Subregional Adaptation Planning

Project Partners Workshop

April 24, 2024 @ 10am PT

Agenda

01

Hazards and Risk Reduction

02

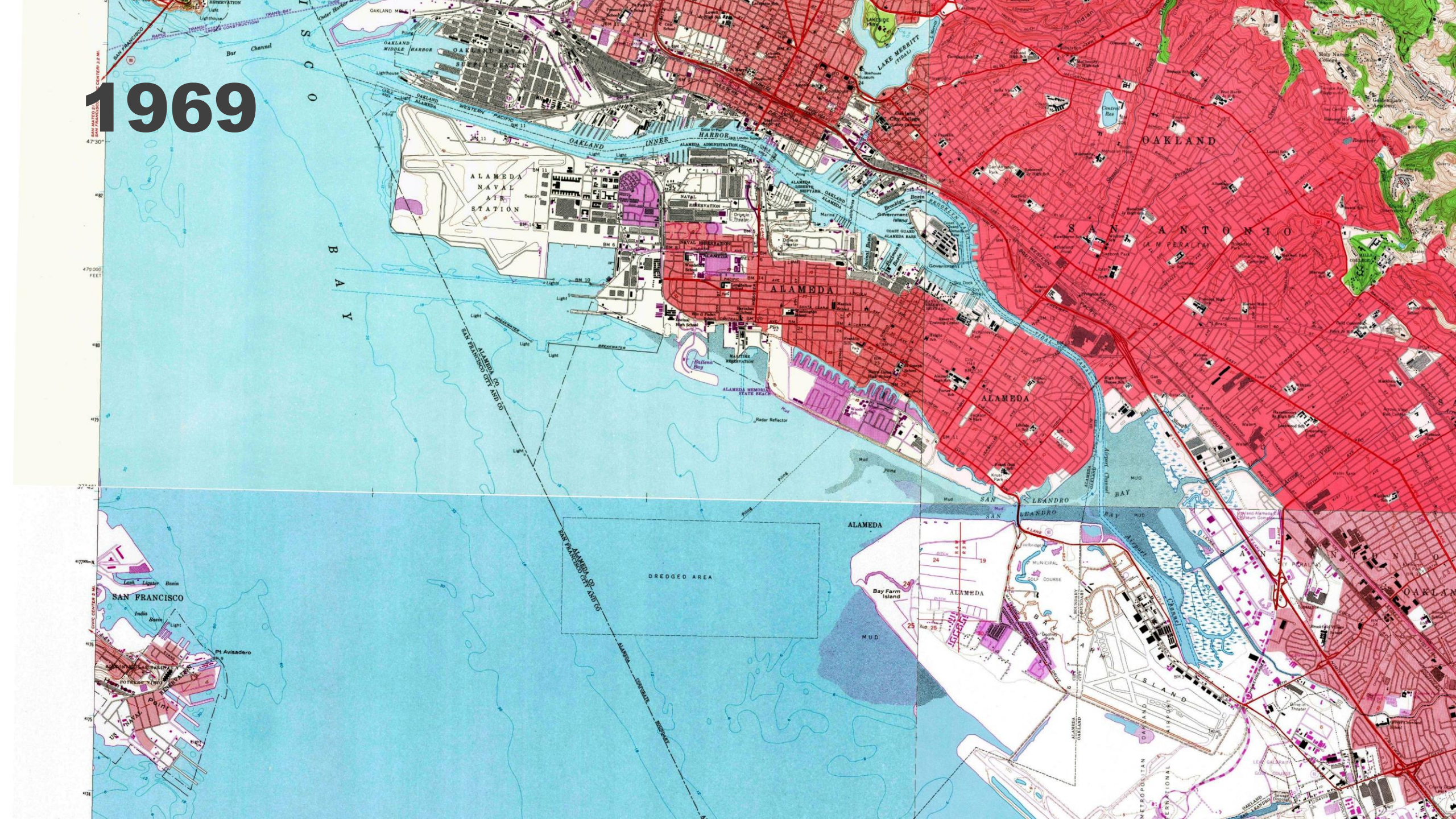
Opportunities to Change for the Better

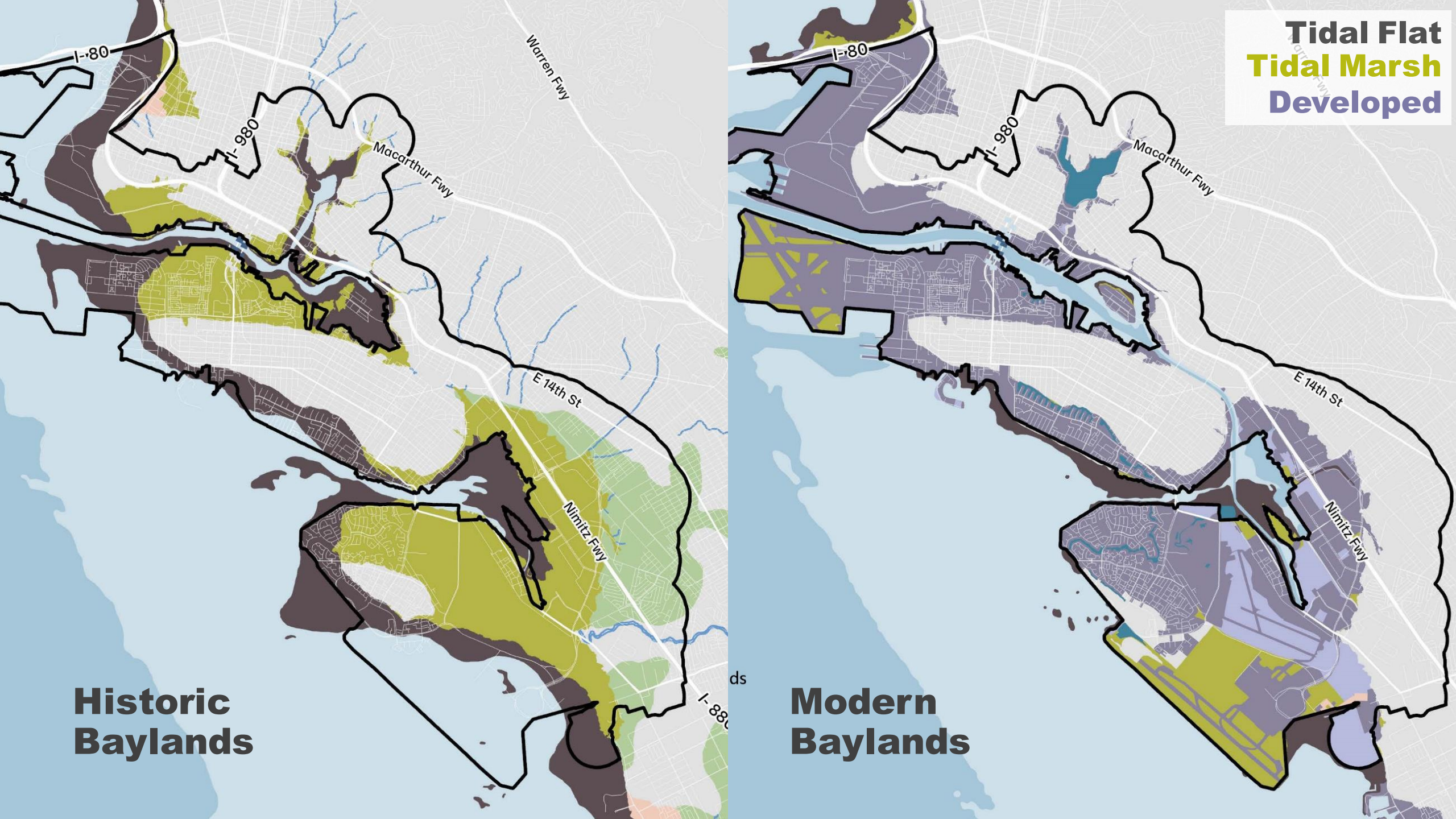
03

Today’s Task

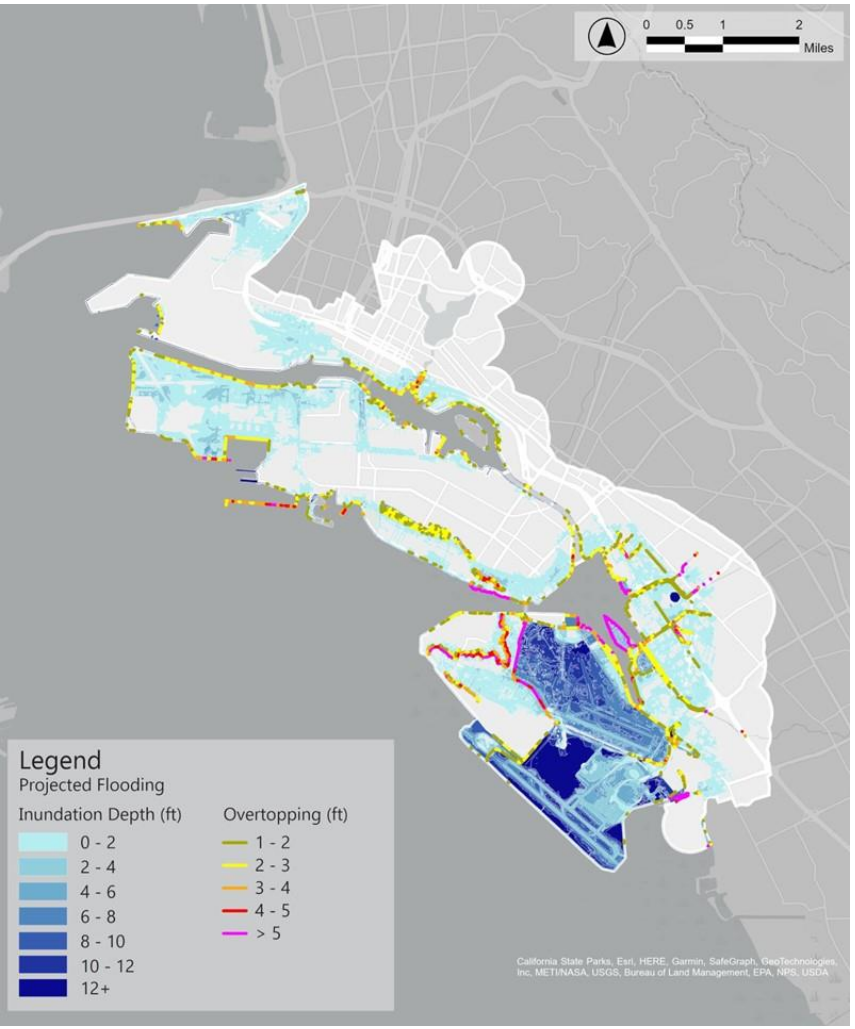
Hazards and Risk Reduction


1895
Gibbon Pt.
LIGHT
Deep Water Channel
S.P.R.R. NARROW GAUGE
San Antonio Creek
S.P.R.R. LIVERMORE LINE
Lake Merritt
OAKLAND
Indian Gulch
Oakland Harbor
ALAMEDA
Fruitvale
Rincon Pt.
Steamboat Pt.
Mission Rock
Potrero Pt.
BOUNDARY LINE
Hunter Point
Avisadero Pt.
SAN LEANDRO BAY
San Leandro Bay
Bay Farm Island
SOUTHERN
San Leandro
Fitchburg
East Creek

