



THE UPPER MISSISSIPPI- ILLINOIS WATERWAY TRANSPORT SYSTEM

*A white paper from the
Transportation for Illinois Coalition*

May 2006

OUR WATERWAY SUPER HIGHWAY – THE UPPER MISSISSIPPI-ILLINOIS WATERWAY

Transportation for Illinois Coalition White Paper

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The **Transportation for Illinois Coalition** is a diverse group of statewide and regional business, organized labor, industry and governmental organizations that has joined together in a united and focused effort to support a strong transportation alliance for Illinois. The coalition takes a comprehensive approach and seeks to speak with one voice for all of Illinois regarding transportation funding needs at both the state and federal levels. The coalition believes that transportation is critical to the economy of Illinois. This comprehensive approach involves all modes of transportation, including rail, air, water, highways and mass transit.

Illinois Waterways Issues

White Paper:

Executive Summary

- ◆ Executive Summary
- Overview
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Average Americans know little about this nation's inland waterway system and the role it plays in our economy. When crossing a bridge, they may see a barge below, but they probably pay little notice to its contents and have even less curiosity as to its destination.

The size and benefits of the river traffic would probably surprise the majority of citizens.

Each year, some 116 million tons of commodities, valued at more than \$23 billion, travel the 1,118 miles of Illinois waterways. Nearly one-third is grain from Illinois farm fields, much of which is destined for overseas trade. Coal also makes up a sizeable portion of the shipments, as do aggregates (crushed stone, sand and gravel). In 2005, there were 25,230 barges that made their way through the LaGrange Lock and Dam on the Illinois Waterway. At the Chain of Rocks Lock and Dam on the Mississippi River, the count was 58,073 barges.

Perhaps this lack of visibility to the general population is one reason why the infrastructure that supports the barge industry – the locks and dams – are suffering from neglect. While there is public outcry about potholes and traffic tie-ups on our roads, there is no similar protest about problems affecting the waterways and the fact that these problems are not being addressed.

The inland waterways system through the heart of the United States is aging and requires funding for modernization and maintenance to help the U.S. maintain its global competitiveness. This is particularly important for Illinois, which is a major grain producer. It may become even more important with the expected growth in the coal industry.

The focus of this paper is on the construction of general improvements for navigation, the operation and maintenance of the river system, and ecosystem restoration.

Funding

The funding for maintaining and improving the Illinois waterways is provided through a two step process. First, there must be an authorization bill (Water Resources Development Act – WRDA) passed by Congress. New major capital projects, such as the expansion of the locks and dams on the Mississippi River, must first be approved through the authorization bill. This act, which had been passed roughly every two years from 1986 through 2000, is the substantive legislation that also authorizes funding for operations and maintenance. This is followed up by an annual appropriation bill. No state funds are involved in capital improvements for navigation.

It has been nearly six years since the last Water Resources Development Act was enacted. As of

May 2006, Congress continued to be gridlocked over the passage of a WRDA.

In November 2005, President Bush signed into law the FY2006 Energy and Water spending bill that provides nearly \$5.4 billion in appropriations from both the Inland Waterways Trust Fund and the General Fund for the U.S. Army Corps of Engineers (USACE) civil works. The FY06 appropriation is nearly identical to the FY05 appropriation.

However, when adjusted for inflation, the purchasing power for maintaining and operating the navigation system is significantly reduced.

The amount contained in the appropriation for the Illinois Waterway, \$22.2 million, represents a major reduction from the FY05 appropriation of \$32.5 million, an amount that is considered necessary to maintain service comparable to previous years.

The extensive damage caused by Hurricane Katrina further strains federal budgeting. As of September 2005, Congress had allocated more than \$60 billion for recovery efforts. Of this, approximately \$400 million was provided to the USACE for flood control and recovery operations. It is clear that additional money will be needed to address the Katrina problems.

The U.S. has nearly 12,000 miles of commercially active inland and intracoastal waterways. Illinois has 1,118 miles of navigable waterways bordering or passing through the state.

Environment & Ecology

The Mississippi River is the only river designated by Congress as both a nationally significant transportation system and a nationally significant ecosystem. According to a 2004 USACE feasibility study, “The Upper Mississippi River System Flyway is used by more than 40 percent of the migratory waterfowl traversing the U.S. The river system also supports migratory fish that move from the ocean to the headwaters and riverine species that have been documented to move great distances through the Mississippi River Drainage.”

The protection of this invaluable resource must be a top priority in planning for the future so that commerce and the habitats of fish, wildlife and plants can continue to coexist.

Taxes Imposed

Towboat operators, shippers and other commercial users help pay for lock and dam construction and for major rehabilitation of the waterway system through a 20-cent-per-gallon fuel tax. These taxes are deposited into the Inland Waterways Trust Fund, which was established by Congress in 1986. It is used to fund 50 percent of the cost of inland navigation projects each year. The remaining project costs are funded through expenditures from the General Fund of the U.S. Treasury. Waterway users also are currently paying a 2.3 cents-per-gallon Deficit Reduction Fuel Tax.

There are concerns that the waterway trust fund is not being fully utilized to underwrite the cost of modernizing locks and dams on the inland waterways and that the trust fund, which is earmarked for major capital projects, might be diverted to finance operating costs instead.

In Summary

The nation simply isn't making the necessary investment in modernizing the waterways system. Timely maintenance is being deferred. There is an estimated \$500 million operations and maintenance backlog on the Upper Mississippi River basin.

The problems of underfunding are only made worse by the delays in agreeing on a new WRDA that would authorize significant navigational improvements and environmental improvements for ecological sustainability. Addressing the problems of this important national resource requires immediate attention. Not only are the nation's leaders not providing the vision for the future of this system, they also are not funding adequate resources to maintain the current facilities.

