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## *Agricultural Transportation Challenges for the 21<sup>st</sup> Century*

# Long-term Capacity of the Upper Mississippi and Illinois Waterways

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### Issue

Navigation on the Upper Mississippi and Illinois Rivers is possible because of a series of locks and dams. The majority of these structures were constructed in the 1930's, and many of them are in need of significant repair. At several locks, barge shippers have experienced traffic-induced delays that threaten the economic viability of the system. To determine the need for and location of new structures, the U.S. Army Corps of Engineers has initiated the *Upper Mississippi River-Illinois Waterway Navigation Study*. This 6-year \$49 million study is designed to examine the feasibility of navigation improvements to these waterways. The analysis is investigating both small and large-scale improvements to occur between the years 2000 and 2050 and will outline a plan of action with respect to construction projects.

### Background

The Upper Mississippi River and Illinois Waterway are the leading source of export-bound grain in the United States. In 1996, approximately 54 percent of all U.S. corn exports and 40 percent of all soybean exports were loaded on barges on these waterways above St. Louis, Missouri. These two rivers also serve as a major transportation corridor for other commodities, including fertilizer, coal, steel, cement, and petroleum products.

The development of these two rivers into a reliable transportation system required significant investment by the Federal Government. Following the passage of the *Rivers and Harbors Act of 1930*, the Corps of Engineers constructed a series of locks and dams on the Mississippi and Illinois Rivers. Most of these structures were completed in the 1930's and have reached or surpassed design capacity.

In 1993, the Corps of Engineers initiated a system-wide analysis of the structural needs of the Upper Mississippi and Illinois Rivers. The *Upper Mississippi River-Illinois Waterway Navigation Study* is being conducted by the St. Louis, Rock Island, and St. Paul districts under the leadership of the Mississippi Valley Division of the Corps of Engineers. To accomplish this analysis, the Corps of Engineers has formed working groups to address the management and plan formulation, economic, engineering, environmental, and public involvement aspects of the study. Additionally, the Corps has formed a Governors' Liaison Committee to act as a forum to coordinate the

navigation study with the governors of the five basin States (Minnesota, Wisconsin, Iowa, Illinois, and Missouri).

The economic work group was formed to analyze existing transportation movements and costs, project future transportation movements, develop system simulation models, formulate alternative plans, and support the engineering-environmental studies. This group has projected traffic flows through the Upper Mississippi and Illinois Waterway systems to the year 2050. The agricultural commodity projections have raised the most serious debate to date. The debate centers around the production and consumption estimates in the out years, as the difference between these two trend lines was used to project future exports and river traffic. The Corps of Engineers is also estimating the benefits that could potentially be derived from waterway improvements. At the time of this publication, an internal debate has surfaced within the Corps over how to estimate these benefits. To resolve this debate, the Corps has convened an internal technical review panel to analyze and assess the various models proposed to measure system benefits and determine which model to use.

The engineering work group was assembled to determine a baseline set of projections that did not include any new construction or replacement projects, to estimate investment needs without projects and with small- or large-scale improvements, to perform the general navigation modeling, and to conduct site-specific studies. Replacement of existing locks is considered a large-scale improvement. Likewise, other improvements such as guide wall extensions, moving levels, and towing industry coordination at locks are classified as small-scale improvements.<sup>1</sup> The engineering work group studies were completed in fiscal year 1997.

The environmental group is tasked to determine site-specific impacts, systemwide impacts, and biological studies. This work centers around the impacts that would occur from changes in navigational structures (large- and small-scale improvements) and increased traffic levels. In addition, this group is also looking into the impacts on recreational boating and is conducting biological surveys on a number of riparian species.

## **Implications**

As the Corps of Engineers continues to conduct this study, several questions still persist for the agricultural community, including:

- ! Do the traffic projections adequately account for advances in agricultural production?
- ! Will the model chosen to estimate the benefits of large-scale improvements adequately predict the benefits to U.S. agriculture arising from waterborne transportation?
- ! Will the final report recommend the construction of large-scale projects such as locks, or will it recommend numerous small-scale improvements?

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<sup>1</sup> A keel is an upright wooden or metal post for making fast the heavier lines of a vessel.

- ! How many new locks will be recommended by the navigation study?
- ! At what pace will this study recommend project starts?
- ! What credence will this study be given during future Congressional appropriations hearings?

### **Information Sources**

U.S. Army Corps of Engineers, Water Resources Support Center, *Waterborne Commerce of the United States*, 1996.

U.S. Army Corps of Engineers, Rock Island District, Upper Mississippi River-Illinois Waterway Navigation Study Website (<http://www.mvr.usace.army.mil/pdw>).