



Mare Island Causeway Bridge Preventive Maintenance Project

Nov. 2020



Public Works Engineering

Causeway

Facts:

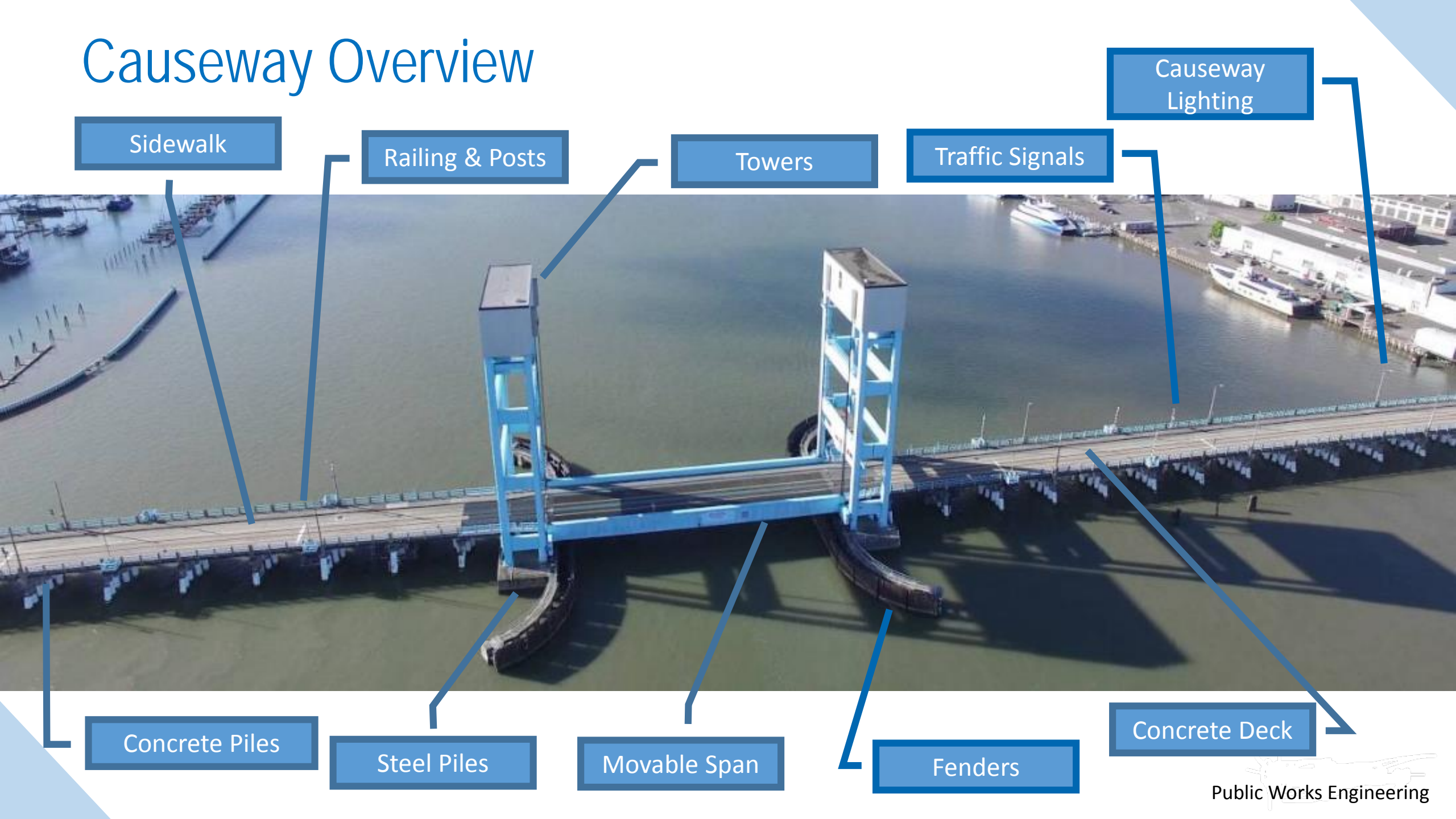
- Vertical Lift Span Bridge
- 165 feet long lift span
- Concrete Piles – 650+ Piles
- Steel Piles – 152 Piles
- 2009 Linear feet (0.4 Miles)
- Average width of 40 Feet

Transportation Modes :

