



**The Port
OF Hueneme**
Oxnard Harbor District



Port of Hueneme Deepening

A Project 20 Years in the Making

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PORT OF HUENEME

VITAL NICHE PORT



- \$11.4 Billion in Cargo
- #1 WC Banana Port
- #4 CA Container Port
- #6 WC Container Port
- #6 US Auto Port
- In Top 10% of US Ports



OUT LEASE PROPERTY



**>\$65M
TO NBVC**



NORTH TERMINAL

JOINT USE AGREEMENT

SOUTH TERMINAL

**40 FT MAIN CHANNEL DEPTH
120 ACRE TERMINAL
24 ACRE TERMINAL (JOINT USE)
130 ACRE NAVY OUT-LEASE**

**4,250 LF 6 DEEP DRAFT BERTHS
320 LF 1 SHALLOW DRAFT
256,000 SF ON-DOCK COLD STORAGE
299 ON-DOCK REEFER PLUGS**

DEEPENING

COMPONENTS

U.S. Army Corps of Engineers Deep Draft Navigation Study (1999)

- U.S. Army Corps of Engineers, Oxnard Harbor District

Confined Aquatic Disposal Cell and Maintenance Dredging (2008-2009)

- Oxnard Harbor District, U.S. Army Corps of Engineers, U.S. Navy

Federal Channel Deepening (2020-2021)

- U.S. Army Corps of Engineers, Oxnard Harbor District, U.S. Navy

Oxnard Harbor District Berth Deepening (2019-2020, 2023)

- Oxnard Harbor District

DEEPENING

USACE DEEP DRAFT NAVIGATION STUDY



- The U.S. Army Corps of Engineers Los Angeles District completed the Port of Hueneme Deep Draft Navigation Study in 1999
- The Study concluded that deepening the harbor was feasible and would increase cargo efficiency
- Deepening the Federal channels and berths by approximately 5 feet would require dredging of more than 600,000 cubic yards of sediment
- The Study proposed beneficial reuse of the dredged sediment to nourish Hueneme Beach

