NEW HAVEN HARBOR
CONNECTICUT
NAVIGATION IMPROVEMENT
INTEGRATED FEASIBILITY STUDY AND ENVIRONMENTAL IMPACT STATEMENT

PUBLIC INFORMATION MEETING

New England District
10 January 2018

“The views, opinions and findings contained in this report are those of the authors(s) and should not be construed as an official Department of the Army position, policy or decision, unless so designated by other official documentation.”
AGENDA

- Opening Remarks (New Haven Port Authority, Connecticut Port Authority)
- Presentation (NAE)
  - Feasibility Study Purpose
  - Non-Federal Sponsors
  - New Haven Harbor Overview
  - Schedule - Status
  - Economics
  - Alternatives
  - Dredged Material Placement Sites
  - Environmental and Other Concerns
  - Project Cost and Cost Sharing
  - Update on Field Studies
- Closing Remarks
FEASIBILITY STUDY PURPOSE

Examine navigation improvements to the existing New Haven Harbor Federal navigation project.
The study will examine deepening of the port’s main ship channel to depths greater than -35 ft. MLLW authorized by Congress and maintained by the USACE.

A recommendation to Congress on port deepening will require a determination that such improvements are engineering feasible, environmentally acceptable, and economically justified.
NON-FEDERAL SPONSOR

New Haven Port Authority
– (Non-Federal Sponsor)

Connecticut State Port Authority
– (State Funding Source)
– State Port Authority established in 2016
EXISTING FEDERAL NAVIGATION CHANNEL

The main channel and turning basin have a depth of -35 feet MLLW.
PORT OF NEW HAVEN, CT

- Ranked 53rd of Top 150 U.S. Ports by Cargo Volume in 2016
- Largest Deep Water Port in Connecticut
- Terminals: Gulf Oil, Gateway, Magellan, New Haven Terminal, Motiva (Shell), and PSEG
- Buckeye Pipeline Transports Jet Fuel to Bradley International Airport and Westover Airforce Base

Photograph Source: Connecticut Department of Transportation
EXISTING NAVIGATION PROBLEMS

- Insufficient Channel and Turning Basin Depth for Large Ships Cause Transportation Inefficiencies
- Bend at Breakwater Strong Bank Force Effects are Experienced
FEASIBILITY/EIS STUDY SCHEDULE

Public Review, Draft EIS/NOA, Spring 2018

Chief’s Report April 2019

Study Currently in Evaluation Phase
NEW HAVEN FUTURE WITHOUT PROJECT CONDITIONS

- Transportation inefficiencies and safety/ maneuverability concerns due to inadequate channel depths and widths will continue.
- Most major export and import commodities are expected to grow.
EXISTING CONDITION - TANKERS

FLEET DISTRIBUTION FOR NEW HAVEN


<table>
<thead>
<tr>
<th>Year</th>
<th>MR1 (30,000-40,000)</th>
<th>MR2 (40,000-55,000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>Beam 83-106</td>
<td>Beam 90-106</td>
</tr>
<tr>
<td></td>
<td>Draft 32-41</td>
<td>Draft 35-45</td>
</tr>
<tr>
<td></td>
<td>LOA 560-680</td>
<td>LOA 550-660</td>
</tr>
</tbody>
</table>

Most Prevalent Tanker Types: MR1 and MR2
EXISTING CONDITION – DRY BULK CARRIERS

FLEET DISTRIBUTION FOR NEW HAVEN


Most Prevalent

<table>
<thead>
<tr>
<th>Type</th>
<th>Beam</th>
<th>Draft</th>
<th>LOA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Handysize</td>
<td>10,000-40,000</td>
<td>72-106</td>
<td>27-38</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>450-730</td>
</tr>
<tr>
<td>Handymax</td>
<td>35,000-60,000</td>
<td>90-106</td>
<td>33-45</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>580-708</td>
</tr>
</tbody>
</table>
# NEW HAVEN ECONOMICS
## DESIGN VESSELS

<table>
<thead>
<tr>
<th>Vessel Type</th>
<th>Beam</th>
<th>Draft</th>
<th>LOA</th>
<th>DWT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical/Products Tanker - MR2</td>
<td>105.7</td>
<td>44.3</td>
<td>601.1</td>
<td>53,187</td>
</tr>
<tr>
<td>Products Tanker - Panamax</td>
<td>105.9</td>
<td>47.41</td>
<td>748.1</td>
<td>74,998</td>
</tr>
<tr>
<td>Bulk Carrier - Handymax</td>
<td>106</td>
<td>43.18</td>
<td>623.4</td>
<td>57,227</td>
</tr>
<tr>
<td>Bulk Carrier - Panamax</td>
<td>106</td>
<td>43.72</td>
<td>656.2</td>
<td>63,227</td>
</tr>
</tbody>
</table>

Preliminary design vessels - Based on largest, regularly calling vessels
NAVIGATION IMPROVEMENT ECONOMIC BENEFITS

Benefits will be based on decreasing transportation cost inefficiencies at the port. These benefits are based on estimated/projected savings of transporting cargo on the improved waterway.

