



**U.S. House of Representatives
Committee on Transportation and Infrastructure**

Washington, DC 20515

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September 16, 2011

MEMORANDUM

TO: Members of the Subcommittee on Water Resources and Environment

FR: Bob Gibbs
Subcommittee Chairman

RE: Hearing on “The Economic Importance and Financial Challenges of Recapitalizing the Nation’s Inland Waterways Transportation System.”

PURPOSE OF HEARING

The Water Resources and Environment Subcommittee is scheduled to meet on Wednesday, September 21, 2011, at 10:00 a.m. in 2167 RHOB, to receive testimony from the U.S. Army Corps of Engineers, a representative from the barge industry, a representative from the Inland Waterways Users Board, a representative from the agriculture sector, a representative from the inland navigation economics profession, and another nongovernmental organization to hear testimony on “The Economic Importance and Financial Challenges of Recapitalizing the Nation’s Inland Waterways Transportation System.”

BACKGROUND

History of the Inland Waterways Transportation System

Federal interest in navigation in the United States stems from the Commerce Clause of the Constitution. The history of inland navigation in the United States dates back to the 1820’s when Congress authorized construction of a canal connecting Lake Michigan to the Illinois River and authorized the United States Army Corps of Engineers to remove snags, debris, and other obstructions from the Mississippi and Ohio Rivers. These rivers and coastal ports were the primary routes of commerce for the new nation.

For nearly two centuries the federal government has dredged channels and built locks and dams, wing dikes, and other structures to create an Inland Waterway Transportation System for the efficient movement of goods. The System includes major rivers such as the Mississippi, Missouri, Ohio, and Columbia Rivers, as well as smaller waterways such as the Tennessee, Arkansas, Monongahela, and Hudson Rivers.

Today the Inland Waterways Transportation System provides an alternative to truck and rail and is the most cost-effective and energy efficient means for transporting commercial goods, especially major bulk commodities like grain, coal, and petroleum products. The Inland Waterways Transportation System is also a key component of State and local economies and job creation efforts and is essential in maintain economic competitiveness and national security.

The United States Army Corps of Engineers operates and maintains approximately \$235 billion worth of water resources infrastructure assets, including a network of 11,000 miles of the “fuel-taxed” Inland Waterways Transportation System. The Corps operates and maintains 221 lock chambers at 185 sites on 27 inland rivers and intracoastal waterways segments. The fuel-taxed Inland Waterways Transportation System carries over 546 million tons of freight annually.

Costs and Benefits of the Inland Waterways Transportation System

Benefits of the Inland Waterways Transportation System are numerous. For instance, one 15-barge tow on a river can carry as much cargo as 216 rail cars or 1,050 large trucks. If the cargo transported on the inland waterways each year had to be moved by highways, it would require 58 million truck loads.

Barges moving on waterways are safer, more fuel efficient, and less polluting than other means of transportation. For example, on average, a gallon of fuel can move one ton of cargo 155 miles by truck, 413 miles by train, and 576 miles by barge. Due to these efficiencies, carbon dioxide emissions were 2.1 million metric tons less in 2005 than if rail transportation had been used, and 14.4 million metric tons less than if trucks had been used.

Thirty-eight states are directly served by the Nation’s Inland Waterways Transportation System, constituting 630 million tons of cargo valued at more than \$180 billion annually. At an average savings of more than \$14.00 per ton over an alternate overland mode, this equals \$9.2 billion in annual transportation cost-savings. Water transportation also has the potential to move huge amounts of cargo that could alleviate congestion on major highway arteries, such as I-95 on the Atlantic coast.

For some goods, as much as 50% of the ultimate price paid by the consumer is attributable to transportation costs. Keeping these costs low not only benefits consumers here in the United States, it also makes products produced in the United States more competitive on the world market. Congestion at an outdated lock on a waterway can result in increased costs that rob the farmer or manufacturer of his or her profit. Delay and its associated costs also can rob a farmer or manufacturer of his or her market.

This is not a speculative concern. Improved transportation systems in South America have allowed farmers there to keep their costs low enough to underbid United States grain farmers for customers *located in the United States*. America's farmers, like the rest of the United States economy, depend on modern, efficient, and reliable waterways as an integral part of the intermodal transportation system.

America's utility industry also is dependent on inland waterways. America's utility industry uses the inland waterway system to transport over 20% of the coal it consumes to produce electricity. More than 30% of the oil and petroleum products used across the Nation, and nearly all the home heating oil and gasoline used in New England, moves by barge.

