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."

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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**

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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

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NON-FEDERAL SPONSOR

New Haven Port Authority
– (Non-Federal Sponsor)

Connecticut State Port Authority
– (State Funding Source)
– State Port Authority established in 2016

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EXISTING FEDERAL NAVIGATION CHANNEL

The main channel and turning basin have a depth of -35 feet MLLW.

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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

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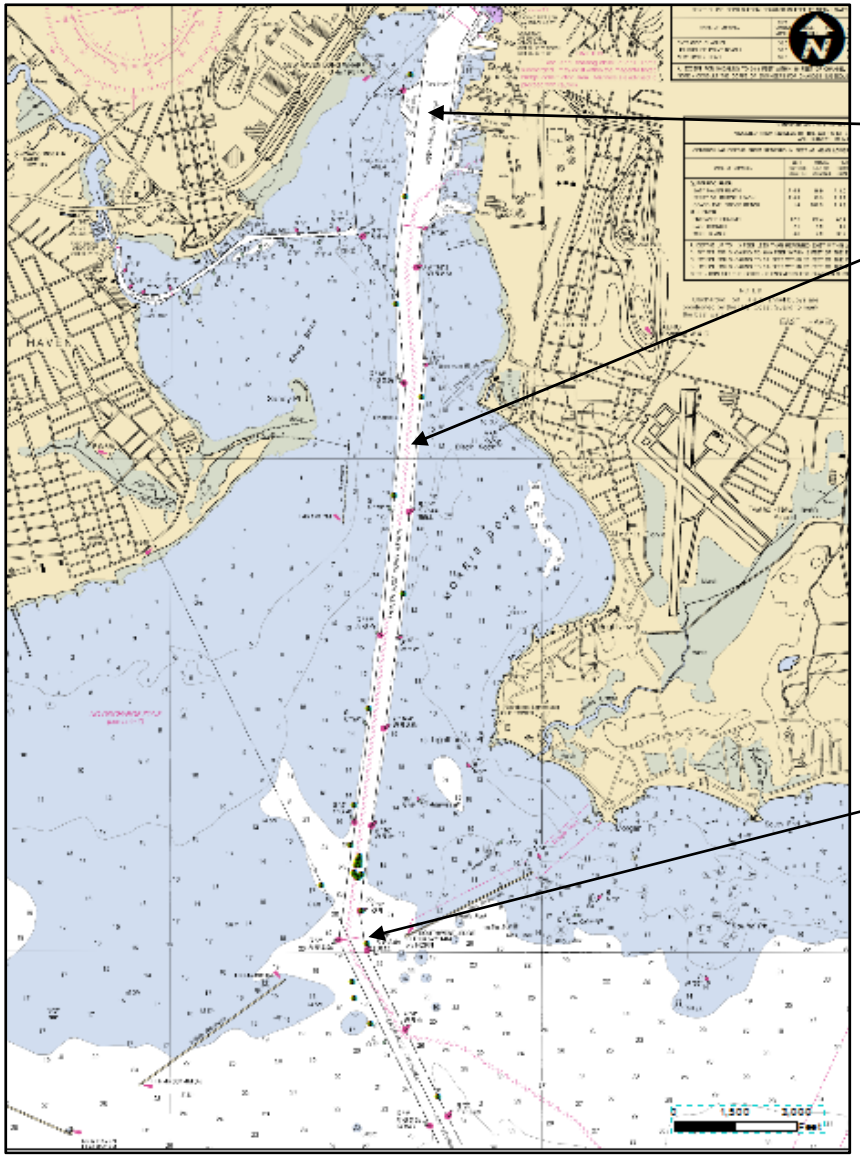
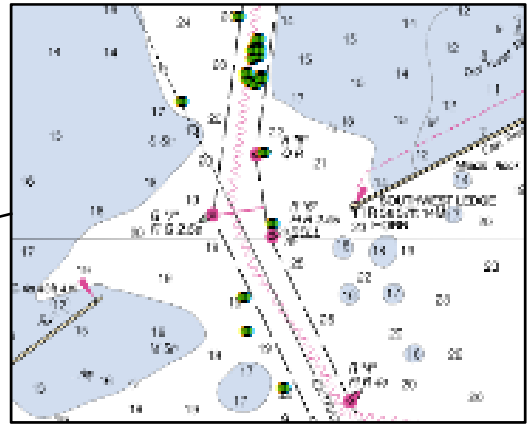
EXISTING NAVIGATION PROBLEMS



Insufficient Channel and Turning Basin Depth for Large Ships Cause Transportation Inefficiencies

