

OAAC Adapt Projects

December 2024





Oakland Alameda Adaptation Committee (OAAC):
A coalition of shoreline communities, agencies and stakeholders working to coordinate the Oakland Alameda sub-region flood and adaptation projects to protect and restore water quality, habitat, equity, transportation and community resilience.

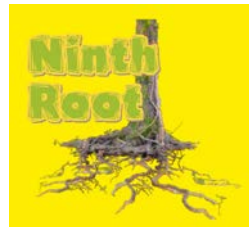


OAAC Adapt: Project Partners

Agency Partners



Community Partners



Consultants



OAAC ADAPT Projects

- The **Subregional Adaptation Plan** is a long-term plan that details preliminary strategies and pathways for shoreline communities to take as the climate and shorelines change over time
- The **Oakland Alameda Estuary Project** is a near-term sea level rise adaptation design concept to address increased coastal, stormwater, and groundwater flooding for up to two feet of sea level rise over the coming decades
- The **Bay Farm Island Adaptation Project** is a near-term sea level rise adaptation design project to address compound flooding and up to two feet of sea level rise and long-term planning coordination.



Sea Level Rise Project Criteria

Near Term

2060 - 2080

35 to 50-year adaptation project lifespan

2' of sea level rise

Protect to elevation +14'

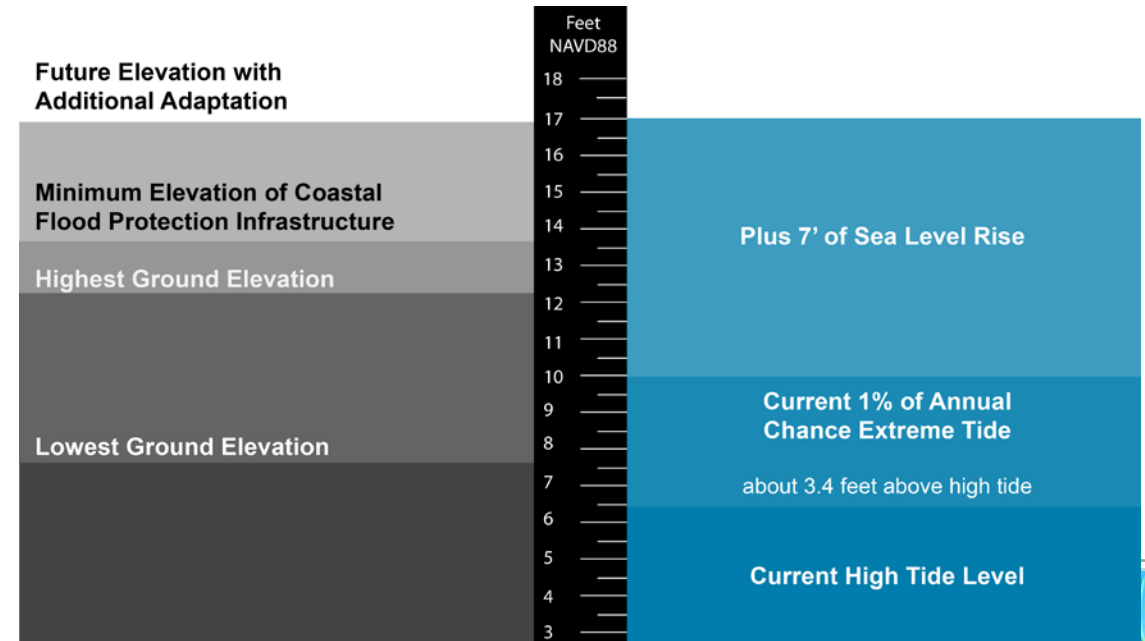
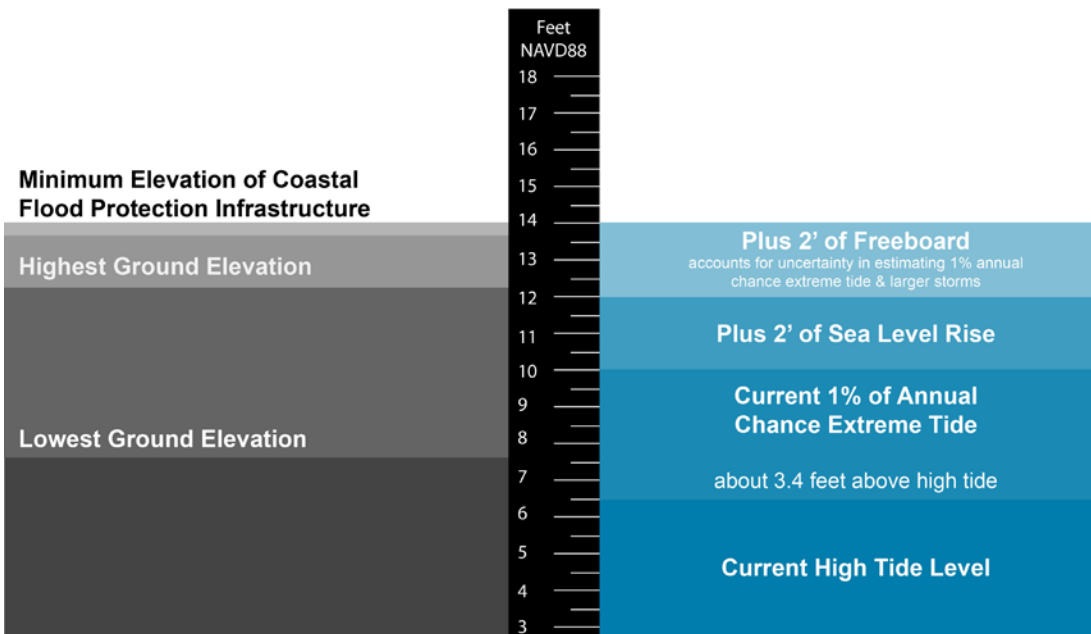
Long Term

2100+

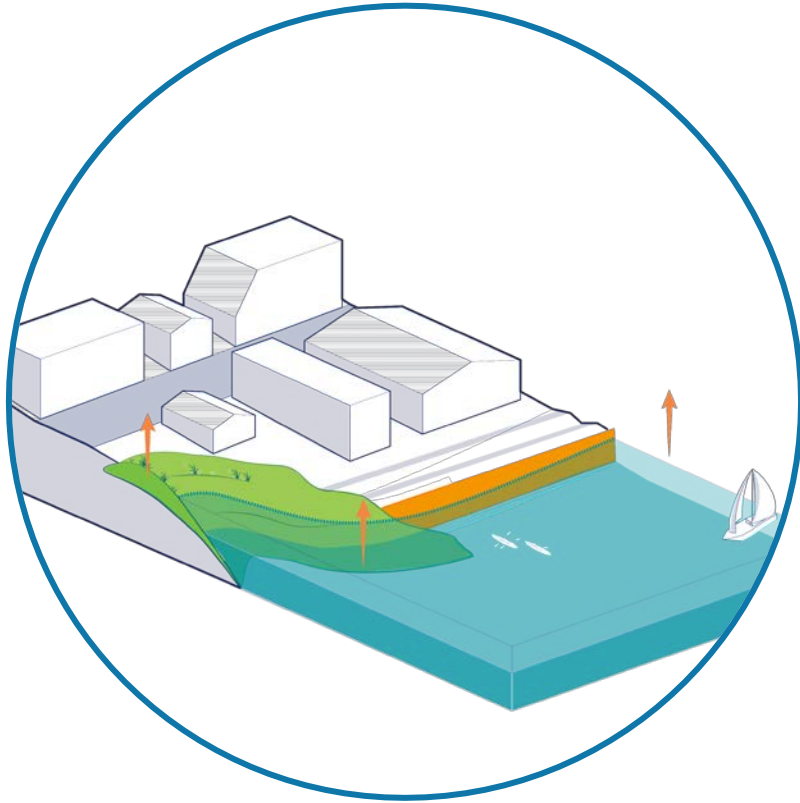
Build upon near term projects

3.5 - 7' of sea level rise

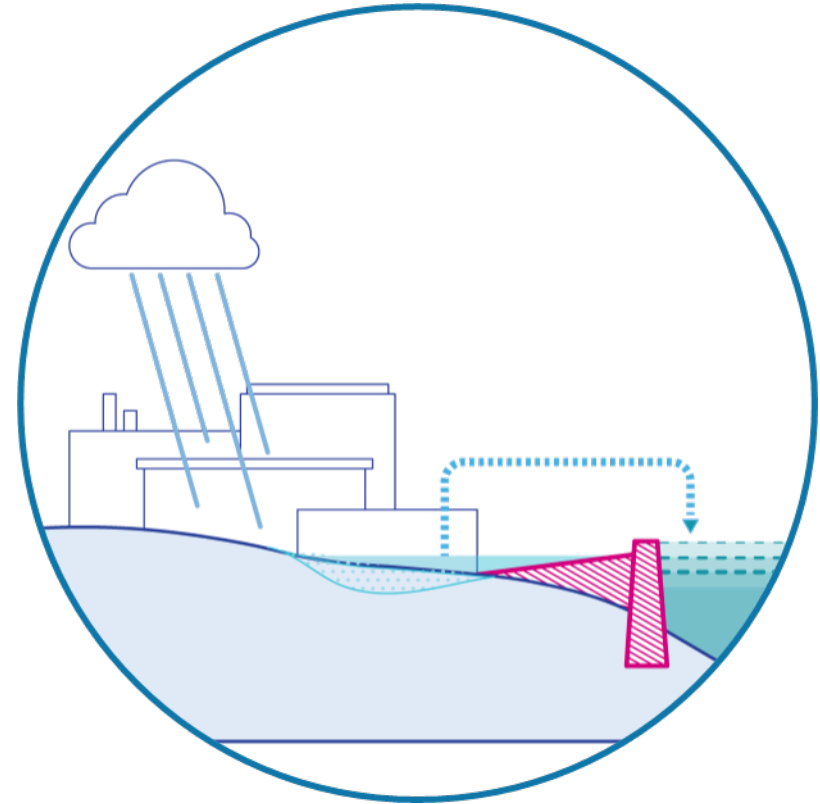
Protect to elevation +17'



