Wisconsin's commercial ports

Playing a vital role in the flow of commerce

An economic overview

"Wisconsin's ports support some 11,387 jobs and annually generate over $1.3 billion in economic output and nearly $377 million in personal income from wages, salaries and proprietor incomes."

WISCONSIN DEPARTMENT OF TRANSPORTATION

February 2004

Message from Governor Doyle:

As part of my comprehensive "Grow Wisconsin" initiative to generate economic growth and create jobs, I've called upon the Wisconsin Department of Transportation (WisDOT) to do all it can to support the multi-modal transportation system that keeps Wisconsin residents, visitors and businesses moving forward. The health of our economy and the safety of our citizens require strategic investments in transportation planning efforts and infrastructure.

The state's port facilities are an integral part of our overall transportation network. Wisconsin's ports and their industrious workers handle many of the raw materials we depend upon every day such as coal for generating electricity, iron ore and wood pulp for our industries, agricultural commodities, and the salt that helps keep our roadways safe. Just as our ports served a crucial role in our development as a state over the past several centuries, today's modern port facilities continue to serve as hubs of economic activity.

To help us plot a long-term course for Wisconsin's transportation future and to promote a broader understanding of our ports' important role in creating and supporting jobs, WisDOT and their private-sector partners helped produce this economic overview of the state's port industry. I especially wish to acknowledge Wisconsin's port community for helping make this report possible and for all that you do to keep commerce "flowing."

Jim Doyle, Governor
State of Wisconsin

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Overview

Wisconsin ports provide an important transportation alternative that many states simply cannot offer to their manufacturers, shippers and suppliers. Wisconsin is "geographically fortunate" to be surrounded on three sides by two commercially navigable waterway systems: the Mississippi River; and the Great Lakes—St. Lawrence Seaway. Wisconsin's harbors and ports serve as hubs of economic activity for manufacturing, shipbuilding, cargo handling, passenger ferry services, transportation logistics, commercial fishing, and as recreational centers. Each year, Wisconsin's 15 commercial ports handle some 44 million tons of cargo worth an estimated value of over $7 billion.[1]

Water transportation is the most cost efficient travel mode for moving bulk commodities such as agricultural products, petroleum, coal and construction materials, as well as foreign imports. Freight rates per ton-mile for waterborne modes are as much as 60% lower than rates for other types of overland shipments.

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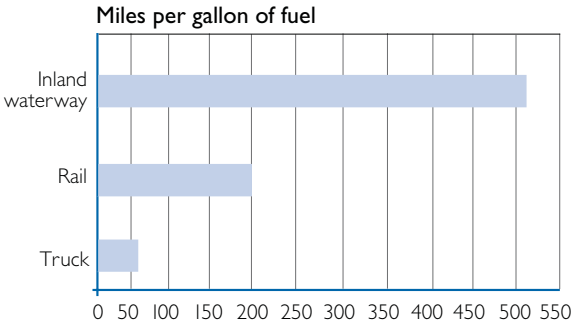
Nationally, 95% of U.S. international cargo by volume is transported by ocean. According to the Office of the U.S. Trade Representative, nearly 20% of all U.S. jobs are directly associated with international trade.[2] Not only does the transport of goods create jobs in Wisconsin, but the production of these exports by the farms, processing plants and manufacturing facilities creates jobs throughout the state's economy. The Great Lakes, the inland waterway system and ocean ports are vital for the movement of U.S. goods to foreign markets. The nation's port system is an economically viable method for handling the export and import of raw materials, agricultural products and manufactured goods.

"Wisconsin's port facilities serve as multi-modal distribution centers linking waterborne vessels with an extensive network of highways and railroads."

Crude materials such as forest products, pulp waste, paper, stone, iron ore and scrap materials account for 76% of the total tonnage and 78% of the total miles shipped out of the Great Lakes' ports. About 91% of Great Lakes' trade is moved in dry-bulk ships. Petroleum, coal and farm products (grain) account for 65% of the tonnage moved by the nation's inland waterways.[3] Coal is the principle fuel source needed for the generation of energy by the state's utility companies.

