DEEP DRAFT NAVIGATION (DDN) PLANNING AND RISK INFORMED MANAGEMENT

PCoP Webinar Series

Presented by:
Deep Draft Navigation Planning Center of Expertise (DDNPCX)
Date: 23, January 2020

Mobile Harbor
PRESENTATION TOPICS

- DDN Mission & Significance
- DDNPCX
- DDN Components Overview
- DDN Planning and Plan Formulation
- Level of Detail at each Planning Milestone
- DDN Economics
- Engineering Design Considerations
- Dredged Material Management
- Environmental Compliance
- Risk and Uncertainty Considerations
- Costs & Cost Sharing
- General DDN Policy Guidance
- Unique Policy for DDN
DEEP DRAFT NAVIGATION MISSION

DEEP DRAFT NAVIGATION PROJECTS:
Coastal ports with navigation channel depths greater than 14-feet (ER 1105-2-100)

FEDERAL INTEREST IN DEEP DRAFT NAVIGATION:
Federal interest is established by the Commerce Clause of the Constitution... and, subsequent court decisions defining the right of the Federal Government to regulate navigation and improve navigable waterways. In 1824 Congress designated U.S. Army Corps of Engineers as the Federal agency responsible for the Nation’s navigation system.

CORPS OF ENGINEERS ROLE IN DEEP DRAFT NAVIGATION:
The role of the U. S. Army Corps of Engineers with respect to navigation is to provide safe, reliable, and efficient waterborne transportation systems (channels, harbors, and waterways) for movement of commerce, national security needs, and recreation. The Corps accomplishes this mission through a combination of capital improvements and the operation and maintenance of existing projects.” (ER 1105-2-100)
DEEP DRAFT NAVIGATION
PLANNING CENTER OF EXPERTISE (DDNPCX)

OVERVIEW:
- Provides navigation economics, planning, and technical support in the valuation and development of policy compliant-technically sound feasibility studies.
- Located in Mobile District, South Atlantic Division (SAD)

AUTHORITY AND ROLE:
- Designates DDNPCX in SAD as USACE mandatory Economic Production Center for all DDN related economic analysis

RESPONSIBILITIES:
- Review and endorse DDN Review Plans (RPs)
- Maintain USACE Corporate Economic Planning Models (Harborsym, RECONS)
- Provide DDN Planning, Plan Formulation, Technical and Policy Support
- Conduct Economic Analyses and Prepare Feasibility Report Economic Appendix (including District Quality Control (DQC) of the Economics)
- Manage draft and final Agency Technical Reviews (ATRs) and DDN Independent External Peer Reviews (IEPRs)
- Maintain relevant DDN policies, databases and technical resources
- Provide Oversight and Support to the Small Boat Harbor Planning Subcenter of Expertise (SBH-PSCX) in Pacific Ocean Division (POD)
The navigation mission is the largest component of the Corps’ Civil Works program.

- The annual navigation budget for planning, engineering, construction, and operations and maintenance exceeds $1.7 billion.
- ~21% is for new construction, ~79% is for Operations and Maintenance (O&M).
- Corps is responsible for maintenance of ~300 deep draft port and harbors.
- These ports and harbors handle 2.6 billion tons of domestic and foreign cargo each year.
- This accounts for 90% of U.S. maritime trade.
- U.S. ports and harbors support more than 13 million jobs nationwide.
- Most environmental form of transportation.
WORLD MARITIME SHIPPING ROUTES

Surface Transportation Patterns
- Areas within 20 miles (32 km) of roads, railroads, or inland waterways

Ocean Shipping from Major Ports
- Width of line in proportion to tonnage of cargo carried:
  - 5 – 10 million metric tons
  - 10 – 20 million metric tons
  - 20 – 100 million metric tons
  - 100 – 200 million metric tons
  - 200 – 300 million metric tons
  - 300 – 400 million metric tons
  - 400 million metric tons or more
  - Passenger steamship lines

(Source: McGraw-Hill)
A FEW SIGNIFICANT DEEP WATER PORTS ACROSS THE NATION

- Port of Seattle
- Port of New Orleans
- Port of Savannah
- Port of Charleston
- Port of NY/New Jersey
- Port of Boston
- Port of Long Beach
- Houston Ship Channel

Coastal Ports  Inland Ports  Highlighted for this slide
KEY PLAYERS IN DEEP DRAFT NAVIGATION