Like private businesses, the Department of Defense heavily uses ports and waterways. Our armed forces depend on well-maintained United States ports to load military supplies and deploy troops at a moment's notice. In the build-up preceding Operation Desert Storm more than 540,000 troops and 500 shiploads of cargo were transported from 18 United States ports. Such movements were equally important during Operation Iraqi Freedom. The inland waterway system also contributes to defense readiness. Waterways move important national defense resources including vehicles and other supplies in large quantities for the nation's armed forces.

Fierce debate and controversy has centered on recapitalizing individual projects throughout the Inland Waterways Transportation System. Project opponents argue that new locks are not economically justified. The Corps and other applicable federal agencies have a difficult time making projections 50 years into the future and the Corps is also constrained by the types of benefits it is permitted to calculate. The Corps may only consider savings in the cost of shipping on the rivers and may not look at larger economic effects such as those on power producers and farmers, the ripple effects in businesses and farming communities, or the impact on the trade deficit. In addition, in its economic modeling, the Corps assumes a shipper always has the option of shipping by rail instead of barge, even though this is not always true.

The federal government in the past invested in the Inland Waterways Transportation System to generate economic opportunity by providing an alternative method and lower cost for moving of cargo. This investment does not guarantee that future cargoes will meet projected tonnages, however, this federal investment helps to mitigate some of the speculative risks associated with building to meet demand and helps to moderate rates on other transportation modes.

While the dispute over the projected benefits of a proposed navigation project is informative, ultimately it is up to Congress to determine what kind of waterway navigation system is appropriate for the nation. Investment in the nation's Inland Waterways Transportation System does not guarantee increased volumes of cargo, but an inability or unwillingness to make an investment almost guarantees no growth in volume will occur.

Benefits to shippers and freight transportation savings are only a small part of the benefits for the nation's Inland Waterways Transportation System. The Inland Waterways Transportation System also provides flood control benefits, increase nearby property values, provides water supply for nearby communities, generates hydroelectric power, provides recreational

opportunities, provides local and regional economic opportunities, and enhances national security capabilities and readiness.

Inland navigation also has had an impact on the Nation's ecosystem. Vessels using the system in the 1800s used wood for fuel, resulting in deforestation. Navigation locks and dams also impact fish by blocking fish movements through the dam, since most species can only pass during high flow periods when the dam gates are out of the river. Wing dams, closing dams, and bank revetments are used to maintain the navigation channel and reduce dredging requirements, but also force higher flows into the main river channel. This has reduced the number and quality of secondary channels.

Deforested areas were later developed as farmland, and while preventing forest regeneration, gave the United States a safe, locally grown food supply. In the river floodplain along the Upper Mississippi River-Illinois River system, agriculture counts as 50% of the entire floodplain area. To protect this valuable farmland from flooding, levees were constructed, thereby leading to the subsequent channelization of the Upper Mississippi River. Ditching of the floodplain to improve drainage increased the magnitude and timing of storm runoff and drained wetlands.

The Nation's inland waterways footprint contains millions of acres fish and wildlife habitat in the form of bottomland forest, islands, backwaters, side channels, and wetlands. For instance, the 2.6 million acre Upper Mississippi River-Illinois Waterway footprint contains hundreds of thousands of these acres that support 270 species of birds, 57 species of mammals, 45 species of reptiles and amphibians, 113 species of fish, and nearly 50 species of mussels. More than 40% of North America's migratory waterfowl and shorebirds depend on the resources, shelter, and habitat the region provides. More importantly, the region is home to 30 million Americans. Supplementing this diverse habitat, the region has 5 National Wildlife Refuges along the corridor comprising almost 300,000 acres.

These National Wildlife Refuges along the Upper Mississippi River-Illinois Waterway are a result of the navigation channel. These lands were originally project lands, but were transferred to the Department of the Interior to manage as refuges, preserving them from development.

Condition of the Inland Waterway Transportation System

Aging infrastructure along the Inland Waterway Transportation System also presents a challenge. More than 57% of these facilities have been in service for longer than 50 years, while almost 40% are more than 70 years old, and two locks built in 1839 remain in service today. Reliability of transportation networks is critical to the nation's economy. While this infrastructure has served the nation well, operation and maintenance expenditures will only slightly prolong the life of a depreciating asset that will continue to diminish in performance. And, as the asset gets older, its operation and maintenance requirements will grow.

Taking the system as a whole, structures have been deteriorating faster than we have been replacing or rehabilitating them. As things break, they have to be fixed. The result has been a

loss in the reliability of the system. For example, on the Ohio River navigation outages have increased more than 3 fold since 2000, going from approximately 25,000 hours to 80,000 hours.

