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Wisconsin's Great Lakes Ports:

Alternative State Policy Options

September 1976

Wisconsin Coastal Zone Mgt. Prog.

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WISCONSIN'S GREAT LAKES PORTS: ALTERNATIVE STATE POLICY OPTIONS

HE554.A5W48 1976

prepared for the

WISCONSIN COASTAL MANAGEMENT
DEVELOPMENT PROGRAM

by the

WISCONSIN DEPARTMENT OF TRANSPORTATION

MAY, 1976

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State of Wisconsin \ DEPARTMENT OF TRANSPORTATION

OFFICE OF THE SECRETARY
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4802 Sheboygan Avenue
Madison, Wisconsin 53702
Telephone 266-1113

Secretary Robert Dunn
Wisconsin Department of Administration

Dear Secretary Dunn:

Attached is the final report, "Wisconsin's Great Lakes Ports: Alternative State Policy Options." This document was prepared under contract between the Department of Administration and the Department of Transportation. That contract, signed June 27, 1975, calls for the Department of Transportation to provide a background "to analyze in report form alternative futures of Great Lakes ports in Wisconsin's integrated transportation system."

A draft report titled "Wisconsin's Great Lakes Ports: Background and Future Alternatives" was prepared for my department by Dr. Harold M. Mayer of the Center for Great Lakes Studies, University of Wisconsin-Milwaukee. The draft report discussed: (1) the historic and current roles of commercial Great Lakes ports in an integrated state transportation system; (2) alternative roles of Great Lakes ports in a future multi-modal transportation system; and (3) alternative statewide public policies relating to the role of the public sector in furthering a statewide transportation system.

This report contains, in abridged form, much of the material contained in the draft report. It also contains more specific discussion of commercial port issues and the pros and cons of policy alternatives relating to these issues. Comments received as part of a public review of the draft report were incorporated into this report, where possible, as called for in the contractual arrangements. A summary of the draft report review comments can be found in Appendix B.

I trust that this report will be helpful as input into Wisconsin's Coastal Management Development Program.

Sincerely,

Zel S. Rice, II
Secretary

ZSR:ng
CC:Allen H. Miller, Coastal Program Coordinator (with camera copy)

ACKNOWLEDGEMENT

The Wisconsin Department of Transportation on behalf of the Wisconsin Coastal Management Development Program would like to acknowledge the members of the Port Advisory Committee for devoting their time, talents, and resources in the preparation of this report and the preceding draft report. Over the past two years the Committee has performed many functions, including providing advice on what should be discussed in this effort, providing data on specific items, and offering constructive comments on drafts of this report (and the July 1975, draft version). Again, thank you to the members of the Port Advisory Committee, who are:

Robert W. Barclay
Frederick M. Dawson
Robert M. Fraser (and Wes Harkins who ably represented Mr. Fraser at times)
Manning W. Kilton
Marge Kinney
Theodore F. Lauf
A. R. Striegl
William H. Tishler

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INTRODUCTION

Ports exist on three of Wisconsin's borders. The two western-most Great Lakes, Michigan and Superior, border the State on the north and east and the Mississippi forms part of the western boundary. The policies relating to the Wisconsin Great Lakes commercial ports are the primary subject of this report; however, some background information and a brief mention is given of the smaller, recreational type ports as well.

ECONOMIC SIGNIFICANCE OF PORT ACTIVITY

The ports of Wisconsin and other Great Lakes states handle primarily bulk cargos rather than the general cargo traffic, which normally yield greater economic benefits to the port community. With few exceptions the ports of Wisconsin are subject to a degree of public control, even though the great majority of port terminal facilities are privately owned and/or operated. Studies of Wisconsin's three most active Great Lakes ports (Milwaukee, Green Bay, Superior) have indicated that the ports exert a beneficial economic impact upon their communities and the State.

A study of the Port of Milwaukee several years ago reached the conclusion that the port generated about 2.7 percent of the total Milwaukee County income. This estimate was based upon waterborne commerce of about $22.1 million for the port in 1963, and a multiplier effect correction factor.1/

A similar study, by the same economist, reached about the same conclusion for Green Bay. Port operations at Green Bay averaged about $11.9 million from 1966-1970 directly generating about 4.8 percent of Green Bay's total unadjusted income.2/

Two studies have also been made of the economic impact of the twin port of Duluth/Superior. Cresap, Mc Cormick and Paget, Inc. estimated a total direct impact of $102.9 million in 1972, and the Seaway Port Authority of Duluth estimated that approximately 2,000 people are engaged in waterfront activity for their livelihood and helped generate from international waterborne traffic a total of $37.1 million of direct benefit to the twin ports in 1974. There was no attempt at applying a multiplier effect factor or relating the generated income to that of the entire community. Similar types of studies have not been made for other ports in Wisconsin.

The three ports referenced above, other Wisconsin ports, and some outside the State, such as Chicago, are in competition with each other because of overlapping hinterlands. Substantial investment is required to provide the facilities necessary to attract and handle the port traffic. There always

1/ Schenker, Eric; The Port of Milwaukee: An Economic Review; The University of Wisconsin Press, Madison; 1967.

2/ Schenker, Eric and Geiger, Joseph L.; The Impact of the Port of Green Bay On the Economy of the Community; University of Wisconsin Sea Grant Program, Technical Report 16; November, 1972.

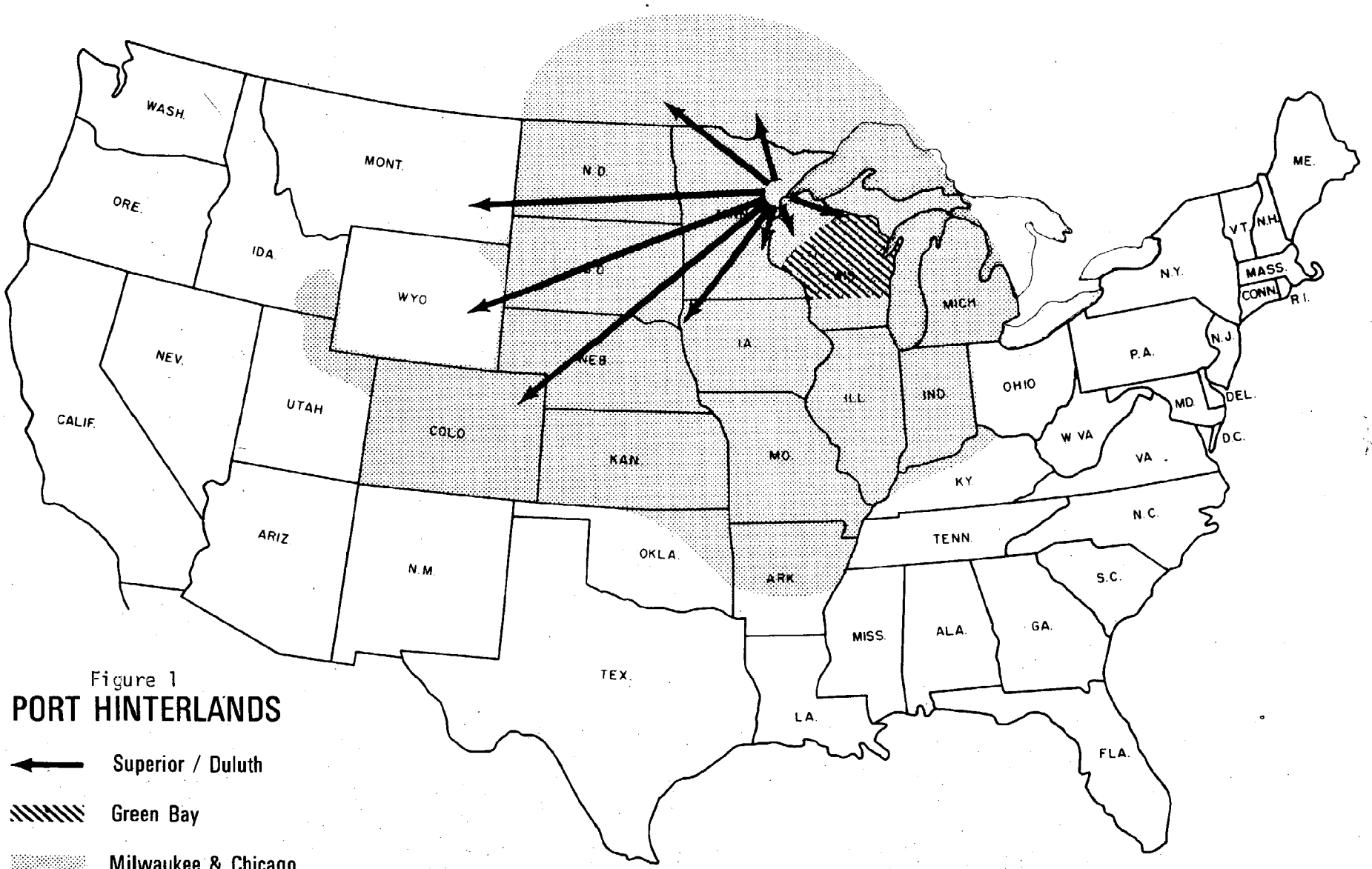


Figure 1

PORT HINTERLANDS

Superior / Duluth

Green Bay

Milwaukee & Chicago

exists the possibility of over-investment, with the expectation being that any given port will be more successful than its competitors in attracting traffic to or from a common hinterland. Over-investment has generally not taken place in Wisconsin ports. Almost all facilities in the state's ports are owned by the private sector (the exception being Milwaukee, where some of the facilities are owned and leased out by the city through its harbor commission). Where facilities fall into disuse, changes in economic factors are usually the cause and financial loss in port developments is absorbed by private industry. The hinterland of a small port typically consists of a local community or metropolitan area. Relatively few industries are attracted or retained because of the bulk traffic made possible by the existence of the port. The trend in recent years has been to concentrate general cargo at a few large ports with sophisticated terminal investments, with some of the bulk traffic moving through the centralized ports and the balance of the bulk commodities moving through specialized ports and terminals.

TRAFFIC OF WISCONSIN'S GREAT LAKES PORTS

The types of traffic on the Great Lakes past, present, and prospective may be divided into three general categories:

General Cargo Liner[1/]
"Salty"
Length = 500' Beam = 75' Draft = 24'
Cargo tonnage = 9,000

(1) direct overseas traffic, carried in ocean-going vessels, or "salties", that enter and leave the Great Lakes through the St. Lawrence Seaway;

(2) inter-lake traffic, including both domestic traffic between United States ports on the Great Lakes, and international traffic between United States and Canadian ports;

(3) intra-lake traffic, both domestic and international

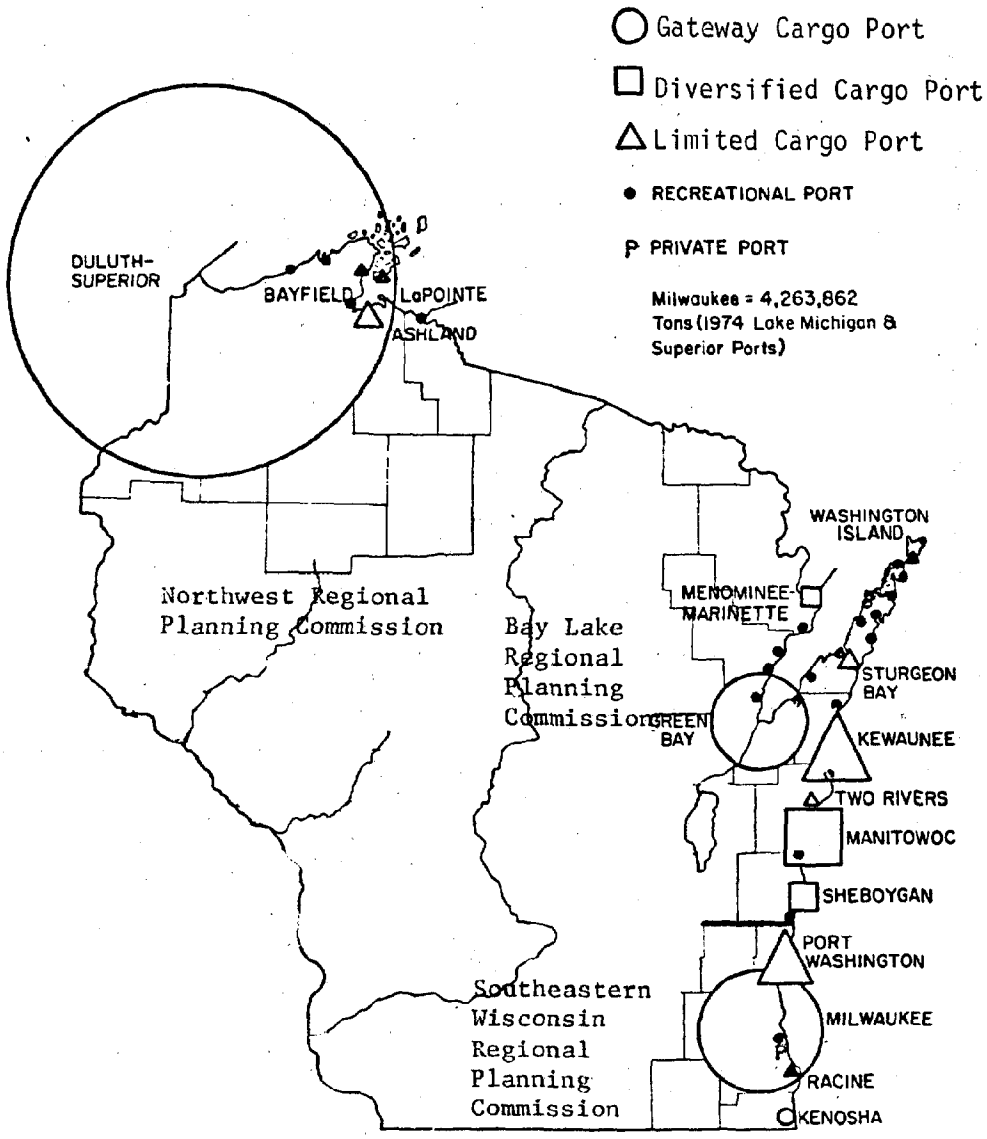
Based on a preliminary study, the Wisconsin Department of Transportation has categorized ports based upon their present and recent past port usage. This classification is shown in Figure 2. Briefly, the roles associated with the classification system are:

1) Recreational Ports: Wisconsin ports without cargo activity are usually small harbors with much recreational and some commercial fishing activity. They are extensively used in the summer by tourists and local residents. Harbors with marina developments usually have the most recreational boating activity. Many recreational ports are scattered along the coast of Door County, Bayfield County, and the west shore of Green Bay.

1/ Schenker, Eric and Mayer, Harold M. and Brockel, Harry C.; The Great Lakes Transportation System; University of Wisconsin Sea Grant College Program; 1976. p. 14. Ship sketches drawn to scale of 1" = 200'; ship data is that for a typical type of vessel.

Figure 2

CLASSIFICATION OF WISCONSIN WATERPORTS



Source: Wisconsin Department of Transportation

2) Limited Cargo Ports: Commercial activity at these ports usually involves the offloading of bulk cargos which are utilized by industries located in or near the port. Coal and petroleum are the main cargos. Coal is usually received by electrical power plants. Water shipment of petroleum products occurs when the local distributor receives his supply from refineries located elsewhere on or near the shores of the Great Lakes and uses water transportation because of its low cost. Vessel unloadings average once a week or less. Detroit Harbor (Washington Island), Kewaunee, Bayfield and La Pointe are exceptions in that their principal activity involves ferry vessel loading and unloading several times daily. Recreational boating is usually the prime activity in these harbors during the summer and peak use is on weekends. The private port at Oak Creek until very recently received coal for the Wisconsin Electric Power plant.

3) Diversified Cargo Ports: Activity (beyond that described above) is additionally determined by industries using water transportation and located near the port. The main difference between the two types of commercial cargo ports (limited and diversified) is the number of different commodities involved in port activity. Coal is still the main commodity being handled but other cargos, such as cement, minerals, pulp, limestone and petroleum are also received. The diversity in the kinds of cargo being handled is usually the result of several different operators in the port area. Recreational activity is also widespread in these ports although recreational activities are usually located on a different section of the waterfront than the commercial area.

4) Gateway Ports: Commodities passing through gateway ports have generally been transported to or from the port hinterland areas as opposed to transported commodities terminating at the port itself. These ports are the only ones with any substantial amounts of overseas trade and handle more of a variety of cargos than any other group of ports. In addition to coal, petroleum, minerals, and cement, which other ports handle, most of the gateway ports also deal with grain, food products, chemicals, machinery and metal products. Gateway ports in Wisconsin are located in the larger population centers and as a result recreational activity and demand is also very extensive.