Combined Adaptation



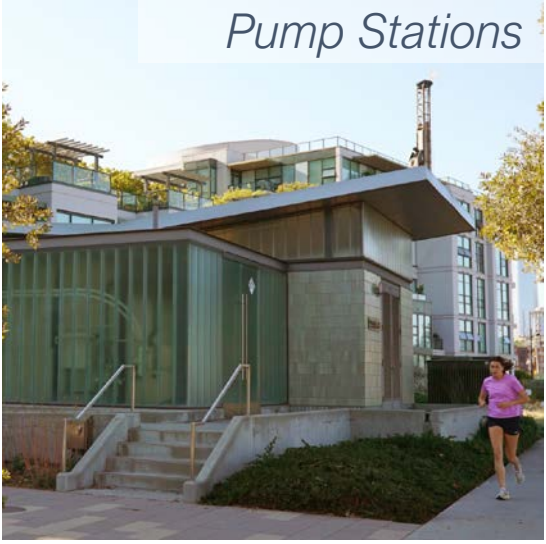
Shoreline elevation to prevent coastal flooding from sea level rise and storm surges



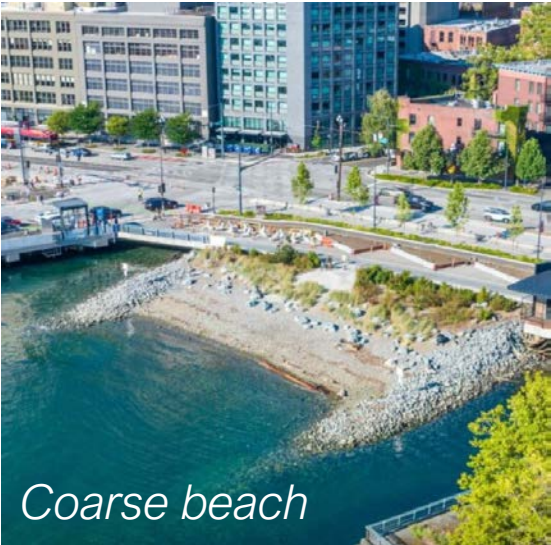
Inland adaptation (green and grey infrastructure) to manage stormwater and groundwater



