

# DRAFT WATERFRONT ADAPTATION STRATEGIES

Mission Creek / Mission Bay  
Community Meeting

November 2, 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 Mission Creek / Mission Bay
- 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 Mission Creek / Mission Bay 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 2010. The first of 2017 flooding in the Embarcadero is shown suggesting parts of the area need to be raised seven feet to avoid future flooding.

# RISING TO THE CHALLENGE

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

## SEISMIC RISKS



San Francisco, 1906

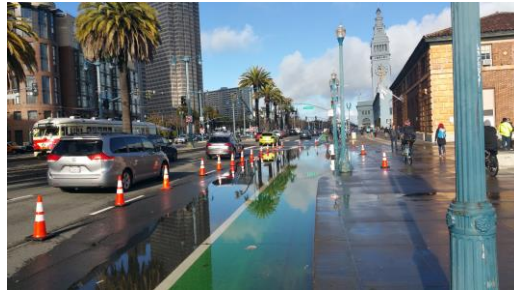


Marina, 1989

## COASTAL FLOODING

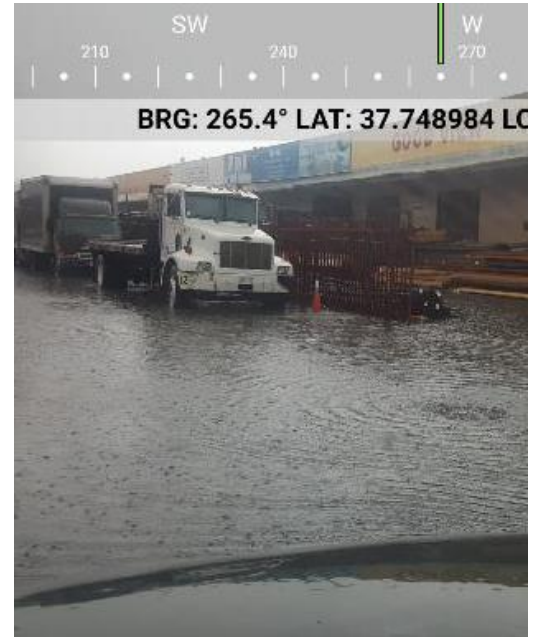


Recology



The Embarcadero

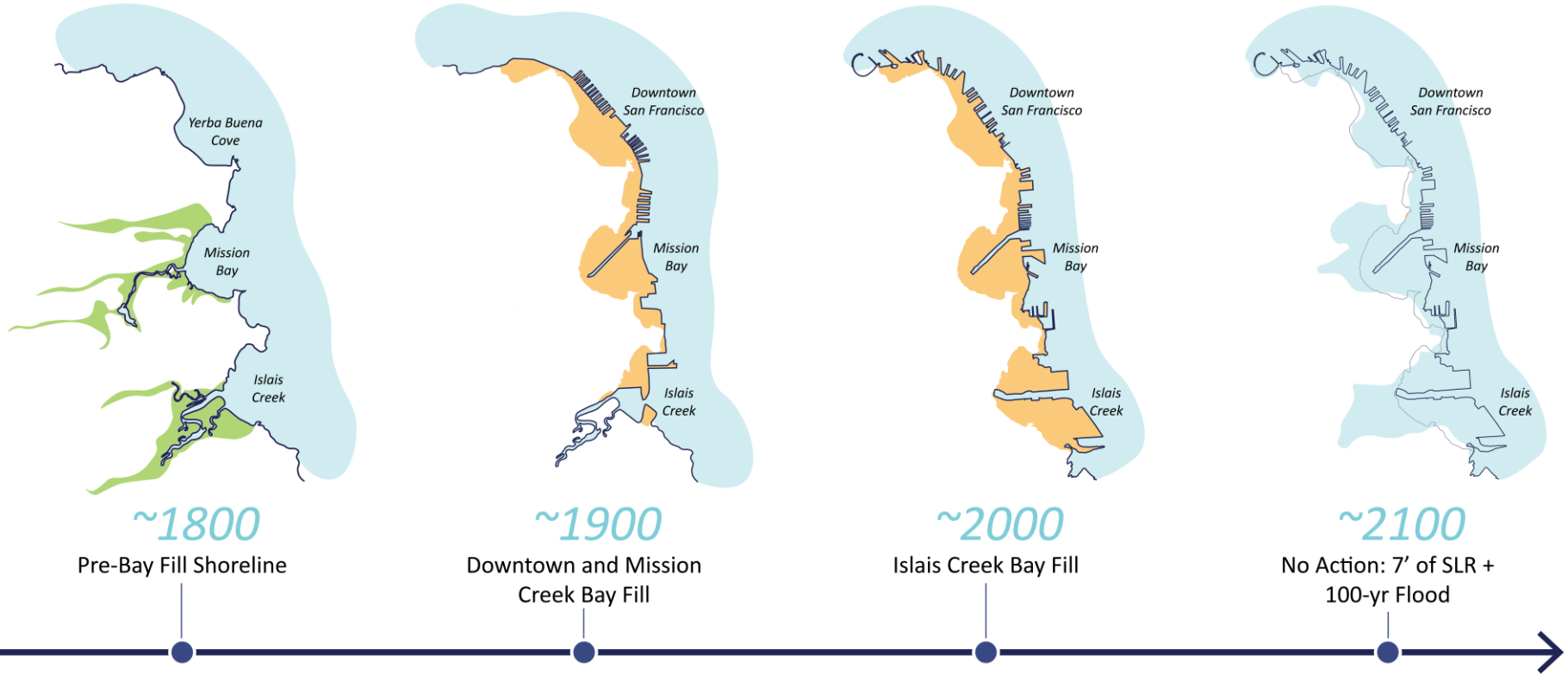
## INLAND FLOODING



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

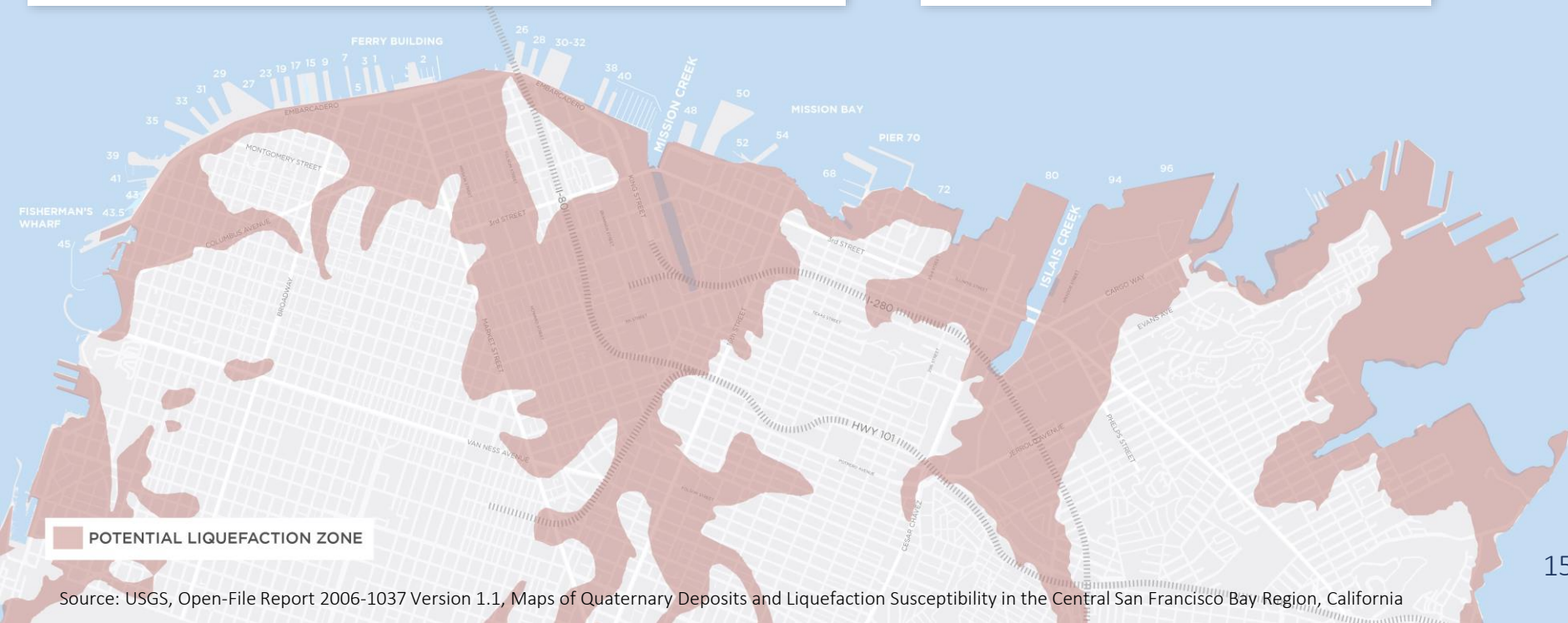
No Action: 7' of SLR +  
100-yr Flood

# 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

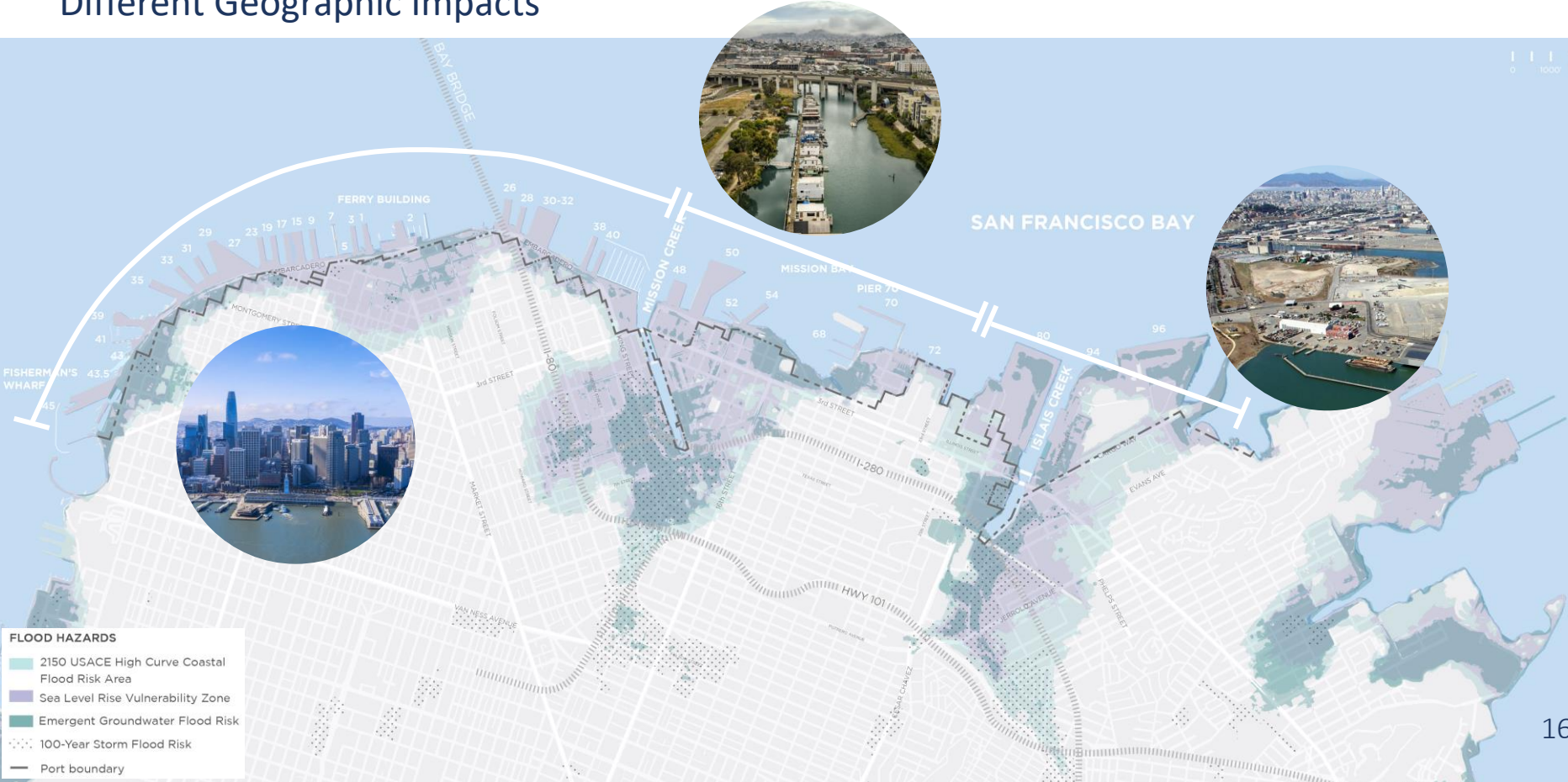
Various levels of lateral spreading risk along the shoreline





# COASTAL AND INLAND FLOOD RISK

## Different Geographic Impacts



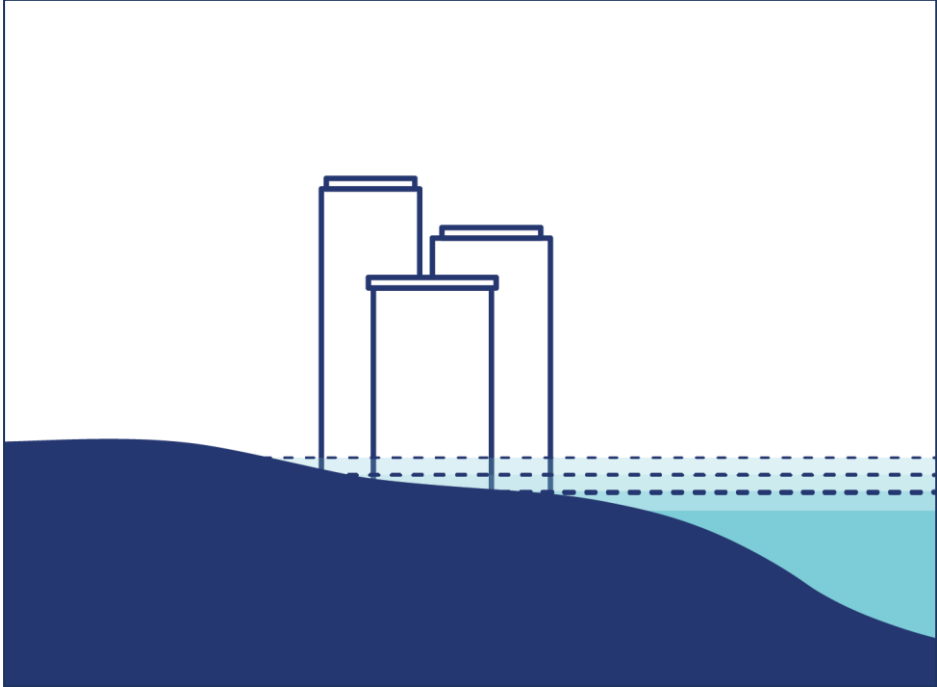
- FLOOD HAZARDS**
- 2150 USACE High Curve Coastal Flood Risk Area
  - Sea Level Rise Vulnerability Zone
  - Emergent Groundwater Flood Risk
  - 100-Year Storm Flood Risk
  - Port boundary

# COASTAL AND INLAND FLOODING



Existing conditions

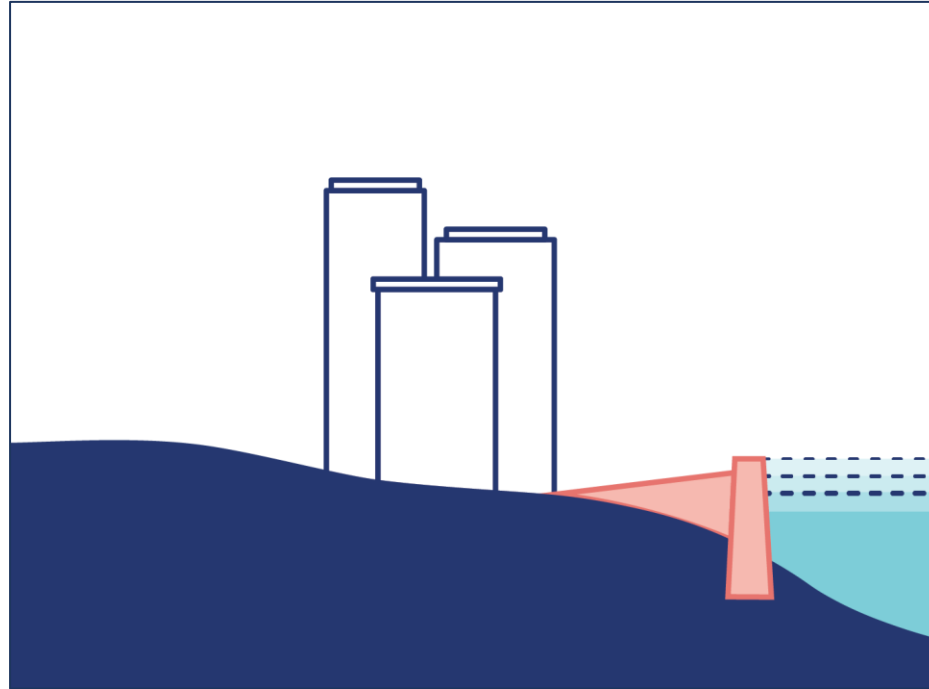
# COASTAL AND INLAND FLOOD RISK



Sea levels rise

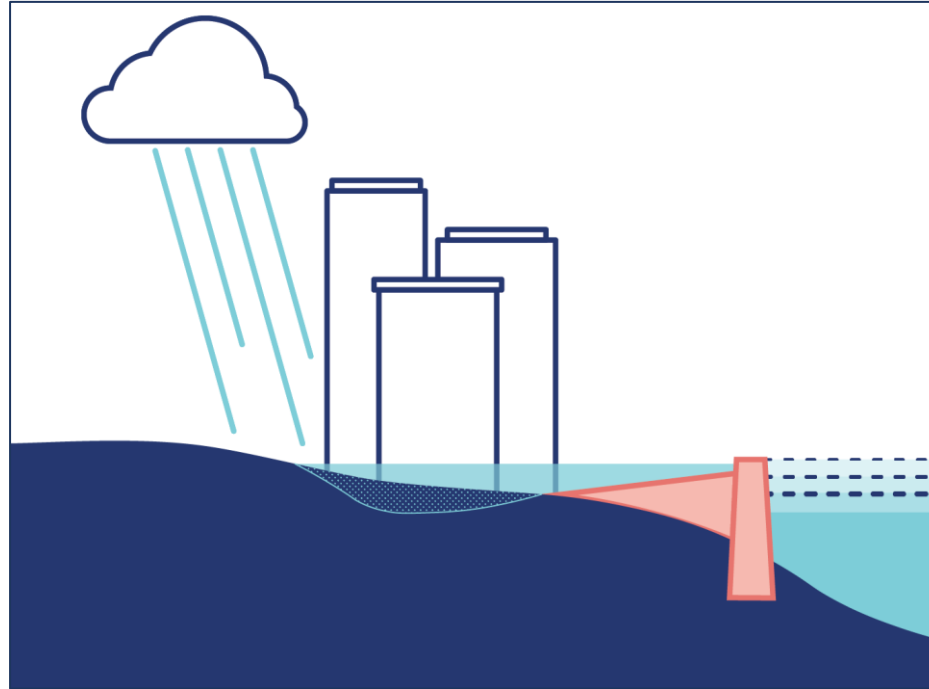


# COASTAL AND INLAND FLOOD RISK



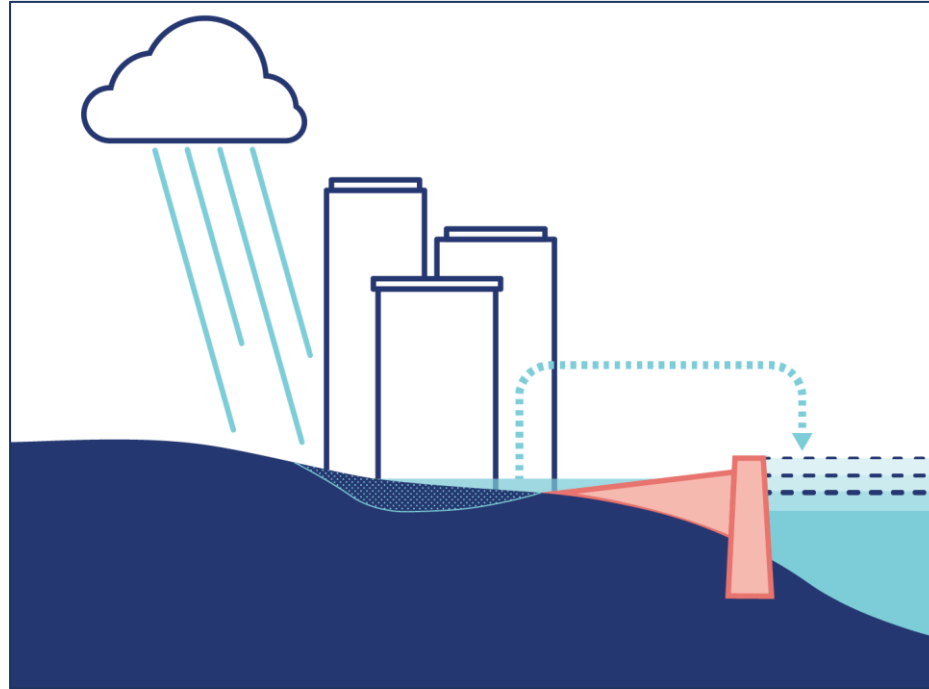
**Raise shoreline to defend  
against sea level rise**