Bend at Breakwater Strong Bank Force Effects are Experienced



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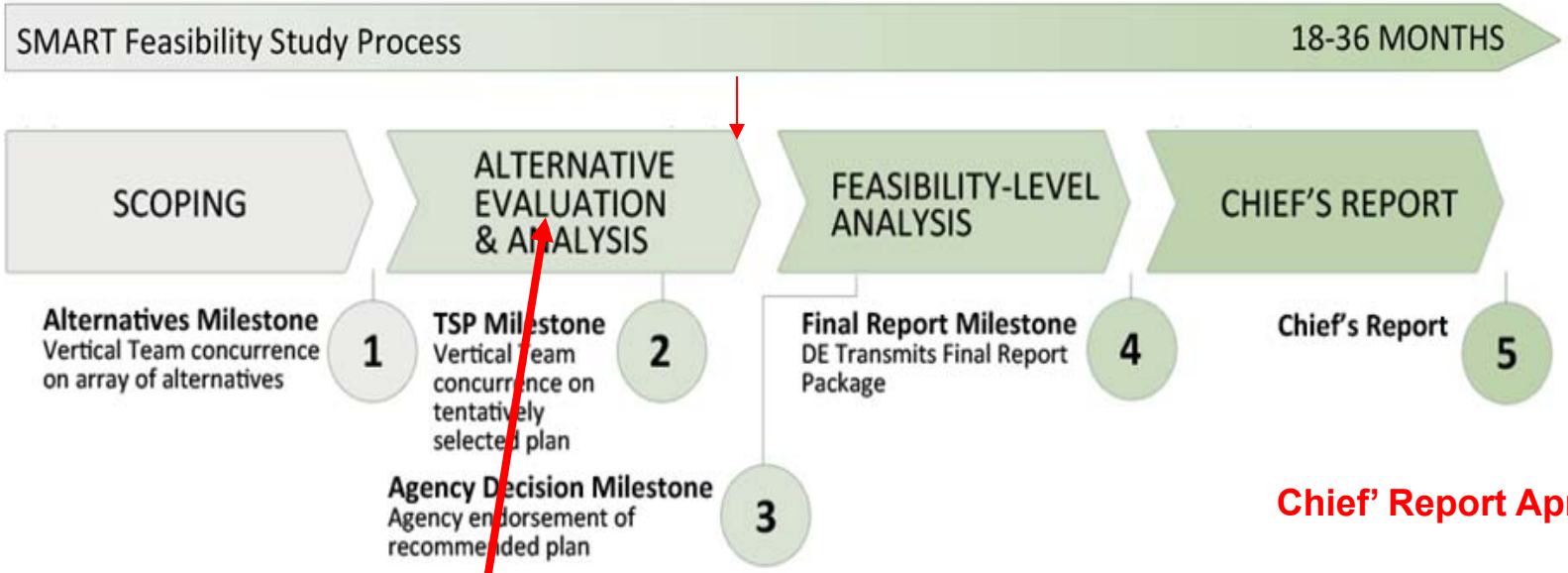
FEASIBILITY/EIS STUDY SCHEDULE

