

# DRAFT WATERFRONT ADAPTATION STRATEGIES

## Islais Creek / Bayview Community Meeting

November 1, 2022



Waterfront Resilience Program



# 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 Islais Creek / Bayview
- Next Steps
- Q&A

A family consisting of a woman, a man, and a young child are walking along a dirt path. The woman is pushing a red stroller with a baby inside. The man is holding the child's hand. They are all wearing hats and jackets, suggesting a cool day. In the background, there is a coastal town built on a hillside, with a body of water and mountains visible in the distance.

## 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.

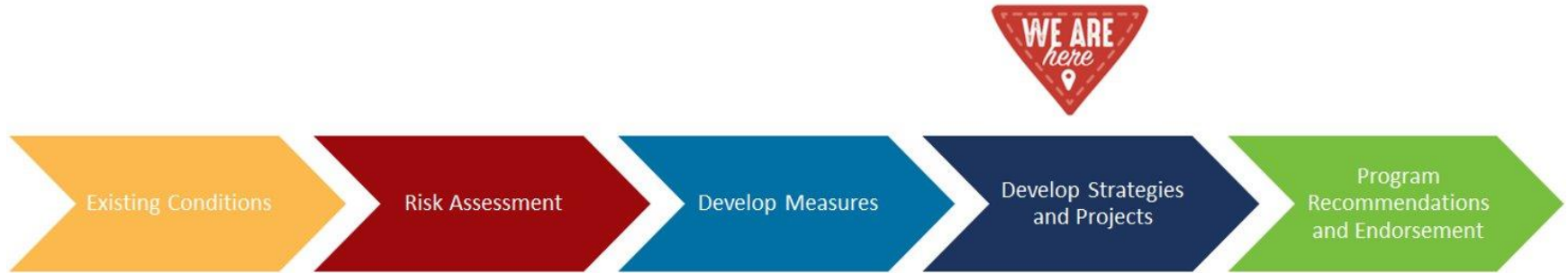
We wish to ***pay our respects*** by acknowledging the Ancestors, Elders and Relatives of the Ramaytush Community and by ***affirming their sovereign rights as First Peoples***.

## POLL QUESTION #1

What part of the Islais Creek / Bayview 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*



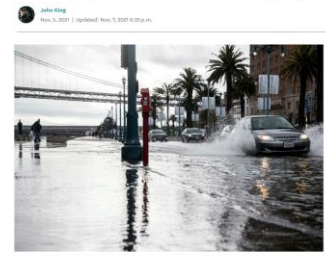
# CLIMATE CHANGE HAS GLOBAL IMPACTS

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



It was shot through floodwaters caused by surge water washing into Pier 14 along the Embarcadero in San Francisco in 2018. The first of 2017 flooding the Embarcadero's raised viaduct supporting parts of the area used to be used before that to build a new building.

# RISING TO THE CHALLENGE

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

### SEISMIC RISKS



San Francisco, 1906

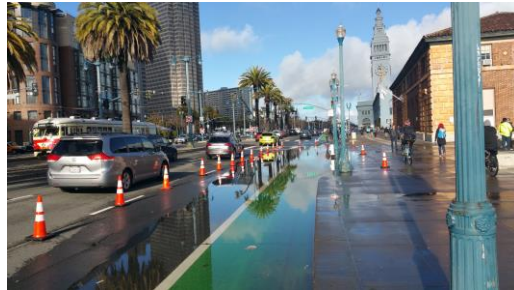


Marina, 1989

### COASTAL FLOODING

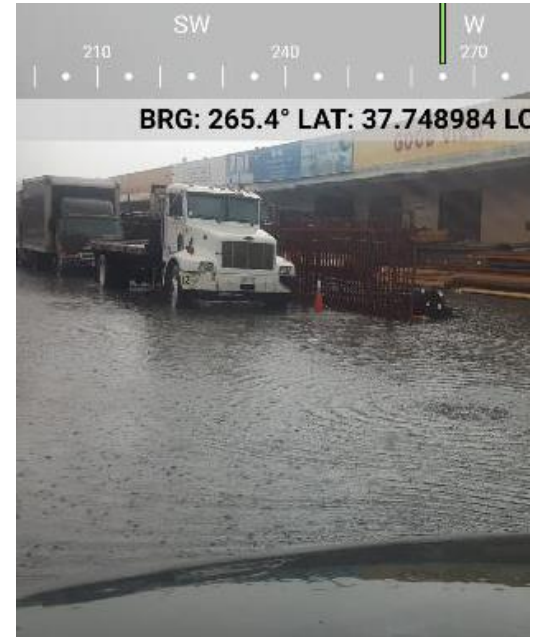


Recology



The Embarcadero

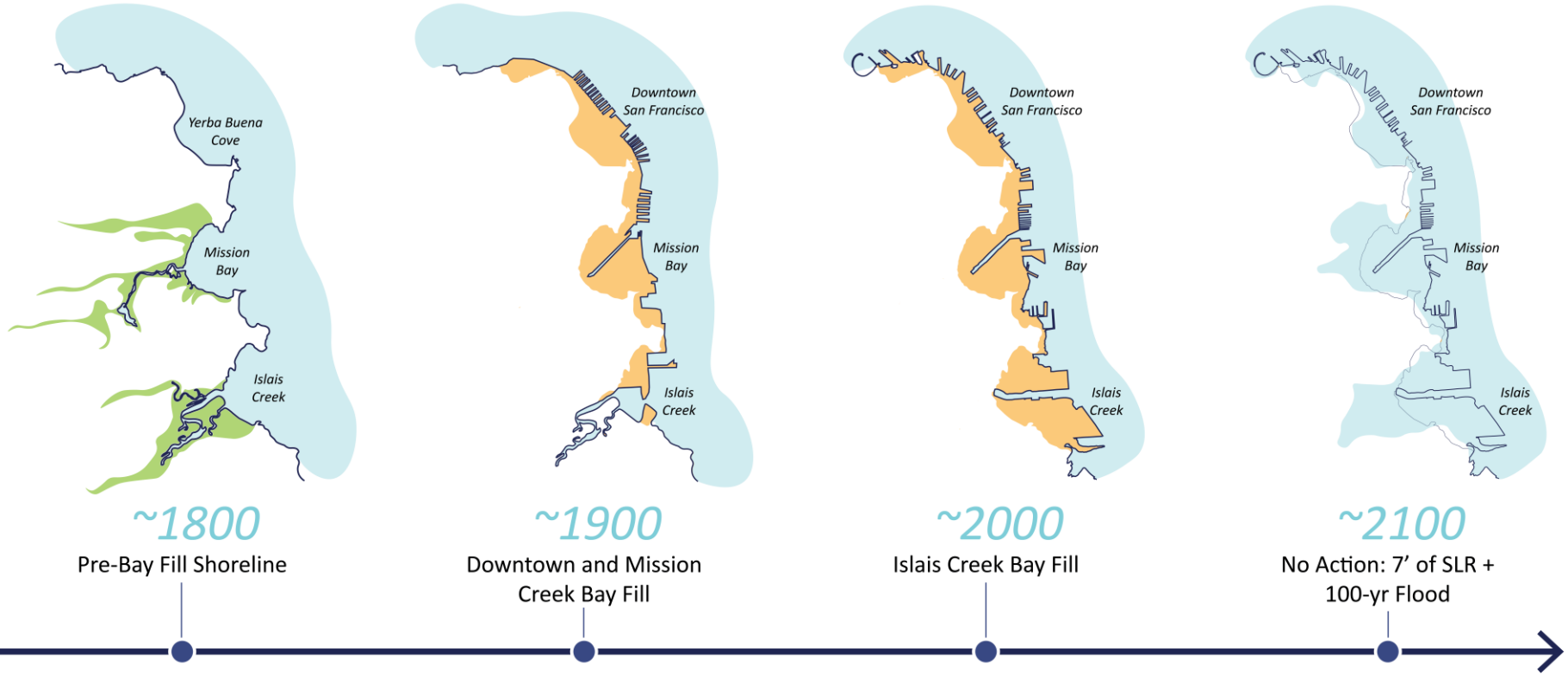
### INLAND FLOODING



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

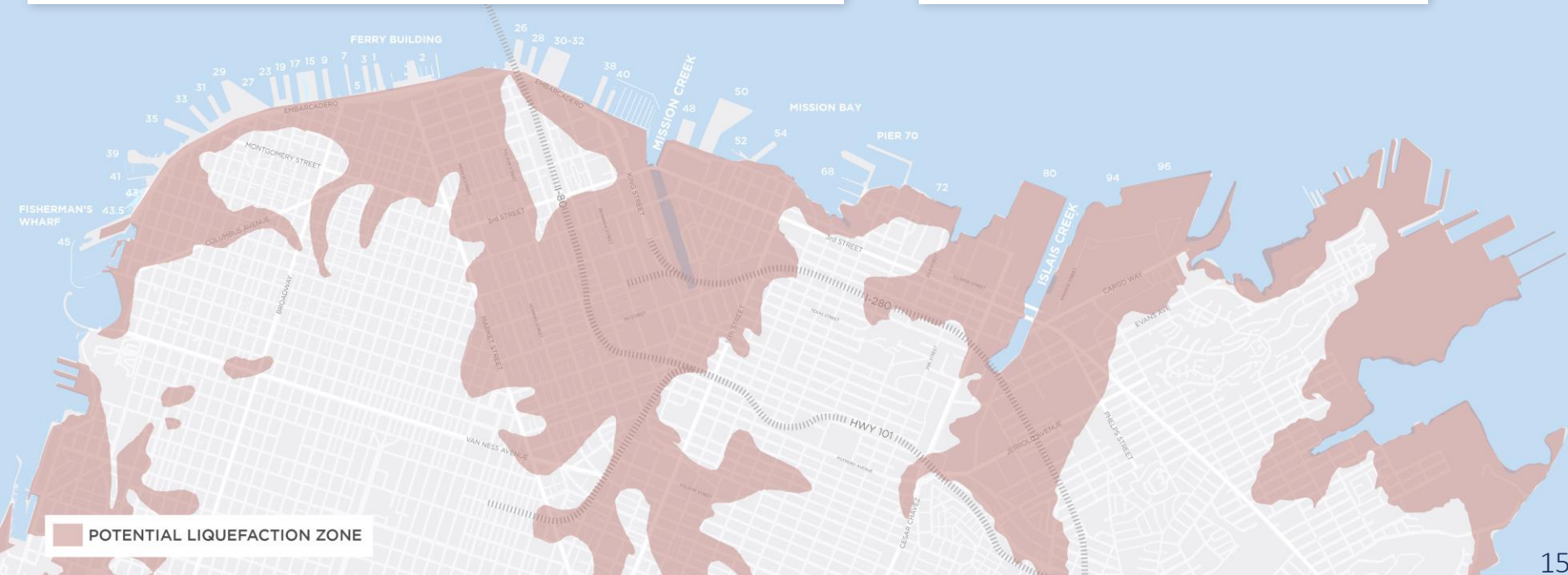
Bay Fill

# WATERFRONT WIDE EARTHQUAKE HAZARDS

## Very High Earthquake “Liquefaction” Risk

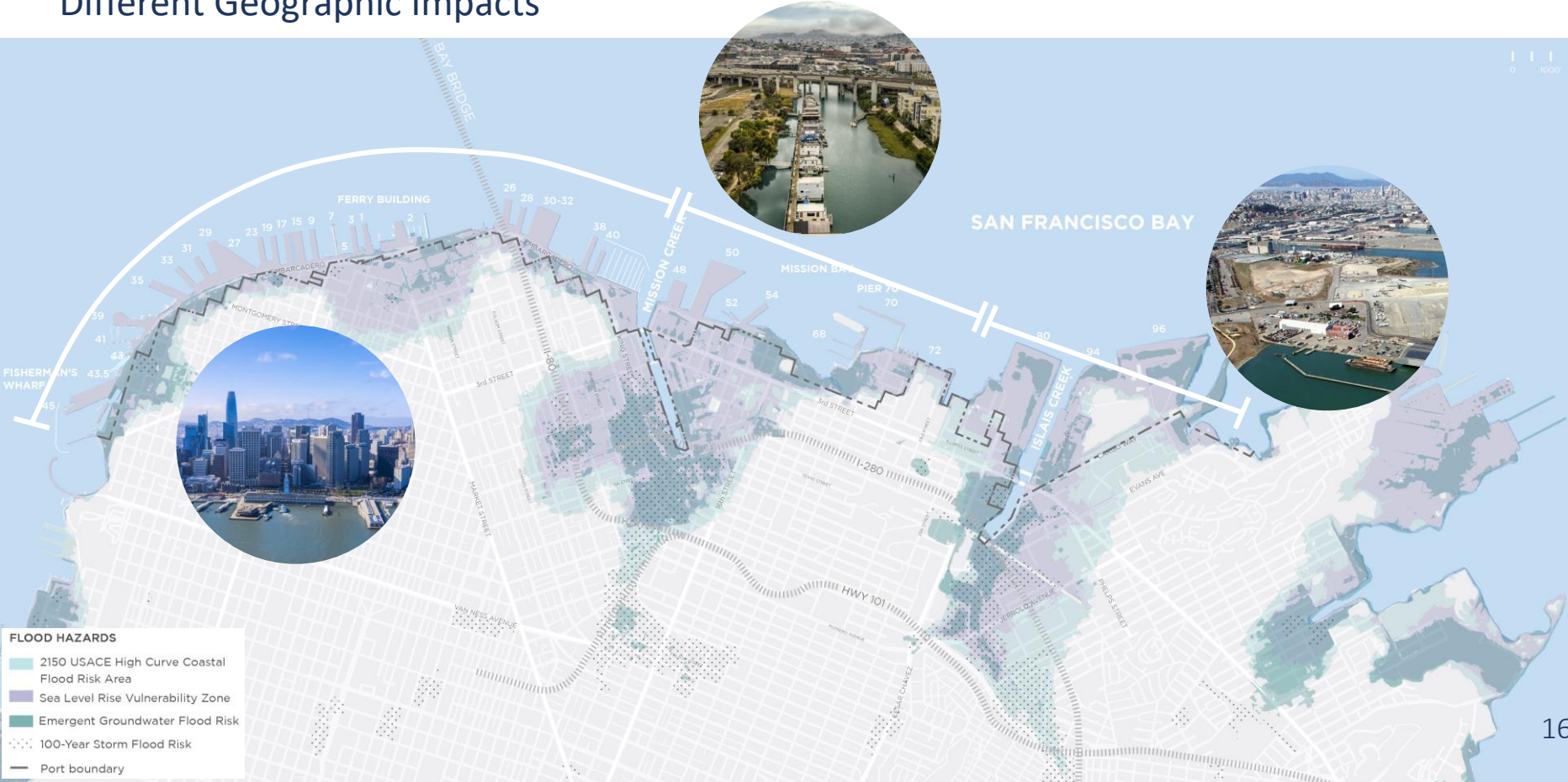
Liquefaction occurs when water-saturated sediment (like sand) temporarily loses strength and acts as a fluid