The Transportation for Illinois Coalition:

- ❑ Supports the concept that user fees, which are deposited into the Inland Waterways Trust Fund, should be spent for the purposes for which they were collected – the modernization and improvement of the inland waterway. In addition, TFIC believes that the capital improvement program should be structured similarly to the highway program (that provides a five-year source of funding) to ensure the delivery of waterway capital projects. Waterway infrastructure projects, such as the new locks on the Upper Mississippi River, require a long lead time for planning and the completion of design plans. A stable multi-year funding source would provide an orderly process for implementing waterway infrastructure improvements.

- ❑ Supports the construction of the 1,200-foot locks and accompanying improvements in order to keep the nation's breadbasket production and shipment of grains competitive in the global market. The Upper Mississippi River inland navigation system is critical to the cost-effective transport of raw goods and commodities throughout the Midwest.

- ❑ Supports a holistic approach that recognizes both nature and navigation. The inland waterway is a valuable economic resource for the Midwest and the nation and a balance should be struck between the need for economic growth and for environmental sustainability.

- ❑ Supports increased funding for Operations and Maintenance for the Upper Mississippi and Illinois Waterway system of locks. TFIC also believes that because of the long-term nature of making infrastructure improvements, work should begin immediately with preparation of Plans and Specifications for rehabilitation of certain locks on the Illinois River. These plans are necessary before actual construction can be undertaken on locks.

Each year, some 116 million tons of commodities, valued at more than \$23 billion, travel the 1,118 miles of Illinois waterways.

Overview of Illinois Waterways

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Barges ply up, down and across some 12,000 miles of inland and intracoastal waterways in the U.S. According to the Inland Waterways Users Board, these waterways touch 38 states and move some 600 million tons of cargo annually. The Board notes that these barges use less fuel, produce less air pollution and less urban congestion and cause minimal community impact as compared to other modes of transportation.¹

The Mississippi River is the central artery in the inland system of waterways that is critical to the low-cost movement of bulk commodities. This includes the shipment of grain for export, which is critical to the Illinois economy. The Upper Mississippi and Illinois Waterway also provide transportation routes for coal, chemicals, petroleum products, manufactured goods and materials such as sand, gravel, iron ore, steel and scrap.

Illinois lays claim to nearly 10 percent of the nation's waterway mileage – some 1,118 miles of navigable waterways. Included in this are:

- ❑ 580 miles of the Mississippi River on the state's western border.
- ❑ 327 miles of the Illinois Waterway flowing from the O'Brien Lock in Chicago to the Mississippi River at Grafton, Illinois. (Although the Illinois River makes up the largest section of the Illinois Waterway, it is also stitched together by segments of the Des Plaines River, Chicago

Sanitary and Ship Canal, Cal-Sag Channel, Little Calumet River and Calumet River. The Chicago Sanitary and Ship Canal connects to the Lake Michigan docks, which allows deep-draft ships to ship out and receive commodities.)

- ❑ The Ohio River, which borders the southern portion of the state, flows into the Mississippi River at the southernmost tip of the state.

This navigation system links Illinois to the Great Lakes, the Atlantic Ocean, the far reaches of the Mississippi River, and the Port of New Orleans. In 2005, there were 25,230 barges going through the LaGrange Lock and Dam on the Illinois Waterway. At the Chain of Rocks Lock and Dam on the Mississippi River, the count was 58,073 barges.²

However, this inland waterways system through the heart of the United States is aging and requires funding for modernization and maintenance to help the U.S. maintain its global competitiveness. This is particularly important for Illinois, which is a major world grain producer.

The Upper Mississippi system, which consists of the Mississippi River from Minneapolis-St. Paul to St. Louis and includes the Illinois Waterway, has 37 locks. The Mississippi River drops approximately 350 feet in elevation between Minneapolis-St. Paul and St. Louis.³ The locks provide the ladder by which river traffic can travel up and down the river between these two cities.

There are also three locks on the Ohio River in Southern Illinois. The Smithland Lock, opened in 1980, is 1,200 feet long. Locks 52 and 53, each 600 feet long, are being replaced by a 1,200 foot Olmsted Locks and Dam.

All but three* of the 37 locks on the Upper Mississippi and Illinois Waterway systems were constructed in the 1930s to 1950s. They were designed at a time when tows were smaller and there was less traffic on the waterways. Thus, these current lock facilities limit the system's capacity. One farm trade group noted that "While today's modern towboats feature state-of-the-art technology, transportation on the Mississippi River is hindered by an outdated system of locks and dams that were constructed before World War II."⁴

The 34 older locks are 600 feet long, whereas typical tows today consist of 15 barges with a length approaching 1,200 feet. This means tows

**The three locks on the Upper Mississippi that are 1,200 feet are locks 19 and 26 (Melvin Price Lock and Dam) and 27 (Chain of Rocks).*

... this inland waterways system through the heart of the United States is aging and requires funding for modernization and maintenance to help the U.S. maintain its global competitiveness. This is particularly important for Illinois, which is a major world grain producer.

must be split and go through in a two-step process, which more than doubles the usual half-hour to hour necessary for a tow to go through a 1,200-foot lock.

Considerably less tonnage can go through these older locks because of the delay incurred by breaking up the tows. It is estimated that the older 110-foot by 600-foot chambers can accommodate 45 to 55 million tons a year, compared to the 100 million tons that the larger locks can handle.⁵ Delays and backups increase when major repair needs cause "outages." Average delays at locks are estimated at 6 hours, with some as long as 12 hours or more.⁶

Studies have cited Illinois locks as being among those with the highest average delays. The Upper Mississippi River - Illinois Waterway systems have been identified as having more than half of the most-delayed lock sites in the nation (19 locks out of a total of 36 cited nationwide.)⁷

In its 2005 Report Card for America's Aging Infrastructure, the American Society of Civil Engineers gave the physical condition of the nation's navigable waterways a D-minus because of the deteriorating conditions. Their comments included, "Nearly 50 percent of the 257 locks operated by the U.S. Army Corps of Engineers are functionally obsolete. By 2020, that number will rise to 80 percent."⁸

The economic and social impact of these waterways, however, extends well beyond their role as superhighways for our goods. They also provide for recreation, water supplies, and the basis for related businesses (e.g. boating, hunting, tourism). The waterways also are a major environmental asset.

