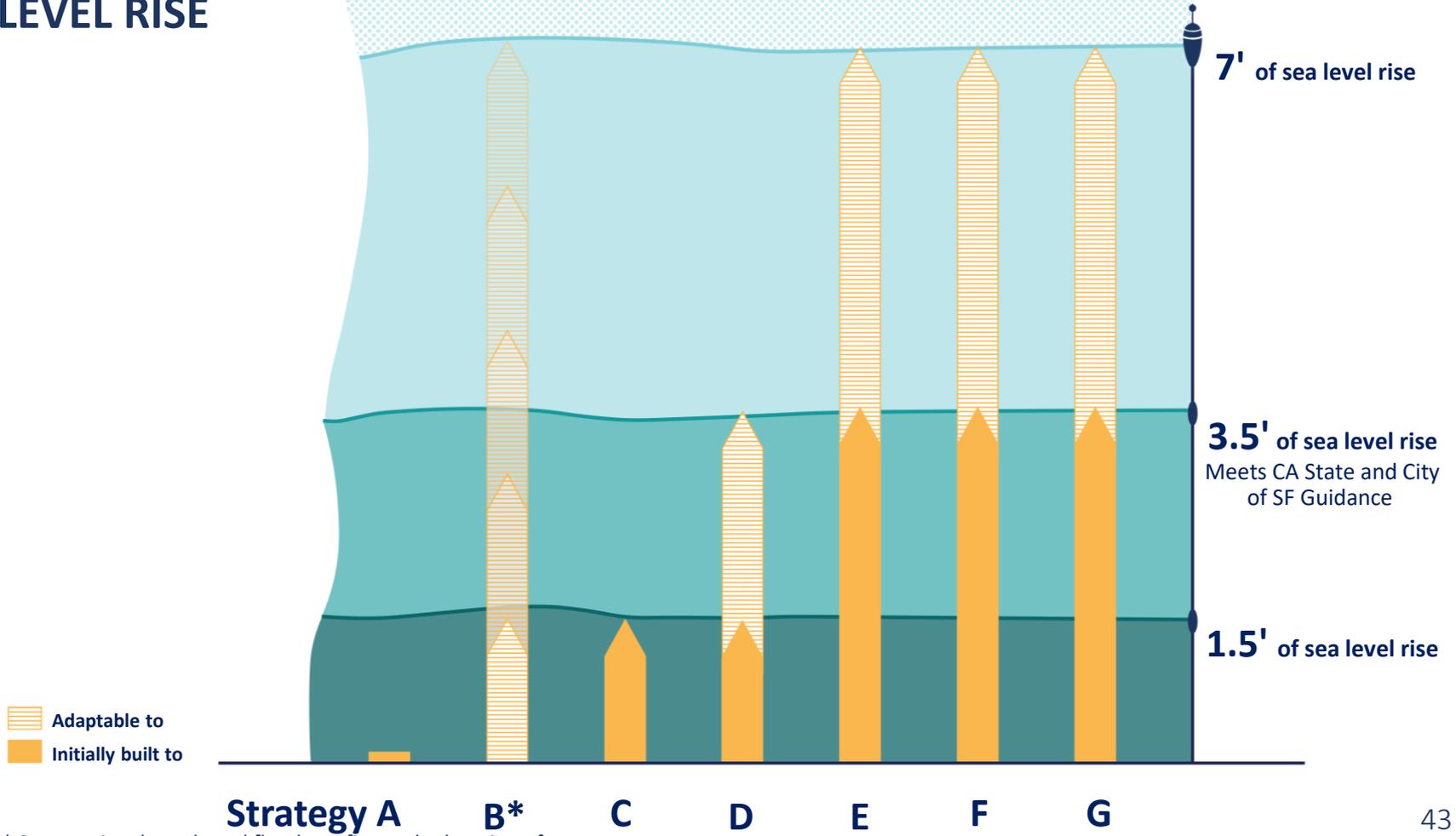


Draft Waterfront Adaptation Strategies in the Embarcadero

TIME HORIZONS

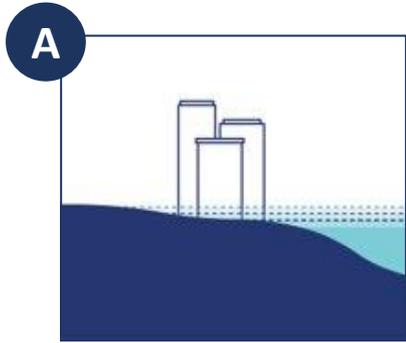


SEA LEVEL RISE

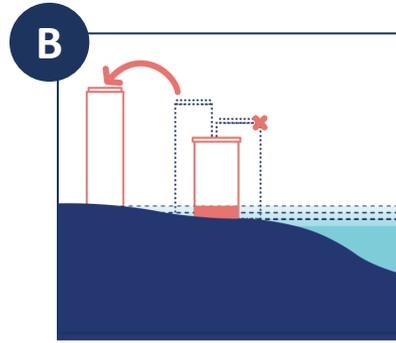


* Strategy involves phased floodproofing and relocation of assets

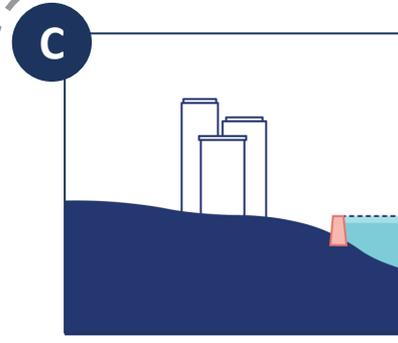
WATERFRONT DRAFT ADAPTATION STRATEGIES



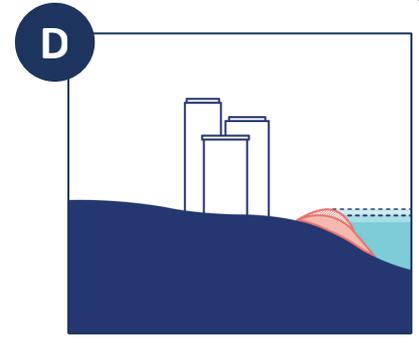
No Action



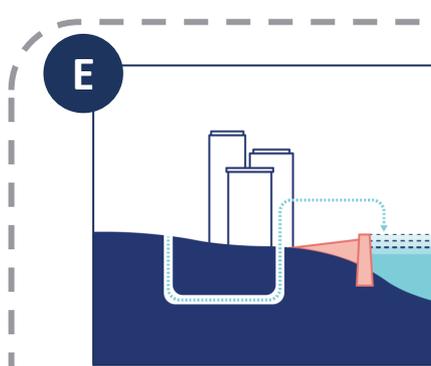
Non-Structural



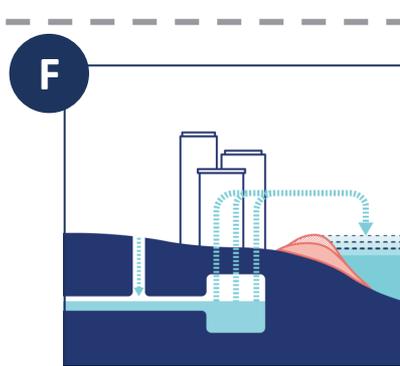
Lower Sea Level Rise



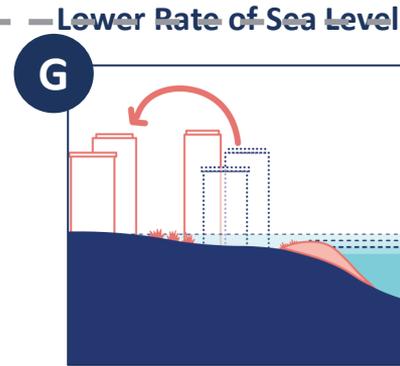
Adaptable



Hold The Line



Manage The Water



Align With Watersheds

Lower Rate of Sea Level Rise

In addition to coastal flood risks—addresses ground water, storm water, and seismic risks