Potential Adaptation Measures



Natural & Nature-Based Features



Coarse beach



Gravel Beach and Rocky Intertidal Habitat



Cobble Marsh



Living Seawall



Habitat Panels



Rock and Log Groynes and Beach Protection



Oakland-Alameda Estuary Near-Term Adaptation Project

December 2024



Project Area:
Oakland-Alameda Estuary



Jack London Square

Bohol Circle

Oakmont

Barnhill Marina

Marina Village

Shoreline Park

The Landing

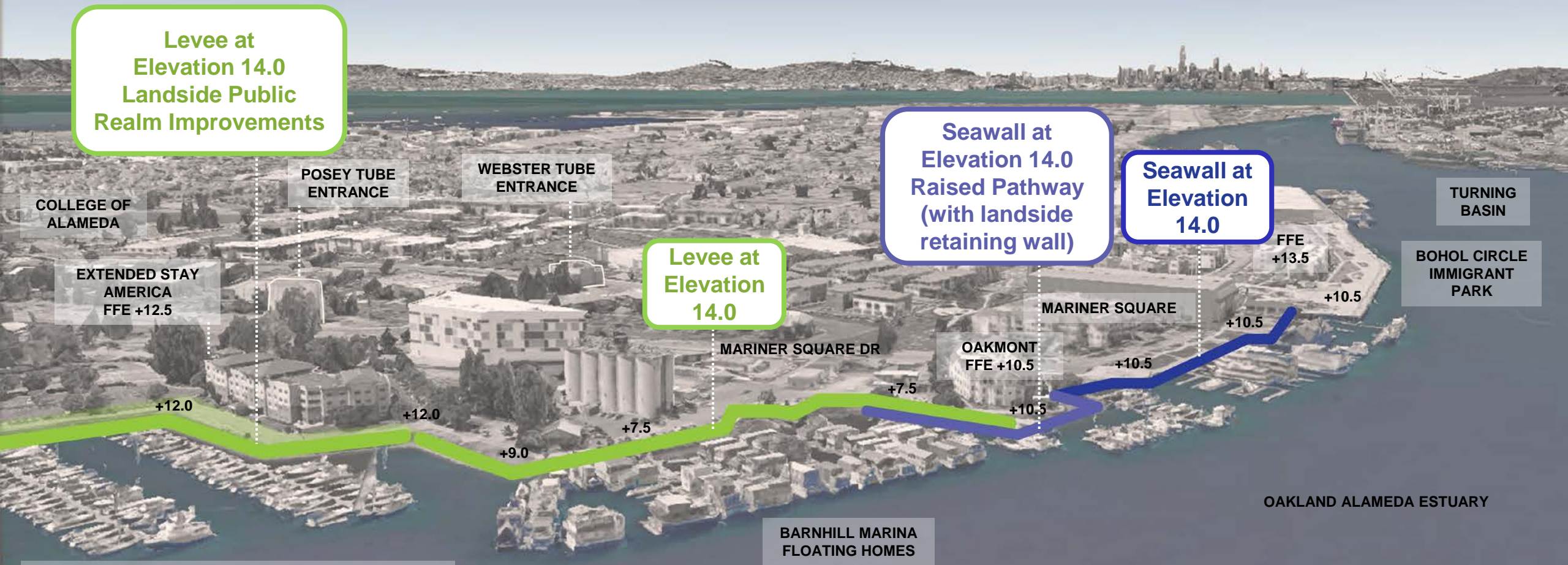
Estuary Park

Lake Merritt Channel

OAKLAND ALAMEDA
ESTUARY

I-880

Near-Term Adaptation Concept Bohol Circle Immigrant Park to Shipways



ALAMEDA
BOHOL CIRCLE IMMIGRANT PARK - SHIPWAYS

Near-Term Adaptation Concept Shipways to Marina Village



Levee - Tie into Elevation 12.0 high ground at Shoreline Park

Redevelop - fill to 14.0

Upland Levee at 14.0 Marsh Terrace & Gravel Beach Below

Shipways new development - fill to 14.0

Levee at Elevation 14.0 Landside Public Realm Improvements

RESIDENTIAL

SHORELINE PARK

MARINA VILLAGE PARKWAY

RESEARCH PARK
FFE+12.0

DOCK Q

SHIPWAYS

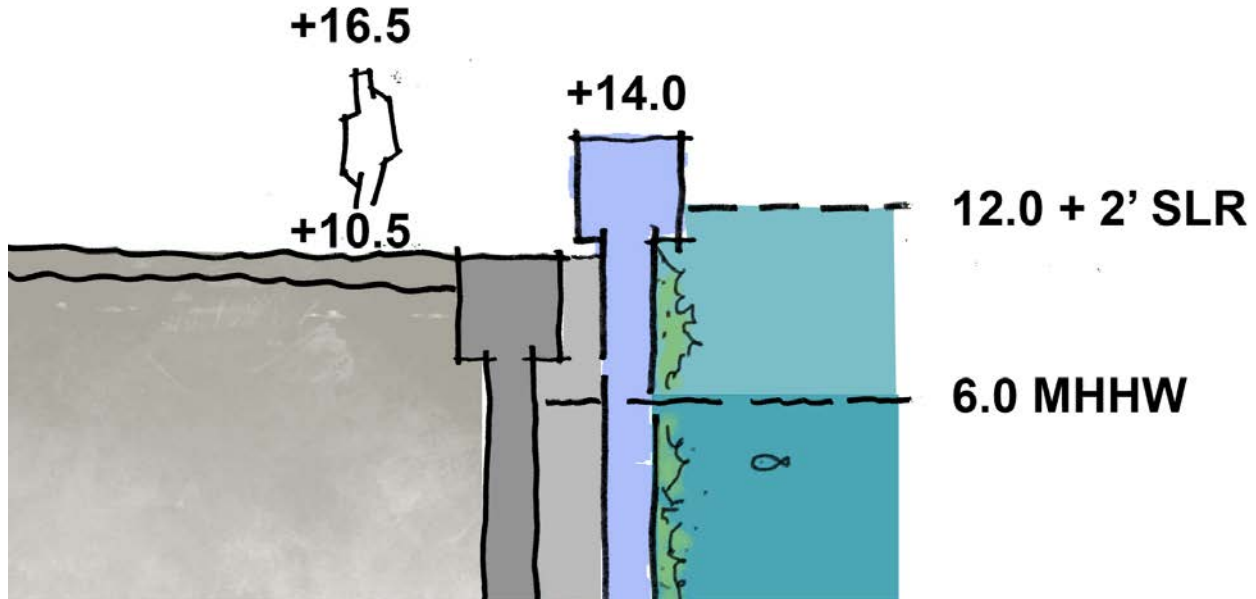
EXTENDED STAY AMERICA

MARINA VILLAGE YACHT HARBOUR

OAKLAND ALAMEDA ESTUARY

Alameda Shoreline – Near Term Adaptation Elevated **Seawall**

**Build new Seawall water side
of existing wall.
Environmental permits and
agency coordination required.**

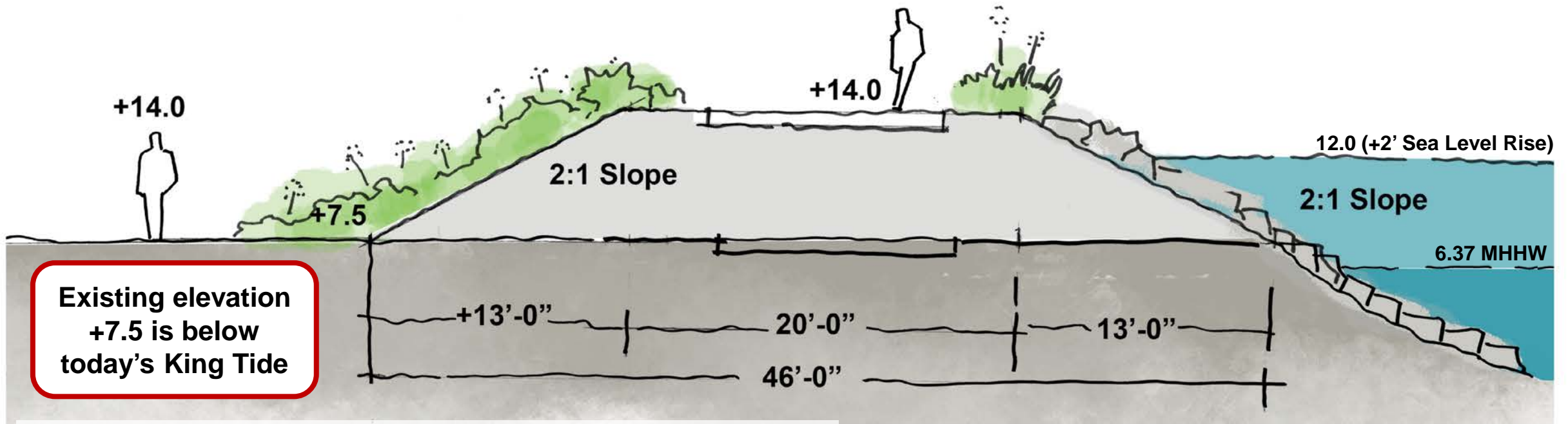


Section 1 – Typical condition at
Cardinal Point and Mariner Square Drive



Alameda Shoreline – Near Term Adaptation Shoreline Levee

Levee elevated to +14.0.
Over 6 feet tall relative to
adjacent grade.



Section 2 – Typical condition at Barnhill Marina

Alameda Shoreline – Near Term Adaptation

PICNIC AREA

UPLAND HABITAT
PLANTING

LEVEE & IMPROVED
BAY TRAIL

SLOPE ENHANCEMENT & PLANTING FOR ROCK AND
LOG INTERTIDAL HABITAT



Existing Shoreline (elev. 10.5)

View of shoreline protection and improvements near hotel

+14.0

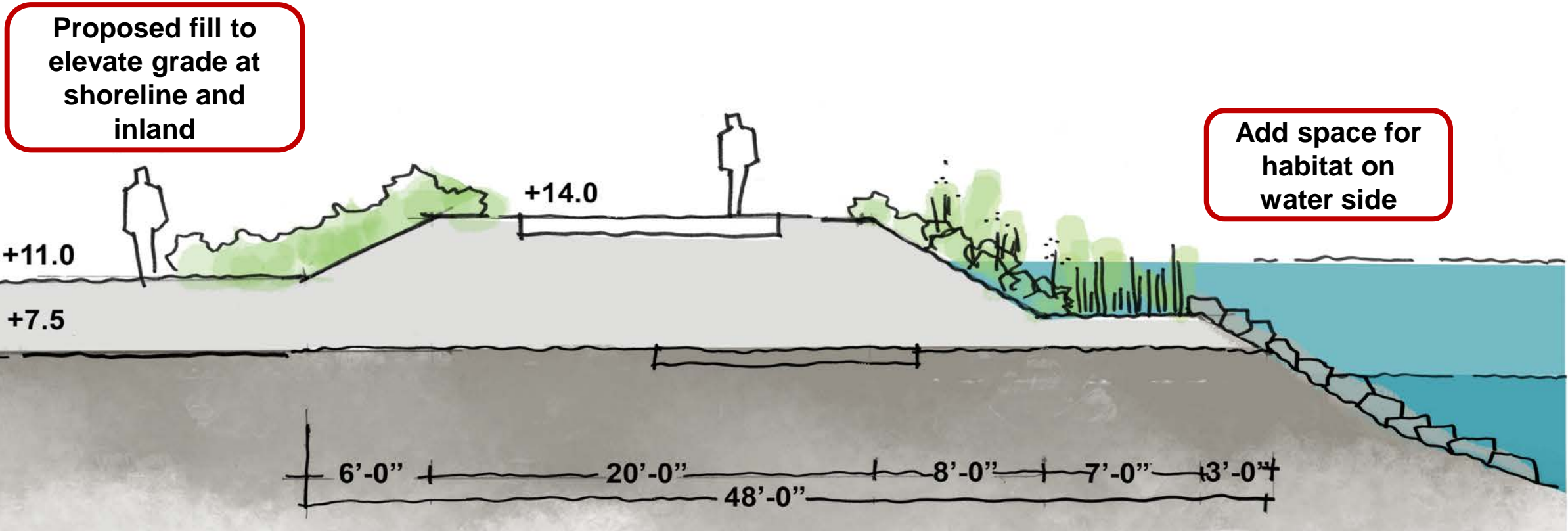
12.0 (+2'-0" SLR)

