



2018 Embarcadero Seawall Earthquake Safety Bond

Annual Status Report

Presented to the Citizens' General Obligation Bond
Oversight Committee
Annual Report for 2022



Waterfront Resilience Program

AGENDA

Presentation Overview



- Update on 2018 Proposition A Seawall Bond
- Waterfront Resilience Program Overview
 - Embarcadero Early Projects
 - USACE Flood Study
 - Draft Adaptation Strategies
- 2018 Proposition A Annual Report

2018 EMBARCADERO SEAWALL EARTHQUAKE SAFETY BOND

Bond Sales



- First Bond sale was approved by the Board of Supervisors and Mayor's Office in July 2019. Bond sale was delayed due to legal challenge (Denny v. Arntz et al. Case: A158029, 1st District, Division 2) and **finalized on June 2, 2020 for \$49,675,000.**
- Second Bond sale was approved by the Board of Supervisors and Mayor's Office in February 2023 and **finalized on April 11, 2023 for \$39,020,000.**



Waterfront Resilience Program

Update on Embarcadero Early Projects



WATERFRONT RESILIENCE PROGRAM EFFORTS

Program and City Resilience Projects and Efforts



EMBARCADERO EARLY PROJECTS LIST

Overview



- Proposition A Predesign
- Advance through Geographic Strategy

- Coordination with Long-term Tenants, Capital Programs and City Agencies

- **23 Embarcadero Early Projects** were identified
- **Focus:** The 3.5 miles of the Embarcadero Seawall
- **These projects will:**
 - Reduce life-safety risk
 - Reduce disaster response risk
 - Address high-consequence flood risk
- Needs assessment reports completed and alternatives analysis commenced for **six early projects** in 2022.

WHARF J9 REPLACEMENT & RESILIENT SHORELINE PROJECT

Project Vision: Objectives, Constraints, and Other Considerations



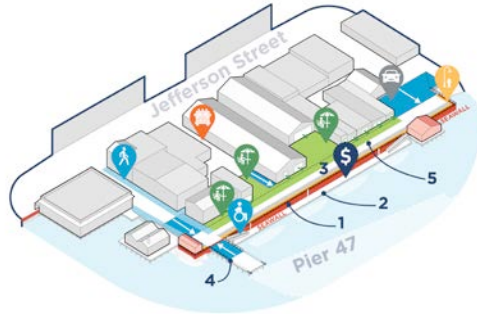
- Replace Wharf J9 and seawall with a resilient structure to protect the shoreline in earthquakes and help defend Fisherman's Wharf from sea level rise
- Increase disaster response capability by providing earthquake accessible berths including fireboat EFWS Hydrant
- Revitalize an underinvested area, connect residents and visitors to working fishing industry, and create a continuous waterfront experience

WHARF J9 REPLACEMENT & RESILIENT SHORELINE PROJECT

Draft Project Alternatives



Alt 1: Wharf J9
Only



Alt 2: Wharf J9
Only



Alt 3: Wharf J9
+ Al Scoma Way



Alt 4: Wharf J9
+ Al Scoma Way



Alt 5: Wharf J9 + Al Scoma
Way + Jefferson Street

PIER 15 BULKHEAD WALL & WHARF EARTHQUAKE SAFETY RETROFIT PROJECT

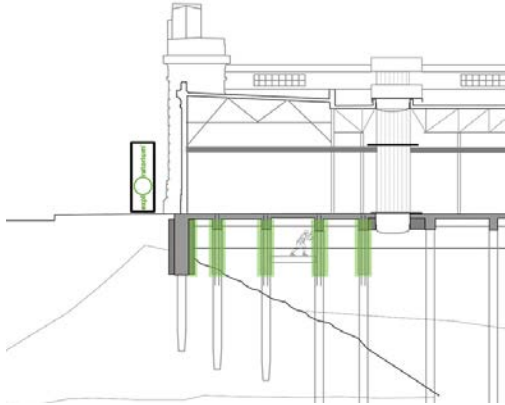
Project Vision: Objectives, Constraints, and Other Considerations



- Improve earthquake safety by retrofitting bulkhead wall and substructure to reduce damage and risk of collapse
- Provide reliable access across Seawall for use of berths for earthquake disaster response
- Due to difficulty in fixing Bay Muds, include major Seawall improvements as part of later SLR adaptation.
- Keep Exploratorium open during construction

