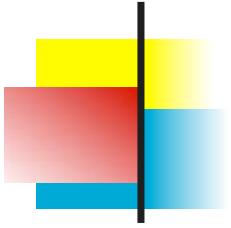


Port of Oakland Vision 2000 Middle Harbor Basin Projects

presentation by Ellen Johnck
Short Course Working with Nature May 7, 2018

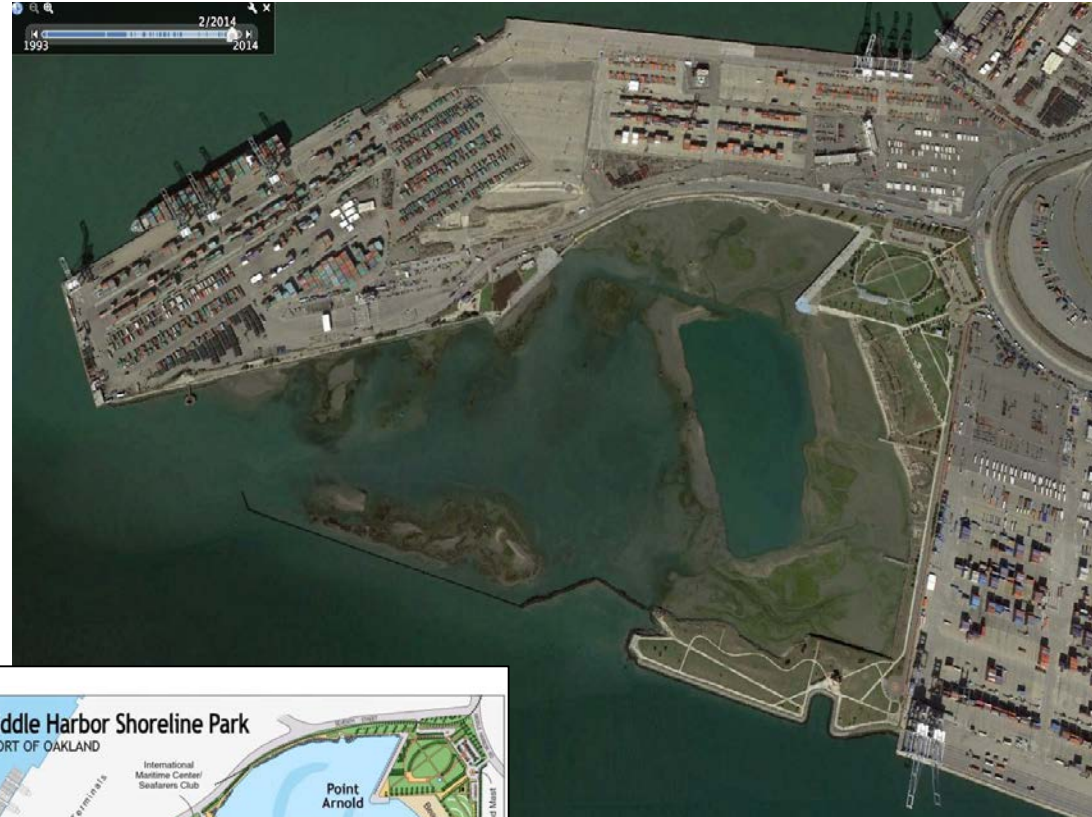


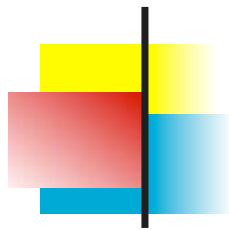
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Port of Oakland Vision 2000 Middle Harbor Basin Projects: Middle Harbor Today

- Introduction
- Purpose
- Historic Context
- The Challenge: Vision 2000
- Working with Nature (WwN) Steps I-IV
- Results