# COASTAL AND INLAND FLOOD RISK



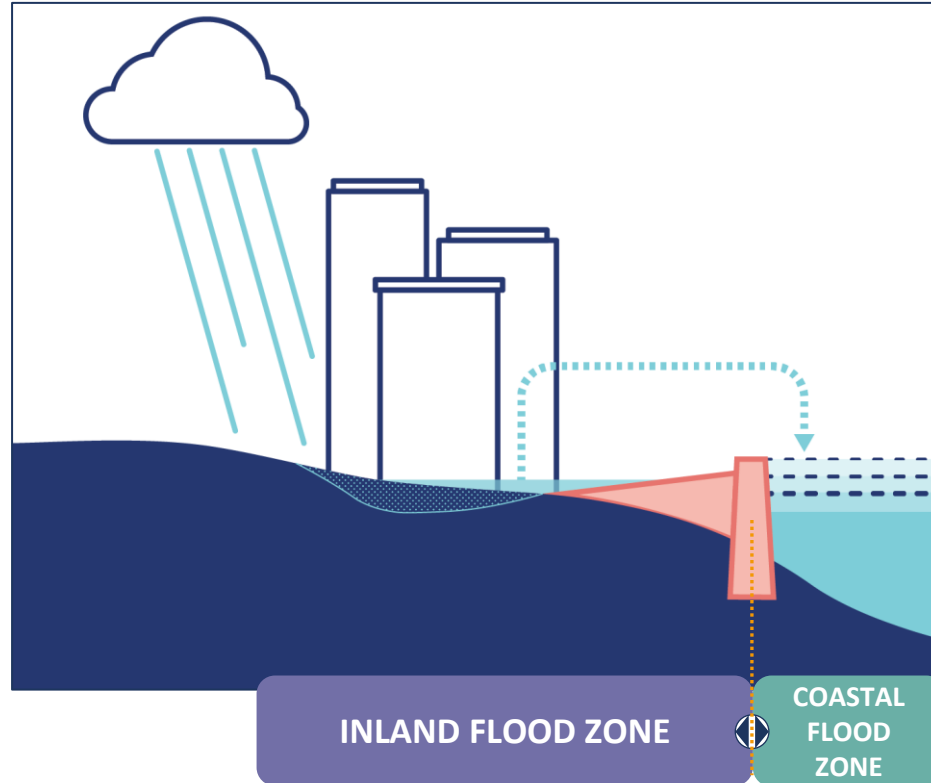
**Groundwater  
and stormwater  
flooding behind raised  
shoreline**

# COASTAL AND INLAND FLOOD RISK



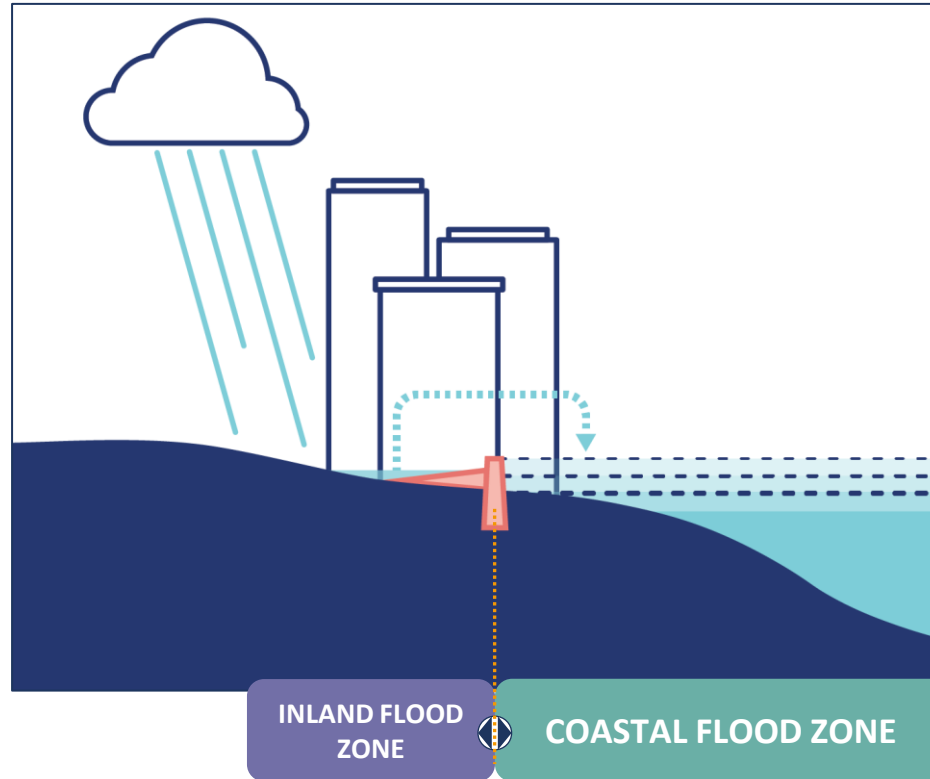
**Pumping reduces flooding  
behind raised shoreline**

# 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

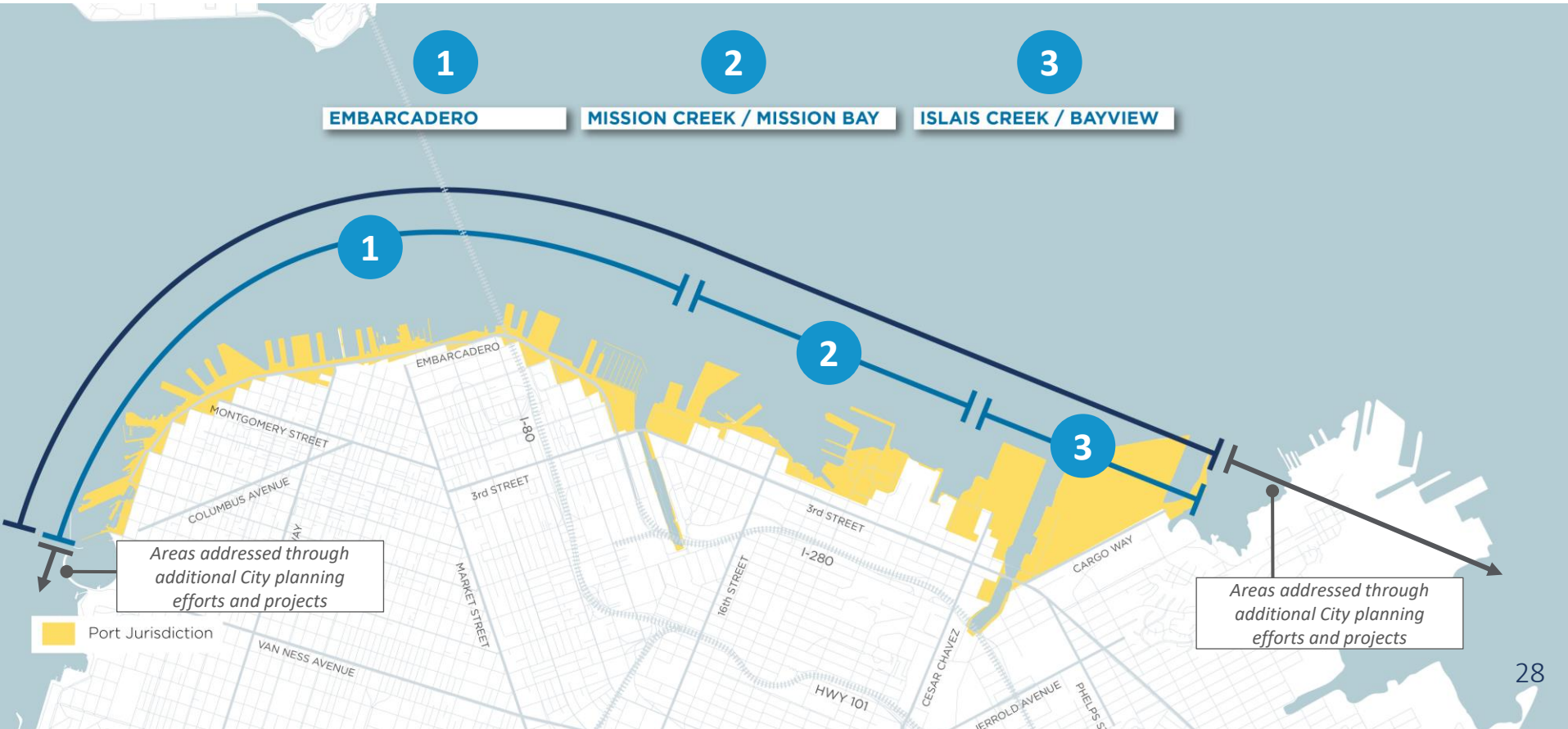
The Port's Waterfront Resilience Program will take actions to **reduce seismic and climate change risks** that support a safe, equitable, sustainable, and vibrant waterfront.





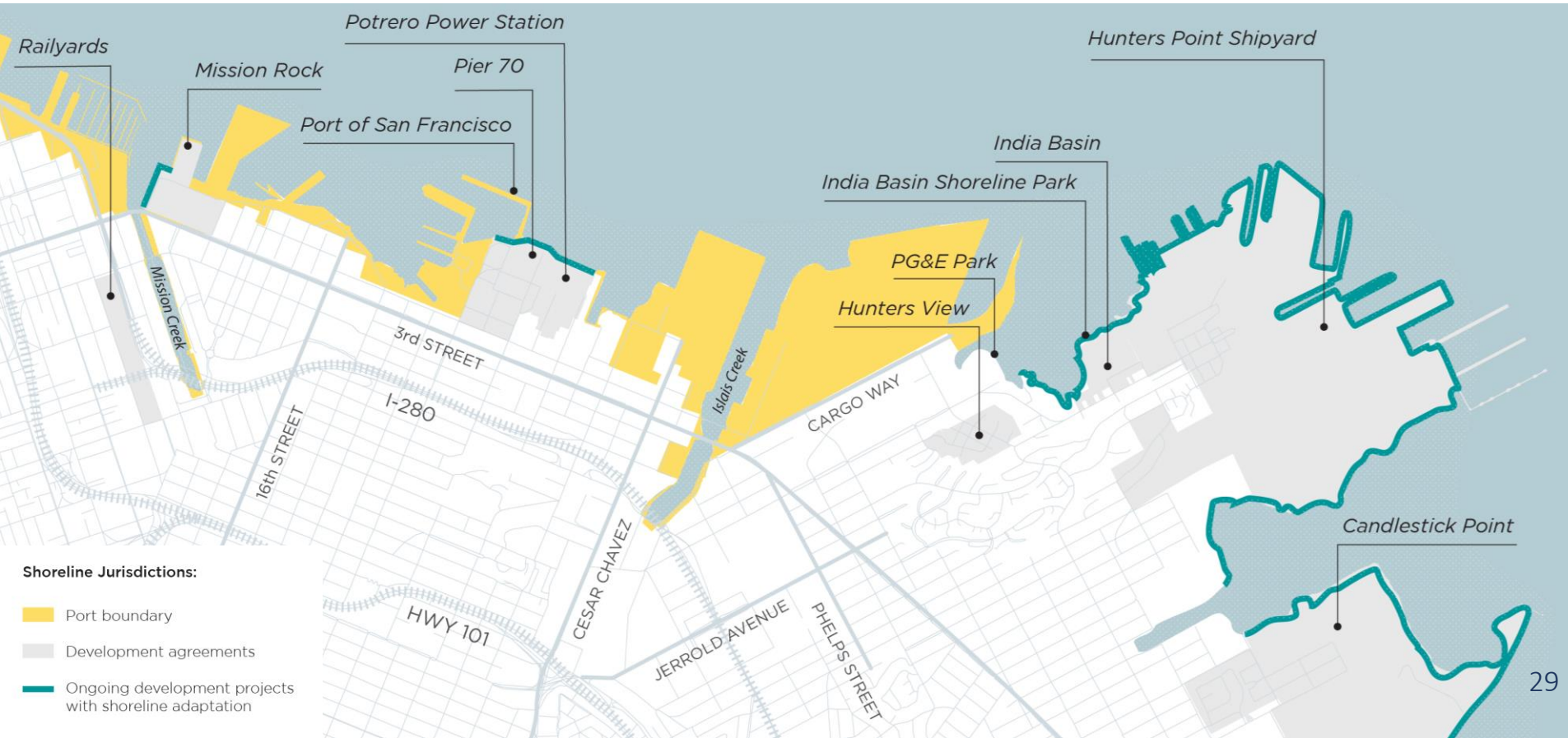
# PROGRAM AREA

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

## Spotlight on the Mission Creek / Mission Bay Waterfront



- Key community-prioritized assets include: the Giants ballpark, water and public space access, the environment
- We heard the importance of prioritizing homes, including low-income housing
- Environmental issues were highlighted, including Mission Creek as an ecological and open space asset
- We also heard how it vital it is to reach youth via our public engagement effort



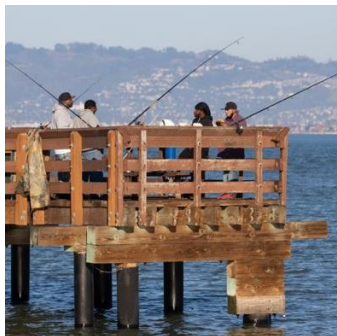
# NATURE BASED SOLUTIONS

## 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



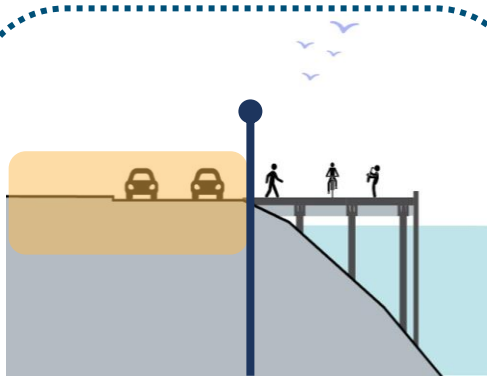


Range of Possible Solutions  
*What We're Considering*



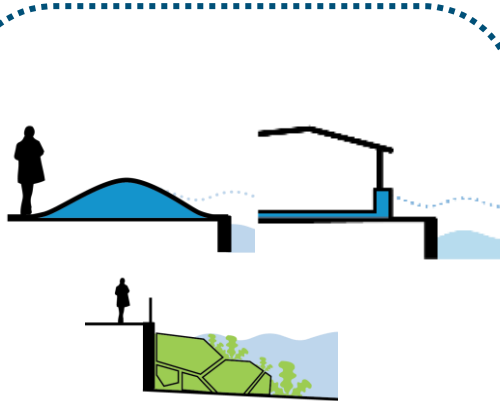
# DRAFT WATERFRONT ADAPTATION STRATEGIES

## Key Components



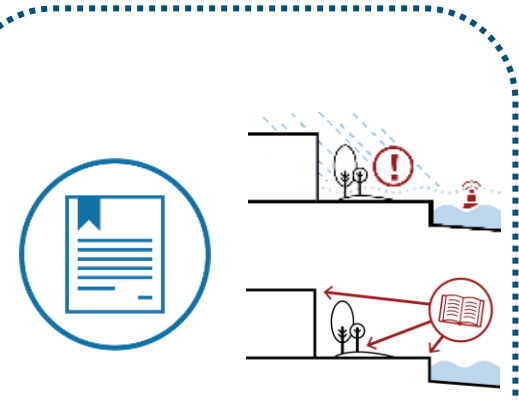
### Coastal Flood Defense Location + Height