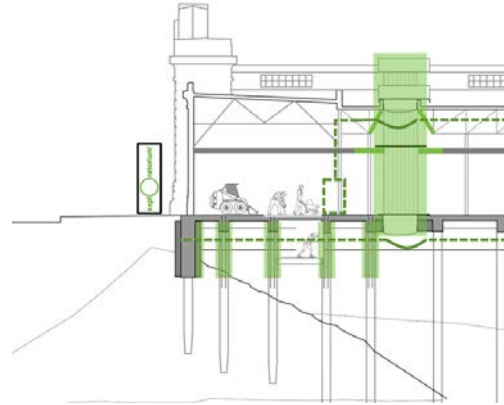
PIER 15 BULKHEAD WALL & WHARF EARTHQUAKE SAFETY RETROFIT PROJECT

Draft Project Alternatives



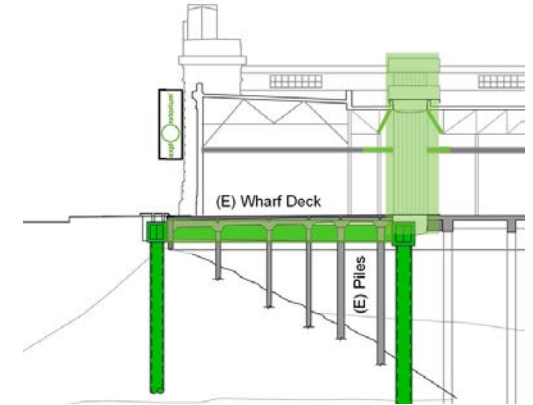
Alt 1: Substructure Retrofits

- Strengthen bulkhead wall
- Wrap piles
- Improve pile and wall connections to deck



Alt 2: Widen Seismic Joint

- Widen existing seismic joint to handle Seawall movement
- Alt 1 substructure retrofits



Alt 3: Spider Frame

- New piles and substructure girders
- Design to be jackable for future sea level rise.
- High construction impacts make this unlikely.

PIER 9 BULKHEAD WALL & WHARF EARTHQUAKE SAFETY RETROFIT PROJECT

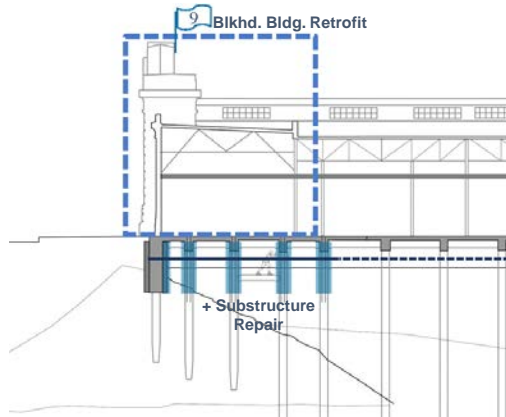
Project Vision: Objectives, Constraints, and Other Considerations



- Improve earthquake safety by retrofitting bulkhead wall and substructure to reduce damage and risk of collapse
- Provide reliable access across Seawall for use of berths for earthquake disaster response
- Due to difficulty in fixing Bay Muds, include major Seawall improvements as part of later SLR adaptation.
- Consider substructure deterioration in alternatives
- Advance shed retrofits as a separate project.

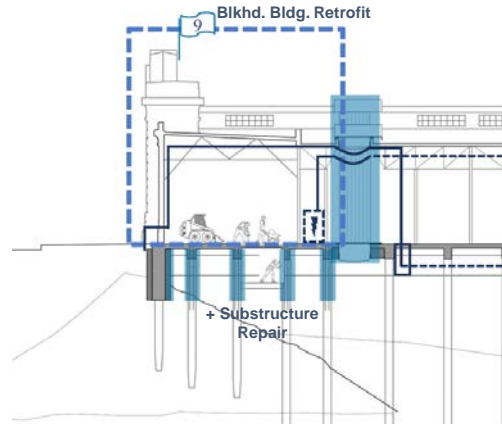
PIER 9 BULKHEAD WALL & WHARF EARTHQUAKE SAFETY RETROFIT PROJECT

Draft Project Alternatives



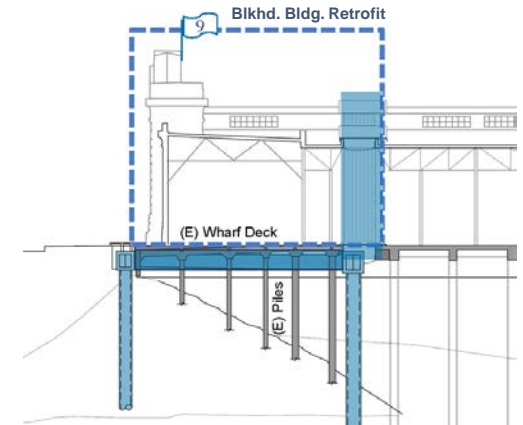
Alt 1: Substructure Retrofits

- Strengthen bulkhead wall
- Wrap piles
- Improve pile and wall connections to deck



Alt 2: Joint and Bldg

- Add a seismic joint to handle seawall movement
- Retrofits bulkhead building
- Include Alt 1 Substructure Retrofits



Alt 3: Spider Frame

- New piles and substructure girders
- Design to be jackable for future sea level rise
- Fixes deteriorated substructure conditions