6.37 MHHW



Alameda Shoreline – Near Term Adaptation

Raised Grade at Shoreline and Inland



Section 4 – Typical condition at Marina Village

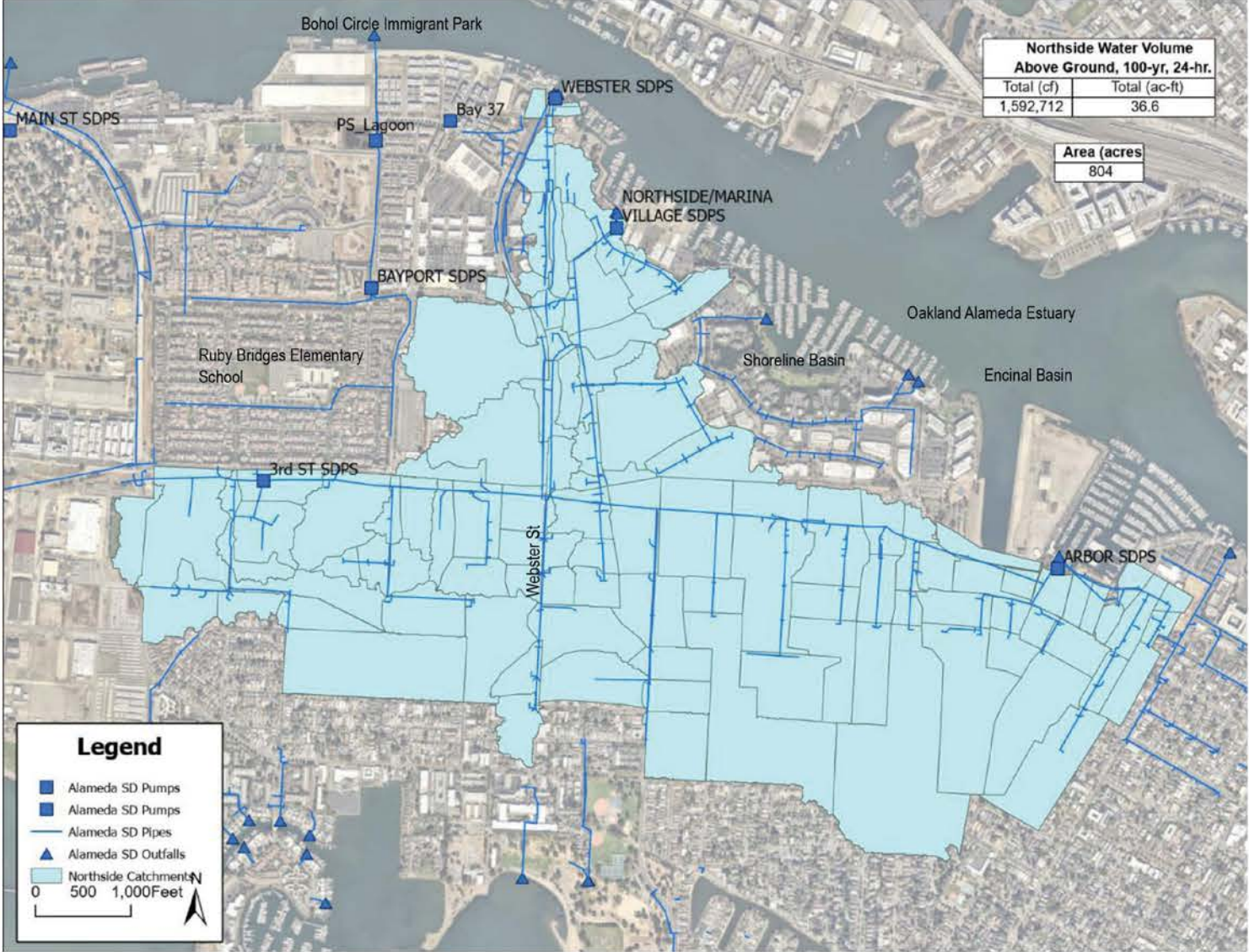
Inland Flooding Analysis

Stormwater Modeling: Northside of Alameda

- Volume of water above ground (stormwater flooding) currently generated by 100-yr, 24-hr storm: 36.6 acre-feet
- This is the volume of water that does not fit in Alameda's storm drain system today.
- Analysis includes stormwater detention for today's volume with added capacity for future increases.

Estimated Future Precipitation % Increase With Climate Change

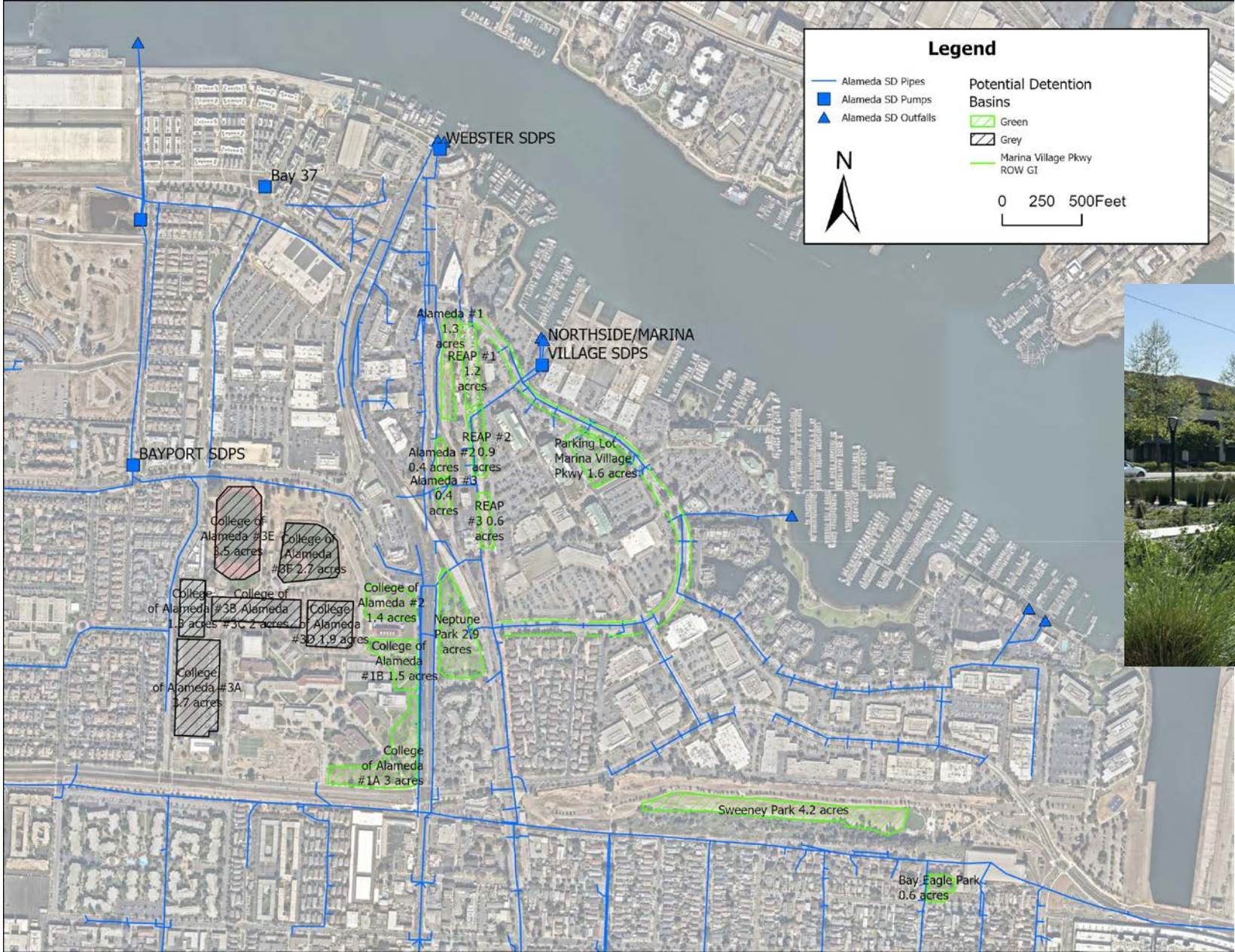
		10-yr	100-yr
2050	3-hr	21.6%	25.8%
	24-hr	17.9%	22.1%
2060	3-hr	27.8%	32.7%
	24-hr	22.2%	26.8%
2070	3-hr	33.7%	39.3%
	24-hr	25.9%	31.2%
2080	3-hr	40.7%	47.1%
	24-hr	30.7%	36.6%
2090	3-hr	49.6%	56.9%
	24-hr	37.1%	43.7%
2100	3-hr	59.0%	67.2%
	24-hr	43.6%	51.0%



Northside Water Volume Above Ground, 100-yr, 24-hr.	
Total (cf)	Total (ac-ft)
1,592,712	36.6