Higher Rate of Sea Level Rise

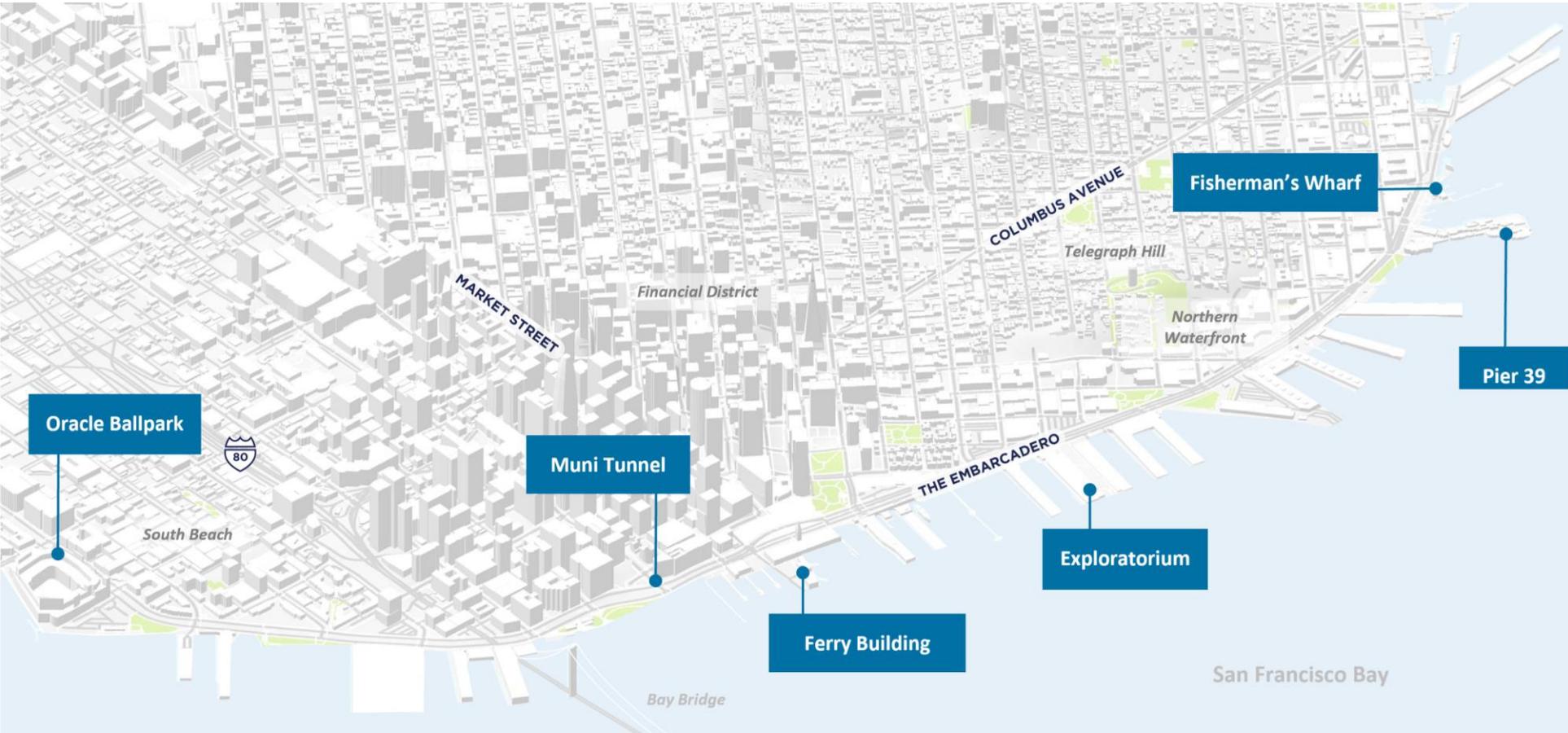
EMBARCADERO

Geographic Context

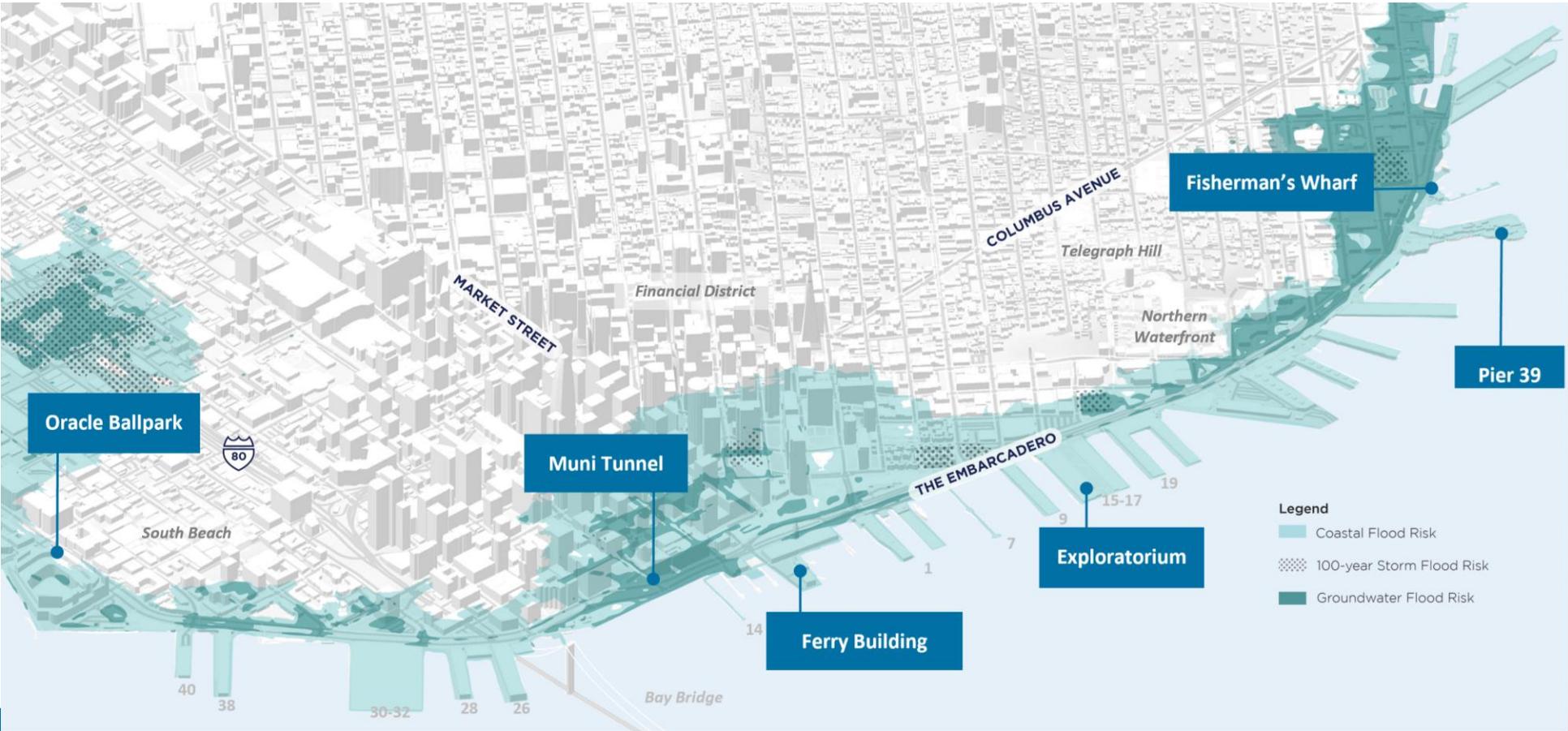
- Very high-density area of jobs and housing + registered historic district
- Limited Space for Adaptation
- Critical Transportation Corridor – Bart and Muni
- Flood and Earthquake risk to Maritime Operations and Crucial Disaster Response Functions



EMBARCADERO



EMBARCADERO



USACE SAN FRANCISCO WATERFRONT COASTAL FLOOD STUDY

Focused on Strategies A-D

What if...
we **did not adapt**
to mitigate the
risks?

STRATEGY A

What if...
we adapted by
floodproofing
and **moving**
buildings and assets,
without coastal flood
structures?

STRATEGY B

What if...
we address flooding
at a **lower rate** of
sea level rise?

STRATEGY C

STRATEGY D

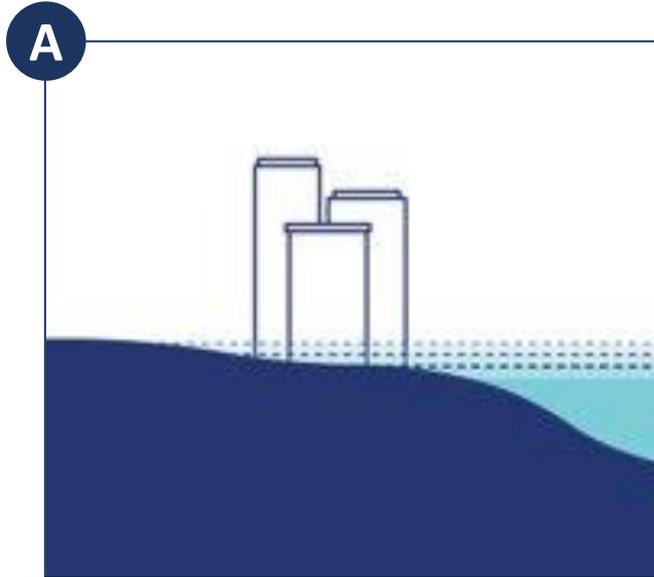
What if...
we address flooding
at a **higher rate** of
sea level rise,
as recommended by
CA and SF guidance?

STRATEGY E

STRATEGY F

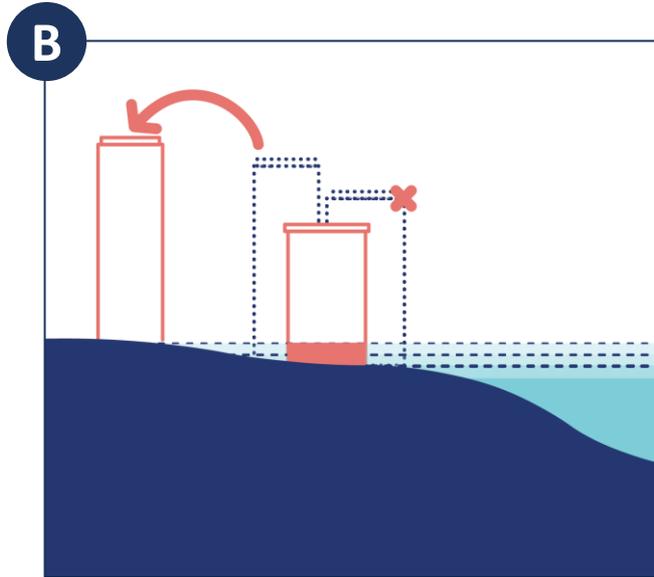
STRATEGY G

STRATEGY A – NO ACTION



This strategy takes no actions to reduce flood risks beyond projects that are already approved

STRATEGY B – NONSTRUCTURAL OPTION

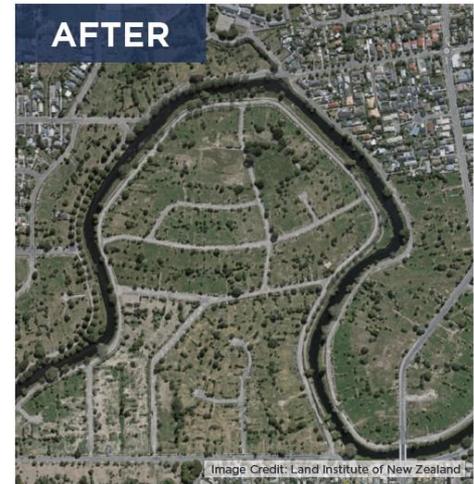


Moves people and assets away from the risk, uses nonstructural measures (such as floodproofing) to reduce risks, and allows water to go where it wants rather than constructing traditional structural solutions

STRATEGY B – NONSTRUCTURAL OPTION

Examples

- Floodproofing
- Raising structure in place
- Floodable spaces
- Buyouts
- Warning systems



USACE SAN FRANCISCO WATERFRONT COASTAL FLOOD STUDY

Focused on Strategies A-D

What if...
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STRATEGY E

STRATEGY F

STRATEGY G

ORIENTATION TO THE MAPS

Embarcadero Strategy E (2040)

Legend

-  Coastal Flood Defense
-  Inland Adaptation Zone
-  Coastal Adaptation Zone
-  Bay Fill



ORIENTATION TO THE MAPS

Embarcadero Strategy E (2040)

Legend

-  Coastal Flood Defense
-  Inland Adaptation Zone
-  Coastal Adaptation Zone
-  Bay Fill



The dark green line shows where coastal flood defenses will be built.

Areas on the bay side of that line are shaded green to mark the part of the coastline that is still exposed to coastal flooding. This green shaded area needs to be adapted to accommodate flood water from a coastal storm.

ORIENTATION TO THE MAPS

Embarcadero Strategy E (2040)

Legend

-  Coastal Flood Defense
-  Inland Adaptation Zone
-  Coastal Adaptation Zone
-  Bay Fill



The purple shading marks the area that is defended against coastal flooding but still needs adaptations to accommodate inland flooding.

The dark green line shows where coastal flood defenses will be built.