Many of the locks on the nation's Inland Waterways Transportation System are 600 feet long. While this was the industry standard in the 1920's, today's 15- barge tows that traverse the system are 1,200 feet long. As a result, most tows must lock using a time-consuming process in which the barges are decoupled from the towboat and moved 6 or 9 at a time through the lock. Assuming the barge tow has no delay at the lock, this can take 1 to 2 hours, under optimal conditions. However, in relation to the Upper Mississippi River-Illinois Waterway system, the farther south a barge travels the more traffic it encounters, thereby increasing delays. For instance, lock delays at La Grange on the Illinois Waterway average more than 2 hours of delay, while Locks 22, 24, and 25 on the Upper Mississippi River average delays of 5 hours. Simply changing the configuration of the vessels is impractical and economically prohibitive since barge tows are built to maximize the total shipment throughout the entire movement, not just at a particular lock.

If the nation does not update and maintain the Inland Waterways Transportation System, the goods transported by barge will have to switch to other more expensive modes of transportation. When it becomes more expensive to produce and transport goods in the United States, production facilities and jobs move overseas.

Inland Waterways Trust Fund

The Inland Waterways Trust Fund was first authorized in the Inland Waterways Revenue Act of 1978 for the purpose of providing funds for the construction and rehabilitation of navigation projects. The 1978 Act created the Trust Fund by assessing a fuel tax on vessels that utilized the Inland Waterways Transportation System beginning in 1980 at a rate of \$0.04 per gallon and incrementally increased to the current level of \$0.20 per gallon in 1994.

However, it was not until passage of the Water Resources Development Act of 1986 that expenditures were authorized from the Inland Waterways Trust Fund. By then, the Trust Fund had grown to \$260.2 million. Trust Fund expenditures pay for half of a given construction or rehabilitation project with the other half coming from the General Fund in the Treasury, while operation and maintenance activities are paid for in total from the General Fund in the Treasury.

The Inland Waterways Trust Fund is an invested fund in interest-bearing obligations and the Trust Funds revenues are a combination of tax receipts and interest earnings. The Treasury Department is responsible for the quarterly collection and investment of these receipts while the United States Army Corps of Engineers is responsible for recommending the timing and amount of the expenditures during its preparation of the annual budget submission to Congress. Congress is ultimately responsible for appropriating funds from the Trust Fund and General Fund in support of construction and rehabilitation activities on the Inland Waterways Transportation System.

The balance in the Trust Fund steadily declined between 2003 (a year-end balance of \$412.6 million) and 2009 (a year-end balance of \$57.7 million) as Congress dedicated increased

amounts to modernize the Inland Waterways Transportation System. In fact, from 2000 to 2009, expenditures exceeded revenues. This resulted in a decline of the Trust Fund balance to the point that today, expenditures are limited to the amount of annual fuel tax revenue collected for that particular year. The increased costs and constrained Trust Fund have resulted in a backlog of authorized yet unconstructed projects.

The President's proposed FY2012 budget calls for using \$77.1 million from the Inland Waterway Trust Fund, resulting in an estimated balance of \$63 million at the end of FY 2012.

Challenges to Maintaining the Inland Waterways Transportation System

Challenges to maintaining the Inland Waterway Transportation System can be associated with both process and funding. In recent decades, it has become increasingly difficult to get projects through the congressional and Corps of Engineer process as well as increasingly difficult to maintain a level of funding to keep up with repair and replacement needs.

Those Inland Waterways Transportation System projects authorized in the Water Resources Development Act of 1986 were completed within an average of 6 years. However, projects authorized since 1986 have on average taken 20 years to complete and cost more than twice the authorized amount.

As an example, the recently completed project at McAlpine Locks and Dam near Louisville, Kentucky, took 10 years to complete. An almost identical lock chamber located next to McAlpine took only three years to complete in 1961. This difference reveals the difficulty in developing accurate capital planning forecasts and demonstrates a multitude of issues surrounding the project delivery process.

More alarming is the Olmsted Locks and Dam project on the Ohio River between Illinois and Kentucky. As authorized in 1988, the \$775 million project was designed to replace two aging locks completed in 1929. While the project broke ground in 1992 and was expected to be completed no later than 2005, today the project remains incomplete and the cost estimates have been revised upwards to approximately \$2.124 billion and the expected completion date (barring additional factors or complications) is 2018.

Many factors contribute to this scenario at Olmsted. The cost escalation can be linked to factors such as design and scope changes, differing site conditions, reprogramming funds to other projects, and omissions, some factors which are within the control of the Corps of Engineers while others can be attributed to insufficient funding and factors outside of the purview of the Corps of Engineers.