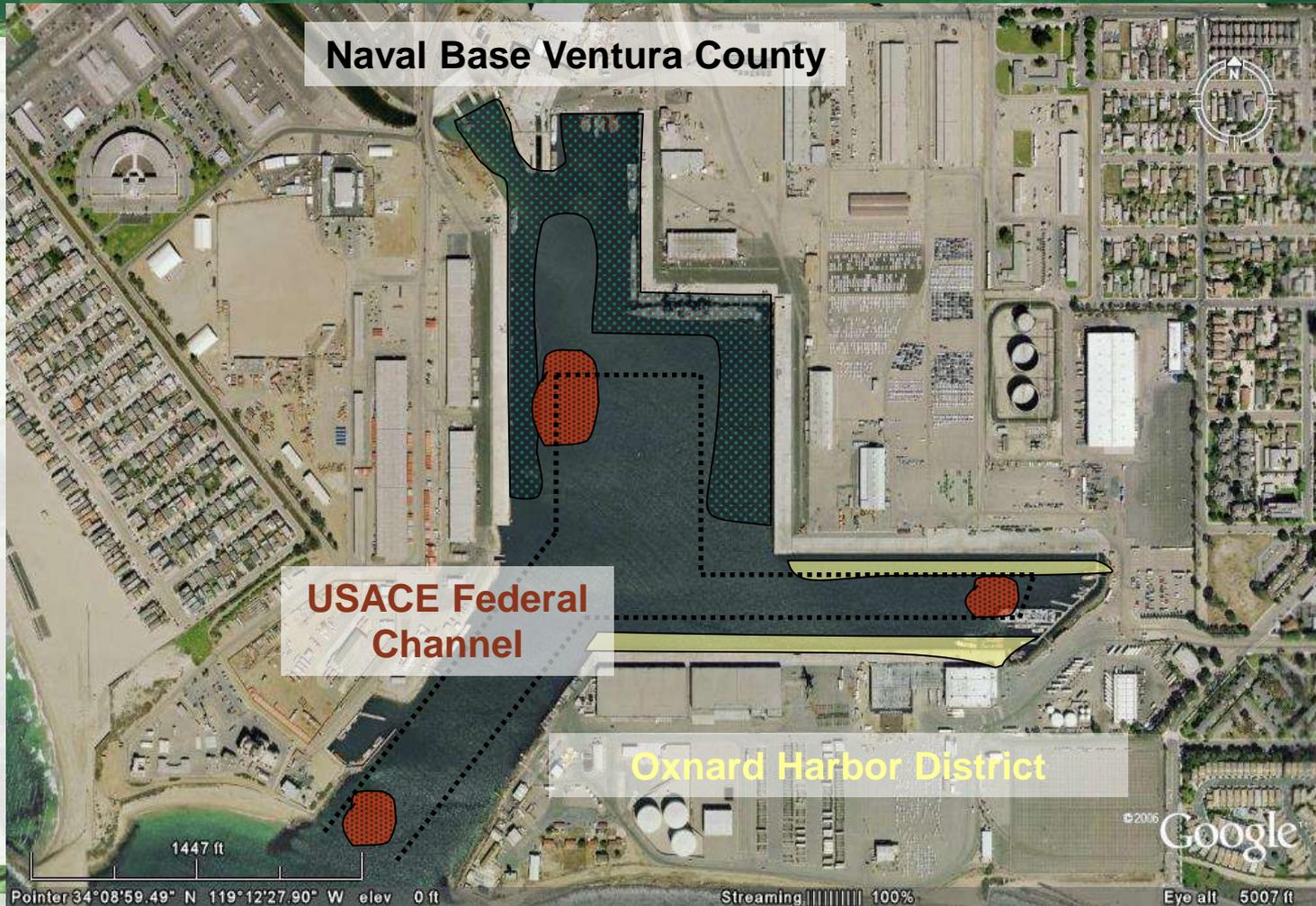
DEEPENING

BUSINESS NEED FOR DEEPENING

- OHD competes in a global shipping market and handles more than \$11.4 billion of ocean-borne freight
- Deepening increases the depth to which vessels can load and still call on the port, which increases operational productivity
- Deepening the berths to -40 feet MLLW creates greater capacity to handle demand, reduces bottlenecks, and improves economies of scale
- Deepening addresses current needs and prepares the port for future growth
- Deepening reduces vessel air emissions by reducing time spent at anchorage awaiting high tide to enter the harbor and by enabling more cargo to be loaded on ships, reducing emissions per pound of cargo

DEEPENING

SEDIMENT ISSUES IN THE HARBOR



DEEPENING

SEDIMENT CONTAMINATION

- **Approximately 314,000 cubic yards of unsuitable sediment to be dredged**
 - 60% from OHD and USN berths
 - 40% from Federal Channel
- **Chemicals of concern included PAHs, PCBs, DDT, and TBT**
- **Sediments composed mostly of fine sands, silts, and clays with low organic carbon**

DEEPENING

RATIONALE FOR CAD APPROACH

- Provided an on-site solution
- Not tied to other development or funding
- Provided environmental protection
- Provided local beach nourishment
- Allowed for deepening to advance
- Restored authorized depths of OHD and USN berths
- Provided complete solution for all OHD, USACE, and USN
- Shared resources made it cost-effective

An aerial photograph of a port facility, likely the Port of Hueneme. The image shows several large cargo ships docked at long piers. One ship on the right has the name 'CARMEN' visible on its side. The port is surrounded by industrial buildings, storage tanks, and cranes. In the background, there are mountains and a clear sky. The entire image has a green color overlay.