Areas on the bay side of that line are shaded green to mark the part of the coastline that is still exposed to coastal flooding. This green shaded area needs to be adapted to accommodate flood water from a coastal storm.

ORIENTATION TO THE MAPS

Embarcadero Strategy E (2040)

Legend

- Coastal Flood Defense
- Inland Adaptation Zone
- Coastal Adaptation Zone
- - - Bay Fill

The geographic locations, strategy name, and year will be shown here. Strategies have maps for what will happen in the 2040 timeframe, and what will happen later, in 2090.

The purple shading marks the area that is defended against coastal flooding but still needs adaptations to accommodate inland flooding.

The dark green line shows where coastal flood defenses will be built.

Areas on the bay side of that line are shaded green to mark the part of the coastline that is still exposed to coastal flooding. This green shaded area needs to be adapted to accommodate flood water from a coastal storm.



ORIENTATION TO THE MAPS

Embarcadero Strategy E (2040)

Legend

- Coastal Flood Defense
- Inland Adaptation Zone
- Coastal Adaptation Zone
- - - Bay Fill

The geographic locations, strategy name, and year will be shown here. Strategies have maps for what will happen in the 2040 timeframe, and what will happen later, in 2090.

The callouts describe how each strategy can address the different risks.

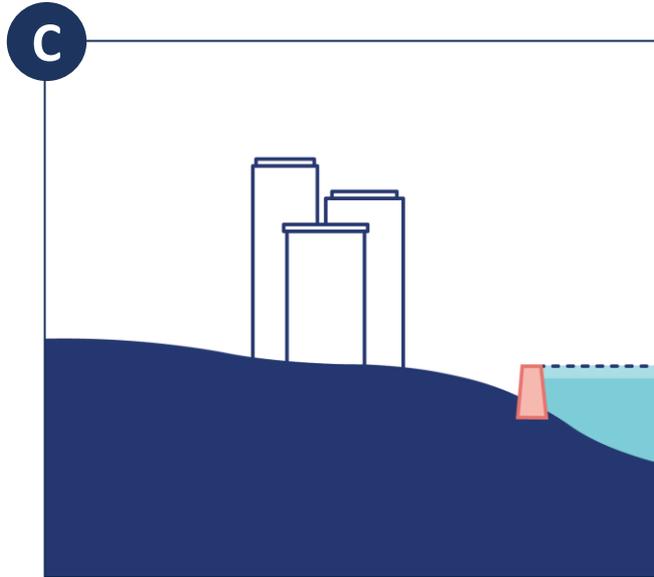
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The dark green line shows where coastal flood defenses will be built.

Areas on the bay side of that line are shaded green to mark the part of the coastline that is still exposed to coastal flooding. This green shaded area needs to be adapted to accommodate flood water from a coastal storm.



STRATEGY C – LOWER SEA LEVEL RISE



Adapts the shoreline to withstand 1.5' of sea level rise by 2040 using a combination of structural and nonstructural measures

STRATEGY C – LOWER SEA LEVEL RISE

Embarcadero Strategy C (2040)

Legend

- Coastal Flood Defense
- ▨ Inland Adaptation Zone

Raise the bay shoreline and use deployable flood defense structures to protect against 1.5 feet of sea level rise from the Bay Bridge to Pier 7, and near Pier 45. Deployable structures will maintain maritime access and uses at some locations.



STRATEGY C – LOWER SEA LEVEL RISE

Embarcadero Strategy C (2040)

Legend

- Coastal Flood Defense
- ▨ Inland Adaptation Zone

Raise the bay shoreline and use deployable flood defense structures to protect against 1.5 feet of sea level rise from the Bay Bridge to Pier 7, and near Pier 45. Deployable structures will maintain maritime access and uses at some locations.



Although the floodwalls would consider seismic risks, consistent with state and local building codes, the seismic risks associated with the aging Embarcadero Seawall and other shoreline infrastructure would not be comprehensively addressed.

STRATEGY C – LOWER SEA LEVEL RISE

Embarcadero Strategy C (2040)

Legend

- Coastal Flood Defense
- ▨ Inland Adaptation Zone

Raise the bay shoreline and use deployable flood defense structures to protect against 1.5 feet of sea level rise from the Bay Bridge to Pier 7, and near Pier 45. Deployable structures will maintain maritime access and uses at some locations.



Although the floodwalls would consider seismic risks, consistent with state and local building codes, the seismic risks associated with the aging Embarcadero Seawall and other shoreline infrastructure would not be comprehensively addressed.

No long-term actions are included. The flood defense measures would not be adaptable to higher rates of sea level rise; so future actions to adapt to a higher rate of sea level rise would need to go through the planning and approval process if needed.

A NOTE ABOUT POLLS

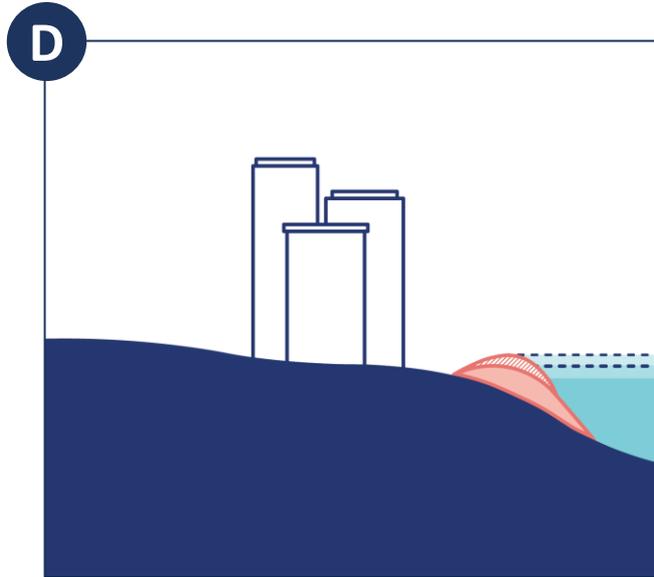


- Temperature Check
- Not a Vote
- Optional

POLL QUESTION #3

Strategy C would cost less by making smaller improvements than other options but assumes a lower rate of sea level rise (and does not include any seismic improvements). Do you support this approach?

STRATEGY D – LOWER SEA LEVEL RISE – ADAPTABLE



Adapts the shoreline to withstand 1.5' of sea level rise by 2040, with the possibility of building higher by 2090

STRATEGY D – LOWER SEA LEVEL RISE – ADAPTABLE

Embarcadero Strategy D (2040)

Legend

- Coastal Flood Defense
- ▨ Inland Adaptation Zone
- ▨ Coastal Adaptation Zone

Raise bay shoreline to defend against up to 3.5 feet of sea level rise at the lowest-lying locations, including from the Bay Bridge to Pier 7, and near Pier 45. Deployable structures will maintain maritime access and uses at some locations. Design the flood risk reduction actions to be adaptable to a higher rate of sea level rise in the future.



STRATEGY D – LOWER SEA LEVEL RISE – ADAPTABLE

Embarcadero Strategy D (2090)

Legend

- Coastal Flood Defense
- Inland Adaptation Zone
- Coastal Adaptation Zone

In the long term, 2090 and beyond, implementation of Strategy D in the Embarcadero, would include additional shoreline protections to protect the remaining shoreline area against up to 3.5 feet of sea level rise.

STRATEGY D – LOWER SEA LEVEL RISE – ADAPTABLE

Embarcadero Strategy D (2090)

Legend

- Coastal Flood Defense
- ▨ Inland Adaptation Zone
- ▨ Coastal Adaptation Zone

In the long term, 2090 and beyond, implementation of Strategy D in the Embarcadero, would include additional shoreline protections to protect the remaining shoreline area against up to 3.5 feet of sea level rise.

This strategy addresses some earthquake risks in the areas with actions closer to 2090.

POLL QUESTION #4

Strategy D would cost less by making smaller improvements than other options but assumes a lower rate of sea level rise. It would be designed to be adaptable to higher sea level rise in the future and includes some seismic improvements. Do you support this approach?

USACE SAN FRANCISCO WATERFRONT COASTAL FLOOD STUDY

Focused on Strategies E, F, and G

What if...
we **did not adapt**
to mitigate the
risks?

STRATEGY A

What if...
we adapted by
floodproofing
and **moving**
buildings and assets,
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structures?

STRATEGY B

What if...
we address flooding
at a **lower rate** of
sea level rise?

STRATEGY C

STRATEGY D

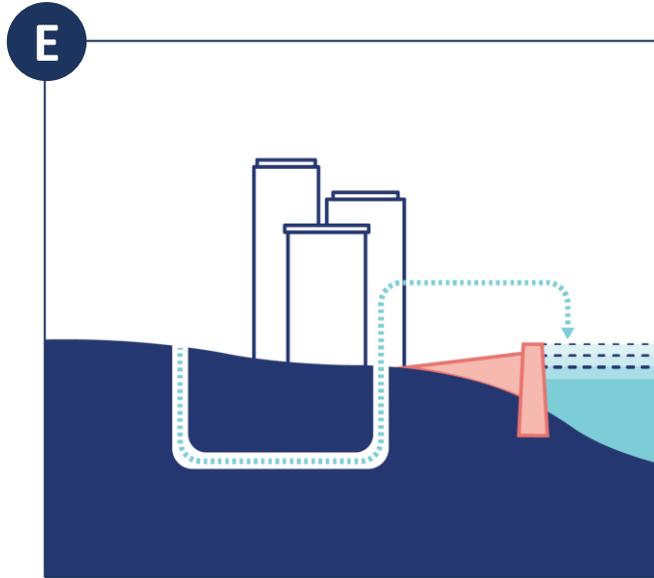
What if...
we address flooding
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sea level rise,
as recommended
by **CA and SF**
guidance?