Area (acres)
804

Inland Flooding Detention Basin Locations

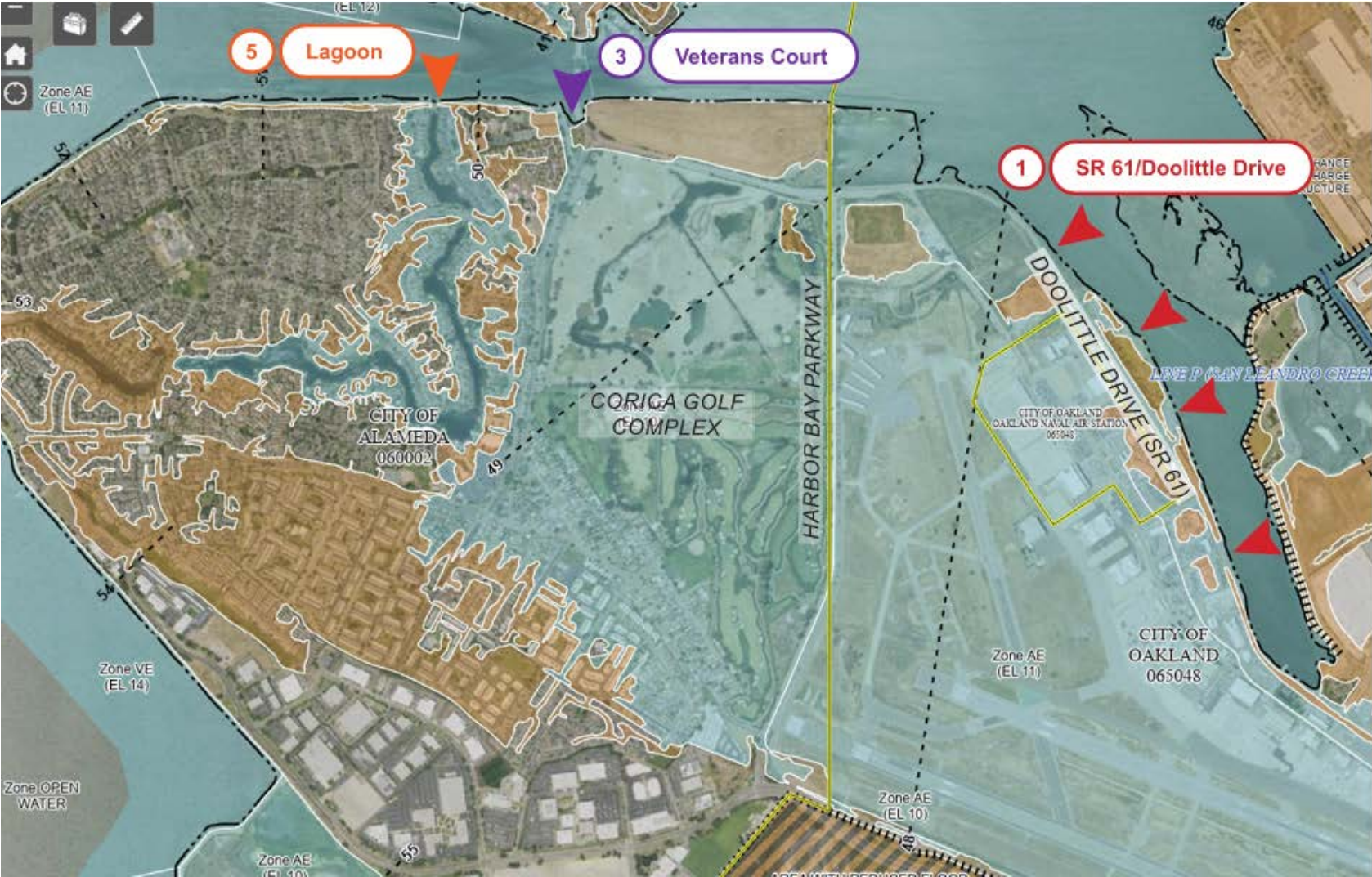


Bay Farm Island Adaptation Project

December 2024



BFI Project: Current Flood Conditions



BFI Project: Near-Term Project Area

NORTHERN SHORELINE

LAGOON OUTFALL

VETERANS COURT



BFI Project: Preferred Near-Term Alternative

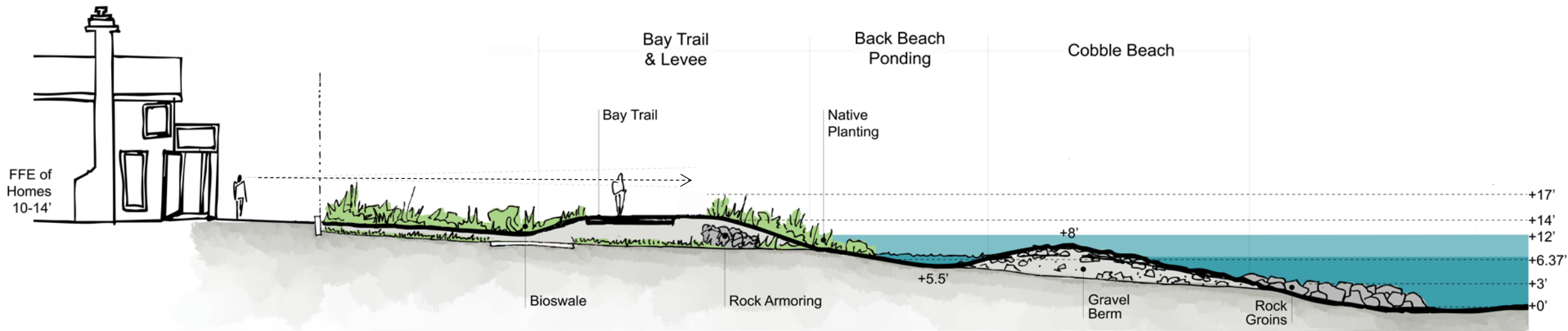
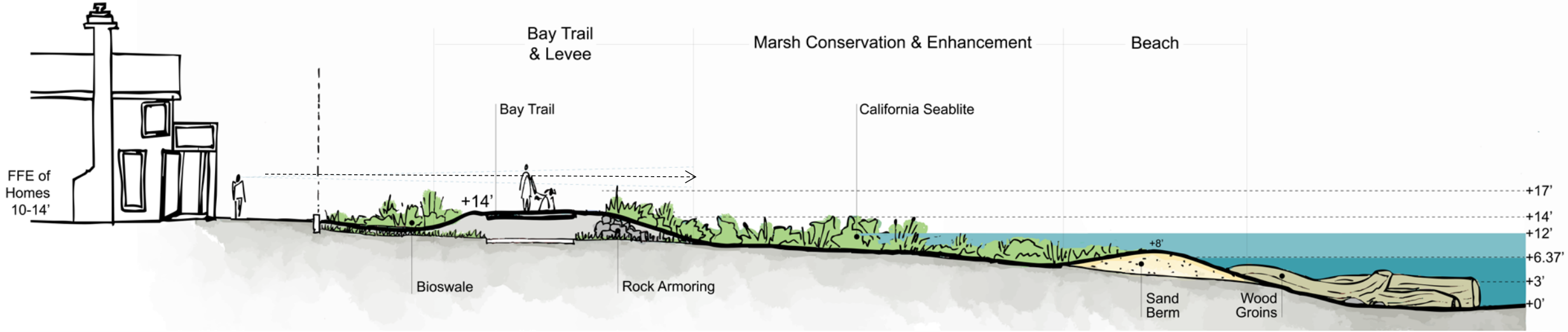
- Nature-based Solutions
- Levee: Lagoon to Veterans Court
- Lagoon: New tide gate, pump station & gravity pipe
- Marsh expansion

Nature-Based Solutions

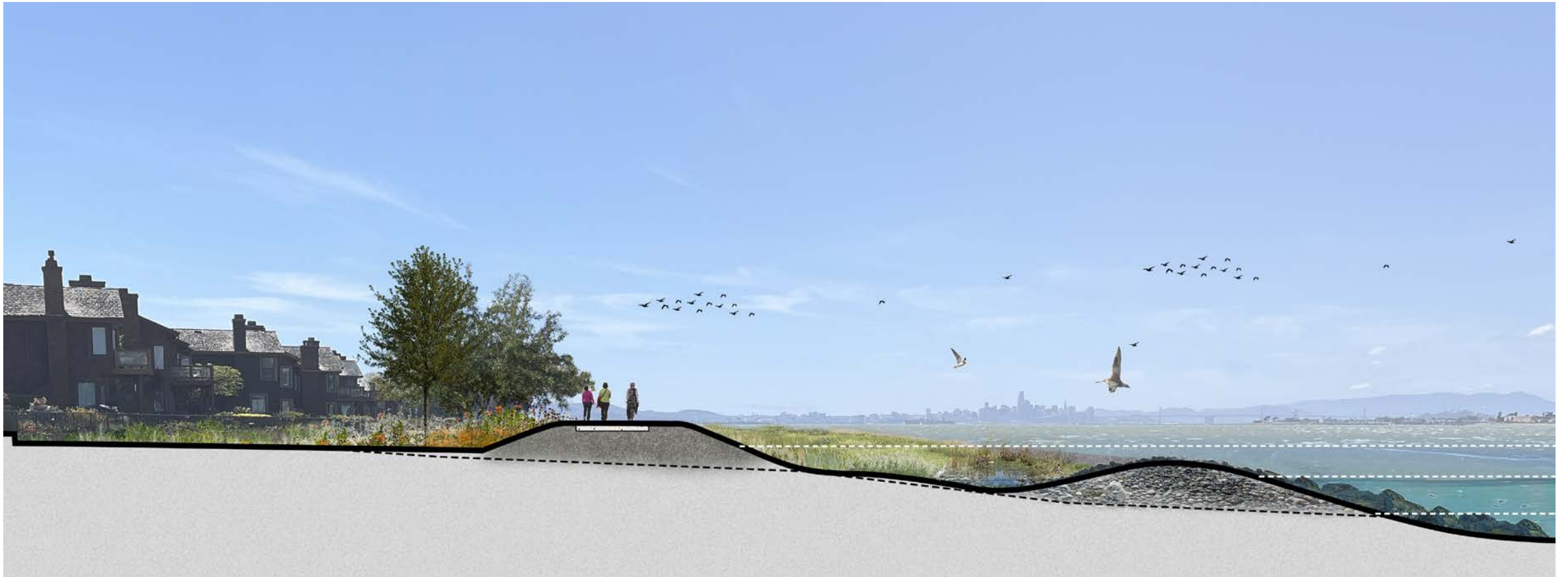
Levee & Floodwall & Nature-Based Solutions



