

Oakland-Alameda Estuary Adaptation Project



Design Concepts



Alameda Coastal Flood Protection Concept

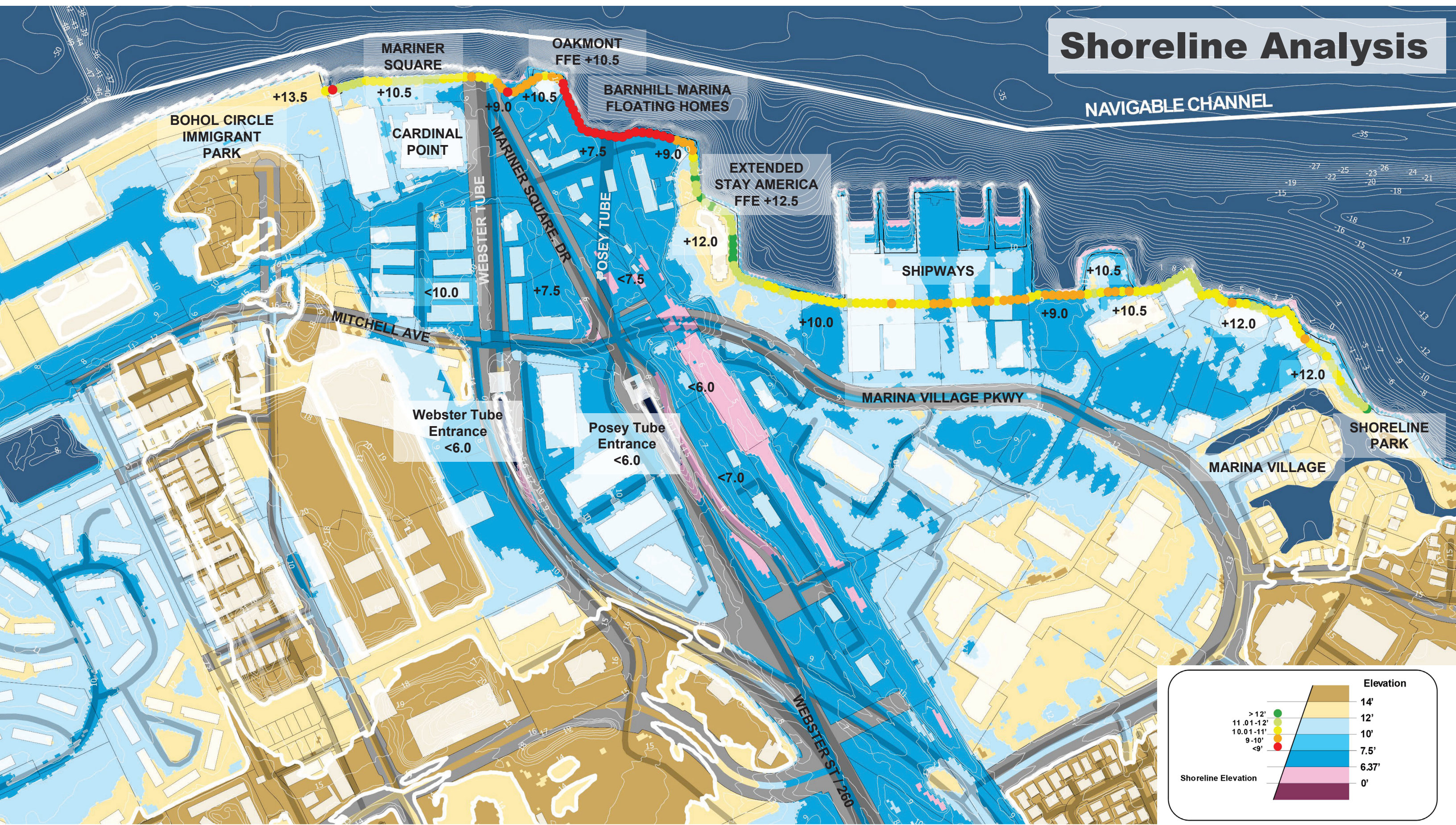
Mariner Square to
Marina Village



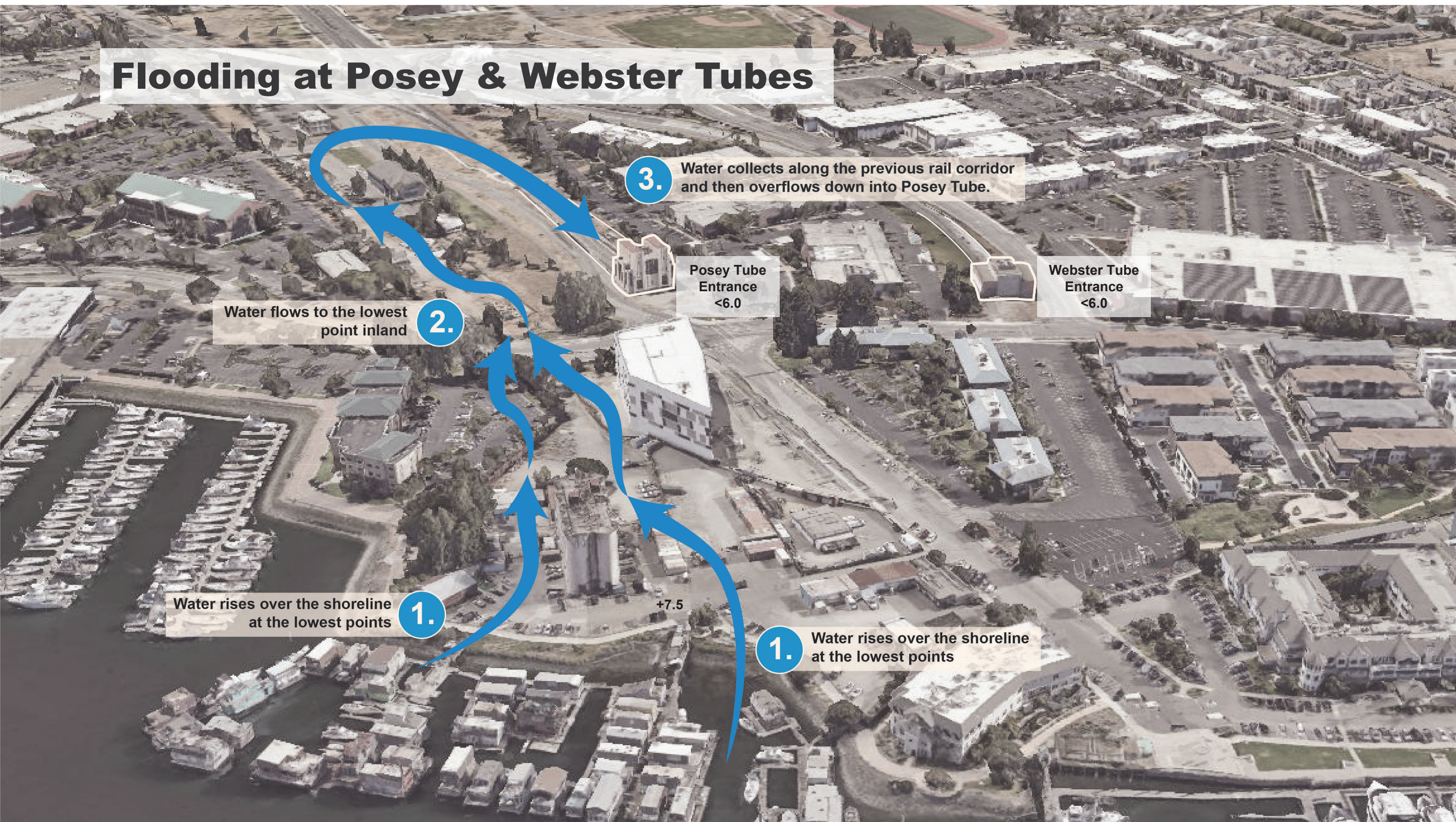
Mariner Square to Marina Village – Existing Site