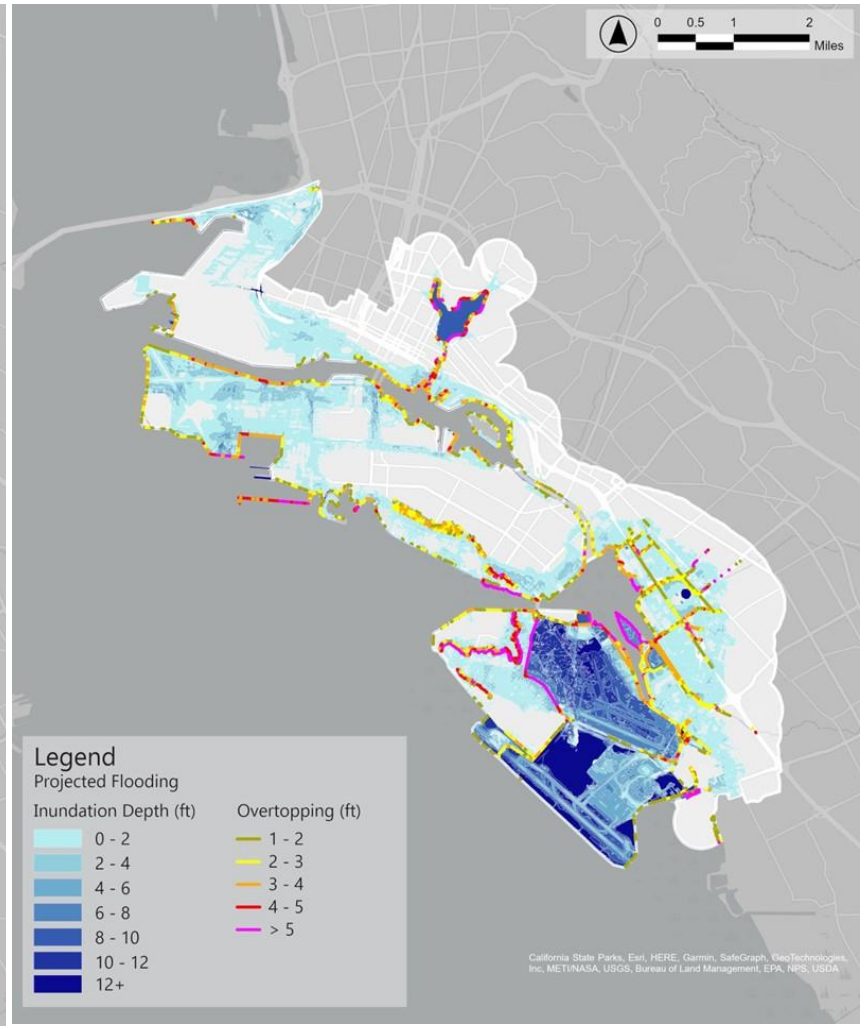

1969
SAN FRANCISCO BAY
OAKLAND
ALAMEDA
SAN ANTONIO
ALAMEDA NAVAL AIR STATION
OAKLAND NAVAL SUPPLY CENTER
OAKLAND INNER HARBOR
LAKE MERRITT (TIDAL)
SAN LEANDRO BAY
DREDGED AREA
SAN FRANCISCO
Bay Farm Island
Pt Avisadero
ALAMEDA CO
SAN FRANCISCO CITY AND CO


Tidal Flat
Tidal Marsh
Developed
I-80
I-980
Macarthur Fwy
Warren Fwy
E 14th St
Nimitz Fwy
Historic Baylands
Modern Baylands