Public Institutions
- Corps, Port Authorities (Non-Federal Sponsor)
- U.S. Coast Guard (USCG)
- Federal/State/Local Government Agencies
- Federal/State Resource Agencies

Private Organizations
- Carriers, Carrier Alliances, Pilots Associations
- International Longshoreman’s Association
- Shipping Associations
- Maritime Associations
- Harbor Safety, Navigation, and Operations Committees
- Environmental Groups
- Other Port Tenants
- Citizens at Large

U.S. COAST GUARD
- Underkeel clearances can be imposed by harbor and port authorities, Bar Pilots, vessel owners / operators, or the USCG as a safety measure
- Marine accident records are available
- Modification of Bridges that Obstruct Navigation (P.L. 76-647, Bridge Alteration Act)
- Responsible for Aids-to-Navigation (ATON)

PILOT ASSOCIATIONS
The Harbor Pilots are responsible for ensuring the safe navigation of ships from sea to their berth.
- Set/enforce navigation guidelines and/or navigation restrictions for their harbor
- Assist in planning of new port development or changes in ship operations
- Participate in Corps studies; providing in depth knowledge of the existing conditions and/or operational concerns
- Provide a record of how vessels operate in the channel with Pilot logs and records
CHARACTERISTICS OF MARITIME HARBORS AND PORTS

GENERAL NAVIGATION FEATURES (GNF)

- Entrance Channel
- Interior Channel
- Channel Wideners
- Channel Deepening
- Transitions
- Turning Basin
- Jetties
- Anchorage Area

*Advance Maintenance Features

OTHER PORT CHARACTERISTICS

- Terminals
- Berthing Dimensions
- Terminal Capacities
- Port Institutions
- Master Plan
- Data Source - Port Series
- Land Available for Growth
- Rail and Road Access
- Distribution/Production Centers
- Port Operating Restrictions
CLASSIFICATIONS OF MARITIME CARGO & VESSELS

GENERAL CARGO - BARGE
- Break Bulk:
  - Sacks
  - Cartons
  - Crates
  - Drums
  - Pallets
  - Bags
- Neo Bulk:
  - Grains
  - Lumber
  - Fertilizers
  - Paper
  - Building materials
  - Steel
  - Scrap metal
  - Sand/Gravel

BULK CARRIER
- Liquid bulk:
  - Crude oil
  - Petroleum products
  - Liquid chemicals

TANKER
- Cargoes requiring refrigeration or other temperature control.

REFRIGERATED CARGO (REEFER)
- Cargoes requiring refrigeration or other temperature control.

CAR CARRIER
- Rubber tired vehicles that can be rolled on to and off (RO/RO) of the vessels:
  - cars in trucks
  - cargo in trailers
  - transportation or construction equipment.

CONTAINER
- Cargoes that can be shipped in standardized metal boxes
- Load on/Load off (LO/LO)

TUGS
- Provide assistance to vessels for:
  - Stopping
  - Turning
  - Controlling speed
  - Required escort through environmentally sensitive areas

CRUISE
- Influenced by wind
  - Vertical clearance issues
  - Draft ~27 feet
  - Schedule driven

LNG/LPG CARRIER
- Vessels which carry liquefied natural gas or liquefied petroleum gas
CONTAINER SHIP EVOLUTION SINCE THE 1960’S

- **1960’s**
  - 1,500 TEU

- **1970’s**
  - 2,300 TEU

- **1980-85**
  - 3,200 TEU

- **1986-2000**
  - 4,800 TEU
  - 9,600 TEU

- **2001-2010**
  - 13,500 TEU

- **2011-2014**
  - 19,100 TEU

- **2015-2016**
  - 21,400 TEU

- **2017-2014**
  - 21,400 TEU

MAX TEU CAPACITIES:
- **PANAMAX LOCKS ~5,000 TEU**
- **EXPANDED LOCKS (2016) ~14,000 TEU**

Larger vessel transiting the new Panama Canal locks in 2016

[https://uniserve.co.uk/largest-container-ship-race/](https://uniserve.co.uk/largest-container-ship-race/)
COMMON PROBLEMS

- Physical Conditions
  - Crosscurrents
  - Shoaling
  - Wind
  - Channel Configurations
- Vessel Delays
- Light Loading
- More Frequent Trips
- Lightering
- Congestion
- Navigation Restrictions*
- Navigation Inefficiencies

*Safety concerns are typically mitigated with navigation restrictions; restrictions are an economic cost (inefficiencies).
PLANNING PROCESS OVERVIEW