Public Review, Draft EIS/NOA, Spring 2018



Chief' Report April 2019

Study Currently in Evaluation Phase

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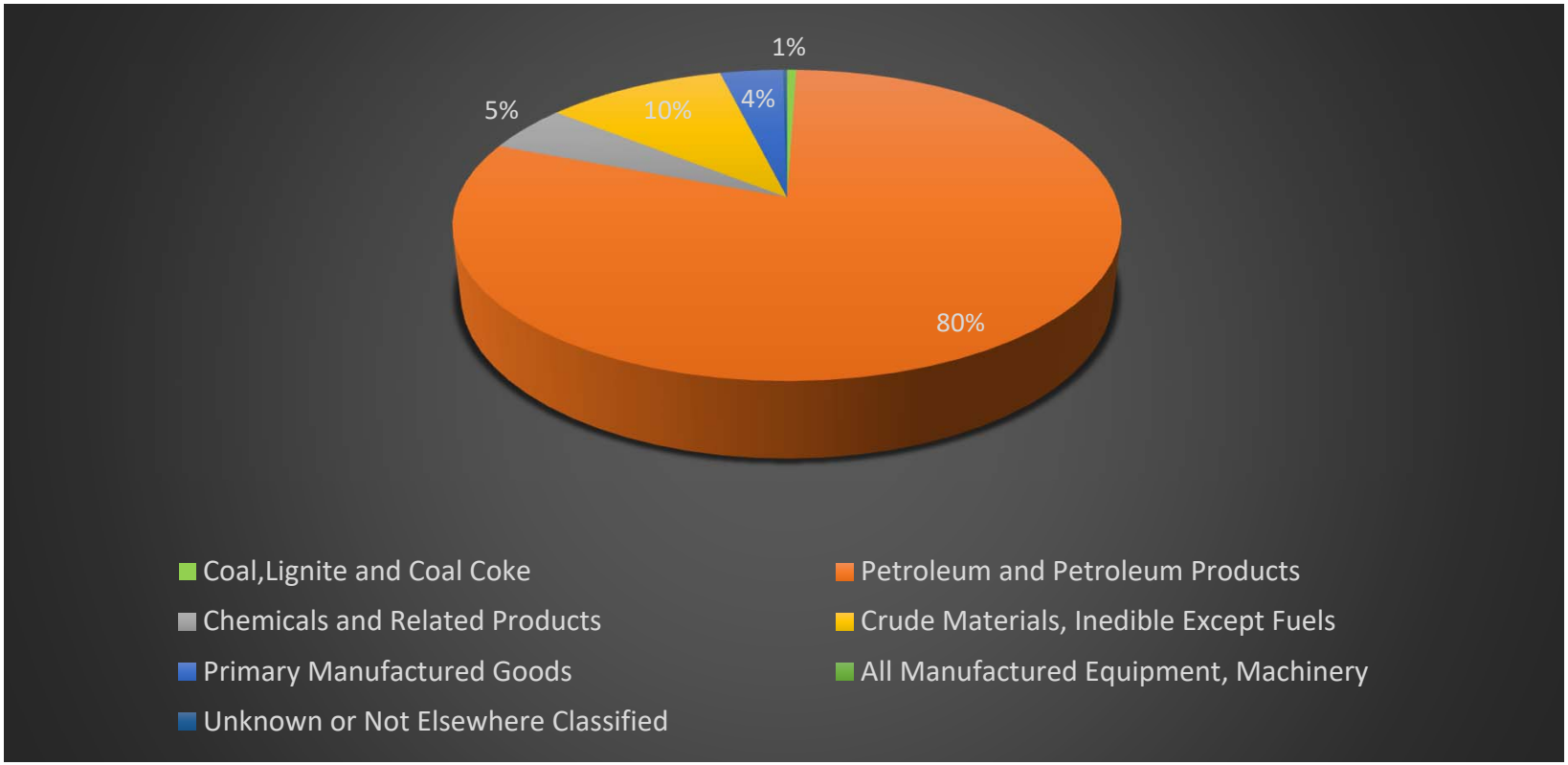
NEW HAVEN COMMODITIES - 2014



Source: Waterborne Commerce Statistics Center

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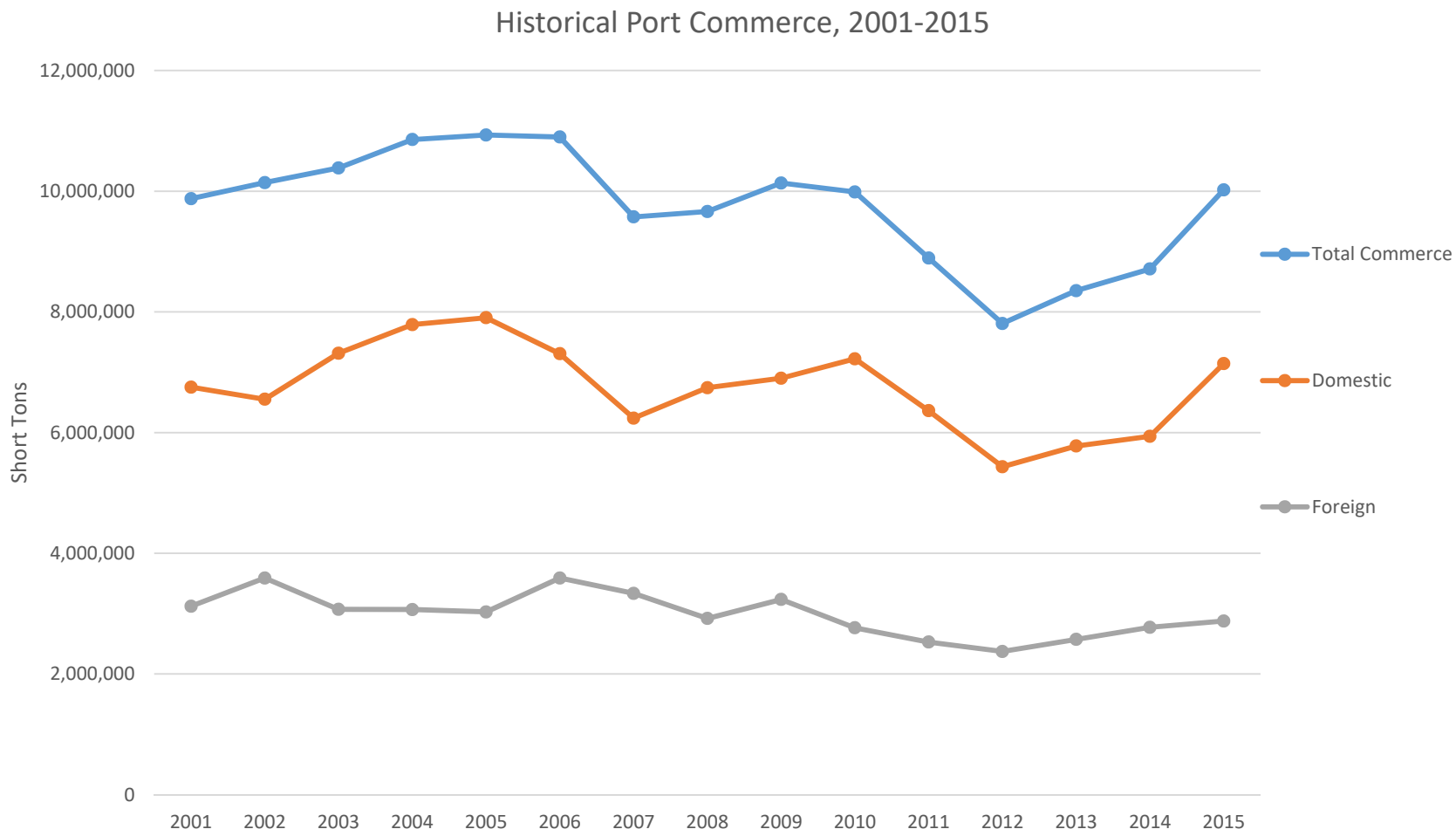
NEW HAVEN ECONOMICS