Shoreline Analysis



Flooding at Posey & Webster Tubes



Water rises over the shoreline
at the lowest points

1.

Water flows to the lowest
point inland

2.

3.

Water collects along the previous rail corridor
and then overflows down into Posey Tube.

Posey Tube
Entrance
<6.0

Webster Tube
Entrance
<6.0

+7.5

1.

Water rises over the shoreline
at the lowest points

Alameda Near Term Adaptation Concept

Alameda Coastal Flood Protection

MARINER SQUARE TO SHIPWAYS

SHIPWAYS TO MARINA VILLAGE



Alameda Concept Plan – Mariner Square to Shipways



**Finished Floor Elevation

Alameda Concept Plan – Shipways to Marina Village



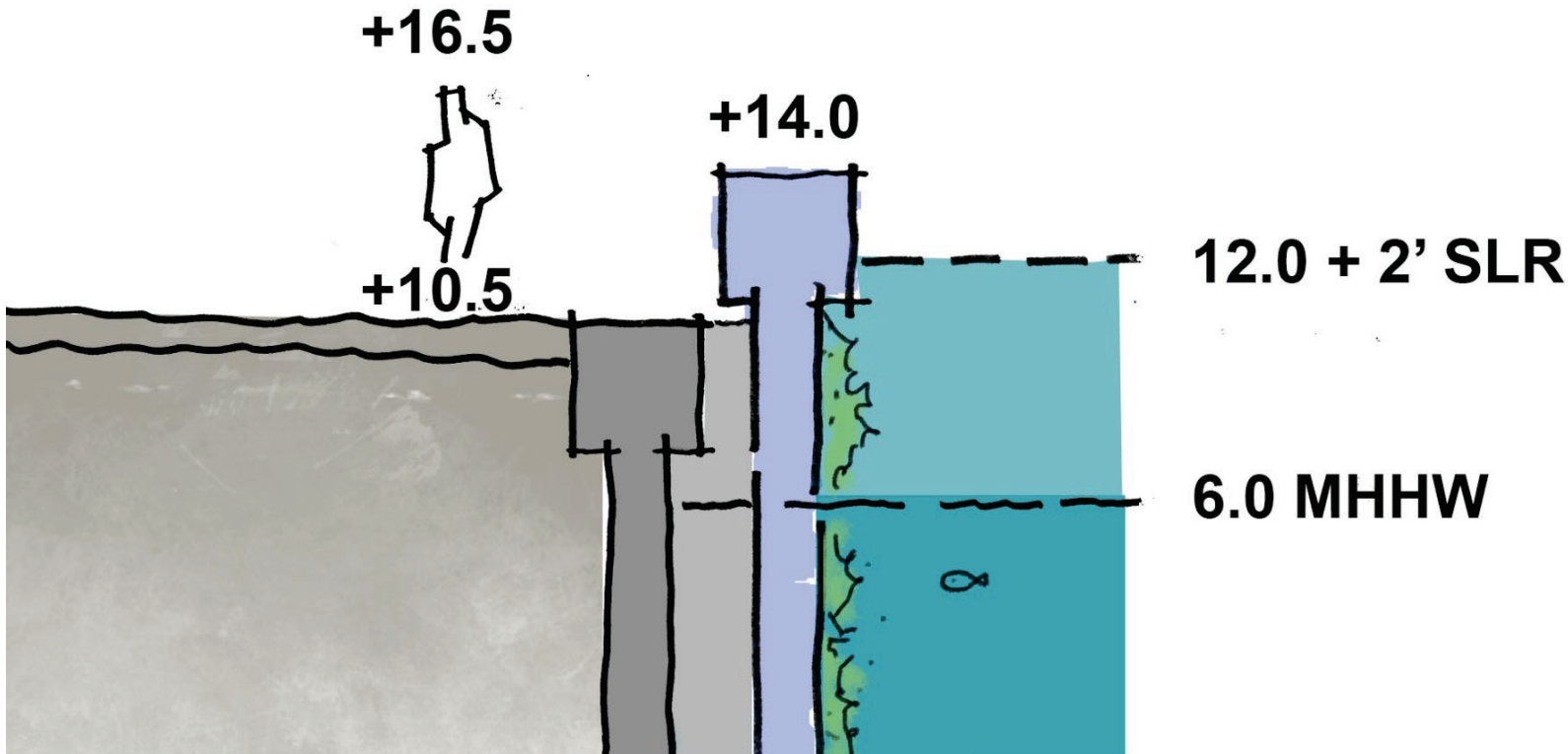
***"Finished Floor Elevation" (estimated)