Pedestrian, Automobile, Rail, & Marine Vessels



Causeway Overview



Sidewalk

Railing & Posts

Towers

Traffic Signals

Causeway
Lighting

Concrete Piles

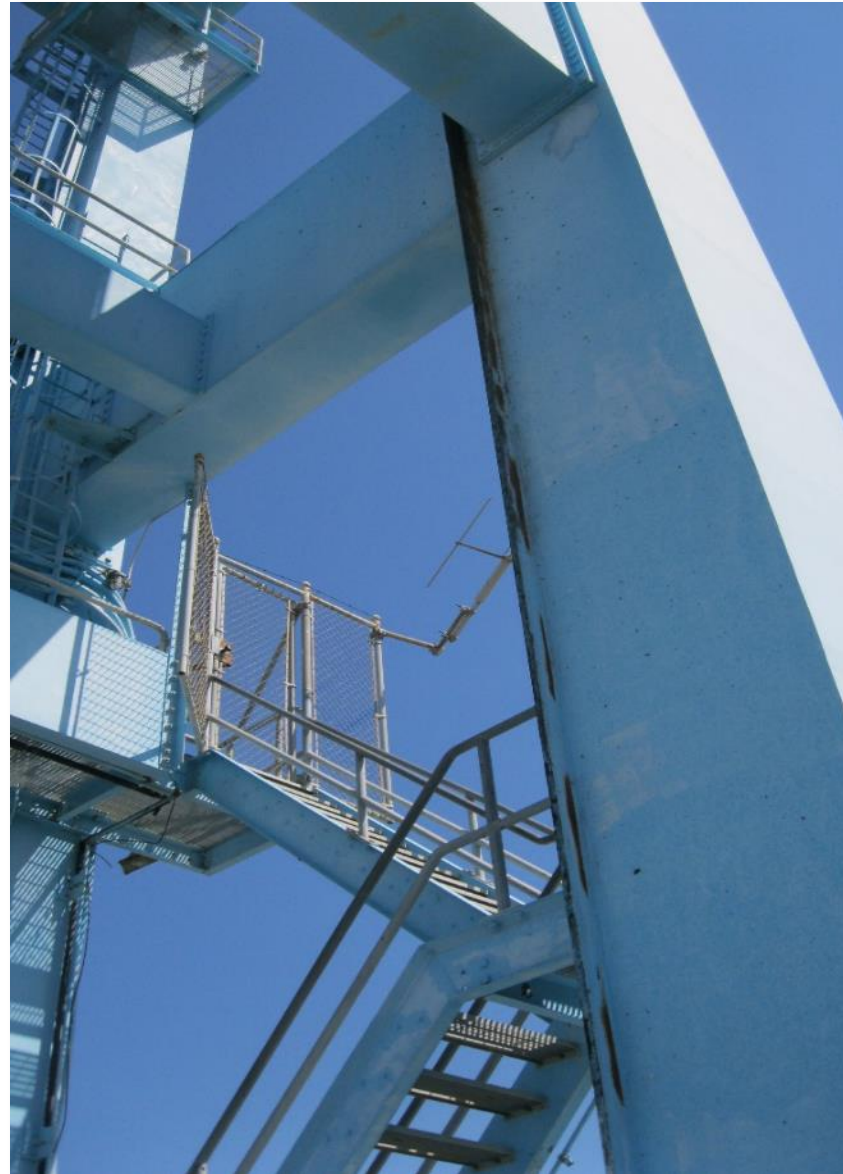
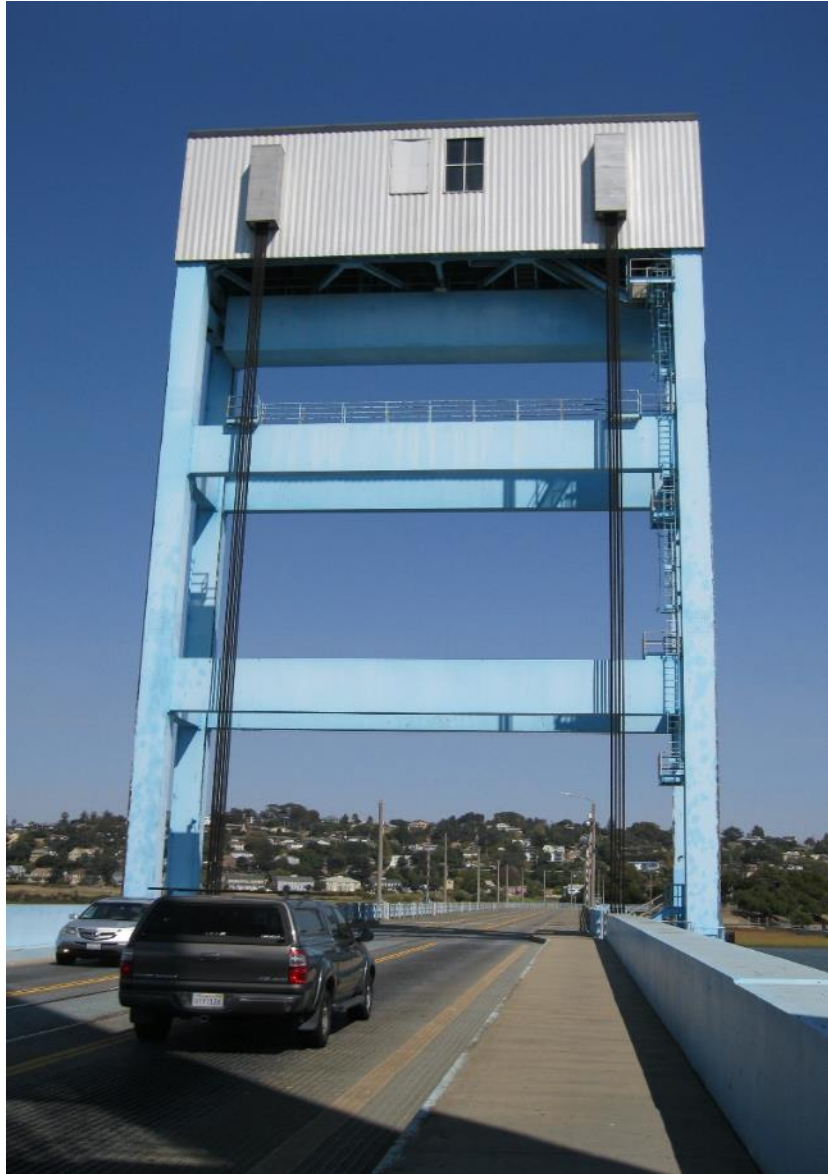
Steel Piles

Movable Span

Fenders

Concrete Deck

Deficiencies: Tower Painting



Lift Span Painting



Evaluation of Existing Coating Condition

- Identify failure locations and evaluate repair strategies:
 1. Spot Repair
 2. Spot Repair and Overcoat
 3. Total Removal and Replacement of Coating
 4. Zone Painting

