



# Advancing Nature-based Solutions in the East Bay Crescent – Getting a Regional Shoreline Adaptation Plan off the Ground

Heidi Nutters, Principal Program Manager, SF Estuary Partnership

Photo: Ben Botkin



San Francisco  
**ESTUARY PARTNERSHIP**



Partnership in Action



# San Francisco Estuary Partnership

- A place-based EPA program
- Collaborative and non-regulatory
- Leverage federal, state, and regional resources to implement the Estuary Blueprint



Partnership in Action



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# Adaptation and Resilience Technical Assistance

SFEP's Adaptation and Resilience Technical Assistance Program provides support to local governments, community-based organizations, and Tribes. Its operational framework is based on the Estuary Blueprint that aims to:

1. Increase the pace and scale of on the ground resilience strategies both at the subregional scale and for individual projects
2. Partner with local governments, community-based organizations and Tribes to fund, plan and deliver nature-based shoreline adaptation projects across the SF Bay region
3. Advance a range of project types and pilot projects, including horizontal levees, ecotones and living shorelines.





We partner with communities around the region to support on the ground shoreline nature-based solutions projects

<https://www.sfestuary.org/truw/>





# EAST BAY CRESCENT COMMUNITY VISIONING AND CLIMATE ADAPTATION

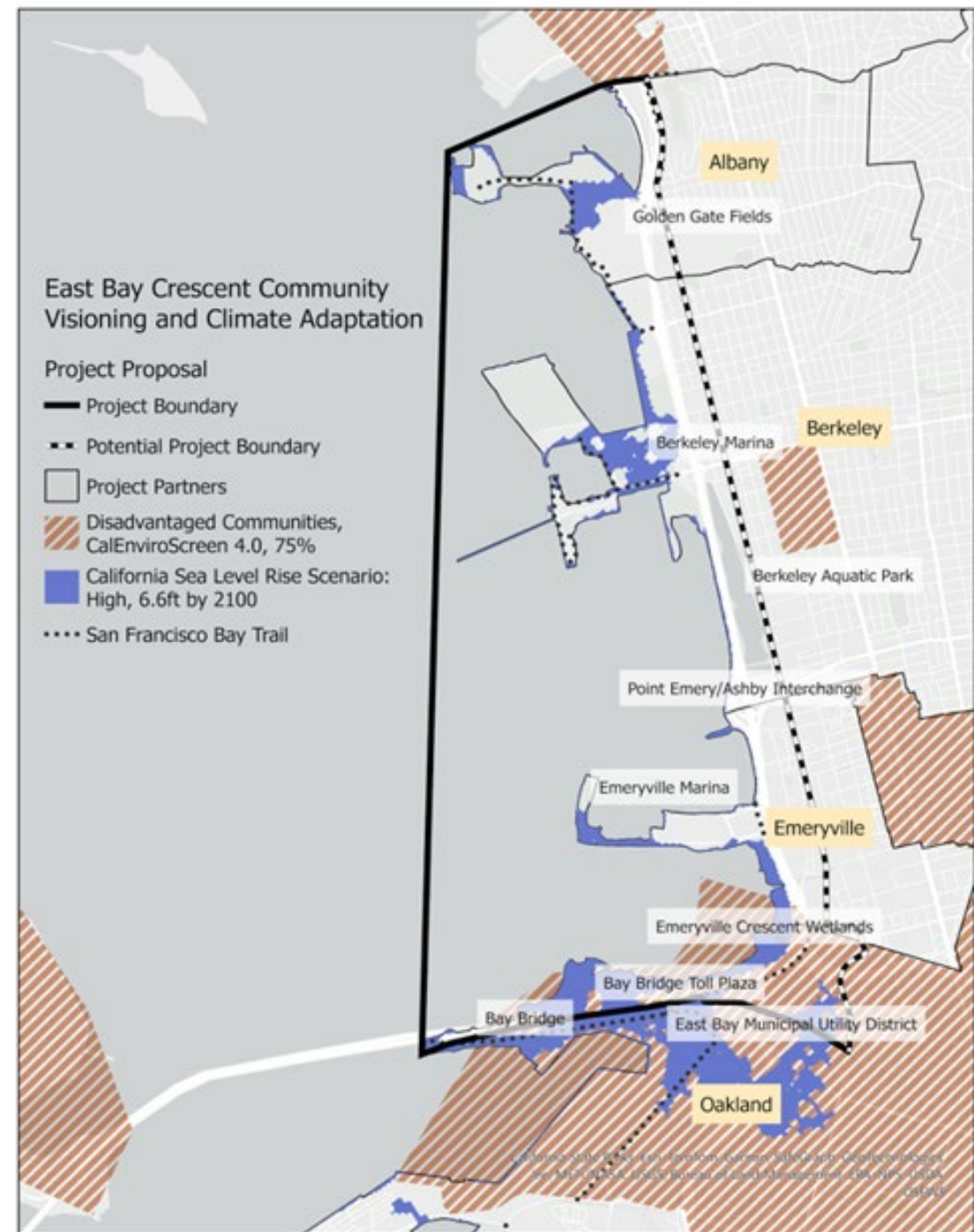








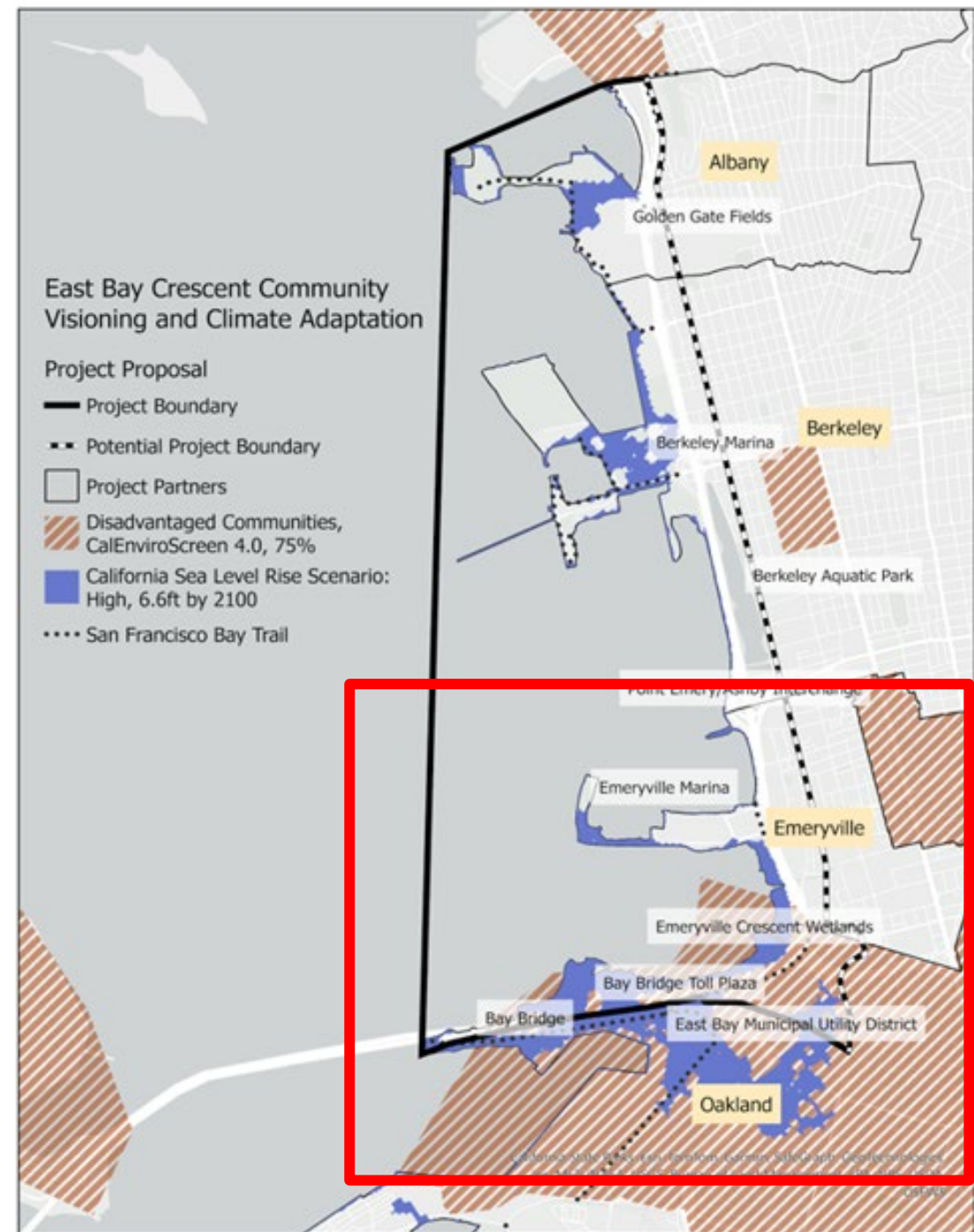
- Push toward subregional, multi-jurisdictional planning
- Regional Shoreline Adaptation Plan(RSAP)
- Partner interest to embark in coordinated planning
- Initial push for community engagement and early planning in the Emeryville Crescent