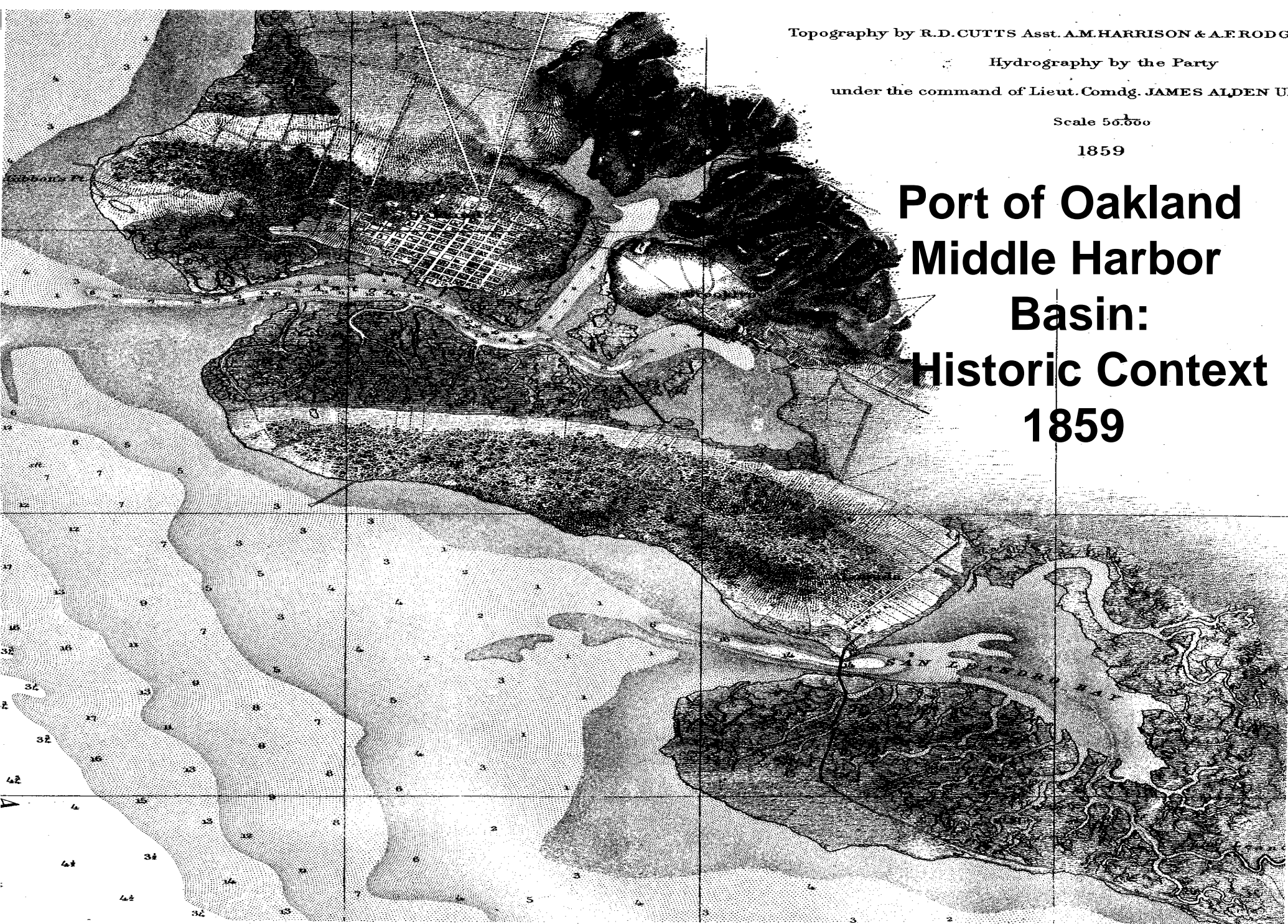


Port of Oakland Vision 2000 Middle Harbor Basin Projects: Introduction and Purpose

- Port of Oakland primary container port for the San Francisco Bay region and northern California
- Fifth largest in U.S. based on TEU cargo volume
- Describe Middle Harbor Basin Projects: Middle Harbor Shoreline Park and Middle Harbor Enhancement Area (MHSP & MHEA) **as example of,**
- Port Working with Nature (WwN PIANC #176) to achieve navigation efficiency and enhance capacity in concert with environmental and community goals
-



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Port of Oakland Middle Harbor Basin: Historic Context 1859

Port of Oakland Vision 2000 Middle Harbor Basin Projects: Historic Context 1853



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Port of Oakland Vision 2000 Middle Harbor Basin Projects: Historic Context 1899



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Port of Oakland Vision 2000 Middle Harbor Basin Projects: Historic Context 1949

15 AUGUST 1949
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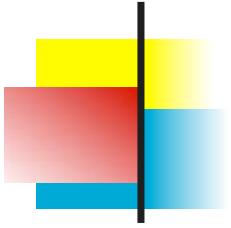
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Port of Oakland Vision 2000 Middle Harbor Basin Projects: Historic Context