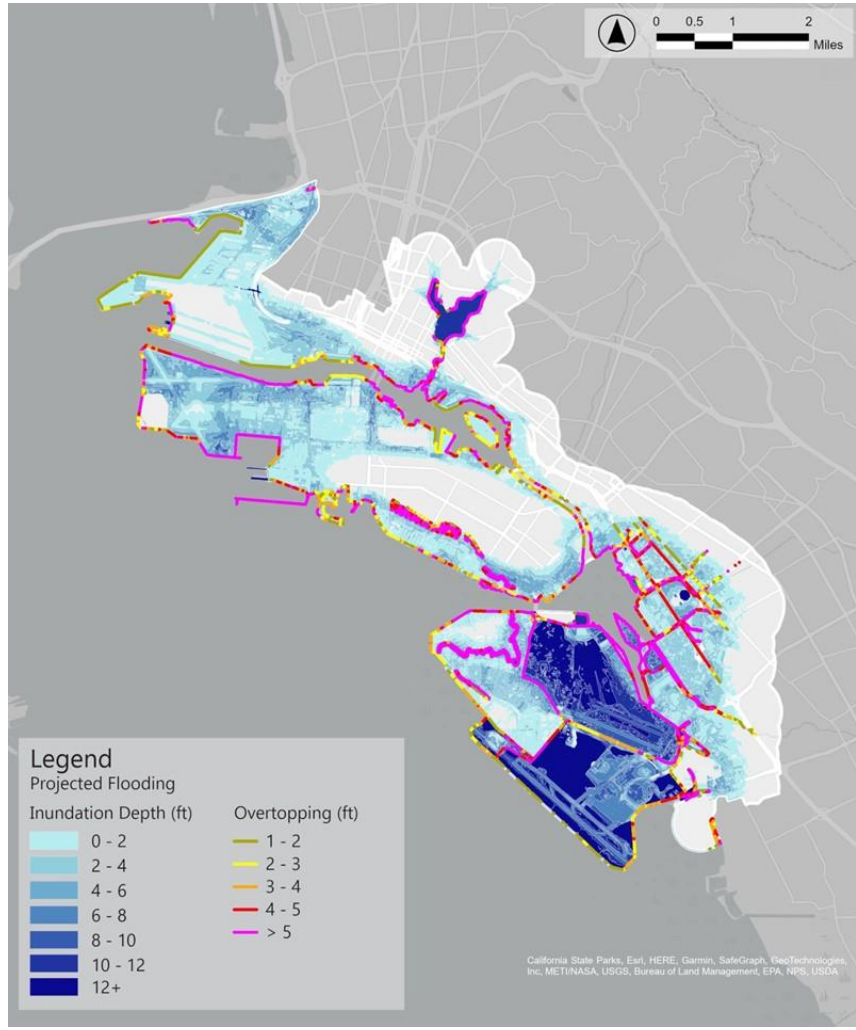
Coastal Flooding



2 ft of sea level rise +
100-year event

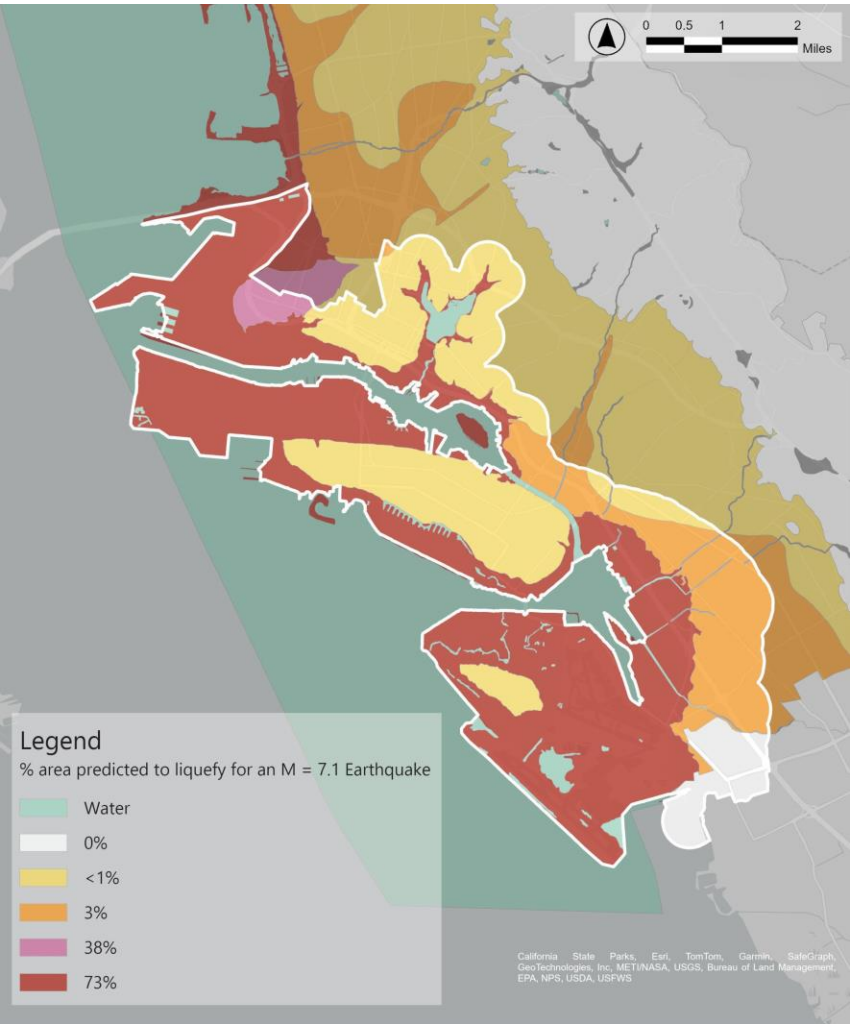


3 ft of sea level rise +
100-year event

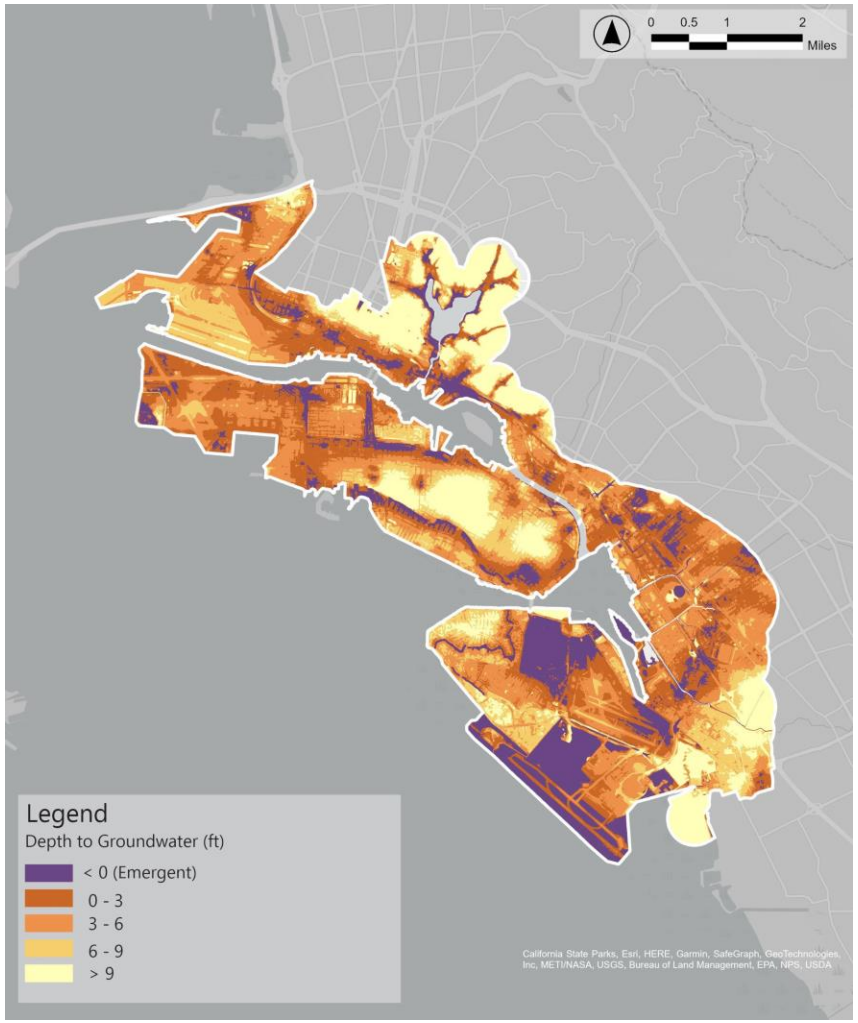


5½ ft of sea level rise +
100-year event

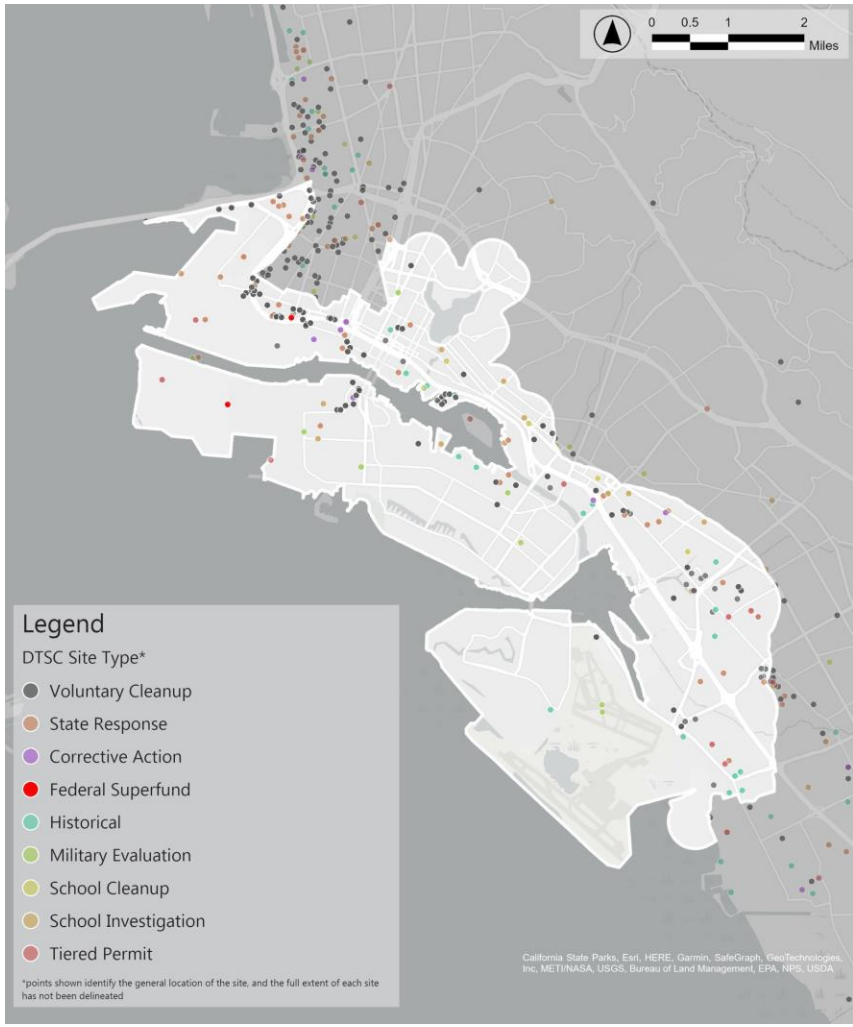
Compounding Hazards



Liquefaction



Depth to Groundwater with 3 ft of Sea Level Rise



Potentially Contaminated Sites (DTSC)

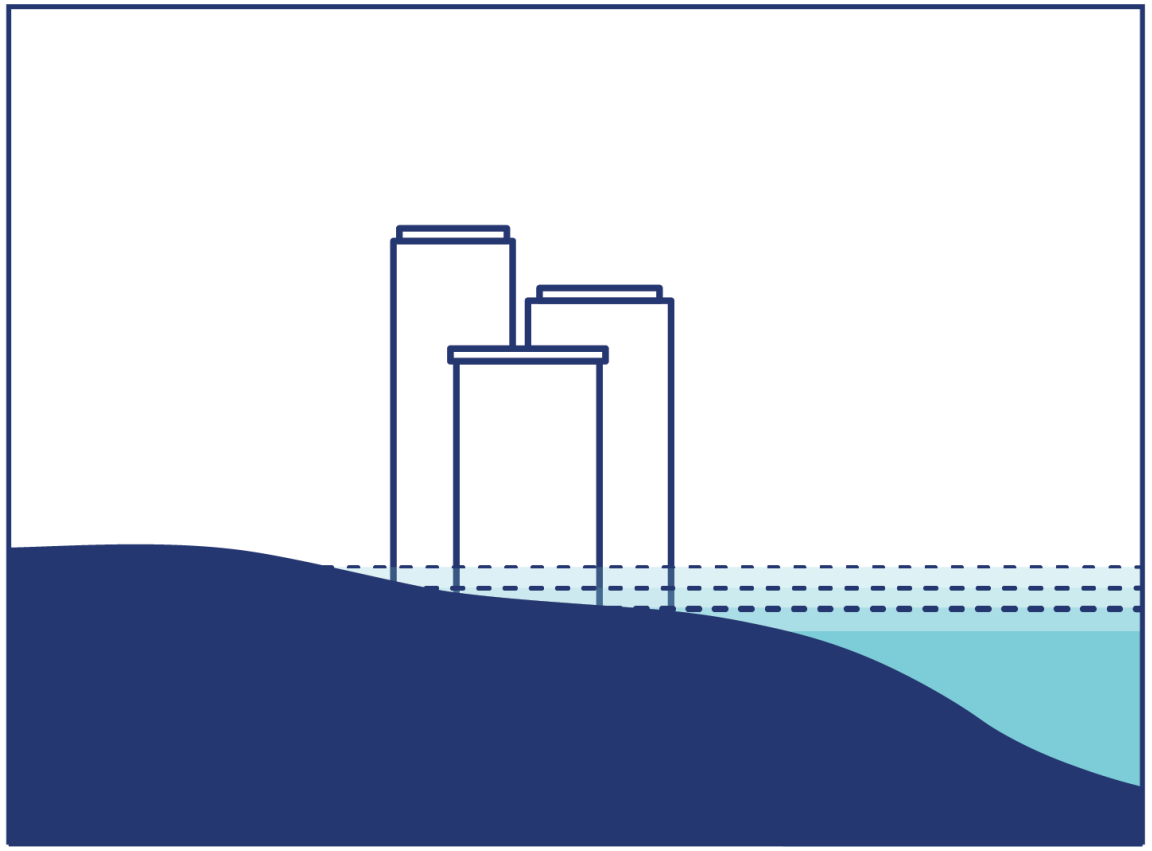
Coastal and Inland Flooding

Imagine this is the city's shoreline today

Port of San Francisco Waterfront Resilience ProgramDraft Adaptation Strategies Storymaps (2022)
https://storymaps.arcgis.com/stories/1ed3561c936244f2979ad68cda6a681a

Coastal and Inland Flooding

Rising sea levels will cause coastal flooding



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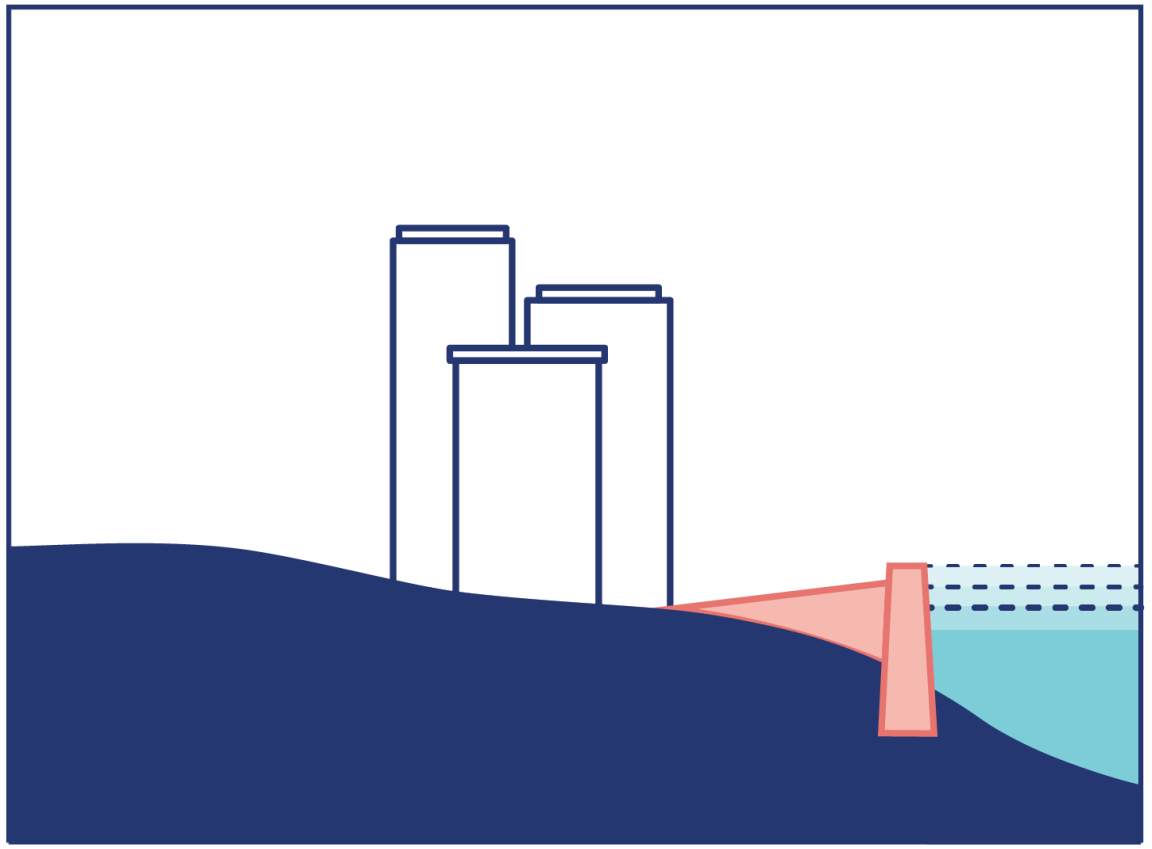
Coastal and Inland Flooding