*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

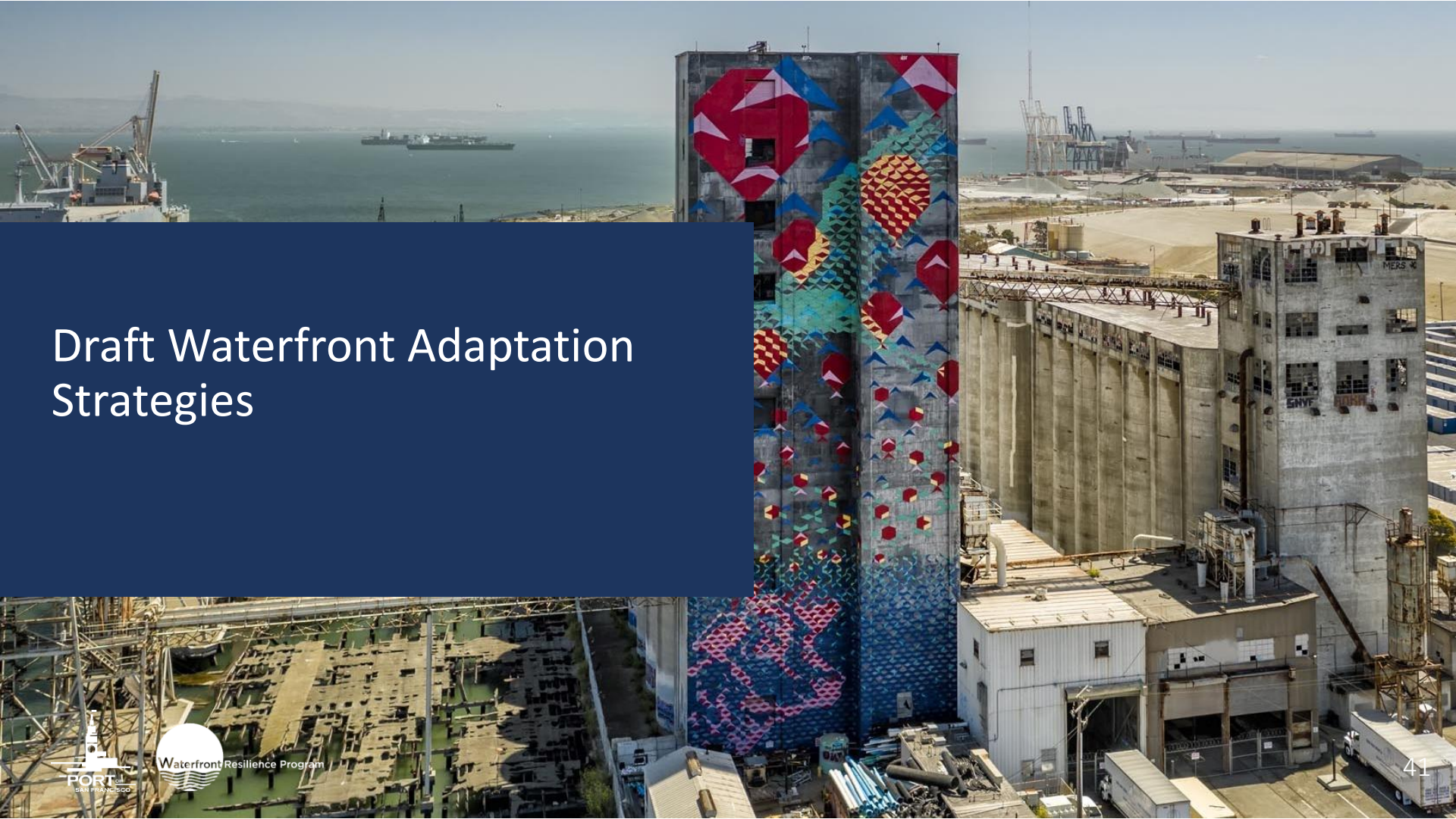


# THE ROLE OF COMMUNITY FEEDBACK

## Pathway to the Draft Waterfront Adaptation Plan



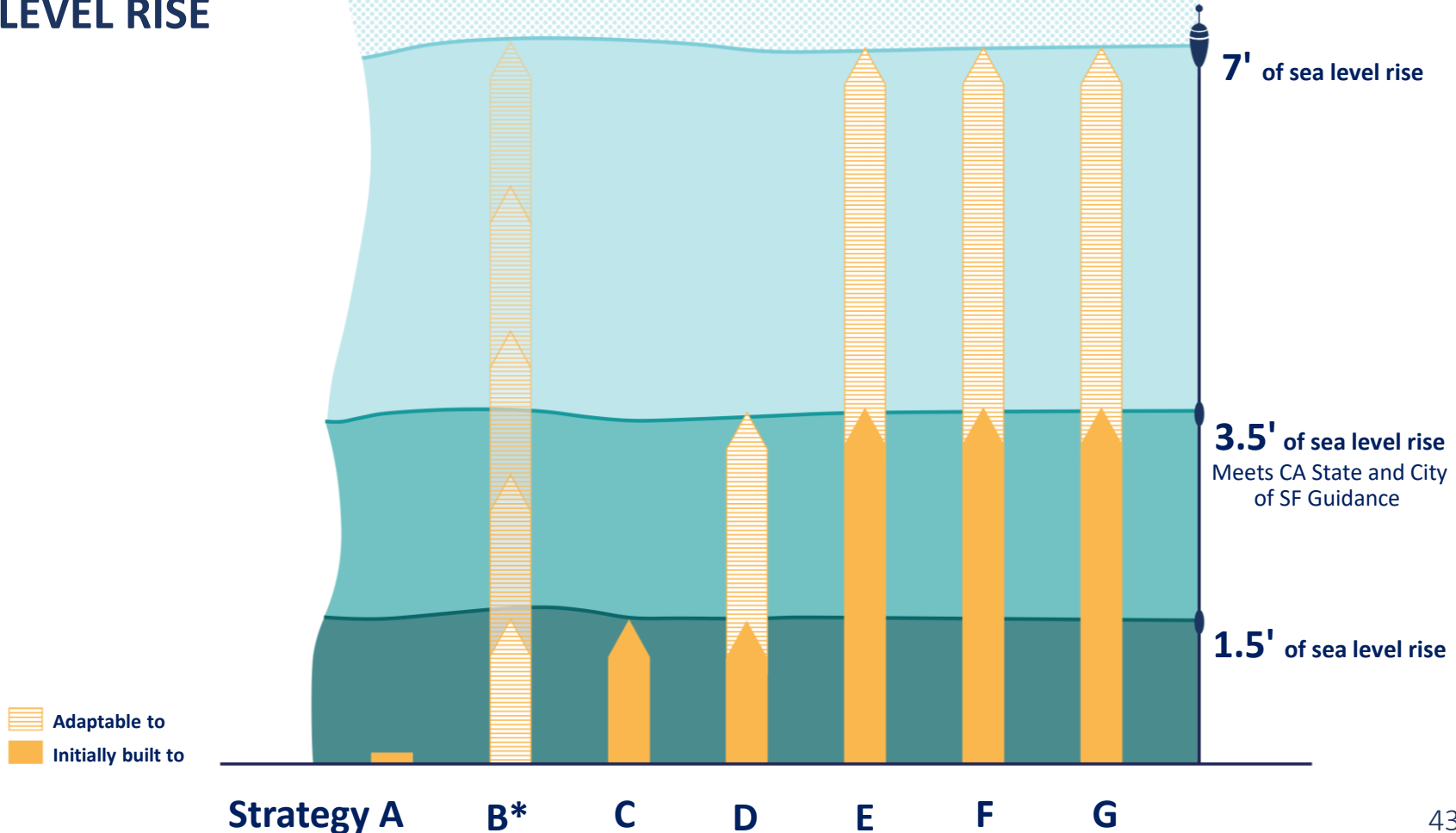
# Draft Waterfront Adaptation Strategies



# 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...***  
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sea level rise,  
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**CA and SF guidance?**

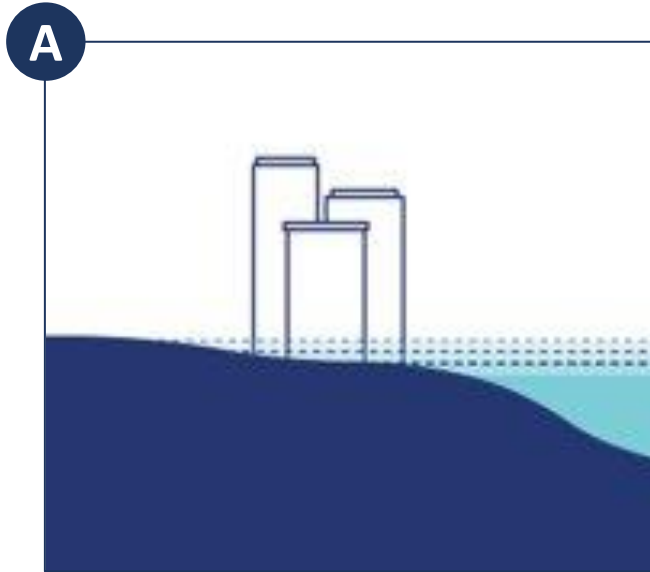
STRATEGY E

STRATEGY F

STRATEGY G

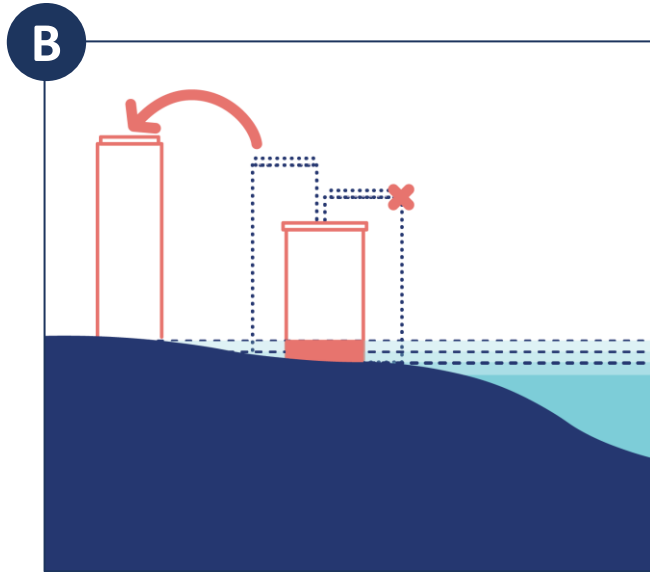


# STRATEGY A – NO ACTION



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

## STRATEGY B – NONSTRUCTURAL OPTION

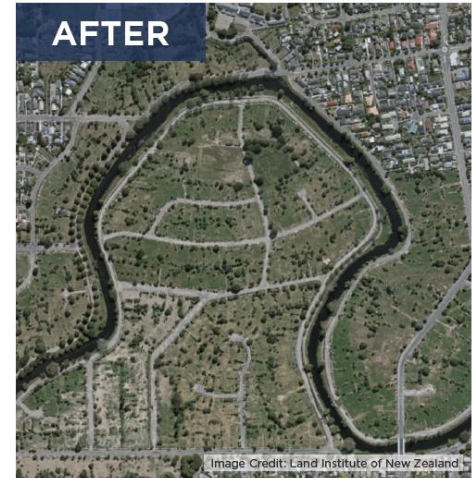
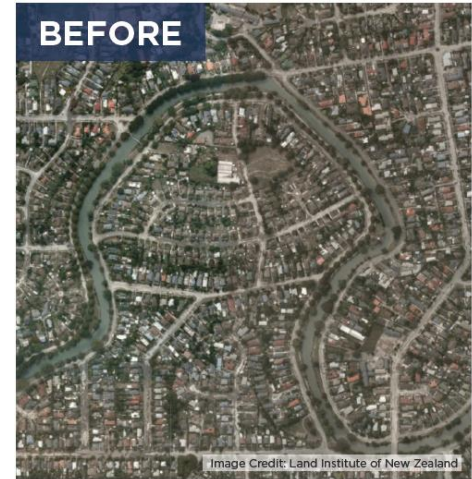


**Moves people and assets away from the risk, uses nonstructural measures (such as floodproofing) to reduce risks, and allows water to go where it wants rather than constructing traditional structural solutions**

# STRATEGY B – NONSTRUCTURAL OPTION

## Examples

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





# Draft Strategies in Mission Creek / Mission Bay



Waterfront Resilience Program

# ORIENTATION TO THE MAPS

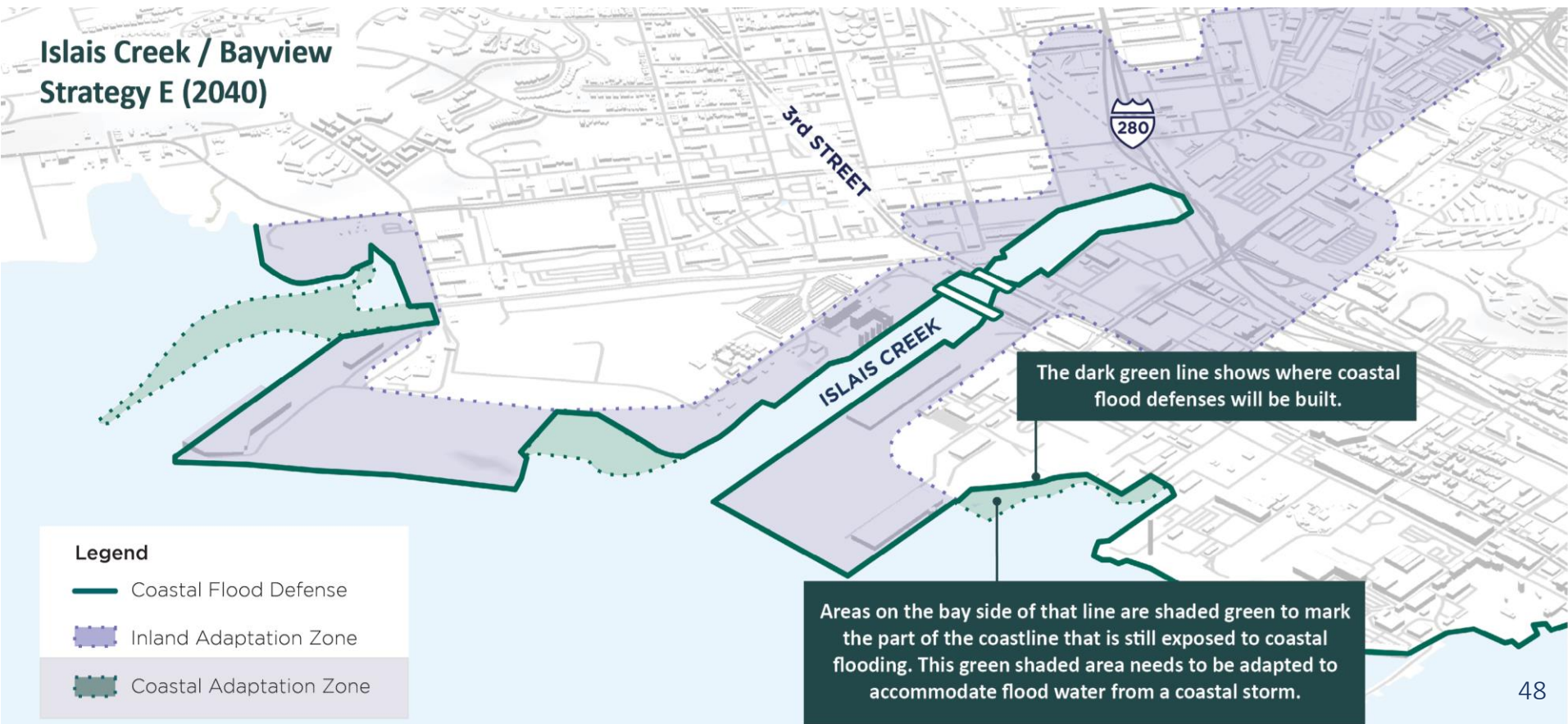
## Islais Creek / Bayview Strategy E (2040)





# ORIENTATION TO THE MAPS

## Islais Creek / Bayview Strategy E (2040)



# ORIENTATION TO THE MAPS

## 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

# MISSION CREEK / MISSION BAY

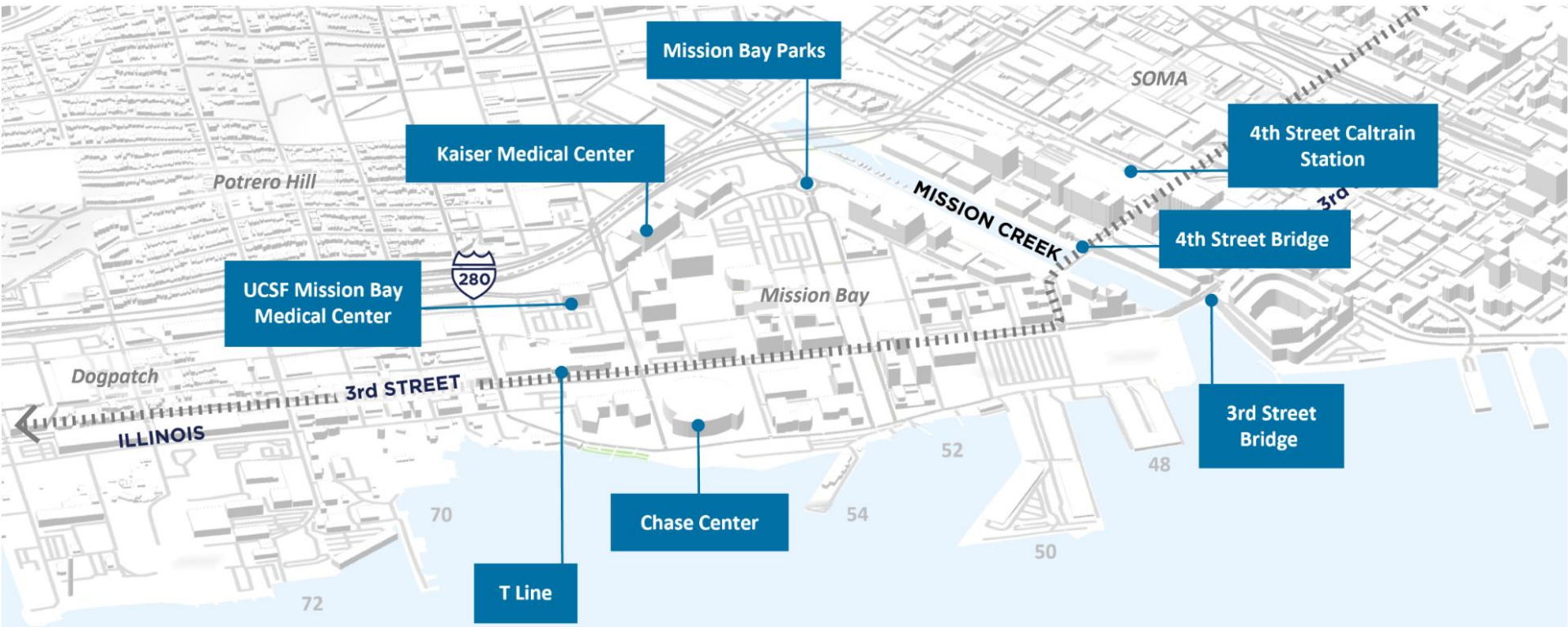
## Geographic Context

- New, high density residential, businesses and medical district
- Low-lying development subject to coastal and inland flooding
- Challenging to adapt because of limited undeveloped space
- Separated sewer system from the rest of the City

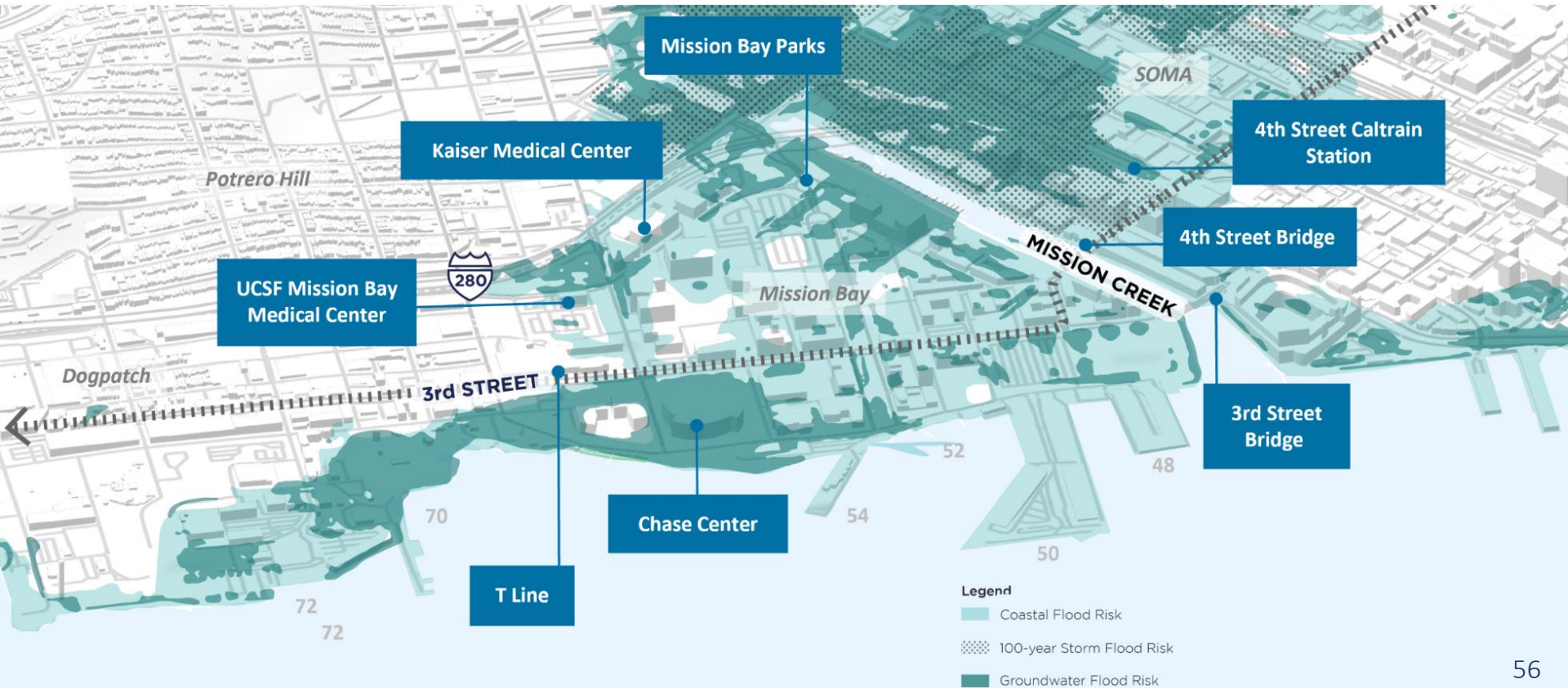




# MISSION CREEK / MISSION BAY



# MISSION CREEK / MISSION BAY



# 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

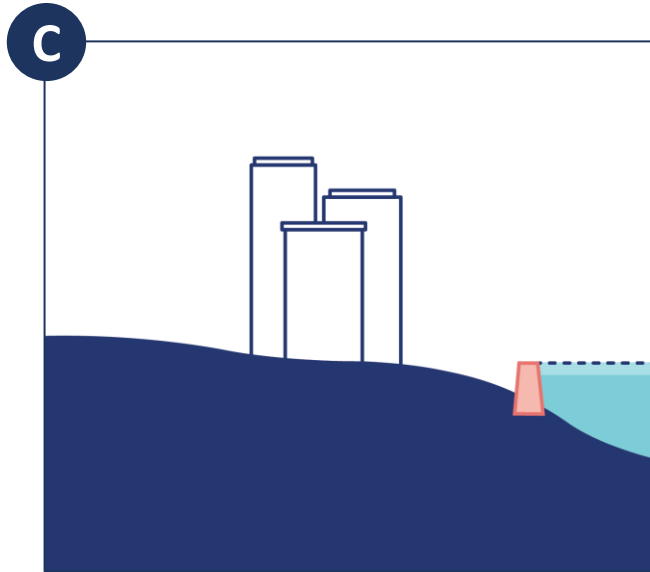
*What if...*  
we address flooding  
at a **higher rate** of  
sea level rise,  
as recommended by  
**CA and SF guidance?**