Various levels of lateral spreading risk along the shoreline



# COASTAL AND INLAND FLOOD RISK

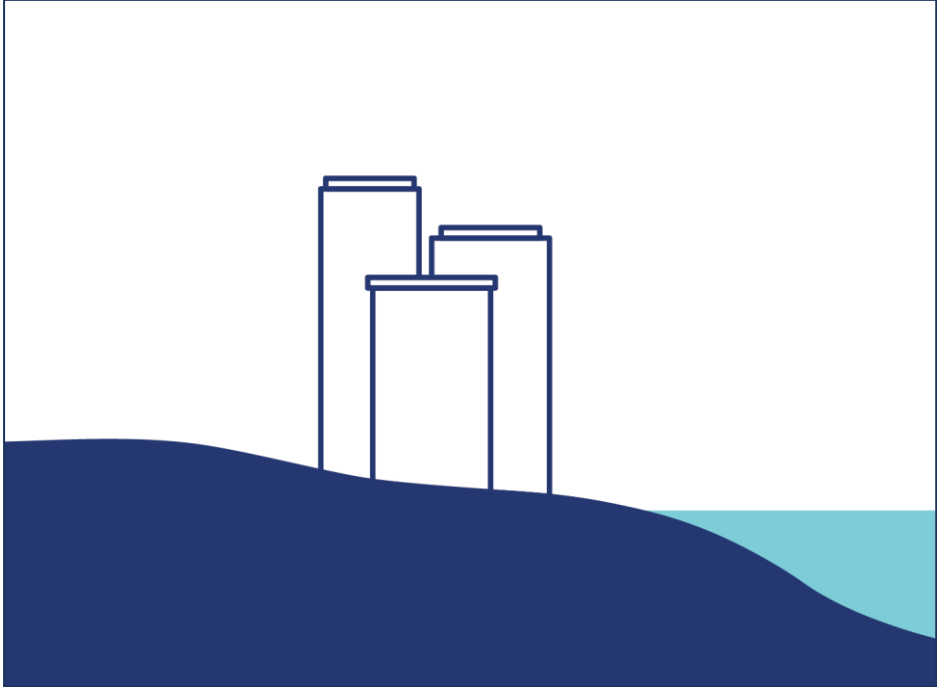
## Different Geographic Impacts



- 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

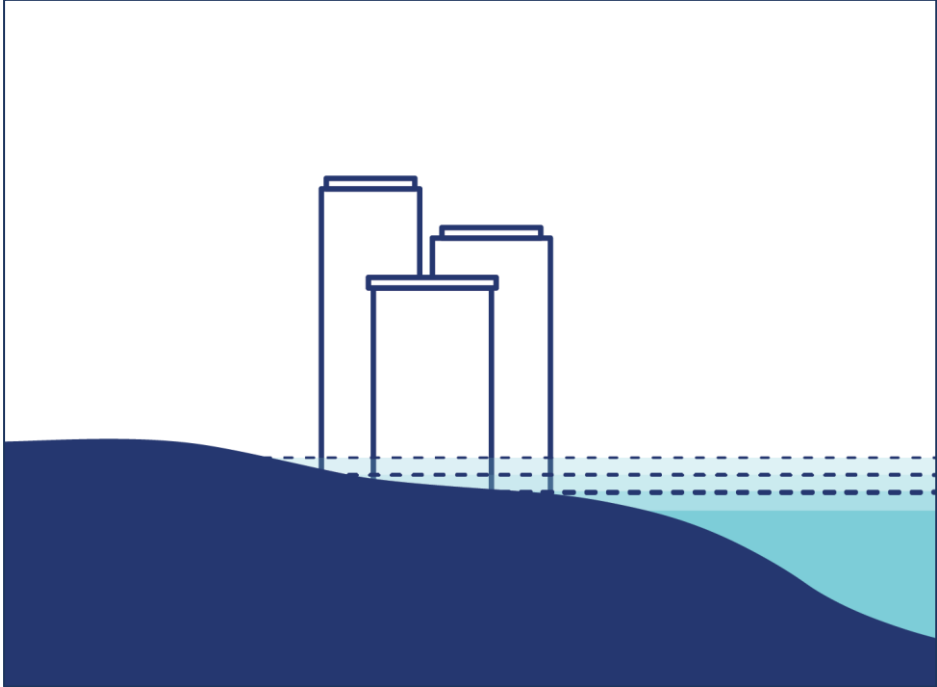


# COASTAL AND INLAND FLOOD RISK



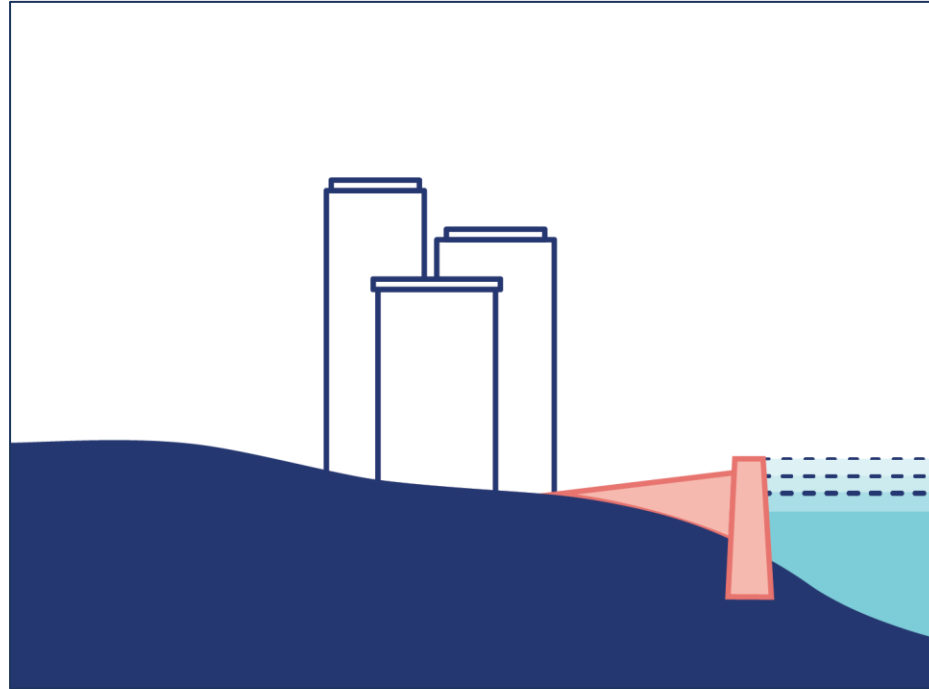
Existing conditions

# COASTAL AND INLAND FLOOD RISK



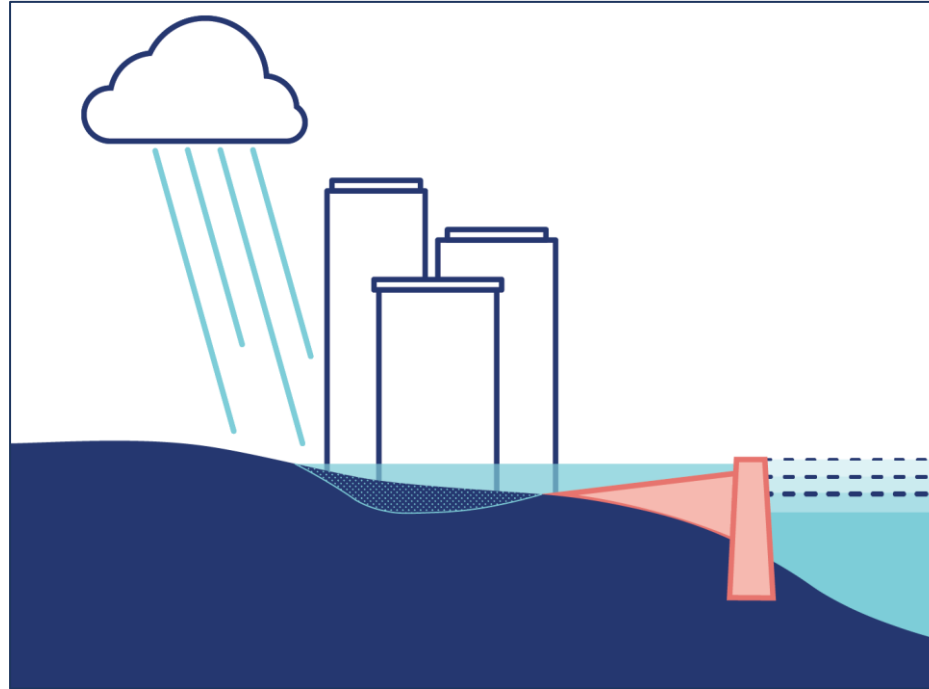
Sea levels rise

# COASTAL AND INLAND FLOOD RISK



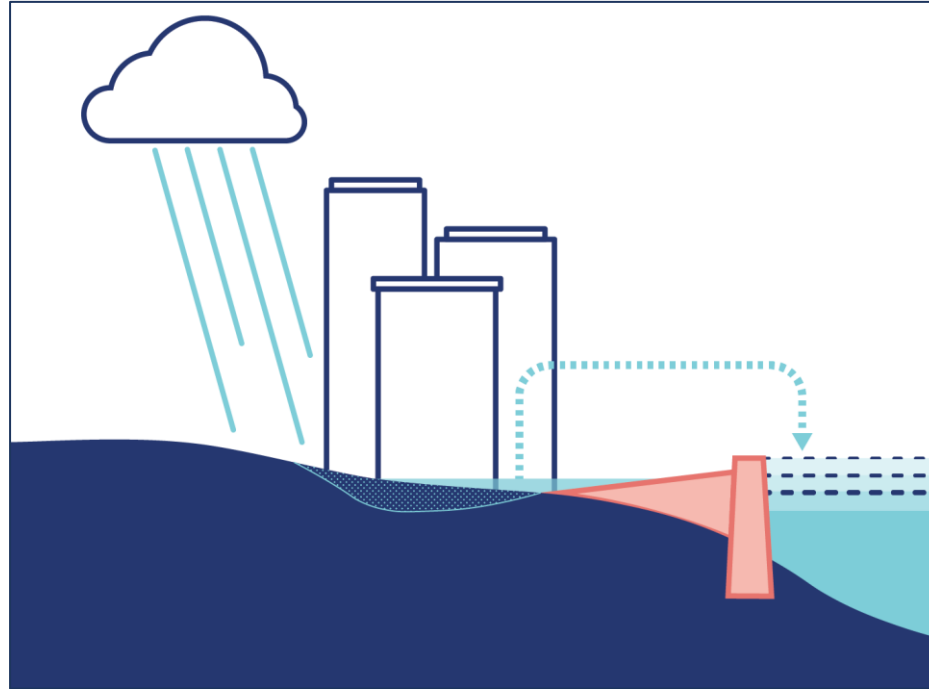
**Raise shoreline to defend  
against sea level rise**

# COASTAL AND INLAND FLOOD RISK



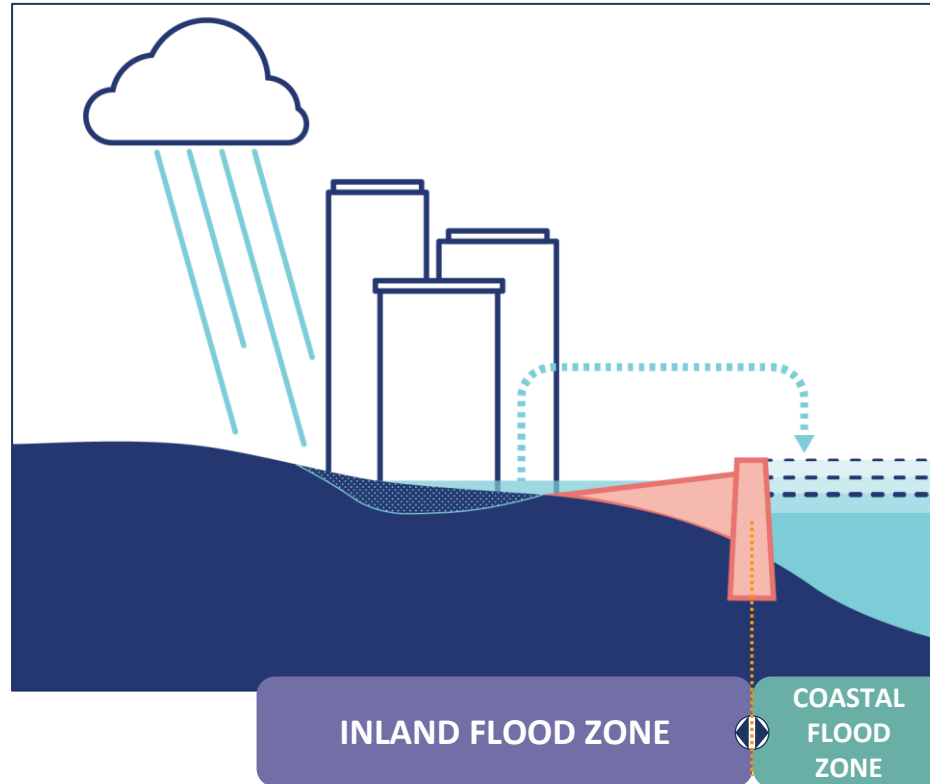
**Groundwater  
and stormwater  
flooding behind raised  
shoreline**

# COASTAL AND INLAND FLOOD RISK



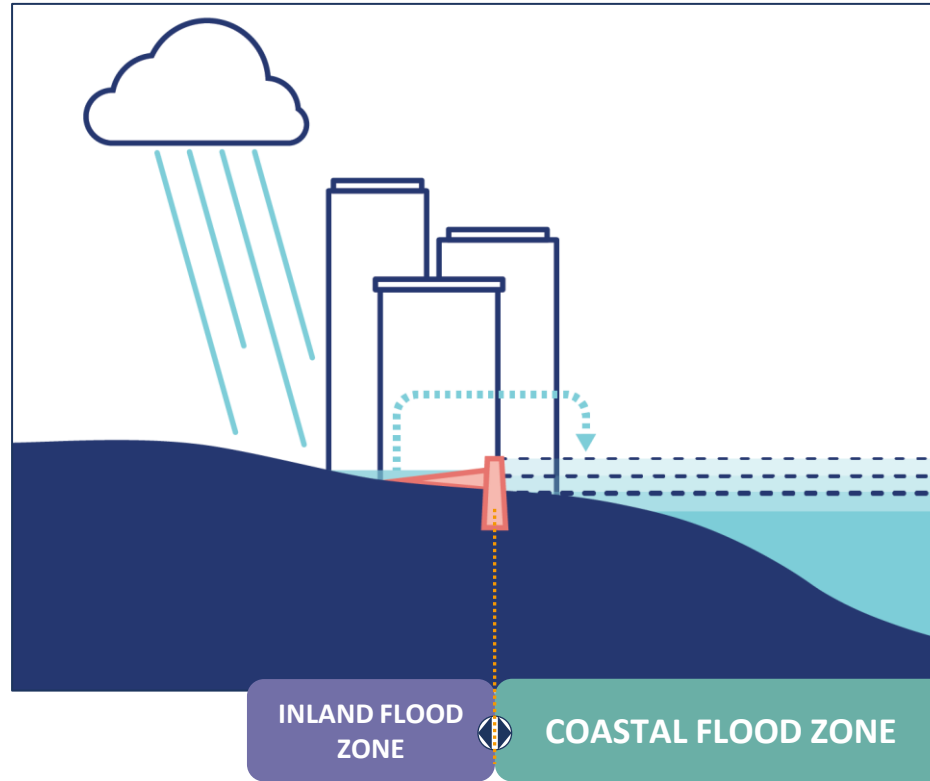
**Pumping reduces flooding  
behind raised shoreline**