BFI Project: Levee / Bay Trail / Marsh Expansion



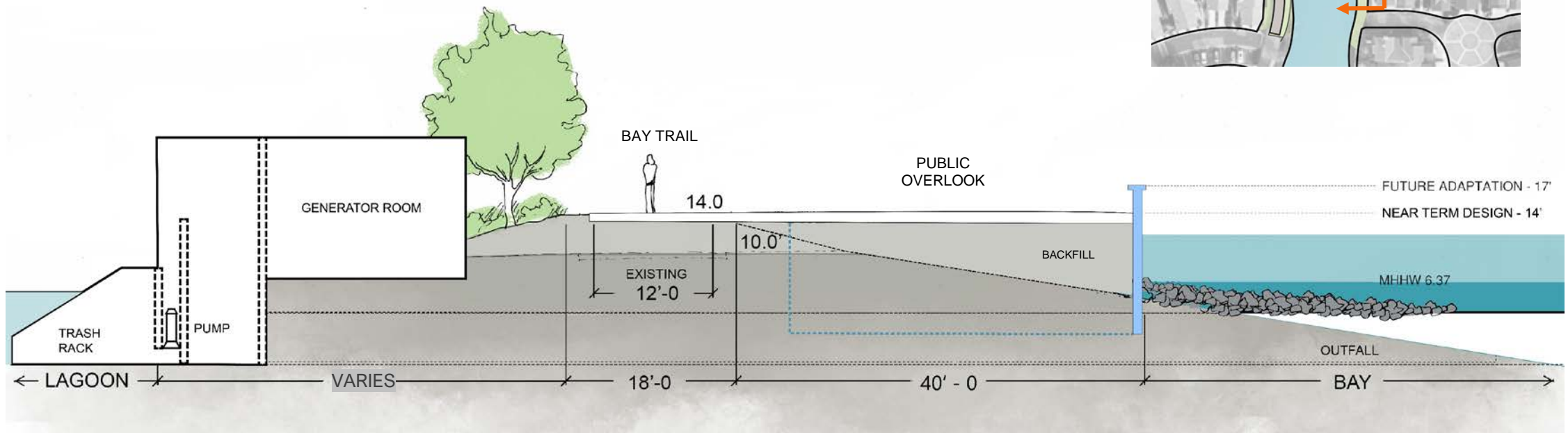
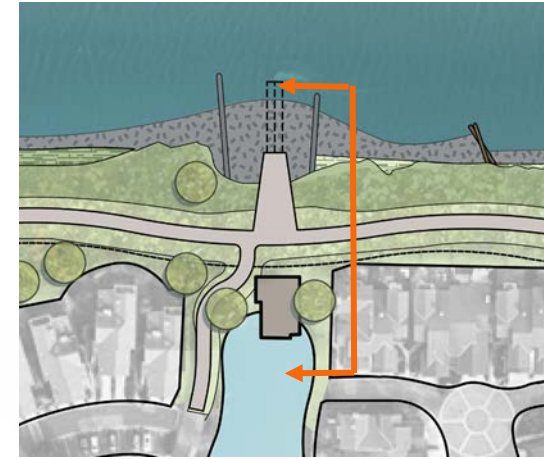
BFI Project: Levee, Bay Trail & Nature-Based Solutions



Perspective View of Typical Bay Trail condition



BFI: Pump Station & Tide Gate Replacement



- Interior drainage to comply with FEMA 65.10
- Maintain existing lagoon circulation & stormwater management goals
- Clarify Operations & Maintenance responsibilities
- Obtain right-of-way or easements for gravity pipe



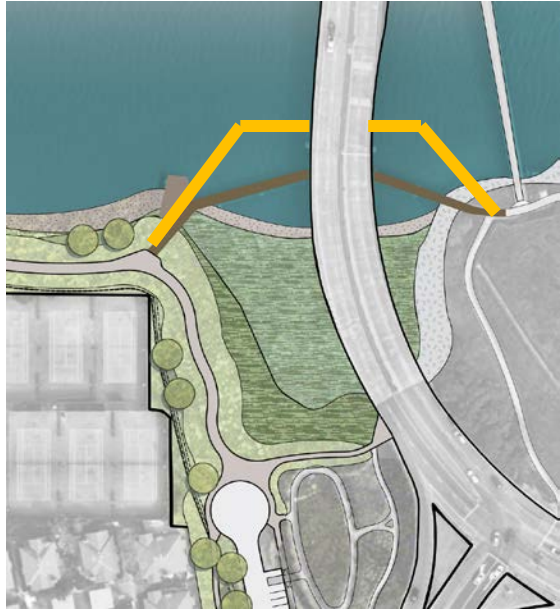
BFI Project: Veterans Court Adaptation



- Expands marsh to enhance habitat
- Shortens road to Veterans Park
- Maintains 20-25 parking spaces, including ADA spaces.
- Does not include wooden bicycle/pedestrian bridge – analysis for replacement in near term



BFI Project: Bay Trail Bridge Adaptation Alternatives (Phase 2)



Alternative 1
Bridge Relocation Outboard



Alternative 2
Underpass Crossing



Alternative 3
Bridge Over Land



Alternative 4
At Grade Crossing



FEMA BRIC Grant: Near-term Project (Phase 1)



BRIC federal \$50M
(90%)

Non-federal \$5.5M
(10%)

Total \$55.5M

***Recommended for
further review by FEMA***

Start: 2025?

Construction: 2030



Subregional Adaptation Planning

December 2024



Subregional Adaptation Plan Process

Oct 2023 – Mar 2024

Charting the Course

Apr 2024 – Mar 2025


Strategy Development

Apr – Jun 2025

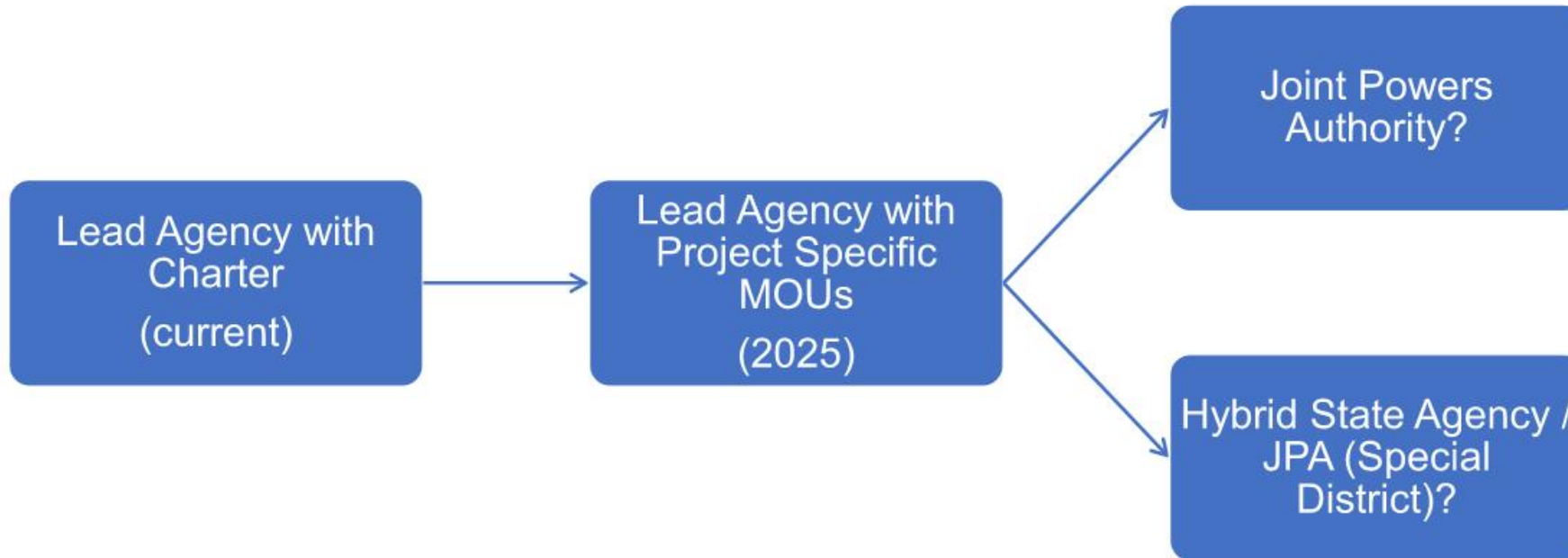
Public Input &
Strategy Refinement

Jul – Sep 2025

Plan Completion &
Council Hearings



Governance: Recommended Evolution



Governance: Project-specific MOUs

Project	Funding source	MOU partners	Other potential partners
Bay Farm Island/Doolittle Project	BRIC	<ul style="list-style-type: none">• City of Alameda• City of Oakland• Port of Oakland	<ul style="list-style-type: none">• Caltrans• EBRPD• Community Partners
Estuary Project	WRDA	<ul style="list-style-type: none">• City of Alameda• City of Oakland• Port of Oakland	<ul style="list-style-type: none">• Caltrans• Community Partners



OAAC Adapt Projects

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Conceptual Stormwater Detention Basin Locations - City of Alameda Land