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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

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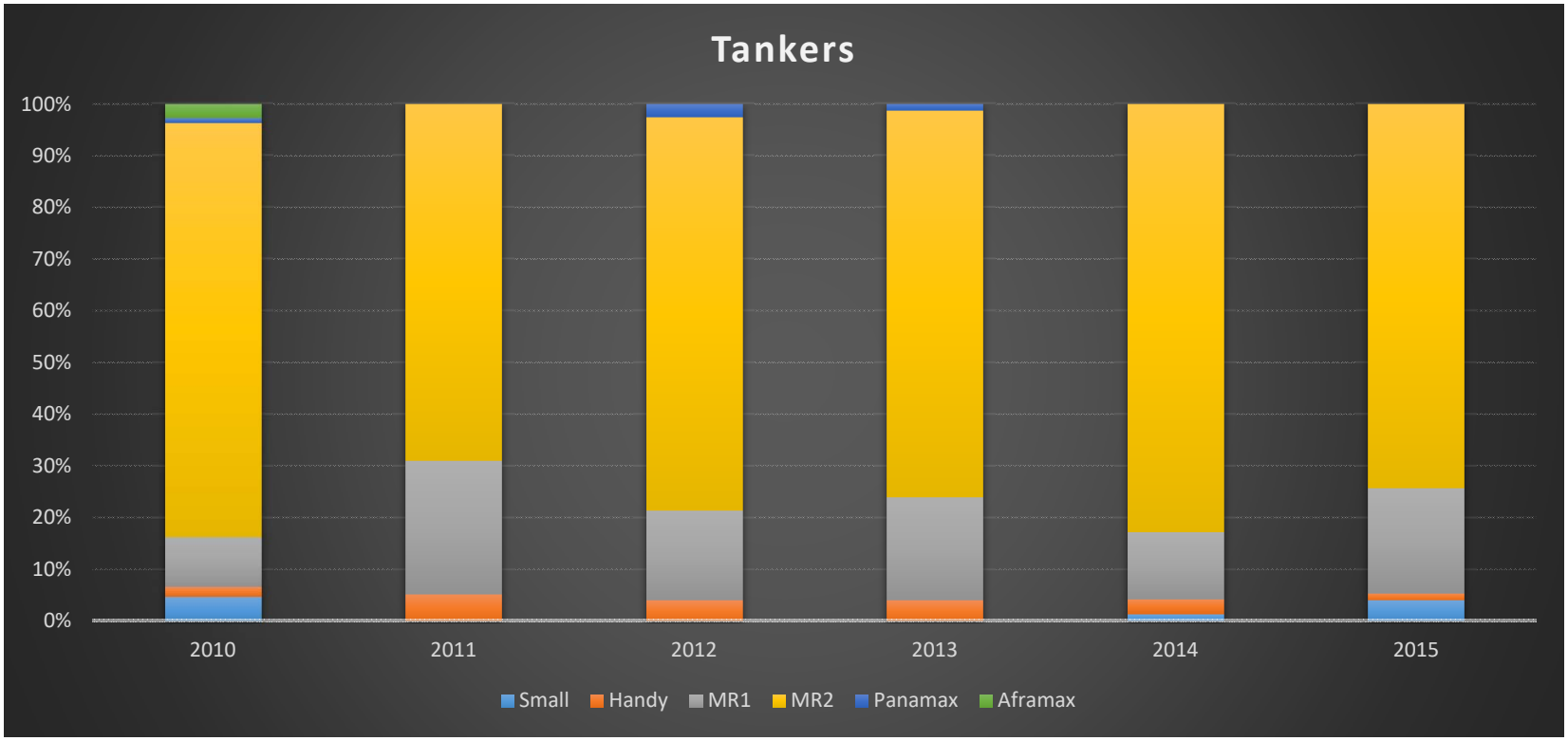
EXISTING CONDITION - TANKERS