# 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*



# 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.



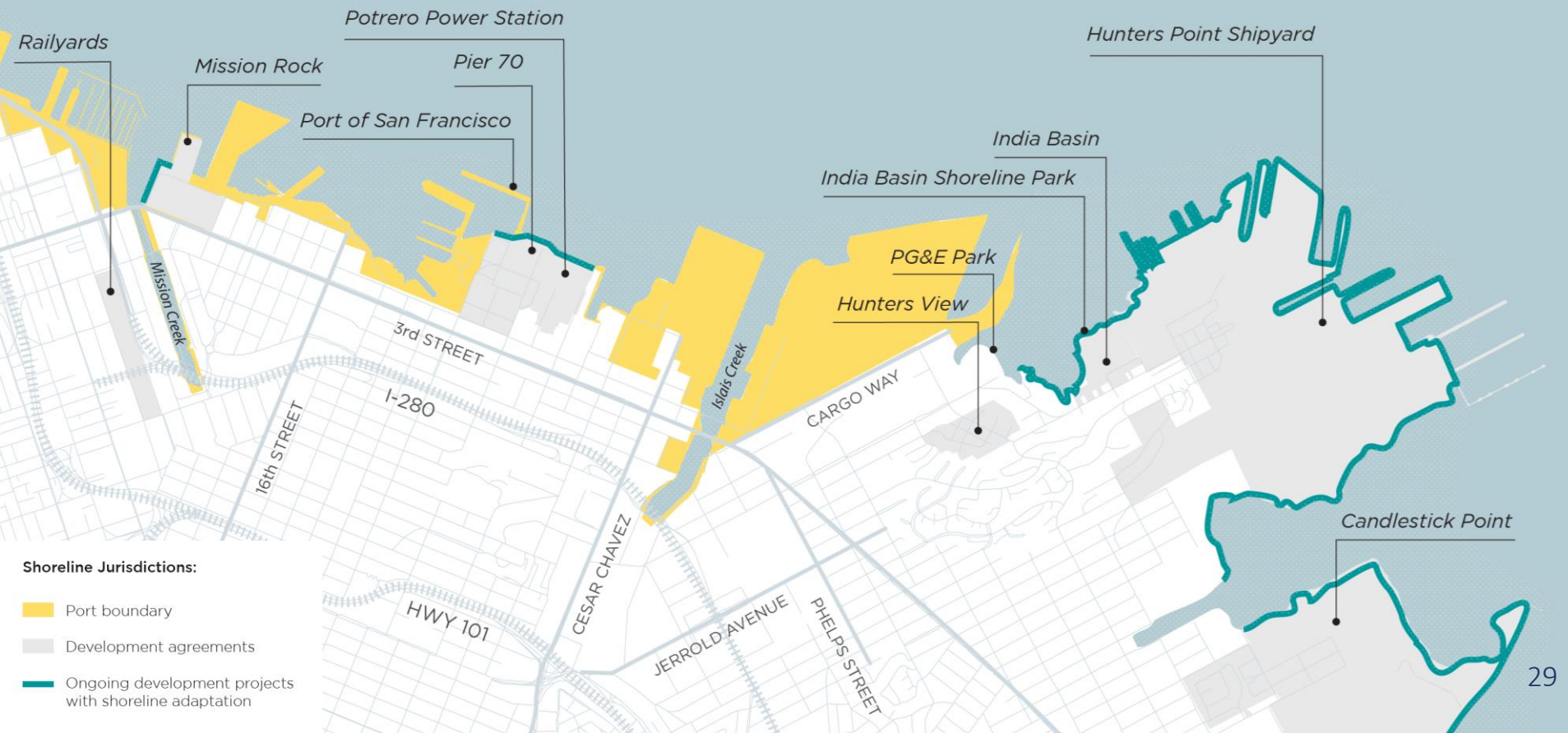
# PROGRAM AREA

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 - ISLAIS CREEK / BAYVIEW SPECIFIC

## Community Input Helped Define the WRP



- Key community-prioritized assets include: Recology, the Southeast Treatment Plant, cargo and maritime operations
- We heard the importance of prioritizing homes, including low-income housing
- We heard to prioritize environmental concerns and ensure anti-displacement is centered in any work



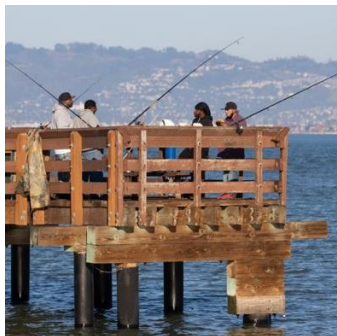
# NATURE BASED SOLUTIONS

## 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

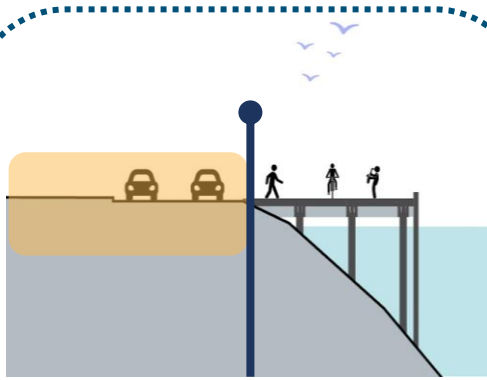




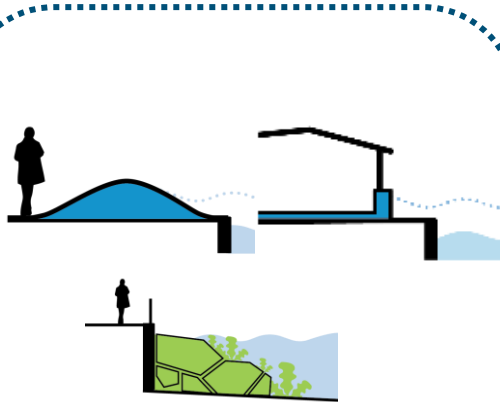
Range of Possible Solutions  
*What We're Considering*

# DRAFT WATERFRONT ADAPTATION STRATEGIES

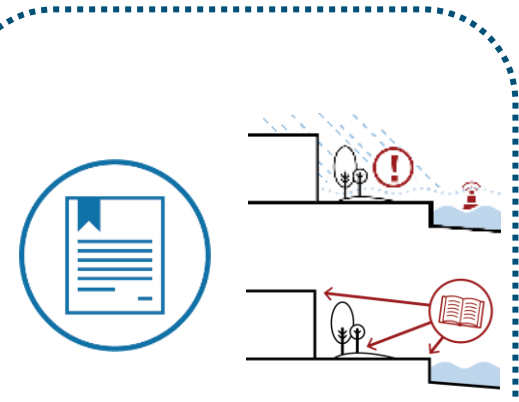
## Key Components



**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?**

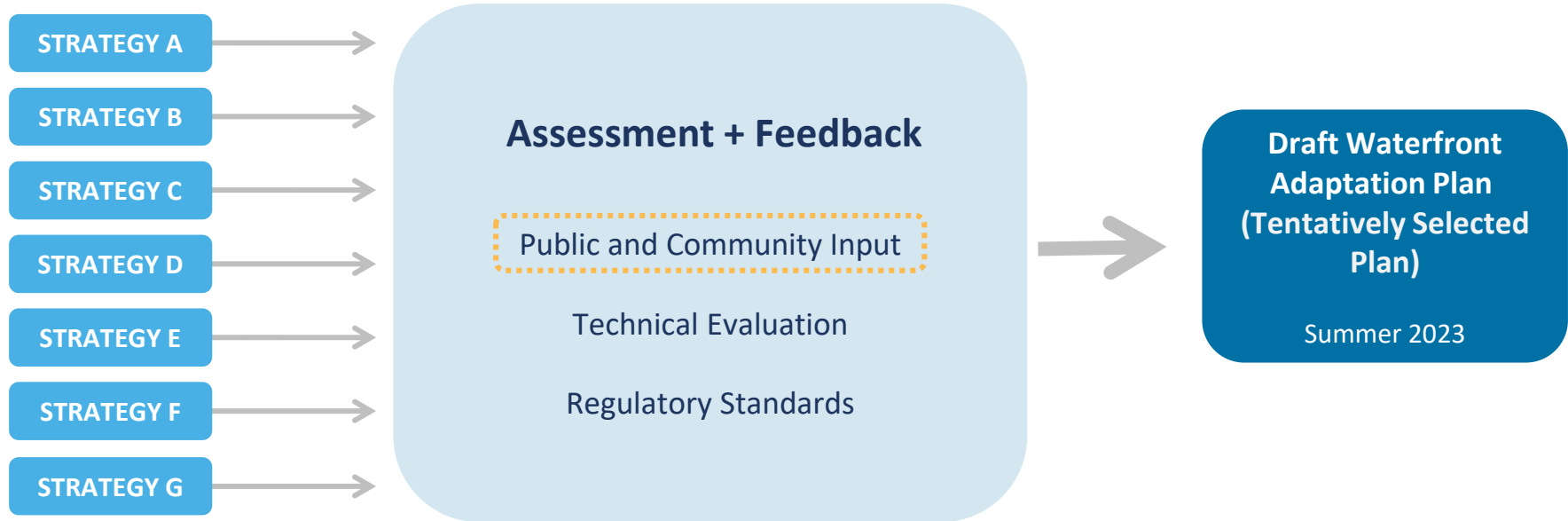
STRATEGY E

STRATEGY F

STRATEGY G

# THE ROLE OF COMMUNITY FEEDBACK

## Pathway to the Draft Waterfront Adaptation Plan





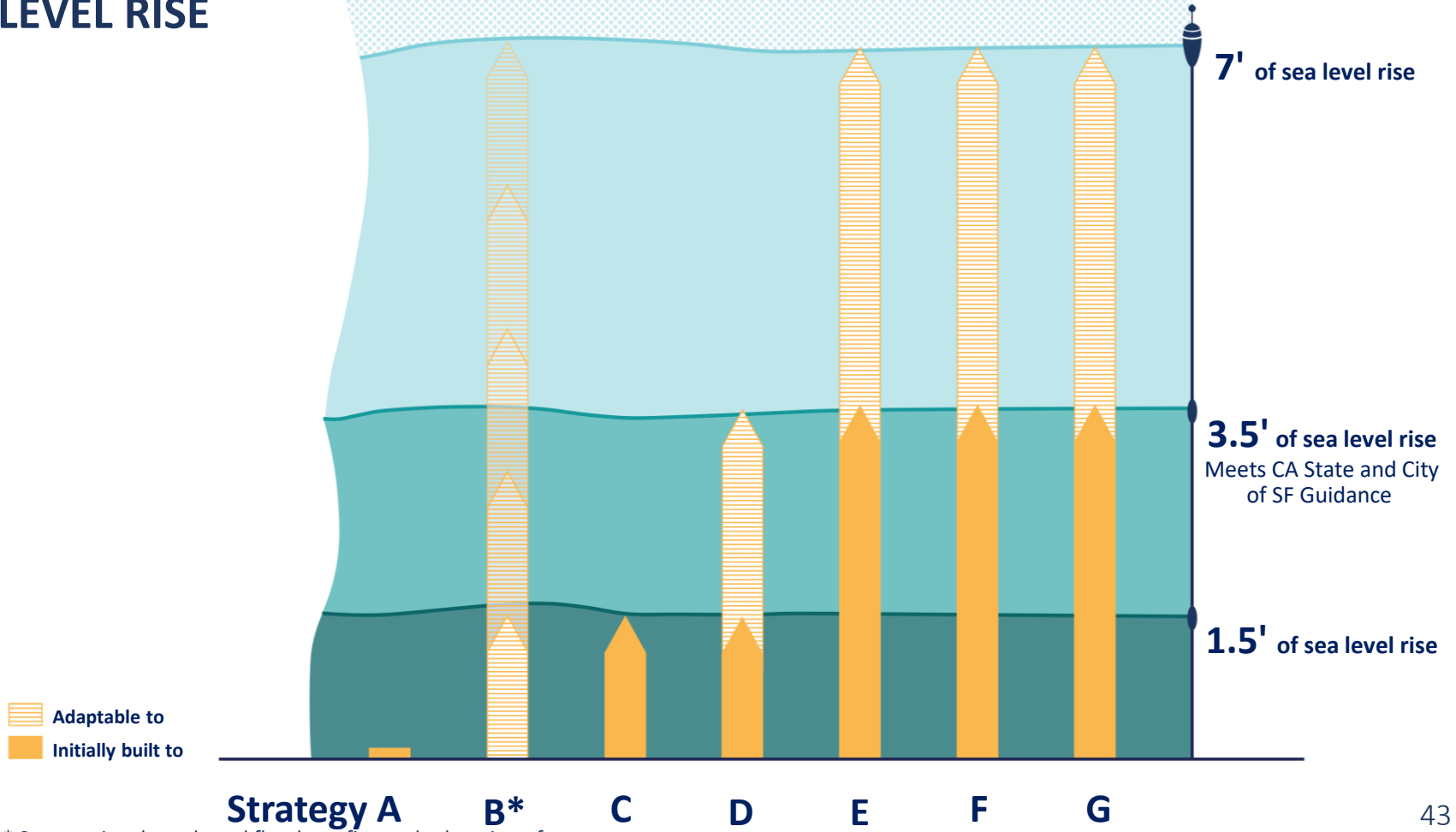
# Draft Waterfront Adaptation Strategies



# TIME HORIZONS



# SEA LEVEL RISE



\* Strategy involves phased floodproofing and relocation of assets

# 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...***  
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STRATEGY B

***What if...***  
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STRATEGY C

STRATEGY D

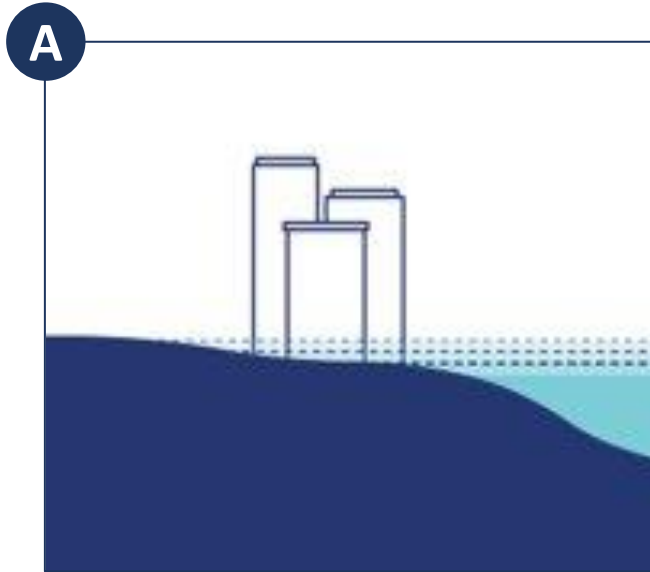
***What if...***  
we address flooding  
at a **higher rate** of  
sea level rise,  
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**CA and SF guidance?**