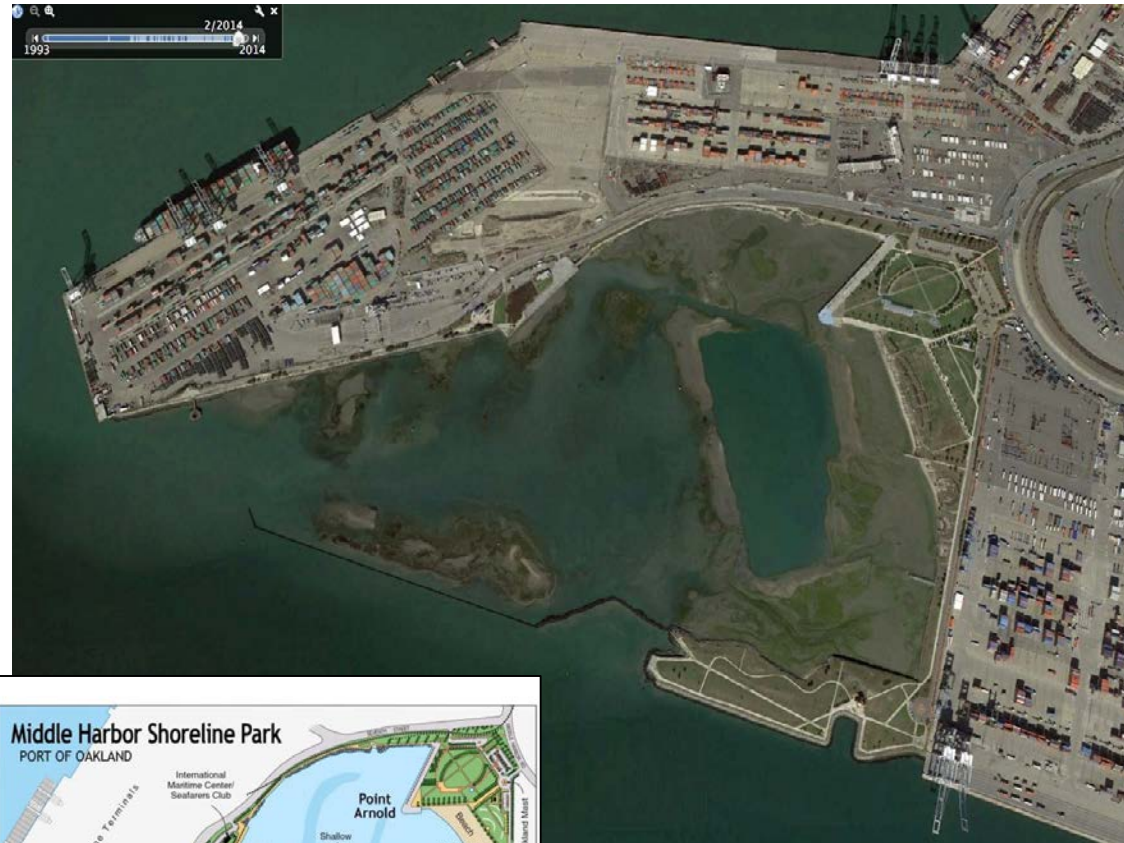
1999

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Port of Oakland Vision 2000 Middle Harbor Basin Projects: Middle Harbor Today

- Introduction
- Purpose
- Historic Context
- **Vision 2000**
- Working with Nature (WwN) Steps I-IV
- Results



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Port of Oakland Vision 2000 Middle Harbor Basin

Projects: The Challenge: Vision 2000

- Port terminal additions and modernization: deepen Inner Harbor shipping channel from -42' to -50'
- Address community needs shoreline access and environmental goals for the beneficial use of dredged material
- Redirect shipping from Middle Harbor to Inner Harbor
- 38-acre MHSP opens shoreline closed off by military WWII;
- Restore -35' draft Middle Harbor Basin to 181 ac. shallow water habitat for eel grass, marsh, bird roosting islands
- Cost effective placement of dredged material; meets regional dredging plan beneficial use goals



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Port of Oakland Vision 2000 Middle Harbor Basin Projects: Working with Nature (WwN)



WwN Steps

Step 1: Project Goals/Objectives

Step 2: Understand Environment

Step 3: Stakeholder Engagement

Step 4: Design Project

Step 5: Build; Implement

Step 6: Monitor, Evaluate, Adapt, Integrate



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Port of Oakland Vision 2000 Middle Harbor Basin Projects: Applying WwN Steps I, II, III