Wisconsin commodities handled by cargo ships and barges accounts for approximately 44 million tons of products per year. Farm products, metallic ores, coal and scrap materials account for 98% of the commodities shipped from Wisconsin ports.[4] Inbound freight handled at Wisconsin ports amounts to 8.3 million tons annually. Coal, nonmetallic minerals, clay, concrete, stone and scrap/waste materials make up 88% of the total inbound commodities. Wisconsin's harbors and ports are a great benefit to the state's balance of trade since 77.6% of all commodities are exported to destinations outside Wisconsin.

Figure 4 Relative fuel efficiency to move one ton of cargo



Source: "Environmental Advantages of Inland Barge Transportation," U.S. Department of Transportation, Maritime Administration, August, 1994.

Without the waterway system, the price of Wisconsin grain would not be competitive to foreign buyers. An estimated 82% of the corn, 77% of soybeans and 32% of the nation's wheat are produced in 10 Midwestern states that border the Mississippi, Illinois, Missouri and Ohio rivers. According to the U.S. Army Corps of Engineers, it would take an additional 44,000 rail cars to handle the grain and oil seed currently being transported along the Mississippi River.[5]

Water transportation not only provides a cost effective means to transport Wisconsin goods, it is also environmentally efficient. According to the Environmental Protection Agency (EPA), towboats emit 35–60% fewer emissions than locomotives or trucks. One barge has the capacity to handle 58 tractor-trailer loads of cargo. A typical tow of barges (15) down the Mississippi River is equivalent to 870 trucks on the highway. From a fuel efficiency standpoint, a barge can move one ton of cargo 514 miles on a gallon of fuel compared to 202 miles per gallon for rail and 59 miles per truck.

The inland and Great Lakes' waterways surrounding Wisconsin provide for many recreational opportunities for in-state residents and out-of-state visitors to Wisconsin. Charter fishing boats, sport fishing and commercial fishing activities operating out of the state's harbors and marinas are all part of the Wisconsin economy.

Wisconsin commercial shipbuilding and pleasure-boat-building industries make substantial contributions to the state's economy. According to the Shipbuilders Council of America, the U.S. commercial shipbuilding industry outperformed the U.S. economy by 3.4% from 1992 to 2001.[6] The U.S. economy grew at an average annual rate of 3.4% while the shipbuilding industry grew 6.8% during this same 10-year time span. Included in the shipbuilding industry are self-propelled and non-self-propelled ships such as barges. Shipbuilding also includes cleaning, maintenance, repair, and ship conversions.

"From a fuel efficiency standpoint, a barge can move one ton of cargo 514 miles on a gallon of fuel."

Five ferries operate in the state transporting commuters, freight and tourists to some of the more unique and picturesque island communities in Wisconsin. Annually, these ferries transport over 513,000 vehicles and 1.2 million passengers. In addition to autos, passengers, trucks and buses, the Madeline Island ferry service transported some 7,600 bicycles in 2002.[7] Ferries not only provide vital connections to homes, businesses and schools, they also serve as tourist attractions. For many visitors, taking a ferry ride is part of their overall tourism experience.

Economic contributions of Wisconsin's commercial ports

Wisconsin's ports are economic "engines" that help "drive" the state's economy. They encompass a broad range of governmental levels and economic functions including state and local governments, private operators that these agencies contract with, federal agencies such as the U.S. Coast Guard, U.S. Army Corps of Engineers, terminal operators at the ports, cargo loading and unloading, vessel supply,

boat and shipbuilders and repair facilities, commercial and charter fishing operations, and other marine-related businesses. Many of these primary impact industries provide transportation and port services. This analysis focuses on the ***direct***, ***indirect***, and ***induced*** economic effects of these primary impact industries.