One obvious geographic division can be made, that being between the ports on Lake Superior and Michigan respectively. On Lake Superior, one port -- Superior/Duluth -- dominates with an average of over 41 million tons of waterborne traffic per year during the last ten years. The only other Wisconsin port on Lake Superior with any substantial volume is Ashland, which in 1974 handled 378 thousand tons. Other Lake Superior ports, handling mostly fish and other local traffic, include Bayfield, Cornucopia, La Pointe, Port Wing and Washburn harbors.

On Lake Michigan, the ports at Milwaukee and Green Bay handle substantial volumes of direct overseas traffic as well as Great Lakes traffic. In 1974, the former handled 4.26 million tons, including 396 thousand tons of direct overseas traffic, and the latter 2.53 million tons, including 88 thousand tons

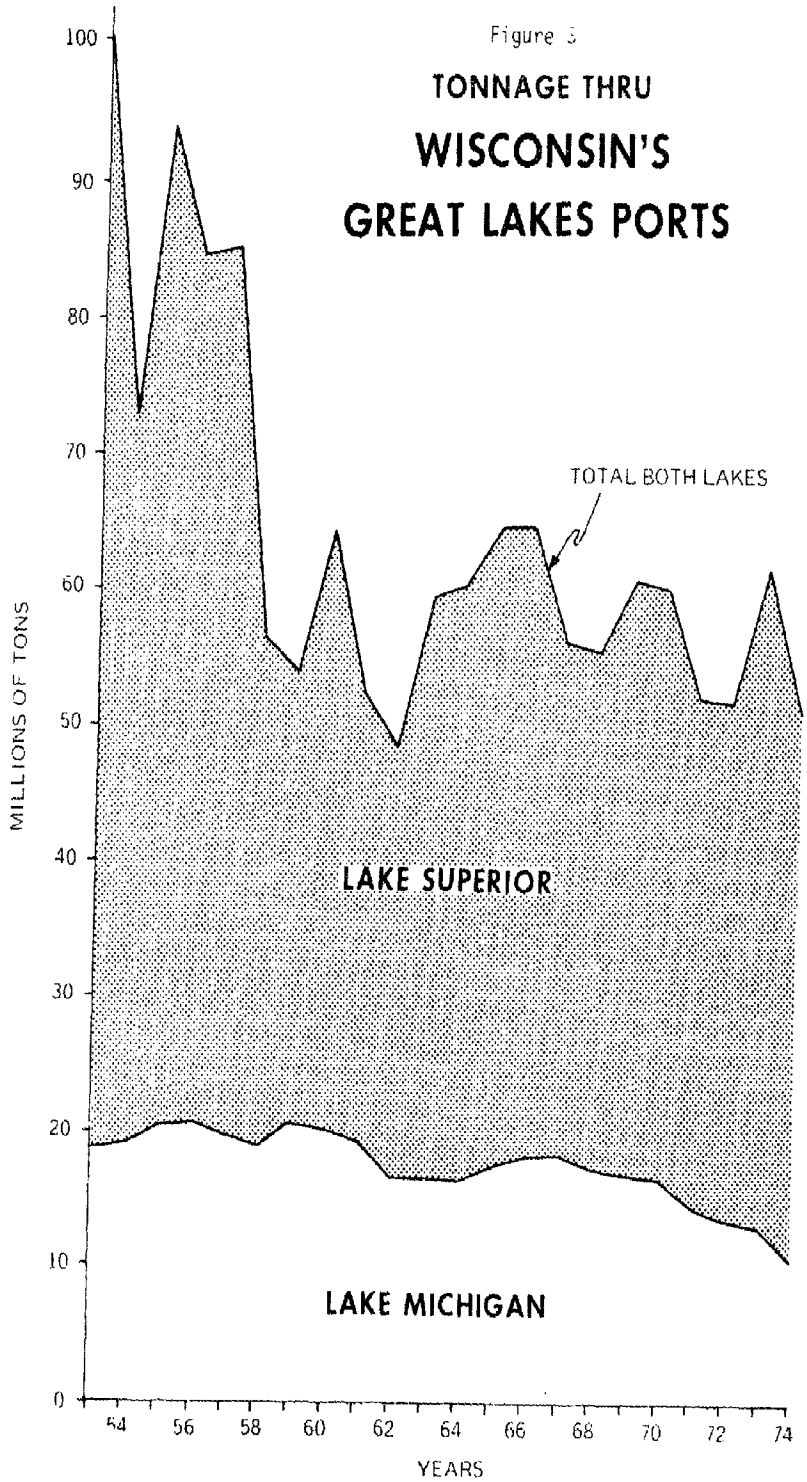


Figure 3
TONNAGE THRU
WISCONSIN'S
GREAT LAKES PORTS
TOTAL BOTH LAKES
LAKE SUPERIOR
LAKE MICHIGAN
MILLIONS OF TONS
100
90
80
70
60
50
40
30
20
10
0
54
56
58
60
62
64
66
68
70
72
74
YEARS

S. S. Spartan
Rail/Auto Ferry
Length = 410' Beam = 60' Draft 18.5'
Tonnage = 2033

of direct overseas traffic. No other Lake Michigan port in Wisconsin handled more than one million tons. In addition to Milwaukee, which has two cross lake railroad car ferry routes, Manitowoc and Kewaunee are also ferry ports, each handling between .87 and 1.28 million tons of traffic in 1974, most of which was moved by the railroad ferries. Port Washington received over 676 thousand tons, principally fuel, including coal for the electric generating plant. The private harbor south of Milwaukee -- Oak Creek, once received substantial volumes of coal but now unit trains provide the fuel needs of the electric power plant at Oak Creek. (For more information on tonnages through Wisconsin's Great Lakes ports see Appendix A of the draft report, "Wisconsin's Great Lakes Ports: Background & Future Alternatives," prepared by Dr. Harold M. Mayer of the University of Wisconsin-Milwaukee).

The Wisconsin ports (including those ports which are bi-state geographically -- Superior/Duluth and Marinette/Menominee) together contribute approximately fifteen percent of the total receipts and shipments of all United States ports on the Great Lakes. Annual tonnage through these ports, as shown in Figure 3, has decreased since the mid-1950's.

SHIPPING SERVICES ACROSS LAKE MICHIGAN

For many years there were a number of steamship and ferry services across Lake Michigan (mentioned above) linking eastern Wisconsin and Western Michigan. The last of the regular steamship services (the Milwaukee Clipper) terminated in 1973, due to obsolescence of the vessels and the high costs of modifying them to meet environmental requirements. Three railroads - the Chessie System (Chesapeake & Ohio), the Grand Trunk Western, and the Ann Arbor - have been operating car ferry services since the late nineteenth century, using a technology which was the prototype for similar services in many parts of the world (See Figure 4). All three of these services are now in prospect of imminent termination; each of the railroads has applied for abandonment and one is receiving subsidies through the States of Michigan and Wisconsin.

In recent years, there has been a decline in the amount of service provided by the ferries, and several of the routes have already been abandoned. There are several reasons for this decline, which include:

- Changes of railroad technology together with the recent changes in the geographic patterns of railroad traffic. Traffic to the east is dominated by the flow through the Chicago gateway, around the southern end of Lake Michigan;

- Inefficient vessels that are labor intensive, slow, and in some cases lacking the needed sewage holding or treatment facilities on board; the newest vessels are 25 year old coal burners with environmental problems.

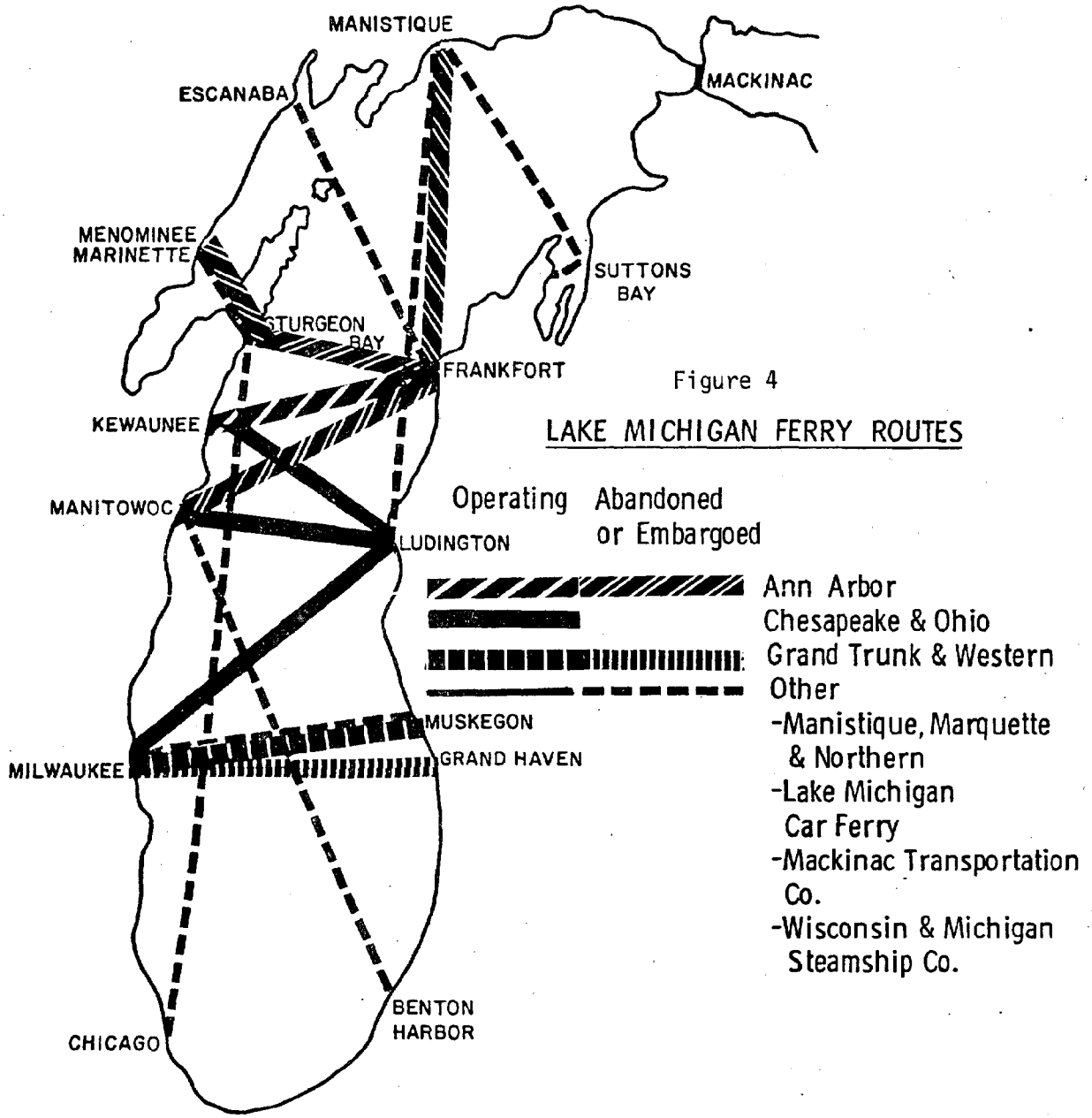


Figure 4

LAKE MICHIGAN FERRY ROUTES

Abandonment of the present cross-lake service would leave Lake Michigan as an impenetrable barrier over 300 miles in length across one of the main east-west axis of transportation in the United States. This would force all movements, except by air, around the end of the lake, mainly through the Chicago gateway. This routing would produce substantial added mileage, congestion delays, additional air pollution and additional fuel consumption. Eventually, if the loss of ferry service occurred, the rail rates from Wisconsin communities to the east might reflect the longer route to Chicago.

Further, loss of ferry service could result in the loss of a large portion of the more than 35,000 industrial jobs with an annual payroll of $385 million that are related directly or indirectly to the car ferry traffic being affected. Without the ferry service to insure adequate supply of empty rail cars, the continued profitable existence and expansion of Wisconsin industries (principally paper-related) would be imperiled. The continued economic viability of the Green Bay and Western Railroad (GB&W) would also be endangered with the discontinuance of certain of the ferries. The GB&W serves substantial numbers of shippers and receivers--particularly in Kewaunee, Brown, Outagamie, Waupaca, Portage, Wood, Jackson, Trempealeau and Buffalo Counties.

Additionally, the past ferry services have handled substantial seasonal tourist traffic between Wisconsin and Michigan. The trip across the lake has been, in itself, a tourist feature.

RELATION OF THE STATE TO PORT PLANNING & DEVELOPMENT

The State of Wisconsin has, in the recent past, exercised relatively few functions in connection with its ports compared to some of the other states. Some states own and operate extensive port terminal facilities; others exercise more functions than Wisconsin, but do not actually operate facilities. The State of Wisconsin specifically designates the major functions of port planning, development, financing, and operation - where the latter function is not private - to local bodies. Ports are either directed by municipalities, or through a board of harbor commissioners which is fiscally dependent upon the local government.

Many recent trends indicate that Wisconsin may want to play a larger role in relation to port planning and development. Few ports can raise the capital required to compete effectively with other ports (and other modes), and since at least some competition is generally desired, financial assistance from either the state or the federal government, or both may be needed. Generally, there is local resistance to centralized planning by either the state or the federal government due to the possibility of the additional controls and direction that may accompany increased state or federal roles in relation to ports. There are further reservations at the local level concerning financial assistance by the state, e.g., the assistance may be inequitably distributed among the various ports within the state. Any centralized planning or allocation of funds by the state must take into consideration the realistic probability of uneconomic return if the funds are too widely distributed among the ports.

Table 1

Transportation Facilities and Services To Wisconsin Great Lakes Ports

Port	Highways	Railroads	Number of Common Carrier Trucking Companies	Airport & Scheduled Air Carrier Service
Ashland	US 2, US 63, Wis 13, Wis 112	CNW, Soo, BN	2	John F. Kennedy Memorial (Midstate Air Commuter)
Green Bay	US 41, US 141, Wis 29 Wis 32, Wis 54, Wis 57 I 43*	CNW, Milw., GB&W	20	Austin Straubel (North Central)
Kenosha	US 41, US 45, Wis 50, I 94	CNW	33	Kenosha Municipal
Kewaunee	Wis 29, Wis 42, I 43*	GB&W, AA, C&O	3	
Manitowoc	US 10, US 141, US 151 Wis 42, I 43*	AA, C&O, CNW, Soo	14	Manitowoc Municipal (North Central)
Marinette-Menominee	US 41, Wis 64 Wis 180	CNW, Milw.	3	Menominee County North Central)
Milwaukee	US 16, US 18, US 41, US 141, Wis 15, Wis 32, Wis 59, I 94, I 894	C&O, Milw., CNW, Soo, GTW	72	General Mitchel, Eastern, North Central, Northwest Orient, Ozark, United, Midstate Air Commuter)
Oak Creek	Wis 32	CNW	-	
Port Washington	US 41, Wis 32, Wis 33, I 43*	CNW	11	Private Airport
Racine	Wis 11, Wis 20, Wis 32, Wis 38, I 94	CNW, Milw.	33	Racine/Horlick
Sheboygan	US 141, I 43*	CNW	14	Sheboygan County (Midstate Air Commuter)
Sturgeon Bay	Wis 42, Wis 57		6	Door County Cherryland (Midstate Air Commuter)
Superior-Duluth	US 2, Wis 13, Wis 35, Wis 53, Wis 105, I 535	CNW, BN, Soo, DM&IR, DW&P	15	Duluth International (North Central)
Two Rivers	Wis 42, Wis 147, I 43*	CNW	9	Served by Manitowoc Municipal

* Under Construction
CNW - Chicago and Northwestern Transportation Company
MILW - Chicago, Milwaukee, St. Paul and Pacific Railroad (Milwaukee Road)
Soo - Soo Line Railroad
BN - Burlington Northern, Inc.
GB&W - Green Bay & Western
AA - Ann Arbor Railroad
C&O - Chesapeake & Ohio Railroad
GTW - Grand Truck Western
DM&IR - Duluth, Missabe and Iron Range Railway
DW&P - Duluth, Winnipeg & Pacific Railway

The dilemma which the state could face is that, on the one hand, the results of its port planning and supporting activities should not favor any particular port or ports, but on the other hand, it should not result in an unrealistic level of support for those ports which either could not compete effectively or which could cause diversion of traffic to the detriment of the well-established ports, both within and outside the state.

One of the roles that the state could assume is the investigation of origins and destinations of shipments moving through the state's ports, including movements originating and terminating in the state but moving through ports outside the state. This continuing investigation could identify the various modes of transportation necessary to connect the ports of the state with their respective hinterlands. (See Table 1 for description of transportation facilities and services now serving Wisconsin's commercial ports.) By broadening out the study of traffic passing through specific ports to a state or multi-state level, the problem of overstatement of a specific port's hinterland area and of the traffic potentials of that port, can be avoided. The tendency for over-investment in port facilities could possibly be reduced through centralized planning.