STRATEGY E

STRATEGY F

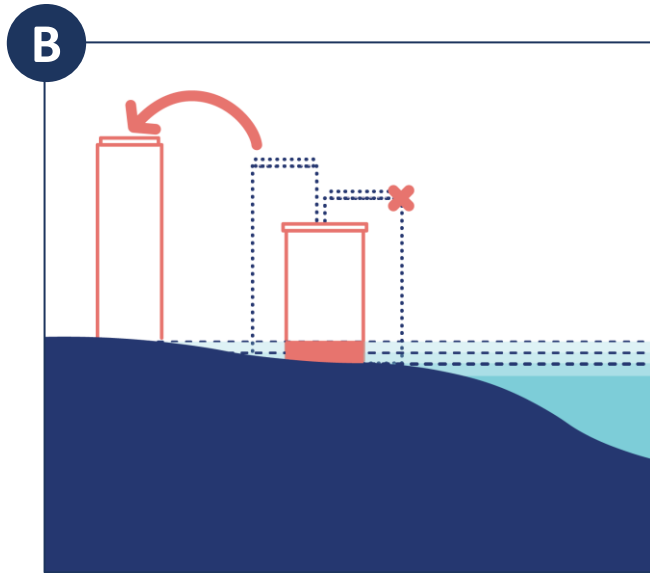
STRATEGY G

# STRATEGY A – NO ACTION



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

## STRATEGY B – NONSTRUCTURAL OPTION

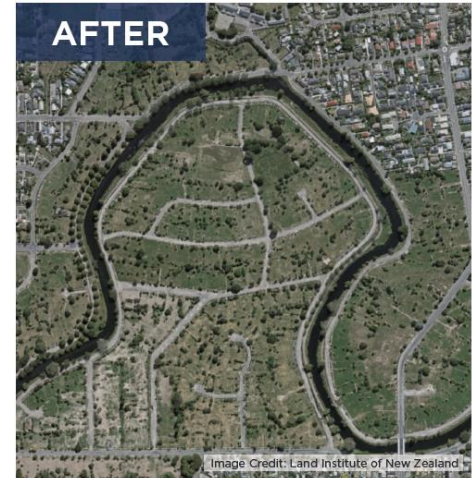
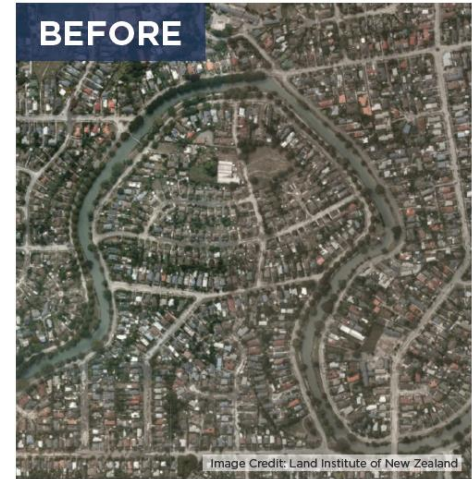


**Moves people and assets away from the risk, uses nonstructural measures (such as floodproofing) to reduce risks, and allows water to go where it wants rather than constructing traditional structural solutions**

# STRATEGY B – NONSTRUCTURAL OPTION

## Examples

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



# Draft Strategies C,D,E,F,G in Islais Creek / Bayview





# ORIENTATION TO THE MAPS

## Islais Creek / Bayview Strategy E (2040)



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## Islais Creek / Bayview Strategy E (2040)



# ORIENTATION TO THE MAPS

## Islais Creek / Bayview Strategy E (2040)

Each strategy has maps for what will happen in the 2040 timeframe and what will happen later, in 2090. The geographic location, strategy, and year will be shown in this header.

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.

### Legend

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

# ORIENTATION TO THE MAPS

## Islais Creek / Bayview Strategy E (2040)

Each strategy has maps for what will happen in the 2040 timeframe and what will happen later, in 2090. The geographic location, strategy, and year will be shown in this header.

The call-outs will describe how each strategy can address these different risks.

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.

### Legend

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

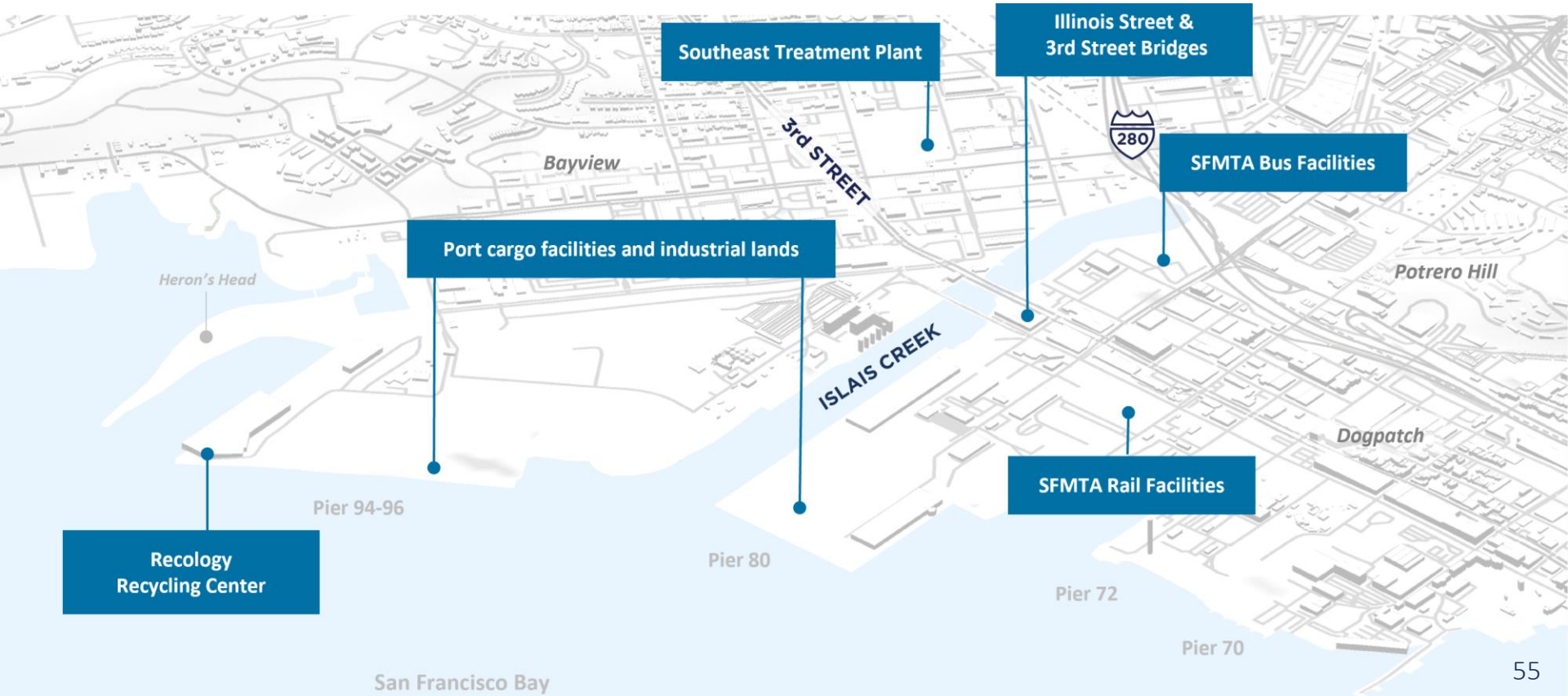
# ISLAIS CREEK / BAYVIEW

## Geographic Context

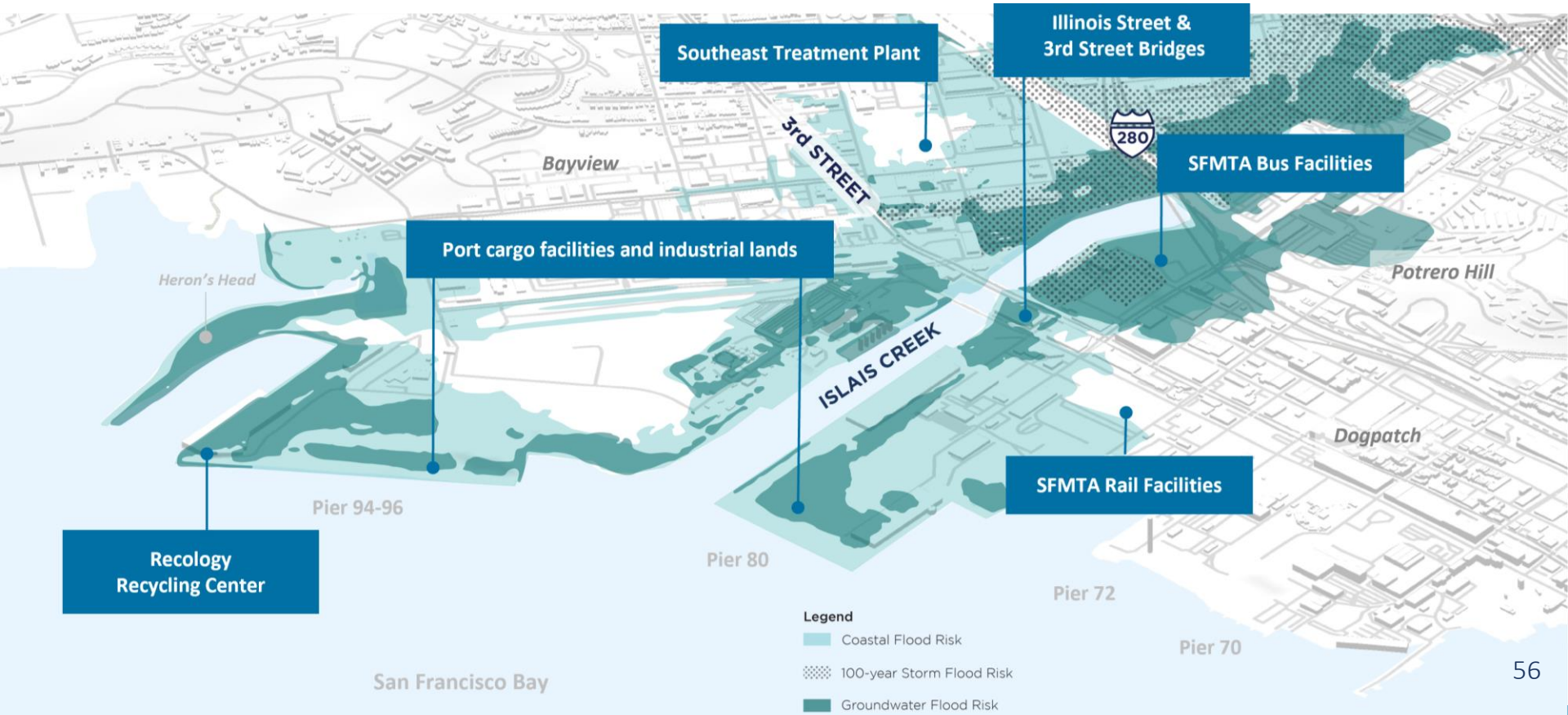
- In Port jurisdiction mainly low-density industrial and Port working lands
- Low-lying land subject to coastal and upland flooding
- Equity and environmental justice concerns include job loss, toxics, gentrification, open space access
- Large spaces present opportunities for restoring natural watershed and wetlands



# ISLAIS CREEK / BAYVIEW



# ISLAIS CREEK / BAYVIEW





# 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

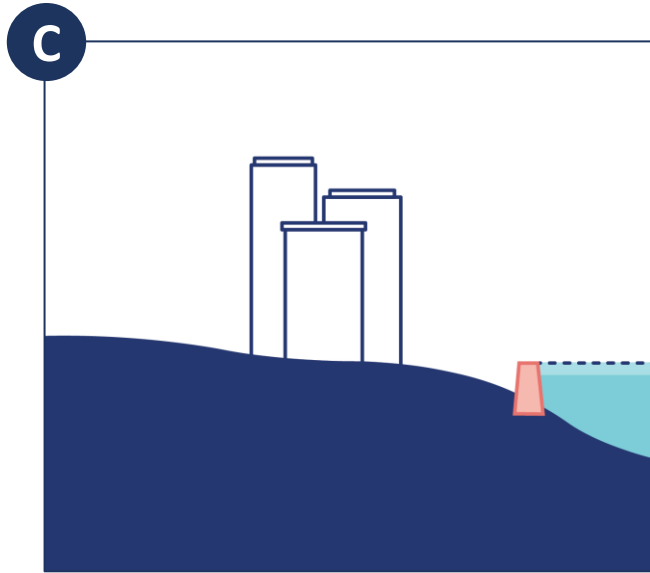
*What if...*  
we address flooding  
at a **higher rate** of  
sea level rise,  
as recommended by  
**CA and SF guidance?**

STRATEGY E

STRATEGY F

STRATEGY G

## STRATEGY 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

## Islais Creek / Bayview Strategy C (2040)

Raise creek shorelines in the lowest-lying locations to defend against 1.5 feet of sea level rise including: Islais Creek and Piers 80-90.

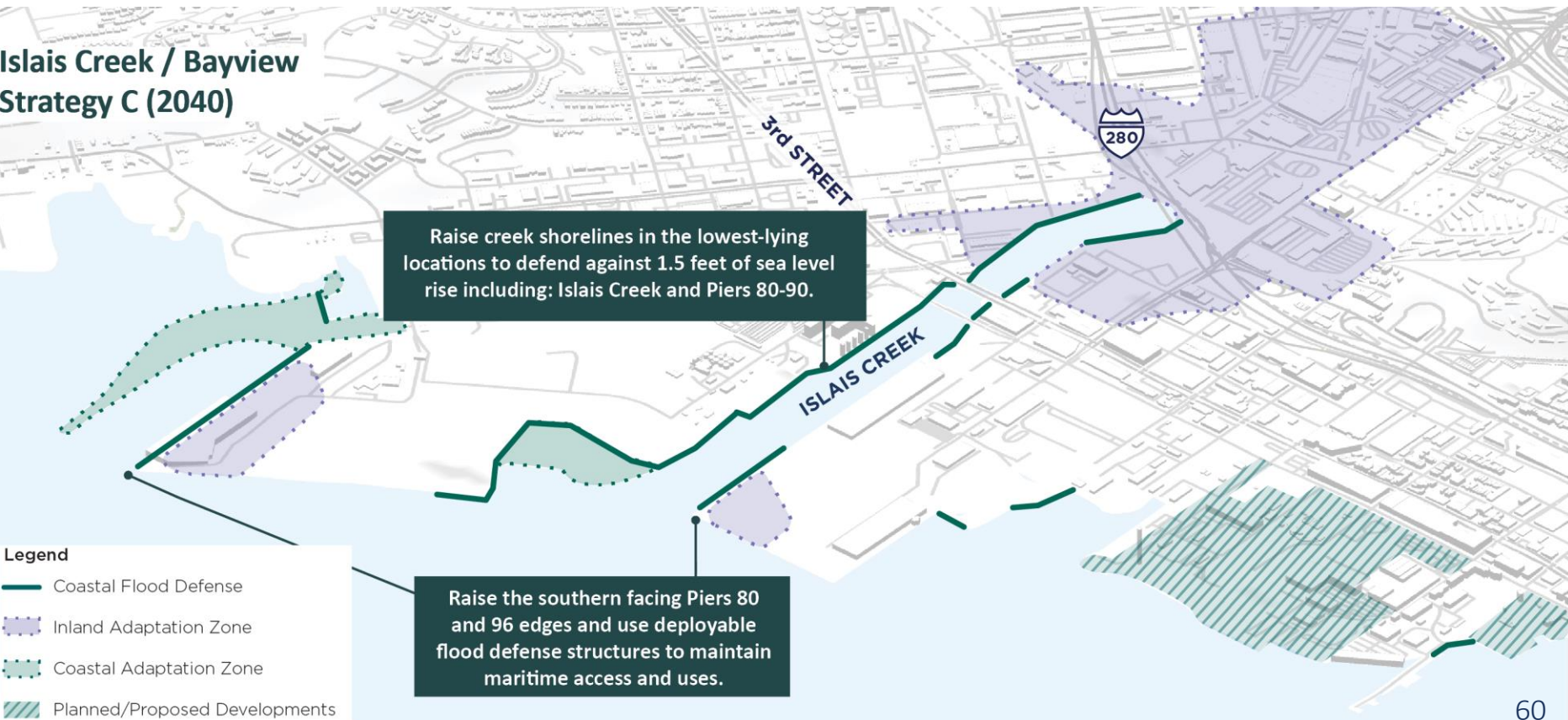
**Legend**

- Coastal Flood Defense
- Inland Adaptation Zone
- Coastal Adaptation Zone
- Planned/Proposed Developments