These cost overruns have contributed greatly in the spending down of the Inland Waterways Trust Fund. While the economic benefits of this project outweigh the costs, frustration of the House of Representatives Committee on Transportation and Infrastructure and the Inland Waterway Users Board continues to mount.

This has caused ripple effects throughout the entire Inland Waterways Transportation System. Because it is so costly, until the project at Olmsted is complete, it is difficult to initiate, much less complete, other projects on the Inland Waterways Transportation System.

The Congress has been appropriating \$170 million per year on average for the Inland Waterway Transportation System. Compare this to the estimate that it will require \$3.8 billion to complete projects already under construction and there is another \$4.3 billion of authorized projects for which construction has not started. To completely modernize the system with new construction and rehabilitation of old structures would require an estimated \$18 billion. That is what would be required to fully realize the economic benefits of the Inland Waterways Transportation System. The system is falling apart faster than we are replacing. This condition is not sustainable

Inland Waterways Users Board Recapitalization Plan

Section 302 of the Water Resources Development Act of 1986 established the 11-member Inland Waterway Users Board intended to give commercial users an independent voice in investment decisions relating to the Inland Waterway System. Noting the complications surrounding the Olmsted Locks and Dam project and other projects authorized after 1986, the Inland Waterway Users Board delivered recommendations to the Secretary of Army and Congress on April 13, 2010. The “Inland Marine Transportation System (IMTS) Capital Projects Business Model” proposes major revisions to reform the funding and methods for carrying out projects on the Inland Waterways Transportation System.

The Users Board recognized that under current practice, Inland Waterways Transportation System projects that have already begun construction would require an estimated \$3.8 billion to complete. With average annual revenues of the Trust Fund between \$75 and \$85 million, these projects would not be complete until 2035 or 2040. There is also an additional \$4.3 billion of authorized work that has not yet begun construction. Total authorized and unauthorized activities could be as much as \$18 billion to address new construction and rehabilitation of existing structures. (\$12.1 billion in new construction, \$5.9 billion in rehabilitation.) Current investment levels are, on average, \$170 million annually.

The recommendations of the Inland Waterways Users Board call for a 20-year recapitalization or asset renewal program that would, among other items, increase the investment level on the Inland Waterways Transportation System to \$380 million annually. This increased investment would require that Congress enact an increase in the Inland Waterway fuel tax from the current \$0.20 cents per gallon to \$0.26 per gallon.

In addition, the recommendations include provisions requesting Congress change the cost sharing formula for some construction and rehabilitation projects that cost less than \$100 million. The Users Board suggests that all new construction or rehabilitation projects that cost less than \$100 million be paid for from the General Fund in the Treasury, and for all construction or rehabilitation projects that cost more than \$100 million be cost-shared 50%-50% from the Trust Fund and the General Fund.

Lastly, the Users Board recommends the establishment of a project-by-project cost-sharing cap to protect the Users Board and the industry it represents from unreasonable cost escalation and project delays. Cost increases above the proposed cap threshold would be 100% federally funded unless the increase was approved for cost-sharing by both the Users Board and the United States Army Corps of Engineers.

The Users Board also made numerous recommendations to the United States Army Corps of Engineers to address some changes in the planning processes in order to better streamline project delivery and reach project completions more quickly.

Summary

- The Inland Waterway Transportation System provides a cost effective, fuel efficient, and safe alternative to other modes of transportation.
- The locks and dams are old and not sized to the modern fleet of towboats.
- The locks and dams are deteriorating faster than they are being repaired and replaced.
- Scheduled and unscheduled outages of the system are rising.
- The time required moving new projects through the planning and construction process has expanded from a few years to a few decades.
- Cost overruns are frequent and large.
- The Inland Waterway Trust Fund, which pays for half of new construction and rehabilitation, is not collecting enough revenue to complete projects in a timely manner.
- The current paradigm for paying for lock and dam replacement is unsustainable for maintaining an inland waterway transportation system in the future.

Witnesses

The Honorable Jo Ellen Darcy, Assistant Secretary of the Army-Civil Works, United States
Department of the Army

Steve Little, Chairman, Inland Waterways Users Board

Mike Toohey, President, Waterways Council, Incorporated.

Dr. Larry G. Bray, Center for Transportation Research, University of Tennessee-Knoxville

Mr. Steve Ebke Chairman, Production & Stewardship Action Team, National Corn Growers
Association

Stephen Ellis, Vice President, Taxpayers for Common Sense