THE FUTURE OF THE SMALLER PORTS

As briefly mentioned earlier, the future direction of commercial shipping seems to be a concentration of traffic at fewer but larger or more specialized ports. The smaller ports now face prospects of a changed future. Some of them may not survive as large-scale commercial shipping ports, but may adapt to new or expanded roles such as: (1) recreational boating, (2) sport fishing, and (3) commercial fishing.

There is a growing demand for facilities for small craft, including both sail and power boats, on the Great Lakes. Berthage and launching facilities are in short supply, and their provision could be a major role for the smaller ports in the future.

Commercial and sport fishing, subject to management of the biotic resources of the lakes, could also be expanded at some of the smaller ports.

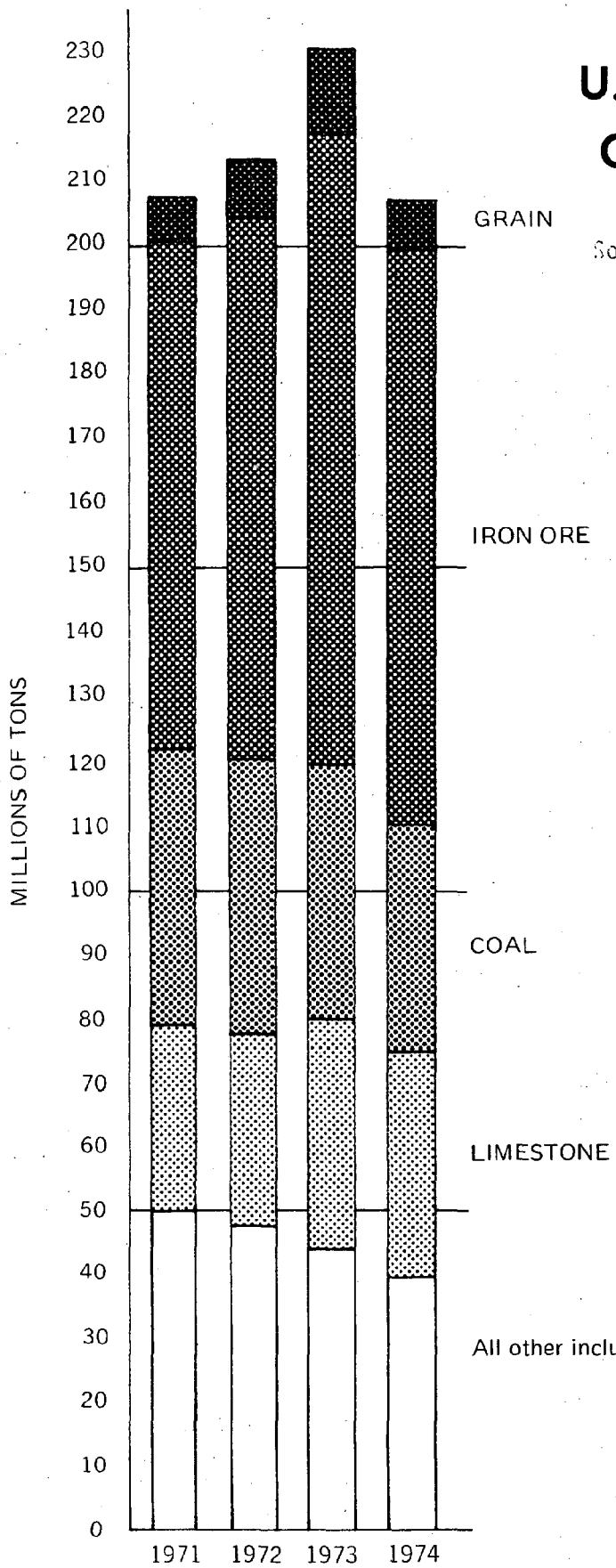
Recreational boating, sport fishing, and commercial fishing vessels do not require deep channels. Therefore, some of the ports or portions of larger ports need not be provided with the present dredged project depths, but rather the depths of channels and harbors could be maintained suitable for medium-sized or small craft. Continued maintenance and operation of aids to navigation, such as lighthouses, buoys, emergency communications, and rescue services, are essential. The responsibility of providing some of these services now rests with the federal government.

INTERNAL GREAT LAKES TRAFFIC

The dominant commercial traffic through Wisconsin's Great Lakes ports consists of bulk commodities. Virtually all of the internal Great Lakes traffic is either associated with heavy industrial development in and near the lakes, or involves fossil fuels moving to the utility plants along the shores.

Figure 5

U.S. GREAT LAKES CARGO TRAFFIC



Source: Department of the Army, Corps of Engineers, Waterborne Commerce of the United States, Part 3, 1971, 1972, 1973, 1974.

All other including:
- General cargo
- Petroleum & petroleum products
- Ore & minerals other than iron
- Food other than grain
- Paper & pulp
- Stone, sand & gravel other than limestone

The world's largest concentration of basic iron and steel production and the associated metal fabricating and machinery production is located along the shores of Lakes Michigan, Ontario and Erie. Great Lakes transportation is the vital link connecting the steel producing area with the sources of raw materials that dominate shipped material: ore, limestone, and coal (See Figure 5). Major changes have taken place in recent years, and are continuing, with respect to the direction and character of movement of these materials. In the cases of ore and coal, the characteristics of the materials themselves have changed. These changes are reflected, in turn, in the characteristics of the vessels and of the port terminals.

Direct shipments of iron ore from the ranges around Lake Superior, the principle source of iron ore for over a century, began with the opening of the first canal that circumvented the rapids of the St. Marys River and connected Lake Superior with the lower lakes in 1855. With the opening of the St. Lawrence Seaway (Figures 6 & 7), the ores of the Quebec-Labrador area have become competitive at the Canadian plants of Lake Ontario, and through the Welland Canal, in the Cleveland-Youngstown-Pittsburgh area. Since 1959 (the opening date of the seaway), the "lakers" have not been confined to the area of the Great Lakes proper; some carry grain eastward to the lower St. Lawrence, returning with ore.

Straight Decker Laker (Pre-1970 Maximum)
Length = 730' Beam = 75' Draft = 25.75'
Cargo Tonnage = 28,000

Virtually all the world records for rapid loading of bulk cargos have been held by the upper lake ports, such as Superior/Duluth, involving hematite, the principal direct-shipping ore. Iron ore traffic is handled through highly mechanized links in an integrated chain of transportation. This involves railroads from the mines to lakehead ports, water movement through the lakes, and either termination at waterfront plants in the lower lakes or further rail movement to nearby inland points such as Pittsburgh and Youngstown. Ton-mile costs of this transportation have traditionally been among the lowest in the world.

Shipments from ports along the south shores of Lake Erie and Michigan provide "lakers" with return cargoes of coal; the former from the Appalachian region, and the latter from central and southern Illinois and western Kentucky. Some of these return trip coal supplies are received at Oak Creek, Milwaukee, Port Washington, Sheboygan, Manitowoc, Green Bay, and Marinette/Menominee for electric power plant and other usage. The western coal is now being trans-shipped through the port of Superior/Duluth causing changes in the former coal movement patterns and facility developments.

The grain movement in the Great Lakes has fluctuated from year to year, but the development of larger canals and locks along the entire Great Lakes - St. Lawrence system has shifted the movements substantially. Buffalo was, until 1932, the easterly head of lake grain movement, except for the small "canallers". Transfer of grain between lake and canal vessels took place at

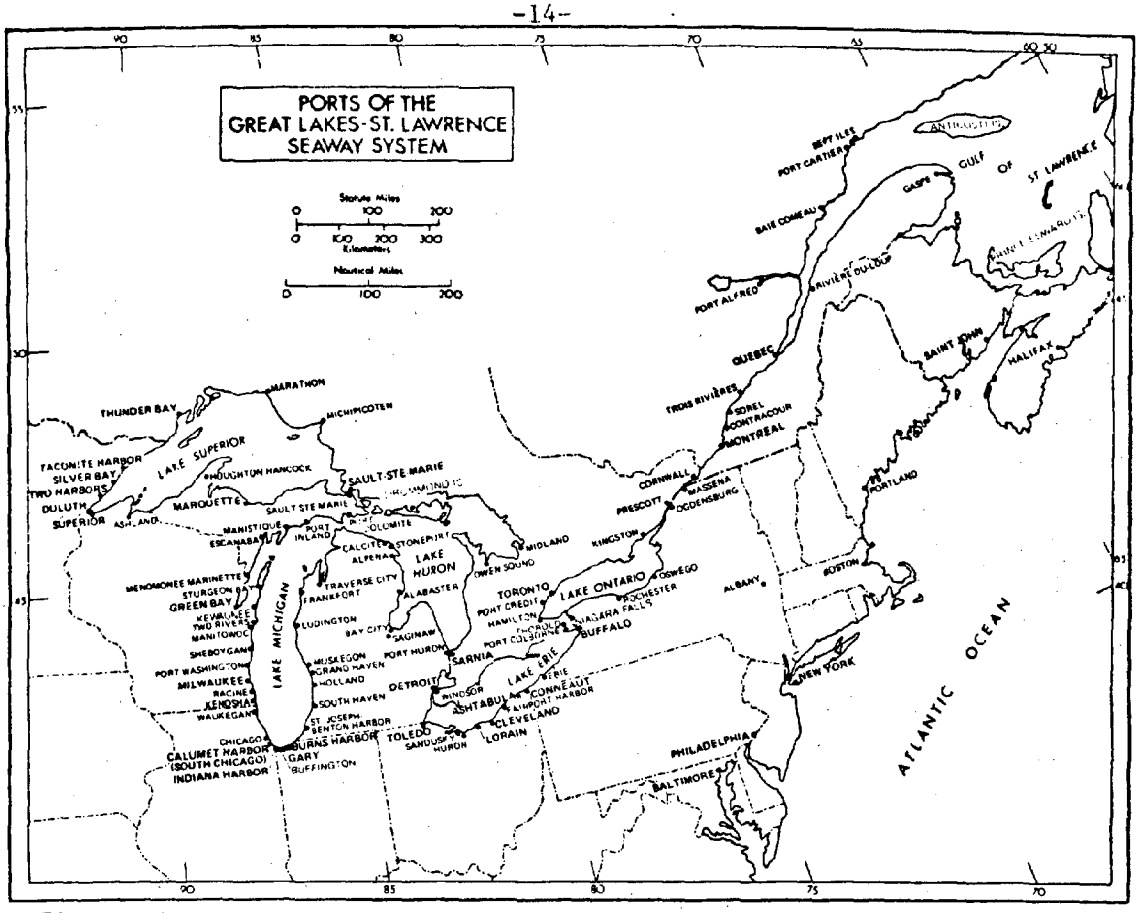


Figure 6*

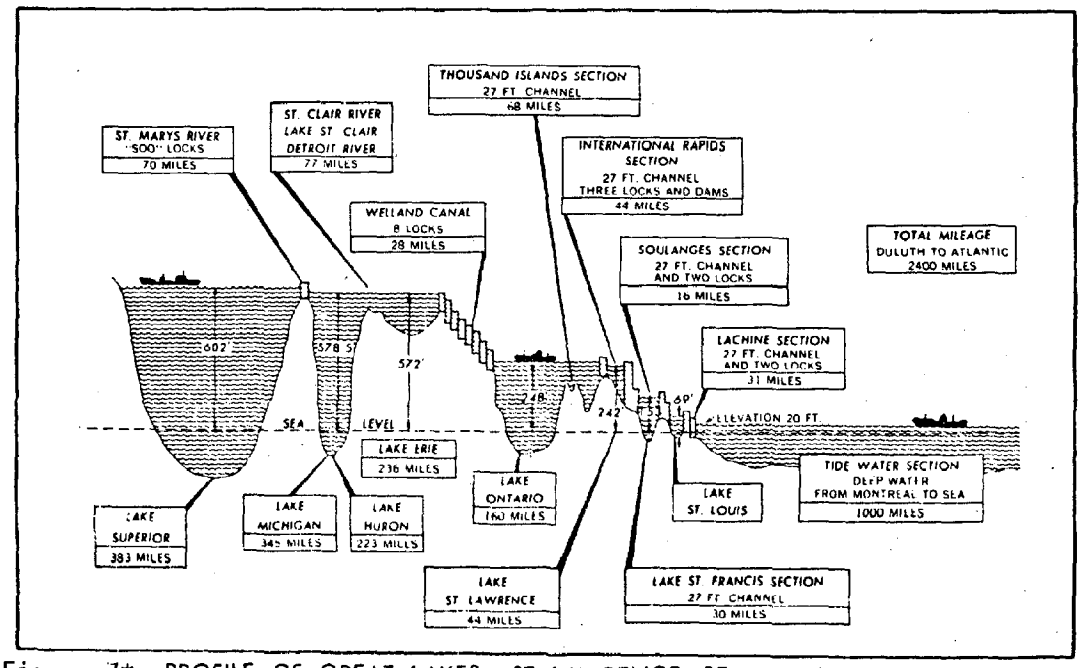


Figure 7* PROFILE OF GREAT LAKES - ST. LAWRENCE SEAWAY SYSTEM

*/ SOURCE: International Great Lakes Levels Board, Regulation of Great Lakes Water Levels, Appendix E, Commercial Navigation, Report to the International Joint Commission, 1973, p. E-7.

Canaller
Length = 258' Beam = 43.5' Draft = 14'
Cargo tonnage = 3,000

Prescott, Ontario and Ogdensburg, New York, which between 1933 and 1959 constituted the lower head of navigation for the lake vessels. Another transfer for export grain took place between "canallers" and oceangoing "salties" at Montreal or other lower St. Lawrence ports. With the opening of the enlarged St. Lawrence Seaway, direct Great Lakes-overseas movement of grain in oceangoing vessels was supplemented by the transfer between "straight decker" and "self-unloader" lakers and ocean ships in St. Lawrence ports below the canals.

Several developments of recent years have shifted the character of the typical lake vessels from the "straight decker" to the "self-unloader". Formerly, it had not been possible to utilize ships fitted with onboard unloading conveyor systems in the ore trade, in part because the water content would produce freezing of the ore during cold weather early and late in the season, and partly because of the nonuniform sizes and shapes of the ore. With taconite concentration plants located in the upper lakes region, an increasing proportion of the ore moving in the lakes is of a concentrated nature. Currently, the proportion of total ore tonnage within the lakes is about ninety percent taconite and ten percent direct-shipping ore.

Self Unloader Laker (Pre-1970 Maximum)
Length = 730' Beam = 75' Draft = 25.75'
Cargo tonnage = 28,000

For a number of years, virtually all of the new bulk carriers on the Great Lakes have been self-unloaders, which are equally available for the ore, coal, stone, and grain trades; a significant number of the older vessels have been retro-fitted as self-unloaders.

A second relatively recent development of great significance is the completion of the Poe Lock at the Soo, which since its opening in 1970 has allowed ships of 1000 feet in length and 105 feet in beam to carry over 57,000 tons of cargo between Lake Superior and the lower Lakes of Huron and Michigan. The Roger Blough of U.S. Steel, the Stewart J. Cort of Bethlehem Steel and Litton's Presque Isle

Presque Isle
Super Laker
Length = 1020' Beam = 104.7' Draft = 28.6'
Cargo tonnage = 57,200

became the first of the new generation of lake ships. Subsequently, other vessels were ordered, and some of the older vessels were enlarged to the new "super laker" size.

Another development relating to lakewise (internal Great Lakes) shipping, is the changing energy picture, together with the sudden awareness of the impacts of power plants, and the fuels which they utilize, upon the environment. The emphasis upon use of low sulphur coal is producing a rapidly expanding traffic which is the reverse of the previous lake coal movement; namely, a downbound movement of western low-sulphur coal from Lake Superior, for receipt at the lower lake ports. Unlike the upbound movement, which had dominated in the lake trades for many decades, the new coal movement is in the same direction as the ore movement, and is thus in phase with, rather than complementary to, the principal commodity flow on the lakes. Major loading facilities are now under construction or planned for lakehead ports. These ports are connected with the western coal fields by unit trains (dedicated equipment trains made up of one type of car, carrying the same commodity from a specific origin to a specific destination as a direct through train) which greatly reduce the costs of long-haul movement.

A coal loading facility is being constructed at Superior, to transfer low sulphur western coal from unit trains operated by the Burlington Northern to lake vessels for downbound movement, principally to utility plants in the Detroit area. This facility is projected to add as much as twenty million tons annually to the traffic at the port at Superior.

