

**PEER Looks at the Numbers**  
**Upper Mississippi and Illinois Waterway**  
**June 7, 2004**

Four years ago, the Army Corps of Engineers attempted to justify large-scale expansion of the locks in the Upper Mississippi River and Illinois Waterway Navigation System by improperly manipulating its own cost/benefit study. With the recent release of a new draft feasibility report by this scandalized study, the Corps drops all pretenses of any real cost/benefit analysis, and, in its stead, offers a preferred plan consisting of a packaged deal of \$5.3 billion of atonement for past environmental sins tied to a \$2.4 billion wager on future navigation infrastructure improvements. **By even the most optimistic measures, the costs of building the navigation related features of this preferred plan continue to dwarf any present day, real world economic development benefits they might possibly generate.**

To underscore this inescapable conclusion, Public Employees for Environmental Responsibility (PEER) has prepared a real world, unbiased economic analysis using the Corps of Engineers own Lock Performance Monitoring Data gathered from Upper Mississippi River Locks 19 through 25 and Illinois Waterway locks at Lagrange and Peoria for calendar years 1992 through 2003. This objective economic analysis identifies the maximum National Economic Development (NED) transportation benefits that could be generated by the Corps preferred plan based on current (and historic) traffic levels and the current (and historic) willingness to pay (real world value) for water transportation as evidenced by the barge revenue data contained in the annual reports of the largest inland water transportation firm in the nation. These maximum, real world NED transportation benefits are then compared to the estimated average annual NED implementation costs of the Corps navigation system plan.

At current traffic levels and economic values the Corps preferred plan **would return annually in transportation benefits approximately five cents for every dollar of average annual cost.** The Corps would do nearly as well for the nation's economy by simply tossing the \$2.4 billion into the river and letting it float out to sea.

Alternative 6 as described in their "Draft Integrated Feasibility Report and Programmatic Environmental Impact Statement for the UMR-IWW System Navigation Feasibility Study" (April 29, 2004) provides the current cost estimate of constructing the new lock chambers and providing the other navigation system improvements associated with the construction new lock chambers. Alternative 6 recommends the immediate construction of new 1200-foot long lock chambers at Locks 20 through 25 on the Upper Mississippi River and at Lagrange and Peoria Locks on the Illinois Waterway along with guide wall extensions, future lock chamber extensions at other locks, and some small scale measures at selected system locks required to accommodate "anticipated" future lock traffic.

**PEER's economic analysis proceeds as follows:**

- First, the total number of barges actually processed annually at each of the seven locks and the total time required to process those barges (including both lockage and waiting time) is obtained from US Army Corps of Engineers Lock Performance Monitoring and OMNI System data for calendar years 1992 through 2003. The data for 1998 through 2003 is presented in Tables 1 and 2 below. Figure 1 displays the full historic trend in total barge time spent at these system locks.

[See Table 1:](#) Barges Processed at Each Lock

[See Table 2:](#) Total Barge Hours Used Locking or Waiting for Lockage

- Second, the existing 600-foot long lock chambers at Locks 20 through 25 on the Upper Mississippi River and at Lagrange and Peoria Locks on the Illinois Waterway (seven chambers in total) are then assumed to be “modernized” by fully implementing navigation Alternative 6. The current performance exhibited by the existing 1200-foot long lock chamber at Lock 19 on the Upper Mississippi River serves as a useful performance measure for each of the assumed newly modernized 1200-foot locks. Lock 19 has current performance levels very close to the performance levels forecast by the Corps for the new 1200-foot long locks at Locks 20 through 25 on the Upper Mississippi River and at Lagrange and Peoria Locks on the Illinois Waterway. These modernized locks will require less time to process tows, will reduce transportation costs for existing water transportation users, and will release previously underutilized barge time for other productive uses in the water transportation market.

Table 3 displays the estimated reduced total quantity of barge time that would have been used at the newly improved locks had they been in place during the period 1998 through 2003.