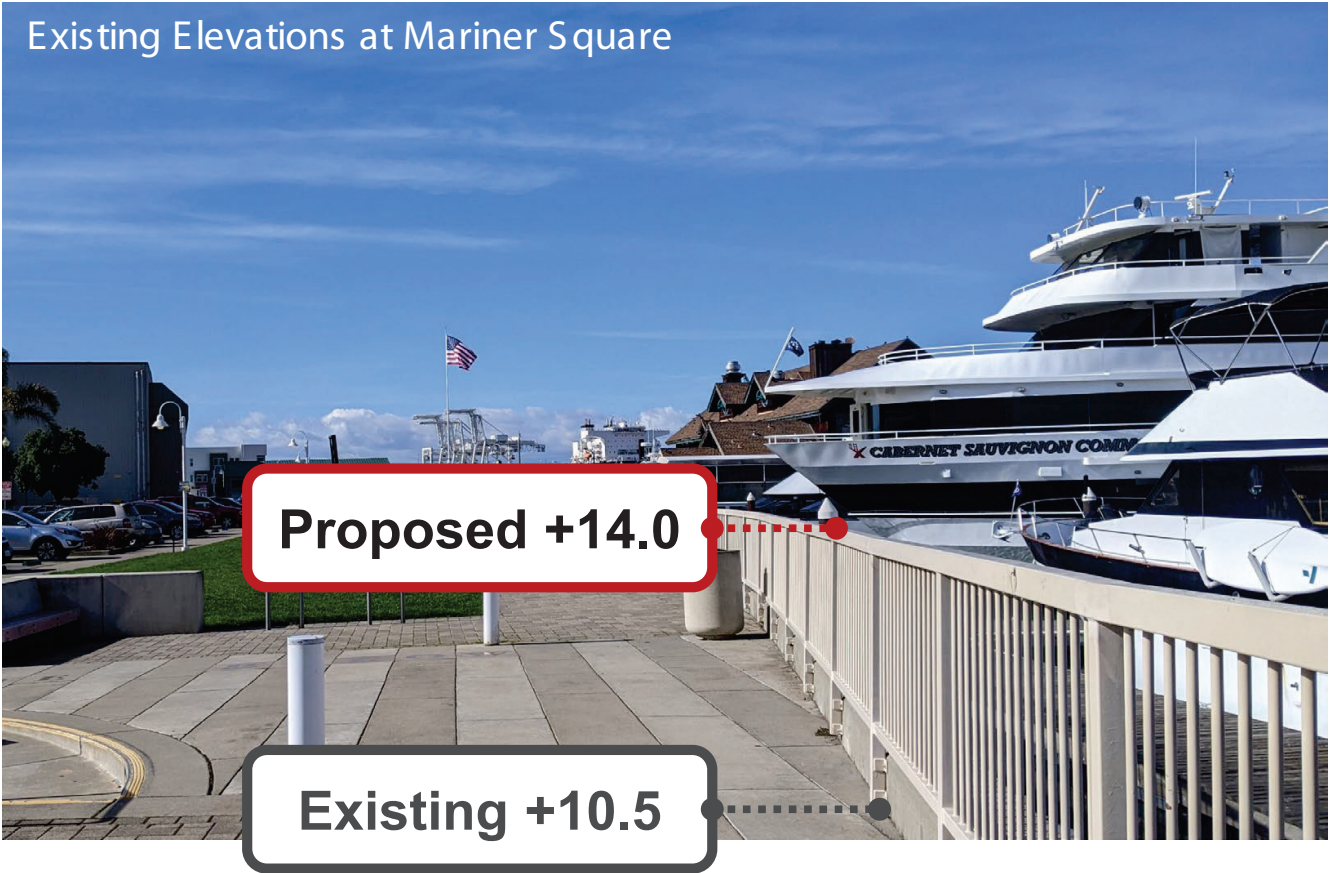
Alameda Shoreline – Near Term Adaptation

Elevated Seawall

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



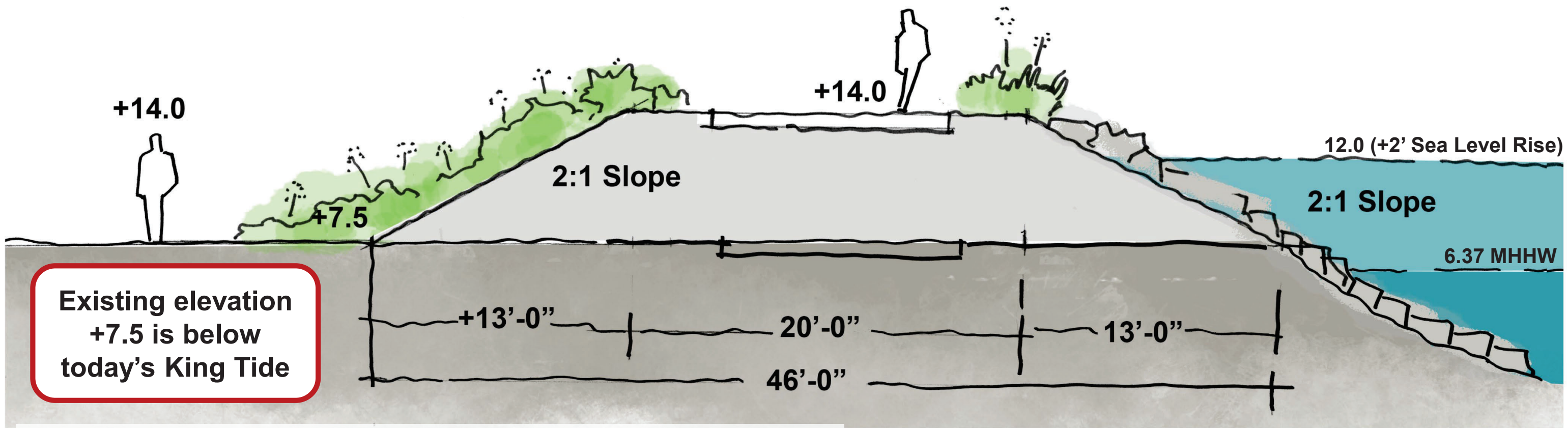
Section 1 – Typical condition at
Cardinal Point and Mariner Square Drive