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**

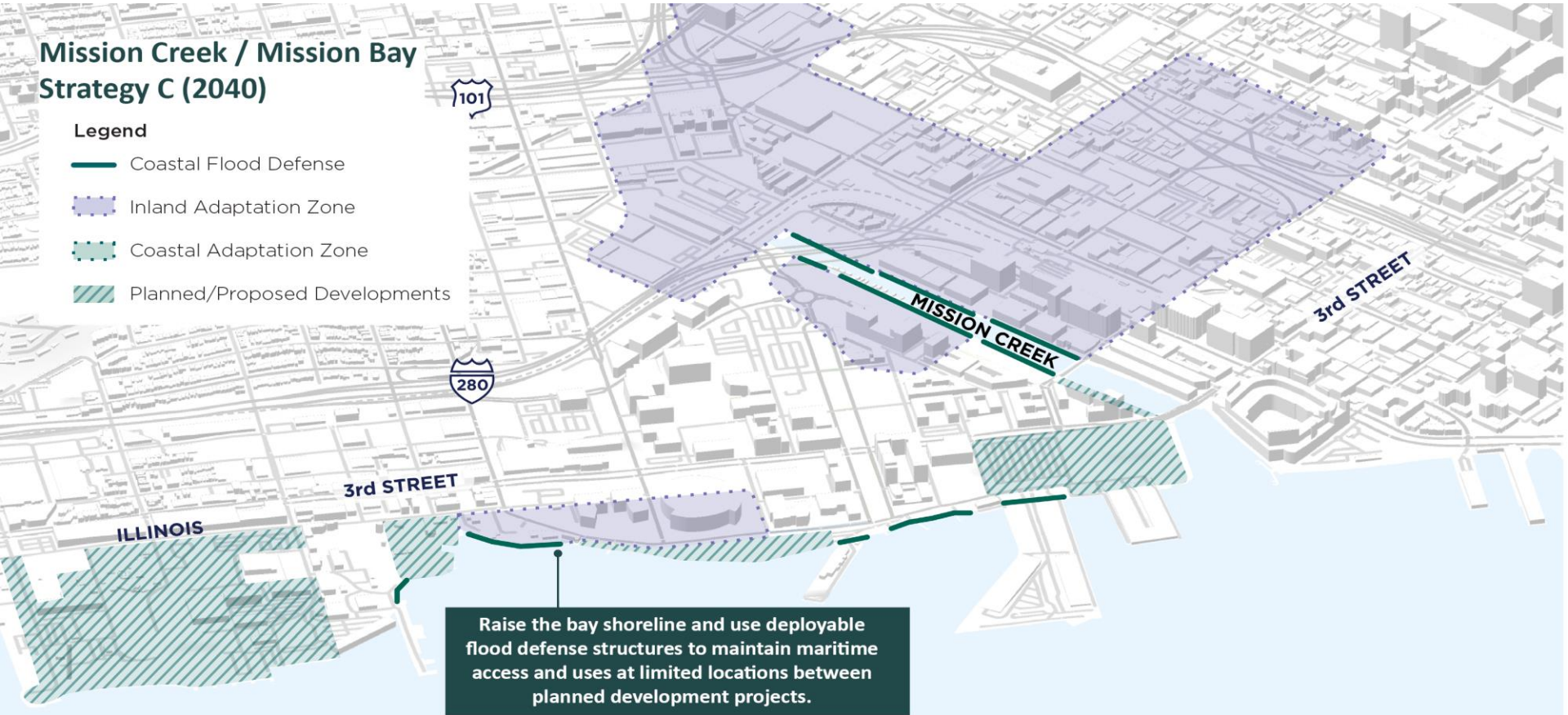


# STRATEGY C – LOWER SEA LEVEL RISE

## Mission Creek / Mission Bay Strategy C (2040)

### Legend

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



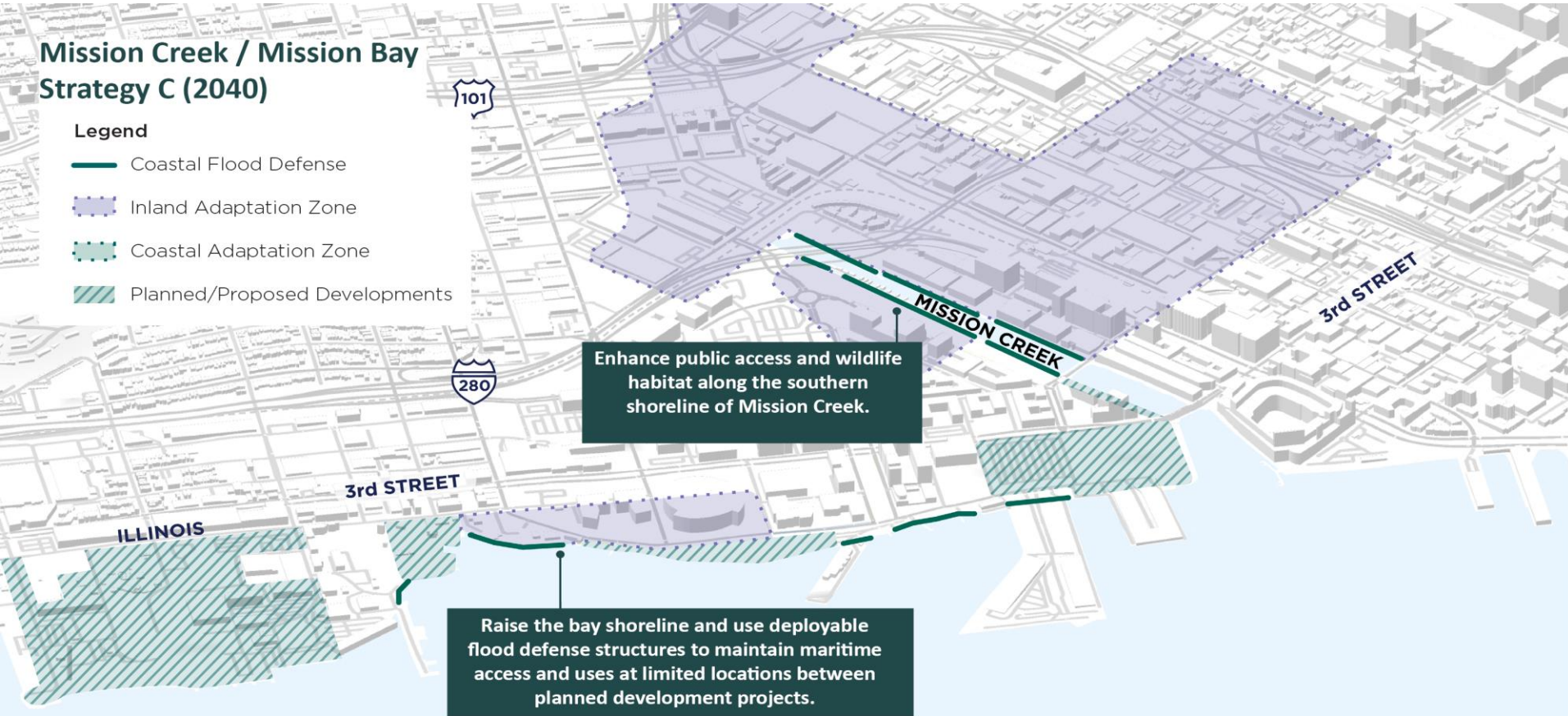


# STRATEGY C – LOWER SEA LEVEL RISE

## Mission Creek / Mission Bay Strategy C (2040)

### Legend

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

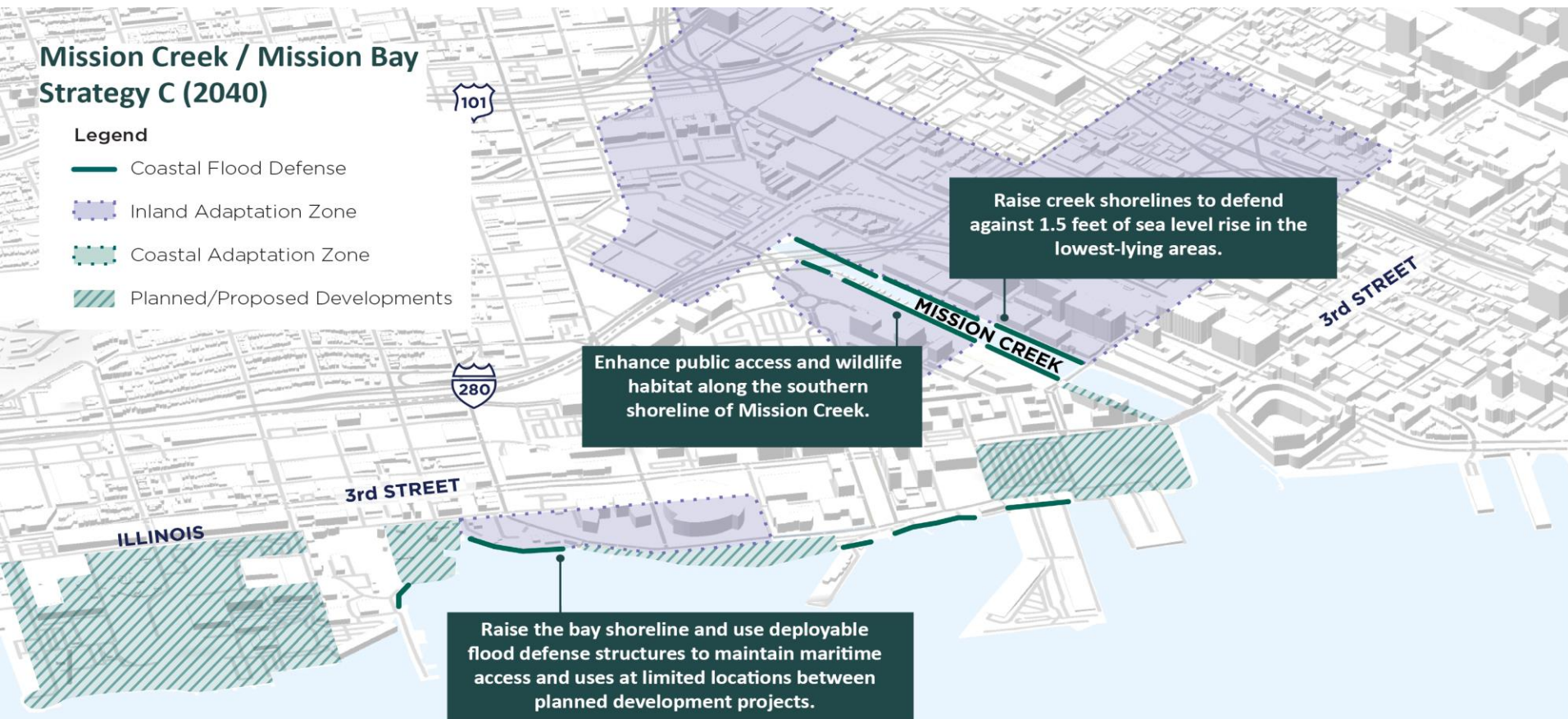


# STRATEGY C – LOWER SEA LEVEL RISE

## Mission Creek / Mission Bay Strategy C (2040)

### Legend

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



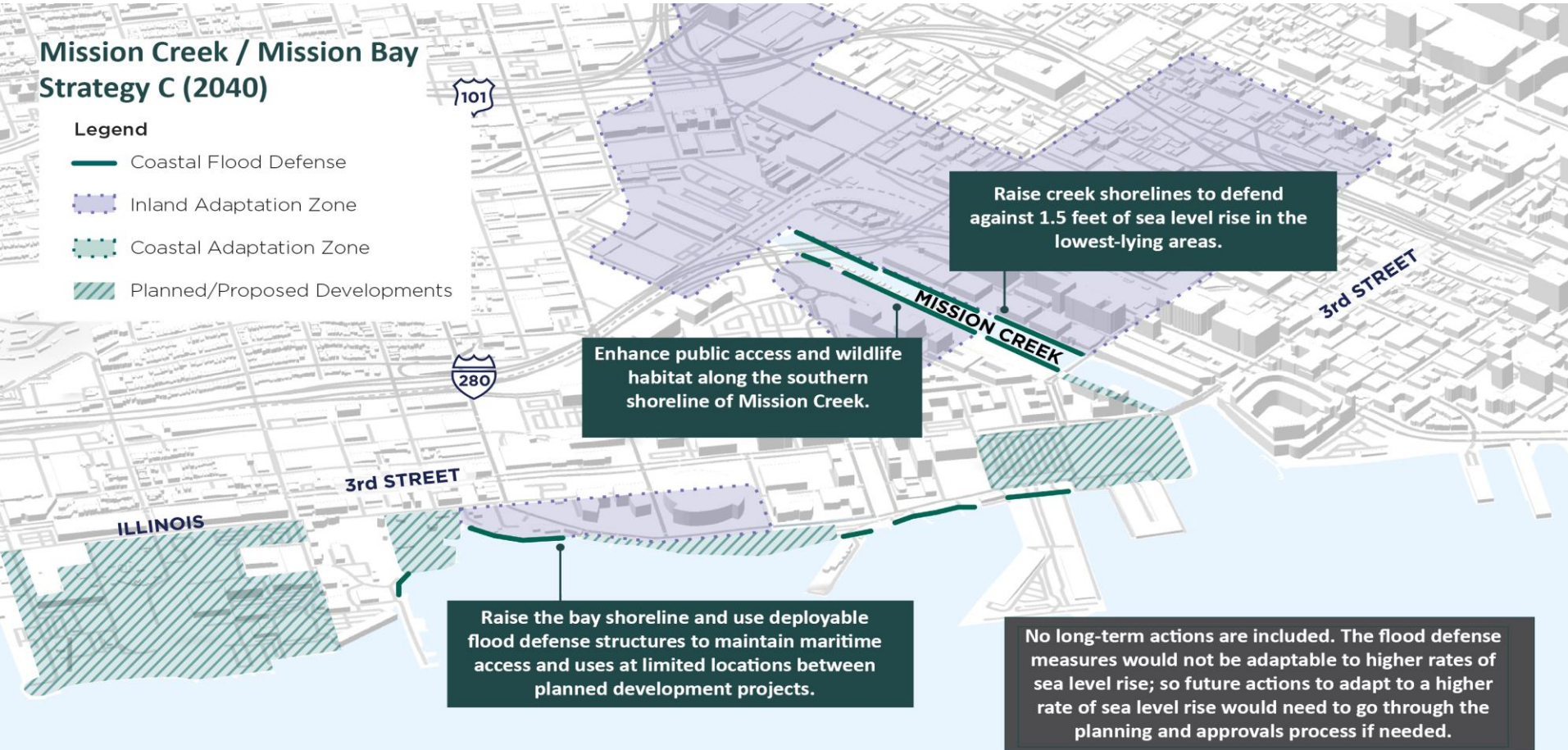


# STRATEGY C – LOWER SEA LEVEL RISE

## Mission Creek / Mission Bay Strategy C (2040)

### Legend

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



# A NOTE ABOUT POLLS



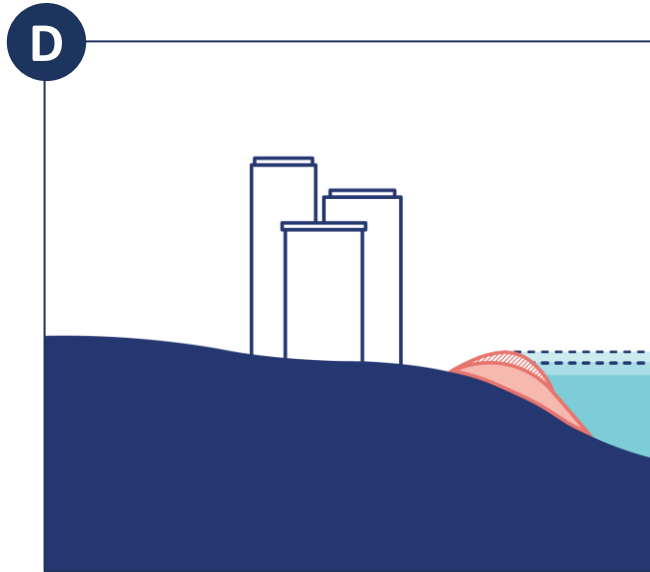
- Temperature Check
- Not a Vote
- Optional

## 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**

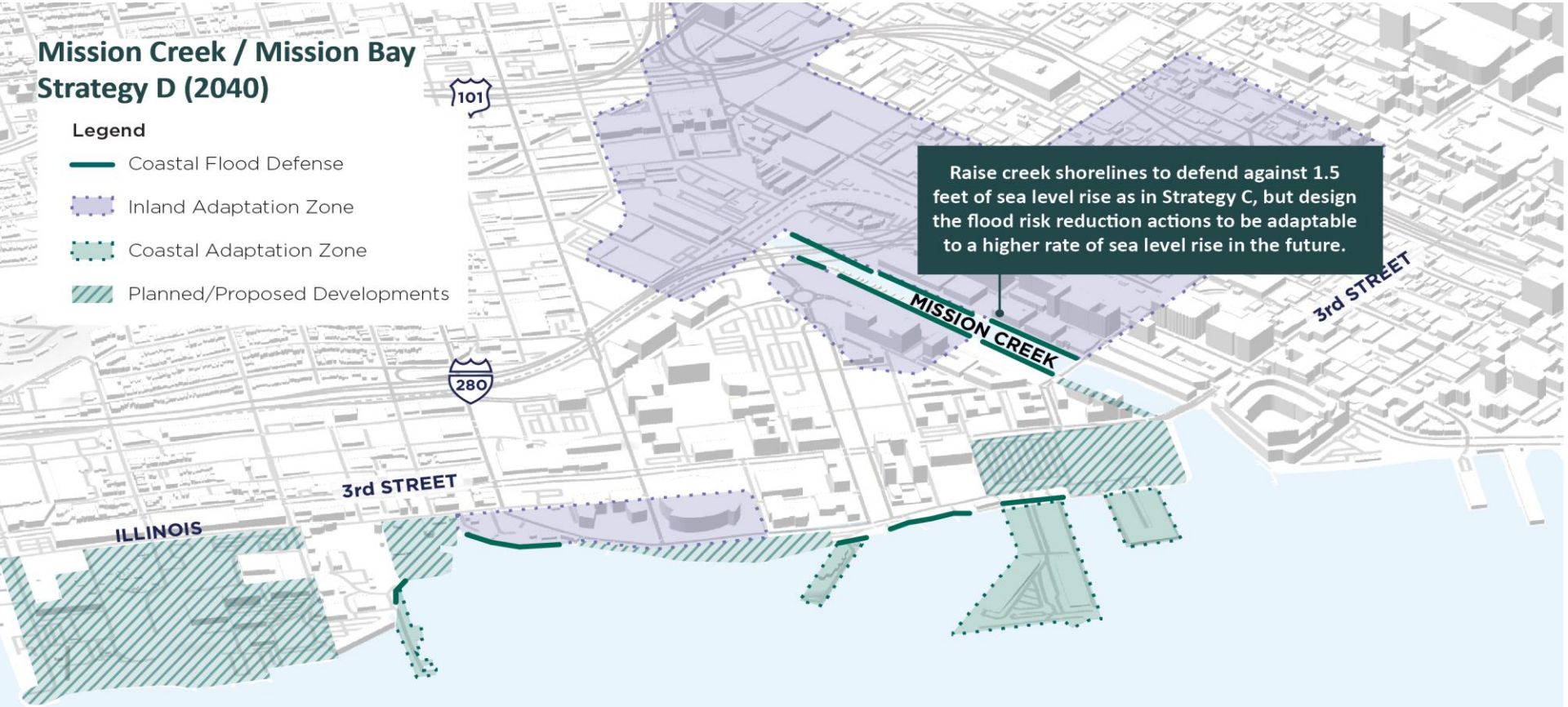
# STRATEGY D – LOWER SEA LEVEL RISE – ADAPTABLE

## Mission Creek / Mission Bay Strategy D (2040)

### Legend

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

Raise creek shorelines 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.