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

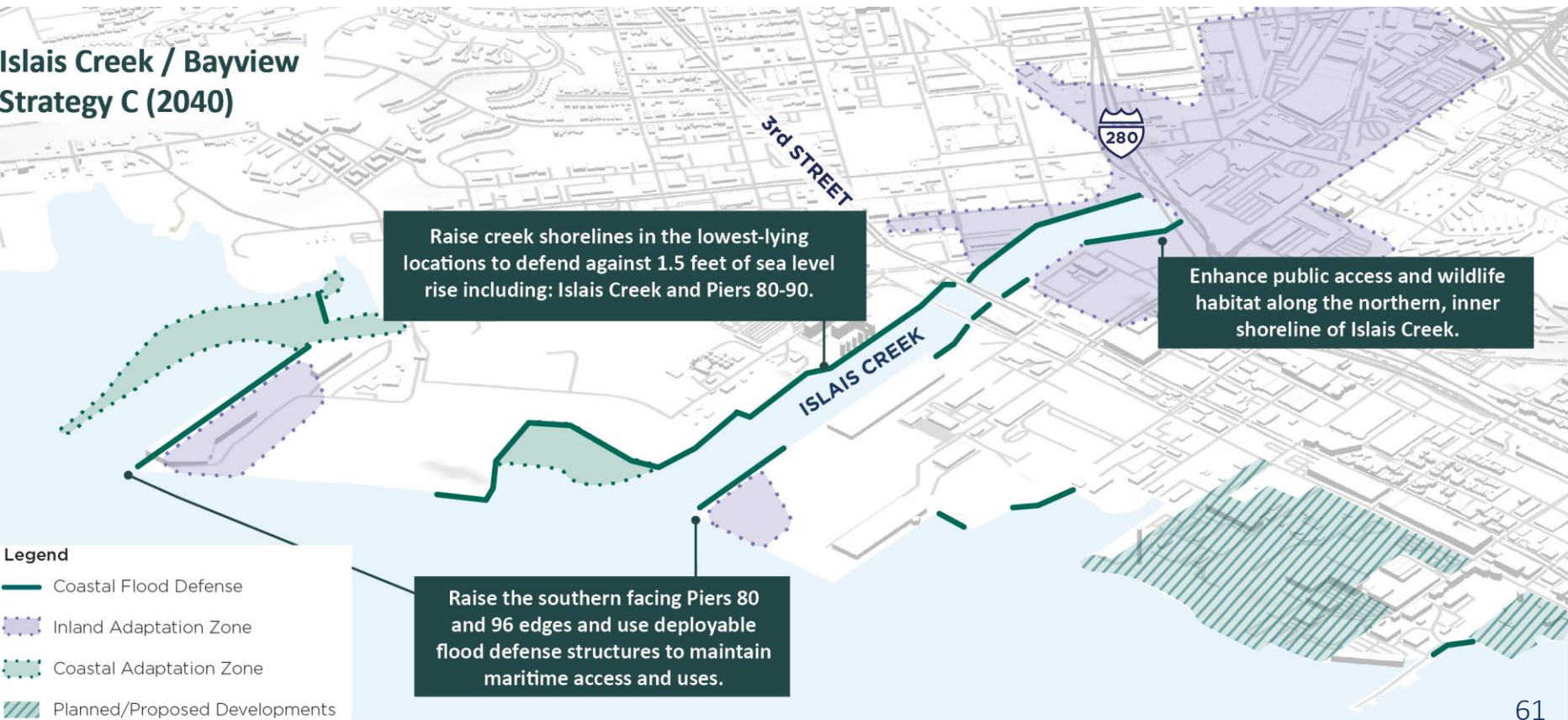
# STRATEGY C – LOWER SEA LEVEL RISE

## Islais Creek / Bayview Strategy C (2040)



# STRATEGY C – LOWER SEA LEVEL RISE

## Islais Creek / Bayview Strategy C (2040)



# STRATEGY C – LOWER SEA LEVEL RISE

## Islais Creek / Bayview Strategy C (2040)

### Legend

- Coastal Flood Defense
- Inland Adaptation Zone
- Coastal Adaptation Zone
- Planned/Proposed Developments

Raise creek shorelines in the lowest-lying locations to defend against 1.5 feet of sea level rise including: Islais Creek and Piers 80-90.

Enhance public access and wildlife habitat along the northern, inner shoreline of Islais Creek.

Raise the southern facing Piers 80 and 96 edges and use deployable flood defense structures to maintain maritime access and uses.

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 approvals process if needed.

# A NOTE ABOUT POLLS



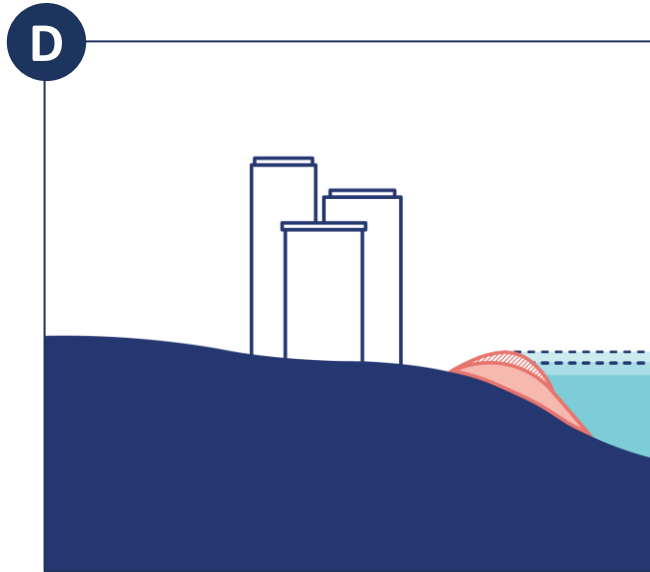
- Temperature Check
- Not a Vote
- Optional

## 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

## Islais Creek / Bayview Strategy D (2040)

Raise creek shorelines in the lowest-lying locations to defend against 1.5 feet of sea level rise as in Strategy C, but design the flood risk reduction actions to be adaptable to a higher rate of sea level rise in the future.

### Legend

- Coastal Flood Defense
- Inland Adaptation Zone
- Coastal Adaptation Zone
- Planned/Proposed Developments

# STRATEGY D – LOWER SEA LEVEL RISE – ADAPTABLE

## Islais Creek / Bayview Strategy D (2040)

Raise creek shorelines in the lowest-lying locations to defend against 1.5 feet of sea level rise as in Strategy C, but design the flood risk reduction actions to be adaptable to a higher rate of sea level rise in the future.

Raise the southern facing Piers 80 and 96 edges to maintain maritime uses.

### Legend

- Coastal Flood Defense
- Inland Adaptation Zone
- Coastal Adaptation Zone
- Planned/Proposed Developments

# STRATEGY D – LOWER SEA LEVEL RISE – ADAPTABLE

## Islais Creek / Bayview Strategy D (2040)

Raise creek shorelines in the lowest-lying locations to defend against 1.5 feet of sea level rise as in Strategy C, but design the flood risk reduction actions to be adaptable to a higher rate of sea level rise in the future.

Enhance public access and wildlife habitat along the northern, inner shoreline of Islais Creek.

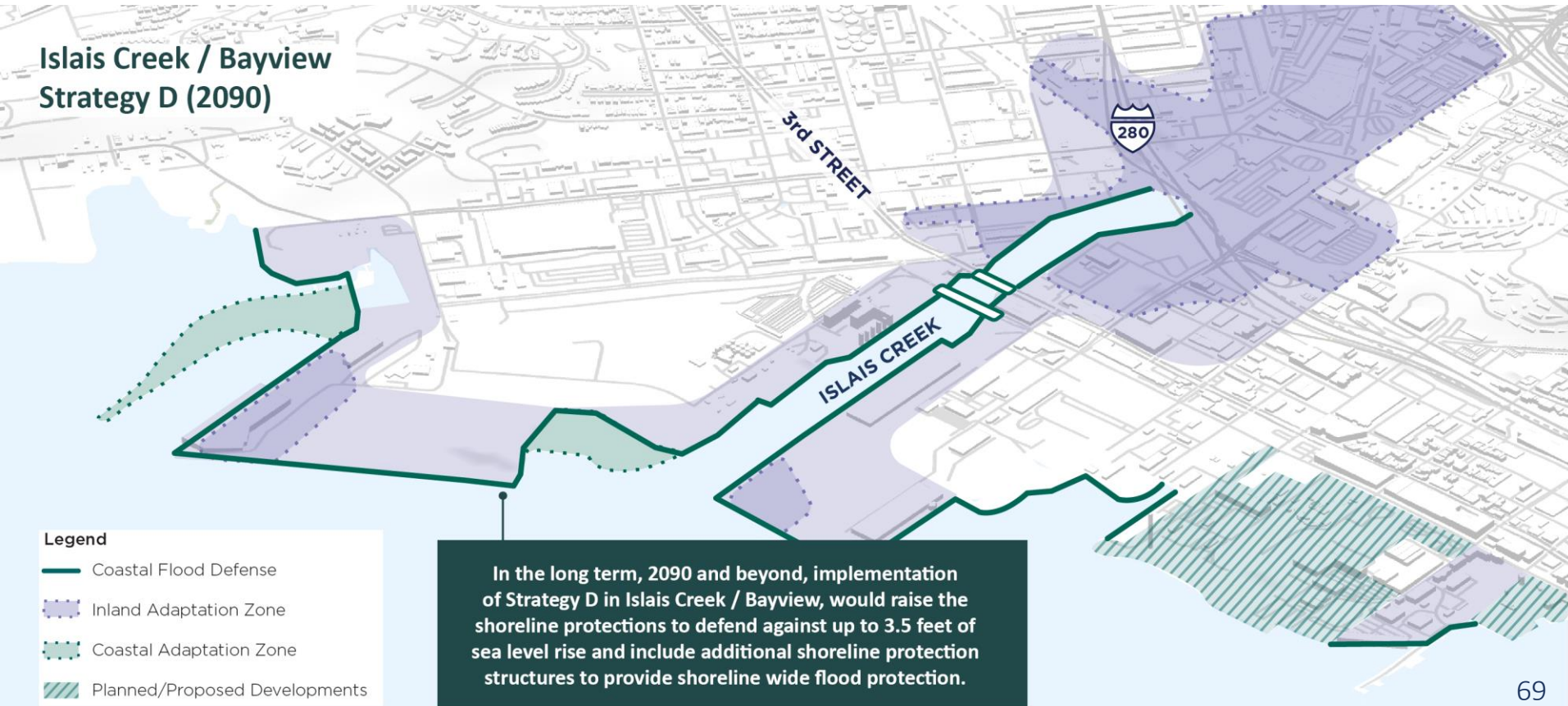
Raise the southern facing Piers 80 and 96 edges to maintain maritime uses.

### Legend

- Coastal Flood Defense
- Inland Adaptation Zone
- Coastal Adaptation Zone
- Planned/Proposed Developments

# STRATEGY D – LOWER SEA LEVEL RISE – ADAPTABLE

## Islais Creek / Bayview Strategy D (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,  
*without* coastal flood  
structures?

STRATEGY B

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

STRATEGY C

STRATEGY D

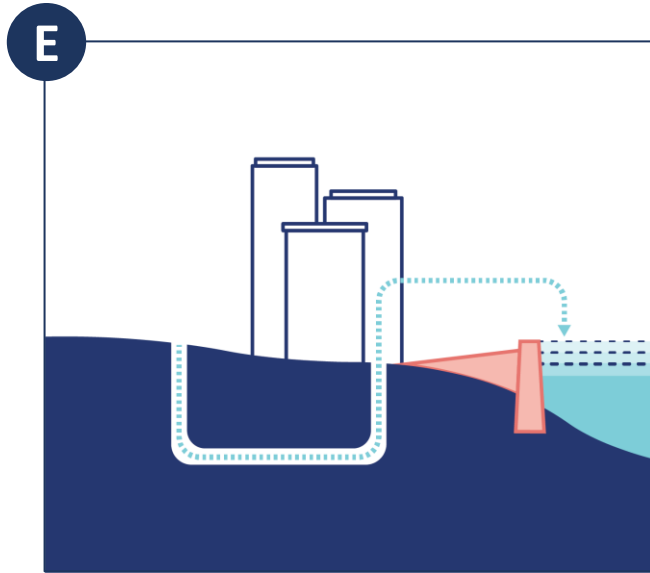
***What if...***  
we address flooding  
at a **higher rate** of  
sea level rise,  
as recommended  
by **CA and SF**  
**guidance?**