Coating repair will be performed under control containment and Disposal system

Painting Strategy – Tower Bridge, Sacramento



Lift Span Painting



South Park Bridge, WA

Work Platform & Containment



Deficiencies: Pile Repair



Damage Assessment

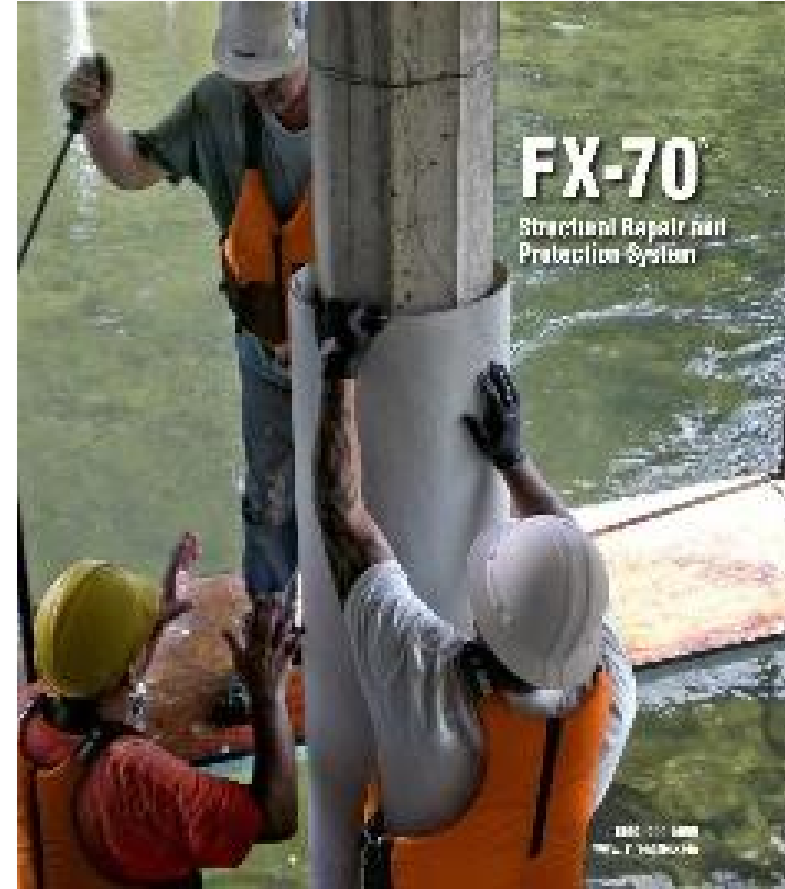


Bent 19 - Pier 13



Bent 20 - Pier 13

Pile Repair



Concrete and Rebar Repair & Jacketing

Approach Spans – Concrete Deck





Evaluation of Concrete Deck Condition

- Identify failure locations and repair:
 1. Spot Repair of the Deck
 2. Methacrylate sealing and Polyester concrete overlay (1/4" min) for entire Causeway approach spans

Deficiencies: Repairs of Railing & Posts



Complete Post Replacement



Localized Repair



Deficiencies: Sidewalk



Sidewalk replacement with Precast Panels



Deficiencies: Causeway Lighting



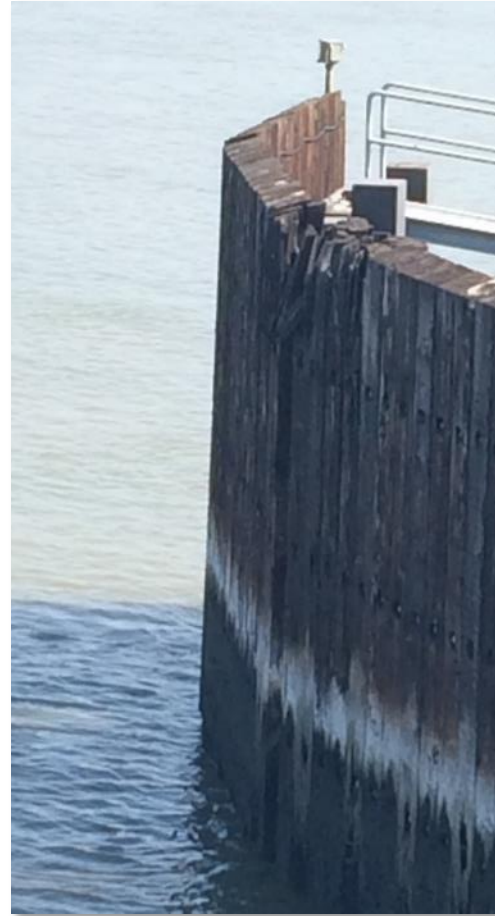
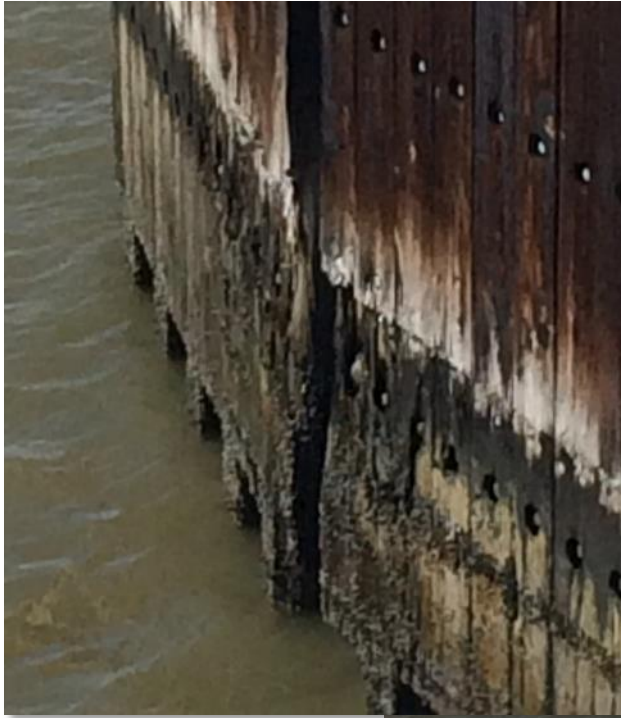
Evaluation of Bridge Lighting

