

**Port of Oakland**

**AB 691 Sea Level Rise**

**CMANC**

**May 18, 2023**





# AB691 SLR Adaptation Report (2019)

## SLR Assessment Tasks:

1.A

- Assessment of SLR Impacts: Inventory

2

- SLR Mapping

1.B

- Assessment of SLR Impacts: Vulnerability Assessment

3

- Estimation of Financial Costs

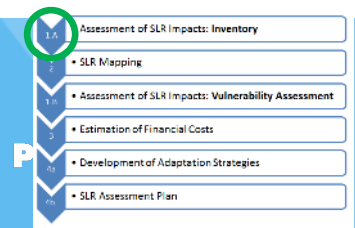
4a

- Development of Adaptation Strategies

4b.

- SLR Assessment Plan

# Inventory of Port



Identifies critical assets (necessary for business/ operational continuity)

- Maritime
- Commercial Real Estate
- Airport

Inventory includes

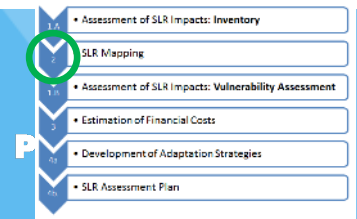
- Utilities
- Facilities
- Transportation
- Natural Habitats
- Community Assets

Inventory based on

- PortView
- Port staff input

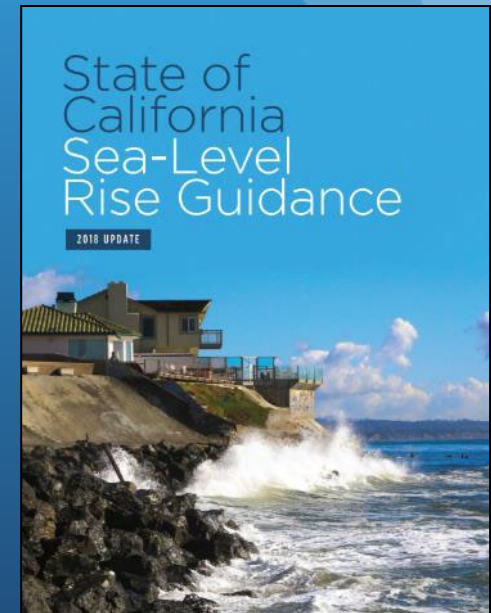


# SLR Mapping



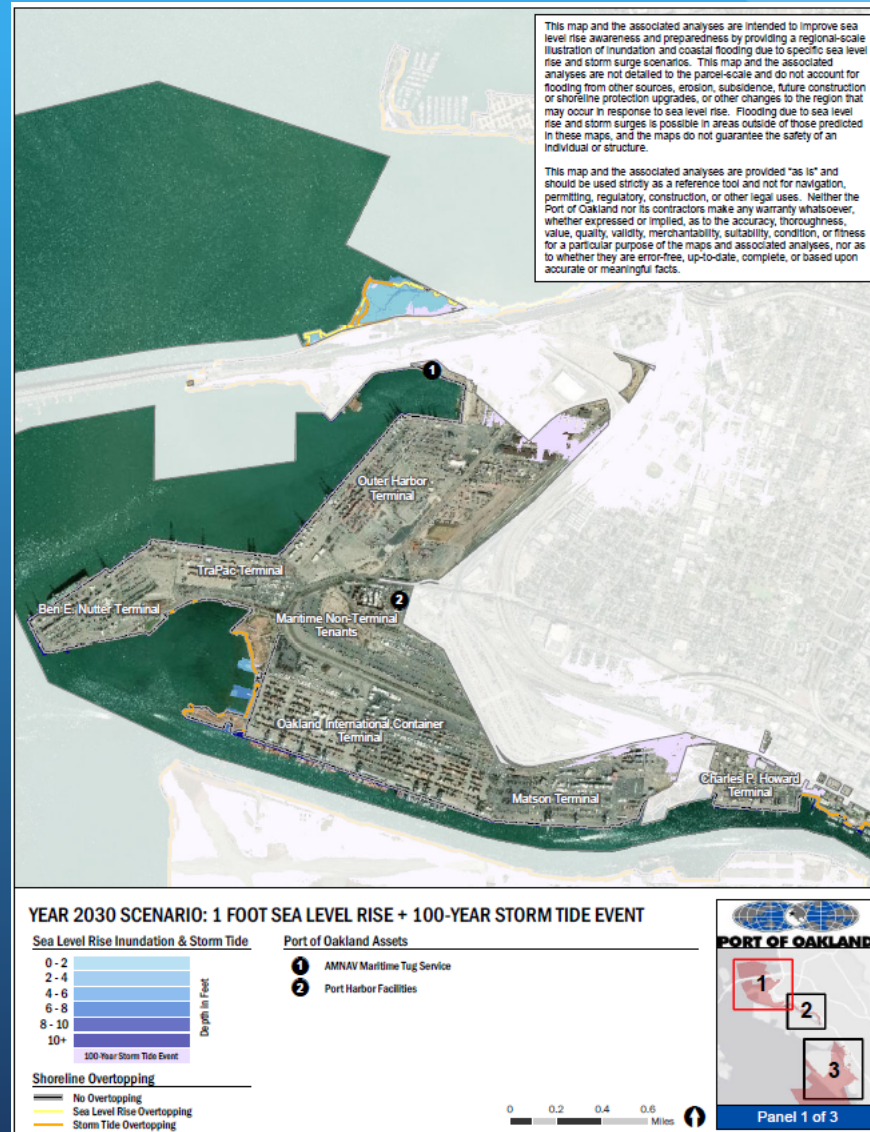
## SLR Scenarios

Year	Inundation Maps (MHHW)	
2030	1 ft. SLR	1 ft. SLR + 100-yr Storm Tide (ST)
2050	2 ft. SLR	2 ft. SLR + 100-yr ST
2100	3 ft. SLR 5.5 ft. SLR	3 ft. SLR + 100-yr ST 5.5 ft. SLR + 100-yr ST



# SLR Mapping - Year 2030

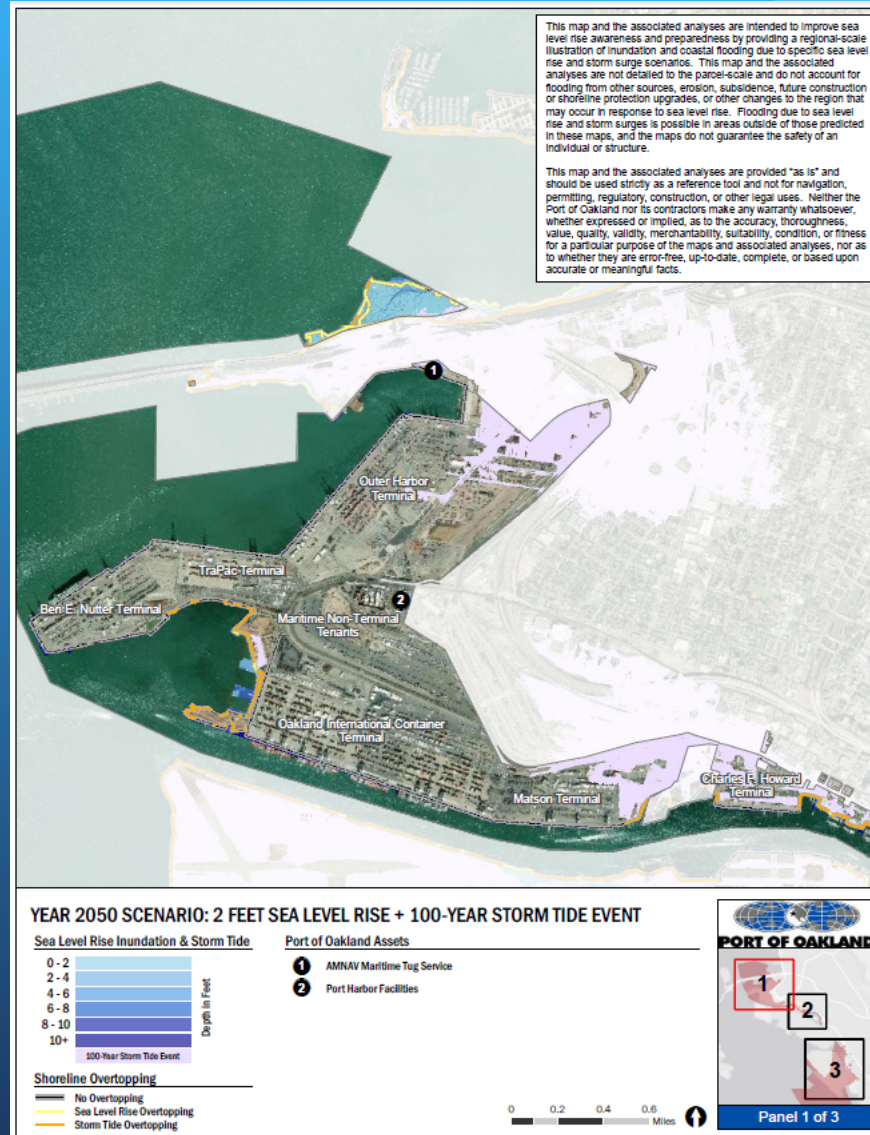
- Assessment of SLR Impacts: Inventory
- SLR Mapping
- Assessment of SLR Impacts: Vulnerability Assessment
- Estimation of Financial Costs
- Development of Adaptation Strategies
- SLR Assessment Plan