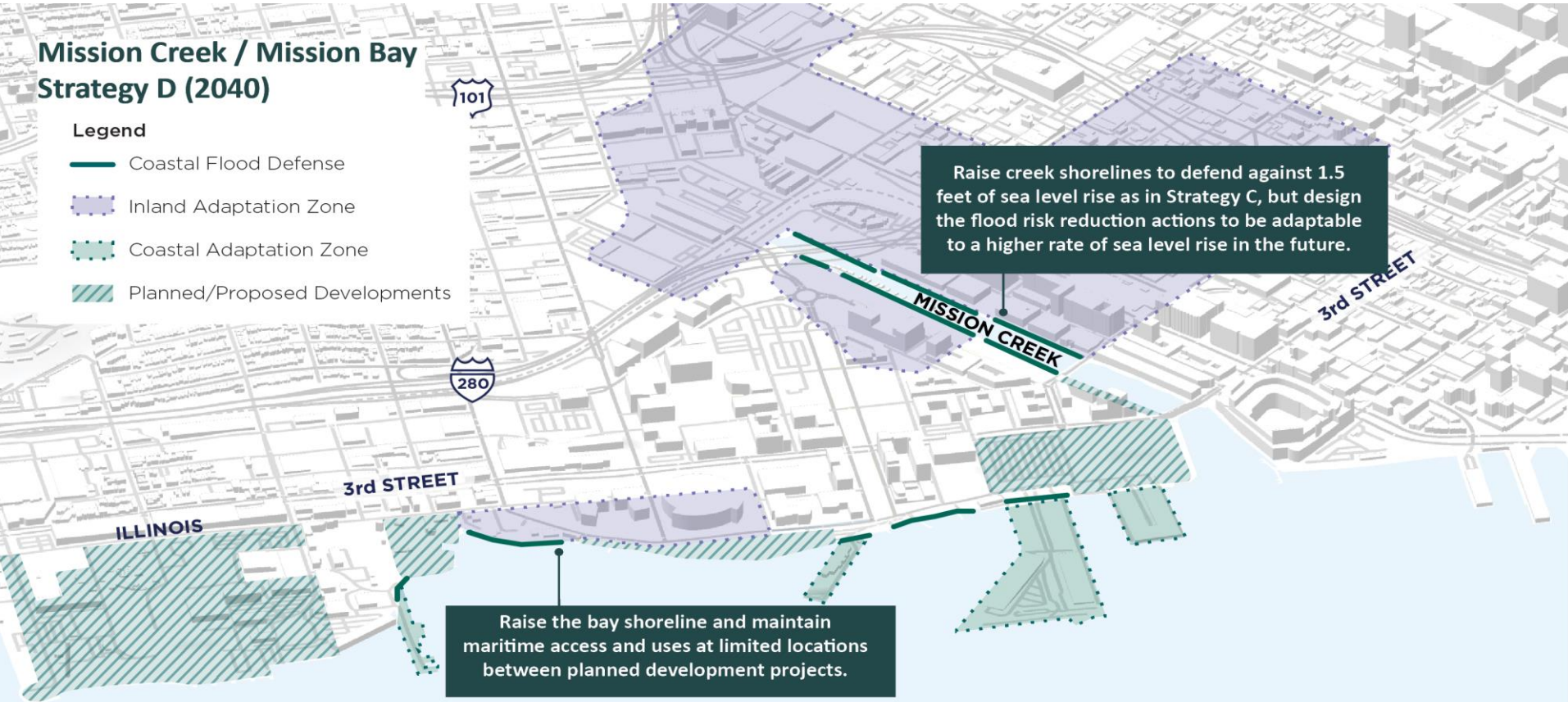


# STRATEGY D – LOWER SEA LEVEL RISE – ADAPTABLE

## Mission Creek / Mission Bay Strategy D (2040)

### Legend

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



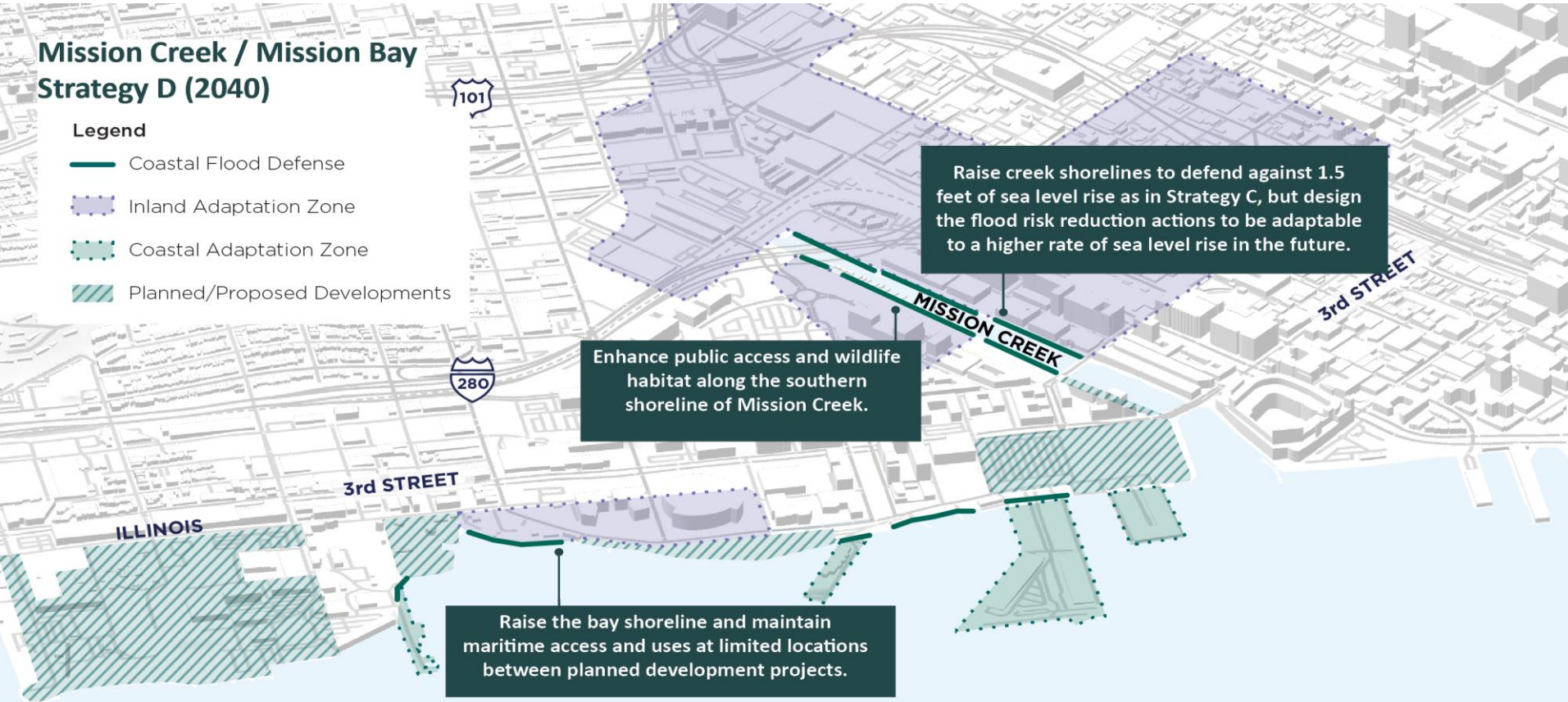


# STRATEGY D – LOWER SEA LEVEL RISE – ADAPTABLE

## Mission Creek / Mission Bay Strategy D (2040)

### Legend

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



Raise creek shorelines 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 southern shoreline of Mission Creek.

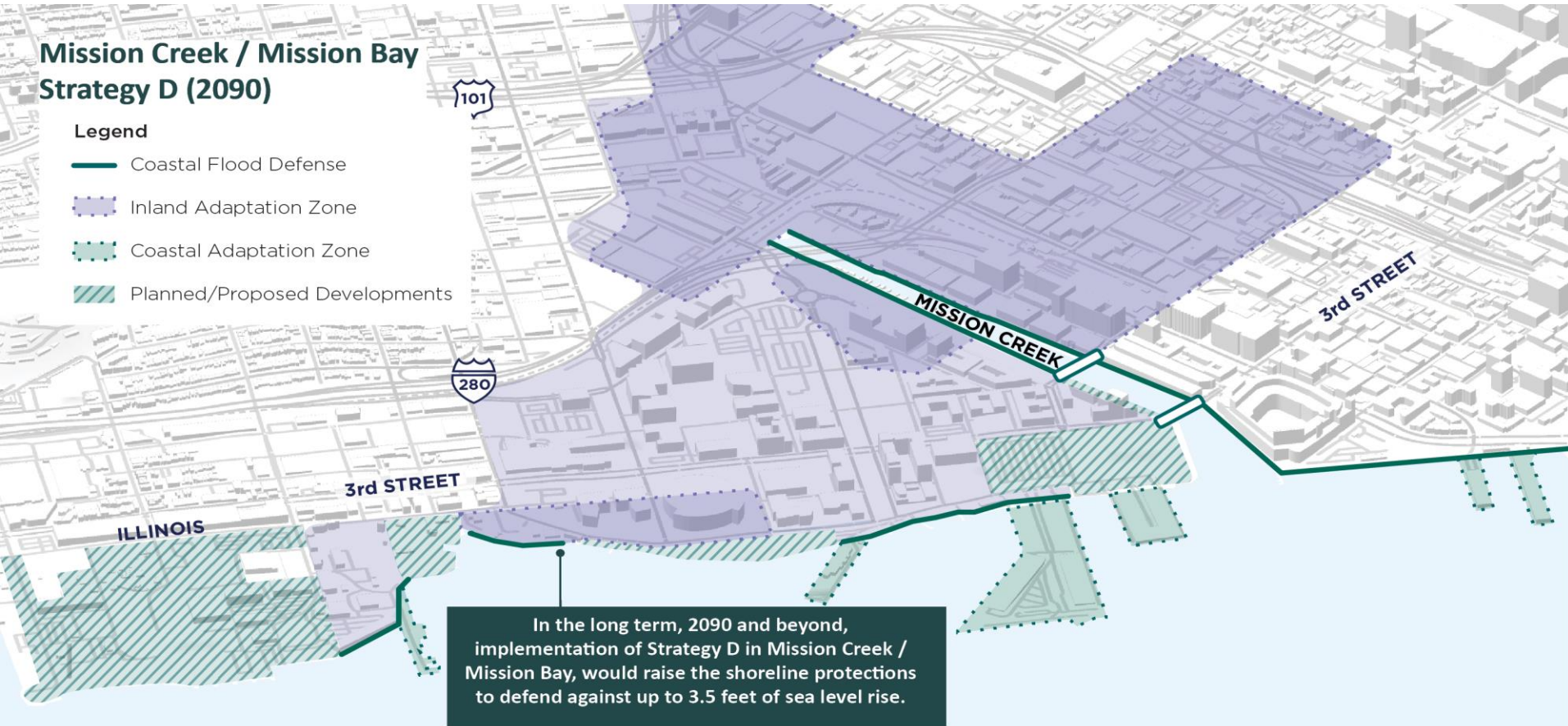
Raise the bay shoreline and maintain maritime access and uses at limited locations between planned development projects.

# STRATEGY D – LOWER SEA LEVEL RISE – ADAPTABLE

## Mission Creek / Mission Bay Strategy D (2090)

### Legend

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





## 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

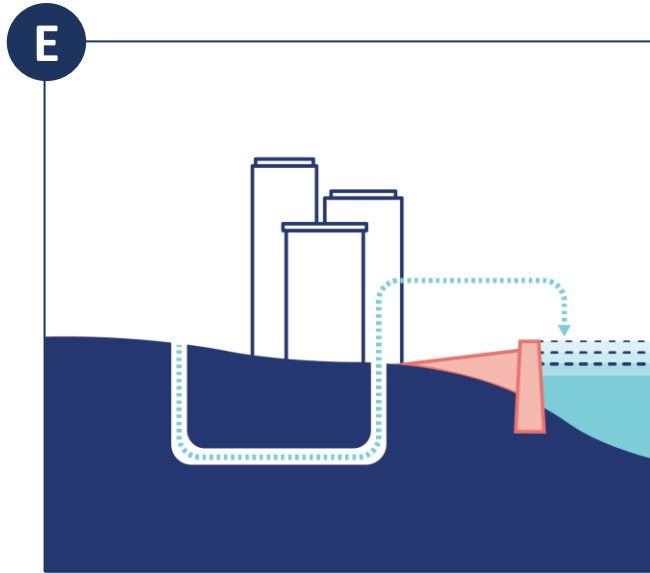
*What if...*  
we address flooding  
at a **higher rate** of  
sea level rise,  
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by **CA and SF**  
**guidance?**

STRATEGY E

STRATEGY F

STRATEGY G

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



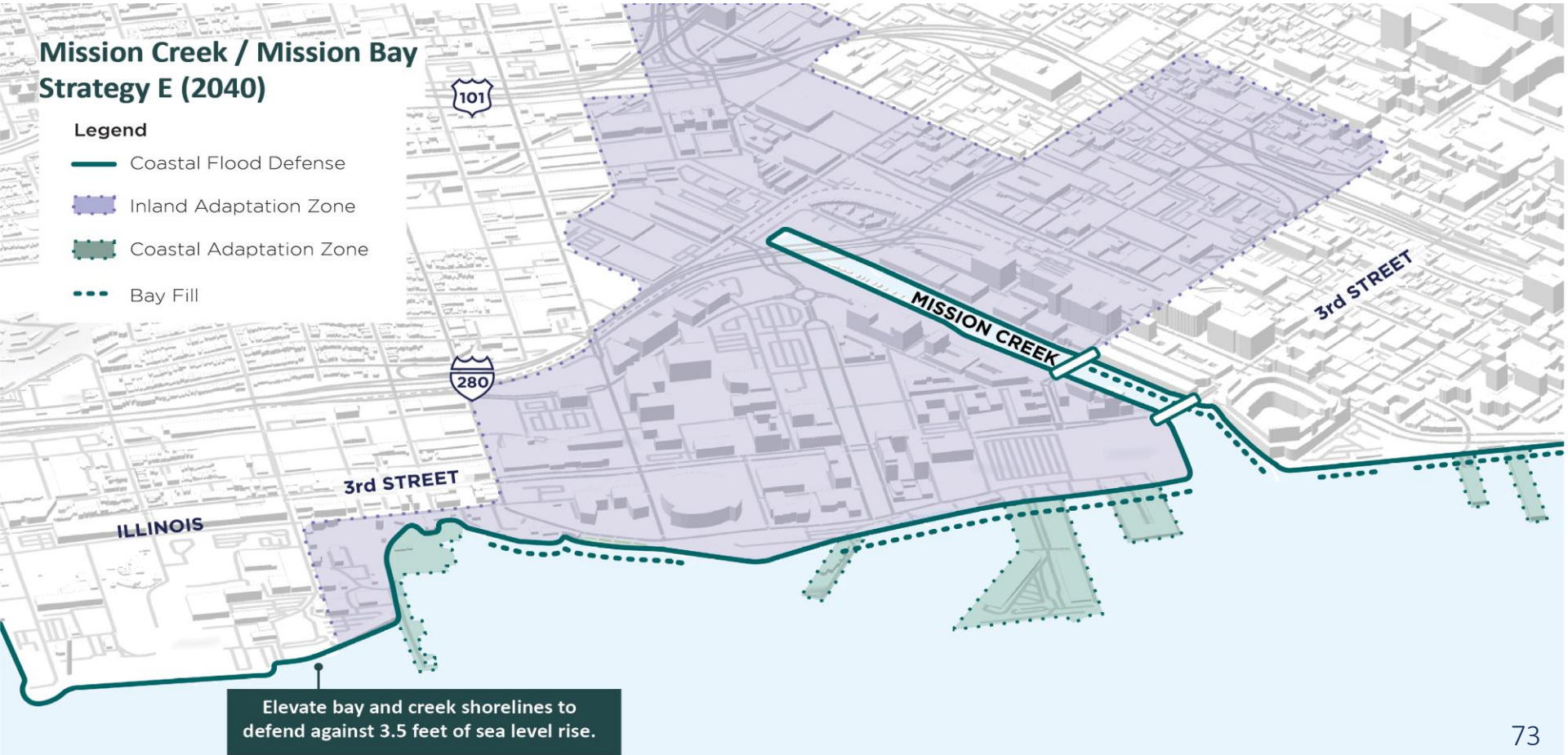
**Preserves a waterfront that looks and functions much as it does today by adapting the shoreline**

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

## Mission Creek / Mission Bay Strategy E (2040)

### Legend

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





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

## Mission Creek / Mission Bay Strategy E (2040)

### Legend

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

Buildings and infrastructure would be kept in place. These changes would require raising the historic bridges on Third and Fourth Streets over Mission Creek, as well as connected roads and rail lines.

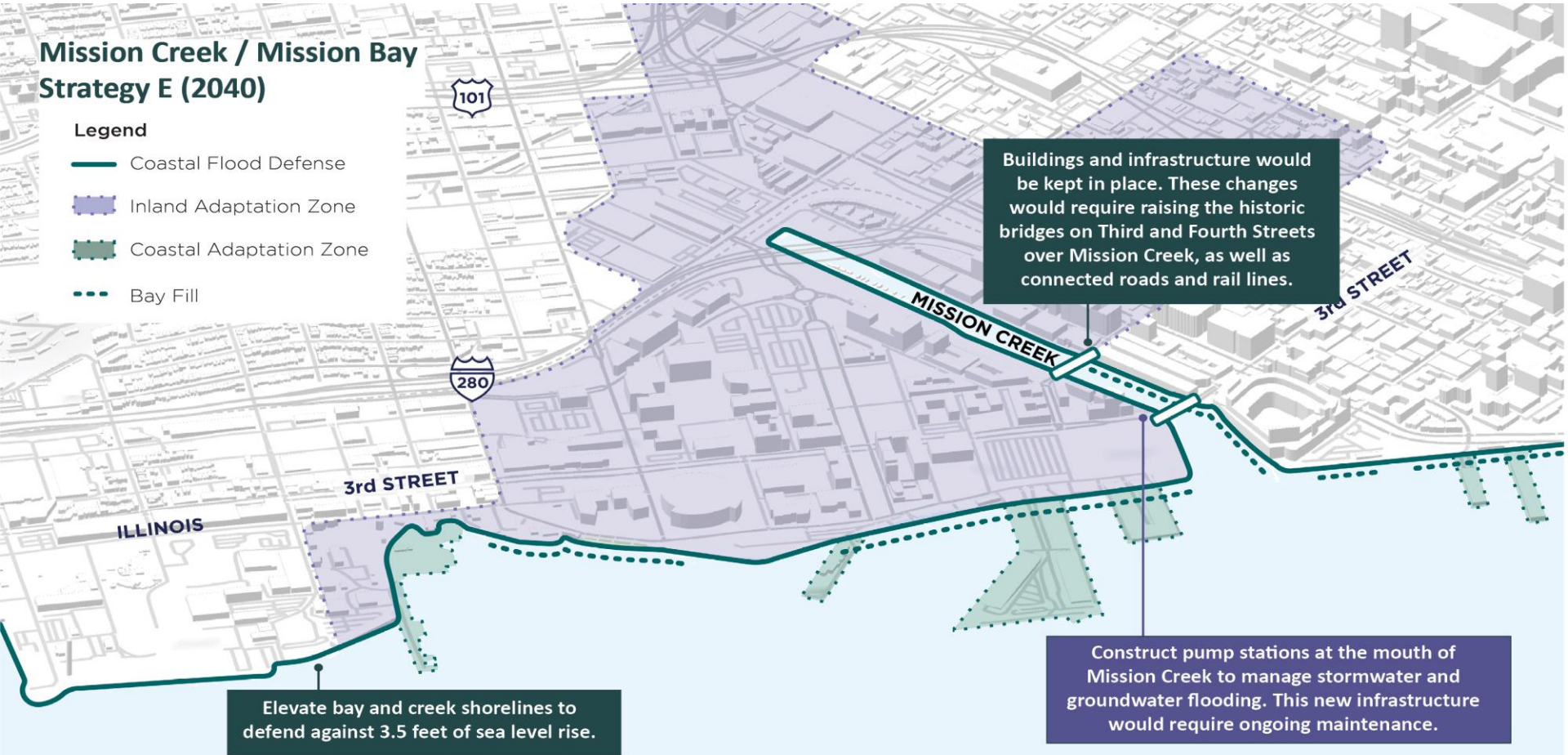
Elevate bay and creek shorelines to defend against 3.5 feet of sea level rise.

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

## Mission Creek / Mission Bay Strategy E (2040)

### Legend

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



Buildings and infrastructure would be kept in place. These changes would require raising the historic bridges on Third and Fourth Streets over Mission Creek, as well as connected roads and rail lines.

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

Construct pump stations at the mouth of Mission Creek to manage stormwater and groundwater flooding. This new infrastructure would require ongoing maintenance.



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

## Mission Creek / Mission Bay Strategy E (2040)

### Legend

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



Buildings and infrastructure would be kept in place. These changes would be consistent with the historic preservation goals.