PROJECT ELEMENTS

KEY DESIGN ELEMENTS

CAD

- **Maintain wharf stability**
- **Withstand vessel scour and bioturbation**
- **Isolate contaminants**

KEY DESIGN ELEMENTS

BERTHS

- **Improve existing wharf structures to accommodate deeper berths**
- **Seismic stability of wharf and slopes**
- **Minimize impacts to vessel operations during construction**

KEY DESIGN ELEMENTS

FEDERAL CHANNELS

- **Maintain stability of existing structures**
- **Nourish Hueneme Beach**



CAD

CONSTRUCTION SEQUENCE



CAD

CONSTRUCTION AND MAINTENANCE DREDGING



CAD CROSS SECTION



CAD

CELL EXCAVATION AND FILLING

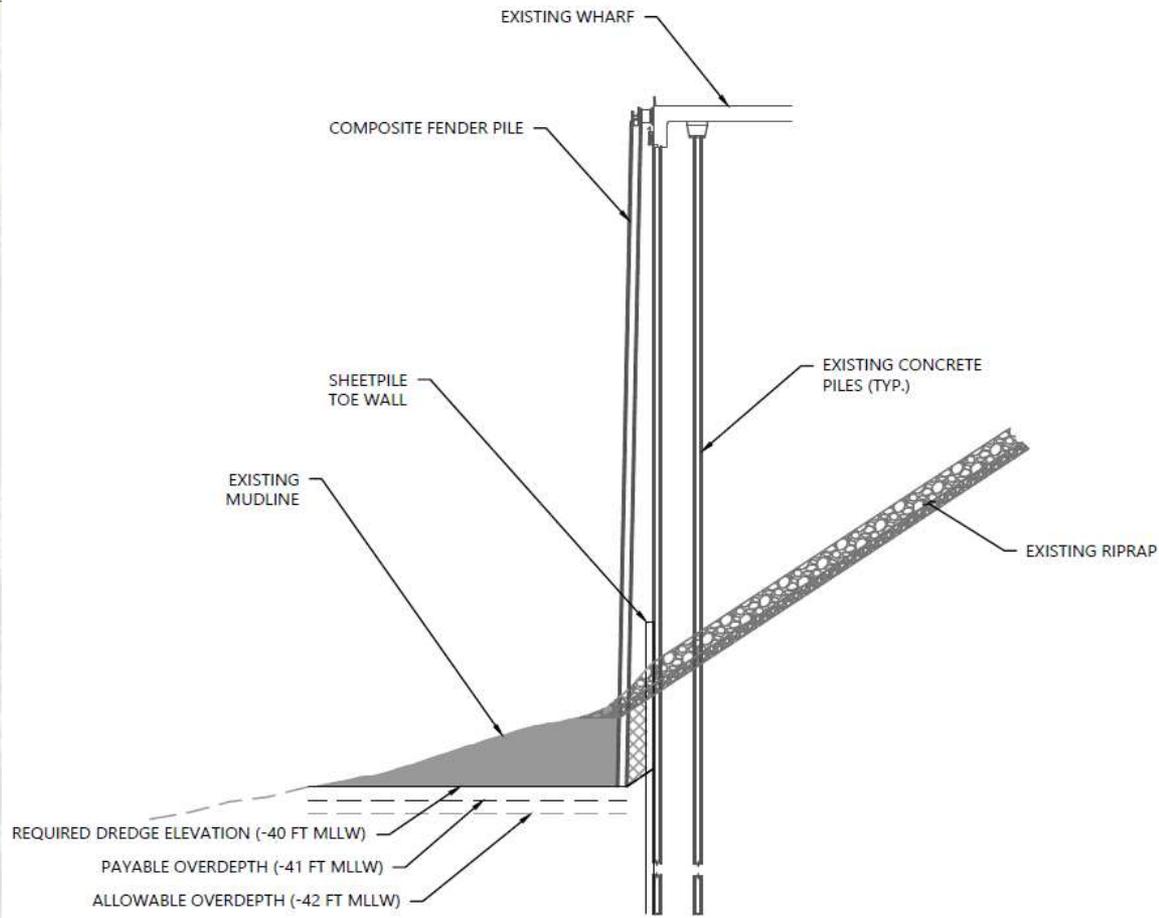


Port Hueneme CAD site - 2009

BERTH

DEEPENING ELEMENTS

- Improve wharf structures to accommodate deeper berth depth
 - Sheet pile toe wall
 - New fender system and wharf hardware
 - Repair concrete wharf deck
- Dredge berths to -40 feet MLLW
 - Beneficially reuse sediment for beach nourishment
- Phase construction to minimize impacts to Port operations