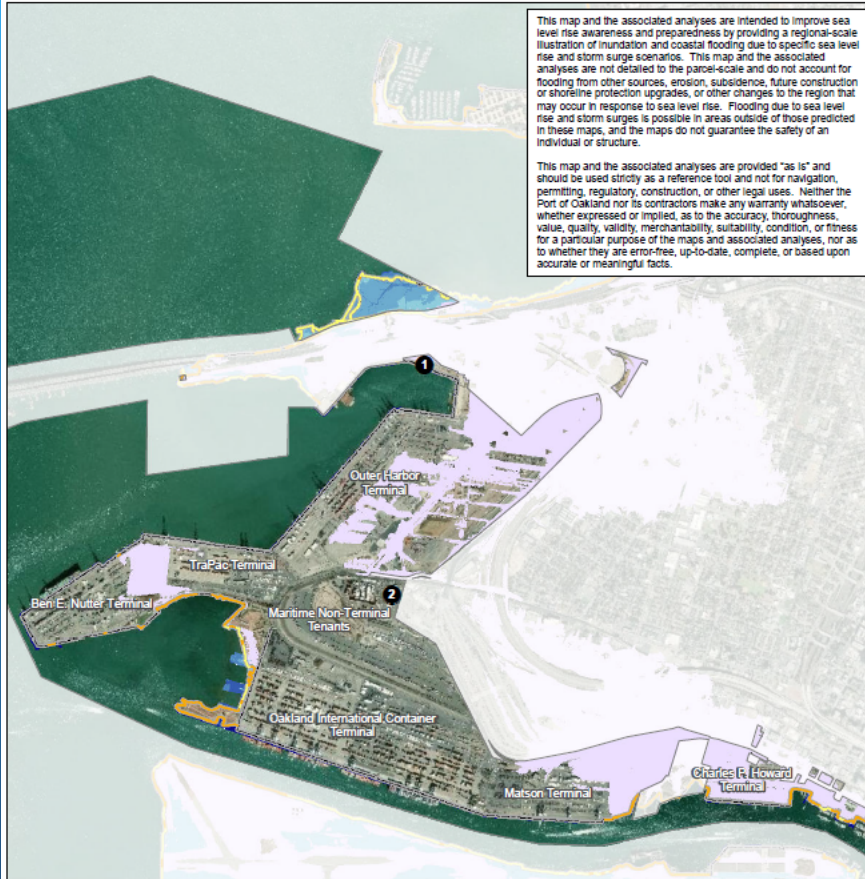
# SLR Mapping - Year 2050

1	Assessment of SLR Impacts: Inventory
2	SLR Mapping
3	Assessment of SLR Impacts: Vulnerability Assessment
4	Estimation of Financial Costs
5	Development of Adaptation Strategies
6	SLR Assessment Plan

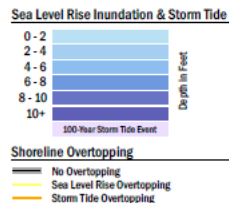


# SLR Mapping - Year 2100 L / H

- Assessment of SLR Impacts: Inventory
- SLR Mapping
- Assessment of SLR Impacts: Vulnerability Assessment
- Estimation of Financial Costs
- Development of Adaptation Strategies
- SLR Assessment Plan