Another potentially significant traffic development affecting the Great Lakes is the prospect of continued extension of the navigation season. A demonstration program to extend the navigation season in the Great Lakes, authorized by the Rivers and Harbors Act of 1970, is planned to be continued at least until 1978. For the first time, interlake operation of shipping service was carried on during the entire winter of 1974-75, thus the two seasons overlapped. This was accomplished by a combination of many techniques, including icebreaking by Coast Guard vessels especially assigned to the operation, bubblers on the bottoms of critical connecting channels and harbors to inhibit ice formation, improved surveillance and reporting of ice conditions, and the use of ice strengthened hulls and more powerful engines than those typical of "lakers" in the past. During the winter of 1974-75, several ore carriers of one company, the United States Steel Corporation, were kept in service until the beginning of the 1975 navigation season. One of the locks at Sault St. Marie was kept available at all times through the winter. This was made possible, even though each of the locks was closed for repairs at one time or another, because of the parallel locks at that location.

To summarize the internal Great Lakes traffic trends, it may be stated that new conditions of operation, new types and directions of traffic flow, and fewer but larger and more efficient bulk-carrying vessels represent the current trend, as well as the short and intermediate range prospects for the future. The 1995 projections for all cargo including separate breakdowns for iron ore, limestone, coal, grain and general cargo are displayed in Figures 8-13. (It should be noted that the projections were made before the extent of western coal influence on the upper lakes was known. Green Bay does not generate enough general cargo, over 100,000 tons, to have been included in the general cargo projections).