To defend against coastal flooding, we can raise the shoreline



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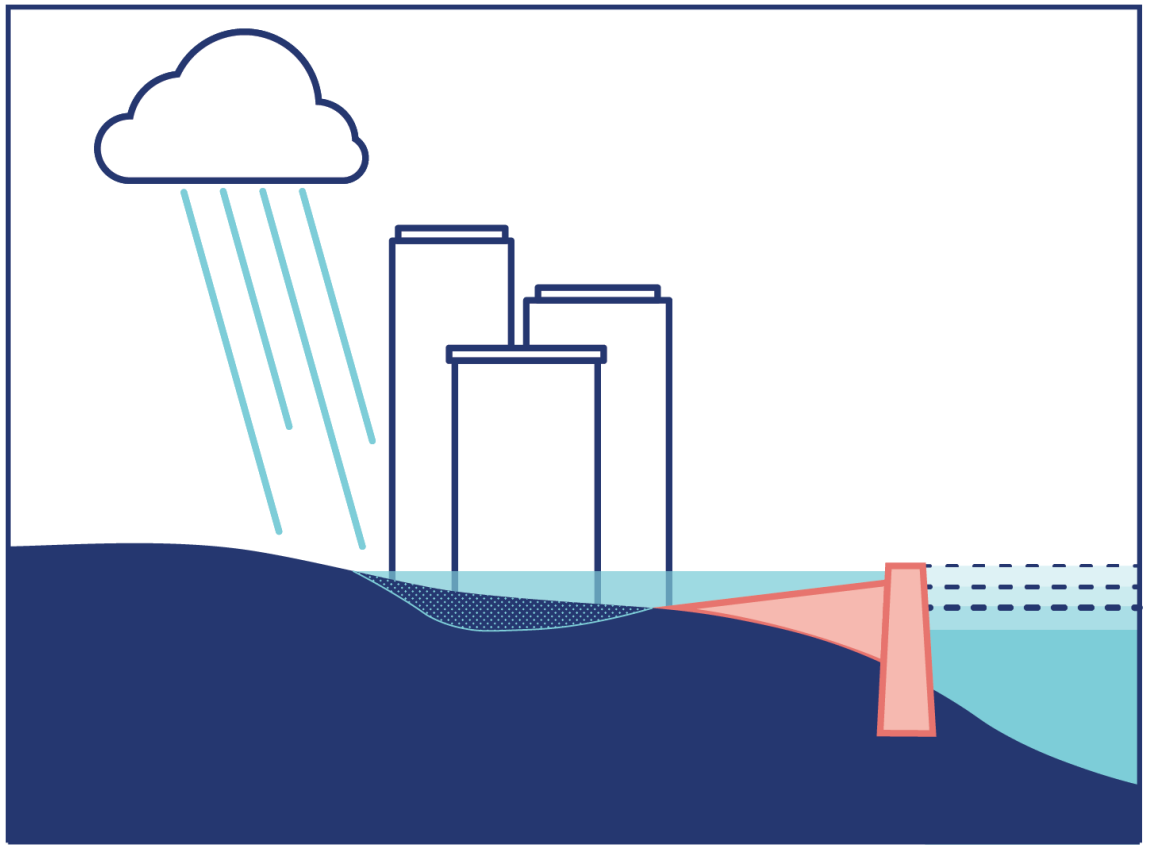
Coastal and Inland Flooding

But that creates another problem:

inland flooding occurs behind the raised shoreline when it rains and groundwater rises



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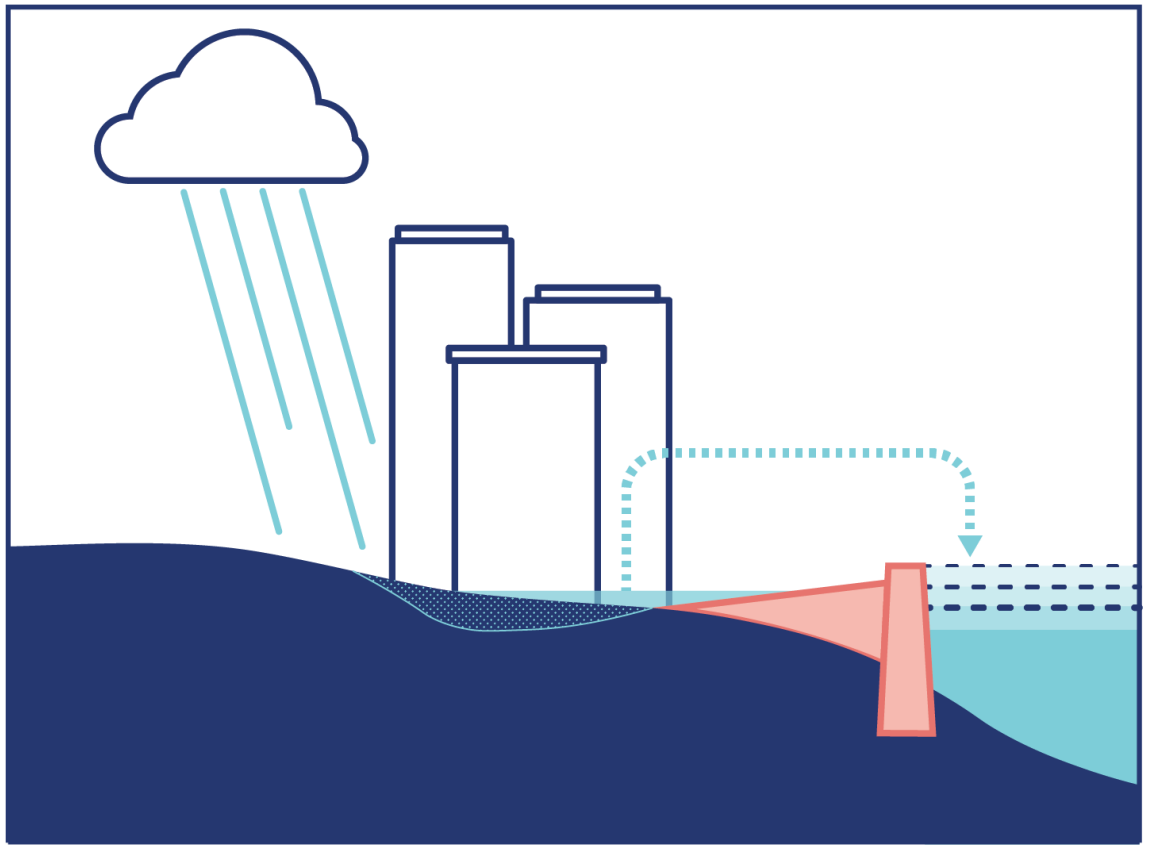
Coastal and Inland Flooding

Inland flooding can be addressed with pumping the inland floodwater back into the Bay



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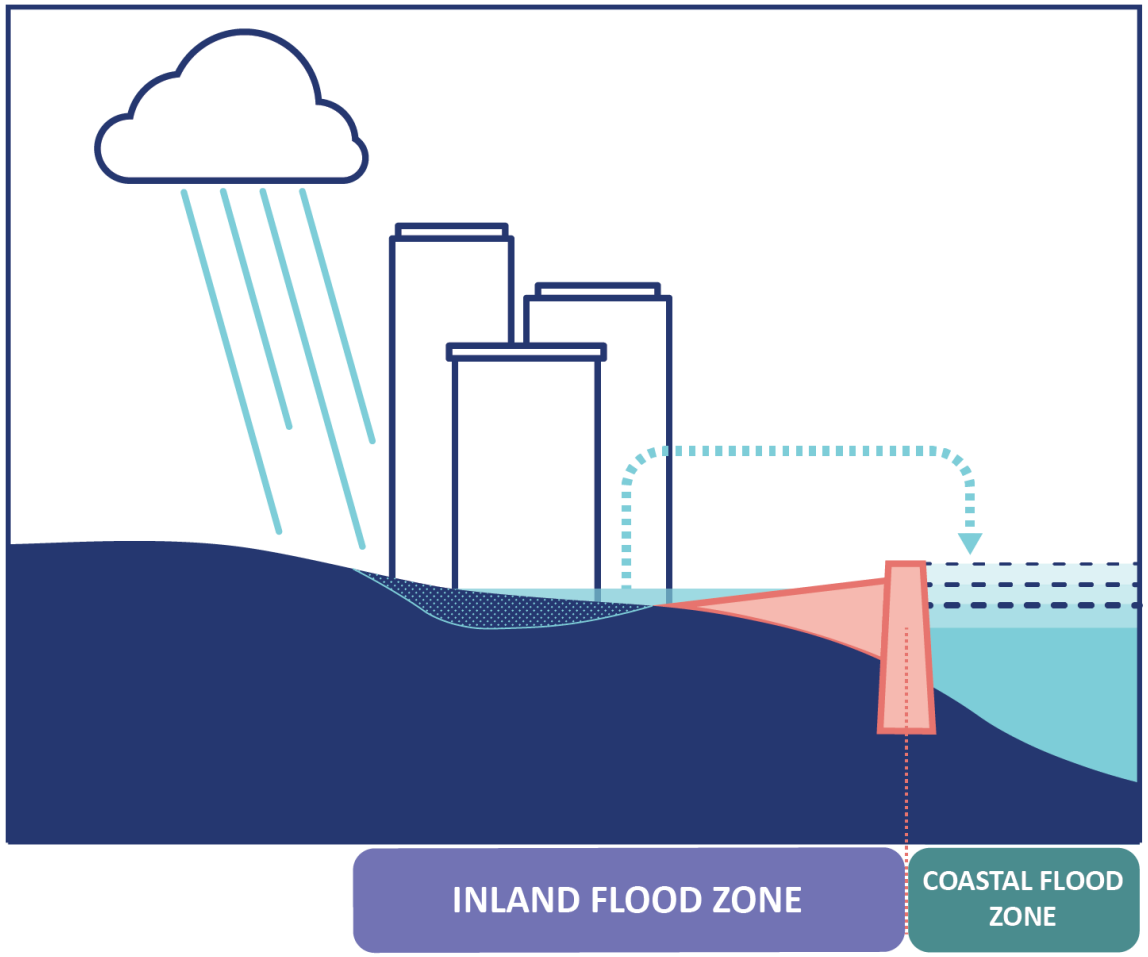
Coastal and Inland Flooding

This creates two interconnected forms of flooding:

a “coastal flood zone” and an “inland flood zone”