History

Waterways have long been a determining factor in the survival of people and wildlife. Water influenced where people settled. It gave them ways to communicate, travel, and trade goods. The rivers were the nation's first highways.

Native Americans lived along the banks of the Illinois rivers for generations before European settlers arrived. They traveled by dugout canoes, fished, trapped beaver, and hunted game. There was a diverse landscape of tallgrass prairie, wetlands, savannas and forest.

In the late 1600s, French fur traders became the first Europeans in the Illinois River Valley. They were followed in the 1800s by pioneers who settled the area and turned Illinois prairie into grain fields. The Illinois River also supported an active industry of mussel harvesting for buttonmakers. Water became a primary method of transporting grain and other goods to market.

Canals were constructed in the mid 1800s to move freight using wooden barges pulled by mules and horses. Chicago became a major inland port for trade, thanks to a canal – the Illinois and Michigan (I & M) Canal – which joined the Chicago River

What was Done

When

Upper Mississippi River:

Congress authorizes removal of snags and local obstructions	1824
Congress authorizes 4 ½ -foot channel from mouth of Missouri River to St. Paul	1878
Congress authorizes 6-foot channel	1907
Construction of Lock and Dam 19	1914
Construction of Lock and Dam 1	1917
Congress authorizes 9-foot-deep, 300-foot-wide channel from St. Louis to Cairo, Illinois	1927
Congress authorizes extension of 9-foot channel to St. Paul, Minnesota through construction of locks and dams	1930
Construction of 29 locks and dams	1930-1950
Construction of Lock and Dam 27	1953
Construction of 1,200-foot chamber at Lock and Dam 19	1957
Upper and Lower St. Anthony Falls authorized	1937
Lower St. Anthony Falls constructed	1956
Upper St. Anthony Falls constructed	1963
Congress authorizes new dam and single 1,200-foot chamber at Lock and Dam 26	1978
Congress authorizes construction of second chamber (600-foot) at Lock and Dam 26	1985
Construction of 1,200-foot chamber at Melvin Price Lock and Dam (formerly L&D 26)	1990
Construction of 600-foot chamber (2 nd Lock) at Melvin Price Locks	1994
Major Rehabilitation/Maintenance	1986-present

Illinois Waterway:

Congress authorizes construction of the Illinois and Michigan Canal	1822
Construction of Chicago Sanitary and Ship Canal and 5 low navigation locks and dams	1900
Construction of present-day system of 7 locks and dams	1933-1939
Construction of Thomas J. O'Brien Lock and Controlling Works	1960
Major rehabilitation/maintenance	1975-present

Source: U.S. Army Corps of Engineers, Rock Island District

with the Illinois River, thus providing a direct water link between the Great Lakes and Mississippi River. Then railroads took over and the canals eventually were closed.

Steamboats also had their heyday in the 1800s. The Corps of Engineers reported that more than 76 steamboats were docked at Peoria wharfs in 1858. However, numerous steamboat accidents were caused by hazards such as rapids, rocks, bars and snags. The Corps notes that “30 percent of the steamboats built prior to 1849 fell victim to accidents.”⁹ It was the 1918 wreck of the *Columbia*, killing 87 people, that resulted in pressure for deeper navigable waterways.

Improvements to maintain navigation have been underway in one form or another since the 1800s. At first, snags, sandbars and rock rapids were removed. Then Congress began authorizing the U.S. Army Corps of Engineers to maintain river channels of established depth on the major rivers.

The USACE first was directed to maintain a 4 ½-foot navigation channel in the Upper Mississippi navigation channel that begins at Minneapolis - St. Paul, Minnesota and stretches to Cairo, Illinois.

In the early 1900s, as the size of barges and tows increased, Congress authorized a series of changes that required first a 6-foot then a 9-foot channel be maintained on major rivers. In order to achieve that depth, a succession of locks and dams were constructed. The 1930 waterway bill provided for the construction of the current 600-foot-locks. Between 1930 and 1950, navigation locks were constructed on the Upper Mississippi River. The current locks were designed with a 50-year life. Many of the existing locks are well past that design life.

Locks and dams on the Illinois River predate many structures on the Mississippi. Navigational work on the Illinois Waterway has been underway since 1822. According to the National Academy of Sciences, the first lock and dam on the Illinois Waterway was completed by the State of Illinois in 1871. A historical timeline from the USACE says that the State work on the Illinois Waterway was turned over to the Corps in 1930 and the waterway was opened in 1933.¹⁰ There are now seven locks on the Illinois Waterway.

The U.S. Army Corps of Engineers

The U.S. Army Corps of Engineers is a federal agency in the Department of Defense with military and civilian responsibilities.¹¹ The Corps is charged with maintaining navigation on the rivers, environmental protection and restoration, flood damage reduction, land management and recreational use of the waterways.

According to a USACE history published by the St. Louis Corps’ office, “the lineage of the United States Army Corps of Engineers dates back to June 16, 1775, when General George Washington appointed Colonel Richard Gridley as Chief Engineer for the Continental Army.”¹²

This Corps was disbanded after the Revolutionary War. In 1794, Congress established the Corps of Artillerists and Engineers, which was abolished in 1802 and replaced by the present USACE. In 1824, Congress passed the first River and Harbor Act. It made the USACE responsible for improvements of seaports and internal waterways.

There are nine USACE Divisions. Two of these have district offices that manage the waterways skirting and flowing through Illinois.