# Initial Drivers

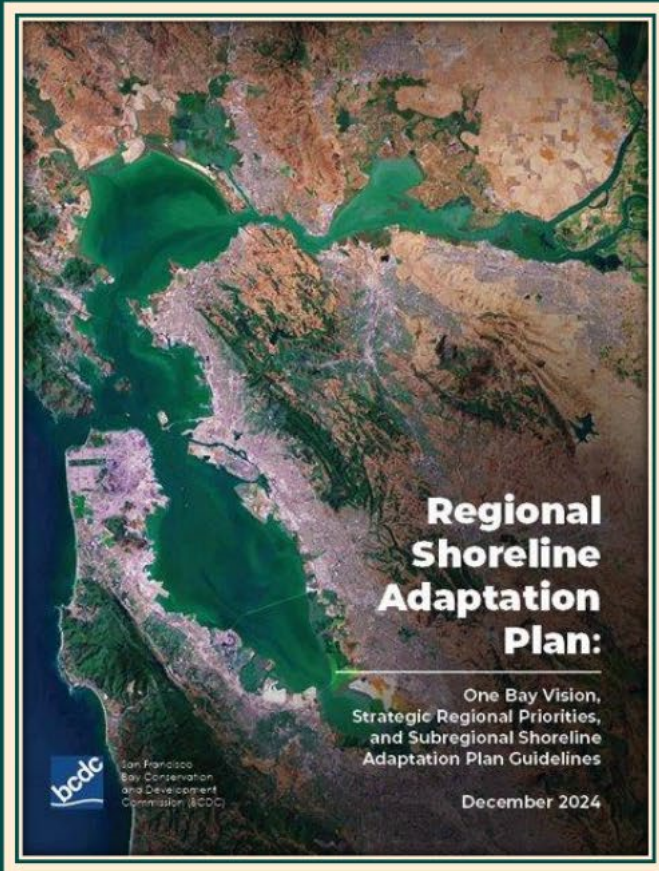
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# What is the RSAP?

A regional plan to address sea level rise and guides the creation of Plans.



- ✓ **One Bay Vision**  
A community vision for the Bay.
- ✓ **Strategic Regional Priorities**  
8 regional issues to address in planning.
- ✓ **Plan Guidelines**  
Requirements for creating a Plan.



# Getting Started in the Emeryville Crescent

Tools to get us off  
the ground

Community  
Perspectives

Ecological Setting

Existing Uses and  
Future Uses

Transportation  
Setting

## Adaptation Atlas Tools

- Operational Landscape Units
- Baylands Resilience Mapbook
- NBS for Nutrient Management