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



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

## Mission Creek / Mission Bay Strategy E (2090)

### Legend

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





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

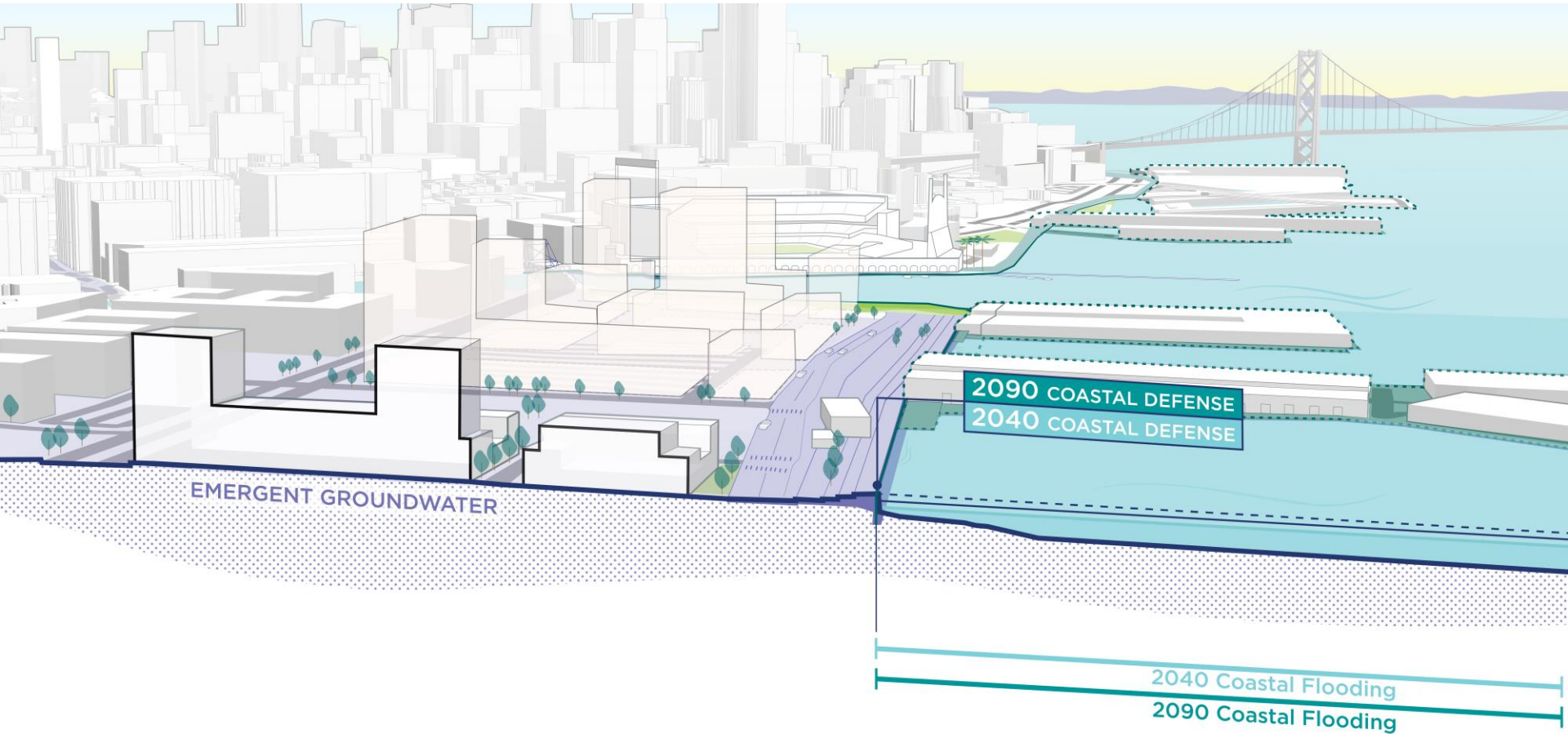
## Mission Creek / Mission Bay Strategy E (2090)

### Legend

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



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



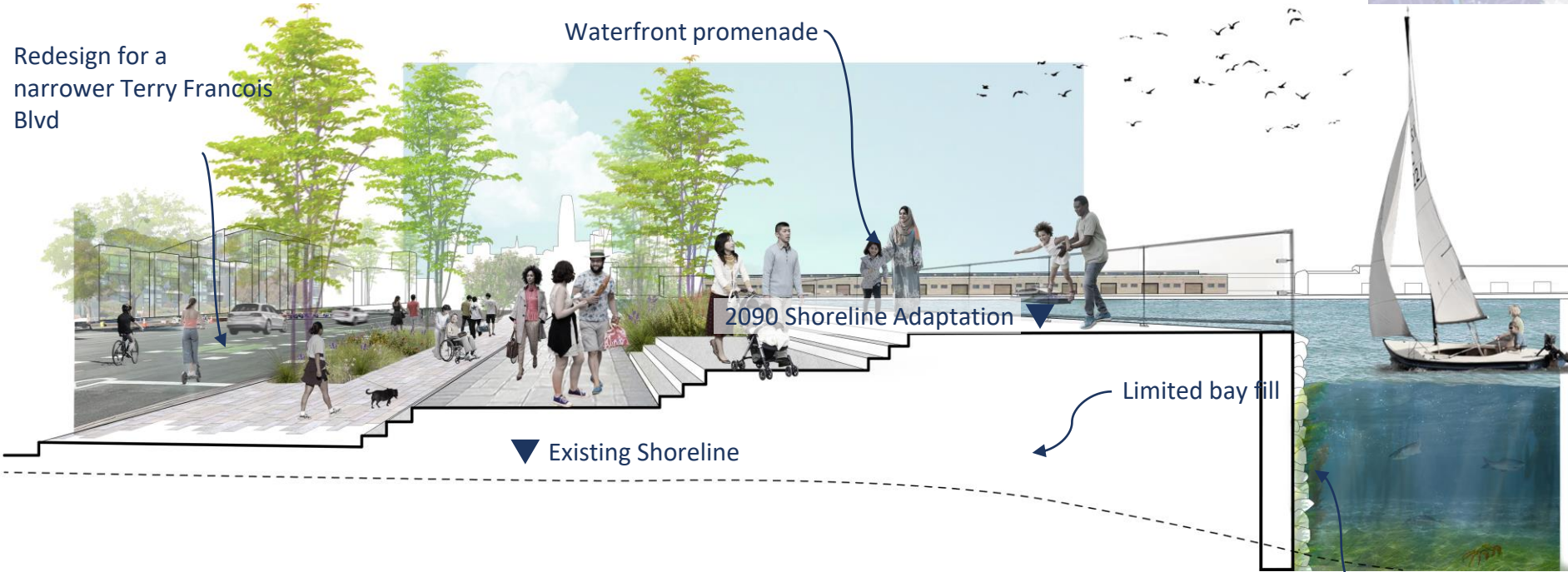
# STRATEGY E – HIGHER SEA LEVEL RISE – HOLD THE LINE

## Mission Creek / Mission Bay in 2090



Redesign for a narrower Terry Francois Blvd

Waterfront promenade

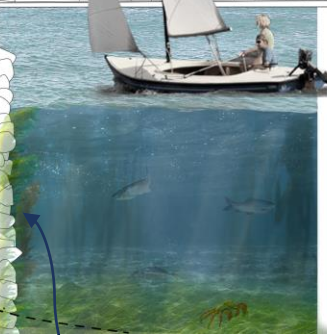


2090 Shoreline Adaptation

Existing Shoreline

Limited bay fill

Eco seawall



## POLL QUESTION #5

**Strategy E would preserve the current shoreline, streets, and buildings along the Mission Bay waterfront as close as possible to how they are today but would require a redesign of Terry Francois Boulevard and significant pumping infrastructure to manage stormwater and groundwater to reduce flooding within the city. Does this feel like the right priority?**



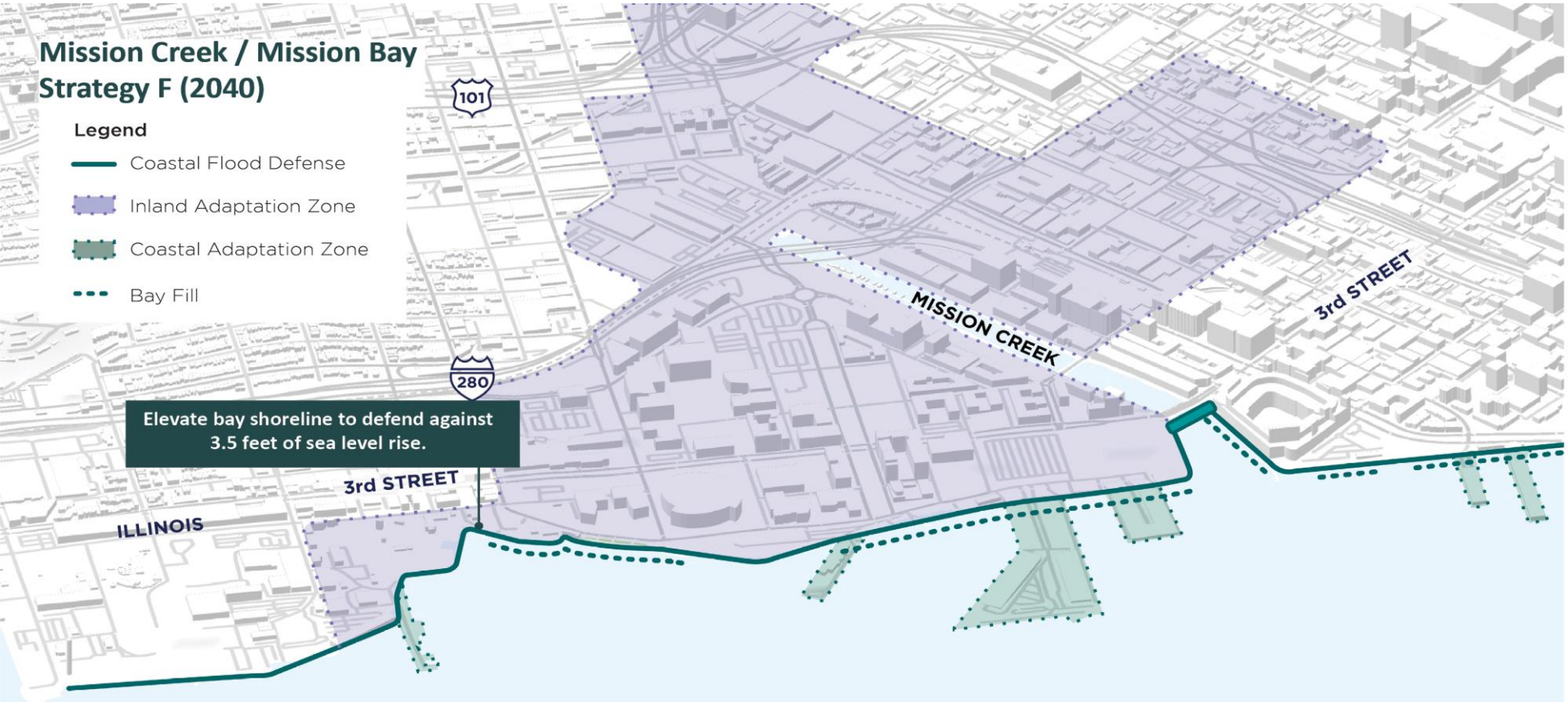


# STRATEGY F – HIGHER SEA LEVEL RISE – MANAGE THE WATER

## Mission Creek / Mission Bay Strategy F (2040)

### Legend

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



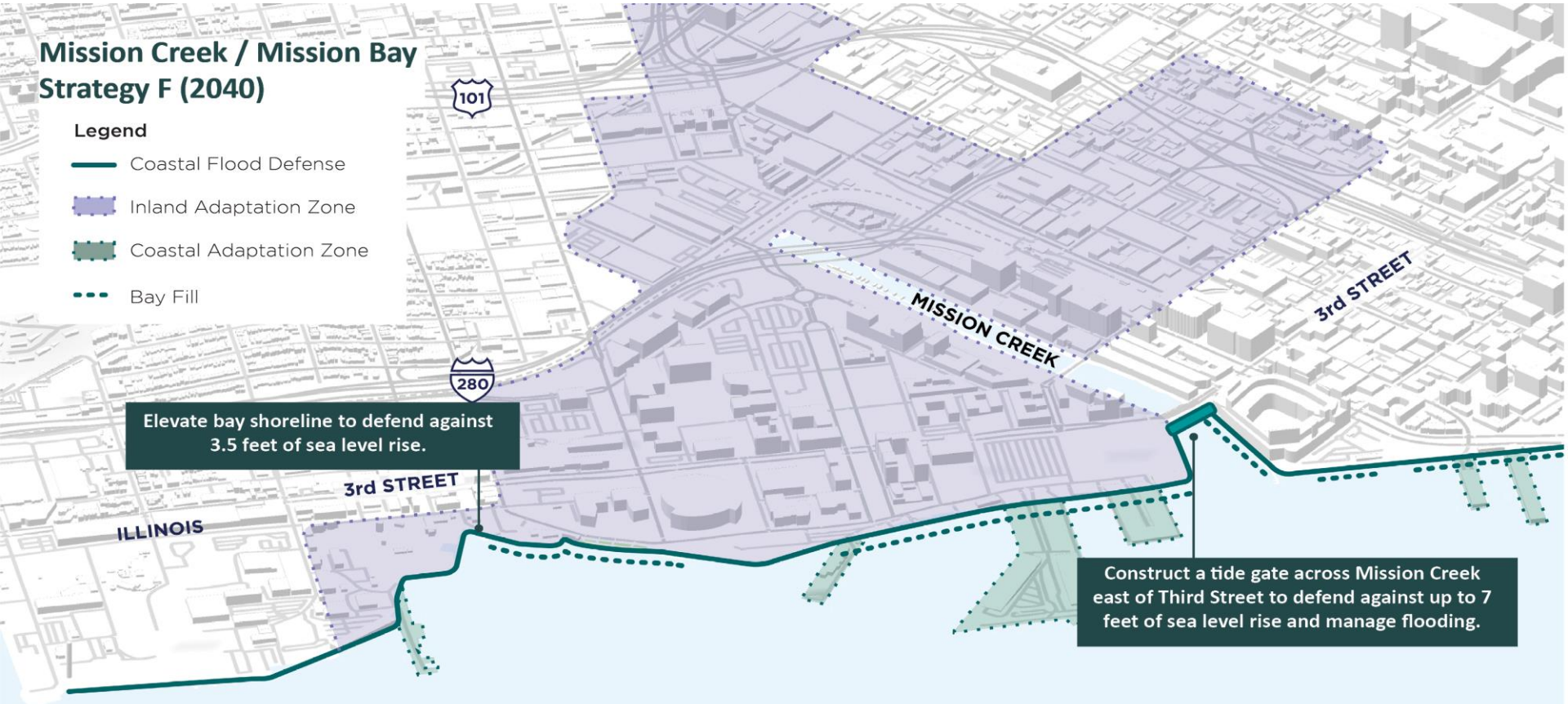
Elevate bay shoreline to defend against 3.5 feet of sea level rise.

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

## Mission Creek / Mission Bay Strategy F (2040)

### Legend

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



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

Construct a tide gate across Mission Creek east of Third Street to defend against up to 7 feet of sea level rise and manage flooding.



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

## Mission Creek / Mission Bay Strategy F (2040)

### Legend

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

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

3rd STREET

ILLINOIS



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

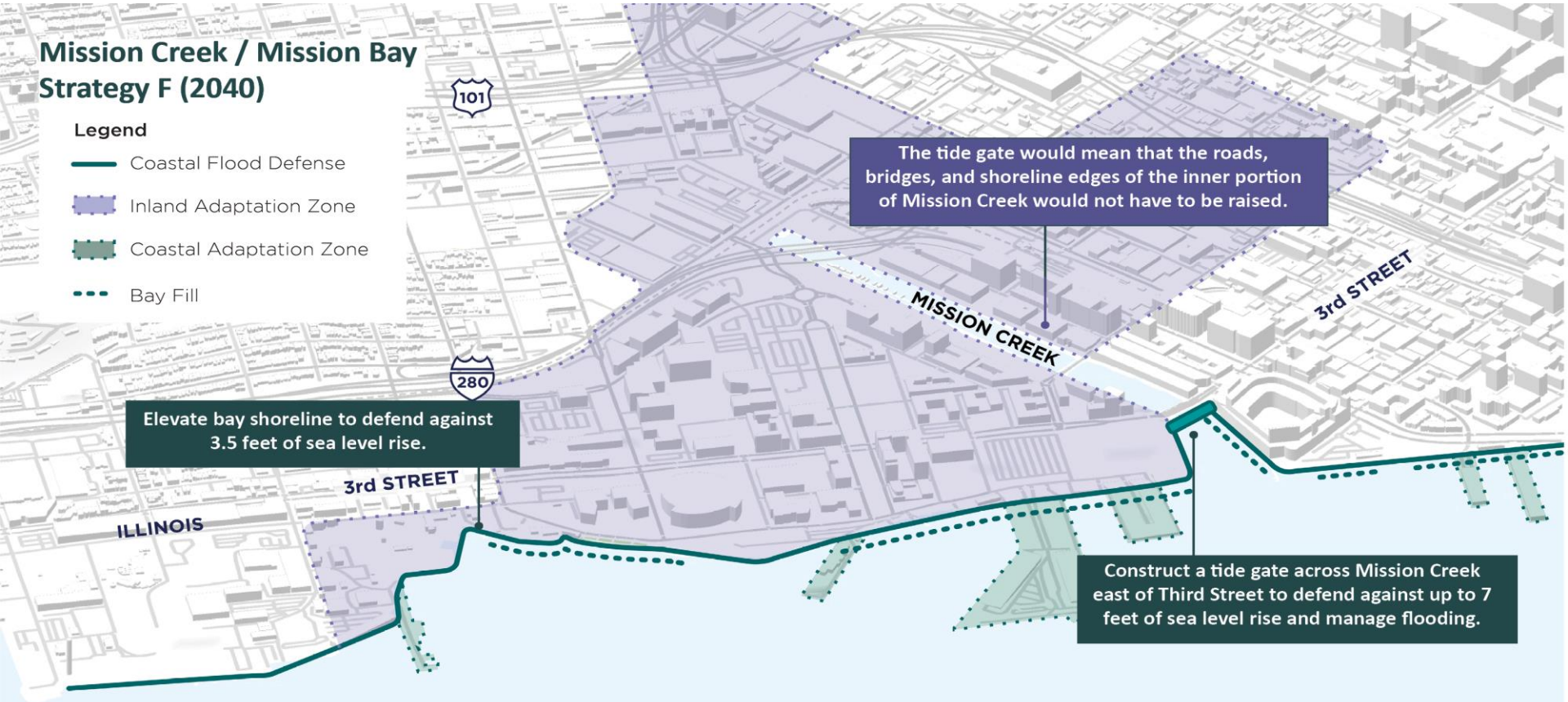


# STRATEGY F – HIGHER SEA LEVEL RISE – MANAGE THE WATER

## Mission Creek / Mission Bay Strategy F (2040)

### Legend

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



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

## Mission Creek / Mission Bay Strategy F (2090)

### Legend

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

Build a coastal flood defense along Illinois Street and Terry Francois Blvd, connecting to the tide gate, to defend against 7 feet of sea level rise.