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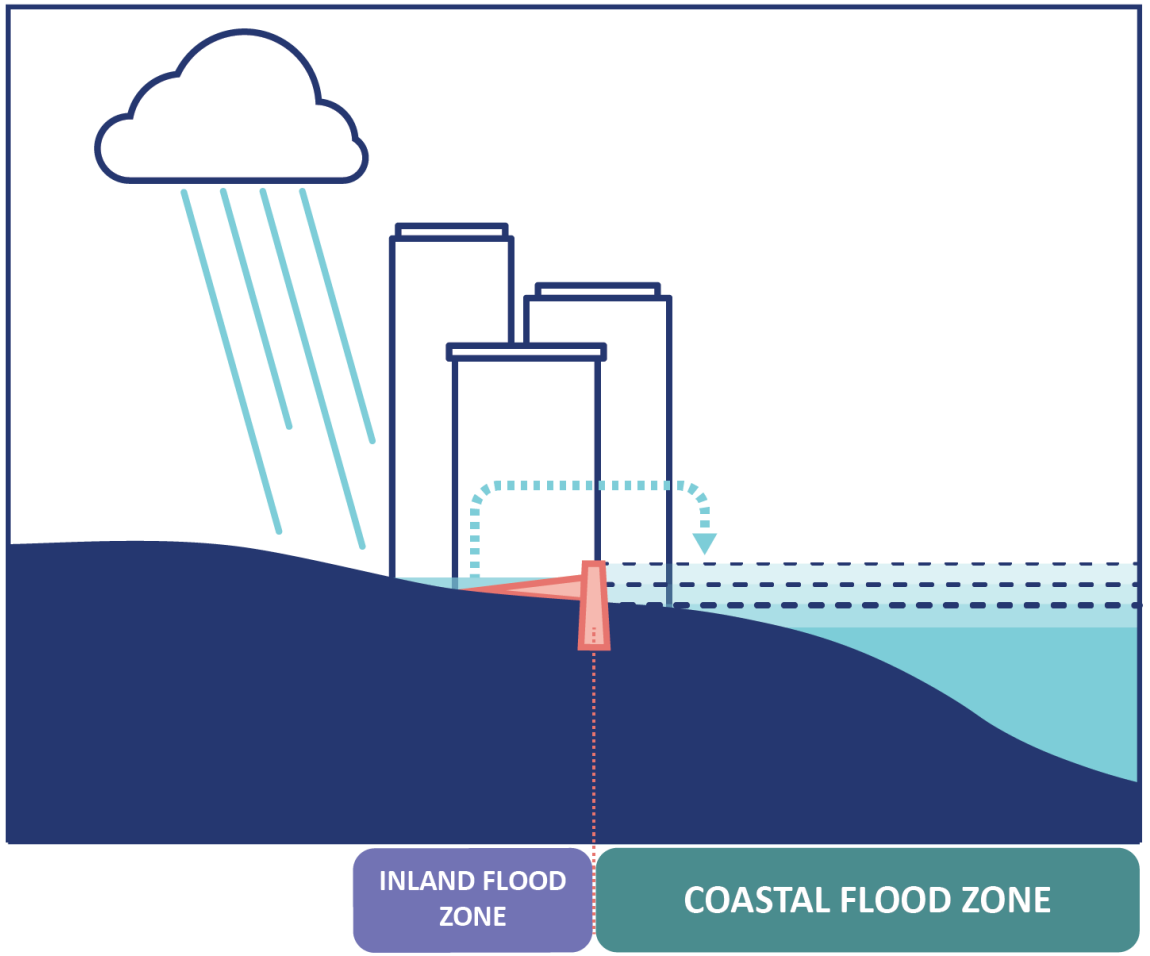

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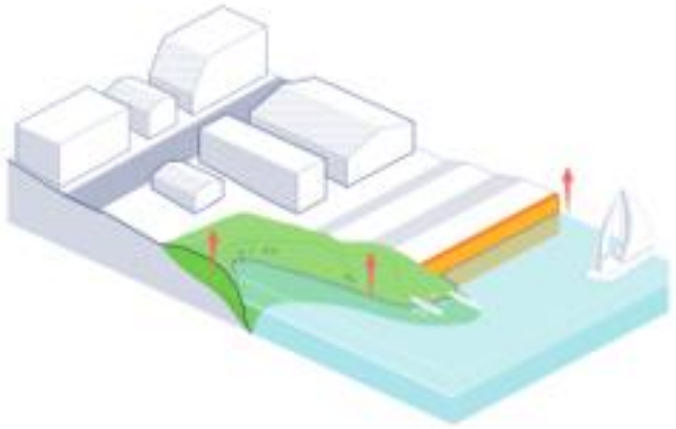
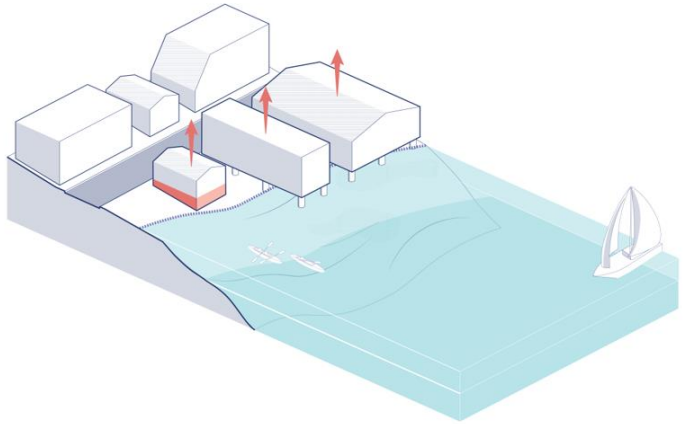
“Traditional” Approaches to Reduce Coastal Flood Risk



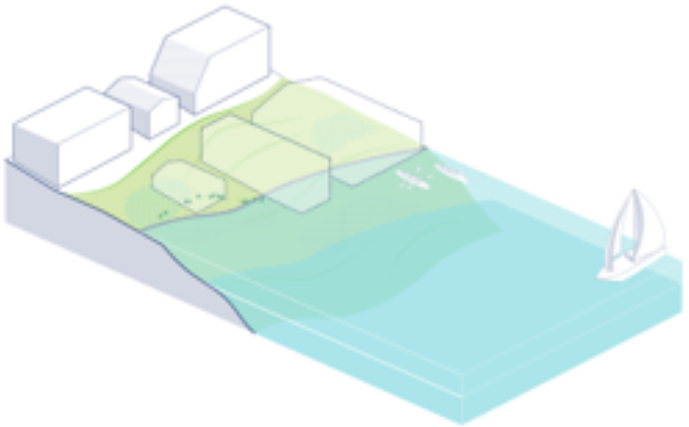
Protect (Defend)

Keep coastal water out, stay in place



Accommodate

Let coastal water in, stay in place



Avoid / Retreat

Move out of the area over time

Port of San Francisco Waterfront Resilience Program Port Commission Meeting June 2022
https://sfport.com/files/2022-07/WRP%20Update%20on%20Adaptation%20Strategies%20Process%20to%20Port%20Commission%20-%206.14.22.pdf

Opportunities to Change for the Better

Spectrum of Change

Resistance **Resilience** **Transformation**

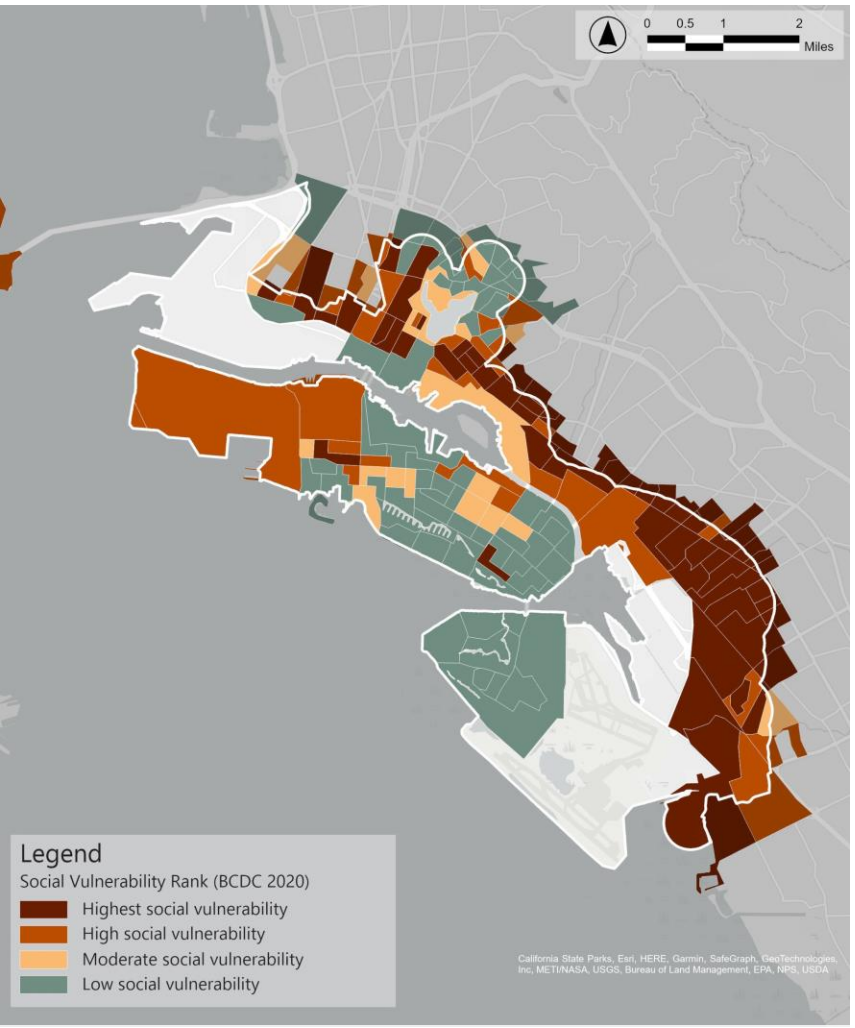
Peterson St-Laurent, G., Oakes, L.E., Cross, M. et al. R–R–T (resistance–resilience–transformation) typology reveals differential conservation approaches across ecosystems and time. Commun Biol 4, 39 (2021). https://doi.org/10.1038/s42003-020-01556-2