Strategy:

- Lennar prepared a mold for bridge lighting
- Check with Historical Commission



Deficiencies: Causeway Fenders

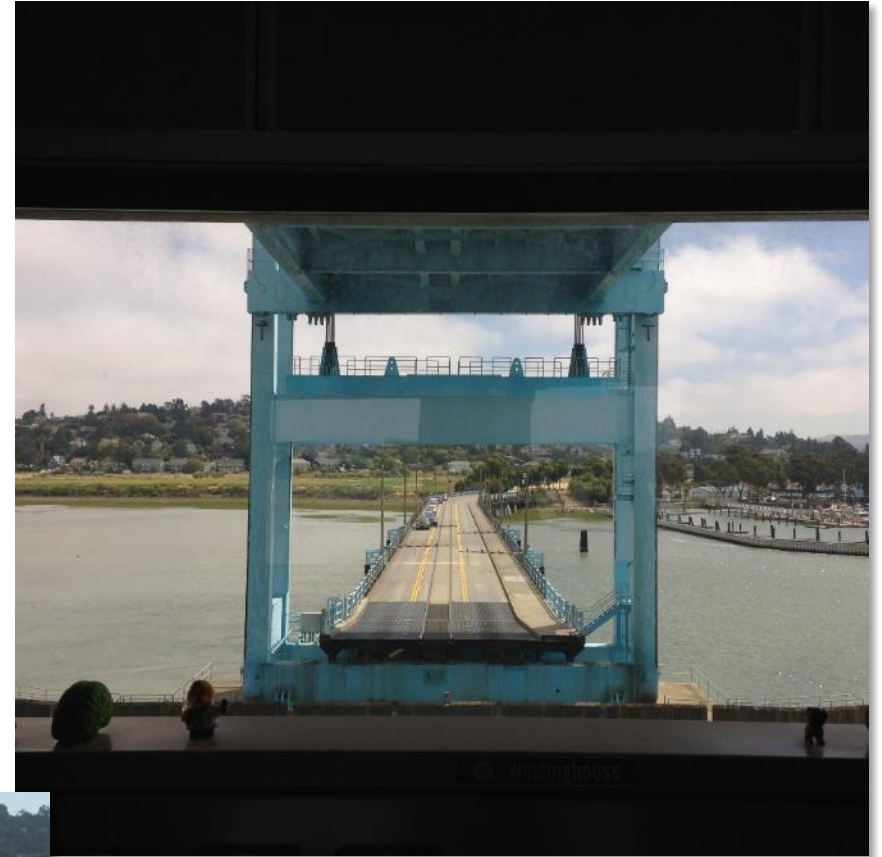


Environmental Permits

- BCDC permit
- Federal Section 7 Endangered Species Act consultation
- CDFW Streambed Alteration Agreement
- Section 404 CWA/ Section 10 Rivers & Harbors permit from USCOE
- Section 401 WQC permit from RWQB.
- US Coast Guard permit Amendment
- CA State Lands Commission Amendment

Construction Challenges

- Causeway temporary closure
- State Route 37 traffic
- Number of Shifts (2 shifts/ day)
- Emergency Response in the island – (collaboration with PD & FD)
- Safety / insurance considerations