- I. **Project Goals:** Vision 2000 Port terminal modernization & -50' channel deepening
- II. **Understand Environment:**
 - Conducted sessions w/community re public access/recreation needs; 1998-2000
 - Port participation regional Long Term Management Strategy for dredged material placement (LTMS) 1999-2002.
- III. **Stakeholder Engagement:** Local citizens + Habitat Technical Advisory Committee (TAC) of biologists, engineers NGOs, agencies), +LTMS w/ NGOs, state and federal regulatory and wildlife advisories

Port of Oakland Vision 2000 Middle Harbor Basin Projects: WwN Steps IV

IV. Projects' Design Consensus: 1999-2000

- ◆ 38-acre MHSP for public access & education
- ◆ 181-acre beneficial use MHEA objectives
 - shallow water and eelgrass habitat with 36% (approx. 5.2 MCY of sediment) from Oakland Harbor deepening
 - 5-acre demonstration marsh;
 - bird island(s) for roosting
 - 10-year habitat performance evaluation
 - Stakeholder-based consensus for MHEA beneficial use project design allowed permit authorizations for harbor deepening.
 - Dredging the -50' begins 2002 and is complete by 2008.
 - 96% is beneficially reused at MHEA + 2 other wetland projects

Port of Oakland Vision 2000 Middle Harbor Basin Projects:
Step III Design Consensus based on
TAC's Monitoring, Adaptive Management, and Maintenance
Plan **(3 M Plan): Habitat Design Benchmarks**

Bathymetry

Eelgrass

Salt marsh

Bird roosts

Fish habitat

Coves

Human use



Port of Oakland Vision 2000 Middle Harbor Basin Projects: WwN Steps V and VI



V. 2002-2007 Build/Implement

- MHSP complete 2006-7. MHEA: 5.2 MCY from - 50' channel deepening completed 2008

VI. 2007-2010 Monitor, Evaluate, Adapt

- 2010: Discovered approximately 30-50% more material needed to achieve design elevation for eelgrass planting, mostly sand, than originally planned in MHEA Design. Whoops!

III & IV. Adapt/Integrate/ Iterate: 2001-2014

- Stakeholder reengagement and Design review on MHEA sediment needs. Port and
- USACE federal sponsor proceeded to add more material.



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Port of Oakland Vision 2000 Middle Harbor Basin Projects:

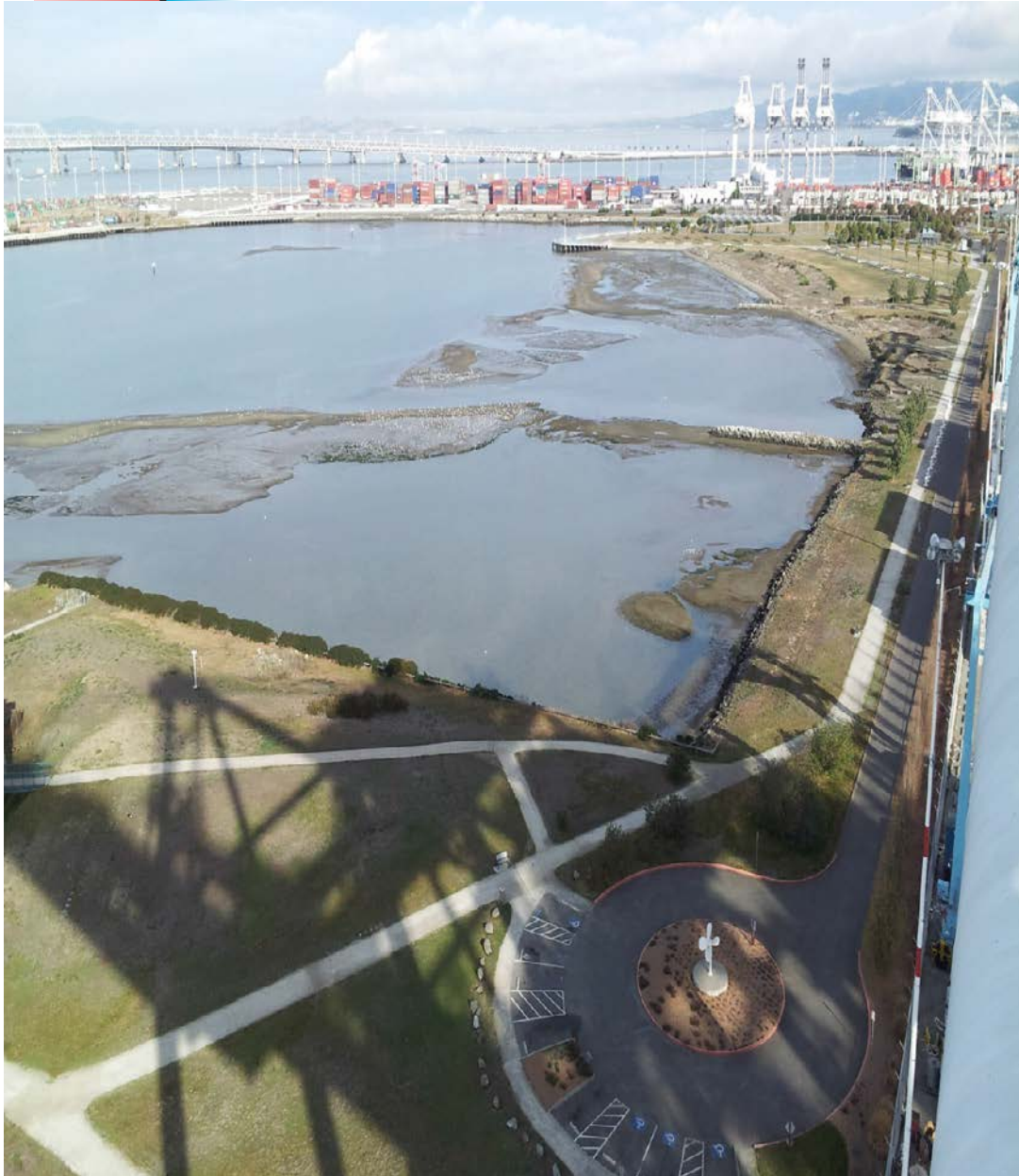
MHEA Schedule 2008-2010-2014; Steps V and VI.



