



US Army Corps  
of Engineers®  
Engineer Research and  
Development Center

# Navigation Economic Technologies (NETS)

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- Description** The NETS research program has begun its sixth year and is scheduled to end next year. Beyond FY09, remaining work items will be transitioned into the overall navigation R&D research program. NETS activities are now focused on development, application and transfer of models, tools and techniques previously developed.
- Issue** The U.S. Army Corps of Engineers (Corps), as part of its overall mission, assists in the development and improvement of U.S. ports. The improvements of interest relate primarily to waterway enhancements, such as channel widening and deepening, and provision of moorings and turning basins. Economic analyses of such improvements require estimating the reduction in transportation costs directly attributable to any proposed enhancement. Expenditure of Federal dollars for navigation improvements requires authorization and appropriation by Congress and the President. This process involves review of the proposed plans by stakeholders and other non-government organizations as well as the Corps. One focus of the debate in this review process has been the models used to evaluate projects. The nature of the Corps planning process and project review would be much enhanced if evaluation models were peer reviewed and as transparent as possible. The Navigation Economic Technologies (NETS) research program is designed to develop a standardized and defensible suite of economic tools for navigation improvement evaluation.
- Users** NETS tools are used by the Inland and Deep Draft Navigation Planning Community. Primarily by Corps Planning Centers of Expertise.
- Products** **Shipper Response.** The NETS team has developed a methodology for estimating the shape of the shipper response curve (demand curve). This is being applied to the Ohio River in FY08 and will be incorporated into the ORNIM model.
- Navigation System Simulation Model.** The NaSS model generates and routes individual tows through the waterway system from origin to destination. The NaSS model is an aggressive attempt to leap forward in Corps waterway modeling capabilities.
- HarborSym Model.** The HarborSym model simulates traffic through a harbor. The current version of HarborSym is designed to evaluate channel widening measures. FY08 efforts are focused on the expansion of the model to incorporate the evaluation of channel deepening.
- Forecasting Methodology.** The NETS team developed a global spatial equilibrium modeling technique. The NETS team is now trying to apply this method to container traffic.
- Incorporating Emissions.** NETS researchers are currently working on a design to incorporate emission estimation into the HarborSym and NaSS models.

## Benefits

The benefit of the Navigation Economic Technologies (NETS) research program has been to develop a standardized and defensible suite of economic tools for navigation improvement evaluation. NETS addresses specific navigation economic evaluation and modeling-issues that have been raised inside and outside the Corps and is responsive to our commitment to develop and use peer-reviewed tools, techniques and procedures as expressed in the Civil Works strategic plan.

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