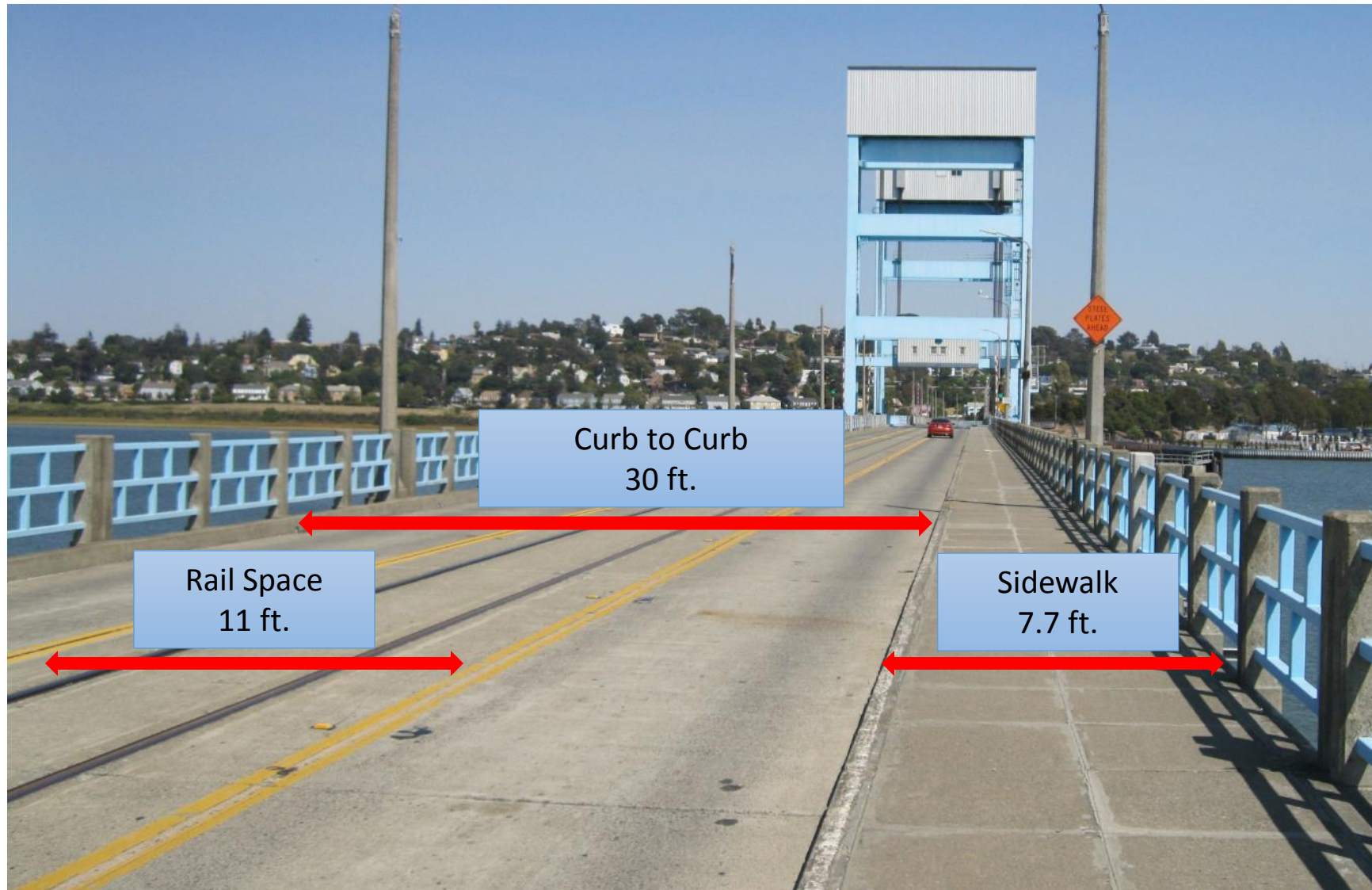
Strategies - Causeway Closure

Alternative Strategies:

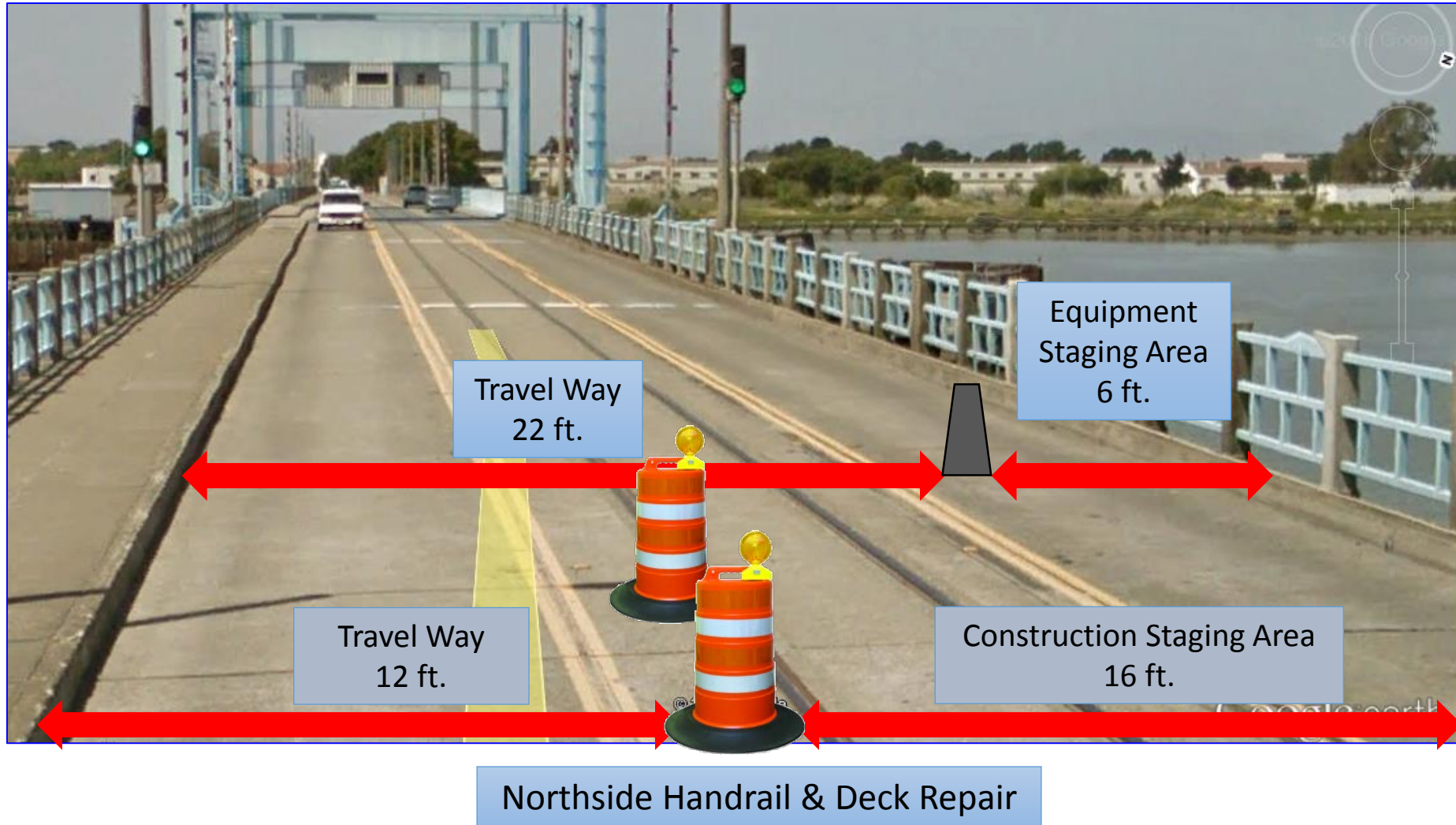
- 1) Lowering & Lifting bridge at set times daily and deal with containment system setup
- 2) Temporary Bridge use would be in conflict with marine vessel traffic trying to cross