- Completion of phase 1 deepening and placement of 4 MCY material in 2007; phase 2 placement of additional 1.8 MCY, mostly sand
- Consolidation of 5.8 million cubic yards (cy) of mud and sand, initial grading

2 Port of Oakland Middle Harbor Basin Projects: 2017-18

Schedule and Tasks Steps III & IV



- Consult with TAC 2017
- Validate tidal flow conditions from predictive modeling
- Plant eelgrass 2019-20
- USACE begins 10-year monitoring plan 2019
- Report periodically to TAC on eelgrass and species monitoring and site management.

2027 and beyond: Port of Oakland assumes long-term site management and maintenance.

-





Port of Oakland Vision 2000 Middle Harbor Basin Projects: Step III & VI Integrate/Iterate

2015 to 2016

- Final sculpting
- Relocate rock from jetty to bird islands
- Conduct hydrodynamic modeling and field measurements to verify performance of the design.
- Open MHEA to full tidal circulation,



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Port of Oakland Vision 2000 Middle Harbor Basin Projects: Step VI

2017-2018: Integrate/Iterate

- First meeting of TAC in 10 years in 2017; second in 2018
- Concluded that goals for interim subtidal habitat plus 5-acre demonstration marsh & bird roosting islands had been achieved
- Eelgrass planting to begins 2019
- 10-year performance evaluation (2019-2029) according to Construction Period and Long Term Monitoring, Adaptive Management and Maintenance (3M Plan)



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Port of Oakland Vision 2000 Middle Harbor Basin Projects: MHEA Funding

Total cost to construct approx. \$66.8 M

Expenditures to date 2015: approx. \$57.4 M

Costs to Complete: approx. \$ 9.4 M

FY 2015 Work Allowance approx. \$ 6.0 M

FY 2016 President's Budget approx. \$1.2 M

Future funding* approx. \$2.2 M

*depending on U. S. Congressional appropriations and Port cost share



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WwN Results: Lessons Learned, Unintended Consequences, Risks

- Stakeholder engagement continuously (Steps 1-6) on many levels—local community , state and federal regulatory and wildlife advisory agencies, and science/technical—
- **Stakeholder process essential** to build agency/public trust for the port and permit authorizations
- Concern for MHEA performance. Eel grass difficult to grow. Letting nature take its course delayed performance 10 years in violation of permits
- TAC vital tool + Construction Period and Long-term Monitoring, Maintenance and Adaptive Management Program (3M Plan)



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