OAAC Subregional Goals

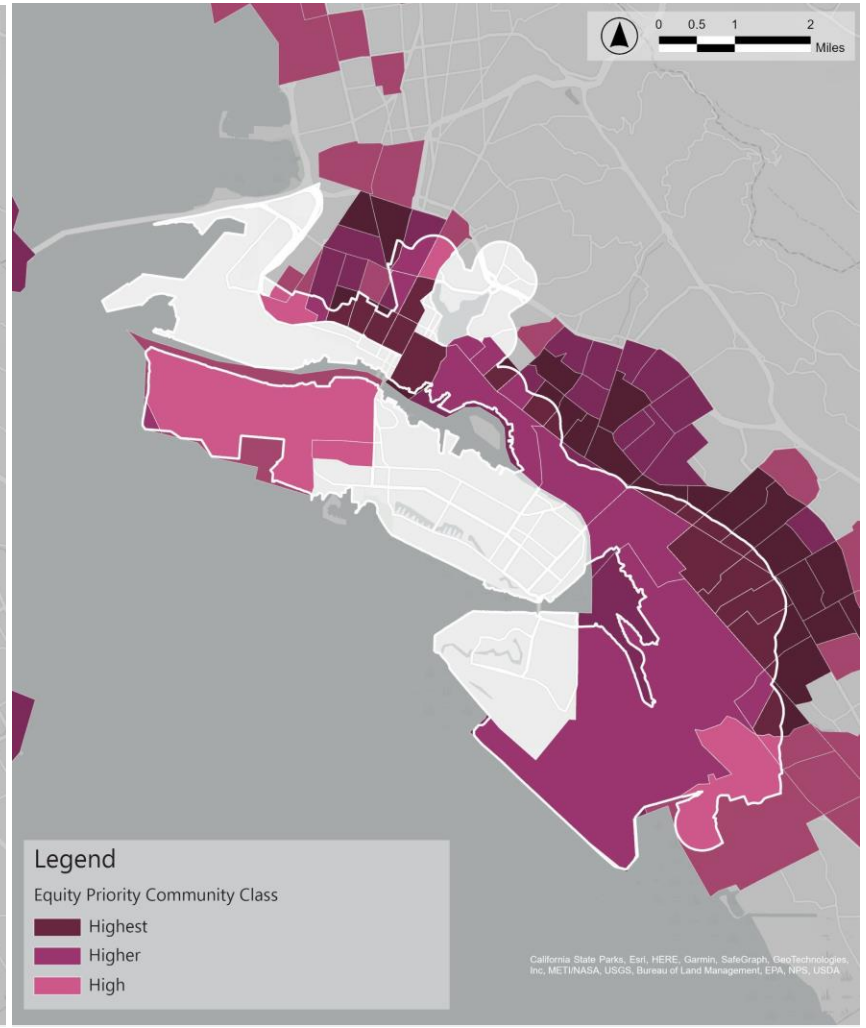
Project Charter 1/17/2024

1. **Protect** Oakland-Alameda sub-region from the negative effects of expected sea level, inland flooding, and groundwater rise and liquefaction
2. Identify and develop opportunities for **multi-benefit** adaptations strategies
3. Avoid negatively affecting **neighboring subregions** through protection and adaptation measures
4. Utilize an **adaptation pathways** approach to address different SLR thresholds and time horizons. Identify near, mid, and long-term adaptation strategies
5. Enhance **transportation**, **recreation** corridors, **bay access**, and the San Francisco **Bay Trail**
6. Preserve and increase **open space** where possible.
7. Improve subtidal, intertidal, transitional, and upland habitat with **nature-based solutions**
8. Improve **air quality**

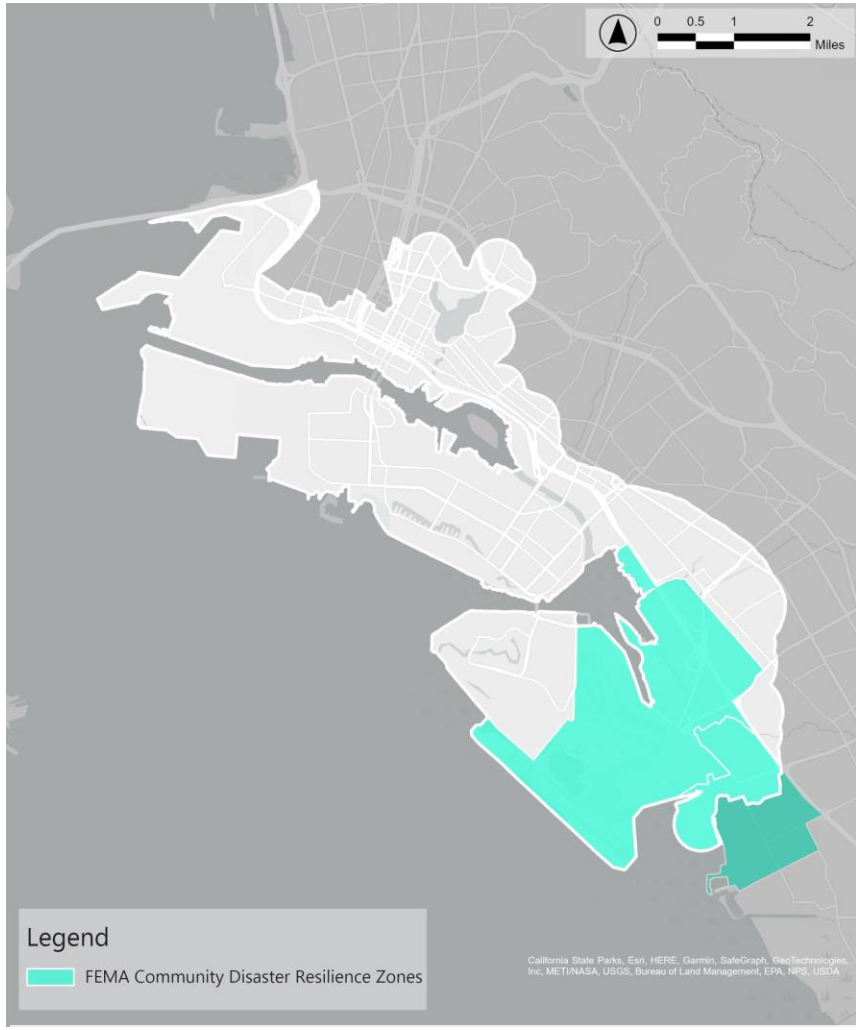
Socioeconomic Challenges



BCDC Social Vulnerability Rank

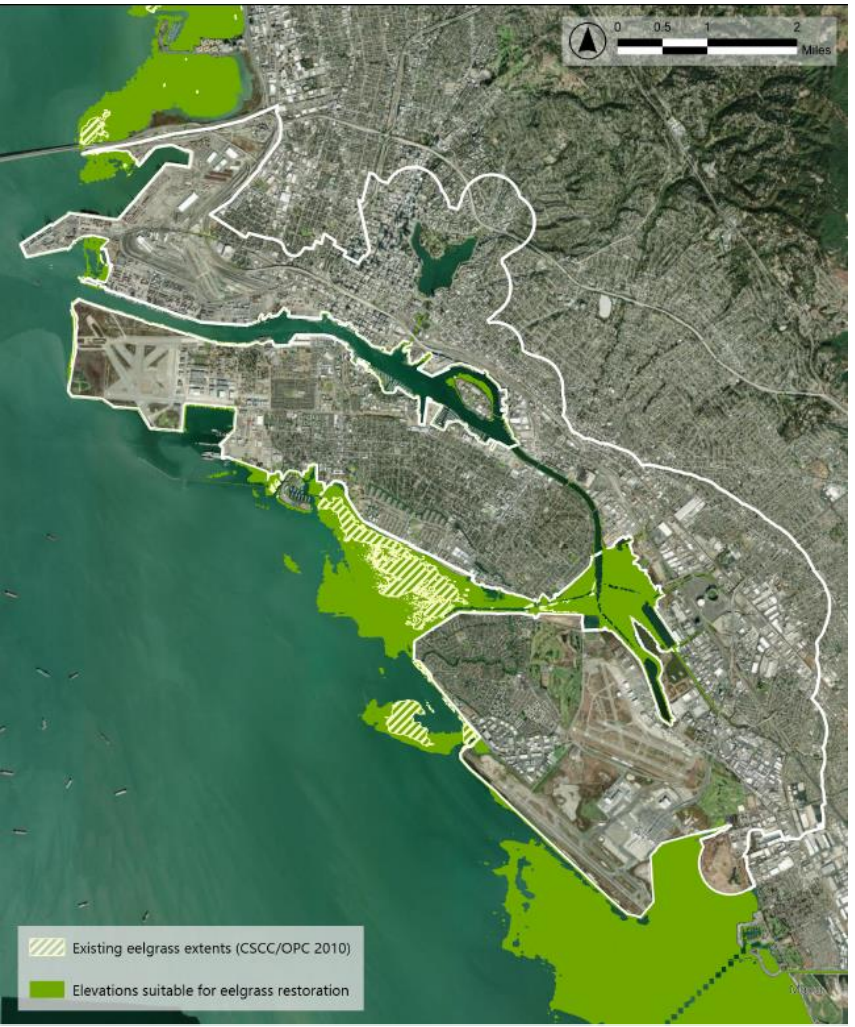


Plan Bay Area 2050 Equity Priority Communities



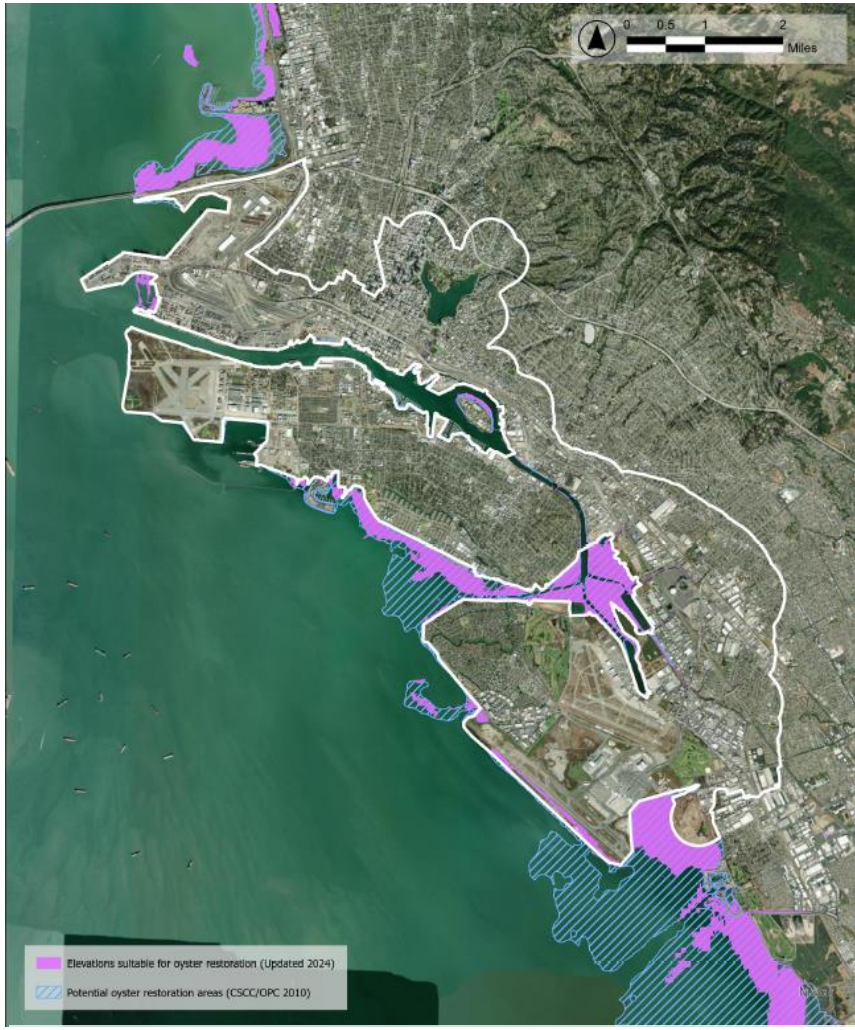
FEMA Community Disaster Resilience Zones

Habitat Potential



Eelgrass
suitable elevations

Marshes
restoration opportunities



Oyster Habitat
suitable elevations

What options do we have for each reach?