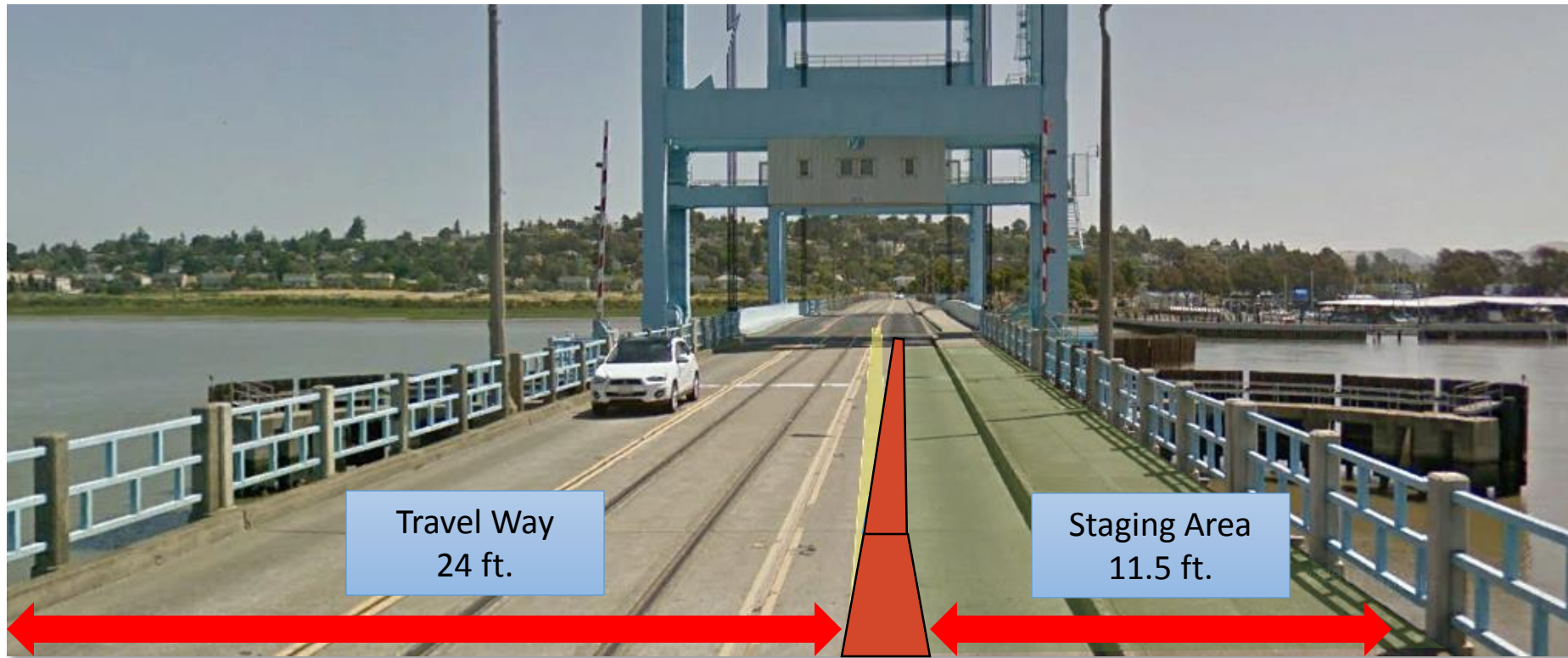
Traffic Management Strategy- Existing



Traffic Management Strategy- Single Lane

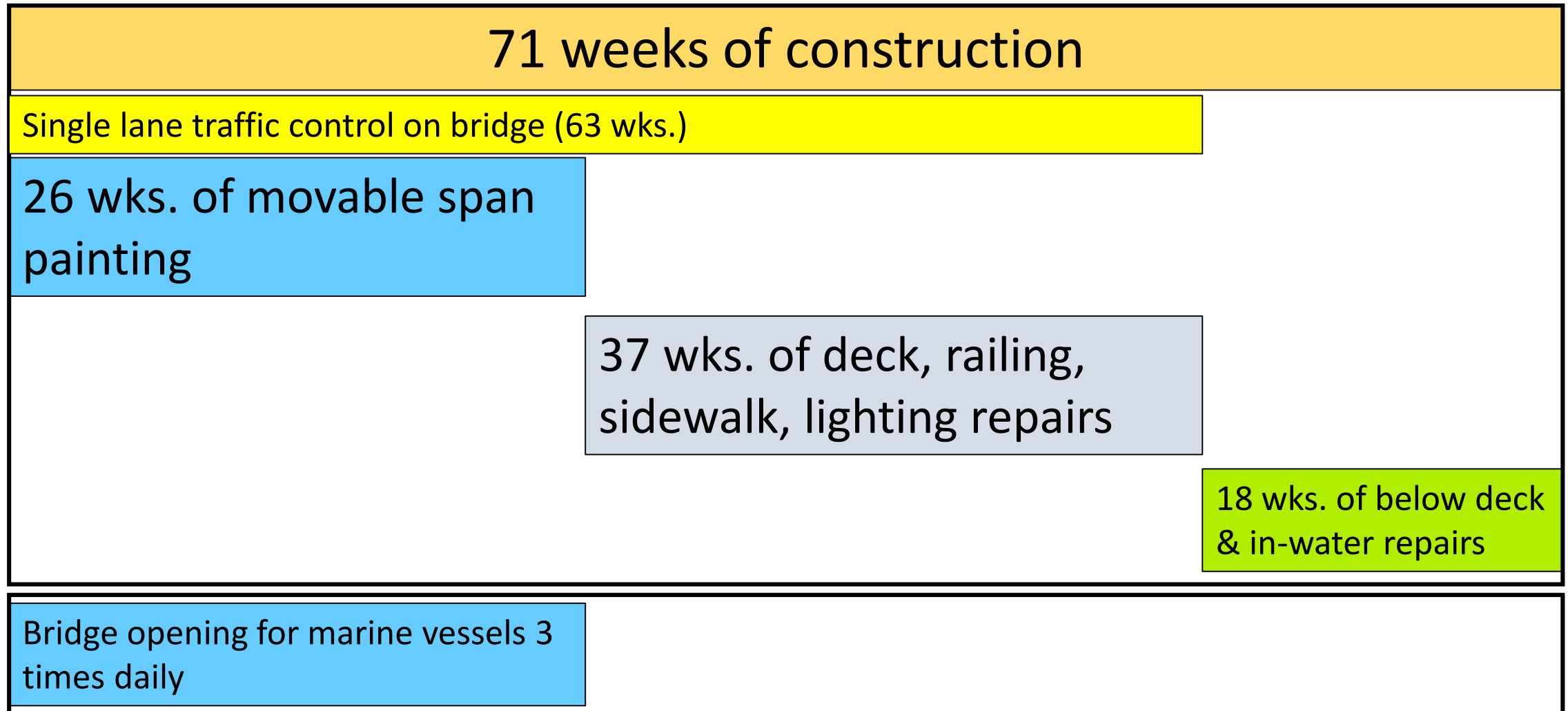


Traffic Management Strategy- Two Lanes



