

Highlights from the Review of the U.S. Army Corps of Engineers Upper Mississippi-Illinois Waterway Restructured Feasibility Study: Interim Report by the National Research Council (12/11/03)

Economic Models:

We note, however, that the Corps Tow Cost Model (TCM) is not widely accepted by economics experts, or even by the Corps, as a useful tool for modeling water transportation demand for grain.

The TCM was previously rejected by the Corps, a decision with which the NRC 2001 committee concurred. That committee also recommended that results from the ESSENCE model should not be used in the feasibility study. However, the Corps has reversed its decision on the use of the TCM and continues to use the ESSENCE model. This committee has not been presented with detailed information on the TCM, and it looks forward to learning more about the TCM and the decision to use it in the feasibility study. This committee found that fundamental conceptual flaws in the ESSENCE model render it unfit for use in the feasibility study. The Corps should either accelerate the development of a full spatial price model, or adopt an alternative modeling approach that avoids the limitations of the ESSENCE model.

Study Schedule:

The Corps should extend its schedule for completing the feasibility study and issuing a Chief's Report.

The Corps is on an aggressive timetable for the completion of the feasibility study. Although there is a need to move forward with the study, that need should be balanced with a similar need for credible and thorough analytical procedures. The Corps should extend its schedule for completing the feasibility study and issuing a Chief's Report.

Forecasts:

Forecasts of increases in U.S. grain exports should present explanations for likely export trends after 2003 that are consistent with history and with expert opinion on likely future conditions in global grain markets.

Forecasts of future grain exports are being used in the feasibility study, and credible forecasts are essential to sound investment decisions on the UMR-IWW. Of five future scenarios developed for the feasibility study, four of those scenarios reflect increasing grain exports. These increasing forecasts, however, are inconsistent with the past 20 years of relatively steady export levels. The committee reserves judgment on the plausibility of these forecasts and looks forward to discussing the rationale for the projections with the Corps' consultants at its next meeting.

Inefficiency of the Existing System:

The Corps should proceed as soon as practicable toward developing and implementing a nonstructural system to help alleviate waterway traffic congestion.

The current system for managing UMR-IWW traffic operates largely on a first-come, first-serve basis. It is possible that new traffic management measures would reduce congestion in a cost-effective manner. Unless an efficient system for managing waterway traffic is in place, it is not possible to evaluate the benefits of lock extensions. Nonstructural measures such as scheduling systems, systems of tradable arrival slots, or a contingent fee--as challenging as their implementation may be--could be implemented instead of extending locks or could be used in combination with lock extensions. Furthermore, such traffic management measures would be needed to address reductions in capacity that would occur in the event that lock extensions were constructed. The Corps should proceed as soon as practicable toward developing and implementing any feasible nonstructural measures to help alleviate waterway traffic congestion.

The greatest benefit to the nation would be achieved by first implementing cost-effective, nonstructural alternatives and subsequently evaluating the benefits and costs of lock extensions once new traffic patterns are established.

The system is thus not currently being used efficiently, which led the Phase I committee to note that “. . . it is not clear how the benefits of lock extensions can be evaluated adequately without first managing waterway traffic more efficiently on the existing system, (NRC, 2001, p. 4).” The committee further concluded that “The benefits and costs of lock extensions should not be calculated until nonstructural measures for waterway traffic management have been carefully assessed” (ibid.).

Phase I Committee Report:

This committee, however, finds that the steps taken in the restructured feasibility study represent inadequate responses to the NRC Phase I report.

National economic issues such as waterway traffic costs, levels of waterway traffic, forecasts of future grain exports, assumptions regarding ports of grain export, and the ability of shippers to use alternative modes of transportation (e.g., railways) as waterway shipping costs vary, figure prominently in the Corps feasibility study. To help understand these issues, the Corps developed a spatial equilibrium model for use in the feasibility study. The Corps also developed an “ESSENCE” model used to calculate equilibrium values for barge traffic and economic benefits associated with relieving waterway congestion. The Phase I committee report noted that these models represented conceptual advances over previous Corps efforts in this realm but found that they were characterized by “flawed assumptions and data.” The report concluded that the Corps’ “current (September 2000) results . . . should not be used in the feasibility study” (NRC, 2001, p. 3).

Another key conclusion of the Phase I committee was that the UMR-IWW system of locks is not being used efficiently. There is no formal waterway traffic management or scheduling system, and the lack thereof contributes to occasional and random delays. The report noted that, “If barge traffic was distributed more evenly, congestion would decrease and shipping costs would fall” (NRC, 2001, p. 3).

The Phase I committee also concluded that the feasibility study had framed the issues of waterway traffic narrowly, and that critical topics such as environmental impacts and restoration had received inadequate consideration. This led to a recommendation for “a more comprehensive and integrated assessment of the navigation system’s effects on the environment in the UMR-IWW” (NRC, 2001, p. 4). Other important outcomes of the Phase I committee’s study included a recommendation to include independent review within the feasibility study, a statement concerning the value of conducting the study and managing the system with an adaptive management approach, and a finding that a contingency figure for the costs of extending locks likely was underestimated.