**Step 1** Identify POOCs

**Step 2** Step 2: Inventory Existing/FWOP

**Step 3** Step 3: Formulation Alternative Plans

**Step 4** Step 4: Evaluate Alternative Plans

**Step 5** Step 5: Compare Alternative Plans

**Step 6** Step 6: Select Plan

**POOCs** – Problems, Opportunities, Objectives, Constraints

**FWOP** – Future Without Project Condition

**FWP** – Future With Project Condition

**LPP** – Locally Preferred Plan

**NEPA** – National Environmental Policy Act

**Engineering:**
- Physical conditions
- Ship simulation
- Widening Considerations
- Shoaling
- Geotechnical

**Economics:**
- Commodity and fleet data & projections
- Economic conditions
- Population projections

**Team assumptions with Environmental & Plan formulation**

**Economic model runs => FWOP**

**Team assumptions with Environmental & Plan formulation**

**Economic model runs => FWP**

**Team assumptions with Environmental & Plan formulation**

**Team/Environmental:**
- Economic costs/benefits analysis
- NEPA Effects Analysis
- NED/LPP identification

**National Economic Development Plan (NED)** – the plan that reasonably maximizes net benefits to the nation from cost savings.
### DDN MILESTONE GOALS

**EXAMPLES OF WHAT TO COMPLETE BEFORE EACH MILESTONE**

<table>
<thead>
<tr>
<th>DDN MILESTONE</th>
<th>ESTIMATED TIMEFRAME (MONTHS) TO OCCUR AFTER FCSA</th>
</tr>
</thead>
<tbody>
<tr>
<td>FEASIBILITY</td>
<td>0-3</td>
</tr>
<tr>
<td>3 YEAR START</td>
<td>3-9</td>
</tr>
<tr>
<td>9-12</td>
<td>12-15</td>
</tr>
<tr>
<td>15-18</td>
<td>18-22</td>
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<tr>
<td>22-24</td>
<td>24-30</td>
</tr>
<tr>
<td>30-36</td>
<td>FEASIBILITY</td>
</tr>
<tr>
<td>3 YEAR END</td>
<td></td>
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</tbody>
</table>

**ALTERNATIVES MILESTONE MEETING (AMM)**

- Begin coordination with Port/Pilots/USCG/stakeholders
- Identify & document problems, opportunities, objectives, constraints with Port/Pilots
- Identify design vessel
- Identify Existing Conditions & Restrictions with Port/Pilots
- Begin making assumptions about FWOP conditions
- First iteration of measures and screening
- First iteration of creating project alternatives from remaining measures
- Review plan submittal to DDNPCX and IEPR checklist
- NEPA Scoping Meeting
- Begin gathering economic data from waterborne commerce, etc
- Determine latest version of HarborSym to use
- Identify risks and level of risk moving forward

**TENTATIVELY SELECTED PLAN MEETING (TSP)**

- Continued coordination with Port/Pilots/USCG/stakeholders
- Refine problems with Port/Pilots
- Refine Existing Conditions & Restrictions with Port/Pilots
- Refine assumptions about FWOP conditions
- Ship simulation
- Second iteration of measures and screening
- Second iteration of creating project alternatives from remaining measures
- Review plan endorsement by DDNPCX (& IEPR path forward) & approval by MSC
- Second iteration of creating project alternatives
- ROM costs for alternatives
- HarborSym benefits for alternatives
- Planning and NEPA comparison and evaluation of plans/effects
- Identify NED plan, and LPP if appropriate
- Complete TPCS and CSRA for TSP (including mitigation, ATONS, etc)
- Identify risks and level of risk moving forward

**AGENCY DECISION MILESTONE MEETING (ADM)**

- Continued coordination with Port/Pilots/USCG/stakeholders
- Hold public meeting during public review period
- Refine problems with Port/Pilots
- Refine Existing Conditions & Restrictions with Port/Pilots
- Refine assumptions about FWOP conditions
- Refine TSP/LPP
- Refine any mitigation assumptions/salinity/air quality analyses
- DQC of Draft report/NEPA & Technical Appendices
- Statement of Legal sufficiency
- Concurrent reviews: (Public/agency, MSC/HQ, ATR, IEPR or waiver) of Draft report/NEPA & Technical Appendices
- SHPO coordination & Draft Programmatic Agreement coordinated with public & tribes, BA, Draft CAR
- Identify risks and level of risk moving forward
**OTHER PLANNING CRITERIA FOR EVALUATION & COMPARISON OF ALTERNATIVES**