(1) In the Great Lakes and Ohio River Division, the two districts with Illinois-related responsibilities are:

Chicago District – six county area around Chicago

Louisville District – lower Ohio River to Cairo

(2) In the Mississippi Valley Division, the three districts with Illinois-related responsibilities are:

Rock Island District – Upper Mississippi & Illinois River

St. Louis District – Lower reach of the Illinois River and the Mississippi River from Saverton, Missouri downstream to Cairo

Memphis District – small portion of Illinois at the southern tip where the Ohio River enters the Mississippi River.

The physical condition of the navigable waterways received a D-minus from the American Society of Civil Engineers because of its deteriorating condition.



Economic Benefits and Impacts

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The rivers provide thousands of jobs in various industries, many related directly to the transportation of goods and others only peripherally related. Among the industries benefitting from transportation services on the inland waterway system are agriculture, mining and manufacturing, where bulk commodities can be moved in an energy and cost efficient manner and speed isn't a critical factor. Other job-sustaining activities depending on the river for much of their livelihood include water-based recreational activities and tourism, public utilities (including water supplies and hydropower production), waterside commercial development, and commercial and recreational fishing.

The U.S. Army Corps of Engineers (USACE) estimates that recreation and tourism alone employ some 143,000 people in the corridor and provide more than \$6.6 billion in revenue from some 12 million visitor days by people who hunt, fish, boat, sightsee or otherwise visit the river. The Chicago Lock is the second most popular in the nation for pleasure craft, with 27,699 vessels passing through it in 2004.¹³

This significant economic benefit provided by the rivers translates into millions of dollars in taxes generated for state, local and federal governments.

Waterborne Commerce

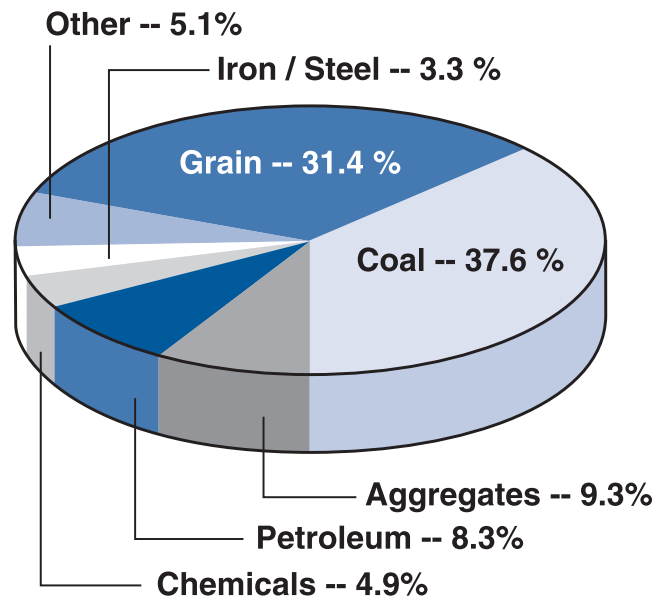
Waterborne commerce totaled more than 116 million tons of commodities shipped on Illinois inland waterways in 2001. The value of those commodities totaled more than \$23 billion.¹⁴

Illinois commodities were shipped by barge to 18 states and were received from 17 states. Louisiana was the destination for more than 49 million tons valued at more than \$7.7 billion, mostly corn and other grains destined for the world market. Louisiana was also the leading state shipping into Illinois, sending 10 million tons of high-value commodities such as chemicals, iron and steel products worth more than \$5.1 billion (2001).

Grains made up more than 31 percent of all the commodities shipped from Illinois in 2001, with a value of more than \$6 billion. Coal made up nearly 38 percent of the total commodities with most of that

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Illinois 2001 Percentages of Commodity Groups



Source: U.S. Army Corps of Engineers Waterborne Commerce Statistics

originating at docks on the Ohio River, according to the Midwest Area River Coalition. Coal shipments are expected to grow as energy prices remain high.

The overall economic impact of our waterway system is widespread, with 403 manufacturing facilities, terminals, and docks on the Illinois waterways that shipped and received tonnage in 2001.¹⁵

Agriculture

A large and integrated transportation system is required to move products from the farm to domestic and international markets. The Mississippi and Illinois rivers provide an advantage for grain producers in Illinois and throughout the Midwest. Soybeans harvested in Illinois are not only processed and consumed throughout the U.S., but are just as likely to go to customers in China and Europe. Water transportation serves nearly 500 U.S. grain transfer facilities. More than 125 of those facilities

are located on the Upper Mississippi River and the Illinois Waterway.¹⁶

Illinois and Iowa are the major producers of the nation's agricultural crops. More than half (54.6 percent) of the total U.S. soybean production in 2002 was in this area. Almost half (48.7 percent) of the nation's corn production was also in this area.¹⁷ The use of barges to transport the grain helps keep the U.S. competitive in the world markets.

South America, however, has now surpassed the U.S. in soybean production, with 57 percent of the world's soybeans being produced in Brazil. Currently our less expensive transportation costs, due to our inland waterways, give us the competitive advantage for grain sales in the world market. However, Brazil is proposing significant improvements to make key portions of its waterway

system navigable, too, which could reduce or eliminate our current advantage.

Coal/Aggregates/Other products

By volume, coal is the largest commodity group shipped by barges on the Illinois, Mississippi and Ohio Rivers. However, the total value is less than a third of that of the grain similarly shipped. The most recent figures available show that nearly 44 million tons of coal were shipped, valued at \$1.66 billion, compared to the \$6 billion in grain shipped.

Pits and quarries located throughout the State use barges to transport crushed stone, sand and gravel. The Illinois River services Central Illinois and Chicagoland. The Mississippi River, in the Quad Cities and St. Louis areas, also sees a considerable amount of barge traffic. One of the largest mines in Illinois ships out millions of tons of crushed stone every year out of Cave-in-Rock (Hardin County) on the Ohio River. Barges, and the waterways they use, are very important to that industry as a means of transportation. Total tonnage that industry shipped by barge in 2001 was 10.8 million.¹⁸

Other major commodity categories shipped are iron and steel (3.8 million tons valued at \$2.9 billion); petroleum (9.67 million tons valued at \$1.5 billion); and chemicals (5.7 million tons valued at \$2.4 billion.)