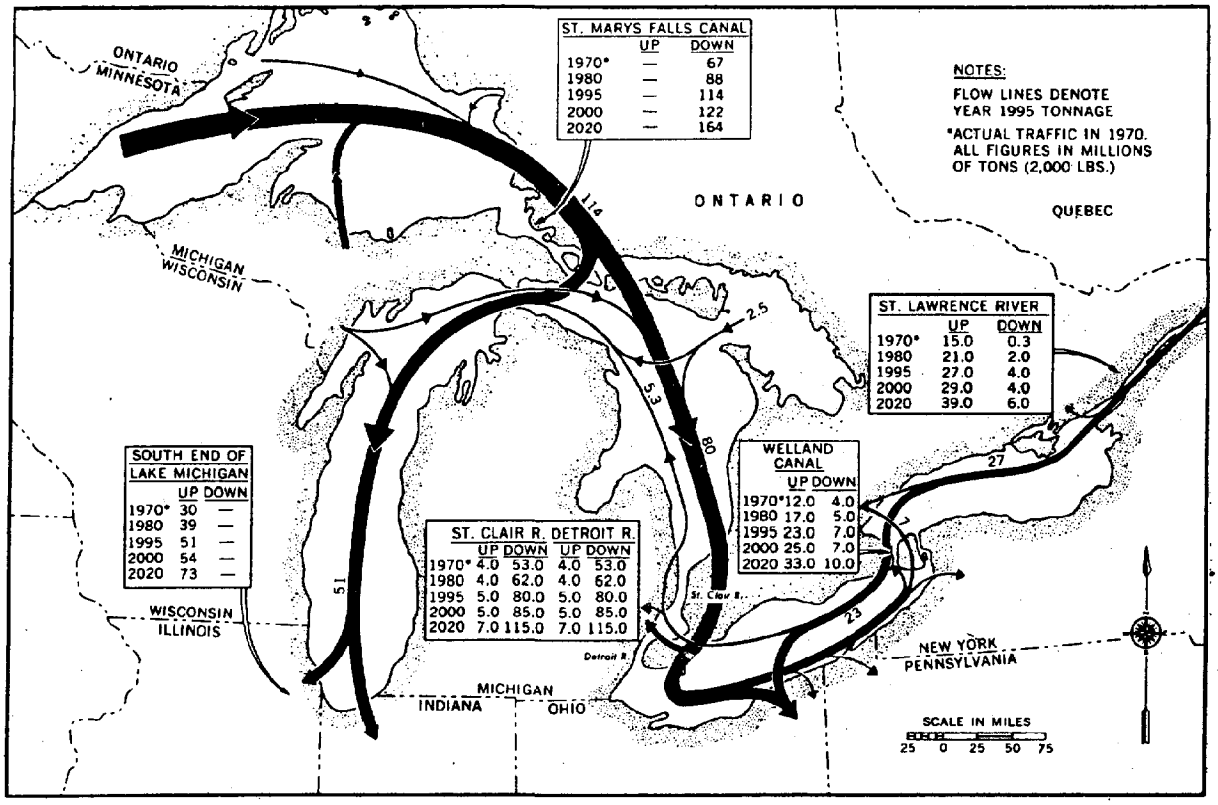


Figure 8** **Projected Iron Ore Traffic Flow, 1995**

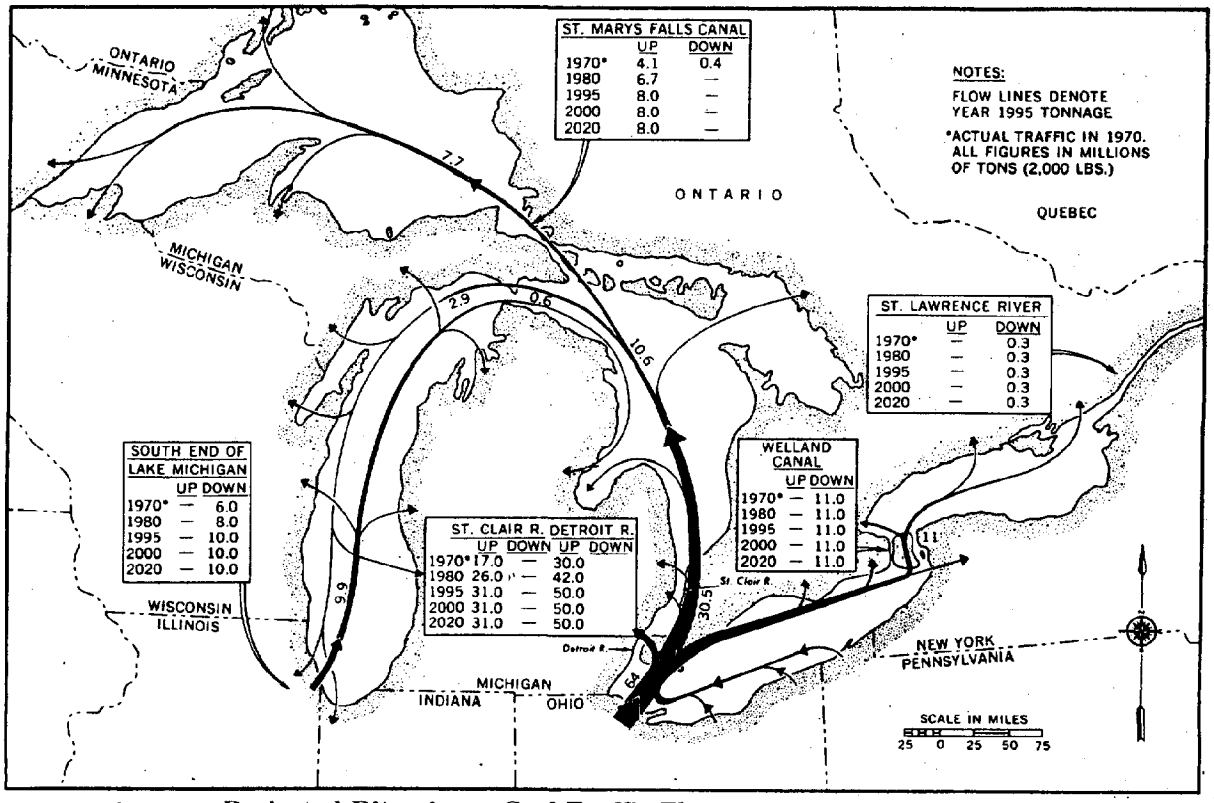


Figure 9** **Projected Bituminous Coal Traffic Flow, 1995**

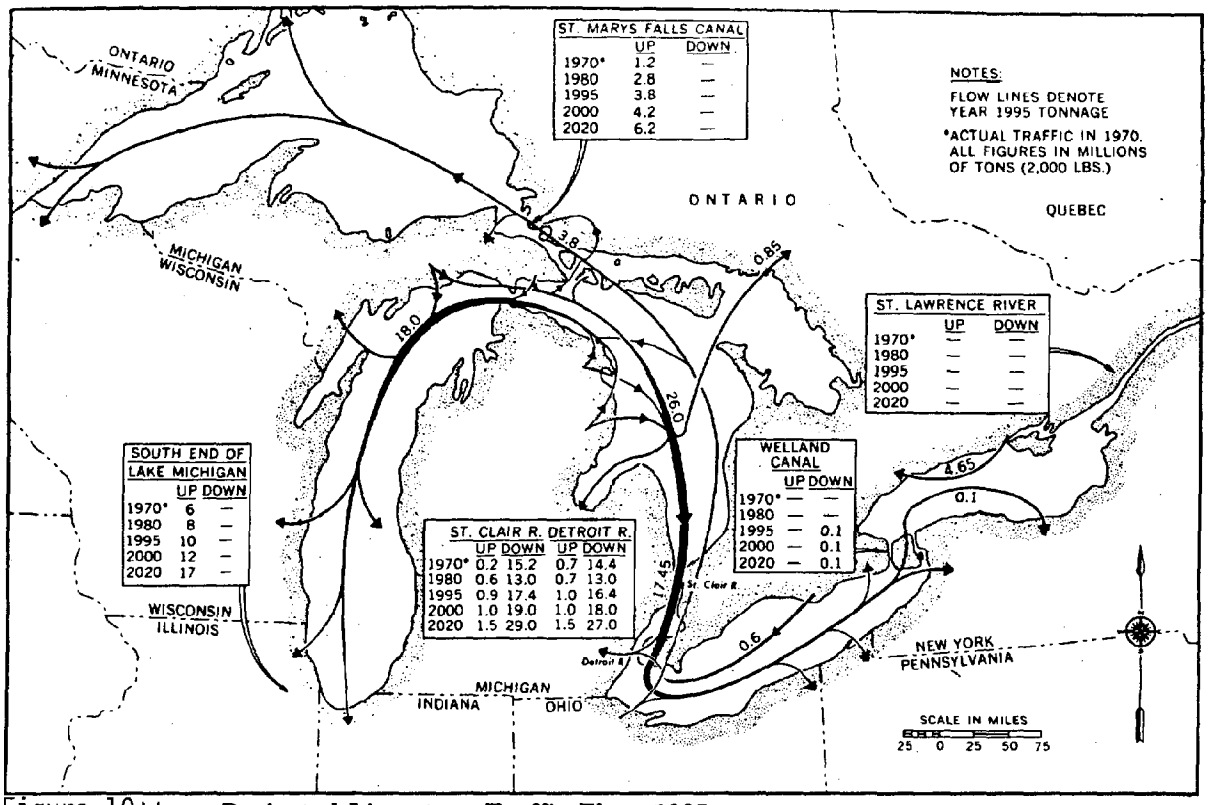


Figure 10** **Projected Limestone Traffic Flow, 1995**

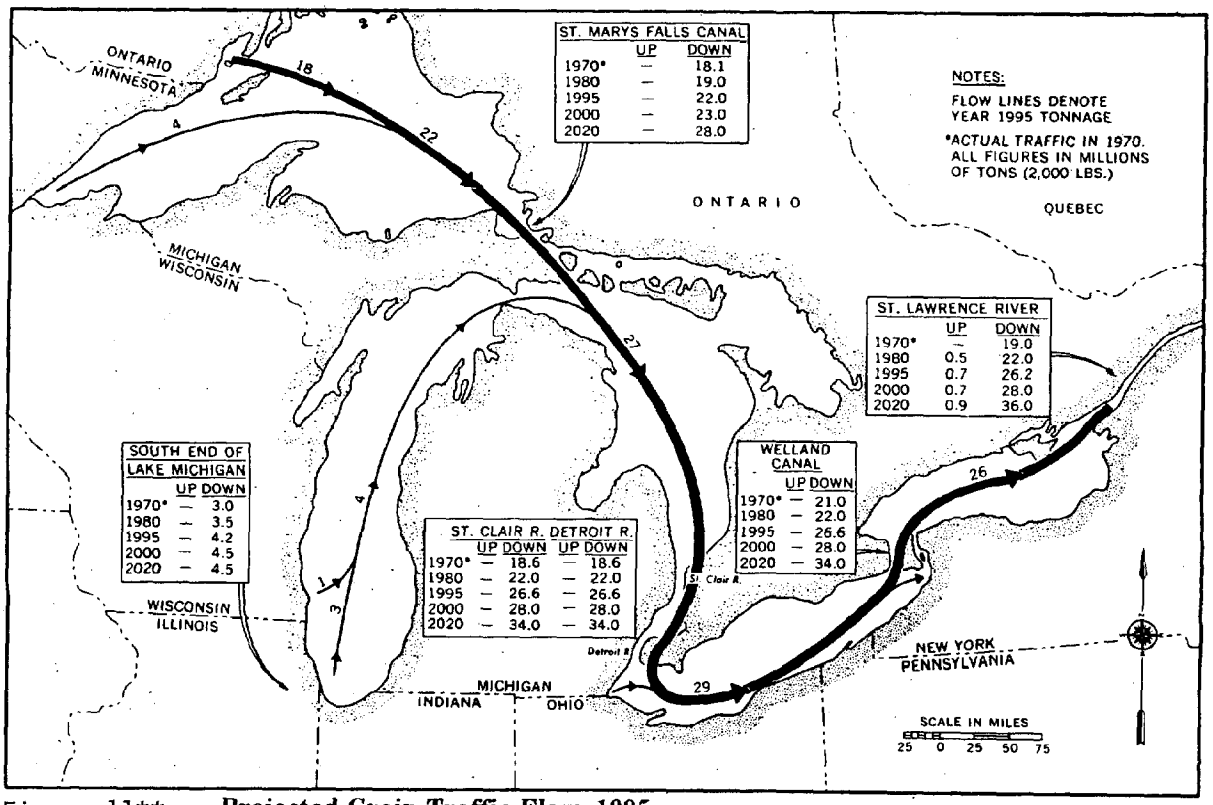


Figure 11** **Projected Grain Traffic Flow, 1995**

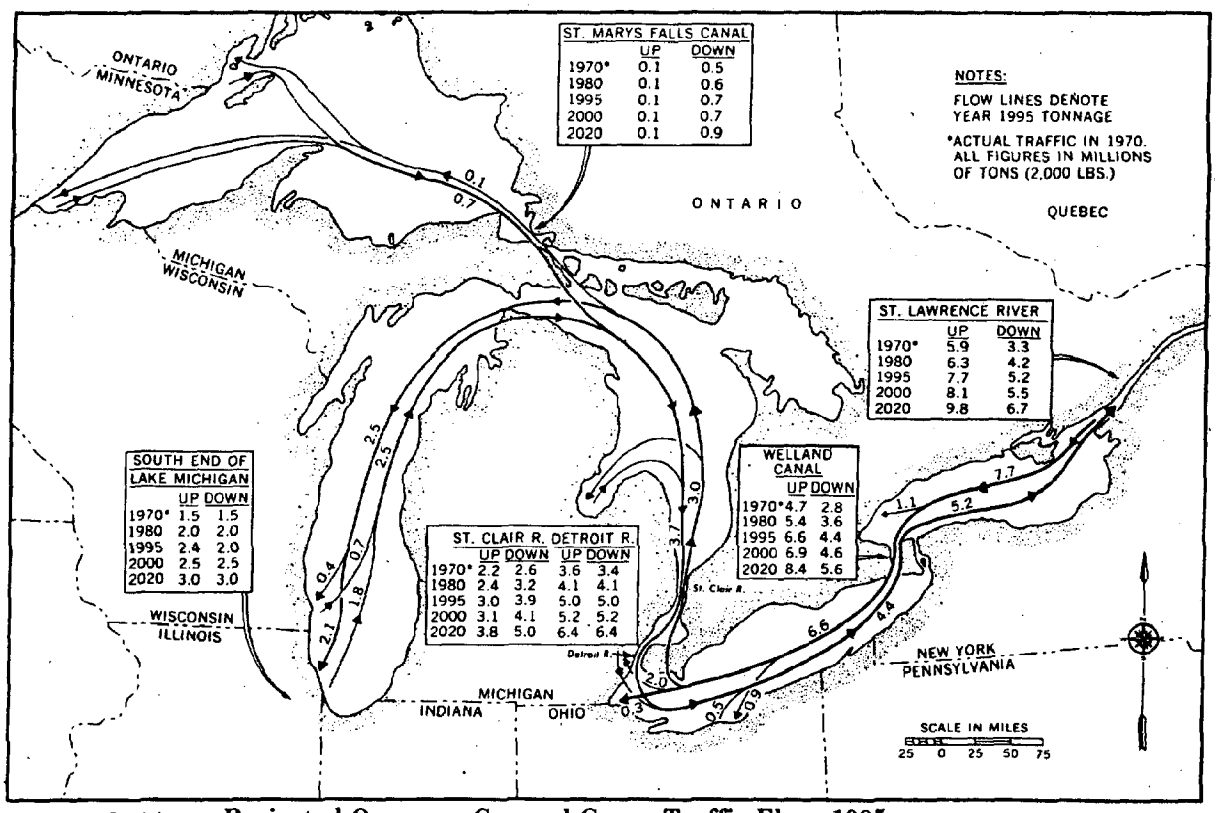


Figure 12** **Projected Oversees General Cargo Traffic Flow, 1995**

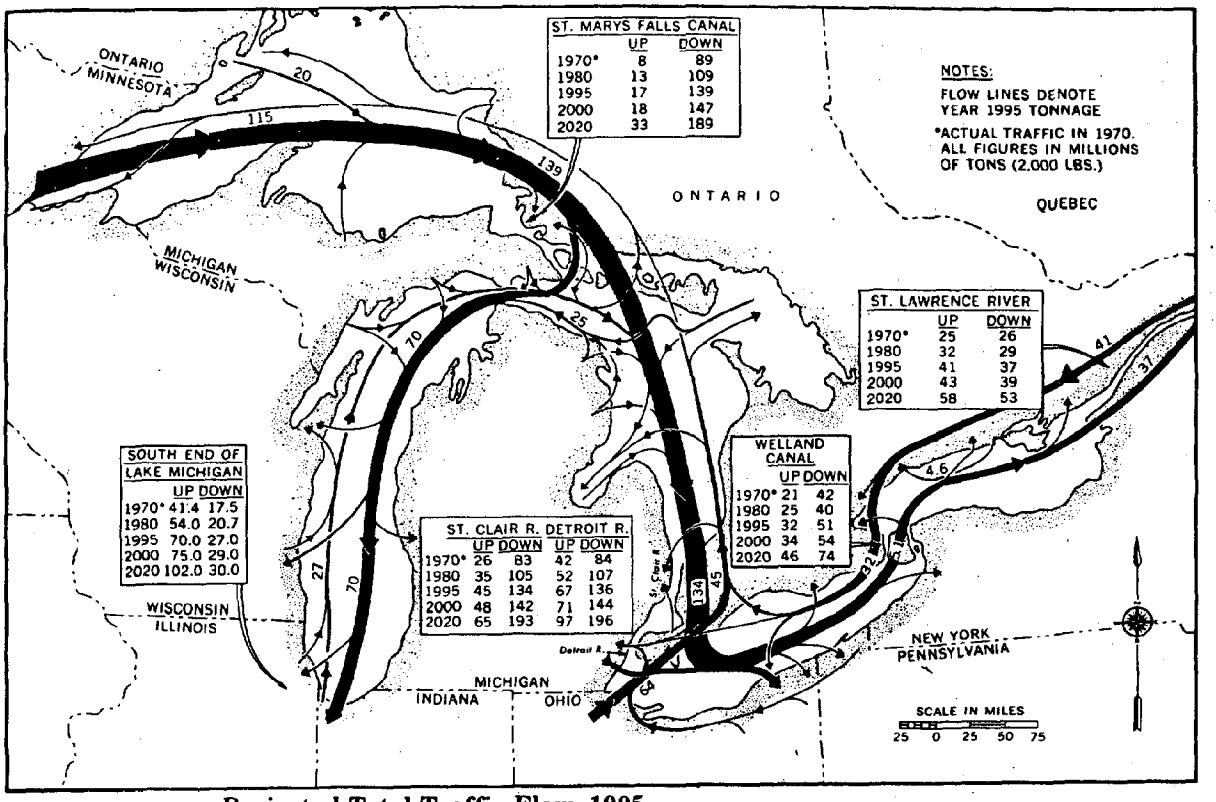


Figure 13** **Projected Total Traffic Flow, 1995**

**/ Source of Figures 8-13: Great Lakes Basin Commission Frame Work Study; Appendix C9, Commercial Navigation; 1975; P. 69, 74, 75, 81, 83, 91 respectively.

COMPETITORS OF WISCONSIN'S GREAT LAKES PORTS

There are many variables affecting the volume and character of traffic to, from, and within Wisconsin and consequently at Wisconsin's ports, both individually and collectively. Among these are the economic, political, and military state of the country and the world that inevitably will affect the volume of foreign trade, and the changing domestic economy that will also affect the traffic. There are also technological changes in both water transportation and in the competing transportation modes. Finally, there is interport competition which affects the character and volume of traffic moving through any given port or group of ports.

It is beyond the scope of this report and the Coastal Management Program to assess or project the exogenous variables that are world-wide or nation-wide in scope. However, there are some variables that can at least be recognized as having special relevance to the ports of Wisconsin.

Highway access between Wisconsin ports and their hinterlands within the state by motor truck, especially for general cargo, is significant. The State has an excellent system of major highways, including Interstates and freeways, serving all parts of the State (See Table 1). However, Wisconsin unlike its neighboring states with competitive ports, does not permit "double bottom" trucks (semi-trailer with trailer, or double trailer units) on its highways. The extent to which this constrains traffic through Wisconsin's ports is not known, but it may be a competitive factor.

Unit trains and trainload rates have, in recent years, become increasingly competitive with traffic moved via Great Lakes shipping. Much of the traffic involves rail movement to and from Wisconsin in trainload quantities, especially for such commodities as coal, ore, and grain. Unit trains have increasingly handled such traffic at lower costs than formerly, and at rates that are competitive with rail-water movement. A unit normally consists of equipment permanently assigned for a particular movement, as between one or more coal mines, and an electric generating plant, in which intermediate switching and yarding is eliminated.

Most of the barges on the inland waterway systems are not designed for extensive service on the Great Lakes and hence do not serve Wisconsin's Great Lakes ports, but they do offer an alternative mode for bulk commodities moving through the hinterland of the Lake's ports. There are several types of vessels, including barges and tow boats, that have been designed for combined inland waterway-Great Lakes service. These vessels are capable of moving via the inland waterway through the Chicago area and providing service to Lake Michigan and other Great Lakes ports, including Wisconsin.

The port of Chicago, the principal competitor for Wisconsin's Lake Micigan ports, is uniquely situated. Not only is it the port at the southwesternmost penetration of the Great Lakes into the continental interior, but it is also the only port on the two waterway systems: the Great Lakes-St. Lawrence and the Mississippi system. The ports of metropolitan Chicago have been for many years, the leading bulk ports on both waterway systems. In addition, they handle the greatest proportion of the Great Lakes-overseas direct general cargo traffic.

Ports, generally, are competitive with one another, both within a state and between ports in other states. A port generally cannot develop new traffic; it shares in a volume of traffic that is determined by forces over which individual ports, or groups of ports, have limited control. On the other hand, a successful port can develop and increase its traffic relative to other ports by means of active solicitation and good service at competitive rates. Typically, the projections of traffic to be moved in the future through a given port or group of ports assumes capture of the traffic of other ports in their common hinterland. The total projections for all ports (taken individually) serving a hinterland may therefore be in excess of that which could actually move.

RATE PROTECTION AND TRAFFIC SOLICITATION

The ports of Wisconsin, other ports of the Great Lakes, the ports of the other three sea coast ranges, and even the ports of Canada, compete with each other for some of the traffic originating and terminating in Wisconsin. This competition can be intense because much of the traffic is sensitive to variations in rate levels and to quality and frequency of service. The existence, or potential existence of water transportation services may impose upon competitive overland carriers a ceiling upon the rates which they may charge shippers. This gives Wisconsin a competitive advantage in attracting and retaining industry that it would otherwise not have. For example, even though relatively little freight traffic moves across Lake Michigan on the railroad car ferries, their existence means that Wisconsin industry has a rate parity with Chicago on movements to and from the territory east of the lake. This overcomes, even on all-rail or truck movements, the locational disadvantage the interposition of the lake would otherwise impose. For an example of the effect of rates of Wisconsin's ports in overseas shipments, see Appendix A. The appendix shows that some bulk commodities have a financial advantage in moving through Great Lakes ports as opposed to competitive salt-water ports.

Solicitation of traffic for Wisconsin's ports, especially for direct overseas traffic, is essential. Many of the world's ports maintain traffic solicitation offices, not only in their home countries, but also in overseas areas which generate, or could generate, traffic through the respective ports. Some of the states which operate ports have their own traffic offices, others which do not operate ports maintain traffic solicitation functions through their departments of business or economic development. Comparatively, solicitation efforts for Wisconsin's ports are not strong.

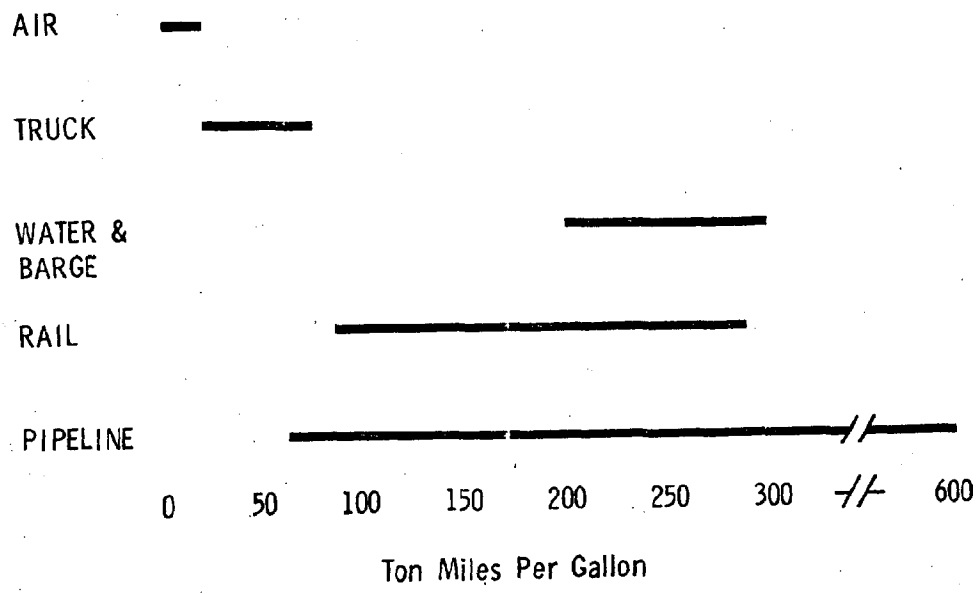
ENERGY EFFECTIVENESS

Transportation by water is generally, except for pipelines, the most energy efficient way to move goods. Figure 14 shows the relative efficiency of each of the major transportation modes. These figures must, however, be used with caution, because there are some limitations and constraints which can significantly alter the results for a given situation. Waterborne vessels are large units and therefore require large volumes of cargo to achieve economies of scale. Terminal costs at the ports, whether the terminals are of the older labor intensive types or the newer capital-intensive (container or automated bulk docks) types, also require large volume movements in order to achieve economies of scale, as compared, for example, with trucks, which are smaller and more flexible units. Finally, waterways, including the

Figure 14

FREIGHT ENERGY EFFICIENCIES

(Range)



Great Lakes, are not everywhere readily available. Where they are available, their paths are generally circuitous in comparison with overland modes, thus necessitating in many instances more ton-miles for a given movement between origin and destination than do the competitive overland modes. Within the Great Lakes region, these constraints generally do not upset the energy advantage relationship of shipping over railroads. (See Appendix A for energy comparisons of a few selected bulk commodity shipments).

1/Wisconsin Department of Transportation compilation from the following sources:

Citizen's Advisory Committee on Environmental Quality; Citizen Action Guide to Energy Conservation, Washington, D.C.; 1973.

Edwin J. Kirschner; "Transportation and the Energy Crisis"; NAM Reports; January 7, 1974.

M. Earl Campbell; "The Energy Outlook for Transportation in the United States;" American Highways; July, 1973.

Council on Environmental Quality; Energy and the Environment; Washington, D. C.; August, 1973.

"Transportation and Energy: Who Does What With How Much?"; Railway Age; June 25, 1973.

U.S. Department of Transportation; Energy Statistics; September, 1973.

Eric Hirst; "Energy Intensiveness of Transportation"; Transportation Engineering Journal; February, 1973.

Alexander French; "Highway Planning and the Energy Crisis"; U.S. DOT; May 3, 1973.

Office of Emergency Preparedness; "The Potential for Energy Conservation"; October 1972.

OVERSEAS TRAFFIC & LOAD CENTERS

Because of the economies of scale, especially with the increased need for more sophisticated capital equipment for the handling of unitized (containers and pallets) general cargo, the tendency for port traffic to be concentrated at fewer but larger and more efficient ports has been accentuated. Vessel owners, especially those engaged in overseas shipping, generally call on ports where they can pick up a large tonnage. The trend has been toward the development of "load centers": one or two ports in each region serving as major terminal centers, with the cargo being assembled at and distributed from such ports by feeder services, including rail, highway, inland waterway, and coastal (lakewise) shipping services. Each of the load center ports thus extends its hinterland, and the smaller ports may lose direct long-distance shipping services. The struggle to maintain and increase traffic flow through any given port could result in excessive capital investment by such a port in equipment necessary to serve the varying cargo handling needs in efforts to remain competitive.

Nearly all of the waterborne general cargo in Wisconsin is handled at Milwaukee, Green Bay and Superior/Duluth. Even these ports are in the shadow of Chicago, the dominant "load center" of the western Great Lakes. If the Wisconsin ports desire to compete for more overseas traffic, they may have to develop as specialized ports, without competing directly with the other large Great Lakes ports or with the "load centers" on the ocean coasts such as New York, Baltimore, New Orleans, etc.

Given the relatively small amount of traffic moving overseas through Wisconsin's ports, it remains questionable whether these ports can better their competitive position relative to the coastal ports for this traffic. To do so would imply promoting some type of advantage. The relative fuel economy and favorable shipping rates of water carriage are advantageous. It is questionable whether they are sufficient to outweigh the greater voyage time through the Seaway (see Appendix A), or the fact that the Seaway is not open year round due to ice conditions. Unless services which move bulk cargo and containerized general cargo overseas through the Seaway can develop other attractions, shippers will continue to be drawn to coastal ports. While it is extremely unlikely that overseas bulk and general cargo, including container traffic, will constitute a significant proportion of traffic passing through the state's ports, there are some prospects for arresting and reversing the decline in overseas traffic. One encouraging development is the re-entry of U.S. flag vessels into the Great Lakes-overseas cargo liner trades.

Wisconsin ports may in some cases suffer from diversion to Canada. Differences in economic policy and rate regulation between the United States and Canada facilitate this diversion from U.S. ports, both on the Atlantic seaboard and on the Great Lakes. Canadian carriers and ports not only have lower costs, but also can use these lower costs in adjusting the rates and services to the advantage of the individual shipper. Canadian railroads also enjoy a greater flexibility in rate making than do their U.S. counterparts when negotiating freight rates with ocean carriers.

PORT FINANCING

Federal funding of ports (except for that associated with channel and harbor development and maintenance), and potential state funding of

various types has generally been resisted by local port officials. The port agencies believe that federal and/or state aid could lead to governmental control that would restrict interport competition.

Ports must increasingly compete with numerous other public functions, facilities, and services for the limited amount of funding which may be available. Port operations are not as visible to the public, or to most of the decision-makers, as are many other public facilities and functions. Adding to the financial burdens of the ports are many recent regulations and laws regarding environmental protection, safety of port workers, and security of cargo. Often the regulations conflict or are inconsistent.

DREDGING OF PORTS

Dredging is required in order to remove sediments which accumulate in the channels and harbors of Wisconsin's ports. It is important to maintain established project depths, (depths are established following study by the U.S. Army, Corps of Engineers and approval by Congress), since every inch of additional vessel draft means that a vessel can load additional tons of cargo. The level of the lakes fluctuates through an amplitude of several feet over a period of years, in a cyclical pattern which is not yet well understood. There is little that man can do to control the lake levels, except for a few inches. Project depths are measured from an established mean low water datum. Dredging operations are divided into three categories by the Corps, for administrative reasons:

(1) New work involving deepening and/or widening of a pre-existing project or the initiation of a new harbor or waterway;

(2) Maintenance, involving the removal of unconsolidated sediments which have been deposited in a navigation project since the last dredging operation;

(3) Dredging privately or under permit by private contractors in private harbors and approach channels or under permit by private contractors in private approach channels and alongside wharves adjacent to federally-maintained channels.

Both new work and maintenance dredging in federal harbors and waterways are regulated by the Corps of Engineers, under congressionally authorized projects and through annual appropriations.

With the current emphasis upon the quality of the environment, it is no longer possible to indiscriminately dispose of dredged material in disposal areas in the lakes or elsewhere. When dredged material is of a polluted nature (most material on the bottoms of Wisconsin's harbors is considered polluted), it must be deposited in a disposal site which does not allow the material or the pollutants contained within to seep back into the water.

The actual work performed on federal projects is subject to variations in lake levels and the extent of federal funding. Private dredging in the navigable waters of the Great Lakes requires both approval of the Corps of Engineers and an environmental permit issued by the Wisconsin Department of Natural Resources.