Sidewalk and Southside Handrail Repair

Traffic Closures During construction





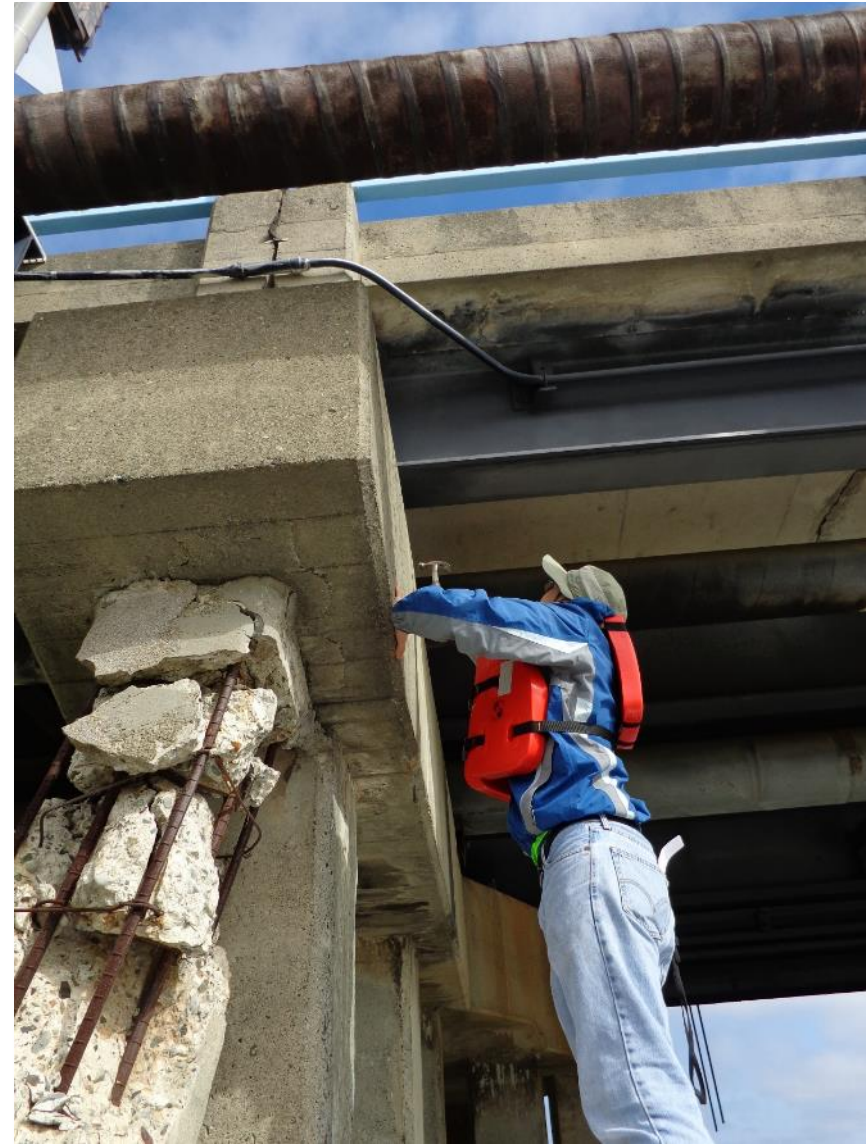
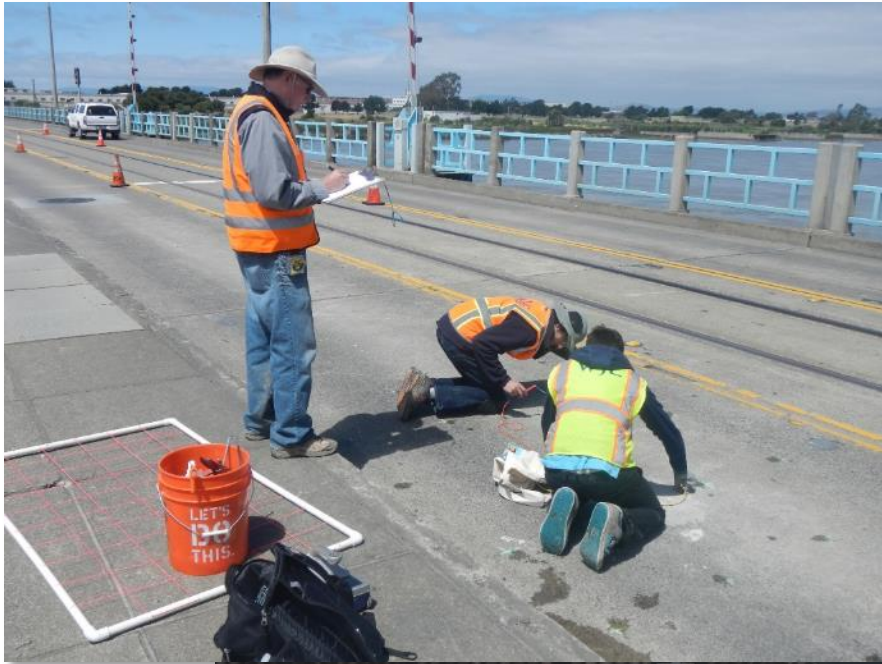
Funding