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

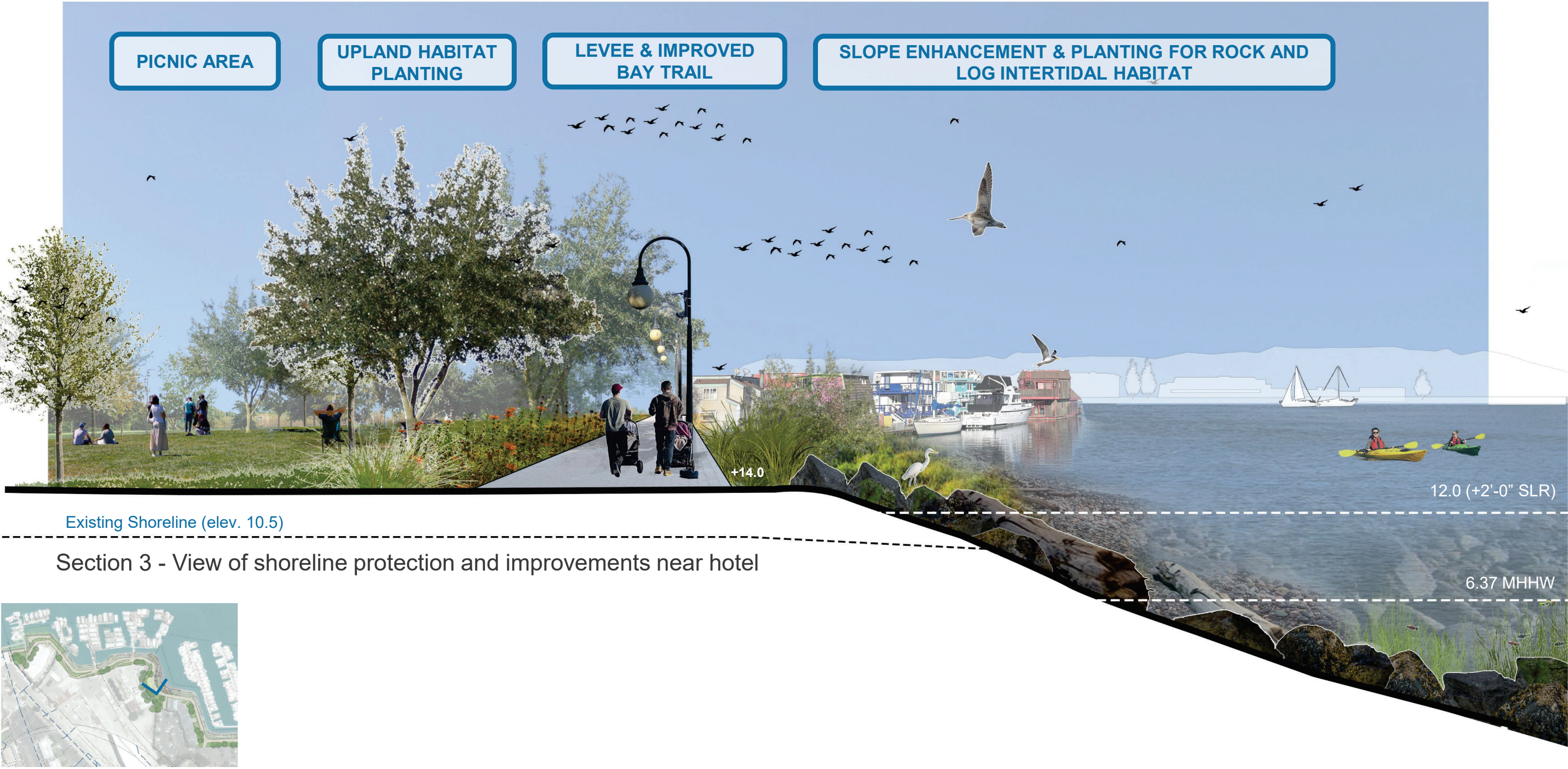
Alameda Shoreline

PICNIC AREA

UPLAND HABITAT
PLANTING

LEVEE & IMPROVED
BAY TRAIL

SLOPE ENHANCEMENT & PLANTING FOR ROCK AND
LOG INTERTIDAL HABITAT



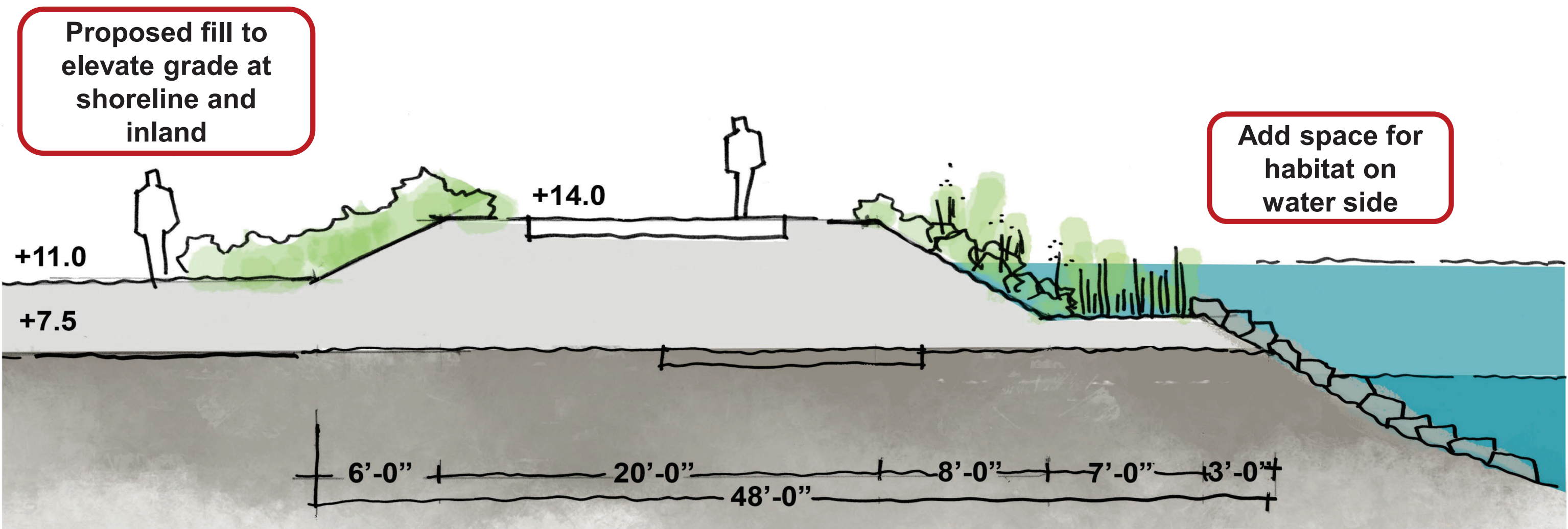
Existing Shoreline (elev. 10.5)

Section 3 - View of shoreline protection and improvements near hotel



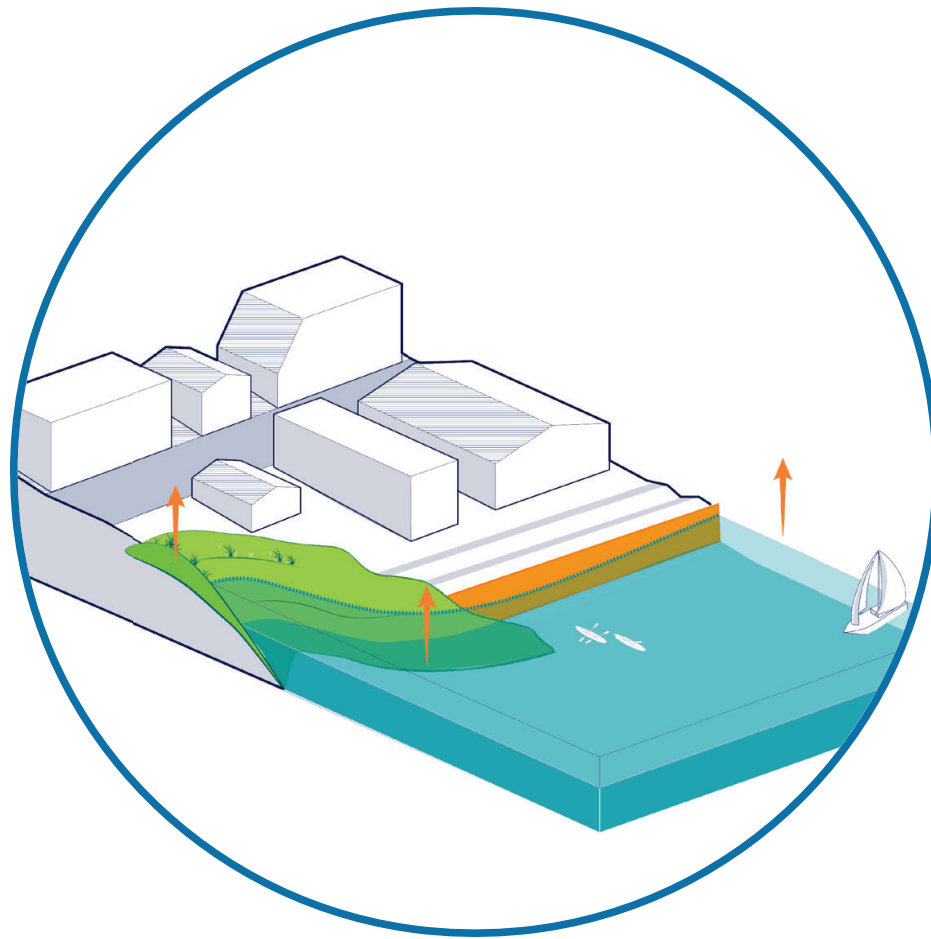
Alameda Shoreline – Near Term Adaptation