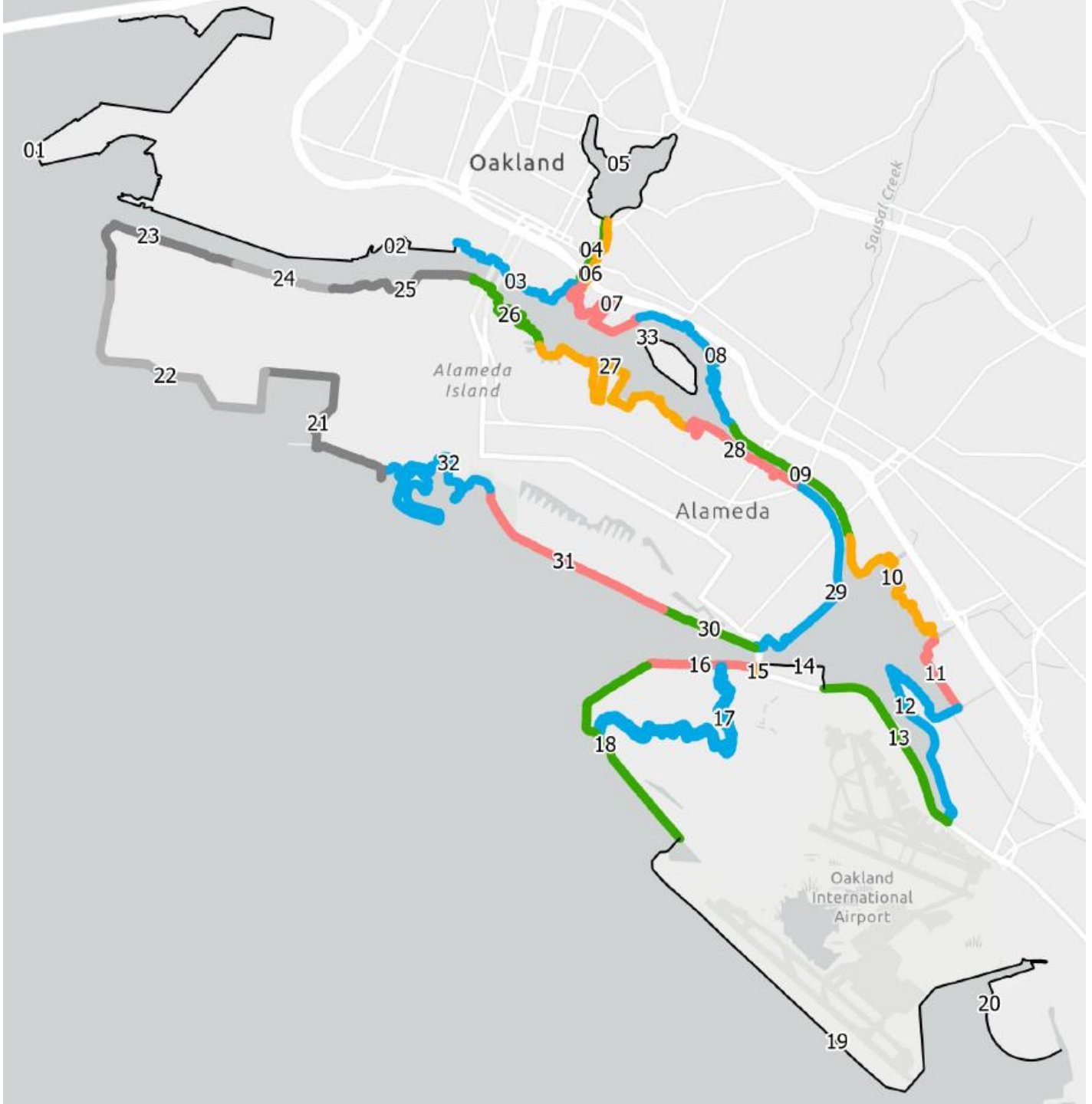
For the subregion as a whole?

Big Ideas

Estuary Commons, Resilient By Design Challenge
All Bay Collective
https://barc.ca.gov/sites/default/files/rbd_book_pages.pdf

Coastal and Riverine Flood Study
Alameda County Flood Control & Water Conservation District
Deltares USA
USGS

Reach-scale Planning

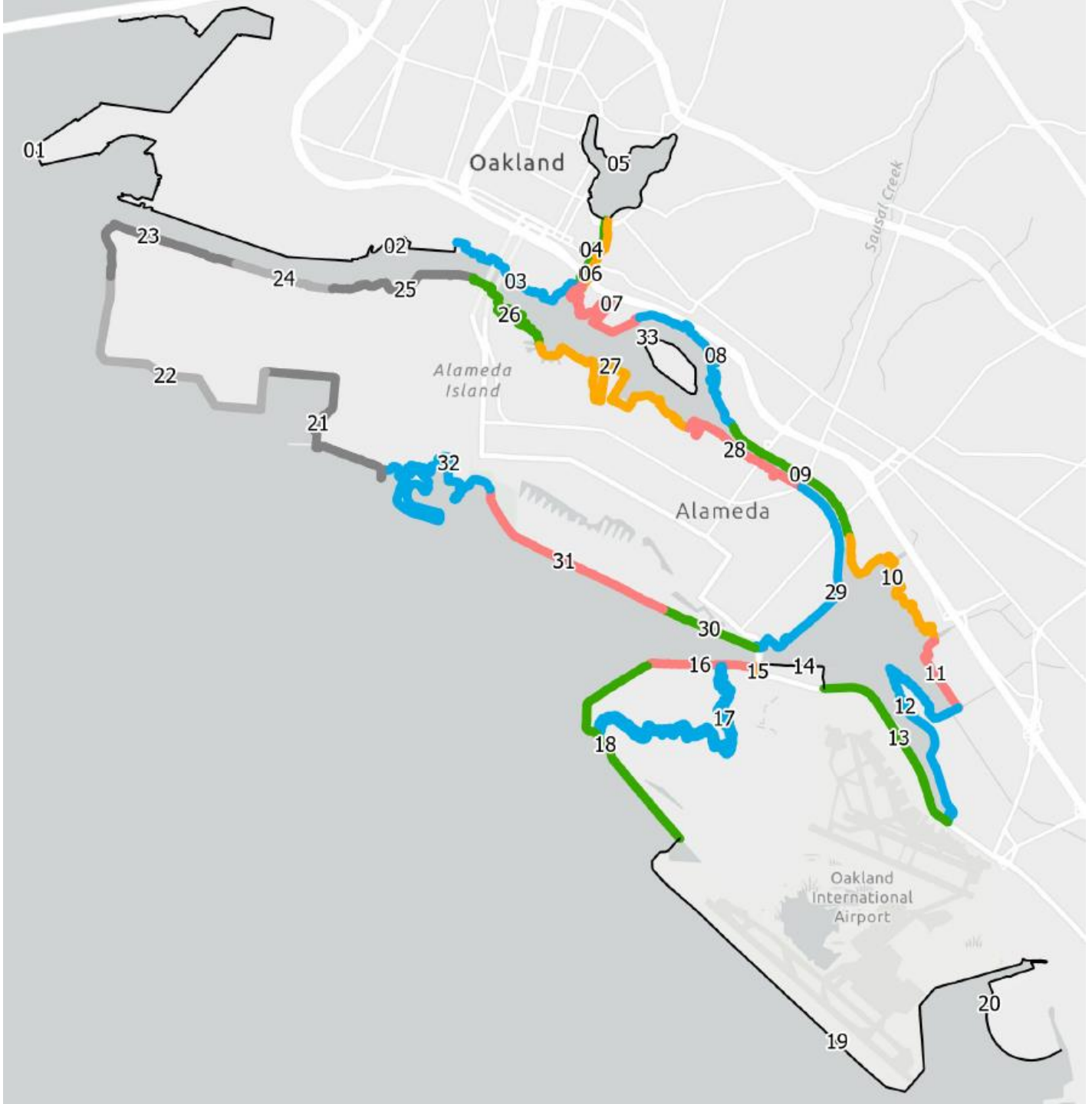


Today's Task

Subregional Adaptation Planning Process

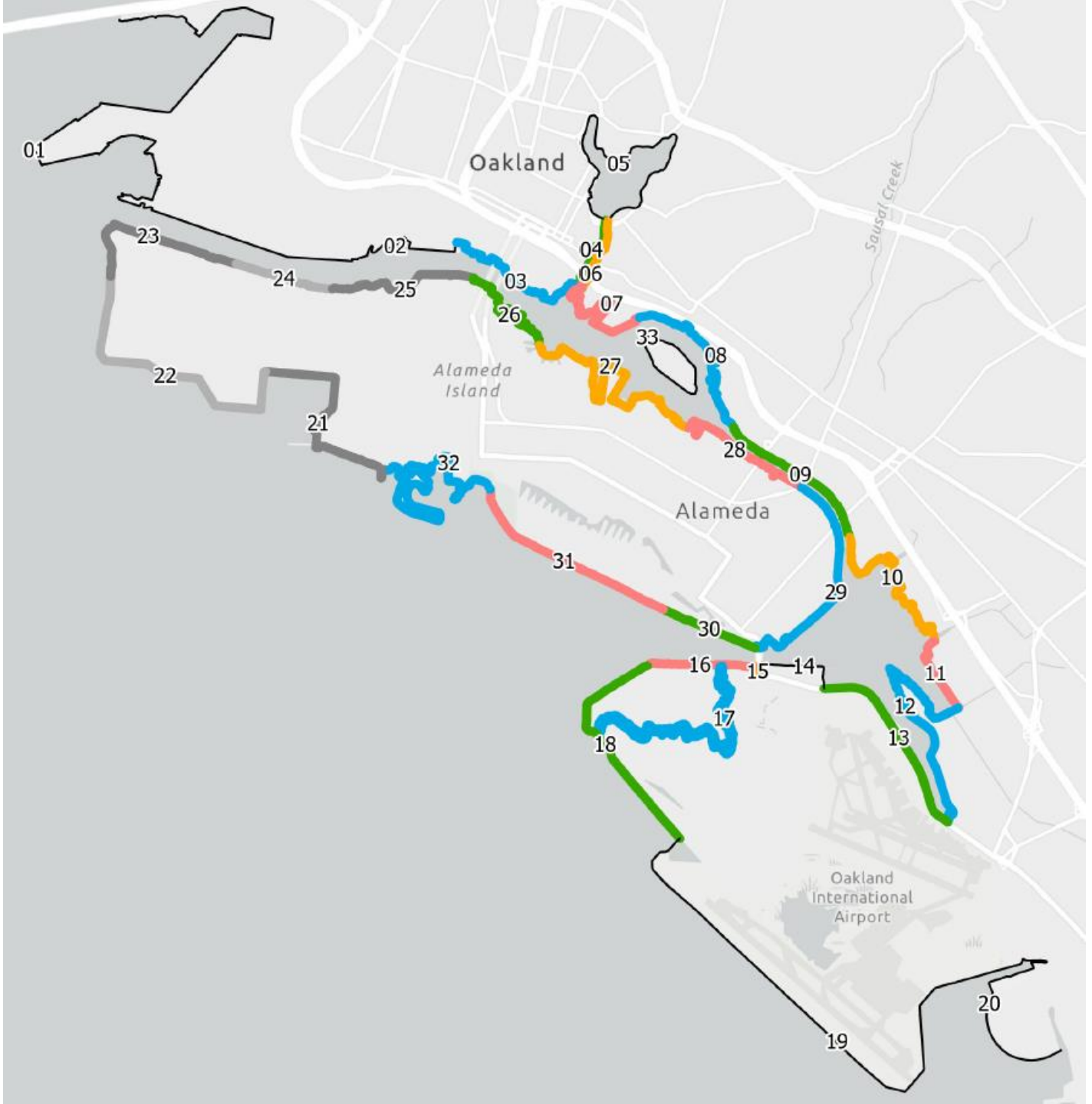
- Review existing conditions
- Develop planning principles
- Co-create long-term alternatives
- High-level feasibility assessment
- Prioritization Framework
- Implementation Approach
- Subregional Adaptation Plan