- Bridge Preventive Maintenance Project (BPMP): FHWA
- Federal – \$12M
- Local – \$1.8M (CFD)

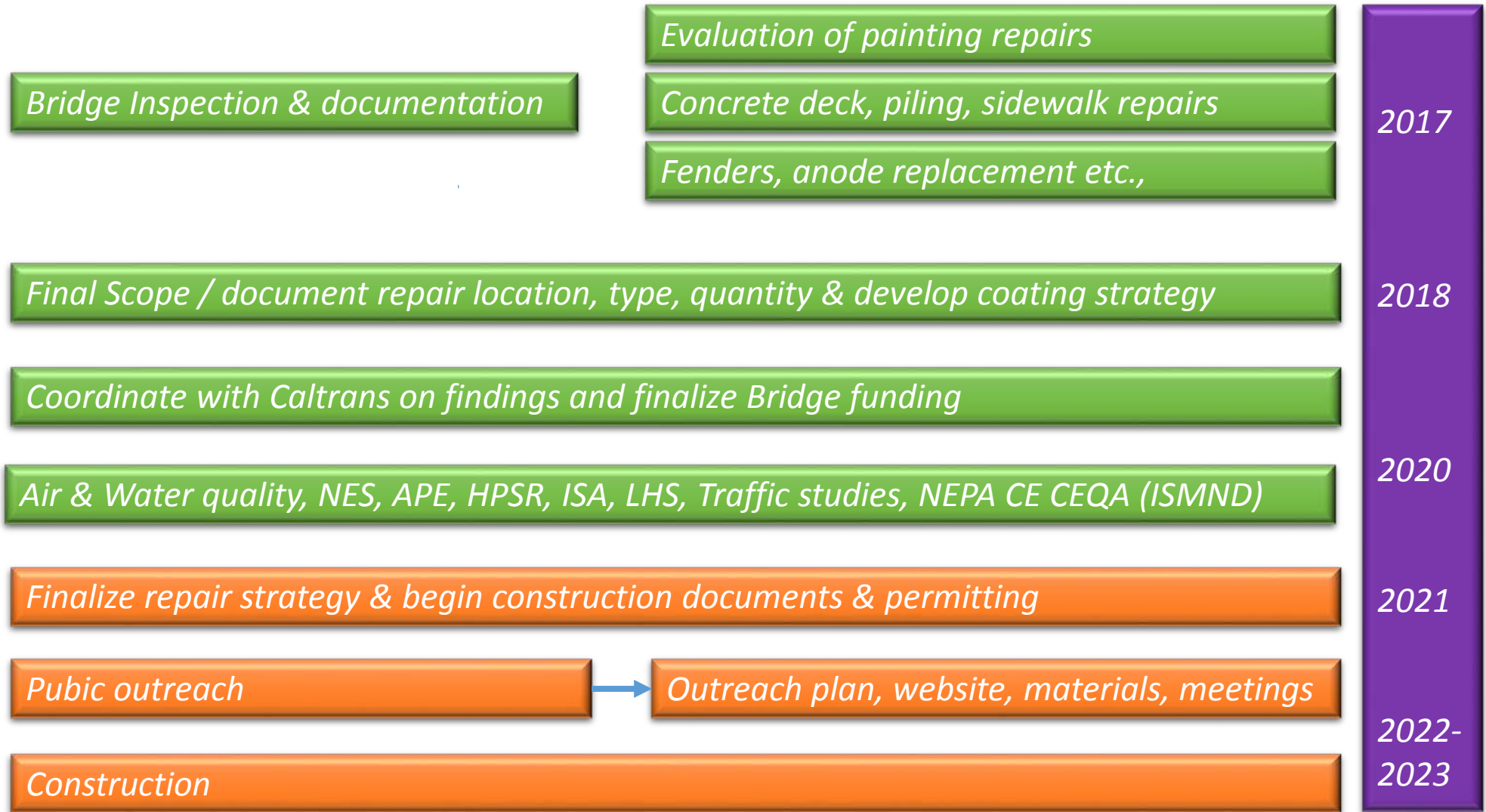
Causeway Inspection May 2017



Causeway Inspection May 2017



Work Plan –





- Mare Island Logo Restoration
- Tower up-lighting