FLEET DISTRIBUTION FOR NEW HAVEN



Most Prevalent

MR1	30,000-40,000	Beam	83-106
		Draft	32-41
		LOA	560-680
MR2	40,000-55,000	Beam	90-106
		Draft	35-45
		LOA	550-660

Source: National Navigation Operation & Management Performance Evaluation & Assessment System (NNOMPEAS)

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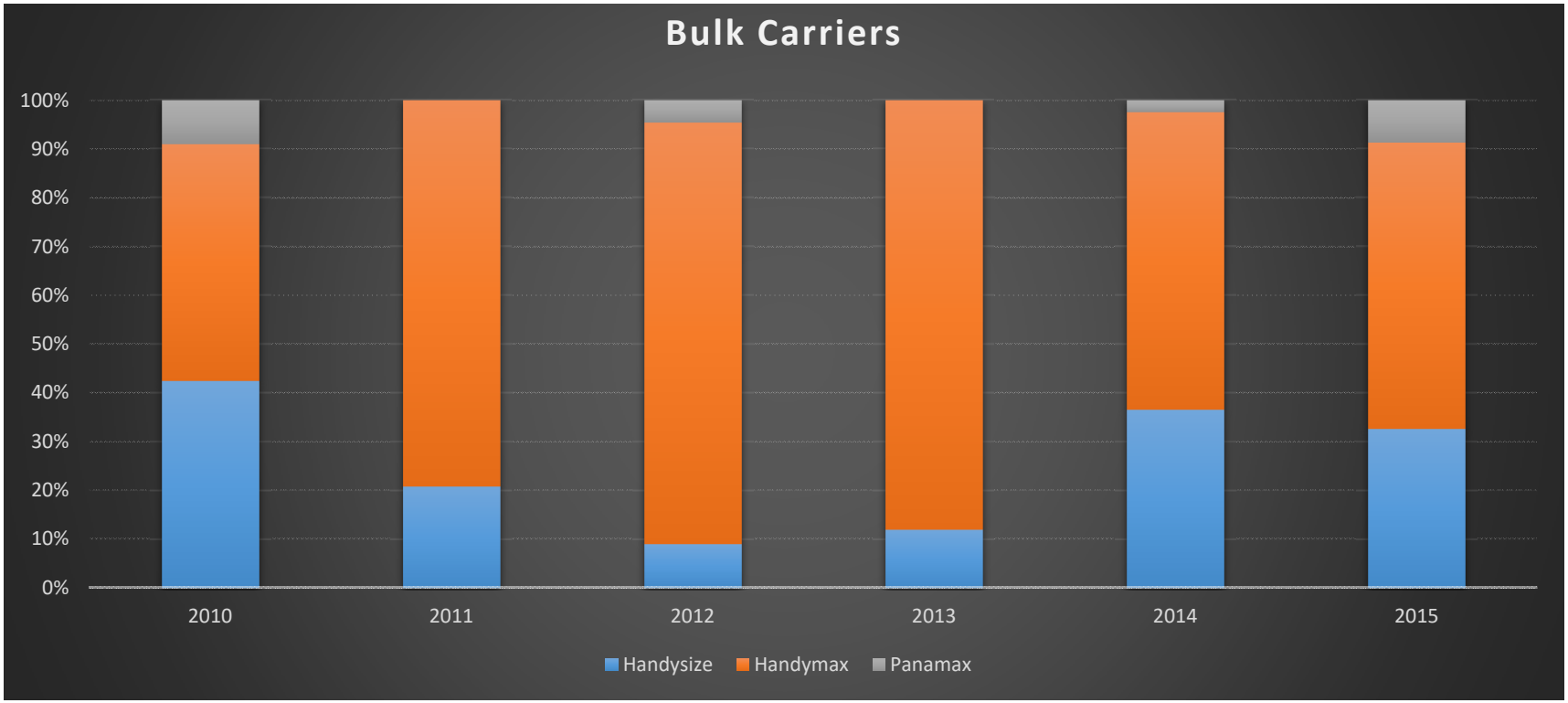
EXISTING CONDITION – DRY BULK CARRIERS