BERTH

DEEPENING CONSTRUCTION



FEDERAL CHANNEL

DEEPENING ELEMENTS

- Dredge 370,000 cubic yards of sediment for beneficial use to nourish Hueneme Beach
- Dredge 20,000 cubic yards of sediment unsuitable for beach nourishment for placement in the CAD
- Deepen Approach Channel to -44 feet MLLW
- Deepen Entrance Channel, Turning Basin, and Channel A to -40 feet MLLW





PROJECT FUNDING

CAD

PROJECT FUNDING STUDY

Challenges

- Raising funds (total project cost ~\$14 million)
- Coordinating budget schedules among OHD, USACE, and USN
- Negotiating and scheduling with contractor

Opportunities

- All participants had funds allocated for smaller individual projects
- Project partners were committed to implement a shared solution
- Significant project momentum had been generated at the management level

CAD

COST SHARING APPROACH

- **Separate the project into discrete components**
 - CAD cell excavation
 - USN berth dredging
 - OHD berth dredging
 - USACE Federal Channel dredging
 - Cap armor stone placement
 - Long-term monitoring of CAD cell
- **Estimate costs associated with each component**
- **Assign components to partners based on ownership, limitations in authority, funding schedules, and secondary agreements**

CAD

COST SHARING RESPONSIBILITIES

Project Feature	Responsibility		
	USACE	USN	OHD
Project Development - CEQA/NEPA Permitting - Engineering Design		✓ ✓	✓ ✓
Contracting - Contract Management	✓		
Construction - Equipment Mobilization - CAD Cell Excavation - Dredging USN Berths - Dredging OHD Wharves - Dredging "Hotspots" Within O&M Channel - Capping - Placing Armor Rock - Water Quality Monitoring - Sediment Confirmational Sampling - Construction Management	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓
Post-construction Activities - Long-Term Monitoring		✓	✓

CAD

CONTRACTING APPROACH

- USACE had an existing contract with Manson Construction for O&M dredging in Port of Hueneme and Channel Islands harbors
- USACE issued a contract modification for additional work associated with the CAD cell
- All funds were transferred to USACE for overall contracting and construction management
- Used existing cost sharing agreements between partners and developed new agreements when required

BERTH DEEPENING

FUNDING STRATEGY

- OHD operates in a highly competitive global shipping market and must be strategic about infrastructure investments to achieve strategic goals
- Committed to a long-term approach to fund and construct berth deepening using a variety of financial tools, including grants
- Deepening of Berths 1 and 2 was funded by a US Department of Transportation Maritime Administration (MARAD) Transportation Investment Generating Economic Recovery (TIGER) grant
- Deepening of Berth 3 will be funded by a U.S. Economic Development Agency (EDA) grant



LONG TERM MONITORING

LONG TERM MONITORING

CAD

- **10 years of monitoring completed**
- **Sediment chemistry and grain size**
 - Metals, TBT, DDT, PCBs
 - Multiple sample intervals extending through cap
- **Porewater chemistry**
 - Metals and PCBs
 - Consistent 3-foot interval in cap
- **Bathymetry**
 - Annual surveys to quantify changes in CAD surface



LONG TERM MONITORING

CONCLUSIONS

- **Sufficient cap thickness (7 to 10 feet as designed)**
- **Contaminant isolation**
 - Low chemical concentrations in cap porewater
 - Elevated chemical concentrations in sediment occur in lower core intervals below the cap, typically greater than 8 to 10 feet below the sediment surface
- **Stable cap surface that is resistant to scour and is maintaining its integrity**
- **The CAD cell is performing as designed**