[See Figure 1:](#) Total Barge Hours Consumed During or Waiting for Lockage

[See Table 3:](#) Total Barge Hours Used Locking or Waiting for Lockage with New 1200’ Chambers

- Third, the improved performances of the newly constructed 1200-foot long lock chambers at the seven locations is assumed to “free up” the barge time currently wasted waiting to transit the existing 600-foot locks for new productive uses in carrying out additional waterborne transportation for the nation. This increased barge productivity is assumed to be completely costless to the private sector providers of water transportation. Table 4 displays the quantities of barge time freed up by the modernized locks for productive use.

[See Table 4:](#) Total Barge Hours Saved Locking or Waiting for Lockage

- Fourth, the economic value of the increased level of waterborne transportation output afforded by the new lock chambers is estimated using publicly available revenue data compiled from the annual reports of American Commercial Lines, LLC (ACL) for 1994 through 2002. ACL was the largest

carrier operating on the inland navigation system during this period and currently produces nearly 20 percent of the total output of the inland navigation system annually. The mix of barges that ACL operates closely matches the mix of barges observed at these seven lock chambers and, consequently, the unit transportation revenues received by ACL from their customers give a real world indication of the value (the willingness of system users to pay) of the additional water transportation afforded by the new lock chambers for water transportation users. The ACL annual reports are available from the Securities and Exchange Commission and are readily obtained at the [www.freeedgar.com](http://www.freeedgar.com) website. Table 5 displays the estimated value of the increased barge transportation afforded by the increase in productive barge hours afforded by the modernized locks for the period 1998 through 2003.

[See Table 5](#): Barge Hours/Value Per Hour

- Fifth, the value of the increased water transportation output afforded by the new 1200-foot long lock chambers is compared to the average annual implementation costs of approximately \$191 million per year for the fifty year estimated life of Alternative 6 as estimated by the Corps of Engineers in their "Draft Integrated Feasibility Report and Programmatic Environmental Impact Statement for the UMR-IWW System Navigation Feasibility Study", 29 April 2004. These are the latest detailed cost estimates available to the public. This plan provides for the immediate construction of new 1200-foot long lock chambers at Locks 20 through 25 on the Upper Mississippi River and at Lagrange and Peoria Locks on the Illinois Waterway along with guide wall extensions, future lock chamber extensions at other locks, and some small scale measures at selected system locks required to accommodate anticipated future lock traffic.

The results of this economic analysis are stark and displayed in Figure 2 below for the period 1992 through 2003. On a best case basis with (1) no increases in congestion levels created elsewhere in the navigation system that result from the re-utilization of the increased newly productive barge time, with (2) no increases in barge company operating costs required to actualize these increases in barge productivity, and with (3) no decreases in observed revenues per unit (value) required to entice shippers to ship more product and to utilize the newly created barge productivity, had these "modernized" locks been operational in 2003, they would have produced a net average annual **economic loss** to the national economy of over **\$181 million**. Similar annual economic losses are evident for the entire thirteen-year period represented in the data.

The estimated economic benefit to cost ratio of Alternative 6 measured at today's real world barge prices is approximately 1 to 20. In other words, the level of congestion exhibited on the system right now (and in the recent past) will need to increase by nearly a **factor of twenty** to even begin to justify constructing new 1200-foot long lock chambers at Locks 20 through 25 on the Upper Mississippi River and at Lagrange and Peoria Locks on the Illinois Waterway on the basis of the observable economic value of the extra transportation output afforded by the new locks.

At current traffic levels, the Corps of Engineers will irretrievably and forever waste 95 cents of dollar in costs expended constructing Alternative 6. On the other hand, the results of this analysis do indicate that there are some water transportation inefficiencies that small-scale, low cost measures can immediately remedy by better managing the existing navigation system and reducing the low levels of congestion currently experienced at these locks. Indeed, inexpensive structural measures such as extending guide walls and installing nearby mooring buoys as well as low cost non-structural measures such as altering the lock queue discipline or scheduling lock availability have some prospect of immediately making positive contributions to the national economy. These inexpensive measures further afford the additional national benefits of both postponing the future need for costly lock capacity expansions and permitting the continued monitoring of the real world demand for waterborne transportation before irretrievably committing to such a risky and costly lock construction program.

[See Figure 2](#): Comparison of Annual NED Benefits