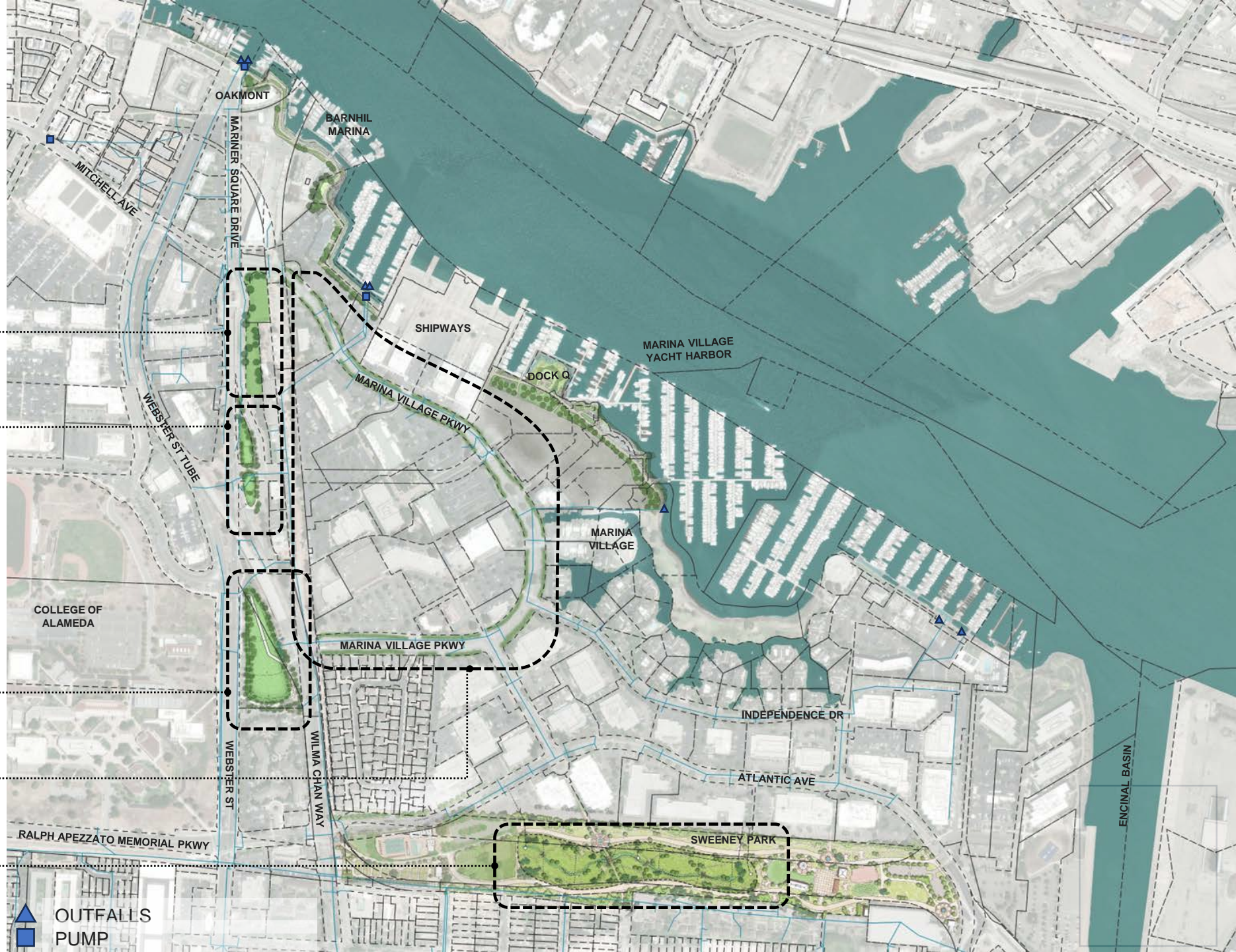
ALAMEDA #1
2 acre-ft

ALAMEDA #2 & #3
2 acre-ft

NEPTUNE PARK
8 acre-ft

MARINA VILLAGE
PARKWAY RIGHT-OF-WAY
5 acre-ft

JEAN SWEENEY PARK
18 acre-ft



▲ OUTFALLS PUMP
■ PUMP

Alameda Inland Flooding – Detention Basin Concept Plans Neptune Park

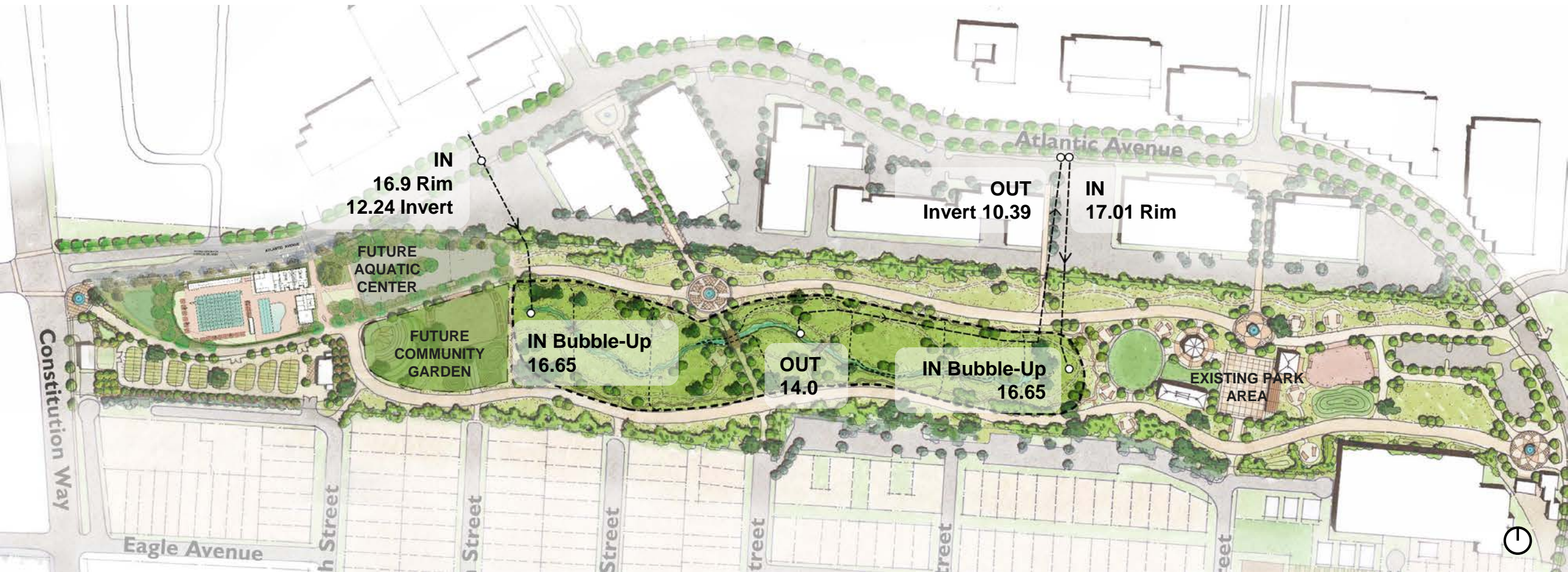














Alameda Inland Flooding – Detention Basin Concept Plans

Alameda #2 & #3



Jean Sweeney Park



- | | | | | | |
|---|--------------------------|---|-------------------------|---|---------------------|
|  | Fruit Tree Orchard |  | Fountain |  | Natural Landscape |
|  | Existing Oak Trees |  | Water & Dry Creek |  | Lawn Area |
|  | Park Structure |  | Foot Bridge |  | Existing Vegetation |
|  | 1 Mile Trail & Bike Loop |  | Plaza or Special Paving |  | Community Garden |

Oakland Concept Plan

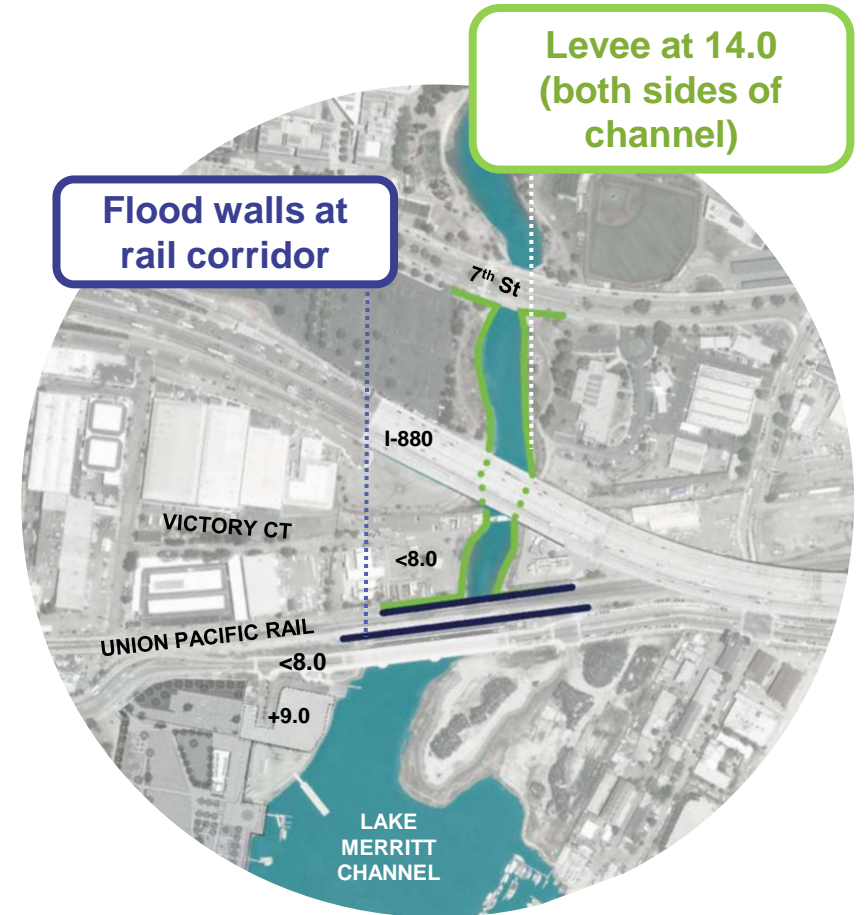
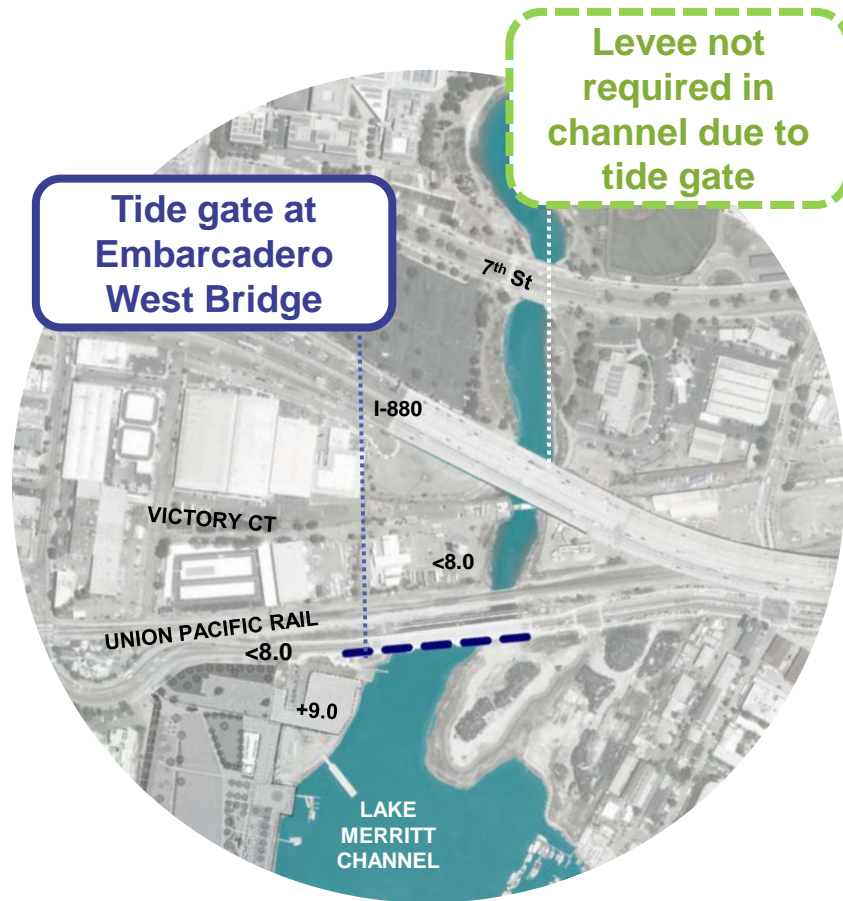