Benefits arise when terminals choose to transport cargo in larger vessels, thereby achieving efficiencies of scale and lower unit transportation costs. Savings also result from a reduction in tidal delays and lightering costs with a deeper channel.

The Federal without and with project conditions will be evaluated and considered over a **50-year period of analysis**.
FOCUSED ARRAY OF ALTERNATIVES

- Alternatives
  1: No Action or Future Without-Project Condition
  2: Deepen main ship channel, widen channel, turning basin, and bend
  Consider depths from -37 to -42 feet

- Above improvement alternatives to be combined with dredged material placement options
ALTERNATIVE CONCEPT

Deepen and widen inner channel

Deepen and widen Turning Basin, Deepen Maneuvering Area
ALTERNATIVE CONCEPT

Widen bend to east

Deepen, widen and extend entrance channel
# DREDGED MATERIAL QUANTITIES

<table>
<thead>
<tr>
<th>CHANNEL DESIGN DEPTH</th>
<th>37-ft</th>
<th>38-ft</th>
<th>39-ft</th>
<th>40-ft</th>
<th>42-ft</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL DREDGED MATERIAL QUANTITIES (CY)</td>
<td>2,112,000</td>
<td>2,777,000</td>
<td>3,624,000</td>
<td>4,269,000</td>
<td>5,769,000</td>
</tr>
<tr>
<td>Portion That is Fine Sand (CY)</td>
<td>121,000</td>
<td>170,000</td>
<td>245,000</td>
<td>351,000</td>
<td>475,000</td>
</tr>
<tr>
<td>Portion That is Rock (CY)</td>
<td>7,000</td>
<td>16,000</td>
<td>24,000</td>
<td>33,000</td>
<td>49,000</td>
</tr>
</tbody>
</table>
DREDGED MATERIAL PLACEMENT SITES

Options Carrying Forward:
\- Morris Cove Borrow Pit Fill - Clean Material
\- Oyster Habitat Creation behind the East Breakwater
\- Salt Marsh Restoration at Sandy Point Dike
\- Rock Placement at West Breakwater
\- Cover of Historic Disposal Mounds at CLDS
\- Open Water Disposal at CLDS

Options Eliminated Due to Fine Grained Nature of Material
\- Beach Placement of Sand at Nearby Beaches
\- Use as Fill for Coastal Resiliency Projects in New Haven
\- Upland Structural Fill
POTENTIAL BENEFICIAL USE SITES

- CLDS - Cover Historic Disposal Mounds
- Morris Cove Borrow Pit Fill
- Salt March Restoration at Sandy Point Dike
- Oyster Habitat Creation Behind East Breakwater
- Rock Placement at West Breakwater
ENVIRONMENTAL AND OTHER CONCERNS

- Open Water Placement in Long Island Sound is Limited to EPA Designated Sites under the Marine Protection Research and Sanctuaries Act
  - Beneficial Uses of Dredged Material Must Also Be Considered
- Minimize to the Extent Practicable Interference with New Haven Harbor’s Shellfish Industry
- Avoid Impacts to the Cross Sound Power Cable under the Channel
  - Cable Buried to -48 Feet MLLW. Cable must be moved where it is over ledge and hard materials
ENVIRONMENTAL REVIEW AND CONSULTATION REQUIREMENTS

The project is subject to (but not limited to)

- Coastal Zone Management Act
- Clean Water Act
- Clean Air Act
- Endangered Species Act
- Fish and Wildlife Coordination Act
- Magnuson-Stevens Fishery Conservation and Management Act
- Marine Protection, Research, and Sanctuaries Act
- Historic Preservation Act
COST SHARING
FEDERAL/NON-FEDERAL IN PERCENT

Feasibility Study cost share 50/50

Non-Federal Construction Cost Share:

<table>
<thead>
<tr>
<th>Project depth</th>
<th>20 feet or less</th>
<th>&gt;20 to 45 feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>General navigation feature construction cost</td>
<td>20</td>
<td>35</td>
</tr>
<tr>
<td>Mitigation</td>
<td>20</td>
<td>35</td>
</tr>
<tr>
<td>Aids to navigation</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Local service facilities</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>LERR</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

Project Construction Cost Estimate $40 to $80 M
NEXT DISCUSSION OF FIELD STUDIES