### P&G CRITERIA

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Completeness</td>
<td>Is the extent to which the alternative plans provide and account for all necessary investments or other actions to ensure the realization of the planning objectives, including actions by other Federal and non-Federal entities.</td>
</tr>
<tr>
<td>Effectiveness</td>
<td>Is the extent to which the alternative plans contribute to achieve the planning objectives.</td>
</tr>
<tr>
<td>Efficiency</td>
<td>Is the extent to which the alternative plan is the most cost effective means of achieving the objectives.</td>
</tr>
<tr>
<td>Acceptability</td>
<td>Is the extent to which the alternative plans are acceptable in terms of applicable laws, regulations and public policies.</td>
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</table>

### P&G FOUR ACCOUNTS

<table>
<thead>
<tr>
<th>Account</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>NATIONAL ECONOMIC DEVELOPMENT</strong></td>
<td>Changes in the economic value of the national output of goods and services.</td>
</tr>
<tr>
<td><strong>ENVIRONMENTAL QUALITY</strong></td>
<td>Non-monetary effects on ecological, cultural, and aesthetic resources including positive and adverse effects of ecosystem restoration plans.</td>
</tr>
<tr>
<td><strong>OTHER SOCIAL EFFECTS</strong></td>
<td>Plan effects on social aspects such as community impacts, health and safety, displacement, energy conservation, and others.</td>
</tr>
<tr>
<td><strong>REGIONAL ECONOMIC DEVELOPMENT</strong></td>
<td>Changes in the distribution of regional economic activity.</td>
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</tbody>
</table>
DEEP DRAFT NAVIGATION PLANNING CENTER OF EXPERTISE

PLANNING & ECONOMIC CONSIDERATIONS

Primary benefits of Federal involvement in port project improvements involve transportation cost savings.

Cost savings accrue from making existing ports more efficient through:

- More efficient use of vessels at the port under consideration
- Use of larger vessels at the port
- Reduced transit time at the port
- Lower port cargo handling and tug assistance costs
- Shift of Origin:
  - Cost reduction in transporting and producing commodity
  - Shift in mode or Harbor (commodities travel via another more cost effective route to the same destination)

Not intended to garner comparative advantage for individual ports

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National Economic Development Plan (NED) – the plan that reasonably maximizes net benefits to the nation from cost savings.

### PRIMARY BENEFITS: TRANSPORTATION COST SAVINGS

<table>
<thead>
<tr>
<th>BENEFITS</th>
<th>ESTIMATED $</th>
</tr>
</thead>
<tbody>
<tr>
<td>=</td>
<td>Transportation Cost WITHOUT PROJECT - Transportation Cost WITH PROJECT</td>
</tr>
</tbody>
</table>

### NET BENEFITS = BENEFITS - COSTS

A Recommended Plan represents the alternative which most reasonably maximizes NED benefits and is environmentally acceptable

\[
\text{BENEFITS} / \text{COSTS} > 1
\]

In addition, plans must have a benefit to cost ratio greater than 1.
# Economic Evaluation Process

1. Determine the Economic Study Area
2. Identify Commodity Types, Volumes, & Flows
3. Project Waterborne Commerce
4. Determine Vessel Fleet Composition and Costs
5. Determine Current Commodity Movement Cost(s)
6. Determine Future Without Project (FWOP) Conditions
7. Determine Future Without Commodity Movement Cost(s)
8. Determine Alternative Plans & Cost(s)
9. Use Corps certified Model (HarborSym) to run alternative plans to determine benefits/cost savings when compared to FWOP
10. Compute Net Benefits of Each Alternative & Identify NED Plan

## Standard Parameters Assessed in Navigation Benefits Analysis

<table>
<thead>
<tr>
<th>Commerce Forecast</th>
<th>Fleet Forecast</th>
<th>Loading Pattern</th>
<th>Calling Capacity</th>
<th>Trade Route</th>
<th>Shipping Route</th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="image1">Graph</a></td>
<td><a href="image2">Graph</a></td>
<td><img src="image3" alt="Image" /></td>
<td><img src="image4" alt="Image" /></td>
<td><img src="image5" alt="Map" /></td>
<td><img src="image6" alt="Map" /></td>
</tr>
</tbody>
</table>

- More Fully Loaded Post-Panamax 1 Vessels & New Post-Panamax 2 Vessel Calls
- 45-foot depth reduced vessel calls
- 47-foot depth
- 32' Sailing Draft
- Additional Capacity Not Used
- [Map](image7)
ENGINEERING & DESIGN CONSIDERATIONS

- **Identification of Design Vessel**
  - Usually the largest ship(s) of major commodity movers expected to use project improvements on a frequent and continuing basis

- **Ship Simulation & Report**
  - Used to test design vessels in without project and with project alternatives with Pilots for widening footprint

- **General Navigation Features: Facilitate safe vessel movement in and out of Port**
  - Channels, Turning Basins, Jetties, etc.