Raised Grade at Shoreline and Inland

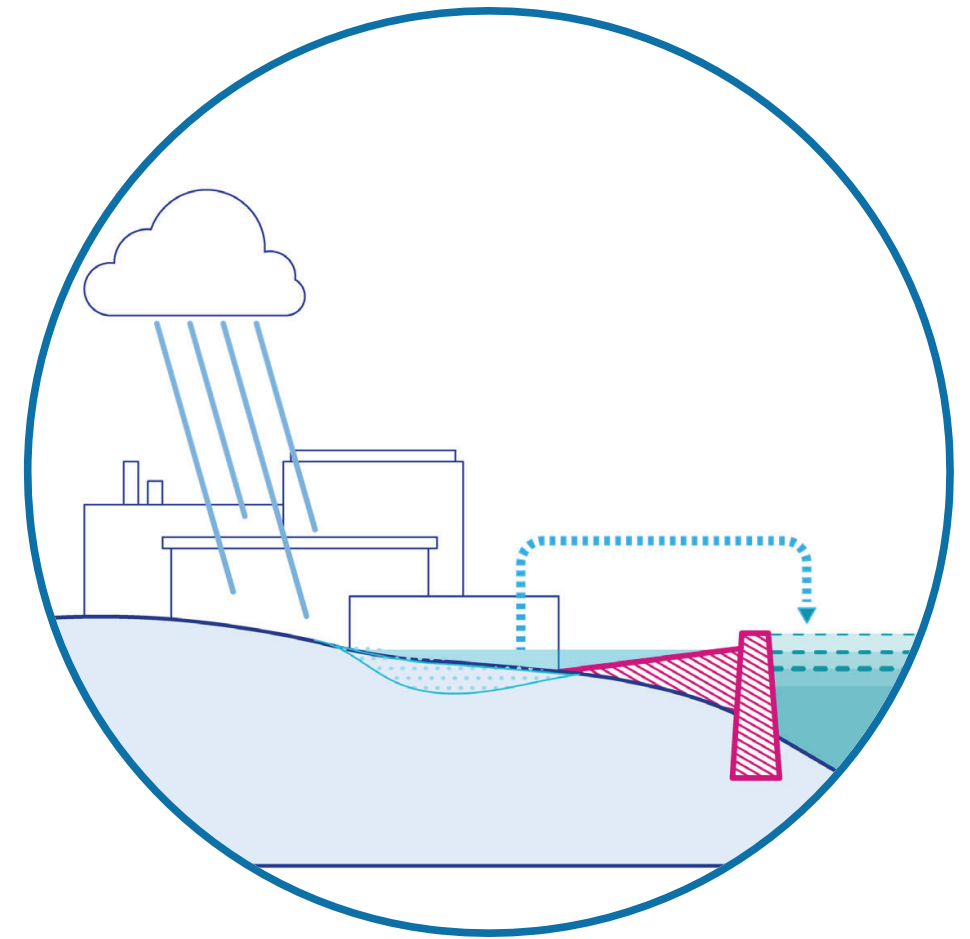


Section 4 – Typical condition at Marina Village

Alameda Northern Shoreline Inland Flood Protection Concept



Elevate shoreline to prevent coastal flooding from sea level rise and storm surges



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



Inland Flooding Analysis

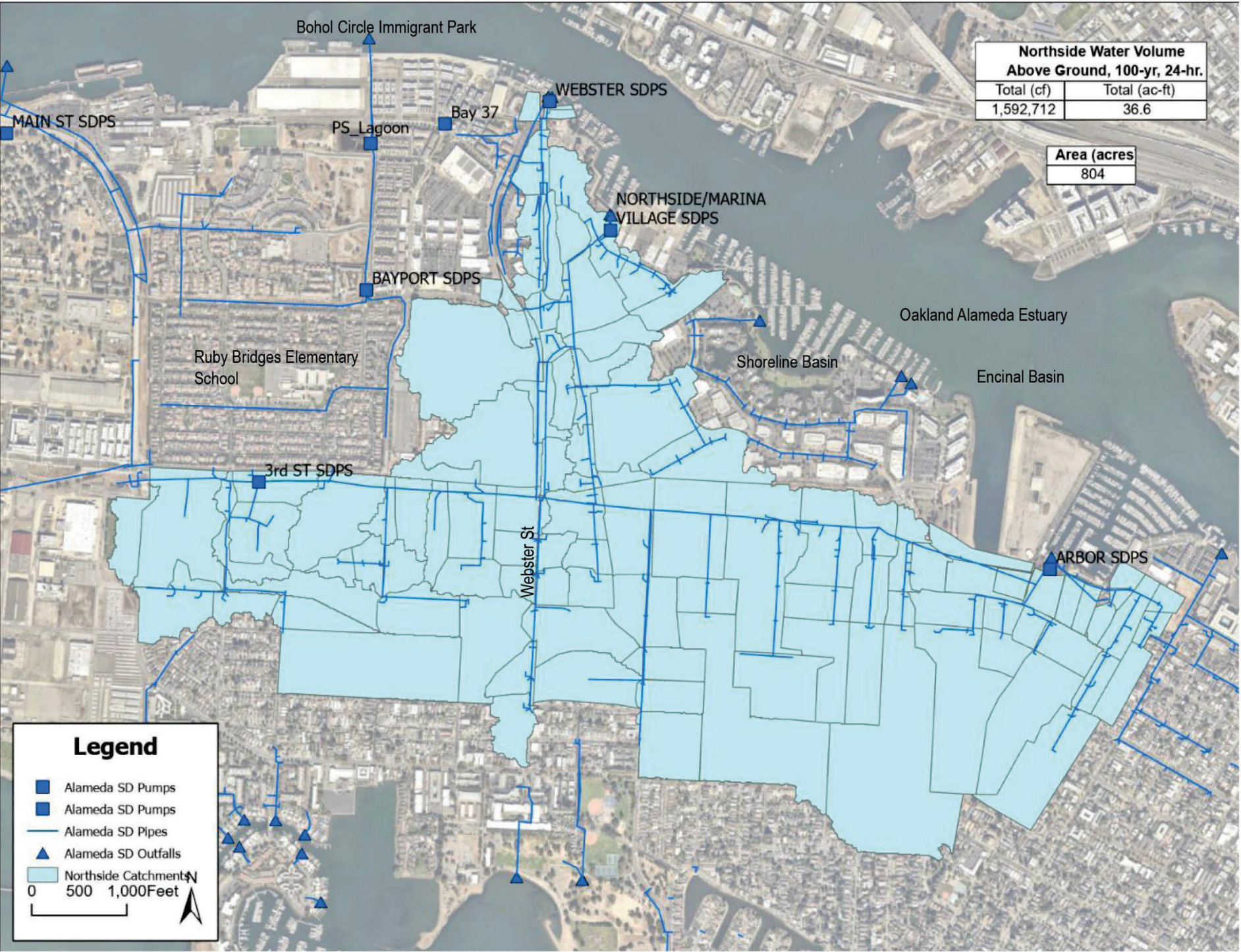
Stormwater Modeling: Northside of Alameda

- 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.