STRATEGY E

STRATEGY F

STRATEGY G

STRATEGY E – HIGHER SEA LEVEL RISE – HOLD THE LINE



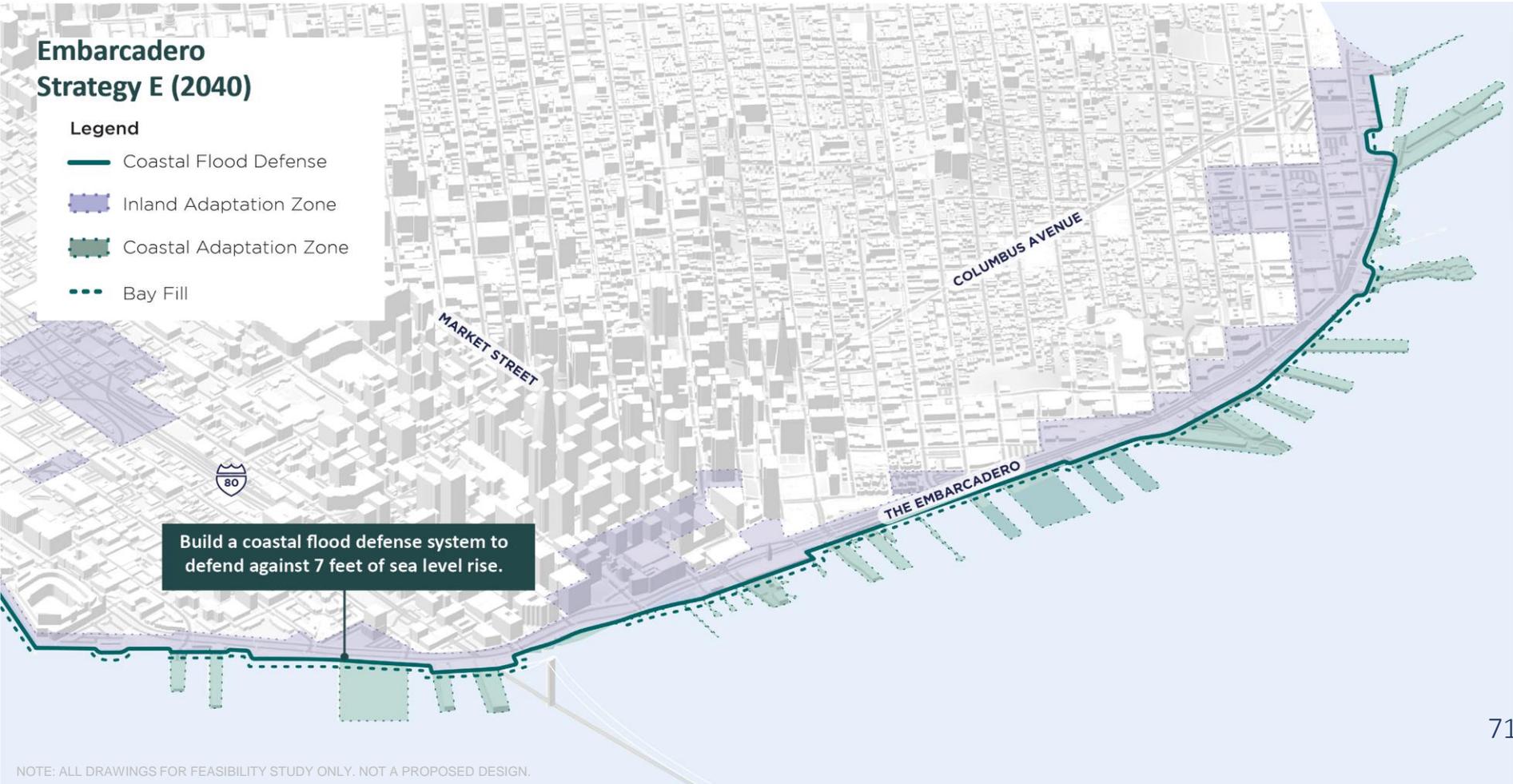
Preserves a waterfront that looks and functions much as it does today by adapting the shoreline

STRATEGY E – HIGHER SEA LEVEL RISE – HOLD THE LINE

Embarcadero Strategy E (2040)

Legend

- Coastal Flood Defense
- ▨ Inland Adaptation Zone
- ▨ Coastal Adaptation Zone
- - - Bay Fill



Build a coastal flood defense system to defend against 7 feet of sea level rise.

STRATEGY E – HIGHER SEA LEVEL RISE – HOLD THE LINE

Embarcadero Strategy E (2040)

Legend

- Coastal Flood Defense
- Inland Adaptation Zone
- Coastal Adaptation Zone
- Bay Fill



Build a coastal flood defense system to defend against 7 feet of sea level rise.

Elevate the Ferry Building and the Embarcadero promenade.

NOTE: ALL DRAWINGS FOR FEASIBILITY STUDY ONLY. NOT A PROPOSED DESIGN.

STRATEGY E – HIGHER SEA LEVEL RISE – HOLD THE LINE

Embarcadero Strategy E (2040)

Legend

- Coastal Flood Defense
- Inland Adaptation Zone
- Coastal Adaptation Zone
- Bay Fill



STRATEGY E – HIGHER SEA LEVEL RISE – HOLD THE LINE

Embarcadero Strategy E (2040)

Legend

- Coastal Flood Defense
- Inland Adaptation Zone
- Coastal Adaptation Zone
- Bay Fill



Build a coastal flood defense system to defend against 7 feet of sea level rise.

Elevate the Ferry Building and the Embarcadero promenade.

Fully redesign the Embarcadero roadway to meet the elevated promenade.

Targeted bay fill in the wharf zone only.

NOTE: ALL DRAWINGS FOR FEASIBILITY STUDY ONLY. NOT A PROPOSED DESIGN.

STRATEGY E – HIGHER SEA LEVEL RISE – HOLD THE LINE

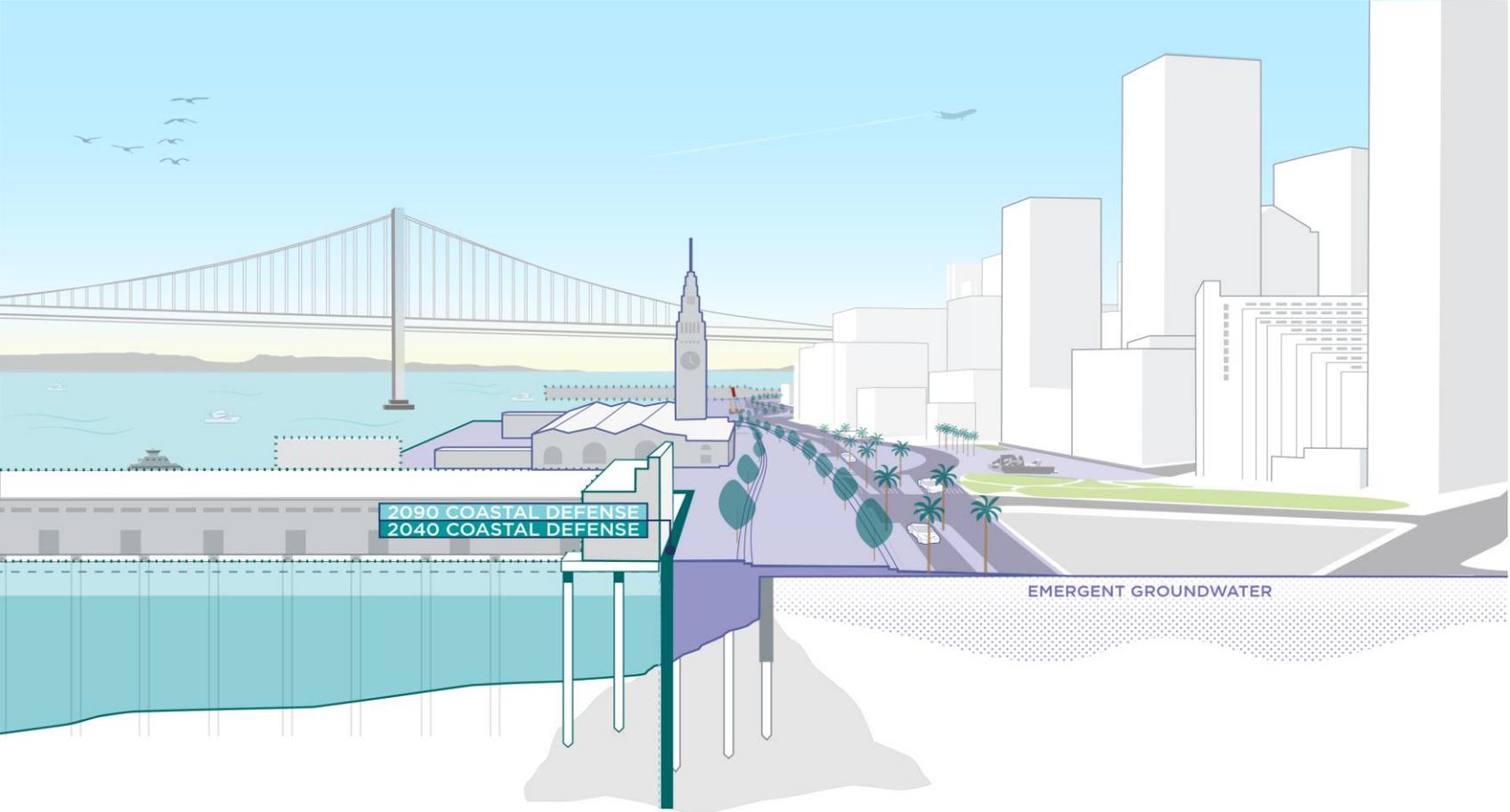
Embarcadero Strategy E (2040)

Legend

- Coastal Flood Defense
- Inland Adaptation Zone
- Coastal Adaptation Zone
- Bay Fill