FERRY BUILDING SEAWALL & SUBSTRUCTURE EARTHQUAKE RELIABILITY PROJECT

Project Vision: Objectives, Constraints, and Other Considerations

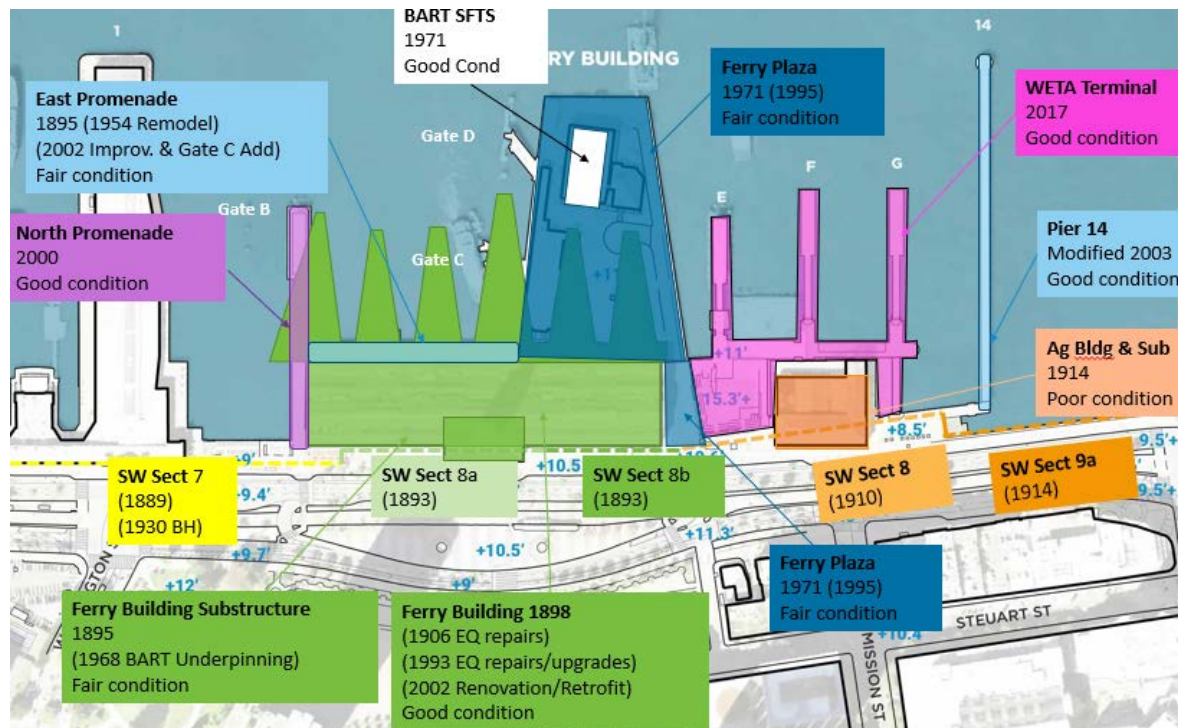


- Improve earthquake safety by strengthening the Seawall and substructure of the iconic Ferry Building
- Provide reliable earthquake disaster response for Ferry berths and staging areas by strengthening the Seawall and surrounding substructures
- Improve waterside public realm, reliability of utility services, and Near-term flood defenses
- Minimize construction impacts
- Develop a long-term adaptation plan and consider these investments as steps on the path

FERRY BUILDING SEAWALL & SUBSTRUCTURE EARTHQUAKE RELIABILITY

PROJECT

High Complexity and Challenging Conditions



- Ferry Building is among the most complex areas of the waterfront to improve
- 100-foot-thick Bay Muds, a mix of structures dating from 1889, the 240ft clocktower, and BART tunnel below
- Substantial investment is likely needed to achieve earthquake objectives
- Initial seismic measures toolkit and eight different draft project alternatives developed, recommend advanced engineering to analyze performance