## Other Tools

- Community engagement tools: surveys, interviews, workshops



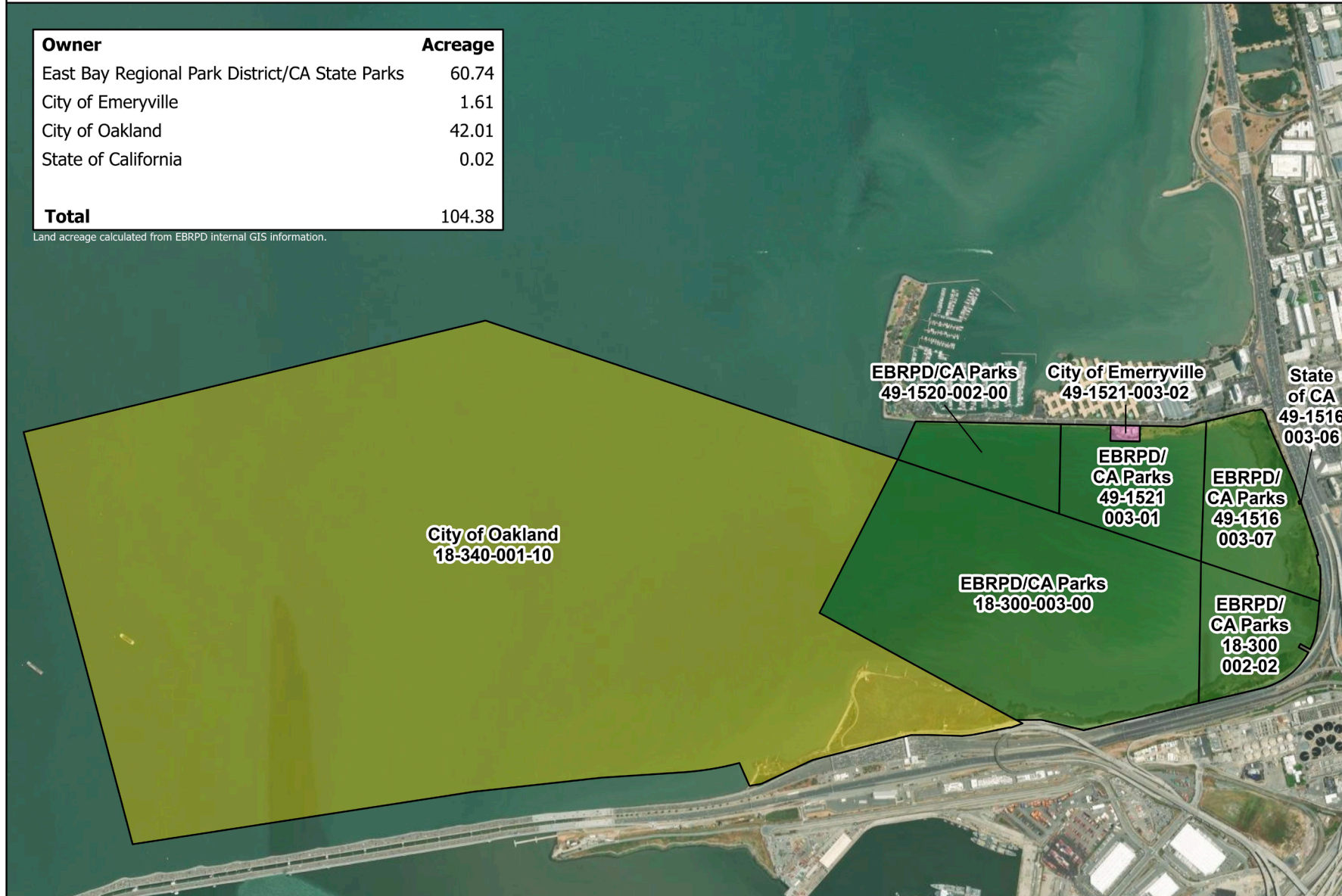






| Owner  | Acreage       |
|--|---------------|
| East Bay Regional Park District/CA State Parks | 60.74         |
| City of Emeryville                             | 1.61          |
| City of Oakland                                | 42.01         |
| State of California                            | 0.02          |
| <b>Total</b>                                   | <b>104.38</b> |

Land acreage calculated from EBRPD internal GIS information.