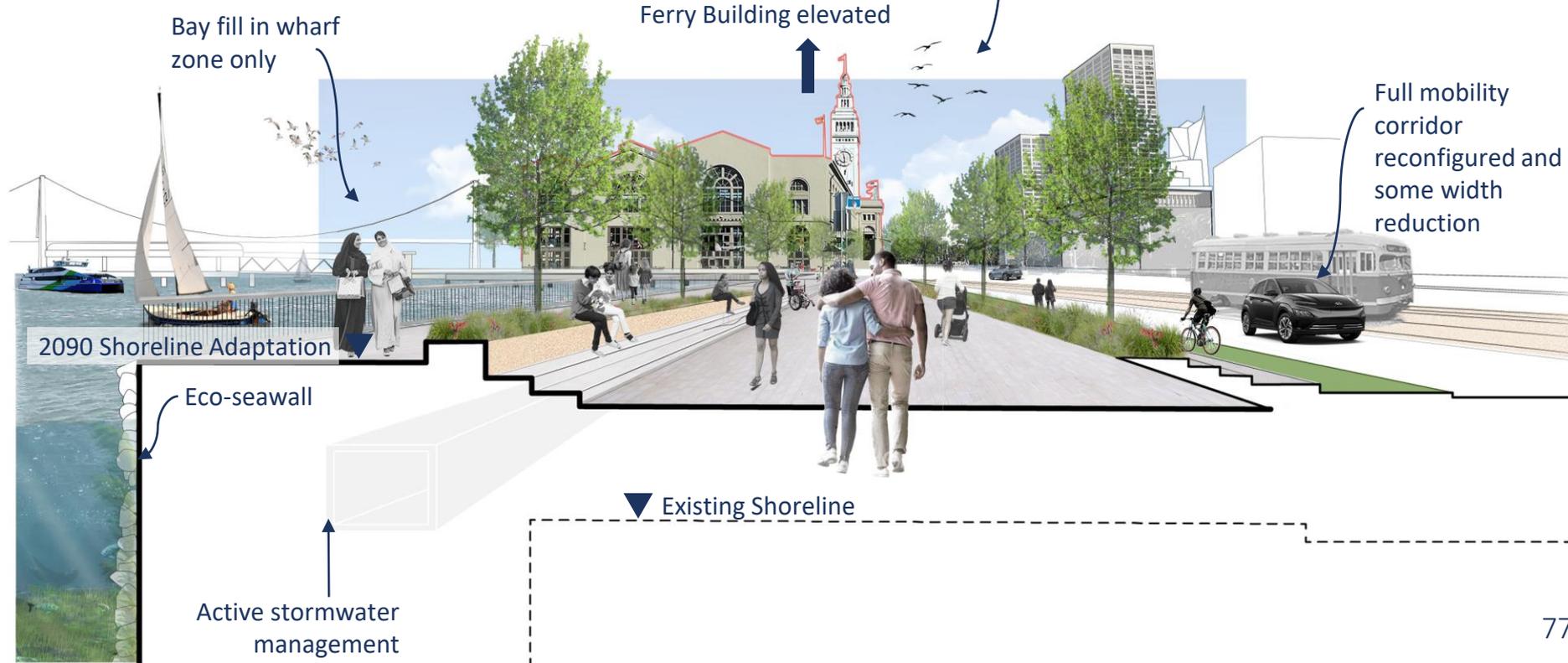


STRATEGY E – HIGHER SEA LEVEL RISE – HOLD THE LINE



STRATEGY E – HIGHER SEA LEVEL RISE – HOLD THE LINE

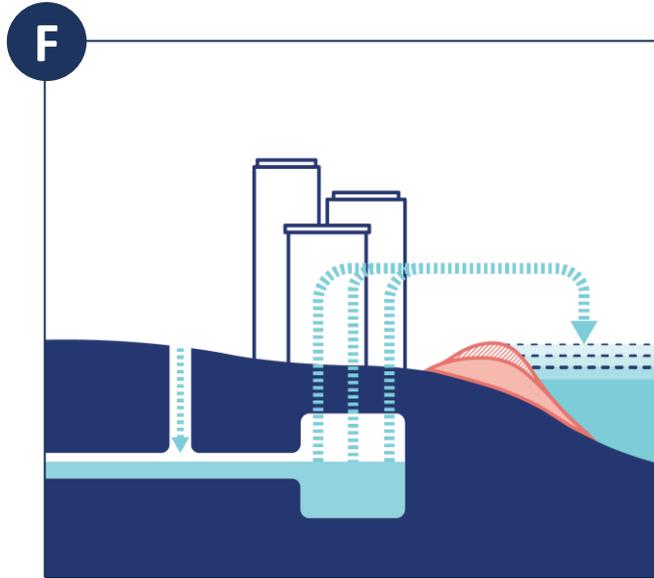
Embarcadero in 2040



POLL QUESTION #5

Strategy E would use limited targeted bay fill in the wharf zone and require fully redesigning the existing Embarcadero roadway. The resulting design would allow for space for a generous promenade and would slightly narrow the space available for the Embarcadero roadway (approximately the width of the parking lane). Do you support this approach? (Select all that apply)

STRATEGY F – HIGHER SEA LEVEL RISE – MANAGE THE WATER



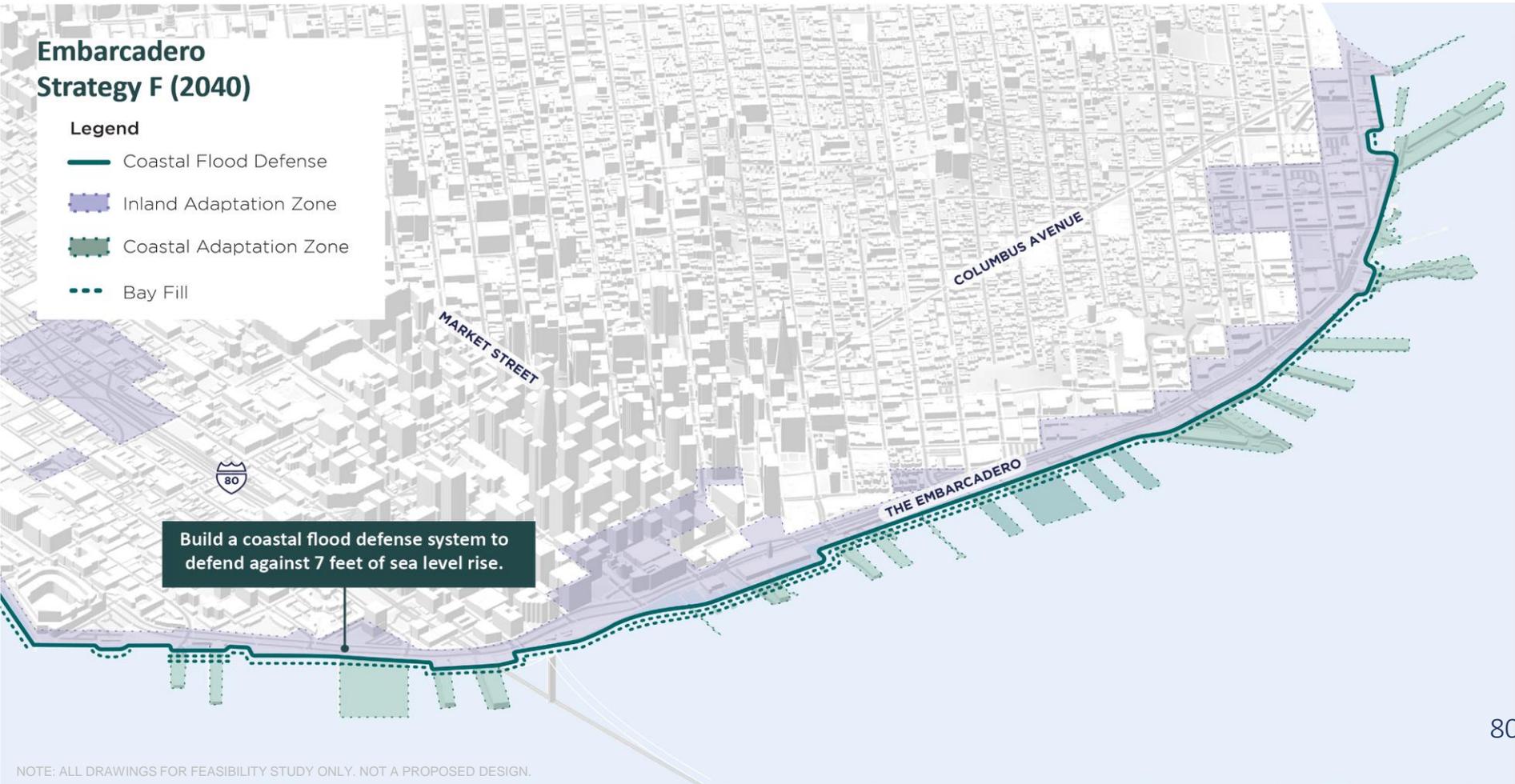
Creates an active system for managing flooding by heavily relying on machinery

STRATEGY F – HIGHER SEA LEVEL RISE – MANAGE THE WATER

Embarcadero Strategy F (2040)

Legend

- Coastal Flood Defense
- Inland Adaptation Zone
- Coastal Adaptation Zone
- - - Bay Fill



Build a coastal flood defense system to defend against 7 feet of sea level rise.

NOTE: ALL DRAWINGS FOR FEASIBILITY STUDY ONLY. NOT A PROPOSED DESIGN.

STRATEGY F – HIGHER SEA LEVEL RISE – MANAGE THE WATER

Embarcadero Strategy F (2040)

Legend

- Coastal Flood Defense
- Inland Adaptation Zone
- Coastal Adaptation Zone
- Bay Fill



STRATEGY F – HIGHER SEA LEVEL RISE – MANAGE THE WATER

Embarcadero Strategy F (2040)

Legend

- Coastal Flood Defense
- Inland Adaptation Zone
- Coastal Adaptation Zone
- Bay Fill

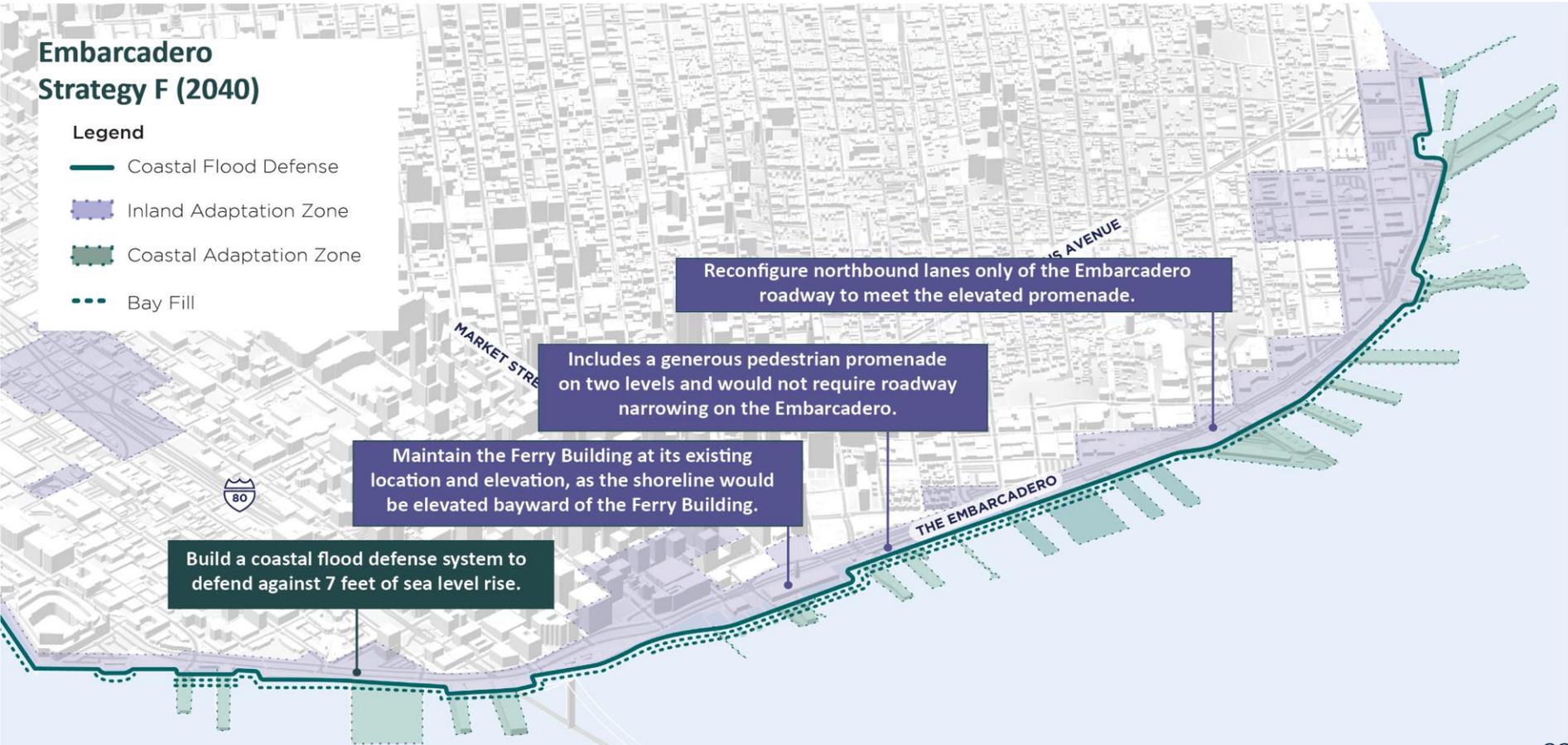


STRATEGY F – HIGHER SEA LEVEL RISE – MANAGE THE WATER

Embarcadero Strategy F (2040)