PIER 5 to 22½ NEAR-TERM COASTAL FLOOD RISK REDUCTION PROJECT

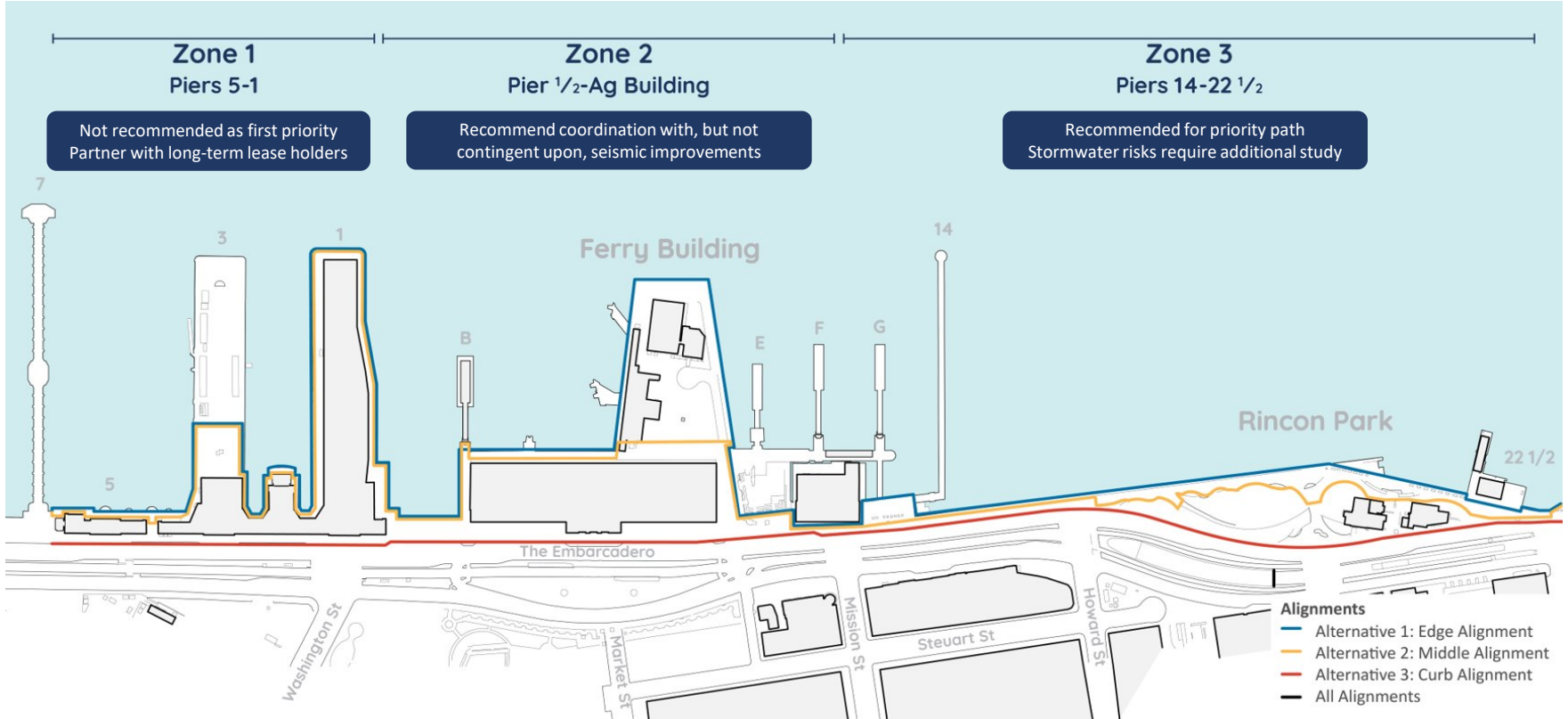
Project Vision: Objectives, Constraints, and Other Considerations



- Reduce near-term flood risk to multi-modal Embarcadero transit corridor, BART and Muni, and historic resources, while longer-term solutions are developed for earthquake stability and sea level rise
- Balance near-term flood risk reduction with larger adaptation moves.
- Maintain a high-quality public realm, fix flood damage & explore habitat enhancements
- Partner with SFPUC to include storm water management improvements.
- Consider deteriorated bulkhead and substructures

PIER 5 to 22½ NEAR-TERM COASTAL FLOOD RISK REDUCTION PROJECT

Draft Project Alternatives



PIER 24½ to 28½ BULKHEAD WALL & WHARF EARTHQUAKE SAFETY RETROFIT PROJECT

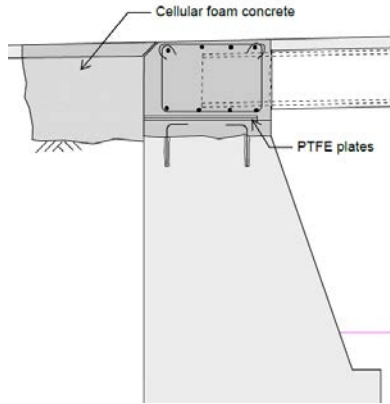
Project Vision: Objectives, Constraints, and Other Considerations



- Improve safety in bulkhead zone and Promenade by reducing collapse risk
- Consider age, condition and rehabilitation needs.
- Include simple retrofits to full replacement alternatives
- Full replacement alternatives to be adaptable for SLR.
- Consider utility needs and adjacent Pier 30/32 and Pier 38/40 development projects

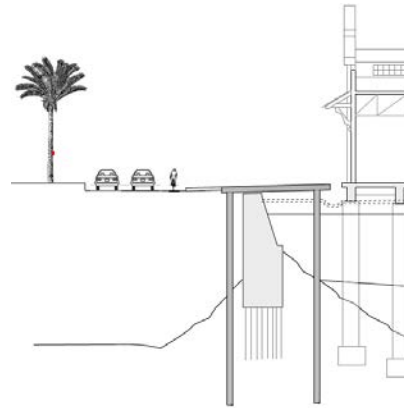
PIER 24½ to 28½ BULKHEAD WALL & WHARF EARTHQUAKE SAFETY RETROFIT PROJECT

Draft Project Alternatives



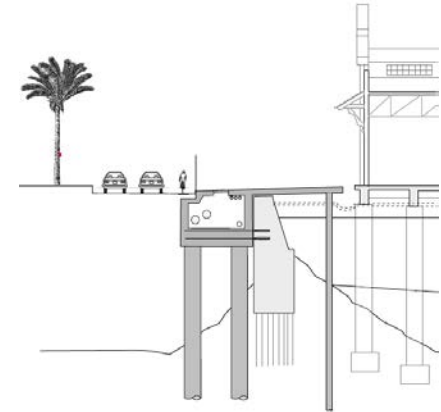
Alt 1 & 2: Retrofits

Simple structural retrofits that allow for wall movement without wharf losing vertical support. Include seismic joints to protect piers.