Jobs

The economic activity on the upper Mississippi and Illinois Rivers supports some 400,000 jobs – of which 90,000 are in the manufacturing sector. These include direct and indirect employment created by the waterways.

The USACE has proposed navigation improvements at an estimated cost of nearly \$2.6 billion, and an ecosystem restoration plan estimated to cost \$5.72 billion. This proposal calls for seven navigation projects to address the immediate needs of the system. If work is authorized on these proposed navigation projects, nearly 48 million man hours of work would be created for skilled craftsman.

The spending from the wages of those workers would ripple throughout the economy in Illinois and Missouri.

Possible future expansion: Containers-on-Barges —

As energy prices continue at high levels and highway traffic forecasts indicate significant increases in truck traffic, containers-on-barges (COB) could bring increased waterway traffic as the number of containers needing to be moved is steadily increasing.

COB usage in Europe has become commonplace. COB traffic on the Rhine River has increased from 45,000 units in 1991 to 2.3 million in 2003. The use of COB has not been effectively explored in the U.S. and may provide an opportunity to reduce transportation costs in certain areas. Some of the obstacles to the greater use of COB in the U.S. include price competition from alternative modes.

Illinois - 2001 Lock Tonnage chart

Lock	Year Opened	Length of Lock	Tonnage		
			Upbnd	Downbnd	Total
<u>Ohio River</u>					
L/D 53*	1980*	600**	44,200	42,907	87,107
L/D 52*	1969*	600**	56,070	40,646	96,716
Smithland	1980	1,200	45,713	40,202	85,915
<u>Upper Mississippi</u>					
27 (Chain of Lakes)	1953	1,200	28,092	52,999	81,091
Melvin Price	1990	1,200/600	26,700	49,171	75,871
25	1939	600	10,207	24,651	34,858
24	1940	600	10,133	24,652	34,785
22	1938	600	9,892	23,445	33,337
21	1938	600	9,984	22,891	32,875
20	1936	600	9,398	21,715	31,113
19	1956	1,200	9,266	20,863	30,129
18	1937	600	10,015	18,555	28,570
17	1939	600	10,035	17,416	27,451
16	1937	600	9,806	16,646	26,452
15	1934	600	9,216	15,497	24,713
14	1939	600	8,745	15,520	24,265
13	1938	600	7,294	11,984	19,278
12	1938	600	7,390	11,709	19,099
<u>Illinois Waterway</u>					
LaGrange	1939	600	15,386	21,368	36,754
Peoria	1938	600	15,863	17,806	33,669
Starved Rock	1933	600	13,366	9,934	23,300
Marseilles	1933	600	12,859	8,035	20,894
Dresden Island	1933	600	12,935	5,941	18,878
Brandon Road	1933	600	11,978	4,443	16,420
Lockport	1933	600	11,592	4,398	15,991
<u>Lake Michigan</u>					
O'Brien	1960	1,000	4,368	2,410	6,778
Chicago (Chicago Harbor)	1938	600	68	124	192
<u>Kaskaskia River</u>					
Kaskaskia	1973	600	48	485	533

TOTAL

**These 2 dams and auxiliary chambers were originally built build in 1928-29.*

***To be replaced by Olmsted Locks and Dam, a single facility of twin 1,200 locks*

Source: U.S. Army Corps of Engineers Lock Performance Monitoring System

Current Funding Issues for Illinois Waterways

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The funding for maintaining and improving the Illinois waterways is provided through a two-step process. First, there must be an authorization bill passed by Congress. Before the first Water Resources Development Act (WRDA) in 1974, authorizations for waterways were handled through the Flood Control Acts and River and Harbor Acts. Two years after the first WRDA bill, a second bill was passed (1976). But a whole decade passed before a third such bill was passed. That 1986 bill made up for lost time with 300 new projects. From 1986 through 2000, a WRDA bill was passed roughly every two years. However, there hasn't been a bill since 2000, due to disagreements among congressional members, interest groups and activists over some navigation projects, their impacts, and possible changes to U.S. Army Corps of Engineers (USACE) policies and practices.

An authorization bill does just that: it authorizes projects and uses. A spending bill has to be passed as well to budget amounts for specific uses or projects. These uses fall into three major categories related to navigation:

- operations and maintenance
- major rehabilitation
- development of engineering plans and future capital projects.

The Authorization bill

New major capital projects, such as the expansion of the locks and dams on the Mississippi River, must first be approved through the authorization bill – the Water Resource Development Act. No state funds are involved in capital improvements for navigation.

A new authorization, via WRDA or some similar legislation, is required for the USACE to proceed with major improvements to the locks and dams on the upper Mississippi River that are deemed critical to the movement of agricultural products by the Illinois farm community. As of May 2006, Congress continued to be gridlocked over the passage of a WRDA.

New major capital projects, such as the expansion of the locks and dams on the Mississippi River, must first be approved through an authorization bill – the Water Resource Development Act (WRDA). No state funds are involved in capital improvements for navigation.

The Appropriations (spending) Bill

Navigation improvements, flood control projects, ecosystem restoration and funds for operations and maintenance are supported through annual federal appropriations. This funding is through the Energy and Water Development Appropriations bill.

In November 2005, President Bush signed into law the FY2006 Energy and Water spending bill that provides nearly \$5.4 billion in appropriations from both the Inland Waterways Trust Fund and the General Fund for the USACE civil works.

The federal fiscal year runs from October 1 through September 30. The \$5,383,000,000 budgeted for FY06 is nearly identical to the FY05 appropriation of \$5,376,948,000. Included in the total appropriation is money for capital improvements and operations and maintenance. However, when adjusted for inflation and for the spiraling costs of construction materials, the purchasing power for maintaining and operating the navigation system is significantly reduced.