- **Dredge Plant Type, Dredged Material Management, and Disposal Capacity Needs**
  - Geotechnical characteristics and quantity of material (soil/rock) to be excavated
  - Increases in O&M material due to project, if appropriate
  - Advance maintenance features, if appropriate

- **Other considerations**
  - Storm surge analysis
  - Salinity modeling analysis

- **Sea level rise analysis (3 curves) and considerations** ER 1100-2-8162 and Engineering Technical Letter (ETL) 1100-2-1
  - Resilience
  - What port is doing to protect infrastructure with or without project
  - Adaptations/considerations for mitigation if needed to get claimed habitat benefits
• Virtual, real-time simulation of ship / tow movement.

• Accurately accounts for currents, wind and wave conditions, shallow water effects, bank forces, ship handling, ship to ship interaction, fender forces, anchor forces and tug assistance.

• Used to optimize the design of navigation channels and turning basins.

• Additional guidance is forthcoming
DREDGE MATERIAL MANAGEMENT PLANS & PLACEMENT AREAS

Base Plan/Federal Standard
- Determine the least cost and environmentally acceptable alternative

Dredged Material Management Plans (DMMP)
- All Federally maintained navigation projects must demonstrate that there is sufficient dredged material placement capacity for a minimum of 20 years.
- Will the proposed navigation improvement require additional capacity over the next 20 years for O&M material?
  - No: Tell the story in the main report, and an additional appendix if needed.
  - Yes: Create a DMMP - alternatives may include:
    - Open Gulf/Ocean placement (Ocean Dredged Material Disposal Site)
    - Confined Disposal Facilities (Upland Disposal)
    - Beneficial Uses/Regional Sediment Management (RSM)
ENVIRONMENTAL COMPLIANCE

- **National Environmental Policy Act (NEPA) of 1969**
  - Analyzes the effects of the Recommended Plan, alternative plans, and the No Action alternative on the human environment, including considerations for cultural resources and environmental mitigation if appropriate
  - Coordination with Federal agencies including NMFS, USFWS, and USEPA, as well as appropriate state agencies
  - Includes coordination under other environmental laws, including EFH, CWA, NHPA, **ESA**, MBTA, **MMPA**, CAA, FWCA, and CZMA

- **Beneficial Use of Dredged Material**
  - ER 1105-2-100: “Where environmentally beneficial use of dredged material is the least cost, environmentally acceptable method of disposal, it is cost shared as a navigation cost. Section 204 of the WRDA of 1992, as amended, provides programmatic authority for selection of a disposal method for authorized projects, that provides aquatic restoration or environmental shoreline erosion benefits when that is not the least costly method of disposal. The incremental cost of the disposal for ecosystem restoration purposes over the least cost method of disposal is cost shared, with a non-Federal sponsor responsible for 25 percent of the costs.”

- **Other considerations:**
  - Mitigation if needed
  - Environmental windows
  - Existing restrictions (dredge types, etc)
AREAS OF RISK & UNCERTAINTY

RISK INFORMED PLANNING

June 21, 2017 Memo: Further Advancing Project Delivery Efficiency and Effectiveness of USACE Civil Works
- Embrace and Operationalize Risk-Informed Decision Making
- Incorporate Social and Environmental Benefits into Plan Formulation, Design, and Implementation

IDENTIFICATION OF RISK & UNCERTAINTY

- Example of Typical Risks & Uncertainty:
  - Lack of data
  - Uncertainty with future commodities/vessels/trade routes
  - Lack of time to do additional modeling
  - Lack of coordination with needed agencies
  - Assumptions with environmental data for mitigation in advance of surveys later in PED
  - Assumptions with existing geotech or cultural resource information (pushing surveys and analysis to PED)
  - Sea level rise assumptions