FLEET DISTRIBUTION FOR NEW HAVEN



Most Prevalent

Handysize	10,000-40,000	Beam	72-106
		Draft	27-38
		LOA	450-730
Handymax	35,000-60,000	Beam	90-106
		Draft	33-45
		LOA	580-708

Source: National Navigation Operation & Management Performance Evaluation & Assessment System (NNOMPEAS)

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NEW HAVEN ECONOMICS DESIGN VESSELS

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

Preliminary design vessels - Based on largest, regularly calling vessels

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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**

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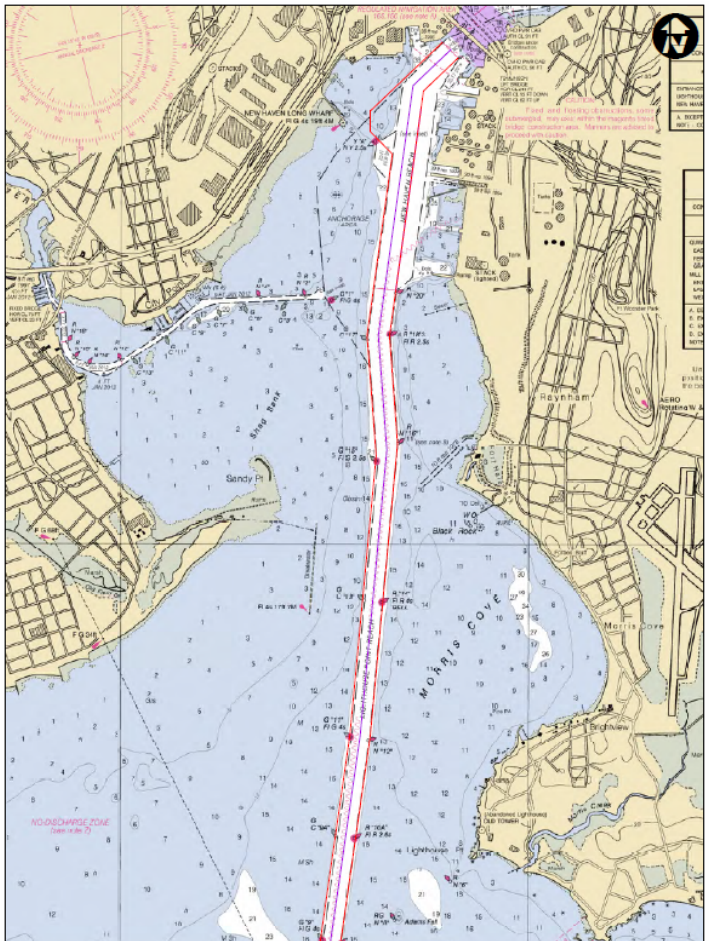
FOCUSED ARRAY OF ALTERNATIVES

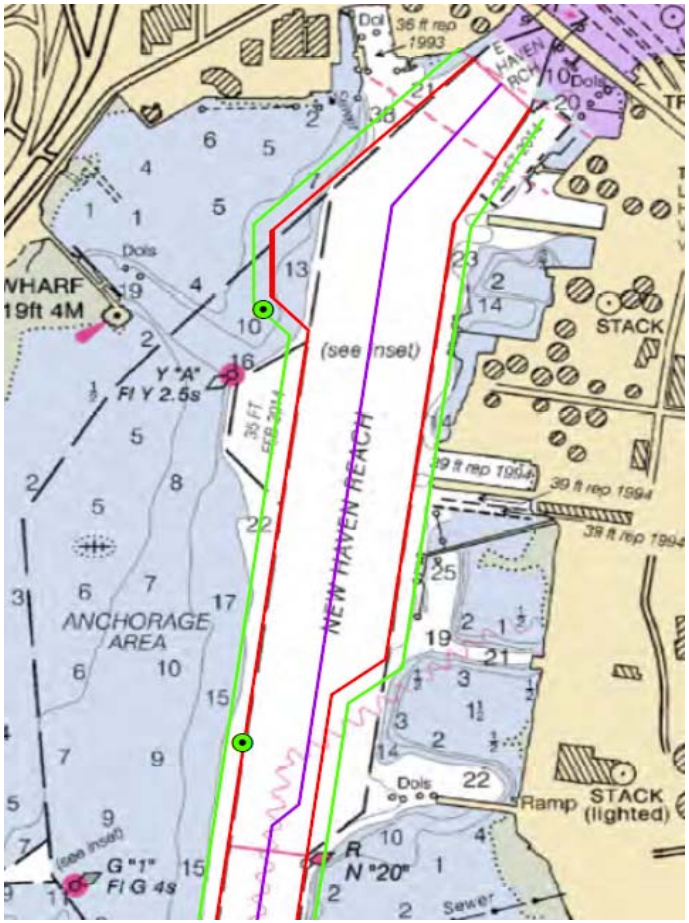
- Alternatives
  1: No Action or Future Without-Project Condition
  2: Deepen main ship channel, widen channel, turning basin, and bend
  Consider depths from -37 to -42 feet