Further details relative to dredging and the disposal of dredged materials in Lakes Superior and Michigan are contained in Appendix C of the July, 1975 draft report.

GOVERNMENTAL AGENCIES INVOLVED IN PORT ACTIVITIES

Political control over port development, regulation, and management is exercised at all levels of government--federal, state, and local. At the national level, two agencies involved in port matters are housed in the U.S. Department of Transportation. These are the St. Lawrence Seaway Development Corporation and the U.S. Coast Guard. The United States Army, Corps of Engineers, the Maritime Administration housed in the Department of Commerce, and the Environmental Protection Agency also exert a great influence on ports.

The ST. LAWRENCE SEAWAY DEVELOPMENT CORPORATION is charged with the responsibility of promoting, constructing, operating, and maintaining water navigation works in the 144-mile International Rapids section of the St. Lawrence River and necessary dredging in the Thousand Islands area. The Corporation works with its Canadian counterpart, the St. Lawrence Seaway Authority of Canada, in constructing, maintaining, and operating the Seaway from Lake Erie to Montreal.

The U.S. COAST GUARD is primarily responsible for maritime law enforcement and rescue service. Within port areas, the Coast Guard provides and maintains most aids to navigation such as lighthouses, buoys, bells, fog signals, search and rescue facilities and operations, and radio beacons, and also oversees port security and law enforcement matters. Removal of derelict material (oil spills, etc.), ice breaking, control over the operation of ships in harbors and approach channels, pier and terminal inspection, and marine casualty and accident investigations are also responsibilities of the Coast Guard.

The CORPS OF ENGINEERS, an agency of the U.S. Army, is responsible for the development and control of channel depths and widths, turning basin widths and depths, and constructing breakwaters. The Corps specifically has authority to: (1) establish harbor lines and fix the limit to which piers, wharves, bulkheads or other works may be extended into navigable waters, by federal permit; and (2) grant permits for the occupation and use of federal works under control of the Corps.

The FEDERAL MARITIME ADMINISTRATION is concerned with promoting American shipping and port development, designing new ships, granting subsidies, and testing new shipping concepts.

The FEDERAL MARITIME COMMISSION is an independent regulatory agency. It was established for the purpose of administering the broad regulatory provisions of the various shipping acts and is charged with the responsibility of enforcing the provisions of the shipping laws.

The ENVIRONMENTAL PROTECTION AGENCY coordinates government action to assure protection of the environment. It becomes involved in waterborne matters by regulating of vessel sewage disposal, establishing the criteria for disposal of dredge spoils, controlling oil and hazardous materials, and determining environmental degradation of coastal areas.

Several other federal agencies have responsibility for port operations. Generally, their functions are regulatory and concern the flow of cargo through ports. There are about 40 federal agencies which directly or indirectly touch upon port operations or administration and which include such activities as stimulating trade, regulating commerce, overseeing the entrance of vessels, and discharging and loading of cargo at ports.

A few multi-state agencies are involved in Great Lakes maritime activities. The GREAT LAKES COMMISSION, composed of the eight states bordering the Great Lakes, is a compact by which the member states agree to work together in order to promote their joint interest in the Lakes. The GREAT LAKES BASIN COMMISSION, composed of federal and state representatives, is engaged in the preparation of a coordinated joint plan for the development of Great Lakes waters. Presently, confusion exists over the roles of the two commissions. The latter stresses environmental concerns, and the former concentrates on economic development. The UPPER GREAT LAKES REGIONAL COMMISSION provides liaison between the federal government and state governors in development matters that affect portions of the Upper Great Lakes states of Michigan, Wisconsin, and Minnesota.

As a state, Wisconsin is trustee over all navigable waters, but the state assumes only an advisory and promotional role in port development. Various state agencies have been granted constitutional and legislative authority to be involved in waterborne affairs. Included in major roles are the departments of Natural Resources, Business Development and Transportation with lesser roles played by Health and Social Services, and the Public Service Commission.

The DEPARTMENT OF NATURAL RESOURCES (DNR) acts as the state's reviewing authority for the Corps of Engineers projects, and works in the area of water quality control with the Environmental Protection Agency. DNR is charged with giving permission for work proposed in navigable waters, including the disposal of dredged and spoils materials. DNR also helps finance local recreational access for water-related activities, and regulates commercial and sport fishing. Floodplain ordinances are enforced by DNR.

The DEPARTMENT OF BUSINESS DEVELOPMENT acts as liaison for the promotion of statewide private enterprise between state, federal, and local agencies, and assists firms in locating desirable plant sites.

The WISCONSIN DEPARTMENT OF TRANSPORTATION can undertake planning for ports, harbors, and waterways when requested by a state, regional, or municipal agency or harbor commission.

As conveyed in the statutes and laws of the state, the development of waterborne activities has always been left to local concerns, such as boards of harbor commissioners, and private interests with certain state and federal agencies (such as those listed above) having specifically defined roles. A board of harbor commissioners is given, by statute, the authority to develop, operate, and maintain a port. Besides day-to-day public harbor facilities operations, the board's authority includes the ability to:

1. Operate publicly owned or leased wharf and terminal facilities and handling equipment;

2. Operate publicly owned railroad belt lines or other essential railroad facilities, or lease railroad facilities;

3. Assign berths at publicly owned or leased harbor facilities;

4. Maintain guards at publicly owned or leased harbor facilities;

and, when authorized by the municipal governing body to:

5. Operate airport facilities owned or leased by the municipality and located on or contiguous to the harbor lands; and

6. Operate municipal harbor craft such as fireboats, dredges, barges, lighters, and inspection boats.

PORT POLICY

The present policy of the United States with regard to port development has evolved in a piecemeal fashion. All agree that ports are in the national interest; however, there is no comprehensive national plan for ports. Since ports benefit the nation as a whole, it is reasonable that the federal government should participate in the costs of port development.

Port planning, at the national and state level, must take into consideration the efficiency of a port and not inhibit or confine port planning and development at the local and regional levels. However, market competition operating in a local decision-making setting commonly fails to allocate resources properly, and is therefore ineffective as a mechanism for balancing economic considerations, including environmental considerations, in port development. It is very difficult, and often impossible, to specify the acceptable economic costs for conservation and preservation of desirable coastal environmental conditions and human values. Coastal management cannot rely solely on the market mechanism. Environmental issues will play an increasingly important role in decisions relative to port development. The port agencies must be active in developing coastal management programs, with coordination at the state level.

STATE POLICY SUGGESTIONS

During the 1950's when the St. Lawrence Seaway was under construction, almost all of the state's commercial ports had visions of attracting general and bulk overseas cargos These optimistic views have now changed. The St. Lawrence Seaway did not turn all the ports into overseas shipping centers. In fact, as noted earlier, only a few ports have substantial overseas traffic. Perhaps for just the reason that less cargo cumulatively is shipped now through the state's ports than prior to seaway opening, some involvement above the local level and below the national level is required for the future survival of the ports. The following port policy options do not reflect the degree of optimism that existed during the pre-seaway era. They do, however, reflect that waterborne transportation and the Great Lakes

ports are important to the state's well being as they presently exist and have the possibility for some future expansion if the needs warrant.

The background material used in preparing the following issues and their related policies included: 1) the draft report: "Wisconsin's Great Lakes Ports: Background and Future Alternatives" (prepared for the CM program and distributed in July, 1975); 2) comments received as a result of review of the above report by the Coastal Management Coordinating and Advisory Council, by the Coastal Management Citizens Committee, and at Regional Planning Commission sponsored local meetings; 3) additional research into issues raised during the above policy review.

The issues and policy options presented in this summary are of a general nature, but can serve as an important element in the process in ultimately defining a more detailed plan of action. For each issue presented, there are alternative policy options suggested. The first of the following issues addresses state policy toward port development and operations. The alternative policies suggested as responsive to that issue can be selected, rejected or grouped in any order to formulate a position. The other six issue areas have several alternative policy options.

The following issues and policy options are presented for discussion purposes. They are not to be construed as the Wisconsin Department of Transportation position on each subject discussed.

ISSUE: What should the State policy be toward the development, operation, and maintenance of commercial waterports.

POLICY OPTION 1: Perpetuate current policy of considering ports to be a local concern. Continue present duties and responsibilities of the boards of harbor commissioners. State Statute Sections 30.37 and 30.38 authorize local units of government to create boards of harbor commissioners to operate and maintain ports.

Pros:

A. A board of harbor commissioners today has control over the commercial aspects of the day-to-day operation of the public harbor and public harbor facilities. Among other things the board may:

1. Operate publicly-owned or leased wharf and terminal facilities and handling equipment.

2. Operate publicly-owned railroad beltlines or other essential railroad facilities, or lease railroad facilities.

3. Assign berths at publicly-owned or leased harbor facilities.

4. Maintain guards at publicly-owned or leased harbor facilities.

When so authorized by the municipal governing body, a board of harbor commissioners also may:

1. Operate airport facilities owned or leased by the municipality and located on or contiguous to the harbor lands.

2. Operate municipal harbor craft, such as fireboats, tugs, dredges, barges, lighters and inspection boats.

A board of harbor commissioners may make such plans, as it deems necessary, for the improvements of the harbor over which it has jurisdiction, so as to adequately provide for the needs of commerce and shipping, including the efficient handling of freight and passenger traffic between the waterways of the harbor and air and land transportation terminals.

In lieu of operating the publicly-owned harbor facilities, a board of harbor commissioners may lease such facilities for operation by the lessee...

A board of harbor commissioners may adopt rules to facilitate the exercise of its powers and duties...

A board of harbor commissioners shall fix and regulate all fees and charges for use of the publicly-owned and operated harbor facilities and for other services rendered.

A board of harbor commissioners may engage in activities designed to promote trade and traffic through the port and for this purpose may, among other things, make representations before official public bodies and intervene in rate case proceedings.

Cons:

A. Local government port financing can be restricted by the local communities because all moneys appropriated to a board of harbor commissioners, all revenues derived from the operation of the public harbor except (in the case of a joint harbor) revenue from joint improvements before division thereof, and all other revenues of the board shall be paid into the municipal treasury and credited to the harbor fund. (Section 30.38(13a)

B. Since each port has authority for its own promotion, facility development, etc., there may not be interport cooperation in such activities.

C. Future planning, by state, regional and county agencies does not have to be recognized by boards of harbor commissioners.

D. A community may lack adequate funds to finance needed improvements, repairs or operations. There is no provision for assistance from any source except the local municipal treasury. Ports must compete for dollars with other municipal (or county) needs.

E. The port communities without commissions must rely on other, more limiting sections of the statutes for any port related activities, as contrasted with board of harbor commissioner governed ports ability to use sections 30.37 and 30.38.

F. Port development may be viewed from only a local perspective, not accounting for possible overdevelopment on a multi-port basis. With no regulation or coordination between ports, several ports within Wisconsin compete within the same hinterland for waterborne commerce.

POLICY OPTION 2: Continue present authorities and organization, but with some financial assistance from the state for projects and operations deemed worthwhile for the economic well being of the state and/or region but which cannot be financed by the port or community alone. (No state financial program exists today.)

Pros:

A. State financial assistance could allow Wisconsin ports to expand (or modernize, or maintain) and could help attract more waterborne traffic to pass through Wisconsin's ports. (State funds could be used to supplement local or federal dollars, or in lieu of local or federal dollars.)

B. Communities need not be burdened with bonding debts caused by port improvements.

C. Additional industrial or water related development might be attracted to Wisconsin.

Cons:

A. Governmental assistance may impose constraints on the use of the funds, which could alter or put locally undesirable controls on the current local operation of the ports as now defined by state statutes.

B. At this time it is difficult to identify "statewide" benefits or assign priorities for state funds.

POLICY OPTION 3: The state should enable local governments, consistent with state guidelines and with state assistance, to exercise land use control to insure that adequate waterfront land exists for port activities. Stricter land use control in port areas should be exercised to protect valuable waterfront land. A very small amount of the coastal land is protected from storms and usable for water related activities (both commercial and recreational). Controls may be necessary to insure that some land is available for water related activities and not entirely consumed by non-water associated uses.

Pros:

A. Well enforced land use control could preserve scarce water access property for possible future water related use without heavy public investment.

Cons:

A. Controls can take away incentives of private commercial and industrial development, thereby causing a secondary effect of possibly reducing rather than expanding the tax base for the community.

POLICY OPTION 4: The state should encourage recreational development in port areas.

Pros:

A. As suggested in other studies of the Coastal Management Program, there is a need for more water recreation activity access. Some of the recreational water activities (boating especially) need protected areas. Ports generally are the areas best offering this type of accommodation.

Cons:

A. Commercial traffic and recreational use are not always compatible due to the need for large turning areas and docking space for commercial vessels and the limited usable areas (one to three miles from shoreline) for recreational craft. Competition for waterfront sites to accommodate each would exist.

POLICY OPTION 5: The state should take an active role in ensuring that necessary and adequate land transportation facilities and services exist at commercial ports. Commercial ports should have good connections with other modes of transportation and adequate waterfront land to accommodate intermodal interchange terminals.

Pros:

A. This would be consistent with the fact that the state currently has all mode planning and multi-mode program authority.

B. Since many commodities passing through ports are not consumed at dockside (except for coal at electrical generating plants, etc.) a commercial port, in order to survive, must have adequate transportation facilities to connect the port with its hinterlands. The intermodal interchange creates jobs, revenues and contributes to the tax base of the community and the state.

Cons:

A. The State has planning programs for all modes, but actual financial programs for only the highway, air and urban transit modes.

B. Trans-shipment facilities occupy land that could be used for other purposes such as recreational access, industrial or residential development.

C. State does not permit "double bottom" trucks, which could (for certain ports) improve efficiency of trucking by allowing two containers to be hauled by one tractor.

POLICY OPTION 6: The state should assist ports in promotion and rate protection matters.

Pros:

A. Most ports do not have a staff to deal with these matters, nor do they have adequate funding to carry on these activities. (Various state agencies now have statutory authority to participate in these matters.)

B. The state can coordinate and intercede on behalf of the ports as a group in efforts to obtain favorable shipping rates that would give shippers and ship operators incentives to use Wisconsin's ports rather than tidewater ports (New York, New Orleans, etc.).

C. Through promotion efforts with shippers and manufacturers in Wisconsin, the United States and overseas, more traffic might be obtained for the ports, thus realizing an economic benefit to the communities and the state in terms of jobs, increased tax base, etc.

D. New industry could be attracted to the state on the basis of favorable shipping rates and good ports. (The Department of Business Development now has authority for most state level promotion activities).

Cons:

A. The state might find itself promoting and assisting ports at the expense of other competing modes.

POLICY OPTION 7: The state or a regional port authority could take over the development, operation and maintenance of Wisconsin's ports.

Pros:

A. State takeover would result in a centralized authority that could coordinate all the various ports' activities so that each port will develop the capabilities to which it is best suited.

B. More financial aid could possibly be made available for development and maintenance of facilities.

Cons:

A. State control could take away some of the local authority for total community development and some decision making authority.

B. State control could result in the closure of some ports to commercial traffic because of lack of need for the port in the total transportation system, with a resulting economic loss to the local communities.

ISSUE: At what level or levels of government should the waterport planning responsibility reside. (Much of the planning for facilities and services is now done at the federal level. Some activities include: cargo preference laws, Seaway system, subsidies, etc.)

POLICY OPTION 1: Maintain present statutory authorities of local ports and communities to continue planning activities.

Pros:

A. Present authority allows the decisions affecting the local community to be made by the local community.

B. Requires no changes in present state statutes and local community ordinances.

Cons:

A. Does not coordinate activities between ports and between complementary and competing modes. Thus, overinvestment in facilities, competition for the same hinterland commerce, and uncoordinated development can take place.

B. The planning abilities of state agencies such as the Departments of Business Development, Natural Resources, and Transportation are not being utilized to their fullest capacity with relation to port planning matters.

POLICY OPTION 2: Regional planning organizations, such as regional planning commissions, would plan for the future of the ports in their respective areas.

Pros:

A. Regional planning allows a multi-unit perspective while maintaining decision making and implementation at a more localized level as compared to state level planning.

Cons:

A. Expertise in waterborne matters would need to be increased at the regional planning level.

B. No special funding exists for port planning activities at the regional level.

C. Regional commissions might not eliminate the dangers of over-investment, as there might be competition between regions.

POLICY OPTION 3: Port planning and development activities would be assumed by the state level Departments of Business Development, Natural Resources, and Transportation.

Pros:

A. The three state agencies already have some statutory authority for waterborne planning and development.

B. Planning would be centralized thus avoiding port overdevelopment and overinvestment, and would result in a unified development program in the best interest of the state as a whole.

Cons:

A. The local authority of planning for local improvements and development would be infringed upon.

B. Funding for the additional state level planning activities would have to be approved through the budget process.

ISSUE: The future of Wisconsin's smaller (limited use) commercial ports.