WE ARE HERE



Co-creating Long-term Options Process

- 3 Project Partners workshops
- Reach-by-reach discussions
- High-level long-term concepts (2100+)
- Focus primarily on *coastal* flood risk (as opposed to *inland*) in these workshops
- Iterative process



Recommended Flood Protection Infrastructure Elevations

Near Term

1. Likely sea level rise for design
   Plausible, High Impact for adaptation considerations
2. 2080: ~35- to 50-year lifespan
   Design: 2 feet SLR Adaptation: +3 feet SLR
3. 1% annual chance extreme tide (~3.4 feet above MHHW)
   1% annual chance total water level (with waves, variable)
4. FEMA accreditation, removal of structures from SFHA;
   2 feet of Freeboard included
5. Design:13.8 feet NAVD88
   Adaptation: 16.8 feet NAVD88
   (based on stillwater elevations only)

Long Term

1. Likely sea level rise for design
   Plausible, High Impact for adaptation considerations
2. 2100+
   Design: 3.5 feet SLR Adaptation: +3.5 feet SLR
3. No Change
4. Unknown what the long-term National Flood Insurance Program will be; Freeboard may be optional
5. Design: 13.8 to 15.8 feet NAVD88
   Adaptation: 16.8 to 18.8 feet NAVD88 adaptation
   (based on stillwater elevations only)

Recommended Flood Protection Infrastructure Elevations

Near Term

A Likely sea level rise for design
Plausible, High Impact for adaptation considerations

B 2080: ~35-
Design: 2 fe

C 1% annual c
1% annual c

D FEMA accreditation, removal of structures from SFHA;
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E Design: 13.8 feet NAVD88
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Long Term

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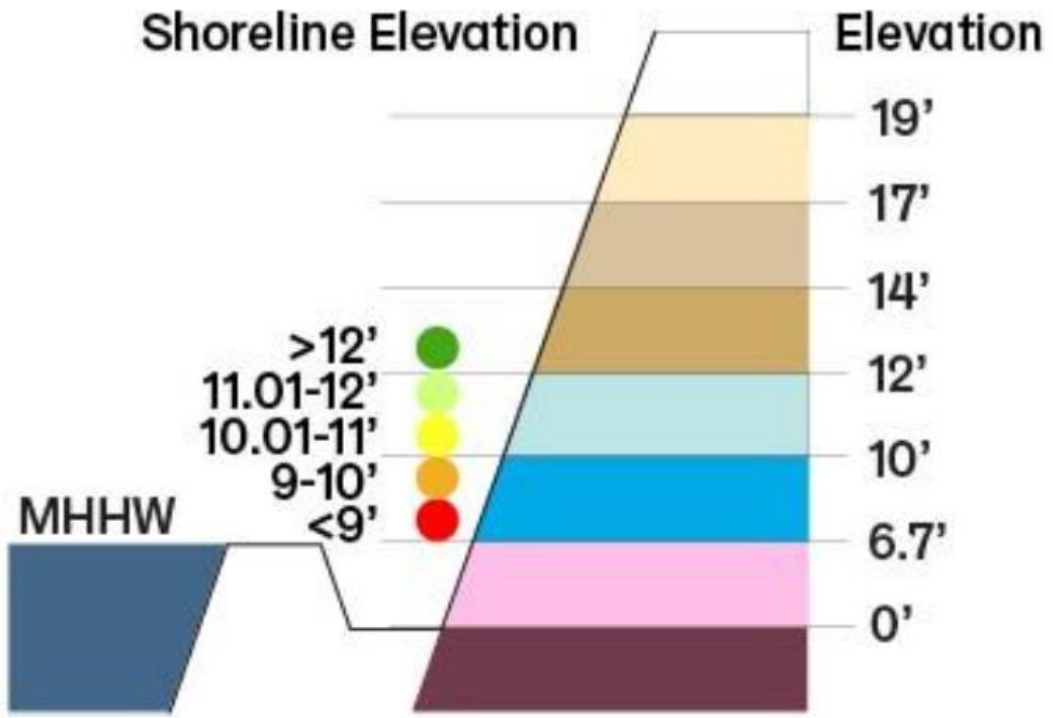
E Design: 13.8 to 15.8 feet NAVD88
Adaptation: 16.8 to 18.8 feet NAVD88 adaptation
(based on stillwater elevations only)

Where shoreline defense is considered, assume **design to 14-16' NAVD88**, adaptable to 17-19'

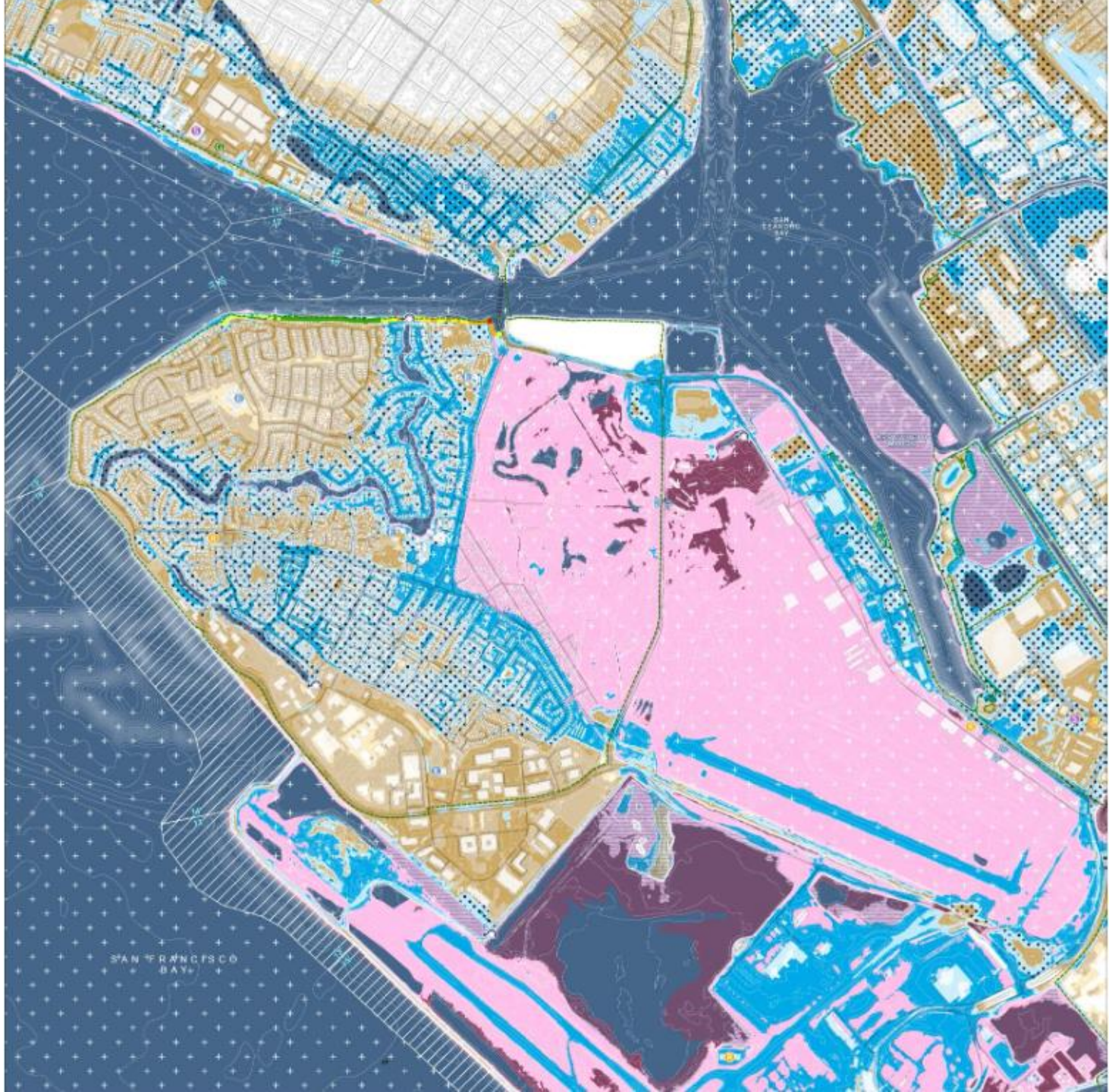
Identify opportunities to **change for the better** and **expand options** in the long-term

Existing Elevation



FEMA Flood Zones

- 1% AEP Floodplain AE
- 0.2% AEP Floodplain X
- 1% Coastal Floodplain VE



Questions to reflect on today

What resonates with you?

What would you change or add?

Ground Rules

- Engage in active listening
- Seek first to understand, not to be understood
- No one or two individuals should dominate the conversation
- Engage in your realm of experience and expertise, and respect and engage others in theirs
- Take ownership for positive outcomes
- No bad ideas – let's make this a "yes, and…" space

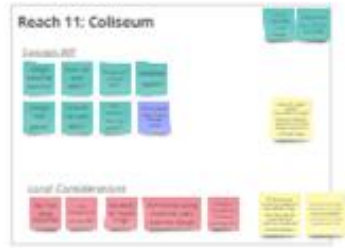
Thank You

RECAP + NEXT STEPS 4/24

Following slides added after meeting concluded

https://miro.com/app/board/uXjVKXqrcS4=/

Recap of 4/24



https://miro.com/app/board/uXjVKXqrcS4=/

Recap of 4/24

- Great discussion – thank you for your engagement!
- Included reaches 18, 16, 13, 12, and 11
- Meeting notes coming soon
- To provide additional input, please email Gail Payne *GPayne@alamedaca.gov*

Reflection: Questions for participants

- What did you like about the co-creation exercise?
- What would you change or add for the upcoming workshop(s)?
- Did the Miro board work for you as a tool? Are there other tools you'd like to try together?

Please email responses to Gail Payne *GPayne@alamedaca.gov*

Team Action Items

- Synthesize today's discussion
- Prepare next workshop (May 2024)
- Make intro recording available to Project Partners
- Work toward outline of Subregional Adaptation Plan

Upcoming Project Partners Workshops

- May 15 @ 11am PT
- June (date TBD) – *rescheduling for Juneteenth holiday*