"Wisconsin's harbors and ports are a great benefit to the state's balance of trade since 77.6% of all commodities are exported to destinations outside Wisconsin."

The economic activity associated with this transportation mode affects the economy of Wisconsin as a cluster of industries. This economic significance can be estimated and expressed in terms of employment, wages and salaries, and output (total economic activity, roughly similar to sales).

It should be noted that ports have further economic significance. Port-attracted industries are firms that are attracted to a region because of the presence of a port, but are not located at the port itself. These firms typically fall into two groups: exporters of commodities; and importers of raw materials and manufactured items for assembly or distribution. In addition, there are also port-induced industries which have expanded their markets by exporting through the port. For them, the port is a source of reduced transportation costs that can support industry expansion. Estimating the economic significance of these industries would require much more data than is currently available, and would be the subject of another subsequent analysis.

Direct, indirect and induced economic impacts

The economic effects of port activities ripple outward through the state, providing business, incomes, and jobs directly and indirectly. ***Direct*** economic impact is the sum of the initial port-related spending by port authorities and their contractors, terminal operators, and other water transportation service providers. In this analysis it also includes shipbuilding and boat-building operations tied to ports, as well as the operations of the U.S. Coast Guard and the U.S. Army Corps of Engineers. This all comprises direct economic impact.

Indirect economic impact is the economic activity generated by suppliers to the various port agencies and their contractors, and to all the other businesses included in the direct economic impact. It also includes the supply chain linked to these suppliers.

Induced economic impact is the activity generated within the state when employees of ports and port-related businesses (and such government entities as the Coast Guard and the Corps of Engineers) spend their wages on food, clothing, shelter, etc. It also includes economic activity generated when the employees of supplier firms spend their wages. All this spending is income for the recipient businesses, and it is in turn re-spent in the economy, creating a ripple effect as successive waves of spending occur.

Each of these three types of impact adds employment, incomes, and output to the state economy. The total gross economic impact is the sum of the direct, indirect, and induced impacts on employment, incomes, and output. Through this analysis, it's been determined that in total, Wisconsin ports support some 11,387 jobs, generate over $1.3 billion in economic output and nearly $377 million in personal income from wages, salaries and proprietor incomes.

Marine businesses at ports

Some of the largest economic impacts are generated by private businesses that engage in freight and passenger transportation, that furnish marine services, and that engage in marine cargo handling at the ports. In 2001, such businesses at Wisconsin commercial ports generated the following impacts:

- **Direct economic impact of marine businesses at ports**
  - 1,161 jobs
  - $294,637,570 in output
  - $38,918,800 in personal incomes from wages, salaries, and proprietor incomes
- **Indirect and induced economic impact of marine businesses at ports**
  - 1,905 jobs
  - $170,318,240 in output
  - $61,061,429 in personal incomes from wages, salaries, and proprietor incomes
- **Total economic impact of marine businesses at ports**
  - 3,066 jobs
  - $464,955,810 in output
  - $99,980,230 in personal incomes from wages, salaries, and proprietor incomes

Ports' administration

The management and administration of ports also generates economic activity. In 2001, this managerial and operational activity at Wisconsin's commercial ports generated the following economic effects:

- **Direct economic impact of operations, maintenance, improvements, and administration**
  - 61 jobs
  - $3,760,200 in output
  - $908,360 in personal incomes from wages, salaries, and proprietor incomes
- **Indirect and induced economic impact of operations, maintenance, improvements, and administration**
  - 46 jobs
  - $3,620,340 in output
  - $1,199,020 in personal incomes from wages, salaries, and proprietor incomes
- **Total economic impact of operations, maintenance, improvements, and administration**
  - 107 jobs
  - $7,380,540 in output
  - $2,107,380 in personal incomes from wages, salaries, and proprietor incomes