Because the use of Great Lakes ports is predicated on many complex variables, changes in shipping patterns do occur. The trend has been toward fewer ports handling a larger percentage of the commodity movement. Many of the reasons for this are beyond local or state government control, e.g., economics of limiting ports of call, national policy or Seaway size, cargo preference laws, etc. Others are a direct result of local action or inaction, by government in some cases, but also by the shipping industry.

POLICY OPTION 1: The state should take actions aimed at maintaining the status quo, i.e., all commercial ports functioning much as they are today.

Pros:

A. The small local port communities would continue to receive the economic benefits associated with port activity.

Cons:

A. Some ports may decline in use (and others grow) regardless of state or local government action because of other factors, thus making state action futile.

B. It may be excessively costly to maintain all ports at present capabilities.

C. Failure to aid a port with continuing potential to provide a reliable shipping mode in competition with other modes might result in a loss of that potential, creating a dependency on the remaining mode (s) and resulting in higher shipping rates.

POLICY OPTION 2: The state should support the concept of a limited number of ports to handle large volumes of general cargo and bulk commodities and/or a limited number to handle smaller volumes of specialized bulk cargo.

Pros:

A. The cost of continued operation and maintenance of all ports would be shifted to a lesser number of ports, with some overall economies.

B. Local developments, both government and private, are trending this way.

C. Limited use commercial ports could be converted to serve only as recreational ports.

Cons:

A. Some port communities may lose an economic benefit associated with a port and water related industry.

B. It may be undesirable to force port development into larger ports because of impacts on these port communities.

POLICY OPTION 3: The state should not take any action to encourage or discourage port development and use. (This is essentially existing situation)

Pros:

A. Local initiative, public and private, will determine local port development and use.

Cons:

A. Economy of a community could be adversely affected if its port closes.

ISSUE: What should be done concerning the potential loss of across Lake Michigan rail/auto ferry service through abandonment.

POLICY OPTION 1: The state should assume that it is a responsibility of the railroads to continue to supply all services and equipment without outside assistance.

Pros:

A. Maintains free enterprise system of commerce.

B. Provides needed service without any special legislation or public funding being required.

C. Maintains the "rate parity" enjoyed by Wisconsin shippers by providing an alternative route of shipping through the Chicago rail head.

Cons:

A. Places undue burden on railroad operators since the ferries are labor intensive and financial losers.

B. Present vessels are old, do not meet environmental regulations and to meet environmental standards or construct new vessels would be financially prohibitive for the railroads.

C. Abandonments will result; shippers will be inconvenienced and face higher transportation costs.

POLICY OPTION 2: The railroads should be provided a subsidy to continue ferry operations.

Pros:

A. Allows ferry to continue to operate.

B. Ferry service and shipper "rate parity" would be maintained.

C. Operating procedures of ferry operations could be modified by governmental agencies as a condition for receiving subsidies.

Cons:

A. Will require enabling legislation with appropriations on the part of Wisconsin and possibly Michigan and the federal government though some of this has already taken place.

B. Conrail, as operator of part of rail system to the east, has not been encouraging the car ferry routes.

POLICY OPTION 3: Wisconsin and/or Michigan could purchase and possibly jointly operate ferries.

Pros:

A. "Rate parity" for shippers would be retained.

B. Environmental and labor intensive problems can be rectified in the future by upgrading present vessels and purchase of new ones.

C. Abandonment would be forestalled.

Cons:

A. Would require enabling legislation. In Wisconsin's case, a constitutional prohibition against such ownership would have to be removed and funding legislation enacted.

B. Removes service from free market system therefore, labor relations, method of operation, etc., would have to be modified.

C. The cost of continued service would be partially paid by the general taxpayers.

POLICY OPTION 4: Allow present ferry operations to be abandoned through regular procedures.

Pros:

A. Eliminates the air and water pollution caused by present ferry operations (but shifts them to another mode).

B. Relieves the railroads of a costly burden.

C. Eliminates the need for public subsidies.

Cons:

A. Eventually "rate parity" for shippers may be lost, thus increasing the cost of shipping some commodities originating or received in Wisconsin.

B. Jobs provided either directly or indirectly by the ferries would be lost. (Some additional jobs on the railroads would likely result).

C. Loss of service would result in a 300 mile long barrier between Wisconsin and the eastern part of the country thus adding to energy consumption.

ISSUE: How to resolve problems associated with the dredging of harbors and the disposal of polluted dredged material.

POLICY OPTION 1: Continue to maintain ports to the authorized U.S. Army Corps of Engineers project depths.

Pros:

A. Enables continuation of water transportation dependent on commercial activities.

Cons:

A. Places financial burdens on communities who are required to provide at least 25% of the costs of dredging and disposal of polluted dredge material. Under current regulations dredge material of a polluted nature must be disposed of within a contained area.

POLICY OPTION 2: Stop dredging in some or all ports.

Pros:

A. Costly dredging and disposal would be avoided.

B. Dollar savings to communities could be used on other projects.

C. Water pollution caused by dredging would be avoided.

Cons:

A. Discontinuing dredging operations would close ports except for recreational craft as sediment on the harbor bottom builds up. This would result in the loss of modal choice for Wisconsin shippers, especially bulk commodity shippers, who now can ship by water, truck or rail.

B. Communities would experience an economic loss if dredging is not continued in that, as sediment builds up, ships will not be able to enter the ports serving modal interchange terminals and water front sites dependent on waterborne shipments. Flow of traffic through the port would eventually stop, and the economic benefits enjoyed by the community because of the port would be terminated.

ISSUE: Is it feasible to enable development of a bi-state port authority.

POLICY 1: Continue present policy in relation to joint harbors, in lieu of new legislation for a bi-state port authority.
Statute 30.38(12) states that "a board of harbor commissioners is in charge of a harbor which lies partly in this state and partly in another state. The board shall be the official body representing the interests of the Wisconsin part of such joint harbor and its harbor facilities and shipping interests. The board shall study the needs of the harbor and its harbor facilities and shipping interests, with reference to both its separate Wisconsin aspects and its joint aspects, and from time to time shall make such recommendations to the proper authorities for the proper maintenance, improvement and betterment of the harbor, and especially the Wisconsin part of such joint harbor and its harbor facilities and shipping interests, as seems needful and practical. The board may take steps within its power as seen practicable to cause such recommendations to be carried into effect. The board may also meet and act jointly with the agency having charge of the operation of that part of the joint harbor located in the other state, on matters of common interest and which affect the joint harbor and its harbor facilities. It may join with such agency in adopting a general plan for the development of the joint harbor and in making such other recommendations as seem advisable and may act jointly with such agency in doing things within its power to cause such plans and recommendations to be carried into effect."

Pros:

A. If two port authorities sharing one harbor were merged, then there would be just one agency for promotion, planning prospective, operation, maintenance and dredging functions for other agencies, both public and private to deal with. Stronger promotion and development at less total cost should result.

Cons:

A. If a community does not form a board of harbor commissioners and shares a harbor with another community, then the above statute giving the authorities listed above would be of no value.

B. The state cannot act alone. The other states and the federal government have a voice in the establishment of such an authority.

POLICY OPTION 2: Another alternative policy would be the reverse of the above, in other words, the state support legislation for a bi-state port authority. (The arguments, pros & cons, would be reversed)

ISSUE: Should efforts be undertaken to extend the seasonal time period during which vessels and ports, can operate, as part of the transportation system, in intra-lake, inter-lake, and overseas (via the Seaway)?

Climatic conditions, primarily ice, have precluded year round use of some Wisconsin ports and the Seaway system. A demonstration program, primarily under federal government management, is underway to evaluate the practicality, cost, physical feasibility, and economic, social, and environmental impacts of a longer shipping season.

POLICY OPTION 1: The state should support and monitor the demonstration program. No state position should be taken until the results of the demonstration program have been received and evaluated.

Pros:

A. The demonstration program will provide specific answers to the various concerns.

B. There is a need to determine if this is a concern of the Coastal Management Program.

C. Detailed study of specific needs for an extended season, including views of local port authorities and private interests, has not been undertaken.

Cons:

A. The demonstration program has already led to an extended season because of ongoing actions of various Federal agencies, such as the U.S. Coast Guard and the U.S. Army Corps of Engineers, and private interests that are operating terminals and vessels. It is unlikely that the season would be shortened to the pre-demonstration program length.

POLICY OPTION 2: The state should support implementation of a lengthened season based on the results to date of the demonstration programs.

Pros:

A. An extended (or lengthened) season offers a longer time period for shippers to use this transportation system.

B. Wisconsin shipyards could benefit by building icebreakers needed for winter operations.

Cons:

A. All of the potential impacts (economic, social, environmental) have not been fully evaluated.

APPENDIX A

RATE COMPARISON

Rates generally are thought of as the cost to a shipper to transport a commodity. If a shipper uses his own facilities and equipment (which is true of some of the interlake shipments, such as iron ore) to transport commodities, a cost can be established for his operations. A corporate decision is generally required as to whether the transportation operation must make a profit. Where a shipper uses the services of a carrier, who is in business to make money providing a transportation service, a profit factor is an element in the rate. Other factors which enter into rates are discussed in the following paragraphs.

For individual commodities, cost is a function of loading characteristics. These include such things as: density, the higher the weight relative to volume the lower the cost per pound of moving the good; the ability to load the commodity compactly; if the commodity is off-shaped and cannot be loaded compactly, the costs are higher even though the commodity itself may be quite dense. (For example, fresh fruit often cannot simply be piled up in a large boxcar without crushing the underlying produce.) The loading characteristics of the commodity thus play a major role in the transportation cost.

Costs (or rates) are also affected by the volume that is moved. A large volume reduces cost, especially if the large volume is moving at one time. Ship loads and train loads of a single commodity can be handled much less expensively. Regular movements cost less than sporadic or periodic movements. Extremely expensive to handle are large volumes associated with seasonal peaks, if they require terminal and equipment capabilities not utilized during off-peak.

Any commodity that is fragile naturally carries a higher rate, reflecting the higher probability of damage. High value commodities also carry higher rates, especially if they are fragile. These higher rates for higher valued items should not be confused with the practice of charging higher prices for high valued goods on the basis that the value-of-service increases with the price of the goods.

Value-of-service or demand consideration is another factor used in establishing rates and is justified on the grounds that only through value-of-service pricing can the overhead be covered. If there are substantial economies of scale, charging out-of-pocket or marginal costs would not produce sufficient revenue to cover the overhead. Since regulatory agencies believe that the latter is the situation, they have fostered and encouraged price discrimination among commodities on the basis of the value of service. Those commodities, it is argued, that can bear the cost of the overhead should be charged it, while others can be charged less provided they pay at least the variable cost of moving the product. This is preferable to charging everybody average costs, which would exclude some shipments that could be carried at above variable cost, while not capturing sufficient revenue from those that would be willing to pay more.

Shippers of high value wares are generally thought to be in a better position to pay more than shippers of low value products. While not always true, there is a certain validity to this position. The freight charge may add a small percentage to the final price of high value merchandise, whereas the same freight charge on a low value cargo could more than double the price on delivery. Because of competition, however between trucks, water carriers, railroads and even air freight, value-of-service pricing cannot be freely practiced.

Value-of-service pricing has to be tempered by the importance of preventing such a system from being used to erode the rate structure. If, for example, rates are high on more expensive grades of a certain commodity and low on cheaper grades, shippers will tend to claim that most of their shipments are the cheaper grade. Consequently, regulatory agencies have prohibited charging lower rates for used commodities than new, since mislabeling is quite possible.

Generally, the regulatory agencies have not permitted differential rates by final use, even though final use may affect the elasticity of demand for shipment of the product. However there are exceptions. Higher rates have been permitted for the movement of ordinary horses than for the movement of those which are to be slaughtered. Bricks which are used for facing are more costly to ship than common bricks. Lime used for building purposes and chemicals is more expensive to transport than lime for agriculture. In each of these cases it is felt that it is sufficiently easy to determine the final use and so cheating or mislabeling was not a great problem. Generally, higher rates on finished goods than on raw materials are encouraged and permitted.

In addition to those listed above, other factors enter into waterborne commerce rate making, especially overseas shipments. War commodities or commodities shipped to or through war zones carry much inflated rates due to the possibility of the loss of the cargo and/or the vessel. U.S. flagships are subsidized, therefore the rates charged by U.S. flag carriers are actually lower than the actual cost of moving the shipment. International treaties, such as the Russian grain deals, many times specify a rate different from that of ordinary traffic. In summing up rate making criteria, two statements can be made:

1) Rates generally reflect just about every conceivable factor affecting the shipment of commodities; the actual cost of moving the commodity from one point to another is only one factor considered.

2) Rates are commodity, time, mode and route specific. This means that there is a specific rate for moving one specific commodity, between two specific points by a specific mode, and for maybe only one point in time. When the number of commodities is multiplied by all the various points that traffic is shipped to in the world and the incurred costs, which may change daily, the result is a set of trillions of rates for any one point in time.

In the following table of rates, the rates cited are applicable at only one point in time, that being January 1, 1975. Since the St. Lawrence Seaway was closed on the above date, due to the annual winter freeze, the rates applicable to the seaway are hypothetical (see notes following the table for explanations). The following information was supplied by the City of Milwaukee, Board of Harbor Commissioners, J. A. Seefeldt, Municipal Port Director.

Before any attempt is made at making any interpretation of the following table, the notes following the table should be read and thoroughly understood. Basically the table indicates that it is generally cheapest, ratewise, for the midwest agricultural bulk commodity shipper to ship via Great Lakes ports than either Atlantic or Gulf coast ports. At the end of this appendix, a table, with respective notes, is given indicating an approximation of the amount of fuel and fuel costs that each possible routing in the first table might have consumed.

Table 2

Rate Comparison of Selected Bulk Commodity Movements*

Origination/Destination	(1)R.R. Miles	Rail (2)RR Rate (Cwt.)	Costs (3)RR Line-Haul	(4)Average Total Car Demurrage Cost	(5)Total Rail Costs 3+5	(6) Port Handling Costs	(7)Ocean Rate	(8)Total Ocean Freight Charge	(9)Seaway & Other Water Transp. Charges	(10)Total Transp. Costs 5+6+8+9	Description
A. N.Kansas City, Mo. to Djakarta, Indonesia											
via Green Bay	590	.545	11,990	0	11,990	NA	92.50/NT	101,750	440	114,180	2,200,000 lbs. of
via New Orleans	869	.445	9,790	60	9,850	$ 5,313	92.50/NT	101,750	NA	116,913	wheat soy blend
via Mobile	856	.445	9,790	20	9,810	2,420	92.50/NT	101,750	NA	113,980	
B. Abilene, Kansas to Alexandria, Egypt											
via Green Bay	767	.945	85,050	0	85,050	NA	79.35/GT	318,817	NA	403,867	9,000,000 lbs. of
via New Orleans	924	1.12	100,800	250	101,050	21,735	79.35/GT	318,817	NA	441,602	wheat soy blend
via Mobile	961	1.12	100,800	80	100,880	9,900	79.35/GT	318,817	NA	429,597	
C. St. Joseph Mo. & Crete, Nebraska to Saigon, Vietnam											
via Chicago St.Joe	439	.545	64,860	0	64,860	NA	76.75/NT	368,400	1,920	435,180	St. Joseph 3,000,000
Crete	+525	.735									lbs. and Crete
via New Orleans St. Joe	921	1.025	111,600	260	111,860	23,184	76.75/NT	368,400	NA	503,444	6,600,000 lbs. of
Crete	+1041	1.225									soy-fortified corn
via Baltimore St. Joe	1149	1.485	155,100	370	155,470	10,176	76.75/NT	368,400	NA	534,046	meal
Crete	+1271	1.675									
D. Milwaukee, WI to Buenaventura, Columbia											
via Milwaukee	7.5	0	0	30	30	NA	79.35/NT	85,341	430	85,801	2,151,000 lbs. of
via Newport News	999	.86	18,499	50	18,549	2,216	79.00/NT	84,965	NA	105,729	instant corn soya
via Mobile	922	.66	14,196	20	14,216	2,366	79.00/NT	84,965	NA	101,547	milk
E. Milwaukee, WI to Freetown, Sierra, Leone, Africa											
via Milwaukee	7.5	0	0	150	150	NA	97.60/GT	470,571	2,160	472,881	10,800,000 lbs. of
via Newport News	999	.86	92,880	240	93,120	11,124	97.60/GT	470,571	NA	574,815	instant corn soya
via Mobile	922	.66	71,280	90	71,370	11,880	97.60/GT	470,571	NA	553,821	milk
F. Wichita, KA to Istanbul, Turkey											
via Milwaukee	699	.925	34,614	60	34,674	NA	83.55/GT	$139,573	NA	174,247	3,742,000 lbs. of
via New Orleans	841	1.095	40,975	110	41,085	9,037	83.55/GT	139,573	NA	189,695	wheat flour
via Galveston	628	1.095	40,975	40	41,915	7,952	83.55/GT	139,573	NA	188,540	
G. Coffey, KA to Casablanca, Morocco											
via Milwaukee	664	.82	82,000	140	82,140	NA	79.35/GT	354,241	NA	436,381	10,000,000 lbs. of
via New Orleans	716	1.06	106,000	270	106,270	24,150	79.35/GT	354,241	NA	484,661	wheat flour
via Galveston	571	1.06	106,000	90	106,090	21,250	79.35/GT	354,241	NA	481,581	
H. Abilene, KA to Valparaiso, Chile											
via Duluth	736	.835	16,700	20	16,720	NA	71.25/NT	71,250	400	88,370	2,000,000 lbs. of
via New Orleans	924	.86	17,200	60	17,260	4,830	76.25/NT	76,250	NA	98,340	soy-fortified bulgur
I. Crete, Nebraska to Bombay, India											
via Chicago	525	.735	91,875	0	91,875	NA	109.42/GT	610,603	2,500	704,978	12,500,000 lbs. of
via New Orleans	1,041	1.225	153,125	340	153,465	30,188	121.66/GT	678,906	NA	862,559	corn soy blend
via Baltimore	1,271	1.675	209,375	470	209,845	13,250	121.66/GT	678,906	NA	902,001	
J. Crete, Nebraska to Calcutta, India											
via Duluth	538	.81	109,269	120	109,389	NA	103.09/GT	620,841	2,698	732,928	13,490,000 lbs. of
via New Orleans	1,041	1.225	165,253	370	165,623	32,578	116.59/GT	702,142	NA	900,343	soy-fortified bulgur

*See following pages for clarification before any interpretations are made.
NA - Not applicable

NOTES ON RATE COMPARISON OF SELECTED BULK COMMODITY MOVEMENTS TABLE

General

1. Bulk products, origins, and destinations were picked at random. Cargo actually moved via other than a Great Lakes port. Information from USDA allocations releases.