Alt 3: Replace Wharf

New wharf designed for high seismic performance and future elevation gain.



Alt 4: Stabilize Shoreline

Wall stabilization with resilient utility corridor. Potential link to shoreline improvements by Piers 30-32 and Piers 38 & 40 development projects.

NEXT STEPS



- Advance Alternatives Analysis for these projects and target first construction in late 2024
- Continue to coordinate Pre-Design of Early Projects with development of Adaptation Strategies
- Seek additional funding opportunities to advance more Embarcadero Early Projects

LIVING SEAWALL



Photo: Lonny Meyer

- Objective: ecological enhancement of seawalls
- Study ecological growth on concrete using textured surfaces and concrete admixture composition
- All frames and tiles are constructed and installed
- Two years of monitoring by the Smithsonian

HIGH LEVEL EMBARCADERO EARLY PORJECTS SCHEDULE

Program Scopes of Work	2023				2024				2025	
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
EMBARCADERO EARLY PROJECTS										
Program Management of Project Delivery	Program Management - Delivery of Projects									
Pre-Design (Multiple Projects)	Pre-Design of Embarcadero Early Projects									
Detailed Design & Environmental (TBD)	Detailed Design & Environmental									
Bid/Award of Construction Contracts (TBD)	Bid/Award									
Construction (TBD)	Construction									

Projects that advance to Detailed Design and Construction to be determined at completion of Pre-Design



U.S. Army Corps of Engineers San Francisco Waterfront Flood Resiliency Study

WATERFRONT ADAPTATION STRATEGIES SCHEDULE

DATES SUBJECT TO CHANGE

2022

2023

October

Nov + Dec

Jan + Feb

Mar + Apr

May + Jun

Summer

Fall

DEVELOP

EVALUATE

SELECT



*Draft
Waterfront
Adaptation
Plan
(Tentatively
Selected Plan)*

*Revised Draft Strategies include the
Comprehensive Benefits Plan and Locally Preferred Plan*