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

ALTERNATIVE CONCEPT

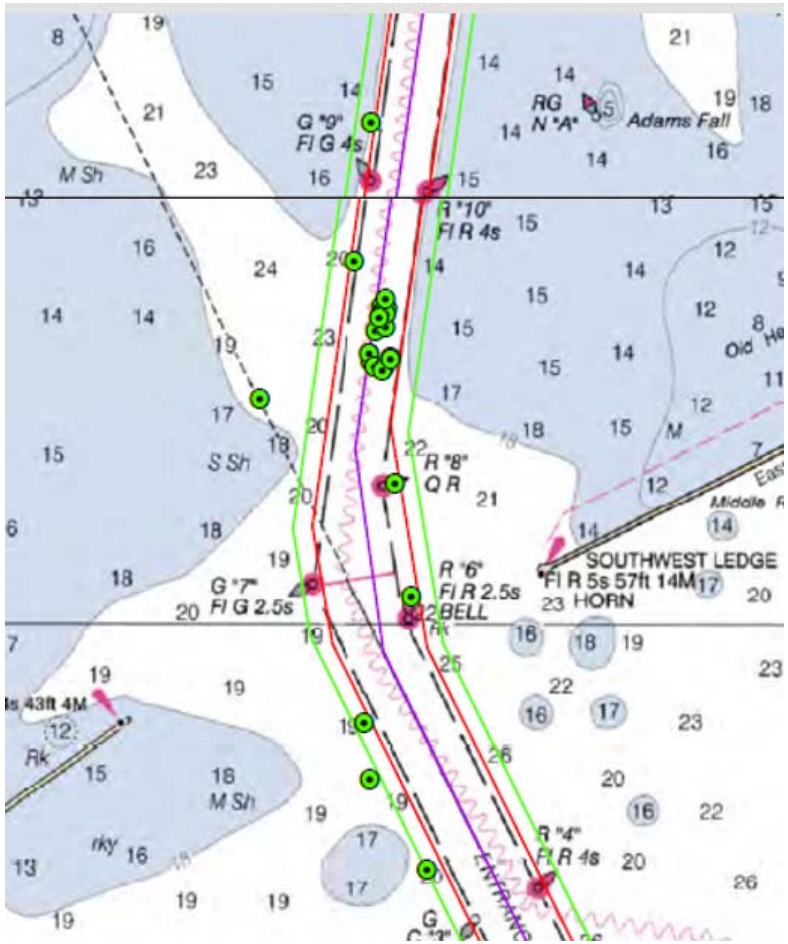


Deepen and widen inner channel

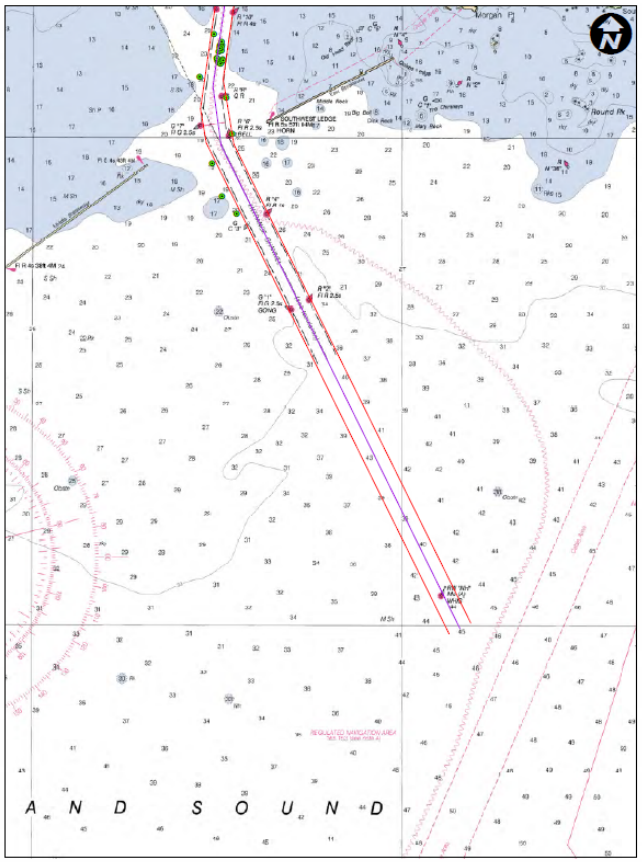


Deepen and widen Turning Basin, Deepen Maneuvering Area

ALTERNATIVE CONCEPT



Widen bend to east



Deepen, widen and extend entrance channel

DREDGED MATERIAL QUANTITIES

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

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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