The amount contained in the appropriation for the Illinois Waterway, \$22.2 million, represents a major reduction from the FY05 appropriation of \$32.5 million, which included some maintenance construction contract work funded with operations and maintenance funds, and is the amount considered necessary to maintain service comparable to previous years.

In addition to the existing funding shortages, substantial additional costs have accrued due to the extensive damage from Hurricane Katrina. As of September 2005, Congress had allocated more than \$60 billion for recovery efforts. Approximately \$400 million of this was provided to the USACE for flood control and recovery operations. Those

monies have come from the General Fund and have not yet significantly impacted the Corps' navigation and flood control program. It is clear, however, that an additional supplemental will be needed to address the Katrina problems.

Taxes Imposed

The Inland Waterways Trust Fund was established by Congress in 1986. The Water Resources Development Act of that year requires towboat operators, shippers, and other commercial users to help pay for lock and dam construction and for major rehabilitation of the waterway system. Users pay a 20-cent-per-gallon fuel tax. This money is deposited into the Inland Waterway Trust Fund where it funds 50 percent of the cost of inland navigation projects each year. The remaining project costs are funded through expenditures from the General Fund of the U.S. Treasury. Waterway users also were paying a 4.3 cents-per-gallon Deficit Reduction Fuel Tax, but that tax is being phased out. The current rate is 2.3 cents per gallon. It is to be completely repealed as of December 31, 2006.

Towboat operators, shippers, and other commercial users help pay for lock and dam construction and for major rehabilitation of the waterway system through a 20-cent-per-gallon fuel tax. This money is deposited into the Inland Waterway Trust Fund where it funds 50 percent of the cost of inland navigation projects.

In Fiscal Year 2006, the waterways tax is expected to generate between \$91 million and \$105 million (including interest) for the Waterway Trust Fund.

The 2006 status report of the Inland Waterways User Board showed that the balance in the trust fund at the end of 2005 totaled \$334.7 million and was projected to decline to \$262 million by the end of 2006. Revenues into the Trust Fund in 2005 were approximately \$91.3 million. The report stated: “Growth of 1.3 percent annually is assumed thereafter, based on projected growth of inland waterway commerce. Interest rate assumptions have been reduced in the analysis to about 3 percent for the current year, increasing gradually to 5.2 percent by 2011.”

The estimated balances are projected to be able to sustain existing projects over the short term as long as work on those projects is not accelerated. However, funding problems will be exacerbated if capital funds are used for operations and maintenance.

There are concerns that the waterway trust fund is not being full utilized to underwrite the cost of modernizing locks and dams on the inland waterways and that the trust fund that is earmarked for major capital projects might be pressed into use to finance operating costs. Congress so far has rejected this approach.

The problems

Not only does routine maintenance and operations of Illinois waterways suffer from inadequate funding, but Congress also has failed to pass a measure allowing for new capital improvement projects.

Delaying necessary maintenance only leads to further deterioration and accelerates the need for major rehabilitation sooner than would be required, often at higher costs. Over the long term, it could mean that complete replacements would be needed years before they otherwise would have been required.

Current revenues are insufficient to support the backlog of improvements needed on the Midwest’s waterways. One option that is being analyzed is the issuance of Water Infrastructure Bonds. The proposal calls for issuing \$2.5 billion in bonds with \$200 million going for water infrastructure funding for the construction of the new locks on the Upper Mississippi River and Illinois Waterway. These bond funds would be in addition to the current federal funding.

Recommendation:

TFIC supports the concept that user fees, which are deposited into the Inland Waterways Trust Fund, should be spent for the purposes for which they were collected – the modernization and improvement of the inland waterway. In addition, the capital improvement program should be structured similarly to the highway program that provides a five-year source of funding to ensure the delivery of waterway capital projects. Waterway infrastructure projects, such as the new locks on the Upper Mississippi River, require a long lead time for planning and the completion of design plans. A stable multiyear funding source would provide an orderly process for implementing waterway infrastructure improvements.

Navigation Issues

- Executive Summary
- Overview
- Economics
- Funding
- ◆ **Navigation Issues**
- Operations
- Ecosystem

Towboats are experiencing delays at several locks on the Upper Mississippi and Illinois Waterway systems because the size of the locks cannot accommodate modern tows that exceed 600-feet in length. There are 37 locks and dams on the Upper Mississippi and Illinois Waterway systems. All but four of those locks and dams are 600 feet in length, which requires the tows to be decoupled, resulting in long queues as tows wait their turn.

In July 2004, Lock 27 at Chain of Rocks was closed for emergency repairs, limiting that 1,200-foot lock to an auxiliary 600-foot. Fifteen barge tows were gridlocked, requiring double-cut lockages through the 600-foot chambers for more than 16 days.

The Clarksville lock (Lock 24) and the Winfield lock (Lock 25) on the Mississippi River are both single chamber, 600-foot locks. If either or both of these single chamber locks were to go out of service, there would be a significant logjam in the movement of goods and commodities moving both upbound and downbound on the Mississippi River.

The total tonnage on the Mississippi River is growing. For example, from 2004 to 2005 the tonnage at Lock 25 grew by 4.3 percent and by 3.7 percent for the same period at Lock 24. Nearly 15 million tons of grain and 4.3 million tons of coal

moved through Lock 25 in 2005. Both of these commodities are critical to Illinois' economic well-being and its ability to compete in the global market.

An Illinois Farm Bureau analysis contends that delays at the locks costs Midwestern farmers \$500 an hour.¹⁹ Average delays at locks are estimated at 6 hours, with some as long as 12 hours or more.²⁰ Towboats burn about 80 gallons of diesel fuel an hour and engines are kept running while towboats wait their turn in the lock.²¹ The total cost (fuel, salaries, etc.) to operate one towboat is approximately \$9,000 a day.²² These delays at the locks cost an estimated \$100 million a year.²³

The repeated need to break tows apart at the locks increases the risk of accidents as well as increasing the travel time needed to go down the Mississippi. The delays at the locks can make what could be an average 9 day trip from St. Paul to St. Louis instead become 11 to 12 days. This is the minimum delay; delays

A typical 15-barge tow on a main stem waterway moves the same cargo as 870 trucks stretching 35 miles on the Interstate highway system.

increase during the peak periods grain shipment from the first of September through November as barge queues become longer at the locks.