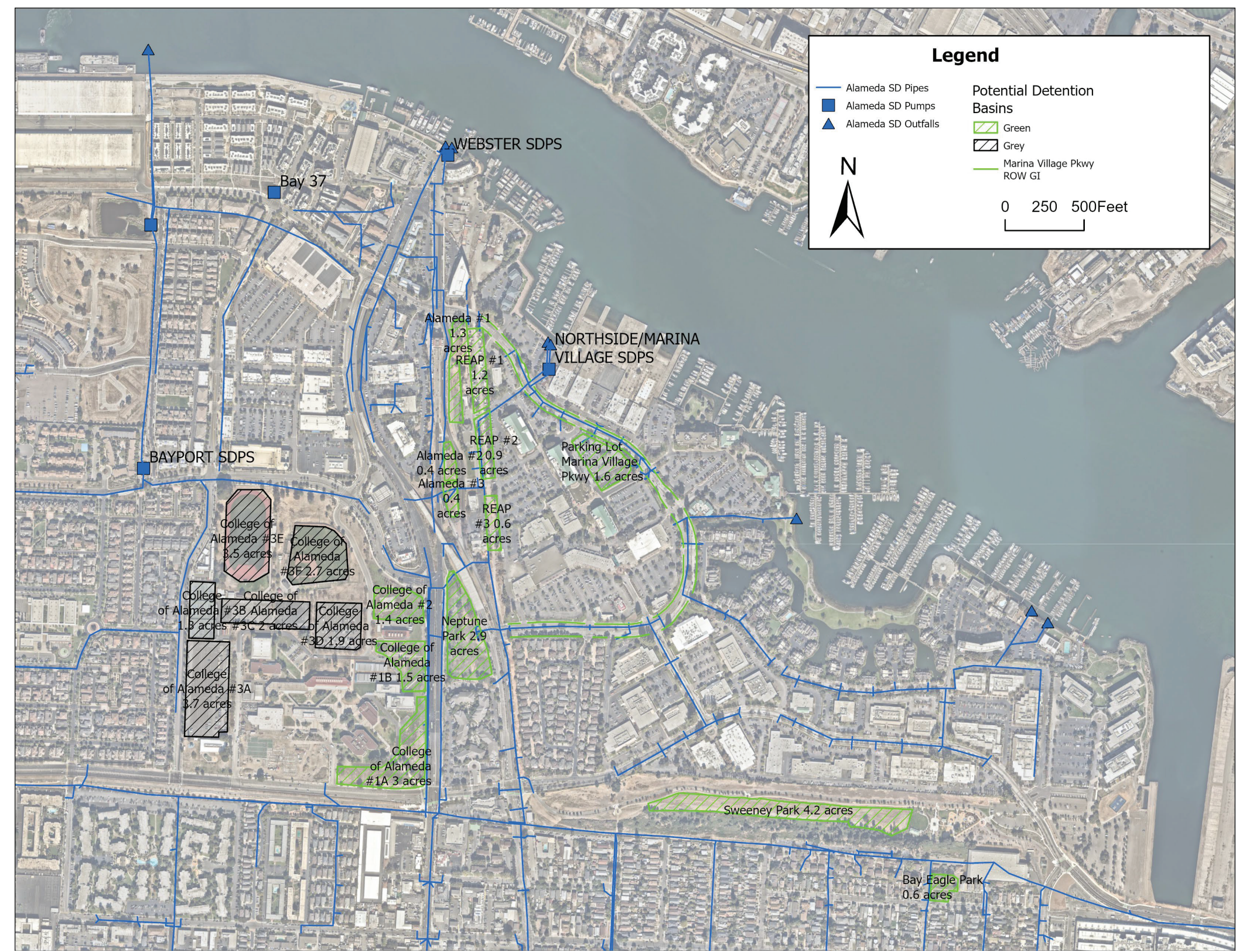
Estimated Future Precipitation % Increase With Climate Change