*This adaptation alternative is developed to a conceptual planning level only. Port properties in this area are under study by the Port of Oakland's Vulnerability Assessment, and Adaptation Plan
**"Finished Floor Elevation" (estimated)



Oakland Concept

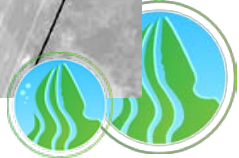
Alternative to Tide gate at Lake Merritt Channel: Flood Walls at Union Pacific Rail Bridge



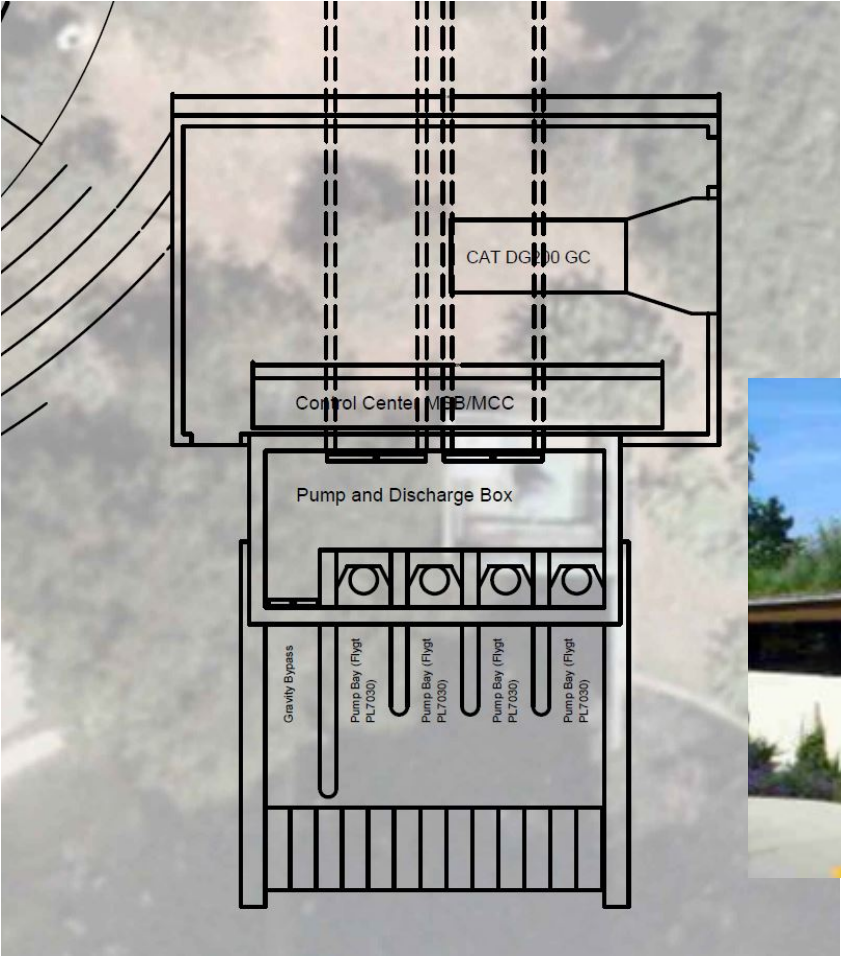
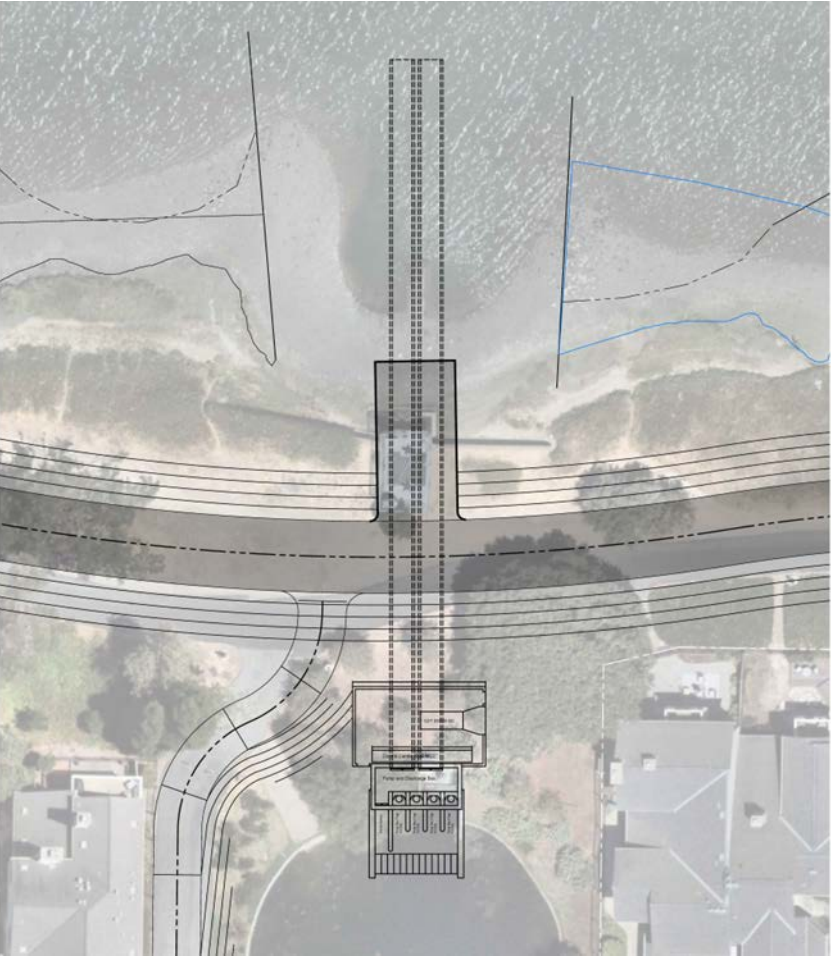
Oakland Shoreline



Near-Term Adaptation Focus Area



BFI Project: Pump Station & Tide Gate - Plan



Remove Levee Penetration (Redirect Gravity System Outfall to Lagoon)



- New gravity pipe to be constructed as part of levee construction
- New pipe to follow levee toe rather than go through Palm Beach Ln
- Construction implications through private property
- Assumption of new lagoon operations plan

Preliminary Hydrology Evaluation				
Design Parameter	100-yr, 24-hr (2024)		100-yr, 24-hr (2060)	
	Lagoon Only	Lagoon + Waterfront	Lagoon Only	Lagoon + Waterfront
Drainage Area (acres)	433	442	433	442
Pump Rate (cfs)	22.28	22.28	80	80
Inflow Volume (acre-ft)	129	131	170	174
Peak Storage (acre-ft)	170	173	153	155
Peak Elevation (ft)	5.7	5.8	5.2	5.2