With the dramatic increase in the cost of fuel, waterborne traffic becomes even more attractive, particularly with respect to keeping Illinois grains competitive in the world market. A ton of cargo can be moved 514 miles by barge on one gallon of fuel as compared to moving that same one ton 60 miles by truck or 202 miles by rail.²⁴ A typical 15-barge tow on a main stem waterway moves the same cargo as 870 trucks stretching 35 miles on the Interstate highway system, according to the American Society of Civil Engineers.²⁵

Transportation by barges is also the safest mode of transportation. One report showed the death rate for barge tows to be 0.01 death per billion ton miles compared with 0.84 for trucks and 1.15 for railroads. Injuries were also much less for barges than for other modes.²⁶ Safety is enhanced by the slower speeds that barges travel (an average of six miles per hour)²⁷ and the less congested environments in which they operate. Other waterway users usually have sufficient time to avoid accidents.

Proposed Major Navigation Capital Improvements Vital to Illinois

As part of Upper Mississippi River basin navigation work, the USACE has proposed a nearly \$2 billion plan for major work on the locks and dams on the Upper Mississippi and Illinois Rivers. The work listed below would take place over a 15 to 16 year period, if funding is readily available. However, at

the present rate of expenditures, the proposed work will take much longer than the projected 15 to 16 years.

- ❑ Constructing seven new 1,200-foot locks at Lock and Dams 20 through 25* on the Mississippi River, and at LaGrange and Peoria on the Illinois River.
**There is no Lock 23*
- ❑ Constructing mooring* facilities at Lock and Dams 12, 14, 18, 20, 22, 24 and at LaGrange.
**Mooring are tie-off facilities that allow the next tow in line to wait closer to the lock chamber.*
- ❑ Providing switchboats at Lock and Dams 20-25.
**Switchboats assist in handling the cuts of a double lockage, resulting in a shorter lockage time*
- ❑ Implementing an ecosystem restoration proposal estimated at \$1.58 billion over 15 years.

The cost of the navigation improvements would be borne 50 percent from the Inland Waterways Trust Fund and 50 percent from the General Fund. The cost of ecosystem restoration would be 100 percent General Funds.

Recommendation:

TFIC supports the construction of the 1,200-foot locks and accompanying improvements in order to keep the nation's breadbasket production and shipment of grains competitive in the global market. The Upper Mississippi River inland navigation system is critical to the cost-effective transport of raw goods and commodities throughout the Midwest.

Operations and Maintenance

- Executive Summary
- Overview
- Economics
- Funding
- Navigation Issue
- ◆ **Operations**
- Ecosystem

The Mississippi and Illinois Rivers are often considered just part of the landscape. They have been there since before the country was opened by settlers.

To maintain navigation on these inland rivers, substantial investment is needed. Many of the locks and structures are between 60 and 70 years of age, and funding is not keeping pace with rehabilitation needs. The U.S. Army Corps of Engineers (USACE) currently estimates that the operations and maintenance backlog on the Upper Mississippi River basin is more than \$500 million. More than half of that amount is deemed critical. During Federal Fiscal Year 2005, spending for operations and maintenance for the Upper Mississippi Basin was \$182 million.²⁸

Illinois Waterway

The Fiscal Year 2006 appropriation for the Illinois Waterway is \$22.2 million, nearly \$10 million less than the USACE estimates that it needs (\$31.4 million) to restore the basic level of service comparable to that of recent years. This deficit has forced the USACE to forgo maintenance and annual dredging. The risk of having reduced lock hours or an extended closure of the waterway has increased significantly.

Upper Mississippi

The Fiscal Year 2007 President's budget proposes \$85.7 million for the Rock Island and St. Louis Districts' portions of the Upper Mississippi River (from Lock 11 at Dubuque to the mouth of the Ohio River at Cairo). The USACE estimates that this is at least \$10 million less than the funding needed to maintain the level of service provided in recent years.

Similarly, the proposed FY 2007 President's budget for the Illinois Waterway is \$29.3 million, which is \$2.1 million less than the USACE estimates is needed. The backlog of maintenance needs on both waterways is growing as the locks and dams get older. Operating and maintenance funds are also used to reduce this backlog. However, the backlog continues to grow due to inadequate funding for the standard operating functions, much less to address the maintenance needs outlined by the USACE.

To maintain navigation on these inland rivers, substantial investment is needed. Many of the locks and structures are between 60 and 70 years of age, and funding is not keeping pace with rehabilitation needs.

Major rehabilitation work is done to extend the life of a project without having to completely replace it. Continued procrastination in maintenance could eventually lead to a catastrophic failure.

Additional funding over and above the FY 2007 President's budget amounts would help alleviate the strain on the individual lock site's operations as well as beginning to reduce the maintenance backlog. Work should begin with preparation of plans and specifications for rehabilitation of a number of locks on the Illinois River.

The USACE estimates it would need \$33.6 million above the President's FY07 budget for the Upper Mississippi River. Similarly for the Illinois Waterway, they say they would need an additional \$28.2 million. Both of these estimates of additional funds needed would allow the USACE to restore the basic level of service and to work off some of the backlog of maintenance items.²⁹

Recommendation:

TFIC supports increased funding for Operations and Maintenance for the Upper Mississippi and Illinois Waterway system of locks. TFIC also believes that because of the long-term nature of making infrastructure improvements, work should begin immediately with preparation of Plans and Specifications for rehabilitation of certain locks on the Illinois River. These plans are necessary before actual construction can be undertaken on locks.