		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%

San Francisco Bay Area Domain SSP5-8.5



Inland Flooding Conceptual Detention Basin Locations

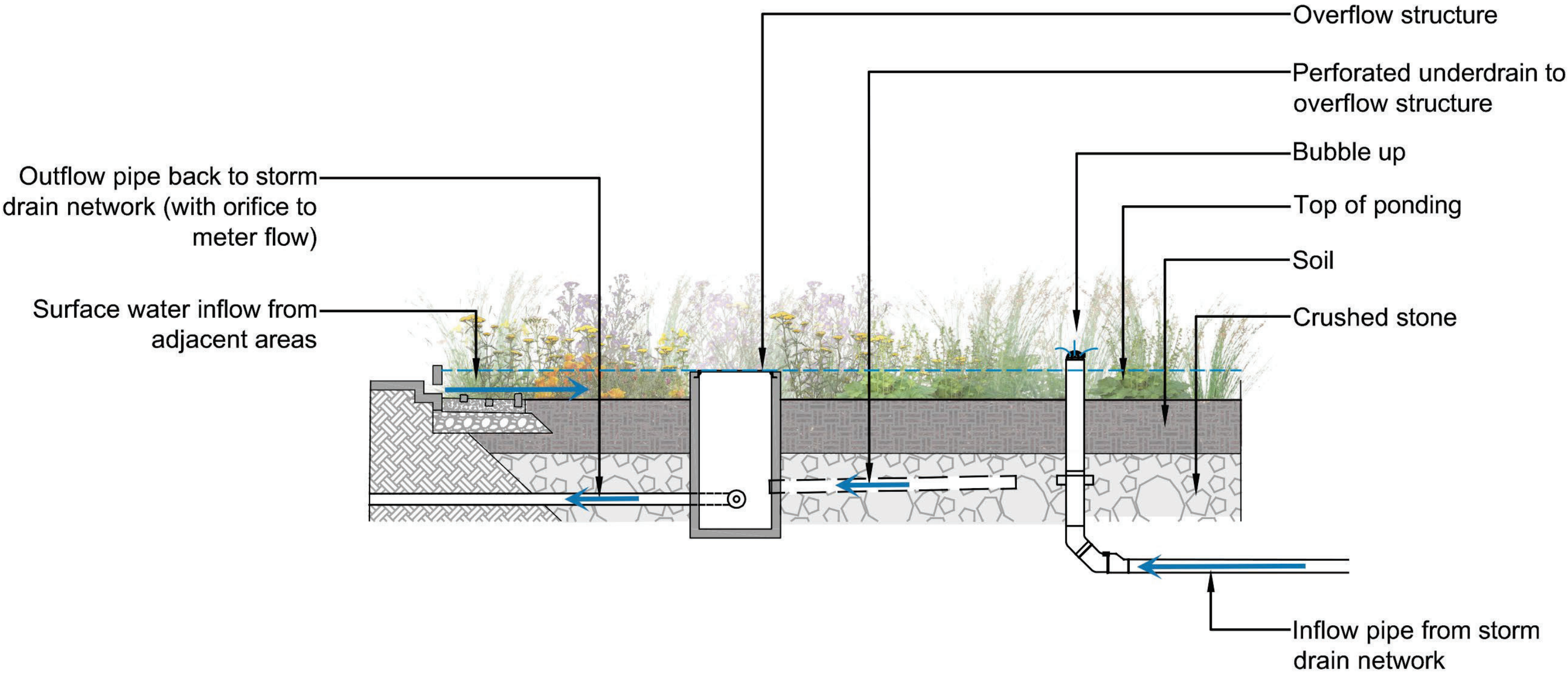


Conceptual Stormwater Detention Basin Locations

- 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
14 acre-ft



How the System Would Work





Stormwater treatment garden, Serramonte Library





Stormwater gardens on Yerba Buena Island, San Francisco



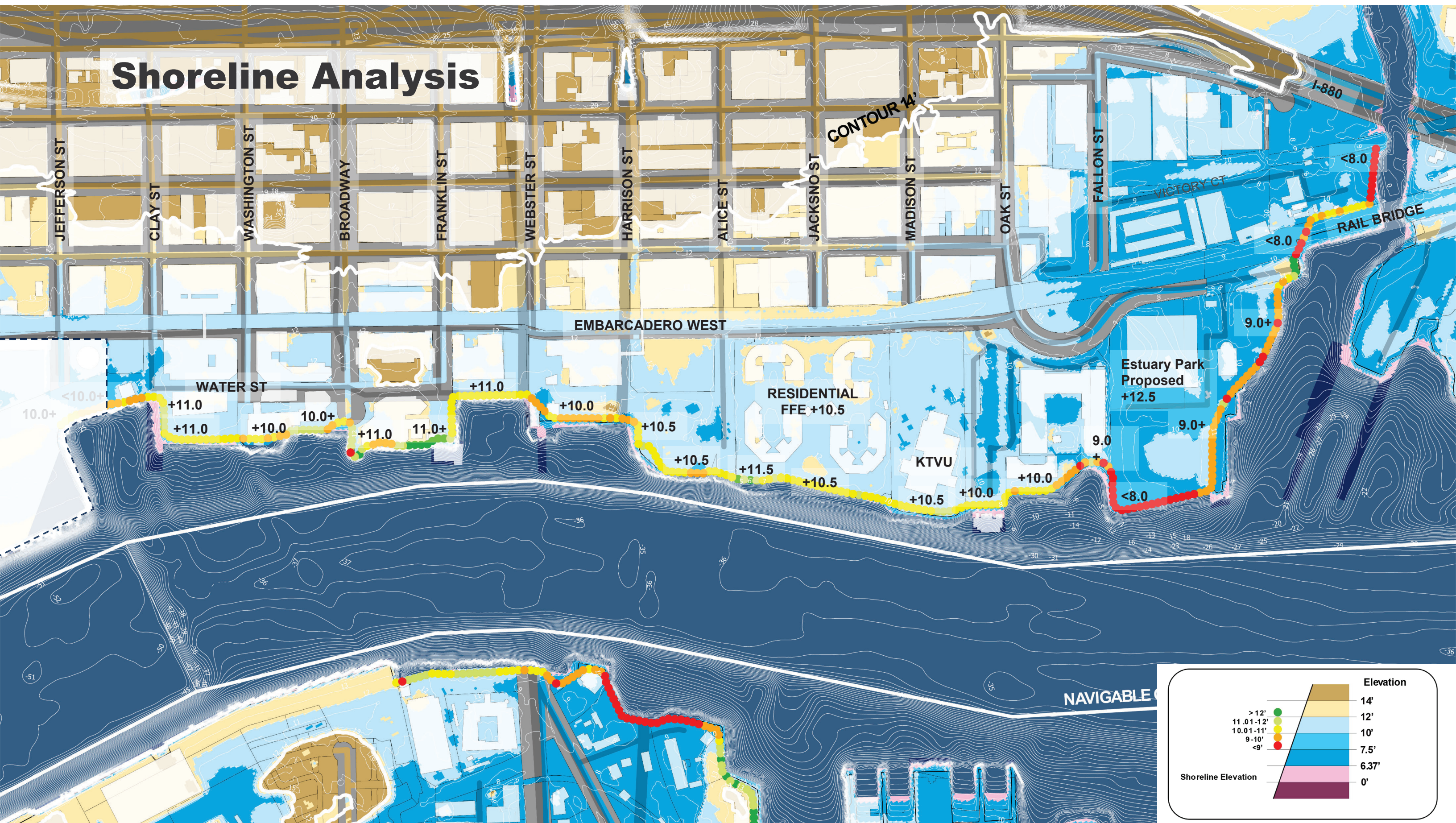
Stormwater Basin at Fifth and Eucalyptus Street, Alameda