COMMUNITY

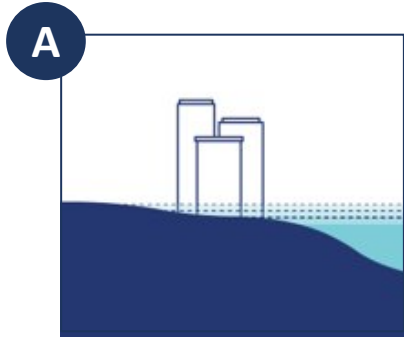
ENGAGEMENT

Draft Adaptation Strategies

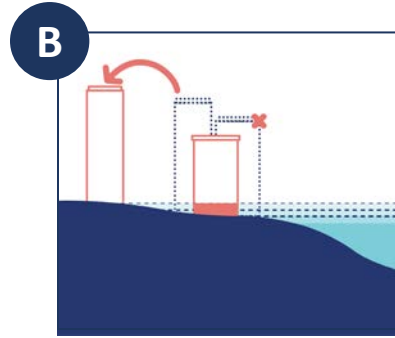


Waterfront Resilience Program

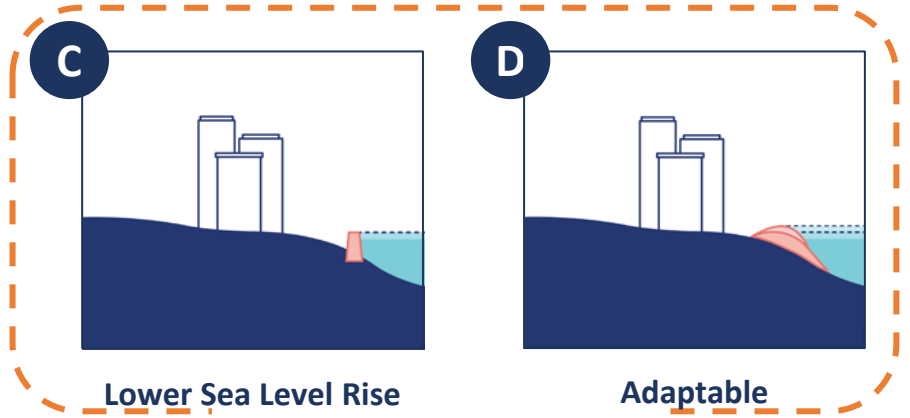
OVERVIEW OF WATERFRONT DRAFT ADAPTATION STRATEGIES



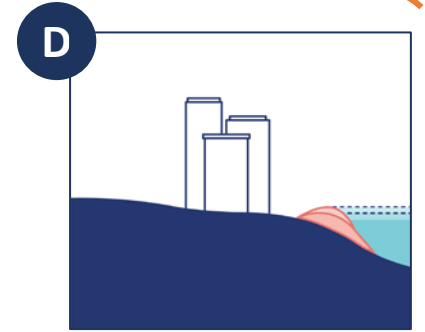
No Action



Non-Structural

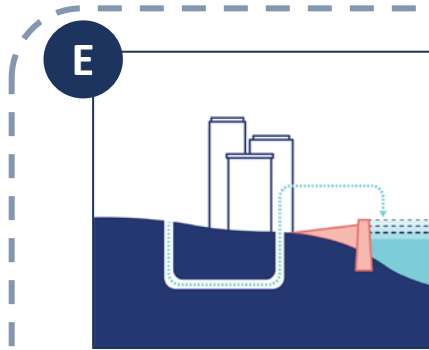


Lower Sea Level Rise

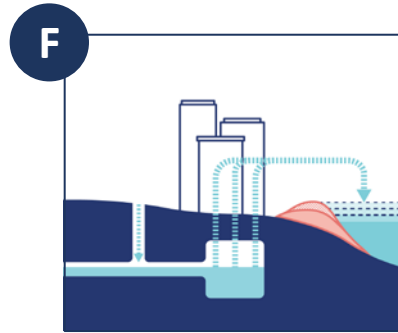


Adaptable

Lower Rate of Sea Level Rise

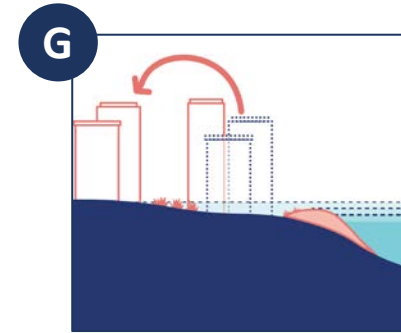


Hold The Line



Manage The Water

Higher Rate of Sea Level Rise



Align With Watersheds

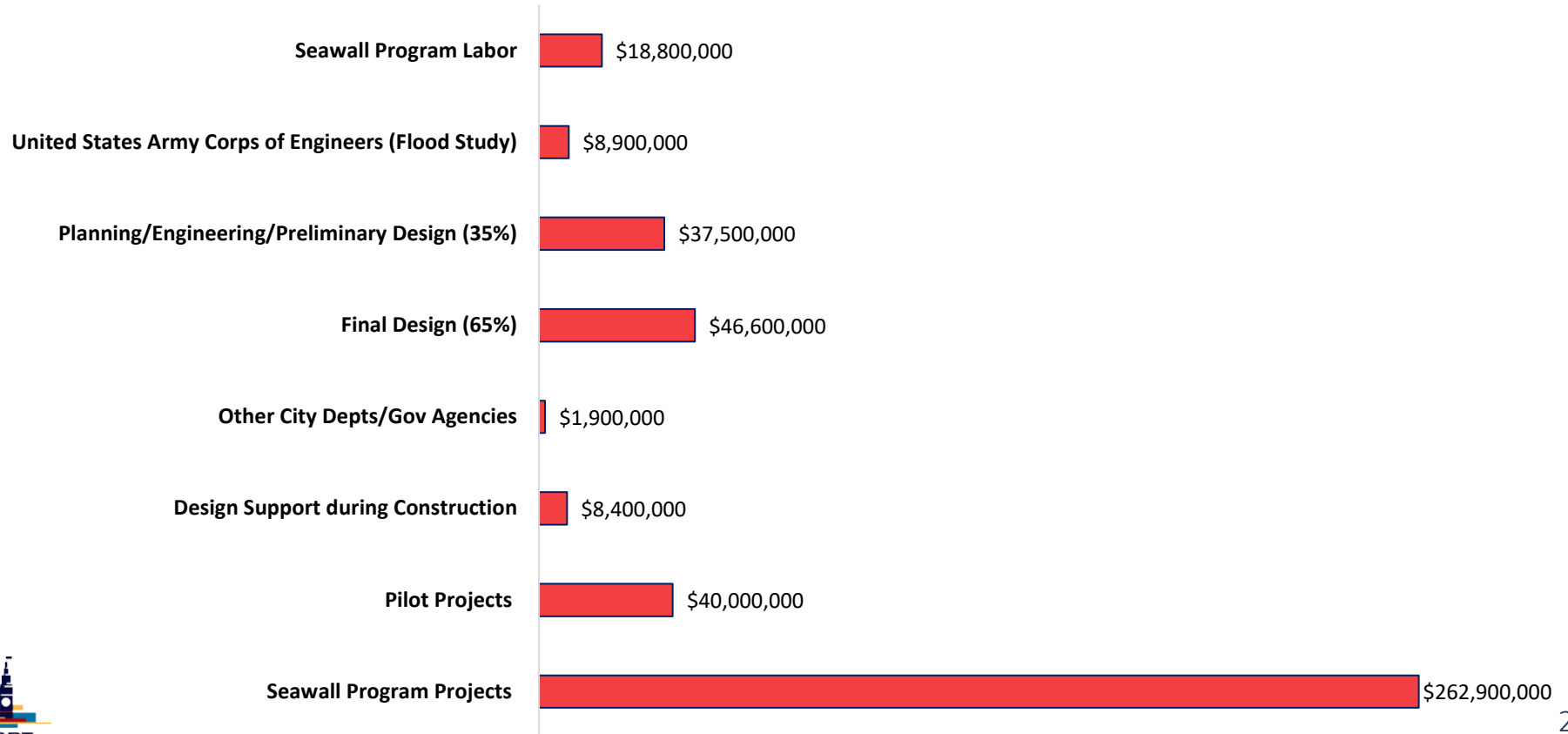
In addition to coastal flood risks—these strategies address groundwater, stormwater, and seismic risks