STRATEGY E

STRATEGY F

STRATEGY G

## STRATEGY E – HIGHER SEA LEVEL RISE – HOLD THE LINE



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



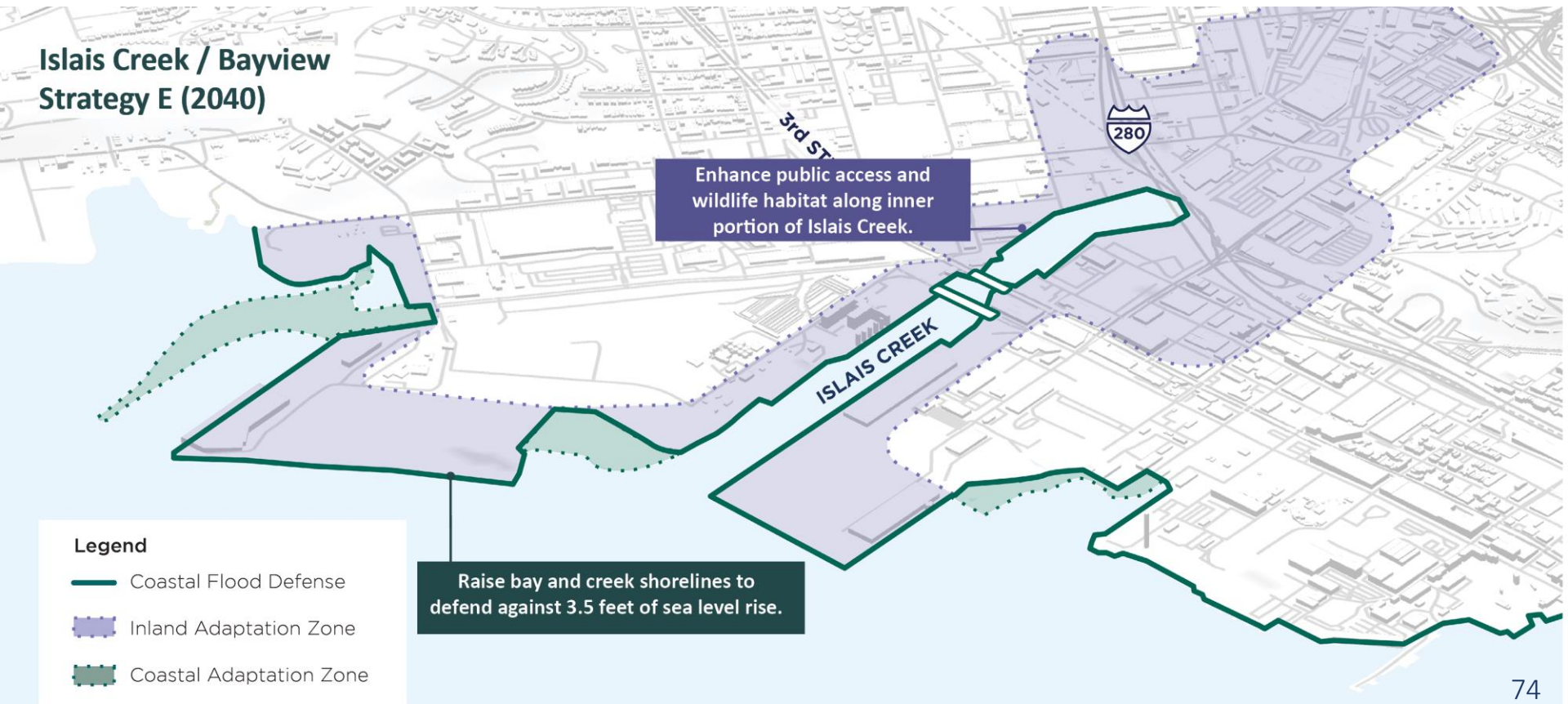
# STRATEGY E – HIGHER SEA LEVEL RISE – HOLD THE LINE

Islais Creek / Bayview  
Strategy E (2040)



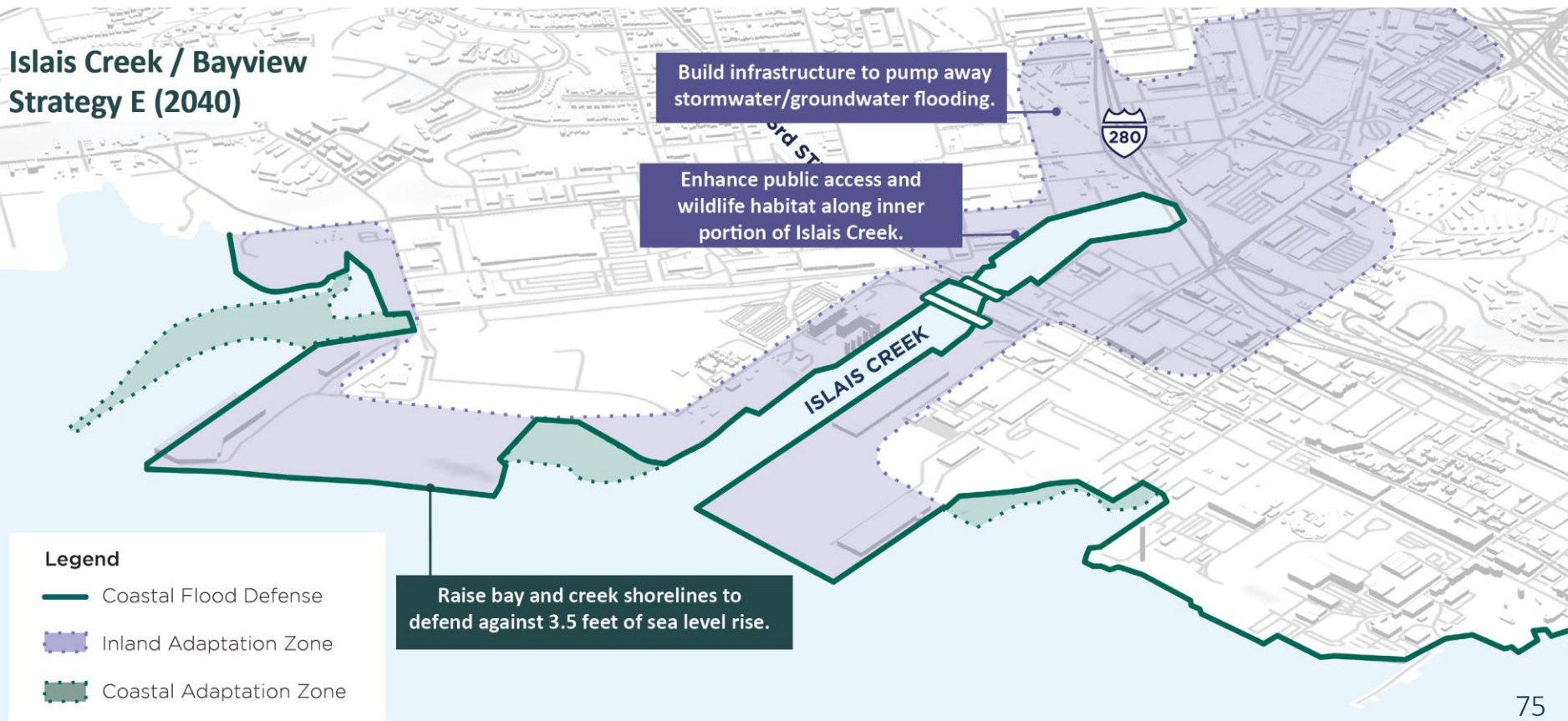
# STRATEGY E – HIGHER SEA LEVEL RISE – HOLD THE LINE

## Islais Creek / Bayview Strategy E (2040)



# STRATEGY E – HIGHER SEA LEVEL RISE – HOLD THE LINE

## Islais Creek / Bayview Strategy E (2040)



# STRATEGY E – HIGHER SEA LEVEL RISE – HOLD THE LINE

Islais Creek / Bayview  
Strategy E (2040)

Build infrastructure to pump away stormwater/groundwater flooding.



## Legend

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

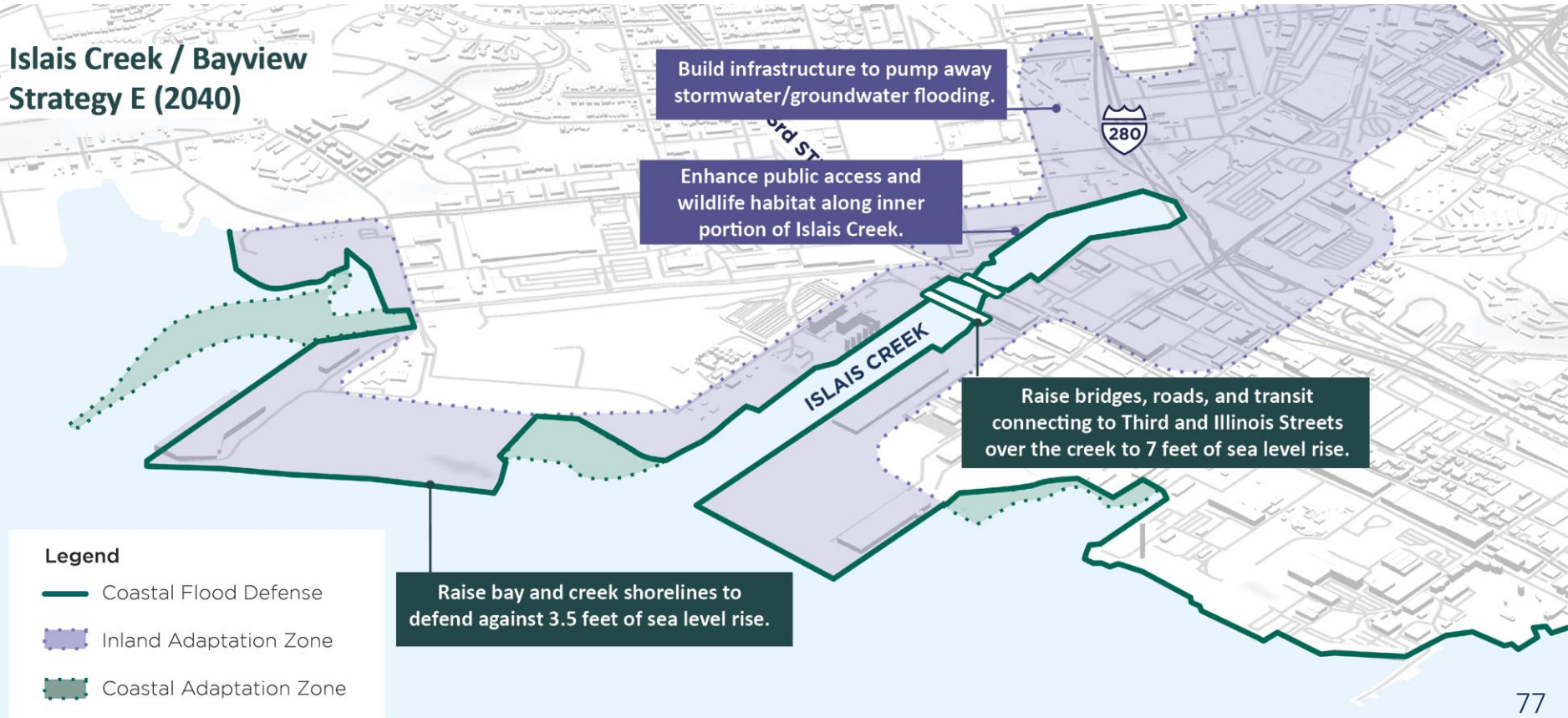
Raise bay and creek shoreline to defend against 3.5 feet of



A pumping station is a facility, usually housed in a small building, that uses powerful pumps to move water over an elevated shoreline. Pump stations exist in the city today, but this strategy would require building new pump stations, requiring funding and land.

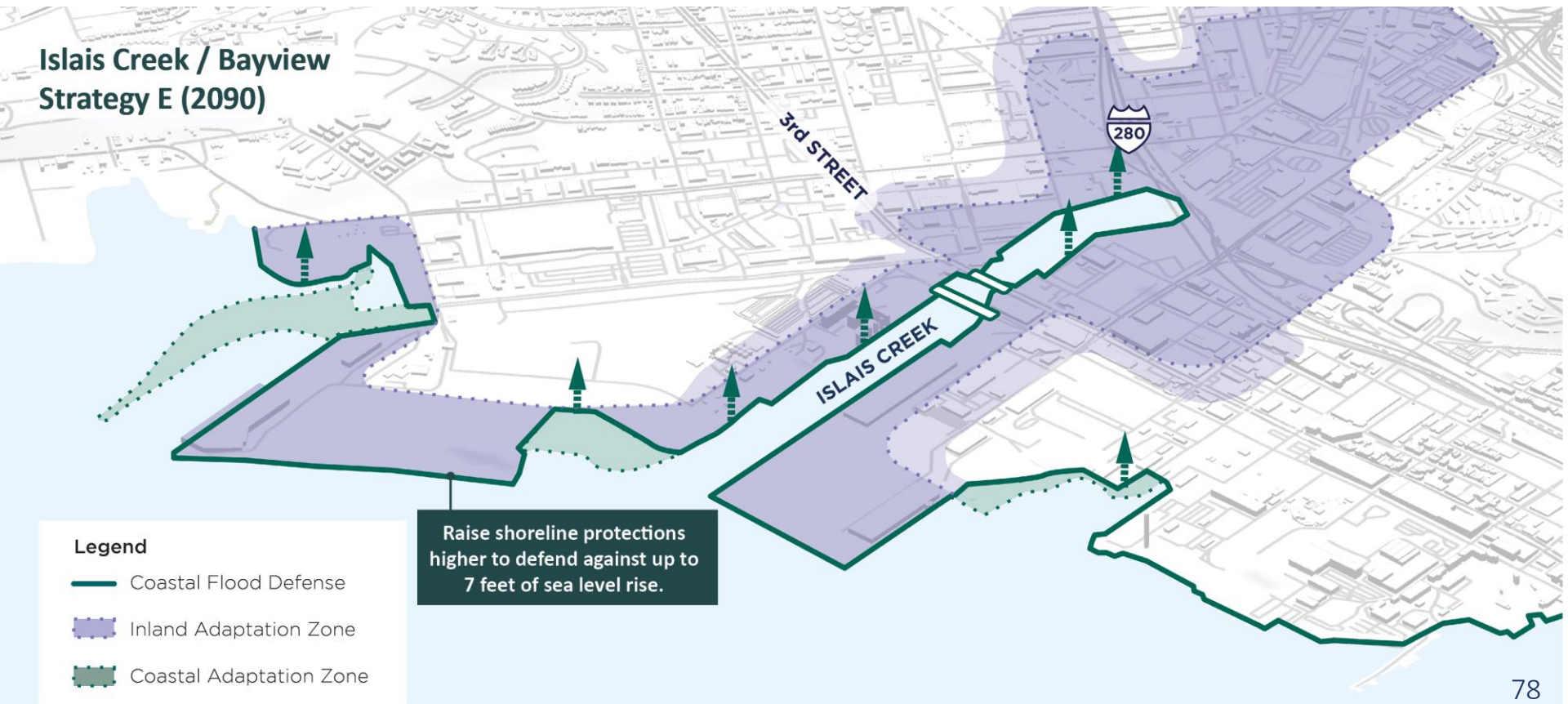
# STRATEGY E – HIGHER SEA LEVEL RISE – HOLD THE LINE

## Islais Creek / Bayview Strategy E (2040)



# STRATEGY E – HIGHER SEA LEVEL RISE – HOLD THE LINE

Islais Creek / Bayview  
Strategy E (2090)



# STRATEGY E – HIGHER SEA LEVEL RISE – HOLD THE LINE

## Islais Creek / Bayview Strategy E (2090)

Requires building additional pump stations to manage flooding within the city. New infrastructure would require ongoing maintenance.

Raise shoreline protections higher to defend against up to 7 feet of sea level rise.

### Legend

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



# STRATEGY E – HIGHER SEA LEVEL RISE – HOLD THE LINE

## Islais Creek / Bayview Strategy E (2090)

Requires building additional pump stations to manage flooding within the city. New infrastructure would require ongoing maintenance.

Raise shoreline protections higher to defend against up to 7 feet of sea level rise.

Buildings and infrastructure kept in place, including Port operations and jobs.

### Legend

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



# STRATEGY E – HIGHER SEA LEVEL RISE – HOLD THE LINE

Islais Creek / Bayview in 2090



## POLL QUESTION #5

**Strategy E would preserve the current shoreline, streets, and buildings along the Southern Waterfront as close to how they are today despite considerable effort and cost. Does this feel like the right priority?**



# STRATEGY F – HIGHER SEA LEVEL RISE – MANAGE THE WATER

## Islais Creek / Bayview Strategy F (2040)




Elevate bay shorelines to defend against 3.5 feet of sea level rise.