Legend

- Coastal Flood Defense
- Inland Adaptation Zone
- Coastal Adaptation Zone
- Bay Fill

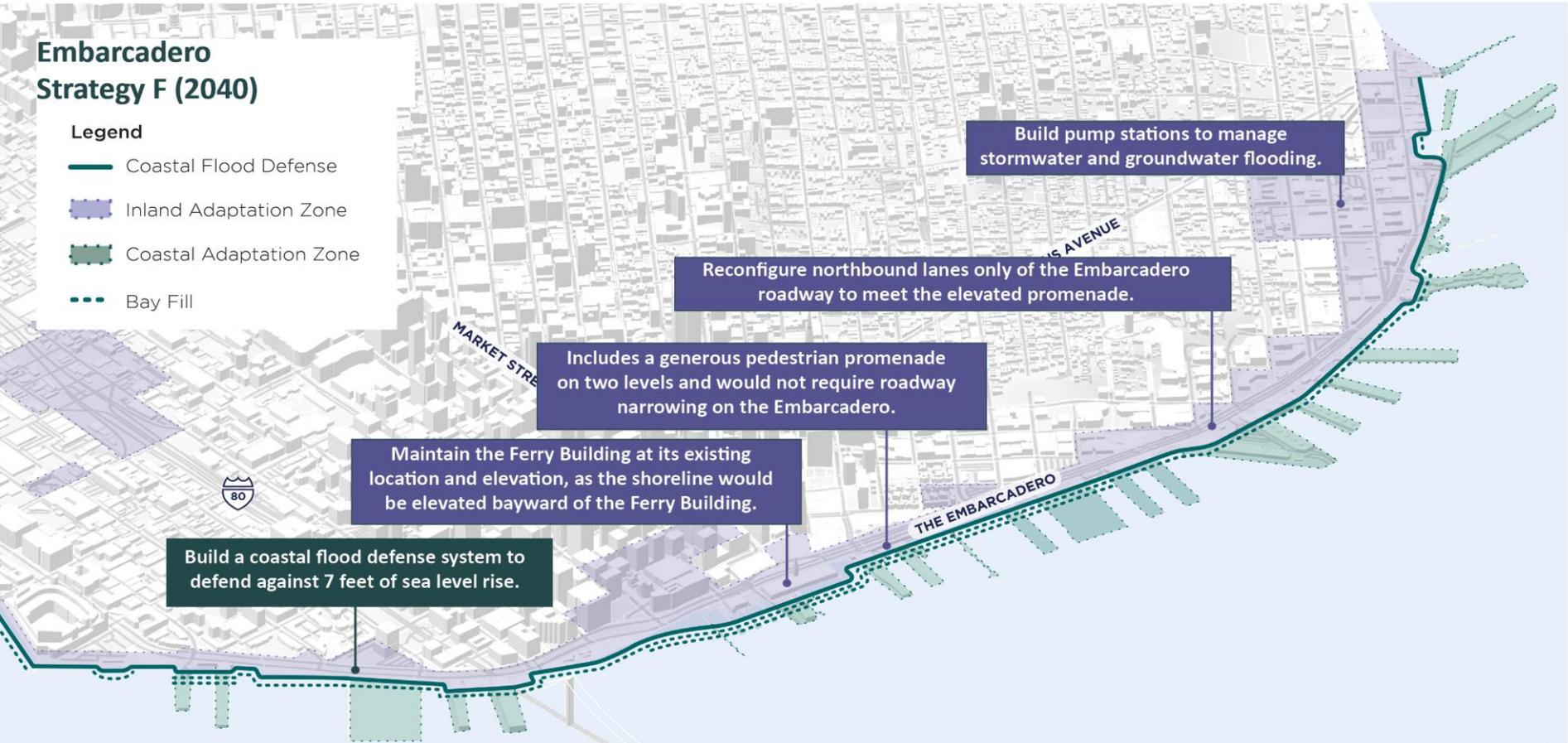


STRATEGY F – HIGHER SEA LEVEL RISE – MANAGE THE WATER

Embarcadero Strategy F (2040)

Legend

- Coastal Flood Defense
- Inland Adaptation Zone
- Coastal Adaptation Zone
- Bay Fill