## Baylands resilience metrics for the East Bay Crescent OLU

This OLU features pockets of marsh and mudflat between the headlands and landfills of Emeryville Spit, Point Emery, Berkeley Marina, Albany Bulb, and Point Isabel. Development extends into the baylands on fill, with few diked baylands. The I-80 and I-580 freeway corridors run parallel to the shoreline, constraining marshes and limiting opportunities for marsh migration. Tidal marsh patches in this OLU are small (10-80 acres) and lack compactness, as they are mostly narrow fringing marshes. In the northern part of the OLU, marshes are bordered by remnant levees, landfills, and the Bay Trail along their bayward edge. These features protect marsh edges from erosion, but limit both hydraulic connectivity and connections to mudflats. Compared to those in other Central Bay OLUs, the mudflats here are wide and relatively high in elevation, exposed for a third of the tidal cycle.

There are many opportunities to improve baylands resilience. At the 27-acre Meeker Slough/Stege Marsh complex, tidal connectivity could be improved by expanding and adding connections under the Bay Trail, and transition zones could be enhanced for marsh migration through berm removal and vegetation management. Regrading fill material at Golden Gate Fields and Berkeley Meadow could connect baylands to migration space and expand marsh in areas where it is small and fragmented. However, many filled areas are contaminated from historical industrial uses, making contamination a key consideration for restoration. In locations such as Emeryville Crescent, living shorelines—including nearshore reefs, coarse beaches, and eelgrass—could encourage sediment accretion to protect existing marshes and mudflats from erosion.

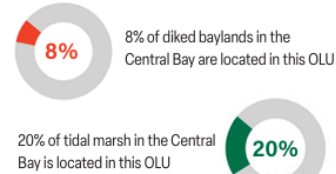
### How extensive are the baylands in this OLU?

A fifth of the tidal marsh in the Central Bay is found in the East Bay Crescent OLU. There are more acres of tidal marsh than diked baylands.

**87 acres of diked baylands**  
Orange outlines in map on facing page

**181 acres of tidal marsh**  
Green outlines in map on facing page

### CENTRAL BAY SIGNIFICANCE (AREA)



### LEGEND (for map on facing page)

#### Boundaries

- Operational Landscape Unit
- City

#### Analysis units

- Diked bayland unit
- Tidal marsh unit

#### Landscape features

- Creek

#### Tidal baylands\*

- Tidal marsh
- Muted tidal marsh
- Intertidal channel
- Mudflat
- Shallow subtidal
- Deep subtidal

#### Nontidal baylands\*

- Developed/urban
- Managed/other marsh
- Other open water
- Agriculture/other non-aquatic diked bayland