3rd STREET



ISLAIS CREEK

### Legend

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

# STRATEGY F – HIGHER SEA LEVEL RISE – MANAGE THE WATER

## Islais Creek / Bayview Strategy F (2040)

Elevate bay shorelines to defend against 3.5 feet of sea level rise.

Construct a tide gate across Islais Creek east of Illinois St to defend against up to 7 feet of sea level rise and manage flooding.

### Legend

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

# STRATEGY F – HIGHER SEA LEVEL RISE – MANAGE THE WATER

## Islais Creek / Bayview Strategy F (2040)

Elevate bay shorelines to defend against 3.5 feet of sea level rise.

### Legend

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



A tide gate is a structure across a waterway that can be closed to reduce flood risk during storm events or extreme high tides.

# STRATEGY F – HIGHER SEA LEVEL RISE – MANAGE THE WATER

## Islais Creek / Bayview Strategy F (2040)

Elevate bay shorelines to defend against 3.5 feet of sea level rise.

Construct a tide gate across Islais Creek east of Illinois St to defend against up to 7 feet of sea level rise and manage flooding.

Port operations and working lands would be raised and adapted to 3.5' of sea level rise. Buildings and infrastructure would be kept in place, including Port operations and jobs.

### Legend

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

# STRATEGY F – HIGHER SEA LEVEL RISE – MANAGE THE WATER

## Islais Creek / Bayview Strategy F (2040)

Elevate bay shorelines to defend against 3.5 feet of sea level rise.

Construct a tide gate across Islais Creek east of Illinois St to defend against up to 7 feet of sea level rise and manage flooding.

Roads, bridges, and shoreline edges of the inner portion of Islais Creek would not need to be raised.

Port operations and working lands would be raised and adapted to 3.5' of sea level rise. Buildings and infrastructure would be kept in place, including Port operations and jobs.

### Legend

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



# STRATEGY F – HIGHER SEA LEVEL RISE – MANAGE THE WATER

## Islais Creek / Bayview Strategy F (2090)

Build coastal flood defense along Illinois Street and Amador Way, connecting to the tide gate, to defend against 7 feet of sea level rise.

### Legend

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

# STRATEGY F – HIGHER SEA LEVEL RISE – MANAGE THE WATER

## Islais Creek / Bayview Strategy F (2090)

Build coastal flood defense along Illinois Street and Amador Way, connecting to the tide gate, to defend against 7 feet of sea level rise.

Raise and adapt Port working lands and vulnerable industrial zones to withstand 7' of sea level rise.

**Legend**

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

# STRATEGY F – HIGHER SEA LEVEL RISE – MANAGE THE WATER

Islais Creek / Bayview in 2090



Industrial uses and jobs stay in place

Water access and recreational activities

Improved public access

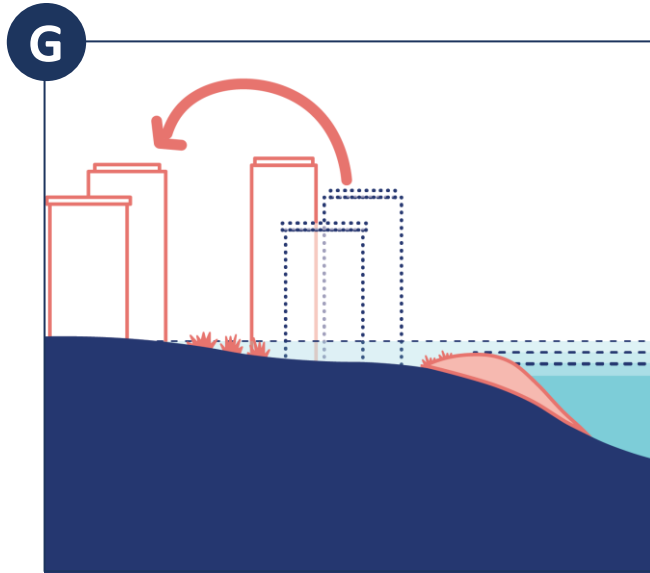
2040 and 2090 Coastal Defense at Existing Shoreline

Eco seawall

## POLL QUESTION #6

**Strategy F would include tide gates across Islais Creek which would manage flood water and increase recreational access to the creek and lagoon but would limit opportunities for habitat and Bay ecology in the creeks. How do you feel about this?**

# 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

## Islais Creek / Bayview Strategy G (2040)




Elevate bay and creek shorelines to defend against 3.5 feet of sea level rise.

3rd STREET



ISLAIS CREEK

### Legend

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

# STRATEGY G – HIGHER SEA LEVEL RISE – ALIGN WITH WATERSHEDS

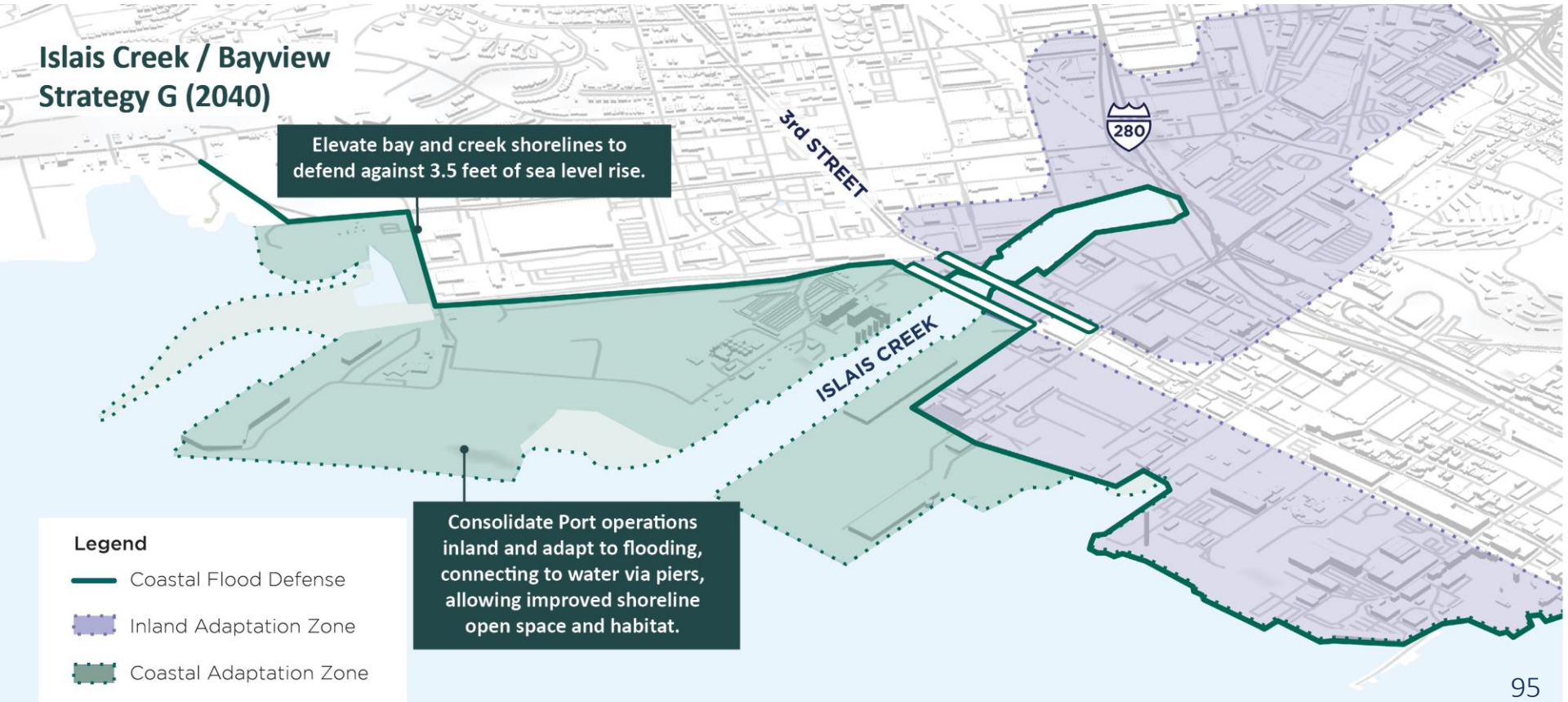
## Islais Creek / Bayview Strategy G (2040)

Elevate bay and creek shorelines to defend against 3.5 feet of sea level rise.

Consolidate Port operations inland and adapt to flooding, connecting to water via piers, allowing improved shoreline open space and habitat.

### Legend

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



# STRATEGY G – HIGHER SEA LEVEL RISE – ALIGN WITH WATERSHEDS

## Islais Creek / Bayview Strategy G (2040)

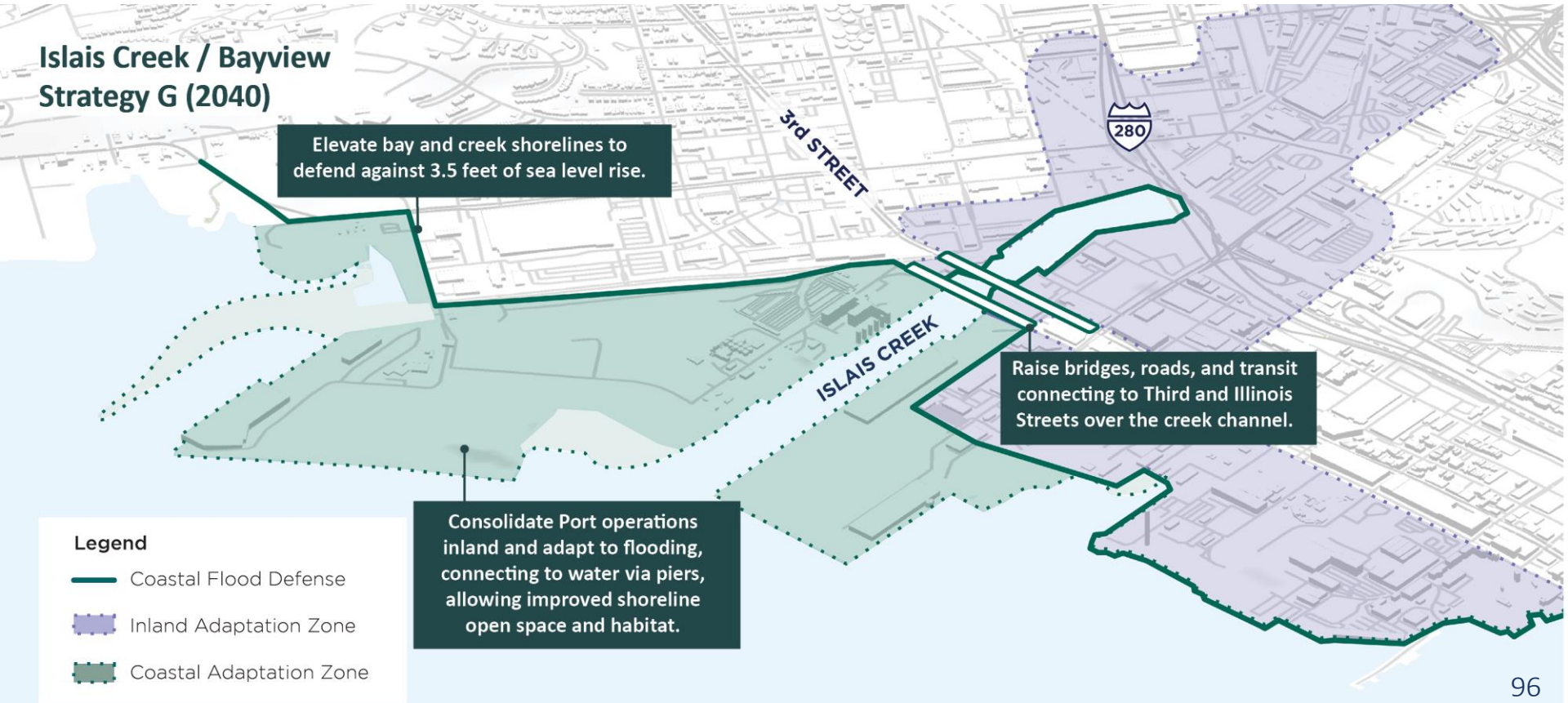
Elevate bay and creek shorelines to defend against 3.5 feet of sea level rise.

Raise bridges, roads, and transit connecting to Third and Illinois Streets over the creek channel.

Consolidate Port operations inland and adapt to flooding, connecting to water via piers, allowing improved shoreline open space and habitat.

**Legend**

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



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



# STRATEGY G – HIGHER SEA LEVEL RISE – ALIGN WITH WATERSHEDS

## Islais Creek / Bayview Strategy G (2040)

Elevate bay and creek shorelines to defend against 3.5 feet of sea level rise.

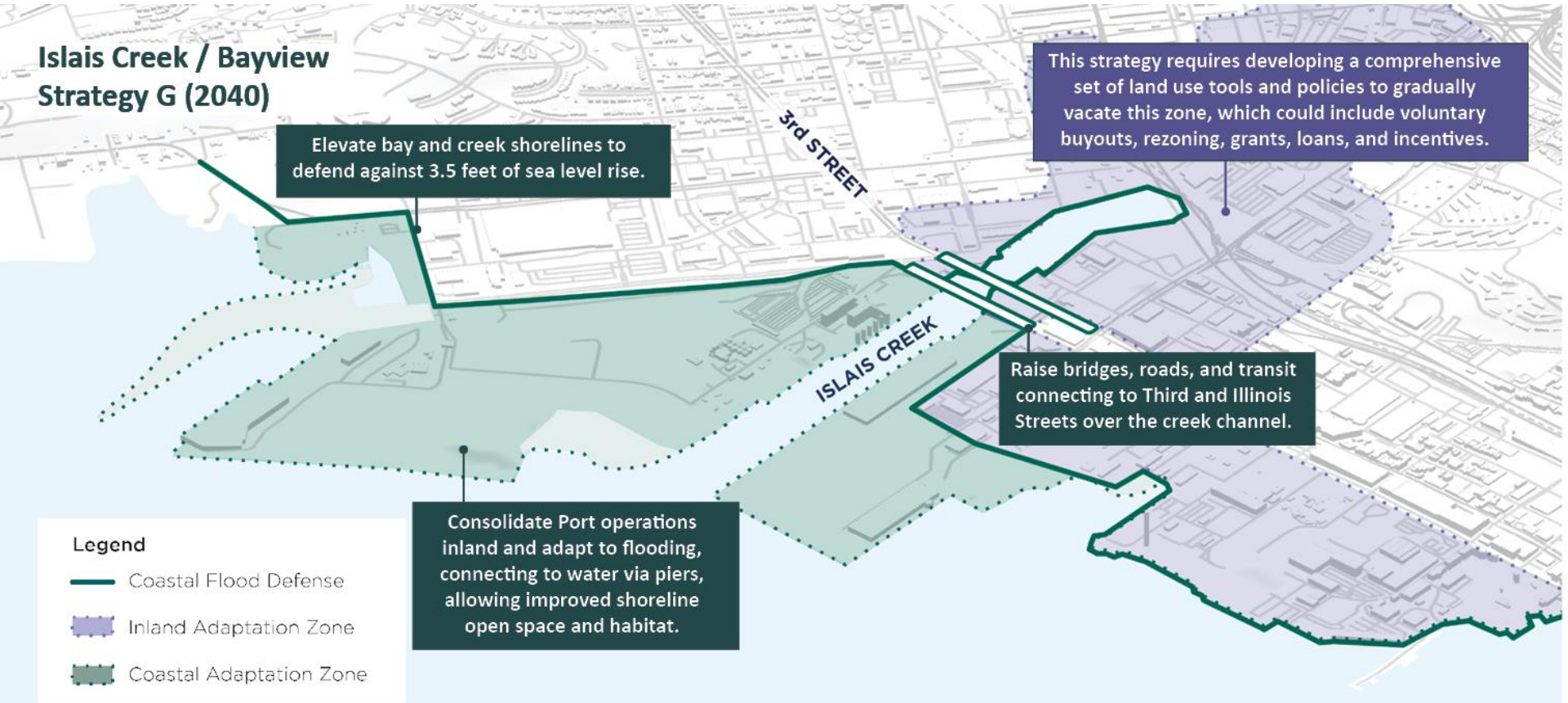
This strategy requires developing a comprehensive set of land use tools and policies to gradually vacate this zone, which could include voluntary buyouts, rezoning, grants, loans, and incentives.