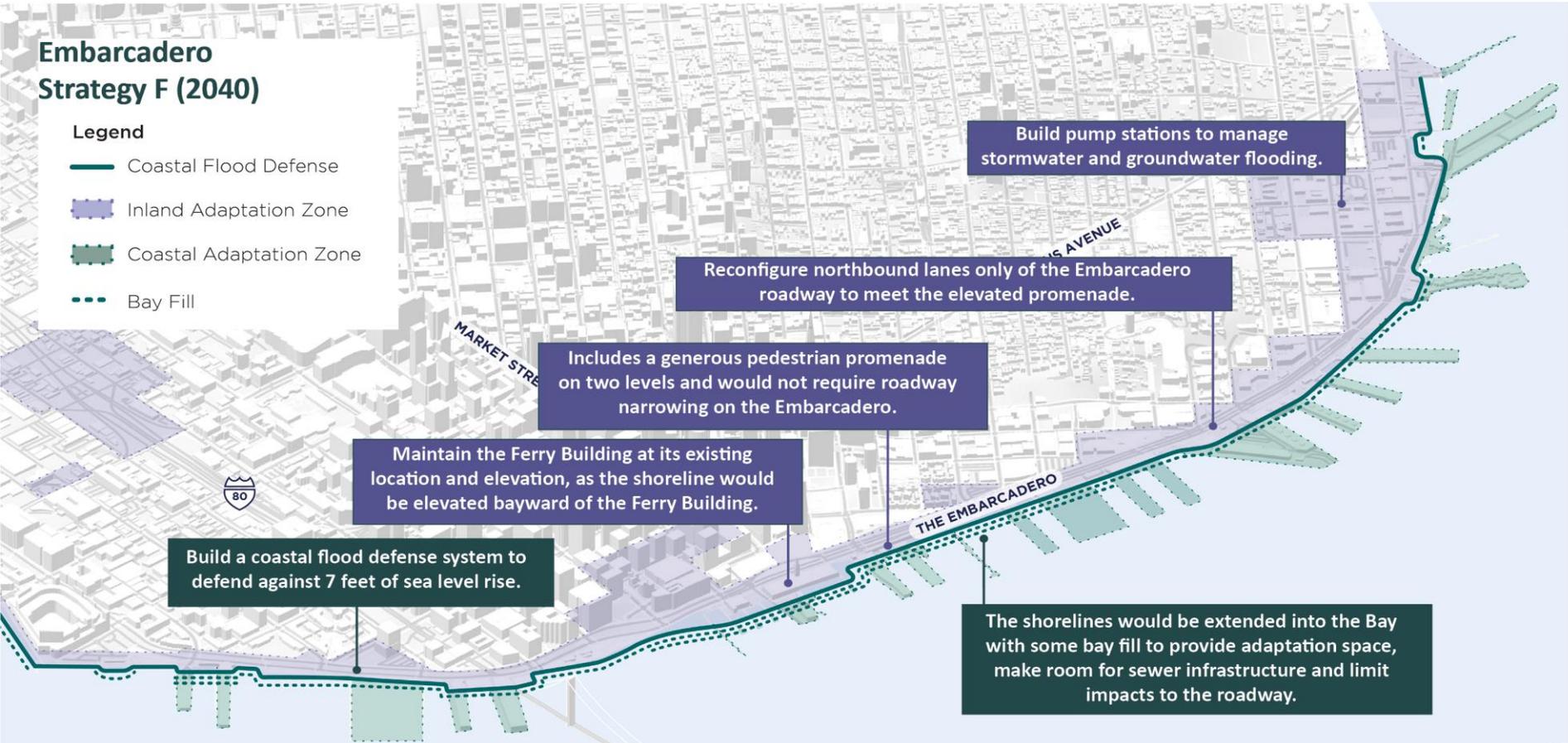


STRATEGY F – HIGHER SEA LEVEL RISE – MANAGE THE WATER

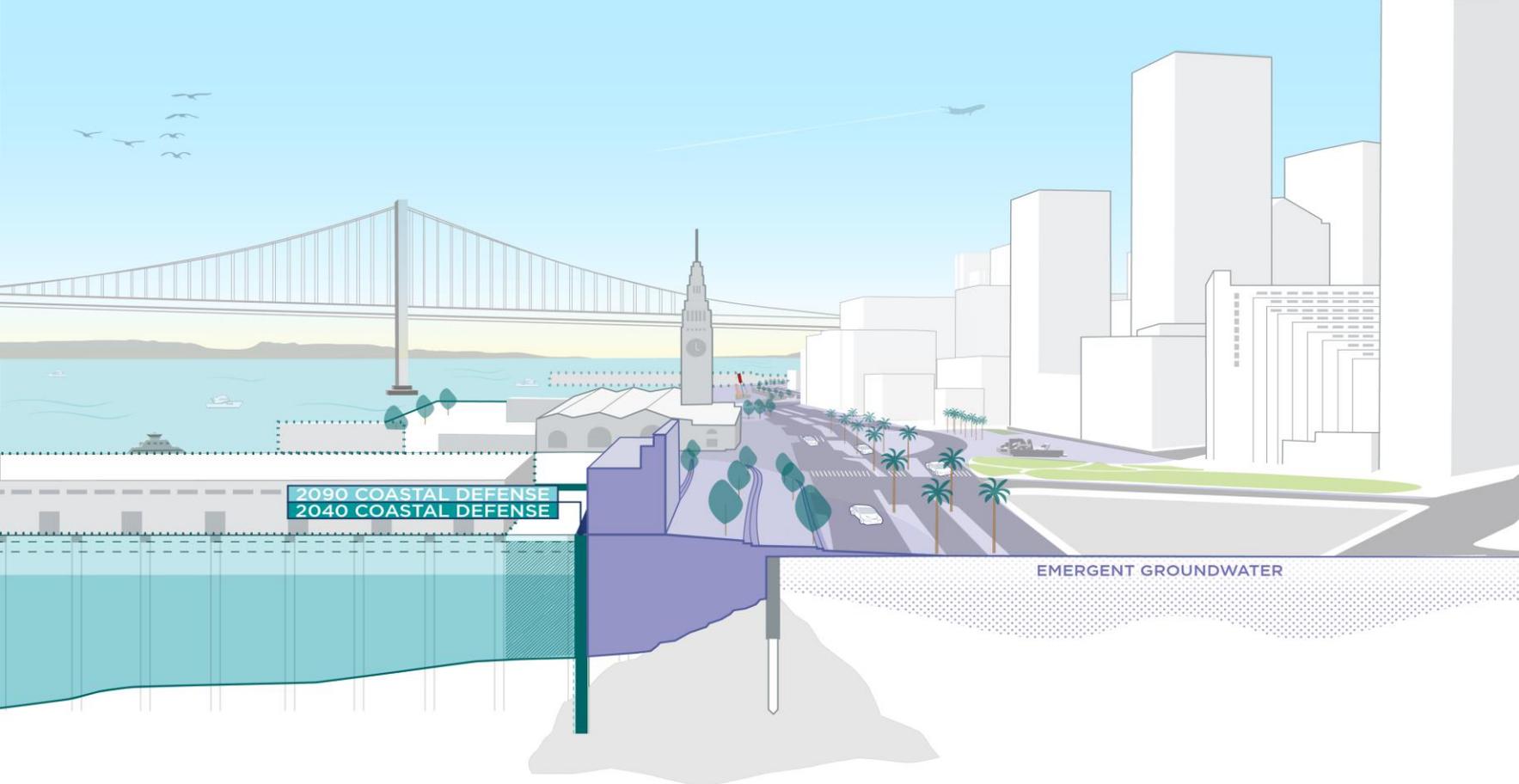
Embarcadero Strategy F (2040)

Legend

- Coastal Flood Defense
- Inland Adaptation Zone
- Coastal Adaptation Zone
- Bay Fill

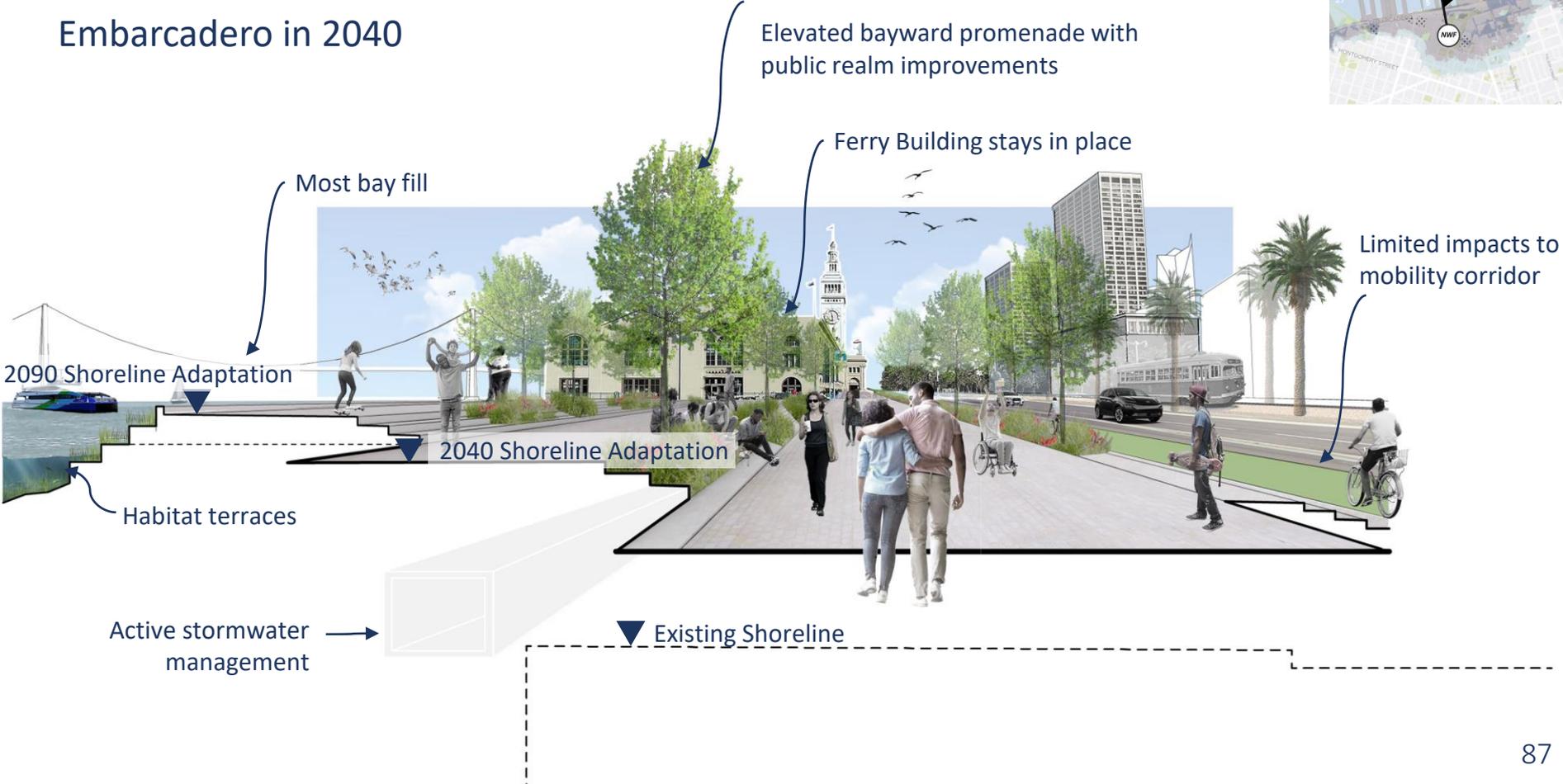


STRATEGY F – HIGHER SEA LEVEL RISE – MANAGE THE WATER



STRATEGY F – HIGHER SEA LEVEL RISE – MANAGE THE WATER

Embarcadero in 2040



Elevated bayward promenade with public realm improvements

Ferry Building stays in place

Limited impacts to mobility corridor

Most bay fill

2090 Shoreline Adaptation

2040 Shoreline Adaptation

Habitat terraces

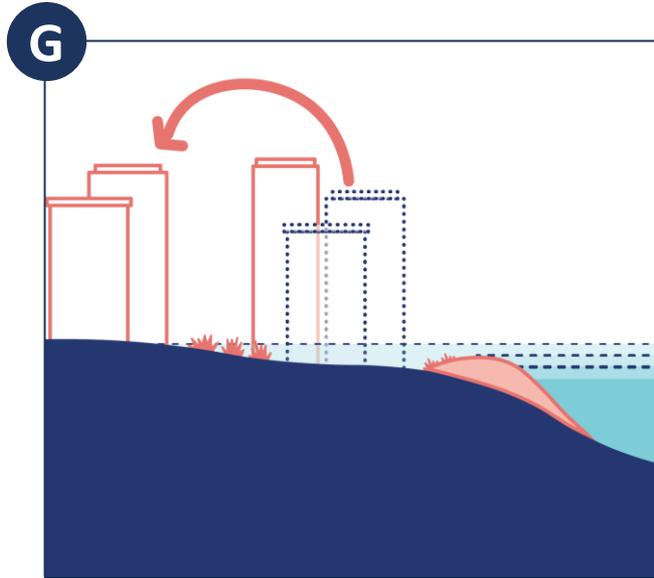
Active stormwater management

Existing Shoreline

POLL QUESTION #6

Strategy F would use more bay fill than strategy E, beyond the wharf zone, to expand pedestrian public access opportunities on the Embarcadero and therefore require a redesign of only the northbound lanes of the roadway. The resulting design would allow for space for a generous promenade and would not narrow the space available for the Embarcadero roadway. Do you support this approach? (Select all that apply)

STRATEGY G – HIGHER SEA LEVEL RISE – ALIGN WITH WATERSHEDS



Advances shoreline adaptation while working with natural inland flooding patterns to floodproof some buildings and infrastructure and move others away from the highest risk areas

STRATEGY G – HIGHER SEA LEVEL RISE – ALIGN WITH WATERSHEDS

Embarcadero Strategy G (2040)

Legend

- Coastal Flood Defense
- Inland Adaptation Zone
- Coastal Adaptation Zone



Build a coastal flood defense system at the existing shoreline to defend against 7 feet of sea level rise.

STRATEGY G – HIGHER SEA LEVEL RISE – ALIGN WITH WATERSHEDS

Embarcadero Strategy G (2040)

Legend

- Coastal Flood Defense
- Inland Adaptation Zone
- Coastal Adaptation Zone



Build a coastal flood defense system at the existing shoreline to defend against 7 feet of sea level rise.

Raise the Ferry Building at its existing location.

STRATEGY G – HIGHER SEA LEVEL RISE – ALIGN WITH WATERSHEDS

Embarcadero Strategy G (2040)

Legend

- Coastal Flood Defense
- Inland Adaptation Zone
- Coastal Adaptation Zone



Reconfigure the Embarcadero roadway. This strategy would require no bay fill, but have the most impact on the Embarcadero Roadway, requiring a reduction in width.

Raise the Ferry Building at its existing location.

Build a coastal flood defense system at the existing shoreline to defend against 7 feet of sea level rise.

NOTE: ALL DRAWINGS FOR FEASIBILITY STUDY ONLY. NOT A PROPOSED DESIGN.