2018 Proposition A Bond Annual Report

2018 EMBARCADERO SEAWALL EARTHQUAKE SAFETY BOND

Overview of Scope and Budget - \$425M



2018 EMBARCADERO SEAWALL EARTHQUAKE SAFETY BOND

I. Highlights and accomplishments

- Initiated the first phase of project development, pre-design, for six high-priority Embarcadero Early Projects to address earthquake and near-term flood risk
- Developed alternatives to address flooding from sea level rise
- Installed the Living Seawall pilot project

II. Upcoming milestones

- Arrive at Tentatively Selected Plan with USACE and City partners
- Publish draft NEPA document
- Complete pre-design for multiple Embarcadero Early Projects and will decide which projects proceed to detailed design, entitlement, and construction.

III. Bond sales and appropriations

- City has issued two bond sales for the 2018 Seawall Bond totaling \$88,695,000

Bond Sale 2020 - \$49,675,000

Bond Sale 2023 - \$39,020,000

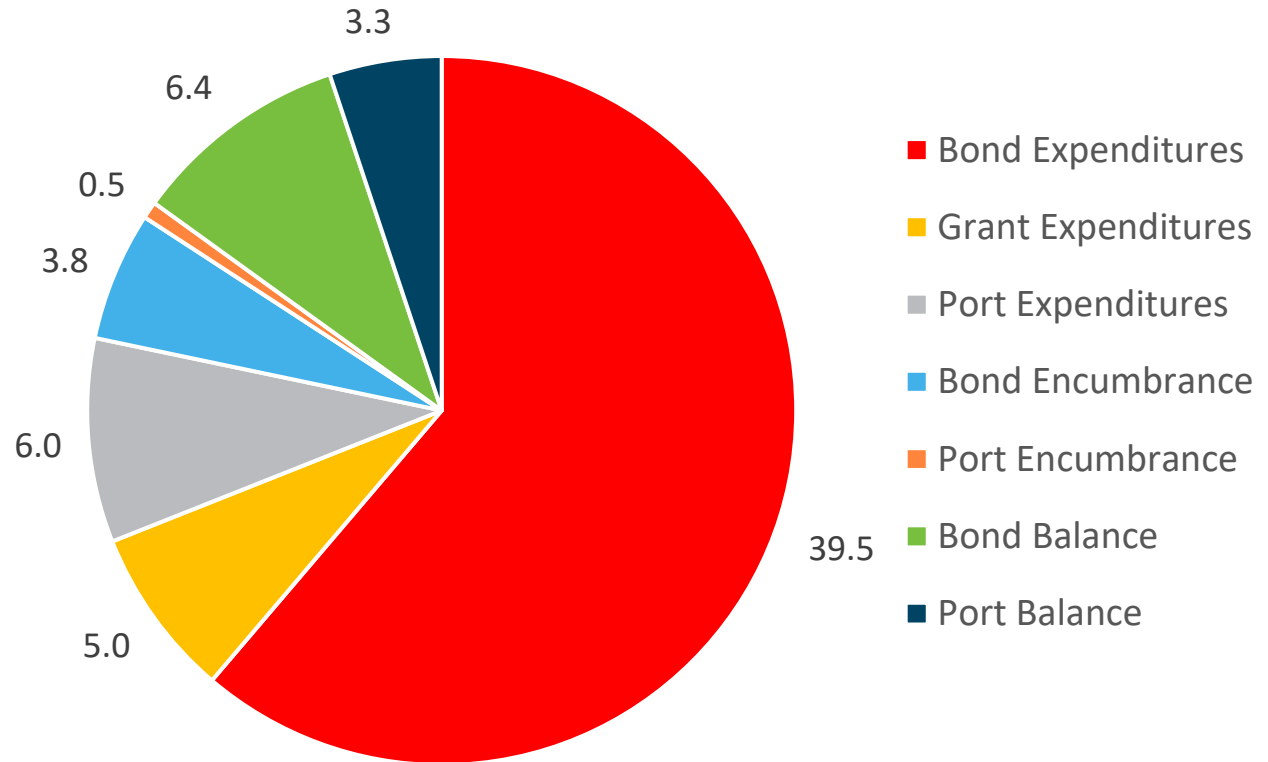
IV. Risks, issues or concerns on budget, scope or schedule

- Port continues to seek additional funding through state and federal grants
- May need to amend current program management contract or delay completion of preliminary design for all six Embarcadero Early Projects

2018 EMBARCADERO SEAWALL EARTHQUAKE SAFETY BOND

Overall Program Expenditures, Encumbrances, and Balances (\$M) through December 2022