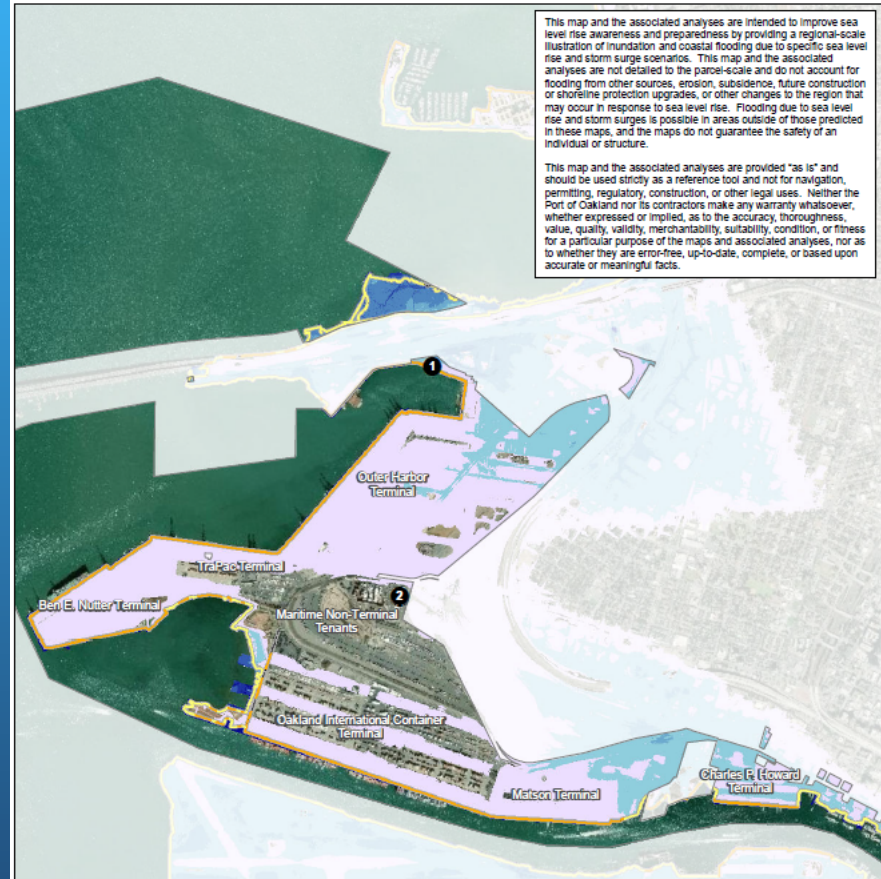
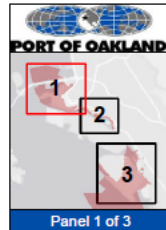


YEAR 2100 LOW SCENARIO: 3 FEET SEA LEVEL RISE + 100-YEAR STORM TIDE EVENT

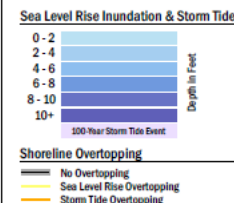


**Port of Oakland Assets**

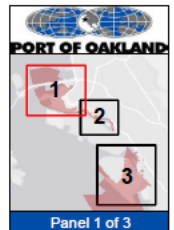
- 1 AMNAV Maritime Tug Service
- 2 Port Harbor Facilities



YEAR 2100 HIGH SCENARIO: 5.5 FEET SEA LEVEL RISE + 100-YEAR STORM TIDE EVENT



- Port of Oakland Assets**
- 1 AMNAV Maritime Tug Service
  - 2 Port Harbor Facilities





# 2. Vulnerability Assessment



## By year 2030 (1 foot SLR)

- Flooding at NE and SE corners of property

## Temporary Flooding (100-year ST)

- Portions of rail
- Maritime Non-Terminal Tenant Area
- Substation



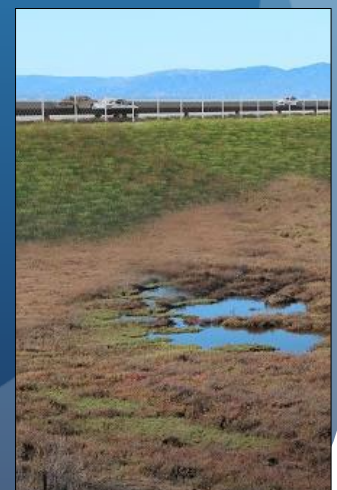
# Adaptation Strategies

1.A	• Assessment of SLR Impacts: Inventory
2	• SLR Mapping
3.D	• Assessment of SLR Impacts: Vulnerability Assessment
4	• Estimation of Financial Costs
5	• Development of Adaptation Strategies
6	• SLR Assessment Plan

## Infrastructure adaptation strategies

**Asset-specific**  
(focused on singular critical asset)

**Area**  
(multiple assets and/or stakeholders)



# Adaptation Strategies: M.1

## Middle Harbor Shoreline Park

1.A	Assessment of SLR Impacts: Inventory
2	SLR Mapping
3	Assessment of SLR Impacts: Vulnerability Assessment
4	Estimation of Financial Costs
5	Development of Adaptation Strategies
6	SLR Assessment Plan



### Sea Level Rise Inundation & Storm Tide

0 - 2		Depth in Feet
2 - 4		
4 - 6		
6 - 8		
8 - 10		
10+		
100-Year Storm Tide Event		