- Early study risks
  - Risk Register
  - Qualitative, should inform early decisions and should have management options to reduce or buy down risk throughout the study

- Project risks
  - Cost and Schedule Risk Assessment (CSRA)
  - Quantitative
  - Become part of a risk based monetary contingency as part of project first cost

IWR APT site can help you document & manage risks: https://iwr-apt.planusace.us/login
## Costs & Cost Sharing

**USACE Cost Shared Features - General Navigation Features (GNF)**
- Channels
- Jetties
- Anchorages
- Breakwaters
- Locks
- Placement Sites (since WRDA 96)
- Mitigation

**LOCAL SERVICE FACILITIES (LSF) (100% Non-Federal)**
- Land, Easements, Right of way, Relocation (LERR)
- Docks & Berthing Areas
- Terminal & Transfer facilities
- Local access channels

**U.S. Coast Guard (100% Federal)**
- Aids-to-Navigation (ATONS)

<table>
<thead>
<tr>
<th>Feature</th>
<th>Federal Cost %</th>
<th>Non-Federal Cost %</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Construction</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General Nav. Features (GNF)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>90% from 0' to 20'</td>
<td>10% from 0' to 20'</td>
<td></td>
</tr>
<tr>
<td>75% from 20' to 50'</td>
<td>25% from 20' to 50'</td>
<td></td>
</tr>
<tr>
<td>50% &gt; 50'</td>
<td>50% &gt; 50'</td>
<td></td>
</tr>
<tr>
<td><strong>Aid-tos Navigation (ATONS)</strong></td>
<td>100%</td>
<td>0%</td>
</tr>
<tr>
<td><strong>LSF &amp; LERR</strong></td>
<td>0%</td>
<td>100%</td>
</tr>
<tr>
<td><strong>Operation &amp; Maintenance</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GNF</td>
<td>100% except cost share 50% of costs for projects &gt; 50'</td>
<td>0% except cost share 50% of costs for projects &gt; 50'</td>
</tr>
</tbody>
</table>

(1) The Non-Federal Sponsor shall pay an additional 10% of the costs of GNF over a period of 30 years, at an interest rate determined pursuant to Section 106 of WRDA 86. The value of LERR shall be credited toward the additional 10% payment.
Engineer Regulations
- ER 1105-2-100: Planning Guidance Notebook, Chapter 3-2: Navigation
- ER 1165-2-120: Reimbursement for Advance Non-Federal Construction
- ER 1165-2-25: Cost Apportionment of Bridge Alterations
- ER 1165-2-209: Studies by Non-Federal Interests
- ER 1165-2-211: O&M of Improvements by Non-Federal Interests to Authorized Harbor Projects

Engineer Pamphlets
- EP 1165-2-1, Chapter 12: Navigation

Policy Guidance Letters (PGLs)
- There are a total of 19 navigation PGLs.
- PGLs 44, 47, 49 (superseded), 56 and 62 very useful—all relate to cost sharing.

DDN planning guidance can be found on the planning community toolbox:
https://planning.erdc.dren.mil/toolbox/guidance.cfm?Option=BL&BL=CoastalNav&Type=None&Sort=Default
### Categorical exemption
- **ER 1105-2-100** “For harbor and channel deepening studies where the non-Federal sponsor has identified constraints on channel depths it is not required to analyze project plans greater (deeper) than the plan desired by the sponsor.”
- Only needed for new studies (not for General Reevaluation Reports)

### Section 111, River and Harbor Act of 1968, as amended
- For shoreline damage caused by Federal navigation projects.

### NED Plan identification
- **ER 1105-2-100** (Appendix G, Exhibit G-1) states the following: “Identification of the NED plan is to be based on consideration of the most effective plans for providing different levels of output or service. Where two cost effective plans produce no significantly different levels of net benefits, the less costly plan is to be the NED plan, even though the level of outputs may be less.”

### Benefits not solely justified by NED benefits
- **Section 2006, Remote and Subsistence Harbors**, of 2007 WRDA, as modified by Section 2104 of the Water Resources Reform and Development Act of 2014 and further modified by Section 1105 of WRDA 2016.
For more information, contact the Deep Draft Navigation Planning Center of Expertise:

- Eric Bush, SAD Chief of Planning, Director, DDNPCX
- Daniel Small, Administrative Deputy, DDNPCX
- Todd Nettles, Deputy Technical Director, DDNPCX Mobile District
- Kimberly Otto, Review Manager, DDNPCX Mobile District

QUESTIONS?