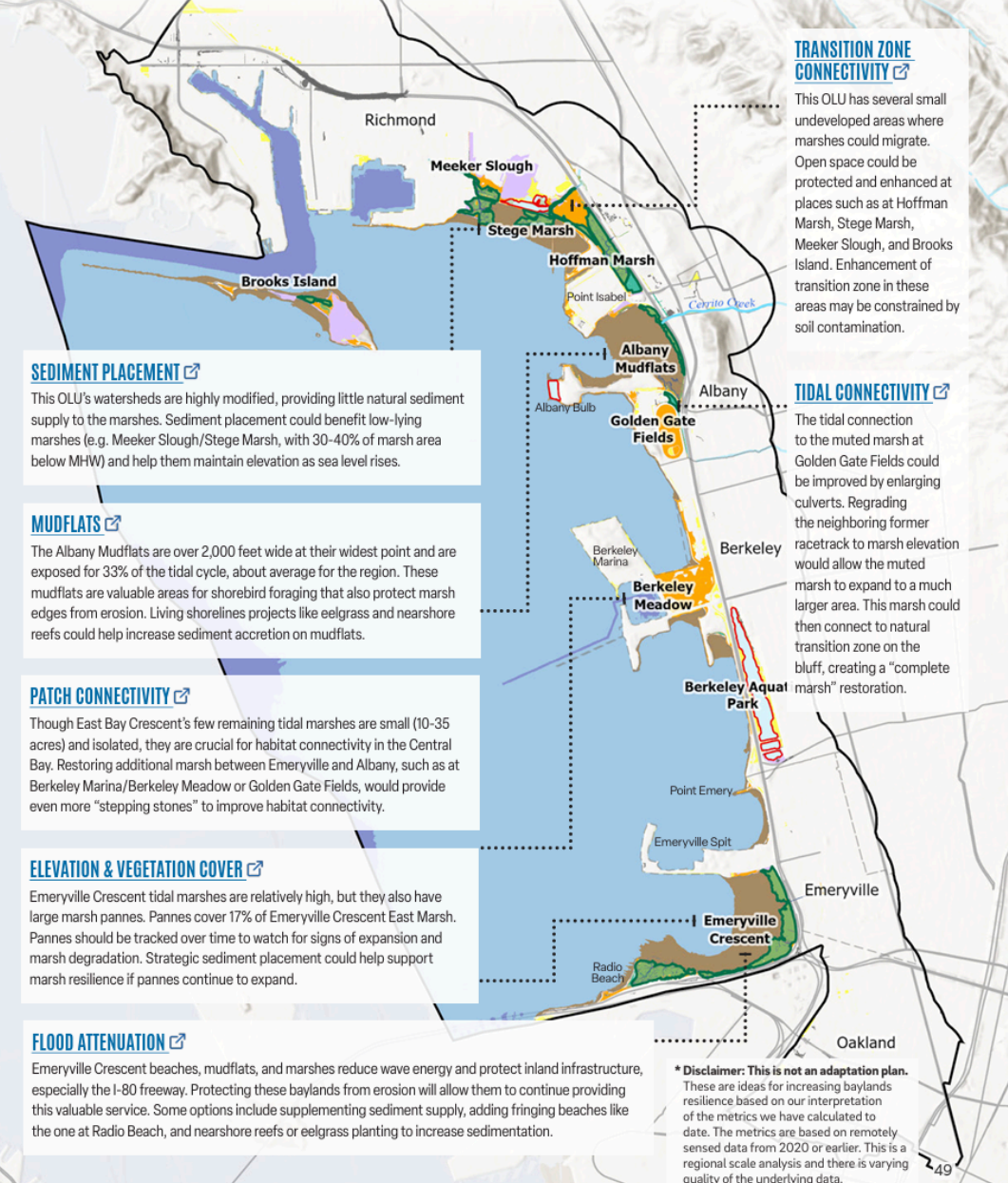
#### Upland connection opportunities

- Marsh migration elevation (connected to Bay)
- Marsh migration elevation (disconnected from Bay)
- Upper boundary transition zone

\*Baylands Habitat Map 2020

### Seven ideas to increase baylands resilience in the East Bay Crescent OLU

These examples of resilience challenges and opportunities are drawn from the Baylands Resilience Framework metrics. Click the links in each box (below) to explore more opportunities in the [web map](#).





# Emeryville Crescent

- Complex land ownership
- Ring of mudflat, beach and tidal marsh situated next to critical transportation linkages including the Bay Bridge
- Habitats reduce wave energy and protect infrastructure
- Sediment inputs and restoration actions are needed to bolster resilience
- Dynamic area for recreation – but needs significant safety and access improvements





### Ecotone/Horizontal Levees

- Multiple possible locations.
- Ecotone/horizontal levees shown here are approximately 200 ft wide (a range of slopes/widths are possible).
- Option to build using stockpiled sediment from EBMUD pipeline construction work.
- Option to include seepage slopes (horizontal levees) to polish treated wastewater from EBMUD and create a fresh-brackish-salt marsh habitat gradient.

**Disclaimer:** This is not an adaptation plan. Additional study, planning, and engineering will be required to refine these conceptual opportunities.

## DRAFT/CONCEPTUAL RENDERING

Option to build ecotone levees  
(no freshwater input)

Option to treat stormwater instead of  
or in addition to treated wastewater

Option to include horizontal levee seepage slopes

Option to shift inland to reduce encroachment on  
marsh: extend under raised roadway or use former  
HOV lane space after toll plaza reconfiguration

East Bay Municipal Utility District  
Wastewater Treatment Plant

EBMUD Outfall Line (approx)

Temescal Creek

500 1,000 ft



SFEI





# Community Perspectives

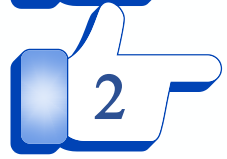
- Informal Working Group
- Survey
- Interviews
- Community Workshops – with youth and adults
- “Community Day”