Ship and boat building

These are important manufacturing activities that are typically, in Wisconsin, located at or near ports. Firms in these industries also include businesses that repair and refurbish boats and ships. For purposes of this analysis, Wisconsin firms engaged in canoe and other non-port oriented activities are excluded from these estimates. In 2001, such businesses at Wisconsin commercial ports generated the following impacts:

- **Direct economic impact of ship and boat building at ports**
  - 4,425 jobs
  - $486,361,980 in output
  - $158,729,050 in personal incomes from wages, salaries, and proprietor incomes
- **Indirect and induced economic impact of ship and boat building at ports**
  - 3,121 jobs
  - $359,233,020 in output
  - $98,302,540 in personal incomes from wages, salaries, and proprietor incomes
- **Total economic impact of ship and boat building at ports**
  - 7,546 jobs
  - $845,595,000 in output
  - $257,031,590 in personal incomes from wages, salaries, and proprietor incomes

Commercial and charter fishing

Commercial and charter fishing activity at Wisconsin's commercial ports is not as large an industry as it once was, but remains economically significant. In 2001, such businesses at Wisconsin commercial ports generated the following impacts:

- **Direct economic impact of commercial and charter fishing at ports**
  - 79 jobs
  - $961,990 in output
  - $575,210 in personal incomes from wages, salaries, and proprietor incomes
- **Indirect and induced economic impact of commercial and charter fishing at ports**
  - 7 jobs
  - $462,850 in output
  - $171,150 in personal incomes from wages, salaries, and proprietor incomes
- **Total economic impact of commercial and charter fishing at ports**
  - 86 jobs
  - $1,424,840 in output
  - $746,360 in personal incomes from wages, salaries, and proprietor incomes

U. S. Coast Guard

The U.S. Coast Guard provides services, employs both civilian and military personnel, and contracts with private contractors and providers in Wisconsin. One of the larger parts of its operations comprises contracts with Wisconsin shipbuilders and repair providers. Those economic impacts are already included in the estimates of the impacts of ship and boat building above, and are not included here to avoid double-counting. In 2001, U.S. Coast Guard operations at Wisconsin commercial ports generated the following impacts:

- **Direct economic impact of U. S. Coast Guard**
  - 356 jobs
  - $16,159,000 in output
  - $9,527,960 in personal incomes from wages, salaries, and proprietor incomes
- **Indirect and induced economic impact of U. S. Coast Guard**
  - 90 jobs
  - $6,925,670 in output
  - $2,459,210 in personal incomes from wages, salaries, and proprietor incomes
- **Total economic impact of U. S. Coast Guard**
  - 446 jobs
  - $23,084,680 in output
  - $11,987,170 in personal incomes from wages, salaries, and proprietor incomes

U.S. Army Corps of Engineers

The Corps of Engineers plays a significant role in maintaining the waterways and ports in and bordering Wisconsin. In 2001, Corps of Engineers' operations in Wisconsin ports and waterways generated the following impacts:

- **Direct economic impact of U. S. Army Corps of Engineers**
  - 89 jobs
  - $5,059,860 in output
  - $3,686,710 in personal incomes from wages, salaries, and proprietor incomes
- **Indirect and induced economic impact of U. S. Army Corps of Engineers**
  - 47 jobs
  - $3,957,990 in output
  - $1,318,140 in personal incomes from wages, salaries, and proprietor incomes
- **Total economic impact of U. S. Army Corps of Engineers**
  - 136 jobs
  - $9,017,840 in output
  - $5,004,850 in personal incomes from wages, salaries, and proprietor incomes

Grand total primary economic impact of ports and harbors in Wisconsin

- Direct economic impacts
  - 6,171 jobs
  - $806,940,600 in output
  - $212,346,090 in personal incomes from wages, salaries, and proprietor incomes
- Indirect and induced economic impacts
  - 5,216 jobs
  - $544,518,110 in output
  - $164,511,490 in personal incomes from wages, salaries, and proprietor incomes
- Total economic impacts
  - 11,387 jobs
  - $1,351,458,710 in output
  - $376,857,580 in personal incomes from wages, salaries, and proprietor incomes

Future freight movements

In 2002, some 44 million tons of commodities were shipped through Wisconsin's commercial ports. Of that, about 34 million tons were movements from Wisconsin to the rest of the nation and the world. Thirty-one million (71% of the total) tons terminated elsewhere in the Midwest. About 10 million tons were comprised of movements to Wisconsin from the rest of the nation and the world, and a small remainder was comprised of intrastate movements.