Raise bridges, roads, and transit connecting to Third and Illinois Streets over the creek channel.

Consolidate Port operations inland and adapt to flooding, connecting to water via piers, allowing improved shoreline open space and habitat.

### Legend

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



# STRATEGY G – HIGHER SEA LEVEL RISE – ALIGN WITH WATERSHEDS

Islais Creek / Bayview  
Strategy G (2090)

Provide protection for up to 7' of sea level rise at the outer edge of the floodable zone.

3rd STREET

ISLAIS CREEK



## Legend

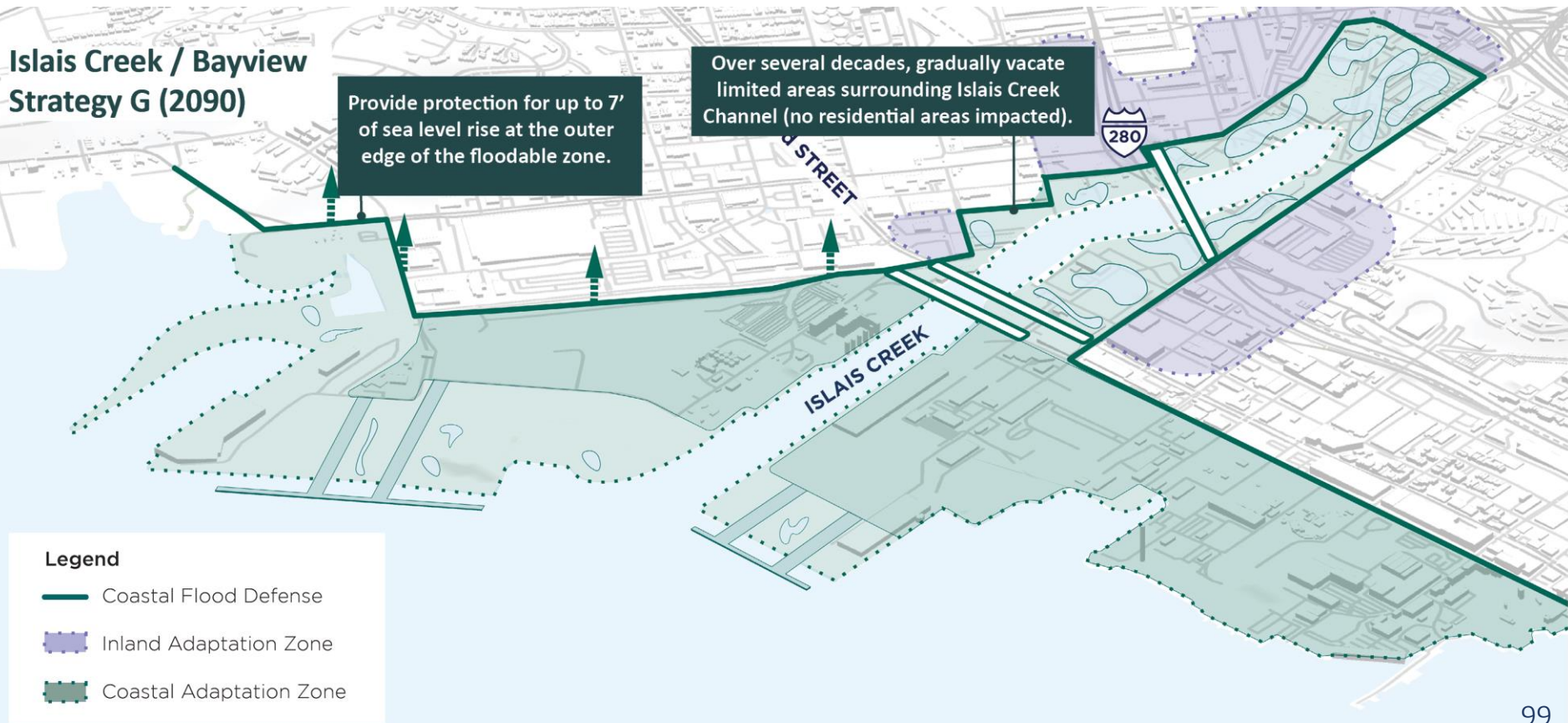
- Coastal Flood Defense
- Inland Adaptation Zone
- Coastal Adaptation Zone

# STRATEGY G – HIGHER SEA LEVEL RISE – ALIGN WITH WATERSHEDS

## Islais Creek / Bayview Strategy G (2090)

Provide protection for up to 7' of sea level rise at the outer edge of the floodable zone.

Over several decades, gradually vacate limited areas surrounding Islais Creek Channel (no residential areas impacted).



# STRATEGY G – HIGHER SEA LEVEL RISE – ALIGN WITH WATERSHEDS

## Islais Creek / Bayview Strategy G (2090)

Provide protection for up to 7' of sea level rise at the outer edge of the floodable zone.

Over several decades, gradually vacate limited areas surrounding Islais Creek Channel (no residential areas impacted).

In vacated areas, establish a floodable open space zone that provides recreation, stormwater infiltration and improved habitat.

### Legend

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

# STRATEGY G – HIGHER SEA LEVEL RISE – ALIGN WITH WATERSHEDS

## Islais Creek / Bayview Strategy G (2090)

Provide protection for up to 7' of sea level rise at the outer edge of the floodable zone.

Over several decades, gradually vacate limited areas surrounding Islais Creek Channel (no residential areas impacted).

Invest in public access improvement along the creek with natural areas and recreational spaces.

In vacated areas, establish a floodable open space zone that provides recreation, stormwater infiltration and improved habitat.

### Legend

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

# STRATEGY G – HIGHER SEA LEVEL RISE – ALIGN WITH WATERSHEDS

## Islais Creek / Bayview Strategy G (2090)

Provide protection for up to 7' of sea level rise at the outer edge of the floodable zone.

Over several decades, gradually vacate limited areas surrounding Islais Creek Channel (no residential areas impacted).

Widen and extend the creek channel Westward beyond I-280.

Invest in public access improvement along the creek with natural areas and recreational spaces.

In vacated areas, establish a floodable open space zone that provides recreation, stormwater infiltration and improved habitat.

### Legend

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

# STRATEGY G – HIGHER SEA LEVEL RISE – ALIGN WITH WATERSHEDS

## Islais Creek / Bayview Strategy G (2090)

Provide protection for up to 7' of sea level rise at the outer edge of the floodable zone.

Over several decades, gradually vacate limited areas surrounding Islais Creek Channel (no residential areas impacted).

Widen and extend the creek channel Westward beyond I-280.

Invest in public access improvement along the creek with natural areas and recreational spaces.

Modify zoning codes to support land-use changes and the relocation of some industrial jobs.

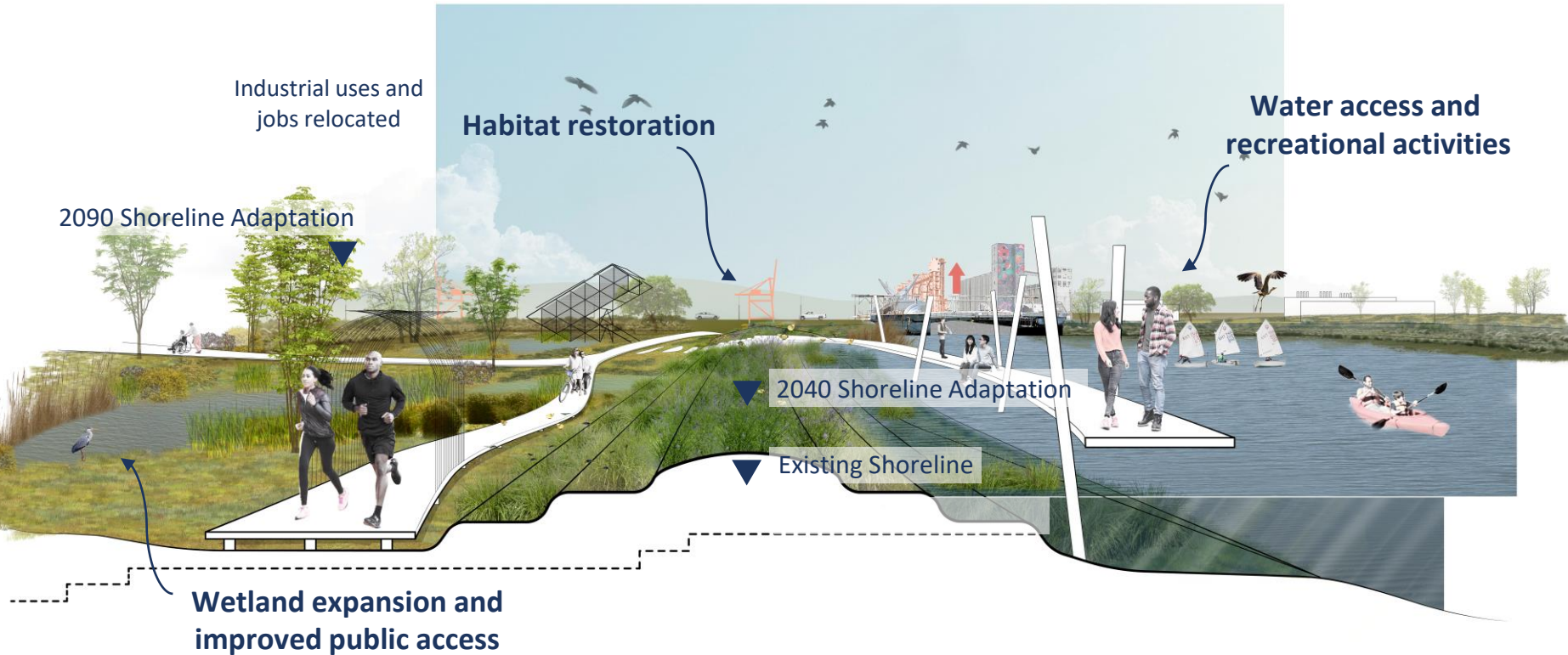
In vacated areas, establish a floodable open space zone that provides recreation, stormwater infiltration and improved habitat.

### Legend

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

# STRATEGY G – HIGHER SEA LEVEL RISE – ALIGN WITH WATERSHEDS

Islais Creek / Bayview in 2090





## POLL QUESTION #7

**Strategy G prioritizes enhancing habitat and restoring watersheds but requires the most transformational change and more actions by individuals (like relocating some buildings or jobs - no housing is impacted). How do you feel about this?**

## POLL QUESTION #8

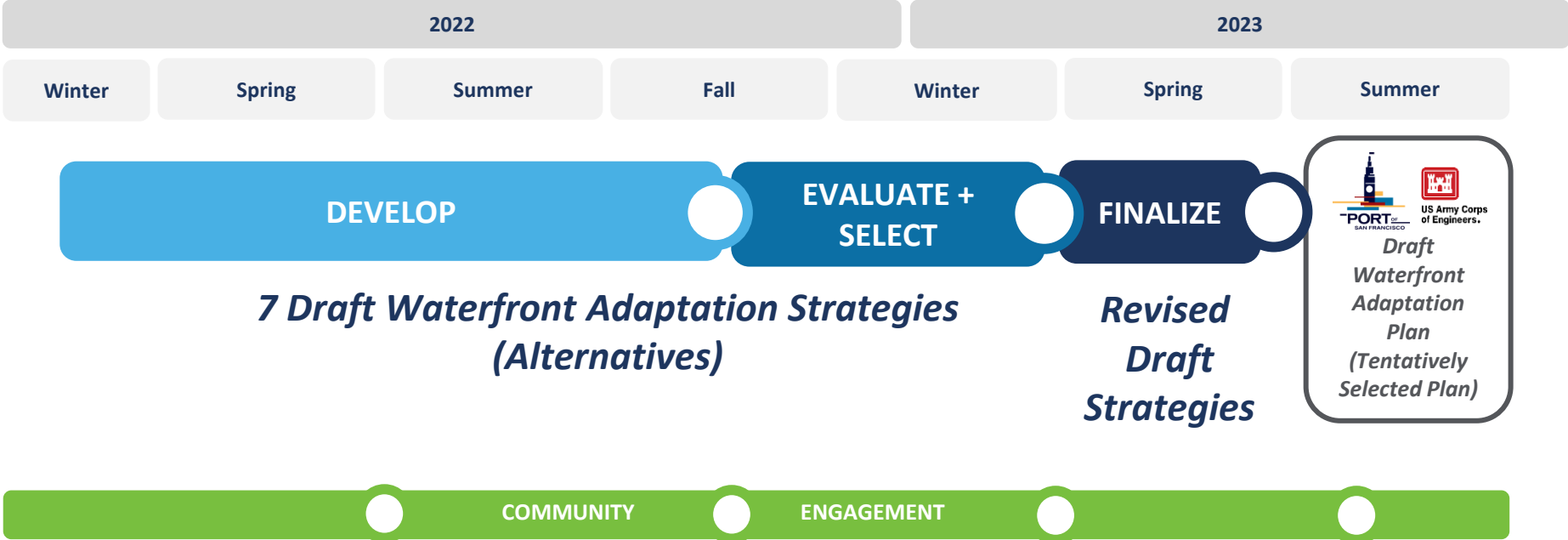
**All of these strategies defend against flood risks and address seismic risks. All present big changes, but they also bring big opportunities for public benefits. Now that you've seen these strategies for Islais Creek / Bayview, please rank the following opportunities:**

# Next Steps



Waterfront Resilience Program

# DRAFT WATERFRONT ADAPTATION STRATEGIES DEVELOPMENT SCHEDULE



# COMMUNITY ENGAGEMENT PLAN

OCT

NOV

DEC

JAN

Materials Live on [sfport.com/wrp](https://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 by Geography



# 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 an upcoming geography specific meeting – online or in-person
  - Events weekly now through Dec 8
- Explore the online StoryMaps, digital storytelling and surveys
- Join us at the upcoming walking tour or in-person Community Mixer
- Full list of engagement opportunities:  
[www.sfport.com/wrp/our-waterfront](http://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 under a clear blue sky. A large, dark blue semi-transparent box is overlaid on the left side of the image, containing text.

# Thank You

Brad Benson | [brad.benson@sfport.com](mailto:brad.benson@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. In the background, a large ship is visible in a harbor under a clear blue sky. The path is surrounded by dry grass and trees.

# Thank You

Brad Benson | [brad.benson@sfport.com](mailto:brad.benson@sfport.com)