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

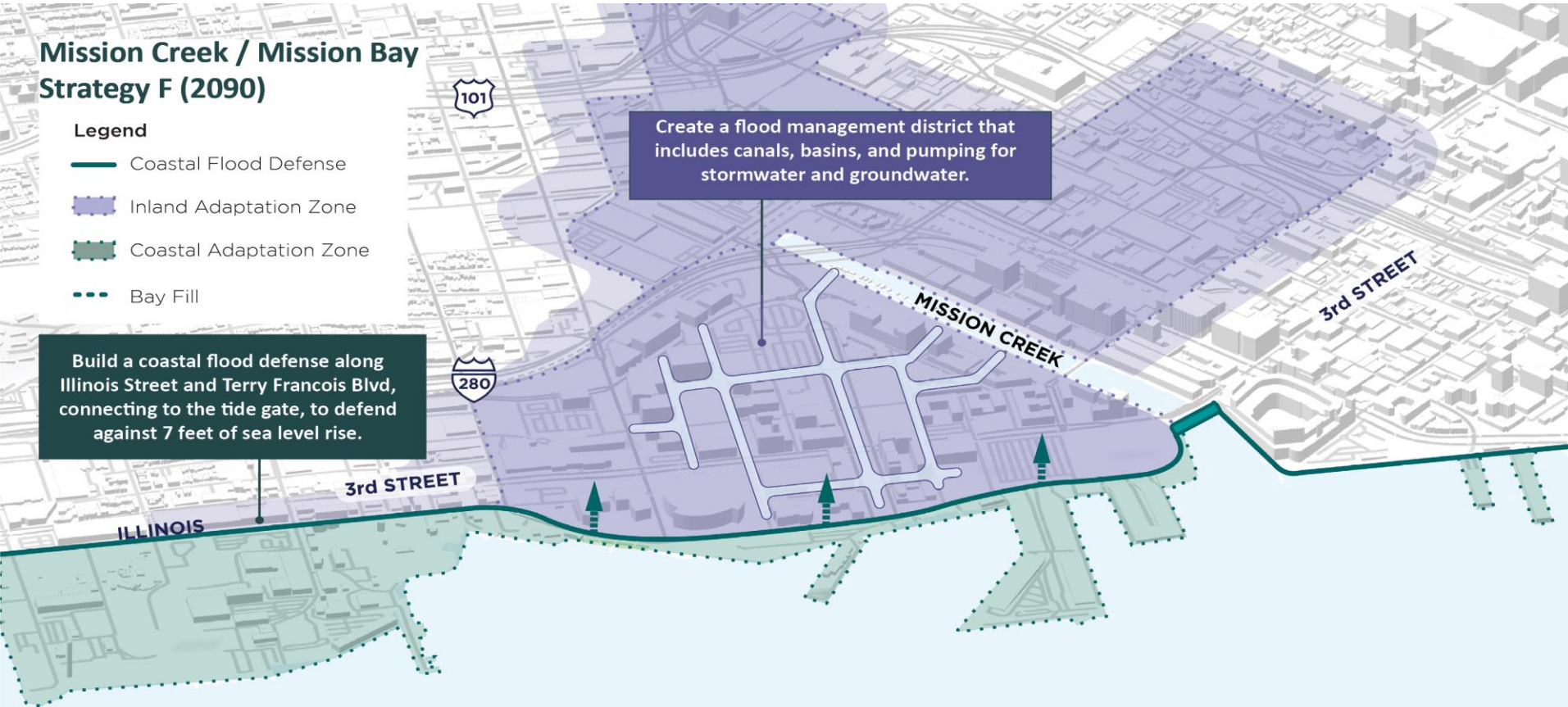
## Mission Creek / Mission Bay Strategy F (2090)

### Legend

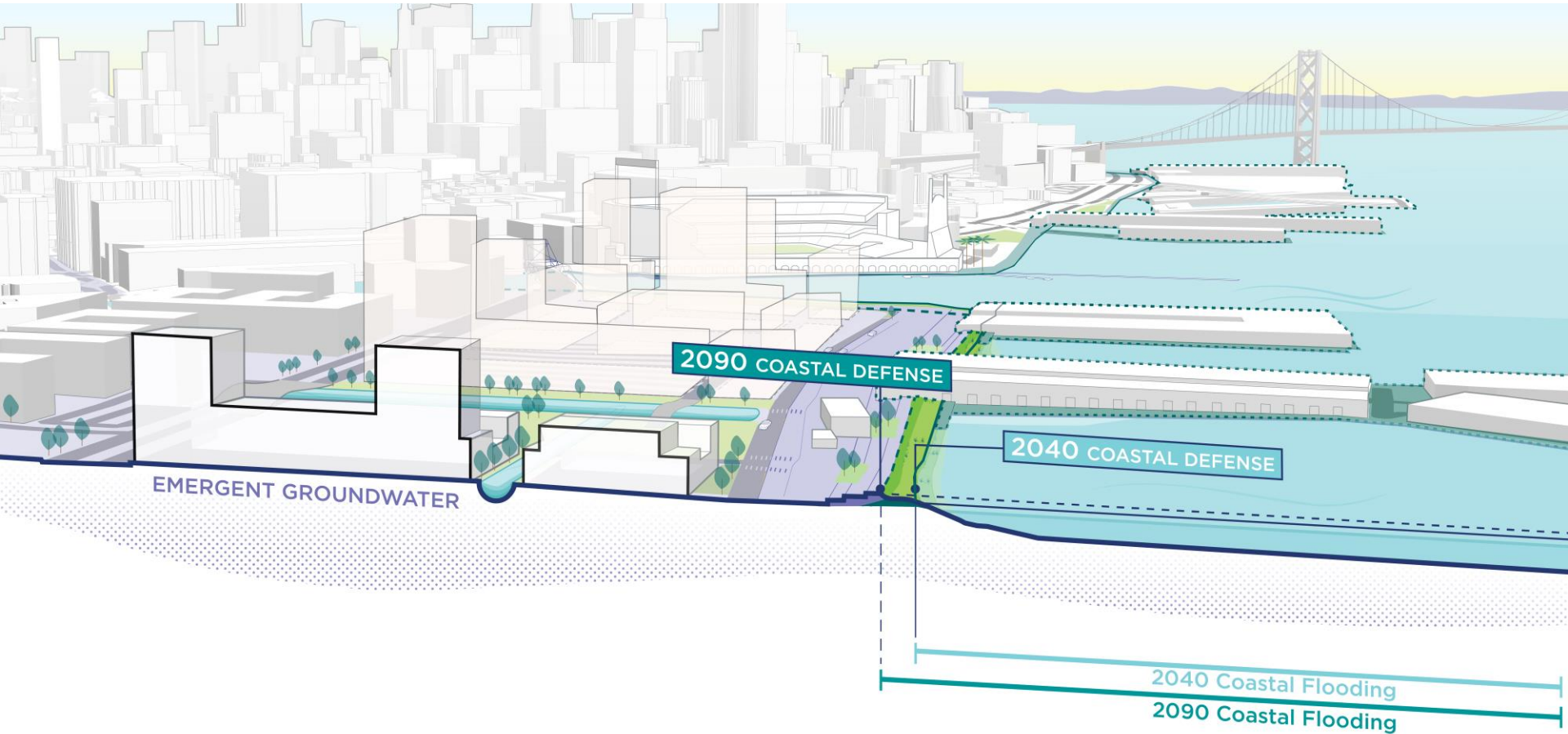
- Coastal Flood Defense
- Inland Adaptation Zone
- Coastal Adaptation Zone
- Bay Fill

Build a coastal flood defense along Illinois Street and Terry Francois Blvd, connecting to the tide gate, to defend against 7 feet of sea level rise.

Create a flood management district that includes canals, basins, and pumping for stormwater and groundwater.



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





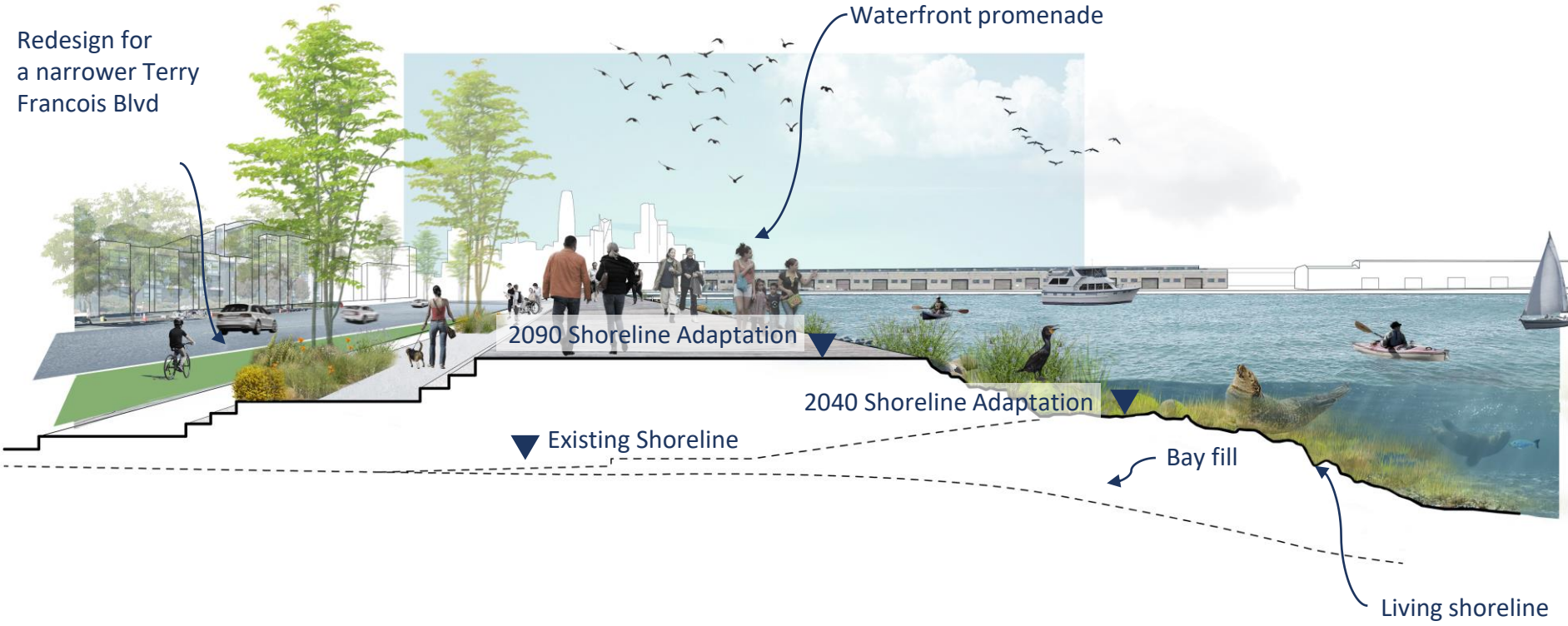
# STRATEGY F – HIGHER SEA LEVEL RISE – MANAGE THE WATER

## Mission Creek / Mission Bay in 2090



Redesign for  
a narrower Terry  
Francois Blvd

Waterfront promenade



2090 Shoreline Adaptation

2040 Shoreline Adaptation

Existing Shoreline

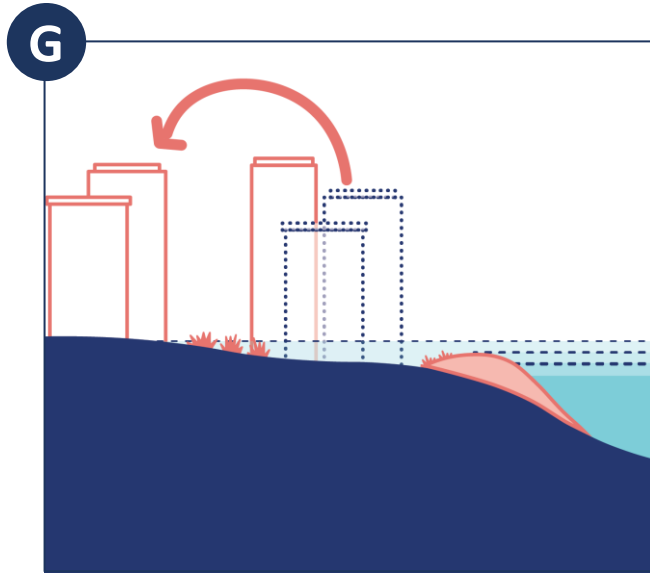
Bay fill

Living shoreline

## POLL QUESTION #6

**Strategy F would include tide gates across Islais Creek in the 2040 timeframe which would manage flood water and limit changes needed to inland roads and bridges 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



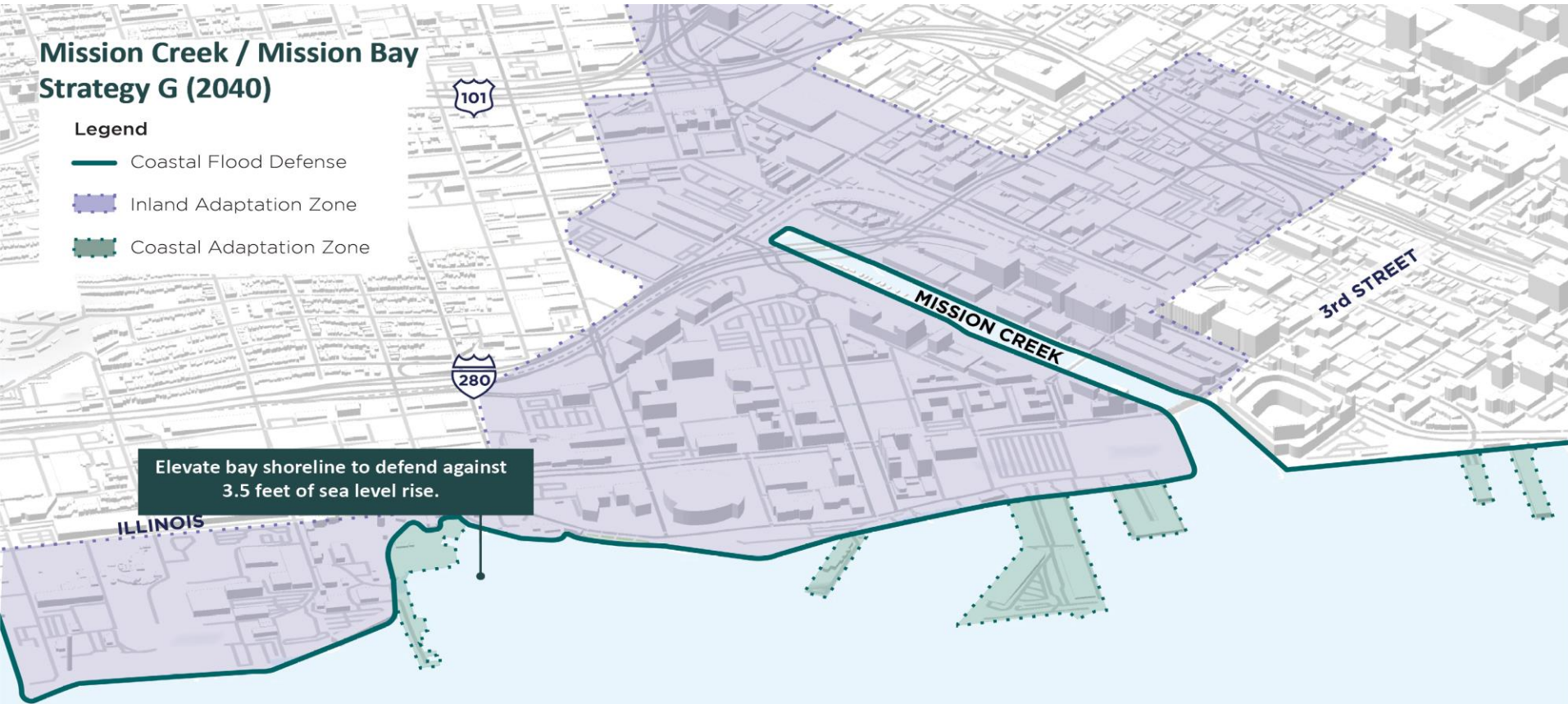
**Advances shoreline adaptation while working with natural inland flooding patterns to floodproof some buildings and infrastructure and move others away from the highest risk areas**

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

## Mission Creek / Mission Bay Strategy G (2040)

### Legend

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



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



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

## Mission Creek / Mission Bay Strategy G (2040)

### Legend

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



During extreme events, temporary closure structures would be placed on both sides of the Third and Fourth Street bridges over the creek to reduce inland flooding.

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

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

## Mission Creek / Mission Bay Strategy G (2090)

### Legend

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

Allow water to come into the Mission Bay area as sea levels rise to 7 feet or more.





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

## Mission Creek / Mission Bay Strategy G (2090)

### Legend

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

Allow water to come into the Mission Bay area as sea levels rise to 7 feet or more.

Floodproof or elevate buildings and infrastructure.



MISSION CREEK

3rd STREET

ILLINOIS

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

## Mission Creek / Mission Bay Strategy G (2090)

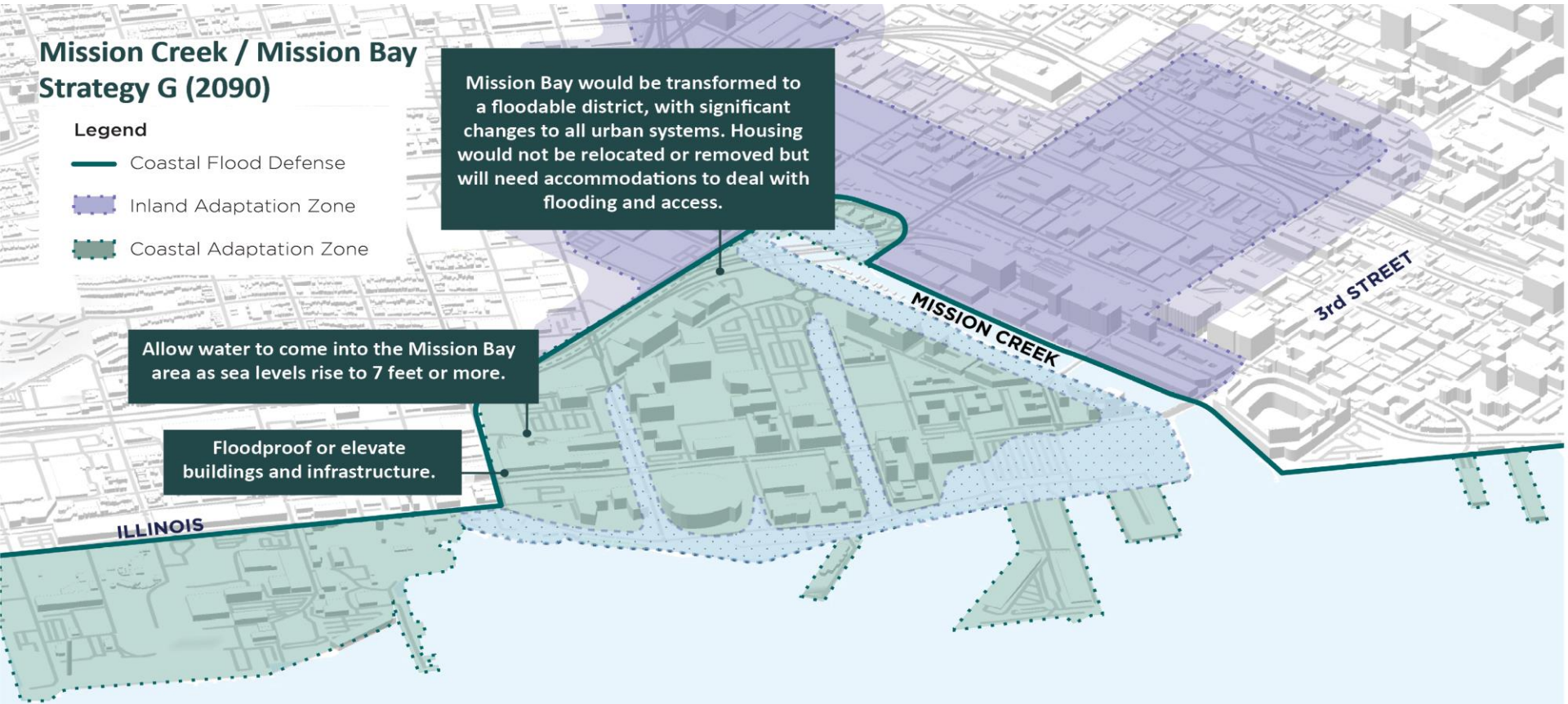
### Legend

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

Mission Bay would be transformed to a floodable district, with significant changes to all urban systems. Housing would not be relocated or removed but will need accommodations to deal with flooding and access.

Allow water to come into the Mission Bay area as sea levels rise to 7 feet or more.

Floodproof or elevate buildings and infrastructure.





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

## Mission Creek / Mission Bay Strategy G (2090)

### Legend

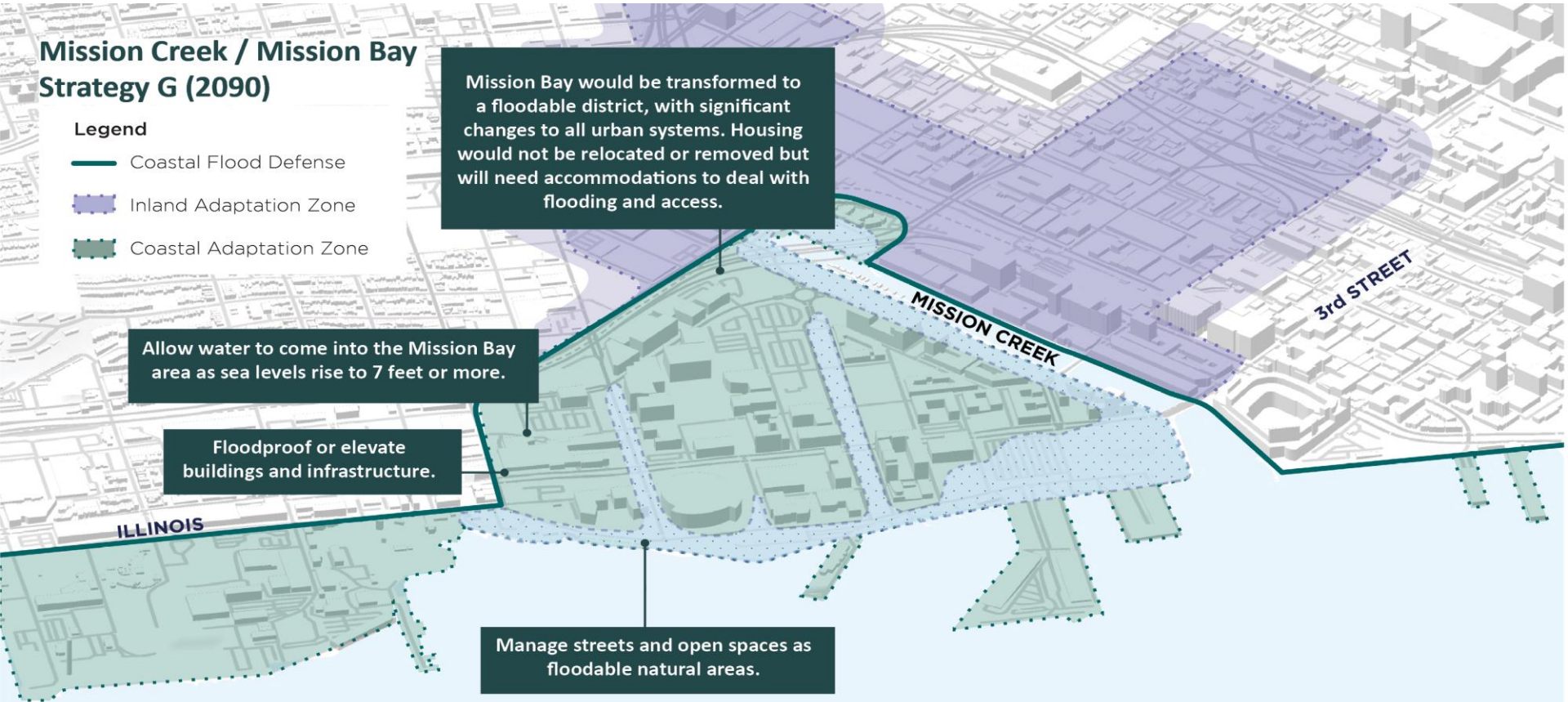
- Coastal Flood Defense
- Inland Adaptation Zone
- Coastal Adaptation Zone

Mission Bay would be transformed to a floodable district, with significant changes to all urban systems. Housing would not be relocated or removed but will need accommodations to deal with flooding and access.