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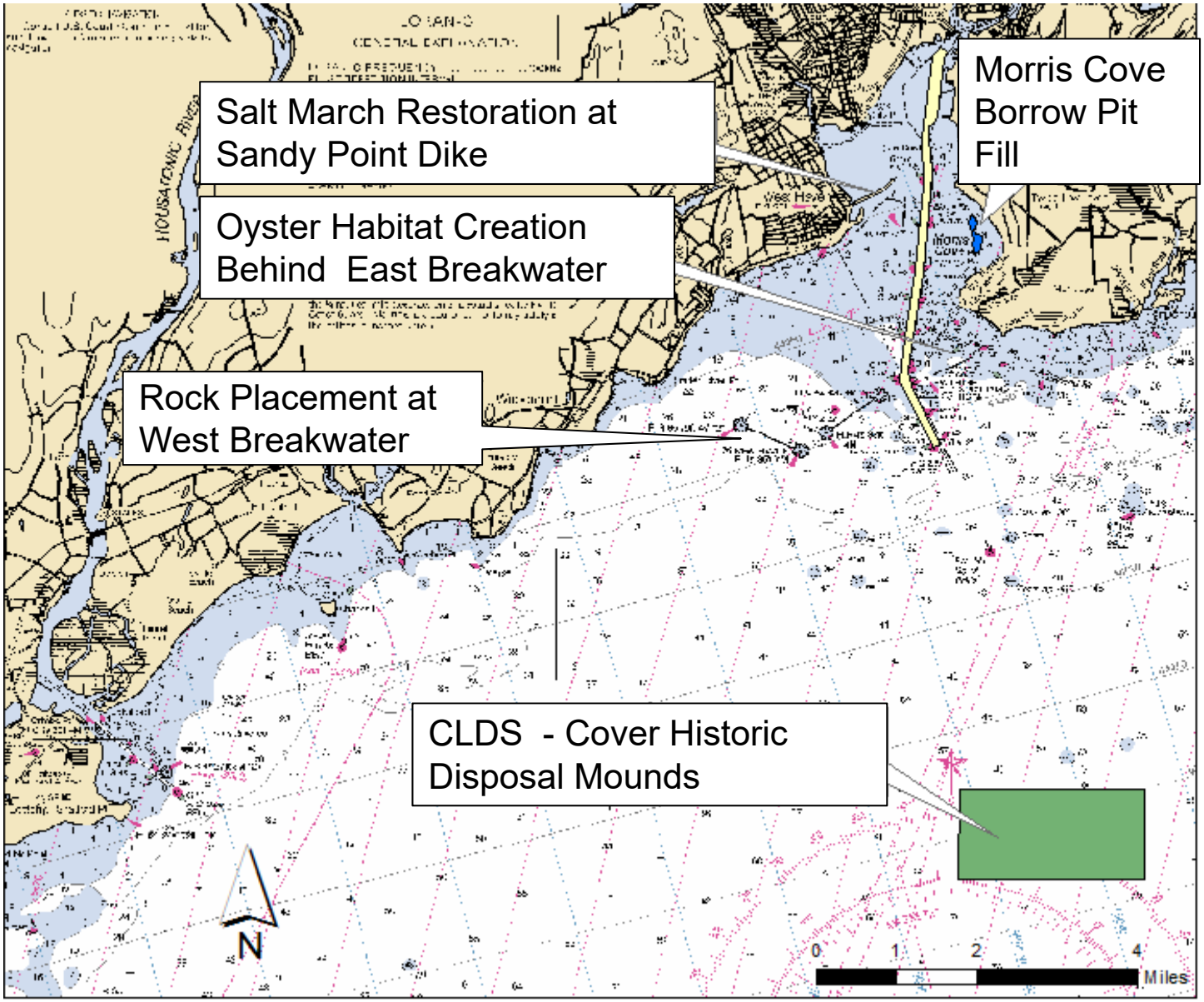
POTENTIAL BENEFICIAL USE SITES



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

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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

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COST SHARING FEDERAL/NON-FEDERAL IN PERCENT

Feasibility Study cost share 50/50

Non-Federal Construction Cost Share:

Project depth	20 feet or less	>20 to 45 feet
General navigation feature construction cost	20	35
Mitigation	20	35
Aids to navigation	0	0
Local service facilities	100	100
LERR	100	100

Project Construction Cost Estimate $40 to $80 M

NEXT DISCUSSION OF FIELD STUDIES

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