Oakland Coastal Flood Protection Concept

Alice Street to Lake
Merritt Channel



Shoreline Analysis



Alice Street to Lake Merritt Channel – Existing Site



Jack London Square - Port of Oakland Area of Study*



*AREA IS UNDER STUDY BY THE PORT OF OAKLAND'S VULNERABILITY ASSESSMENT, AND ADAPTATION PLAN

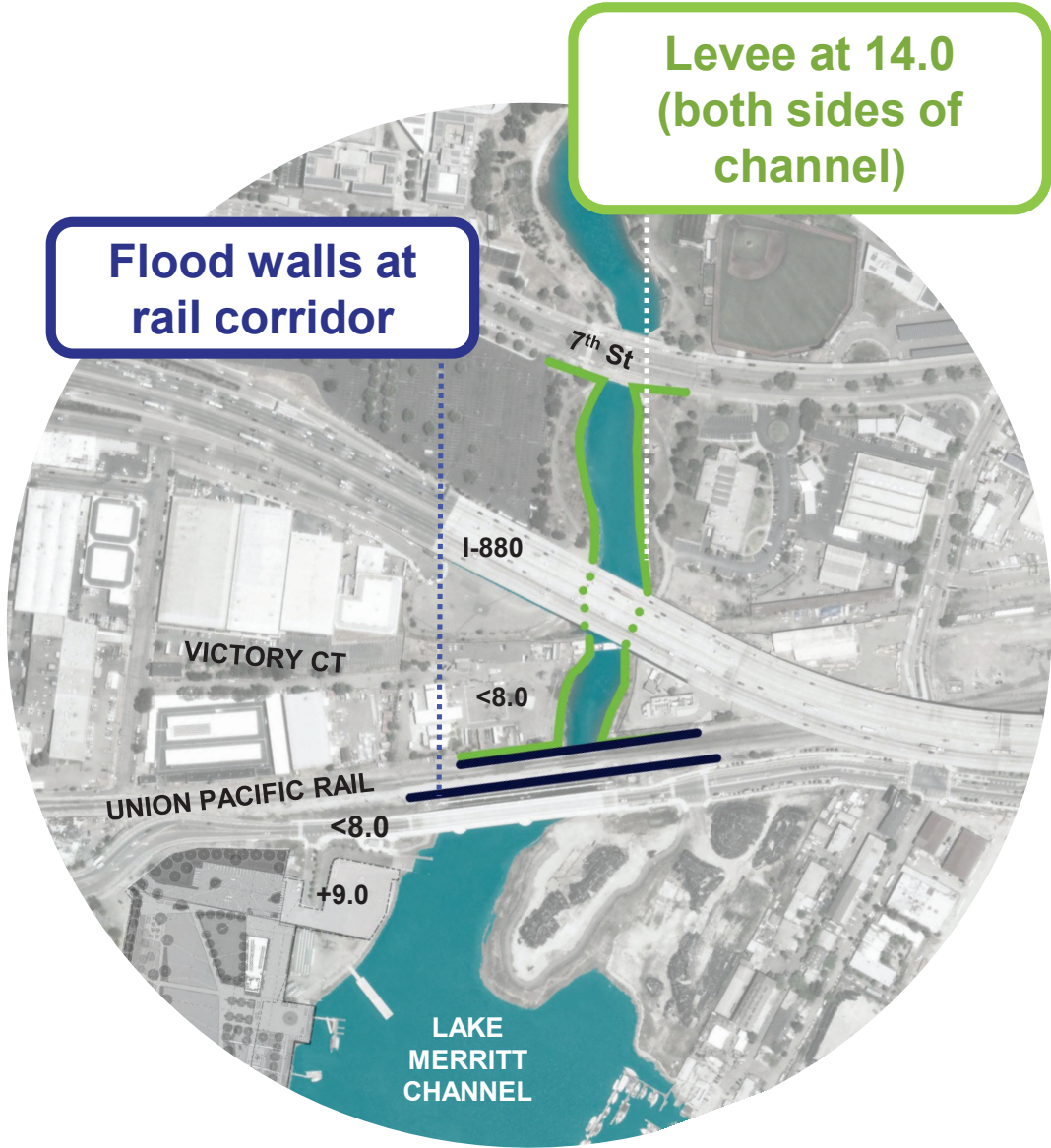
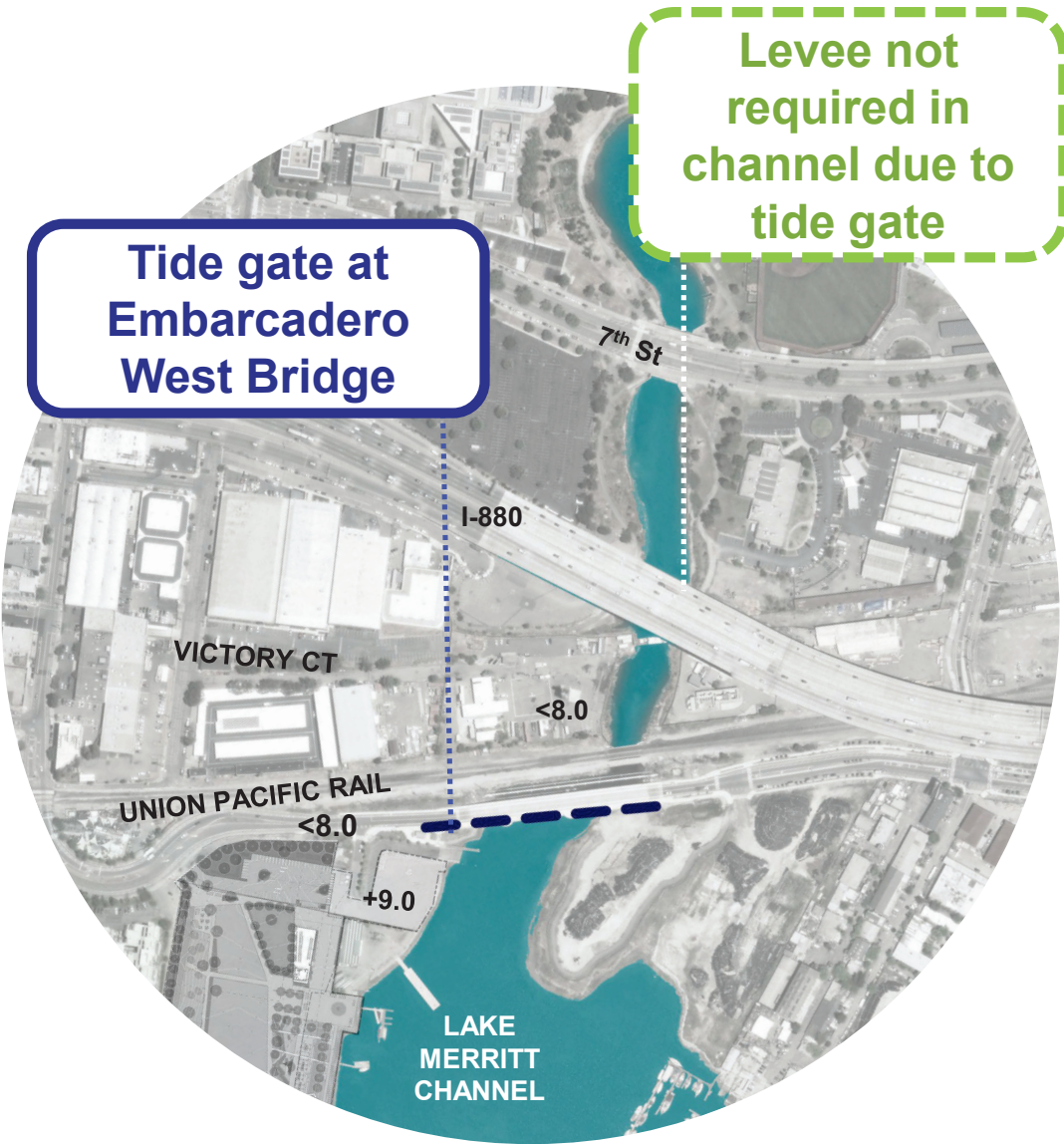
Oakland Concept Plan



*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 Concept Plan – Alice St to Estuary Park



Oakland Shoreline