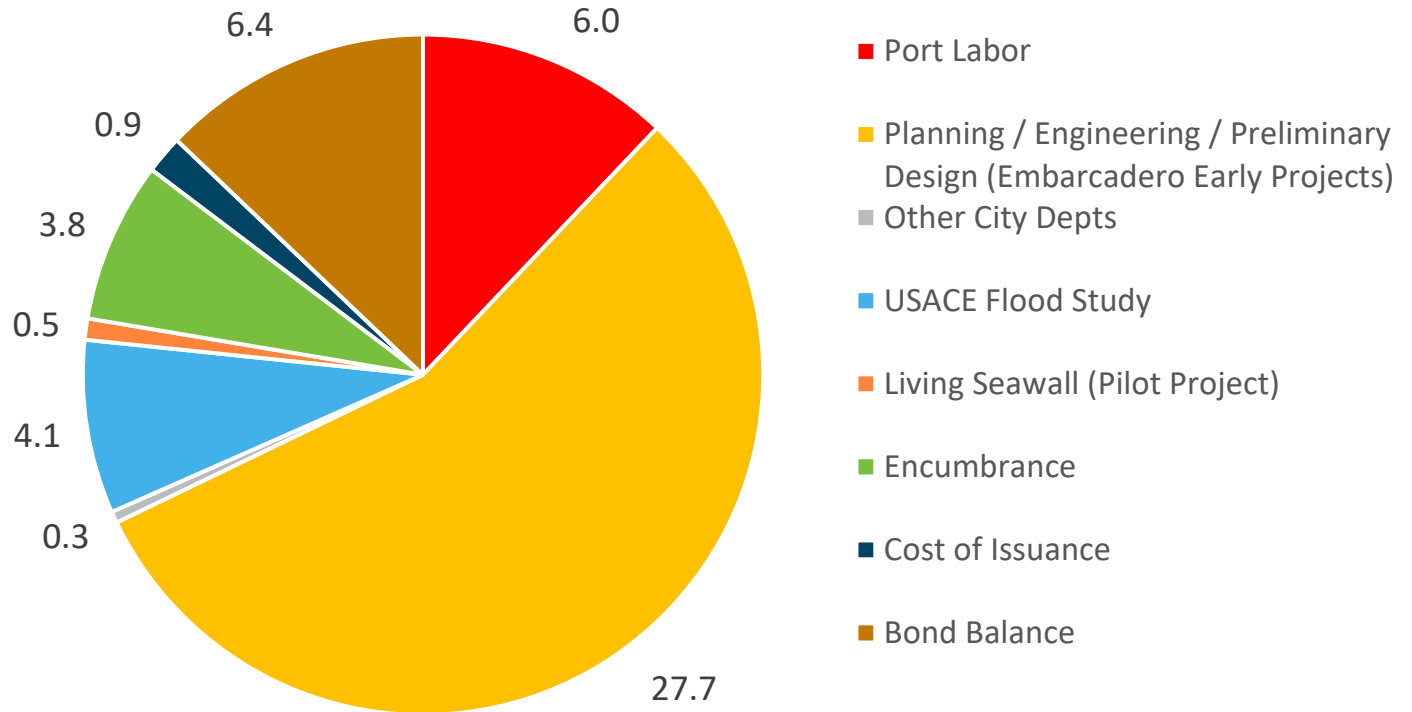
Total: \$64.5M



2018 Embarcadero Seawall Earthquake Safety Bond

Bond Expenditures, Encumbrances, and Balances (\$M) through December 2022

Total: \$49.7M



2018 EMBARCADERO SEAWALL EARTHQUAKE SAFETY BOND

Seawall Program Appropriations, Expenditures, Encumbrances, and Balance

Components	Original Budget	General Obligation Bond				Encumbrance + Expenditures / Budget	Encumbrance + Expenditures / Appropriation
		Appropriations	Expenditures	Encumbrances	Balance		
Seawall Program Labor	18,800,00	5,900,000	6,000,000		(100,000)	31.9%	101.7%
United States Army Corps of Engineers (Flood Study)	8,900,00	8,900,000	4,100,000		4,800,000	46.1%	46.1%
Planning / Engineering / Preliminary Design (Embarcadero Early Projects)	37,500,000	32,400,000	27,700,000	3,750,000	950,000	83.9%	97.1%
Detailed Design (Embarcadero Early Projects)	46,600,000					0.0%	0.0%
Other City Depts / Gov Agencies	1,900,000	1,000,000	300,000		700,000	15.8%	30.0%
Design Support during Construction (Embarcadero Early Projects)	8,400,000					0.0%	0.0%
Pilot Projects	40,000,000	600,000	500,000	50,000	50,000	1.4%	91.7%
Construction (Embarcadero Early Projects)	262,900,000					0.0%	0.0%
Oversight, Accountability & Cost of Issuance	-	875,000	875,000			-	100.0%
Unappropriated Bond Sale Funds	-					0.0%	0.0%
TOTAL	425,000,000	49,675,000	39,475,000	3,800,000	6,400,000	10.2%	87.1%

Thank You!

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Program Management

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Port of San Francisco