"While Wisconsin's waterways and harbors are deeply rooted in our state's history, they continue to play an important role in the state's economic future."

A recent study by Reebie Associates for the Wisconsin Department of Transportation forecast that by 2020, total shipments through the commercial ports are expected to increase by 34%. Outbound commodity movements will increase by 29%, from 34.4 million tons to 44.4 million tons. By contrast, inbound movements are projected to increase by 51%, from 10 million tons to 15 million tons. Intrastate commodity movements, largely waste and scrap materials and nonmetallic minerals, are projected to increase by 58% over the period, from 129.3 thousand tons to 204 thousand tons.

Coal

In 2002, coal comprised the largest proportion of movements through the ports to the rest of the nation and world: 54%. It also comprised the largest proportion of movements through the ports from the rest of the nation and world into Wisconsin: 48%. These proportions are expected to remain fairly stable in 2020: coal will comprise 58% of all outbound movements, and 45% of all inbound movements.

"By the year 2020, it's estimated that total shipments through Wisconsin commercial ports will increase about 34%."

Shipments from Wisconsin

Metallic ores comprised 32% of all commodity movements from Wisconsin to the rest of the nation and the world in 2002, and that proportion is expected to decrease to 25% of all such movements in 2020. Outbound movements of both waste and scrap materials and of farm products are projected to increase the most. Outbound waste and scrap materials are projected to increase by 71% (2.6 million tons to 4.4 million tons). Outbound farm products are projected to increase by 47% (1.9 million tons to 2.8 million tons).

Shipments into Wisconsin

Clay, concrete, glass, salt and other stone products comprised 18% of all commodity movements into Wisconsin through the commercial ports in 2002, and that proportion is expected to rise to 22% of all such movements in 2020, (from 1.8 million tons in 2002 to 3.3 million tons in 2020). This will represent an 80% increase in total tonnage over the period. Inbound waste/scrap materials are projected to increase by 74% (0.9 million tons to 1.7 million tons). Inbound miscellaneous freight shipments are projected to increase by 70% (343 thousand tons to 583 thousand tons).

Conclusion

Wisconsin's port facilities serve as multi-modal distribution centers linking waterborne vessels with an extensive network of highways and railroads. While Wisconsin's waterways and harbors are deeply rooted in our state's history, they continue to play an important role in the state's economic future.

(Endnotes)

[1] Reebie Associates, Commodity Flow Study, conducted for the Wisconsin Department of Transportation, 2002.

[2] Office of U.S. Trade Representative, November 2002

[3] U.S. Department of Transportation, Bureau of Transportation Statistics, "Maritime Trade & Transportation," 2002, pages 14–17.

[4] Wisconsin Department of Transportation, Commodity Information Management System, developed by Reebie Associates. 1996 baseline for estimating freight flows in Wisconsin

[5] 1999 U.S. Army Corps of Engineers Navigational Data Center

[6] LECG Consultants, prepared for the Shipbuilders Council of America, The Economic Contribution of the U.S. Commercial Shipbuilding Industry, April 2002

[7] Wisconsin Department of Transportation, vehicle and passengers data collected from ferry operators in Wisconsin, 2002. Merrimac Ferry, the only free ferry service operated by the Department of Transportation, annually shuttles 317,000 vehicles across the Wisconsin River.

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More information on Wisconsin's commercial ports can be found on the WisDOT Web site: www.dot.wisconsin.gov/modes/waterways.htm