### Shoreline Overtopping

	No Overtopping
	Sea Level Rise Overtopping
	Storm Tide Overtopping

# Adaptation Strategies: **New** Terminal Shorelines

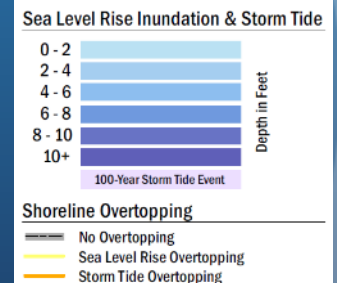
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Length : ~1700 feet



Length : ~1200 feet





# Adaptation Strategies: M.3

## All Maritime Terminals

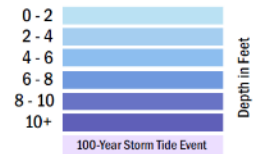
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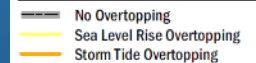
RAISE GRADE



Sea Level Rise Inundation & Storm Tide



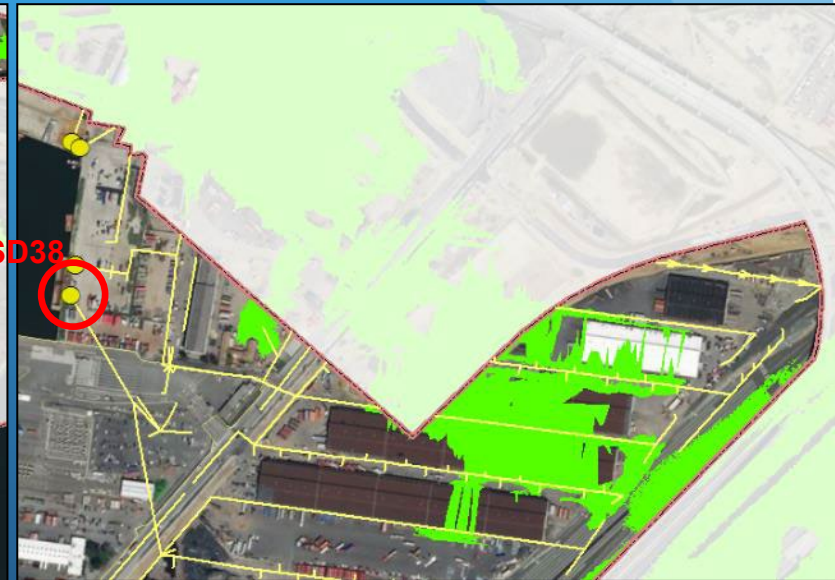
Shoreline Overtopping



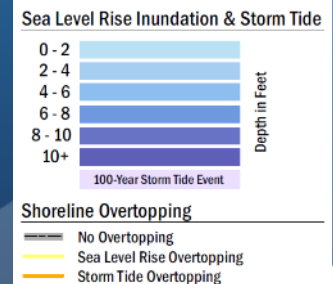
# Adaptation Strategies: M.4

## Matson Terminal and Northern Maritime Non-Terminal Tenant Area

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- Between 3 and 5.5 feet Mapped SLR Scenarios (4 feet SLR)
- Existing backflow prevention (in progress)



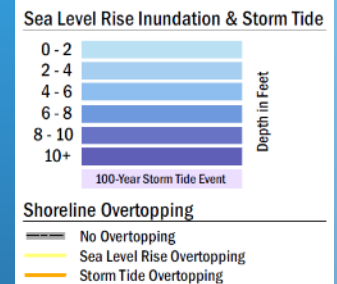
# Adaptation Strategies: M.5

## South Side of Bay Bridge Touchdown

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Length : ~3550 feet



Length : ~7300 feet

- *Collaboration outside of Port property*
- *Gateway Park*



# Other SLR Efforts

## Oakland Airport Specific Efforts

- Oakland Airport Perimeter Dike Improvement, ongoing
- Airport Northfield Flood Protection Study, ongoing

# Thank You for your time



# Collaborative Efforts to Date



- *Oakland/Alameda Focus Areas Shoreline Resilience Study, 2016*
- *Oakland Local Hazard Mitigation Plan, 2016*
- *Oakland Sea Level Rise Road Map, 2017*
- *Middle Harbor Enhancement Project, 2018*
- *Preliminary National Flood Insurance Rate Maps, effective 2018*
- *Resilient By Design, 2017-18*
- *Adapting to Rising Tides (BCDC), Ongoing*