Performance-based Budgeting with the Channel Prioritization Tool

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Briefing to the
Office of Management and Budget
Washington, D.C.
September 29th, 2009
USACE-maintained channels constitute a “hidden infrastructure” that is a crucial component of the national transportation system.

USACE invests ~$770 million* annually in maintenance dredging of this waterway infrastructure.

* Avg. FY04-FY08
Responsible stewardship of this annual investment must be demonstrated through objective, consistent performance-based budgeting for Navigation O&M.

CPT provides a means of analyzing the commercial traffic that is directly dependant upon USACE dredging activities:
- cargo transiting at marginal depths kept open by O&M dredging
- potentially disrupted shipments if dredging is not conducted and channel shoaling continues
CPT accesses the dock-level, Corps-use-only tonnage database from IWR’s Waterborne Commerce Statistics Center to analyze extent to which commercial traffic utilizes maintained channel depths.

Commodity codes are cross-referenced with Dept. of Commerce import/export figures to obtain $-value estimates for the cargo transiting at each 1-ft increment of maintained depth.

Navigation channels are ranked in terms of tons and $-value of cargo transiting at depths that experience shoaling.
A typical USACE Navigation project will contain many miles of maintained channels.

Projects are currently prioritized for O&M funding based upon total project tonnage.

Charleston, SC: 22.6 million tons in 2007 ~ #37 nationally
$41 billion import value = $51.4 million into HMTF
USACE invested $11.1 million in maintenance dredging

CPT looks beyond total project tonnage by spatially joining the docks in the WCSC database with the respective sub-reaches.
Sub-reach connectivity and intra-port routing ensures that all transited channels are included.
Channel Prioritization Tool (CPT)

- Portfolio management for USACE navigation channels should account for both physical condition and depth utilization in prioritizing projects for O&M funding.

- By focusing on the cargo at the marginal, shoal-vulnerable depths, CPT provides a more complete indication of the significance of maintenance dredging.
Channel Prioritization Tool (CPT)
Tonnage-draft breakdown for sample high-use entrance channel.
Traffic-type filter enabled, showing mostly imports and exports.
Data from multiple years can be considered as well.
$-value$-draft breakdown for high-use entrance channel
As with tonnage, traffic-type filter shows $-value dominated by imports/exports.
Commodity filter shows the Top 5 commodities, by $-value.
Channel Prioritization Tool (CPT)

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- Key point: historical tonnage records are combined with anticipated shoaling rates to determine the relative importance of dredging work packages.
Sub-reaches from different projects can be directly compared, and a prioritized ranking of the entire project portfolio generated.
Google Earth™ writer provides useful visualization feature for showing relative significance of maintenance dredging jobs.
• CPT coverage will extend to entire USACE navigation portfolio.
• Currently 112 coastal projects are included, and extension to inland river system is under development.
Next steps:

- Integrated suite of software tools, combining
  - Channel Prioritization Tool (CPT)
  - 3D channel framework with segment connectivity
  - Survey Management System

Goal:

- Portfolio-wide performance-based budgeting framework that includes depth-utilization and shoaling vulnerability.
CPT Implementation

• Year 1
  – Rollout CPT Alpha to Districts
  – Use to classify projects as high, med, low dredging need
  – Perform economic analysis for marginal projects

• Year 2
  – Same process at Division level, and include aggregation of projects
  – Include temporal trend lines, cost component, and AIS feature
CPT Implementation

• Year 3
  – CPT tested in all Districts and Divisions
  – Inclusion of shoal forecasting and survey management system
  – Aggregation to national level for HQ-level analysis

• Year 4
  – Full-scale, operational, web-based system used consistently across all Districts and Divisions, with HQ verification
Channel Prioritization Tool (CPT)

Questions?

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