Driving Forces

- Trends in shipping (Larger Container Vessels, Channel Depth, Air Draft)
- Container Cargo Growth (delayed)
- Roadway/Rail Traffic Congestion
- Security
- Environmental Concerns
- Mitigation and Other Factors
Trends in shipping (Larger Container Vessels)
Trends in shipping (Larger Container Vessels)

Larger Cranes/Higher Wharf Loads
Trends in shipping (Larger Container Vessels)

Larger Cranes/ Higher Wharf Loads
Trends in shipping (Larger **Cruise** Vessels)

- Deeper Draft
- Higher Air Draft
- Wharf Loads
- Parking Requirements
- Traffic Control
Container Cargo Growth
Higher Throughput Velocities
Container Cargo Growth
Higher Throughput Velocities

OCR Gate Portal at TraPac POLA
Container Cargo Growth
Higher Throughput Velocities
Container Cargo Growth
Higher Throughput Velocities
Roadway/Rail Traffic Congestion

- POLA Terminal 300
- POLA Terminal 400
- POLB Terminal T
Security
Security – Radiation Portals
Port Hueneme version
Vacis X-ray Inspection in Hong Kong for Automated Inspection of Empties

Radiation is beamed between these two panels.
Environmental Concerns
Environmental Concerns

Leadership in Energy & Environmental Design®

Low Impact Development
Environmental Concerns

Vessels Generate a Large Fraction of Total Port Pollution

Diesel Yard Cranes Are Also Significant Emitters
Alternative Maritime Power (AMP) Wharf-to-Vessel Cable Connections
Alternative Maritime Power (AMP)
Alternative Maritime Power
Port Hueneme approach
Alternative Maritime Power
Environmental Solutions

Review of Greenest Terminal Features

- On-terminal IY served by electric rail cranes
- Street trucks turn off engines while awaiting service
- End-loaded electric yard cranes
- Gate appointments minimize wait time for street trucks
- Automated low emission transport vehicles
- Electric dock cranes
- Automated mooring to reduce vessel idle
- Electric power for vessels at berth
Other Factors
Contaminated Sediments

Step 2: Place Contaminated Sediment in Pit
Other Factors
CAD Site Excavation
Other Factors
Contaminated Sediment Dredging
Other Factors
Contaminated Sediment Dredging

Average Barge Load = 900 cubic meters
Other Factors
Clean Cap Material
Other Factors

Armor Rock
Other Factors
CAD Cross Section

-85' MLLW
-56' MLLW
-46' MLLW
-43' MLLW

Clean Cap
Contaminated Sediments
Surprise Factor! Greatest Accomplishment - A Model for Successful Teaming
Thank you