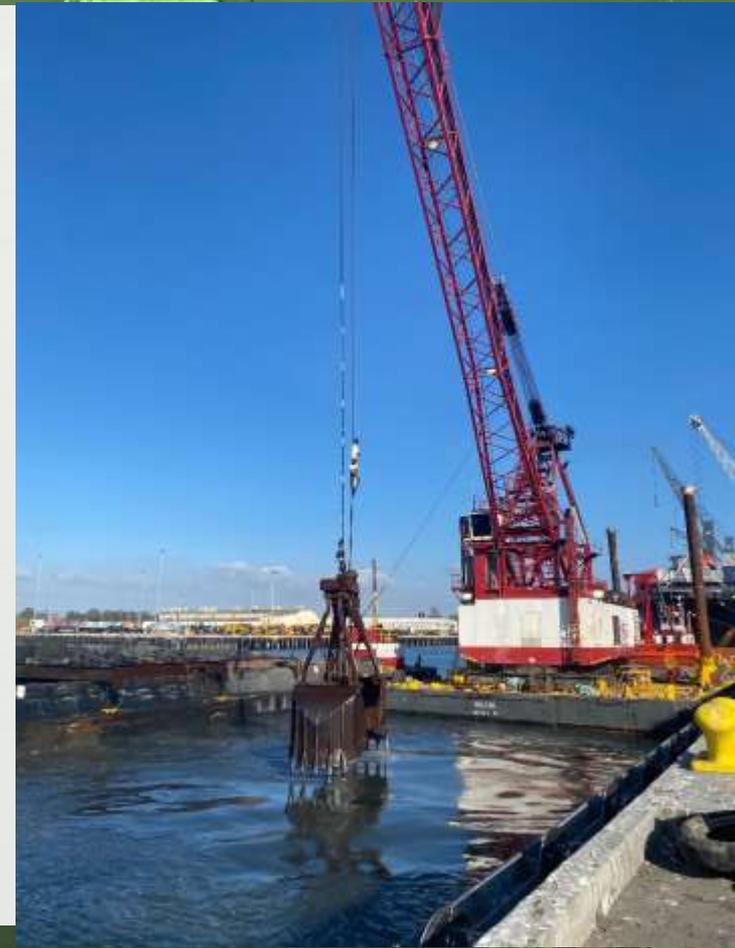
An aerial photograph of a port facility, likely the Port of Hueneme, showing large cargo ships docked at piers, industrial buildings, and various port infrastructure. The image is overlaid with a semi-transparent green filter. The word "SUMMARY" is centered in large white letters.

SUMMARY

HARBOR DEEPENING

MILESTONES

- **1999** USACE's Port of Hueneme Deep Draft Navigation Study Completed
- **2001** Deepening project on hold due to contaminated sediment in the harbor
- **2007** Strategic partnership between OHD, USACE, and USN to address contaminated sediment
- **2009** CAD and harbor-wide maintenance dredging completed
- **2019** Ten years of post-construction CAD monitoring completed



HARBOR DEEPENING

MILESTONES

- **2020** OHD completes first phase of berth deepening
- **2021** USACE completes Federal Channel deepening
- **2023** OHD to complete second phase of berth deepening



SIGNIFICANCE

TO WEDA MEMBERS



- Commitment of project partners and creative approaches to funding and agreements are critical for long-term infrastructure programs like harbor deepening
- Basing the cost-sharing approach on specific elements that could be funded by each partner was unique for a DOD project and was key to project success
- Implementing a strategic approach to grant funding for large programs requires a disciplined investment of time and resources to be successful
- A CAD cell can be a cost-effective and environmentally protective management approach for sediment that is unsuitable for beneficial reuse or unconfined disposal





The Port
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Oxnard Harbor District

THANK YOU

www.portofh.org