**Theme 1: Access & Infrastructure**



**Theme 2: Environmental Preservation & Resilience**



**Theme 3: Community Engagement & Inclusion**



**Theme 4: Facilities & Amenities**



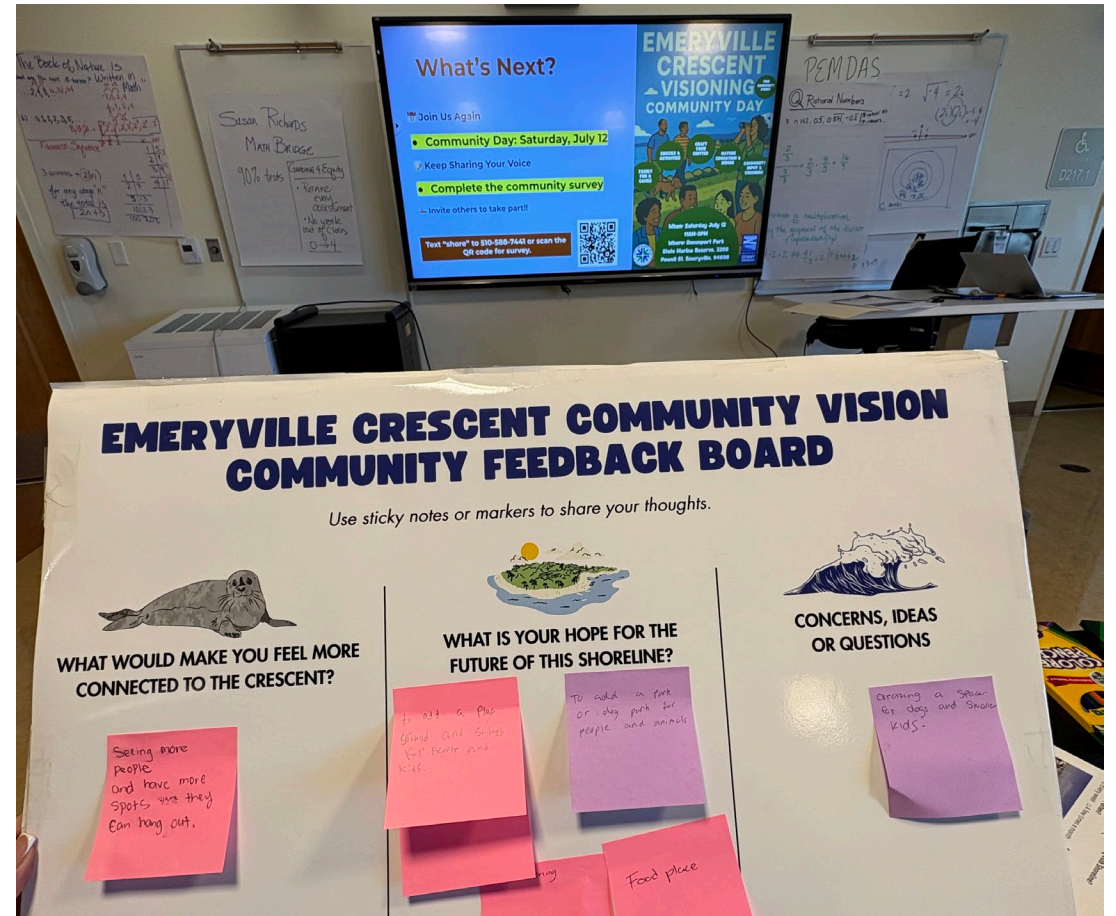
**Theme 5: Stewardship & Cultural Recognition**





# Outcomes

- Shared direction for partners
- Deeper understanding of core issues
- Cohesive approach for an RSAP
- Readiness to forge a path forward





# Next Steps

- Ocean Protection Council SB1 grant funding for a Regional Shoreline Adaptation Plan for the Cities of Emeryville, Berkeley and Albany in close partnership with Oakland
- Early feasibility studies for nature-based solutions projects in the area



# Questions ?

Heidi Nutters, Principal Program  
Manager

heidi.nutters@sfestuary.org