STRATEGY G – HIGHER SEA LEVEL RISE – ALIGN WITH WATERSHEDS

Embarcadero Strategy G (2040)

Legend

- Coastal Flood Defense
- Inland Adaptation Zone
- Coastal Adaptation Zone



STRATEGY G – HIGHER SEA LEVEL RISE – ALIGN WITH WATERSHEDS

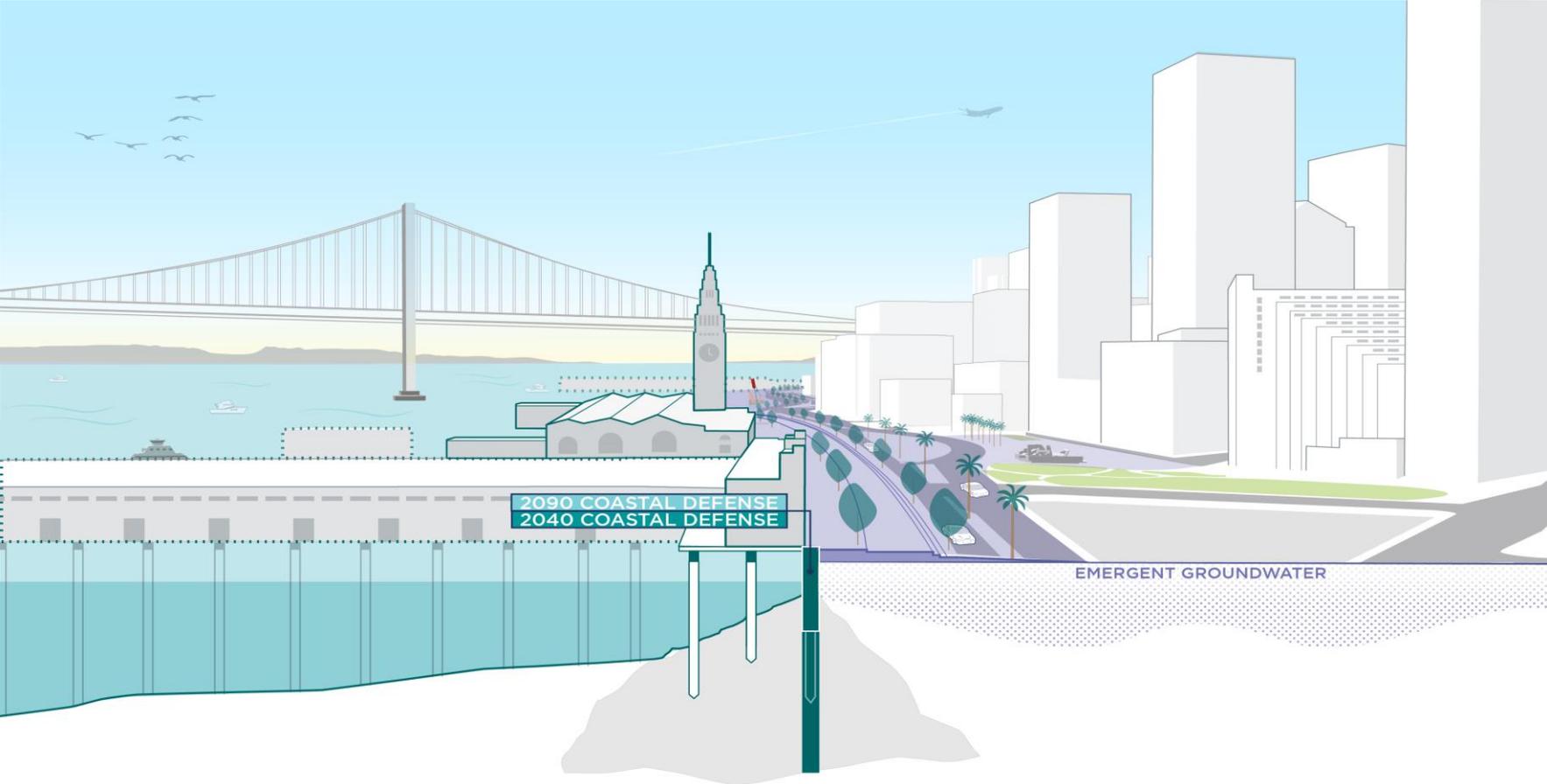
Embarcadero Strategy G (2040)

Legend

- Coastal Flood Defense
- Inland Adaptation Zone
- Coastal Adaptation Zone

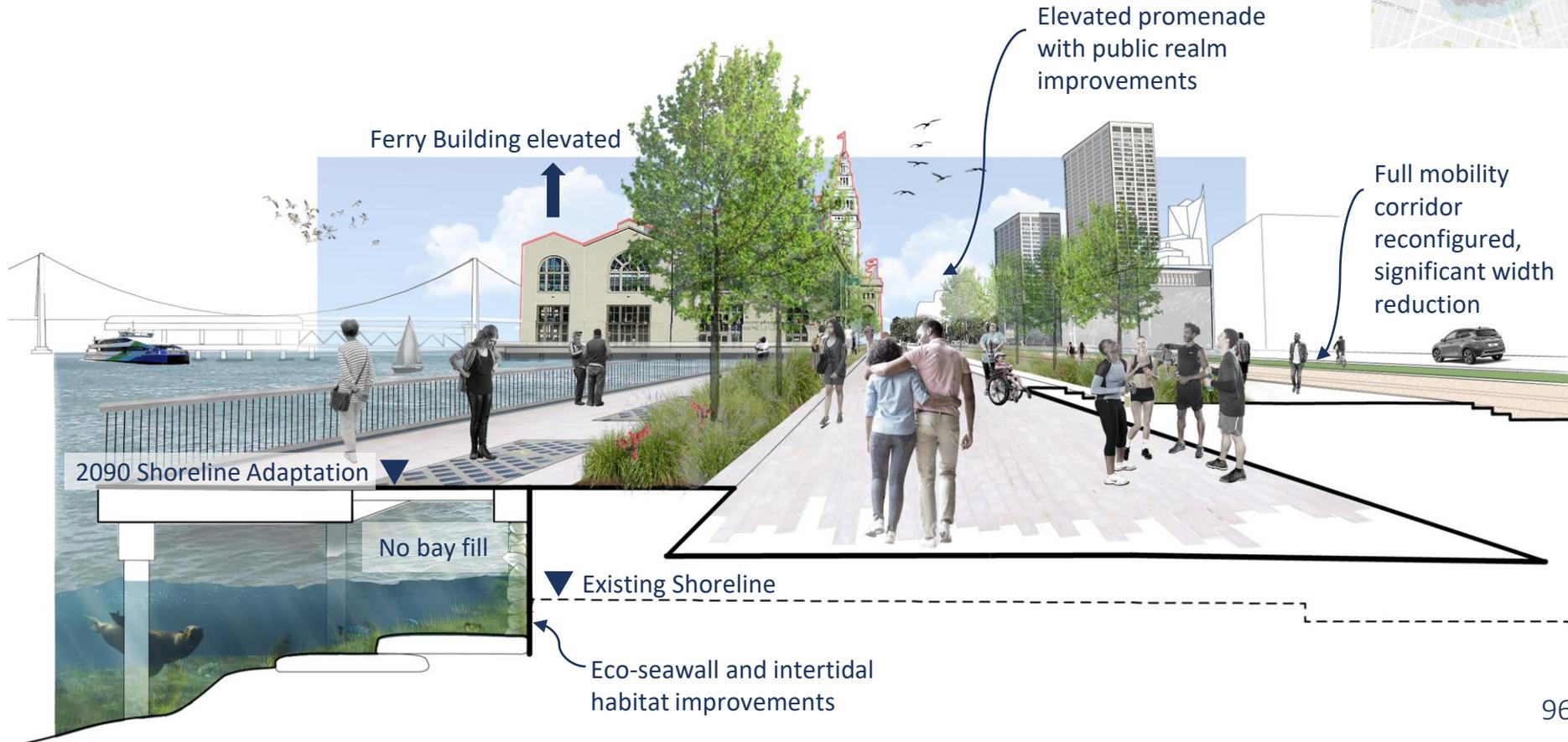


STRATEGY G – HIGHER SEA LEVEL RISE – ALIGN WITH WATERSHEDS



STRATEGY G – HIGHER SEA LEVEL RISE – ALIGN WITH WATERSHEDS

Embarcadero in 2040



Ferry Building elevated

Elevated promenade with public realm improvements

Full mobility corridor reconfigured, significant width reduction

2090 Shoreline Adaptation

No bay fill

Existing Shoreline

Eco-seawall and intertidal habitat improvements

POLL QUESTION #7

Strategy G would not use any bay fill, but because of the resulting limited space would require a full redesign to the existing Embarcadero roadway. The resulting design would result in a moderate public promenade and narrowed roadway (approximately one travel lane in either direction). Do you support this approach? (Select all that apply)

POLL QUESTION #8

All of these strategies defend against flood risks but do so in different ways. All present big changes, but they also bring big opportunities for public benefits. Now that you've seen these strategies for the Embarcadero, please rank the following opportunities:

Next Steps



DRAFT WATERFRONT ADAPTATION STRATEGIES DEVELOPMENT SCHEDULE



COMMUNITY ENGAGEMENT PLAN

OCT

NOV

DEC

JAN

Materials Live on sfport.com/wrp

Other Commission Meetings

Community Workshops /
Meetings

In Person Outreach via Walking Tours
and Waterfront Community Mixer

Digital Engagement via StoryMaps

Presentations to CACs, southern waterfront CBOs, etc.

Focus Groups



WHAT WE'VE HEARD SO FAR



- Summer Survey of over 1000 respondents
- Openness to exploring many kinds of adaptation approaches (including more transformative options)
- Desire to preserve and expand connections between the city and the waterfront
- Curiosity about feasibility, cost, and disruption impacts

JOIN THE CONVERSATION

Different Options for Engaging



- Join us at another geography specific meeting for Islais Creek/Bayview and Mission Creek/Mission Bay – events through December 8
- Join us at the upcoming walking tour
 - **Embarcadero Walking Tour this Saturday 11/19 10am-12pm**
- Explore the online StoryMaps, digital storytelling and surveys
- See the full list of engagement opportunities and sign up: www.sfport.com/wrp/our-waterfront

POLL QUESTION #9

After this meeting how do you feel about these strategies and the work the Port and its federal and city partners are doing?

A photograph of two children riding bicycles on a dirt path. The child in the foreground is wearing a red and white jersey and a yellow helmet. The child in the background is wearing a dark jersey with the number 30 and a dark helmet. They are riding away from the camera towards the ocean. In the background, there are some trees and a large ship on the water.

Thank You

Luiz Barata | luiz.barata@sfport.com



QUESTIONS & ANSWERS



- Type your question in the Chat box
- Use the "Raise Your Hand" button to ask a question off mute

A photograph of two children riding bicycles on a dirt path. The child in the foreground is wearing a red and white jersey and a yellow helmet. The child in the background is wearing a dark jersey with the number 30 and a dark helmet. They are riding away from the camera towards a body of water with a ship in the distance. The sky is clear and blue.

Thank You

Luiz Barata | luiz.barata@sfport.com