Ecosystem Sustainability

- Executive Summary
- Overview
- Economics
- Funding
- Navigation Issue
- Operations
- ◆ Ecosystem

The Mississippi River is the only river designated by Congress as both a nationally significant transportation system and a nationally significant ecosystem. For decades, many have believed that the Mississippi River was capable of both handling all navigation needs and sustaining itself environmentally.

A 2004 report from the U.S. Army Corps of Engineers (USACE) describes the Upper Mississippi River System ecosystem as consisting of hundreds of thousands of acres of bottomland forest, island, backwaters, side channels and wetlands – all of which support more than 300 species of birds, 57 species of mammals, 45 species of amphibians and reptiles, 150 species of fish, and nearly 50 species of mussels. More than 40 percent of North America’s migratory waterfowl and shorebirds depend on the food resources and other life requisites (shelter, nesting habitats, etc.) that the system provides.³⁰ The river environment also provides boating, camping, hunting, trapping and other recreational opportunities.

The Upper Mississippi and Illinois Waterway navigation system contains 37 lock and dam sites, with a 9 foot channel. For the most part, the channel is 300 feet wide, but may extend to 500 feet on river bends.³¹

Over the years, the river environment has been affected by the activities on and around the shoreline, including farming, logging and land development. Fertilizers, farm chemicals, stormwater runoff and sediment have all found their way into the rivers. The threats to the ecology, the wildlife, fish, and plants have often pitted environmentalists and river planners against one another.

The proposal to build new locks and dams has generated a confrontation between those seeking improvements for navigation and those who argue such new projects would further degrade the river’s ecosystem. The debate on ecosystem sustainability of the Upper Mississippi system is particularly intense.

Both the environmentalists and the proponents for navigation improvements are presenting their cases to

The Mississippi River is the only river designated by Congress as both a nationally significant transportation system and a nationally significant ecosystem.

The Corps proposed navigation improvements at an estimated cost of nearly \$2.6 billion, and an ecosystem restoration plan estimated to cost \$5.72 billion.

Congress. In September 2004, the USACE, recognizing the need for environmental sustainability, presented its feasibility study, proposing a 50-year plan for combined navigation efficiency and ecosystem restoration.

The USACE proposed navigation improvements at an estimated cost of nearly \$2.6 billion, and an ecosystem restoration plan involving an estimated 1,010 projects at a cost of approximately \$5.72 billion.

The first phase of the implementation plan, the 15-year program, has not yet been submitted to Congress. The ecosystem navigation plan would have to be authorized in a new WRDA Act. The first-phase (15-year program) calls for \$1.58 billion for ecosystem restoration work and \$2.03 billion for navigation projects.

Included in the Ecosystem restoration are:

- Fish passage at four dams;
- Changes in water level control at three dams;
- Island building;
- Water level management;
- Backwater/side channel restoration;
- Wing dam/dike alterations;
- Island shoreline protection; and
- 35,000 acres of floodplain restoration.

Recommendation:

TFIC supports a holistic approach that recognizes both nature and navigation. The inland waterway is a valuable economic resource for the Midwest and the nation, and a balance should be struck between the need for economic growth and for environmental sustainability.

Endnotes

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TRANSPORTATION FOR ILLINOIS COALITION MEMBERS

STEERING COMMITTEE

Statewide Organizations

American Concrete Pavement Association
American Council of Engineering Cos. of Illinois
Associated General Contractors of Illinois (AGC)
Illinois AFL-CIO
Illinois Asphalt Pavement Association
Illinois Association of Aggregate Producers
Illinois Municipal League
Illinois Road & Transportation Builders Association
Illinois State Council of Operating Engineers
Illinois State Chamber of Commerce
Laborers-Employers Cooperation and Education
Trust (LECET)
Precast/Prestressed Producers of Illinois &
Wisconsin
Underground Contractors Association

Local/Regional Organizations

Champaign County Chamber of Commerce
Champaign-Urbana Mass Transit
Chicago Metropolis 2020
Chicago Southland Economic Development Corp.
Chicago Transit Authority
Corridor 67, Inc.
Decatur & Macon County Chamber of Commerce
Egyptian Contractors Association
Elgin Area Chamber of Commerce
Greater Aurora Chamber of Commerce
Greater Springfield Chamber of Commerce
Macomb Chamber of Commerce (MACCDDC)
Metra
MetroLINK
Naperville Area Chamber of Commerce
Quincy Area Chamber of Commerce
Regional Transportation Authority (RTA)
Rockford Winnebago County Better Roads Assn.
Route 51 Coalition

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American Civil Engineers – IL Section
Chicago Motor Club – AAA
Greater Peoria Contractors & Suppliers Assn
Growth Association of Southwestern IL
Illinois Concrete Pipe Association
Illinois Construction Industry Committee
Illinois Highway Users Assn.

Illinois Professional Land Surveyors
Illinois Public Airports Association
Illinois Society of Professional Engineers
Illinois Valley Contractors Assn.
Midwest Truckers Association
Structural Engineers Association of Illinois
Township Officials of Illinois

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Associated Equipment Distributors
Associated General Contractors of Quad Cities
Builders Association of Greater Chicago
Chicago Federation of Labor (AFL-CIO)
Chicago Southland Chamber of Commerce
Chicagoland Chamber of Commerce
Illinois Association of County Engineers
Illinois Association of County Officials
Illinois Equipment Distributors Assn.
Illinois Land Improvement Contractors Association
Illinois Landscape Contractors Association

Illinois Petroleum Council
Illinois Quad City Chamber of Commerce
Illinois Ready-Mix Concrete Association
Illinois Automobile Dealers Association
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McLean County Chamber
Metropolitan Planning Council
Northern Illinois Ready Mix & Materials Assn.
Northwestern Illinois Contractors Association
Rockford Area Chamber of Commerce
Southwestern IL Bldg. & Constr. Trades Council

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