Allow water to come into the Mission Bay area as sea levels rise to 7 feet or more.

Floodproof or elevate buildings and infrastructure.

Manage streets and open spaces as floodable natural areas.



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

## Mission Creek / Mission Bay Strategy G (2090)

### Legend

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

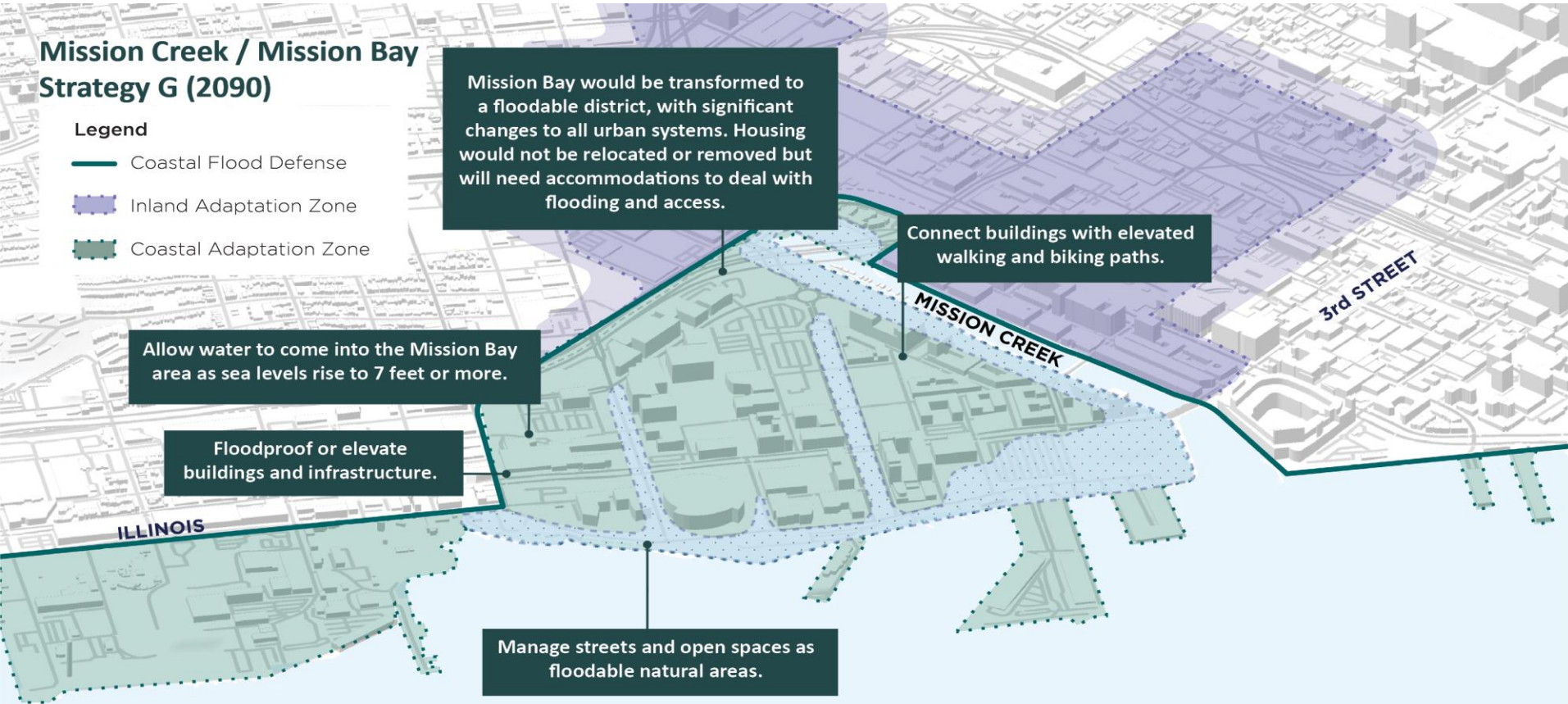
Mission Bay would be transformed to a floodable district, with significant changes to all urban systems. Housing would not be relocated or removed but will need accommodations to deal with flooding and access.

Connect buildings with elevated walking and biking paths.

Allow water to come into the Mission Bay area as sea levels rise to 7 feet or more.

Floodproof or elevate buildings and infrastructure.

Manage streets and open spaces as floodable natural areas.





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

## Mission Creek / Mission Bay Strategy G (2090)

### Legend

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

Mission Bay would be transformed to a floodable district, with significant changes to all urban systems. Housing would not be relocated or removed but will need accommodations to deal with flooding and access.

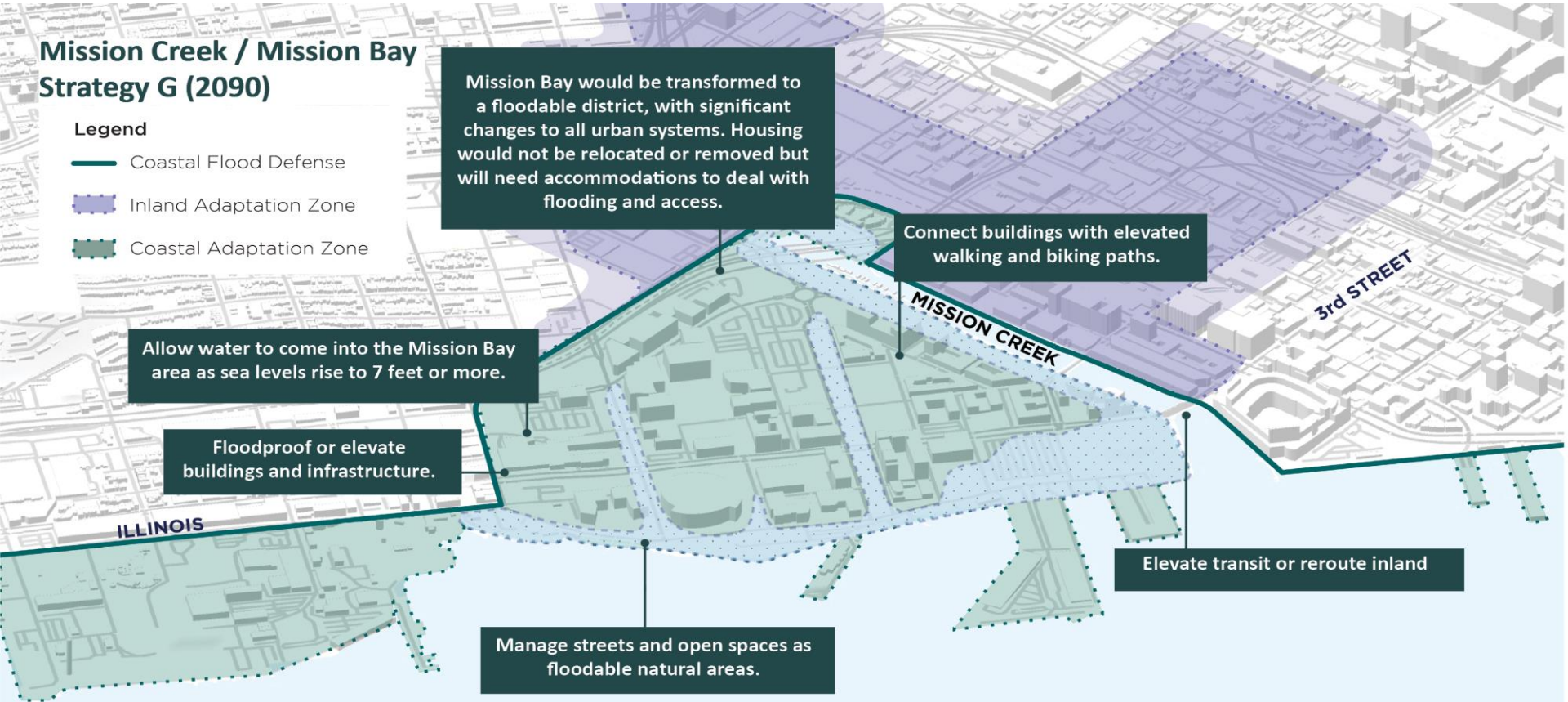
Connect buildings with elevated walking and biking paths.

Allow water to come into the Mission Bay area as sea levels rise to 7 feet or more.

Floodproof or elevate buildings and infrastructure.

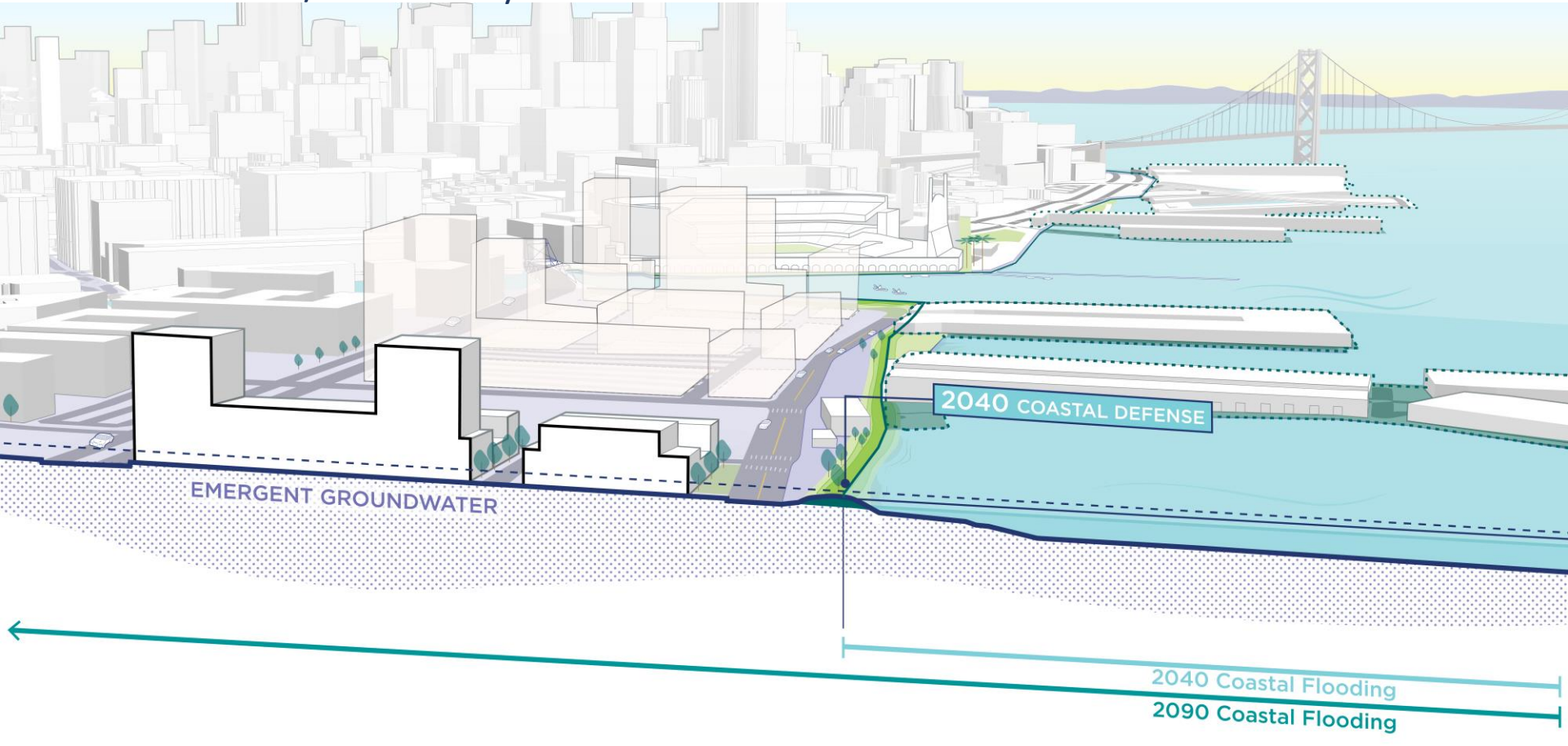
Manage streets and open spaces as floodable natural areas.

Elevate transit or reroute inland



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

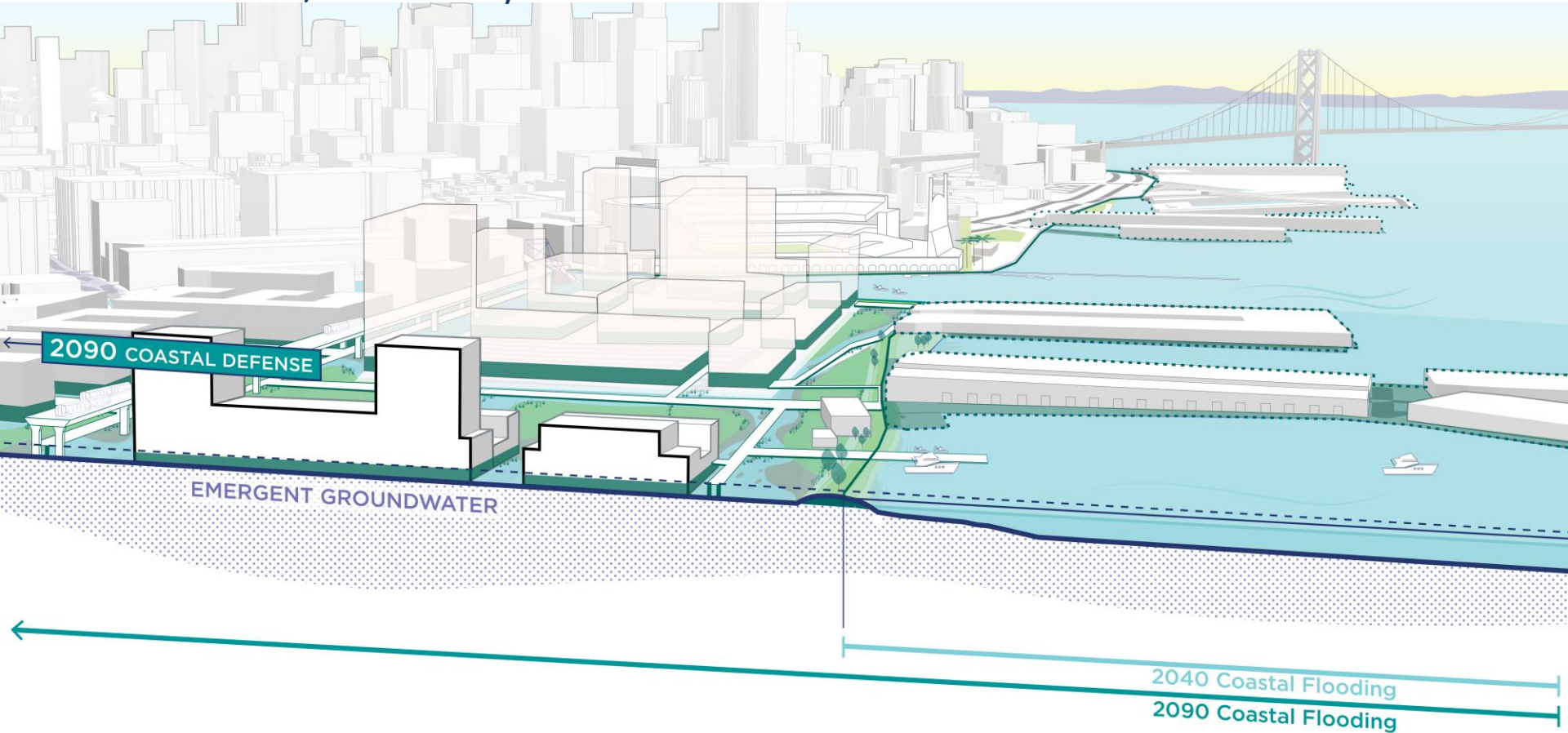
Mission Creek / Mission Bay in 2040





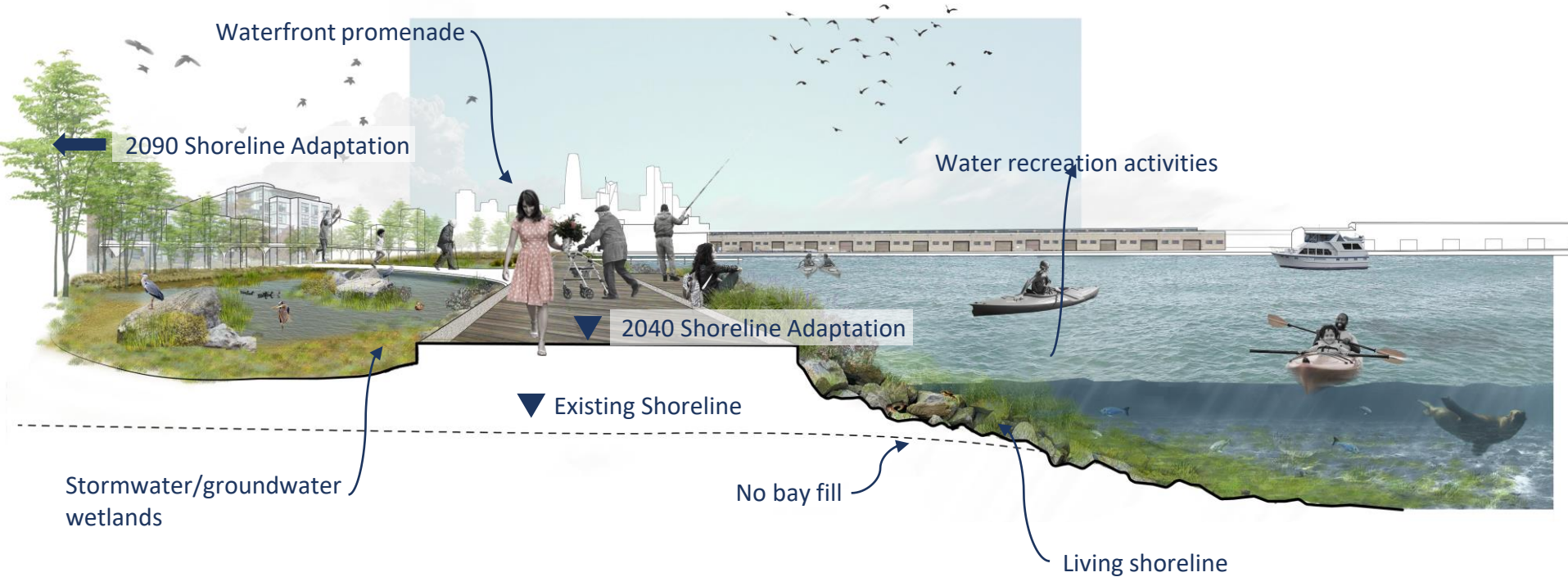
# STRATEGY G – HIGHER SEA LEVEL RISE – ALIGN WITH WATERSHEDS

Mission Creek / Mission Bay in 2090



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

## Mission Creek / Mission Bay in 2090



## POLL QUESTION #7

**Strategy G prioritizes enhancing habitat and restoring watersheds but requires the most transformational change (like floodable streets and open spaces, elevated walkways, and changes to the transportation network). How do you feel about this?**

## POLL QUESTION #8

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 **Mission Creek/Mission Bay**, please rank the following opportunities:



# Next Steps



# DRAFT WATERFRONT ADAPTATION STRATEGIES DEVELOPMENT SCHEDULE



**PORT of SAN FRANCISCO**  
**US Army Corps of Engineers.**

*Draft Waterfront Adaptation Plan (Tentatively Selected Plan)*

# 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



## 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?**

# 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)

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 under a clear blue sky. There are some trees and a signpost on the right side of the path.

# Thank You

Luiz Barata | [luiz.barata@sfport.com](mailto: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 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

Luiz Barata | [luiz.barata@sfport.com](mailto:luiz.barata@sfport.com)