2. A total of 10 examples were prepared. Four Great Lakes ports, three Gulf ports, and two East Coast ports were used in the study. A total of 28 separate comparisons were made; and in 27 of them, the costs via the Great Lakes ports were considerably less than for competitive coastal gateways.

3. All rates are effective on January 1, 1975, only, except where noted. Where no shipping (due to weather) took place on January 1, 1975, assumed rates were used.

4. Handling charges are based on applicable port tariffs.

5. The average days that railroad cars are held at ports are applicable figures cited for general cargo, including grain products rather than for grain cars.

6. Column #4 could vary depending upon the individual port's congestion factors. Minimum rather than maximum rail car demurrage was used.

7. Ocean rate authority is shown below. Where no effective Great Lakes/St. Lawrence Seaway rate exists, the rate quoted is based on the effective rate at the competing ports. This is based on discussions with the Deputy Secretary of the Mediterranean Conference and with several steamship owners' agents, who indicated that rates for these type cargos are generally equalized.

8. Average weight per rail carload equals 44.64 gross tons (GT), or 50 net tons (NT) on USDA PL 480 type cargos.

9. Fractions of days or rail carloads are considered as whole days.

10. Column #7 rates apply from end of ship's tackle to end of ship's tackle.

11. Colume #9 rates from St. Lawrence Seaway Development Corporation.

Specific Examples (Number shown indicates table column number.)

A. N. Kansas City, Missouri, to Djakarta, Indonesia

   2. Via Mobile and New Orleans, 44½ cwt per SL & SF Tariff 5787. Via Green Bay, 54½ cwt per items 440, 1570, and 2670, Milwaukee 18535-H Tariff.

6. Handling costs at New Orleans: unloading charge 4.23/NT per item 500-F(a), NOLA, Dock Tariff FMC-T No. 1; wharfage charge .60/NT per item 117-I (same tariff); total charge $4.83/NT at 1,100 NT equals $5,313. Handling costs at Mobile: unloading charge 1.75/NT per item 120(A), Mobile Docks Department Tariff No. 1-B, FMC-T No. 1; wharfage charge .45/NT (same authority); total charge 2.20/NT at 1,100 NT equals $2,420.

7. U.S. Atlantic and Gulf-Indonesia Conference Tariff No. 14, FMC-3. New Orleans and Mobile to Djakarta-Wheat Soy Blend and Relief Cargo

Contract Rate	$60.00 per 2,000 pounds
25% Congestion Surcharge	15.00
Bunker Surcharge	17.50
	$92.50 per 2,000 pounds

The ocean rate from Green Bay is assumed to be the same as from New Orleans and Mobile, because there are no specific rates effective on USDA PL 480 cargos, or on any cargos, during the winter close of navigation in the Great Lakes. However, during open navigation, the rates from Great Lakes ports on USDA PL 480 cargos are competitively equalized with those rates from the Gulf and North Atlantic ports.

9. St. Lawrence Seaway tolls applicable from Green Bay of 40¢ per NT, or .40 at 1,100 NT equals $440.

B. <u>Abilene, Kansas, to Alexandria, Egypt</u>

2. Via Green Bay combination rates: Abilene to Kansas City .40 cwt per item 2165, UP Tariff 3159; Kansas City to Green Bay .54½ cwt per items 440, 1570, and 2670, Milwaukee 18535-H Tariff; total .94½ cwt. Via New Orleans and Mobile: 1.12 cwt per item 2320, UP Tariff 3060.

6. Handling costs at New Orleans: unloading charge 4.23/NT per item 500-F(a), NOLA Dock Tariff FMC-T No. 1; wharfage charge .60/NT per item 117-I (same tariff); total charge 4.83/NT at 4,500 NT equals $21,735. Handling costs at Mobile: unloading charge 1.75/NT per item 120(A), Mobile Docks Department Tariff No. 1-B, FMC-T No. 1; wharfage charge .45/NT (same authority); total charge 2.20/NT at 45 NT equals $9,900.

7. Gulf-Mediterranean Ports Conference, Gulf and South Atlantic, excluding Spain, Tariff No. 13, FMC-15. U.S. Gulf ports to Alexandria, Egypt: wheat soy blend and relief cargo; contract rate 79.35 w; rate basis 2,240 pounds/40 cubic feet. Rate is all-inclusive; i.e., congestion surcharges, bunker surcharges, arbitraries.

American Great Lakes/Mediterranean Eastbound Freight Conference Tariff No. (12), FMC-10. Conference would match any rates published on USDA PL 480 cargos by the Atlantic or Gulf ports, as

such rates are generally equalized among the Gulf, Atlantic, and Great Lakes seaboards. St. Lawrence Seaway tolls are not applicable on USDA cargos in the Great Lakes/Mediterranean Tariff cited.

C. St. Joseph, Missouri, and Crete, Nebraska, to Saigon, Vietnam

2. Via Chicago from St. Joseph: 54½ cwt per item 600, BN Tariff 55. Via Chicago from Crete, Nebraska: Crete, NE to Omaha .21 cwt per item 5542, BN Tariff 41. Omaha to Chicago: 52½ cwt per WTL Tariff 332; rate equals 73½ cwt; total charge .545 cwt at 3,000,000 pounds plus .735 cwt at 6,600,000 pounds equals $64,860.

   Via New Orleans from St. Joseph: .102½ cwt per item 1054, BN 55. Via New Orleans from Crete, NE, .122½ cwt per item 2056, BN 55; total charge 1.025 cwt at 3,000,000 pounds plus 1.225 cwt at 6,600,000 pounds equals $111,600.

   Via Baltimore from St. Joseph; St. Joseph to Chicago 54½ cwt per item 600, BN Tariff 55, Chicago to Baltimore .94 cwt per item 9030, CTR 245, total rate .148½ cwt; Crete, NE, to Baltimore, Crete to Omaha .21 cwt per item 5542, BN Tariff 41, Omaha to Chicago 52½ cwt per WTL Tariff 332, Chicago to Baltimore .94 cwt per item 9030, CTH 245, total rate 1.67½ cwt, total charge 1.485 cwt at 3,000,000 pounds plus 1.675 cwt at 6,600,000 pounds equals $155,100.

6. Handling cost at New Orleans: unloading charge 4.23/NT per item 500-F(s), NOLA Dock Tariff FMC-T No. 1; wharfage charge .60/NT per item 117-I (same tariff); total charge 4.83/NT at 4,800 NT equals $23,184. Handling charges at Baltimore: unloading charge (non-palletized cargo) 5.92/NT per Baltimore Term. Assoc. Tariff No. 3, FMC agreement No. T-1941, page 18; absorbed by railroads .380/NT per B & O Tariff 309-T, item 400-G; total rate 2.12/NT applicable charges to cargo.

   Wharfage charges are for the amount of the vessel; therefore, they are encompassed in the ocean rate and are not applicable. Total charge 2.12/NT at 4,800 NT equals $10,176.

7. Far East Conference Tariff No. 25, FMC-5; U.S. Atlantic and Gulf to Phnom Penh, Saigon, 61.25 per 2,000 pounds; bunker surcharge 13.00 per ton; war risk compensation charge 2.50 per ton; total charge $76.75 per 2,000 pounds. The rates from Great Lakes ports on USDA PL 480 cargos are equalized with those rates from the Gulf and North Atlantic ports.

9. St. Lawrence Seaway tolls applicable from Chicago of 40¢/NT; total charge .40/NT at 4,800 NT equals 1,920.

D. Milwaukee, Wisconsin, to Buenaventura, Colombia

1. Via Milwaukee; switching mileage only, per the Chicago, Milwaukee, St. Paul and Pacific Railroad Company.

2. Via Newport News, Virginia, .86 cwt per CTR 245; rate includes 12¢ port charge per item 220 of CTR Tariff 245. Via Milwaukee: no specific rate incurred, as movement is transit privilege without cost. Via Mobile: in-transit balance rates to Chicago of .035 cwt to .055 cwt depending on initial origin. For comparative purposes, rate of .035 cwt used per Milwaukee Road Tariff 17015. Beyond .625 cwt per ICC Tariff 602, rate equals .66 cwt.

6. Handling costs Newport News: unloading charge (non-palletized cargo) 5.12/NT per Norfolk Marine Term. Assoc. Term. Tariff 1-D, FMC-T-No. 5, absorbed by railroads 3.06/NT per C & O Tariff 91-R, item 860; applicable rate 2.06/NT. Wharfage charges are for the account of the vessel; therefore, they are encompassed in the ocean rate and not applicable. Total charge 2.06/NT at 1075.5 NT $2,216. Handling costs at Mobile: unloading charge 1.75/NT per item 120(A) of Mobile Docks Department Tariff No. 1-B, FMC-T No. 1; wharfage .45/NT, same as above; total rate 2.20/NT; total charge 2.20/NT at 1075.5 NT $2,366.

7. U.S. Atlantic and Gulf/West Coast of South America Conference Tariff FMC-1, U.S. Atlantic and Gulf to Buenaventura, Colombia, corn soya blend in bags and relief cargo $67.75/2,000 pounds/40 cubic feet; congestion surcharge $3.00/NT; bunker surcharge $8.25/NT. No specific rate published in instant corn soya milk. The closest applicable descriptive rate was used. (Rates in these two commodities are generally equalized.)

   Great Lakes Transcaribbean Tariff 108-B, FMC-24, Milwaukee to Buenaventura, Colombia, $71.10/2,000 pounds; bunker surcharge $8.25; total rate $79.35/2,000 pounds. Rate is inclusive of handling charges at Milwaukee.

9. St. Lawrence Seaway tolls applicable from Milwaukee of 40¢ per net ton; total charge .40/NT at 1075.5 NT $430.

E. <u>Milwaukee, Wisconsin, to Freetown, Sierra Leone, Africa</u>

1. Via Milwaukee, switching mileage only per the Chicago, Milwaukee, St. Paul and Pacific Railroad Company.

2. Via Newport News .86 cwt per CTR Tariff 245. Rate includes 12¢ port charges per item 220 of CTR Tariff 245-I.

   Via Milwaukee, no specific rate incurred, as movement is transit privilege without cost.

   Via Mobile, in transit, balance rate to Chicago of .035 cwt to .055 cwt depending on initial origin. For comparative purposes, rate of .035 cwt used per Milwaukee Road Tariff 17015. Beyond .625 cwt per ICC Tariff 602. Total rate .66 cwt.

6. Handling costs at Milwaukee: terminal transfer charge, item 2A of Milwaukee Terminal Tariff No. 2 (FMC agreement T-1785) provides

"In the case of U.S. agricultural commodities under Public Law 480, Titles II and III (b), the transfer charge shall apply and be chargeable to and for the account of the vessel, its owners/charterers or their agents."

Handling costs at Newport News: unloading charge (non-palletized cargo) 5.12/NT per Norfolk Marine Term. Assoc. Terminal Tariff 1-D, FMC-T No. 5; absorbed by railroads 3.06/NT per C & O Tariff 91-R, item 860; total rate 2.06/NT applicable charges to cargo. Wharfage charges are for the account of the vessel; therefore, they are encompassed in the ocean rate and not applicable. Total charge 2.06/NT at 5,400 NT equals $11,124.

Handling costs at Mobile: unloading charge 1.75/NT, item 120(A) per Mobile Docks Department Tariff No. 1-B, FMC-T No. 1; wharfage charge .45/NT, same authority; total rate 2.20/NT; total charge 2.20/NT at 5,400 NT equals $11,880.

7. American West African Freight Conference Tariff No. 15, FMC-16. Via Mobile and New Orleans to Freetown, Sierra Leone, West Africa, 94.00 per 2,240 pounds; 10 percent discount on relief cargo 9.40 per 2,240 pounds; bunker surcharge 13.00 per revenue ton; total rate 94.00 minus 9.40 plus 13.00 equals $97.60. The rates from Great Lakes ports on USDA PL 480 cargos are competitively equalized with those rates from the Gulf and North Atlantic ports.

9. St. Lawrence Seaway tolls applicable from Milwaukee of 40¢/NT. Total charge 54,000 x .40 equals $2,160.

F. <u>Wichita, Kansas, to Istanbul, Turkey</u>

2. Via Milwaukee: Wichita to Kansas City .40 cwt per Santa Fe Tariff 14715; Kansas City to Milwaukee .52½ cwt per WTL 332-G, Proportional. Total rate .925 cwt. Via New Orleans and Galveston 1.09½ cwt, item 1550, Santa Fe Tariff 5655.

6. Handling costs at New Orleans: unloading charge 4.23/NT per item 500-F(a), NOLA Dock Tariff FMC-T No. 1; wharfage charge .60/NT per item 117-5 (same tariff; total charge 4.83/NT at 1871 NT $9,037.

Handling costs at Galveston: unloading charge 18½ cwt per item 202, Galveston Wharves Tariff No. 27-E, FMC-T No. 4; wharfage charge 2-3/4 cwt per (same item and tariff); total charge .2125 cwt at 3,742,000 $7,952.

7. Gulf/Mediterranean Ports Conference, Gulf and South Atlantic (Mediterranean excluding Spain Tariff No. 13, FMC-15) 79.35 per 2,240 pounds; surcharge 4.20; rate inclusive of all surcharges and arbitraries $83.55. American Great Lakes Mediterranean Eastbound Freight Conference Tariff No. (12), FMC-10, Conference would match any rates published on USDA PL 480 cargos by the Atlantic or Gulf ports, as such rates are generally equalized among the Gulf, Atlantic, and Great Lakes seaboards.

9. St. Lawrence Seaway tolls are not applicable on USDA cargos in the Great Lakes/Mediterranean Tariff cited above.

G. Coffeyville, Kansas, to Casablanca, Morocco

2. Via New Orleans and Galveston: 1.06 cwt per item 1630 AT & SF Tariff 5655. Via Milwaukee: Coffeyville to Kansas City .29½ cwt, item 1440, AT & SF 14715; Kansas City to Milwaukee.52½ cwt, WTL 332-G, Proportional; total rate .82 cwt.

6. Handling costs at New Orleans: unloading charge 4.23/NT per item 500-F(a), NOLA Dock Tariff FMC-T No. 1; wharfage charge .60/NT per item 117-I (same tariff); total charge 4.83/NT at 5,000 NT equals $24,150.

Handling costs at Galveston: unloading charge .18½ cwt per item 202, Galveston Wharves Tariff No. 27-E, FMC-T, No. 4; wharfage charge 2-3/4 cwt per same as above; total charge .21¼ cwt at 10,000 pounds equals $21,250.

7. Gulf/Mediterranean Ports Conference, Gulf and South Atlantic, excluding Spain, Tariff No. 13, FMC-15; $79.35 per 2,240 pounds. Rate inclusive of all surcharges and arbitraries.

American Great Lakes/Mediterranean Eastbound Freight Conference Tariff No. (12), FMC-10; conference would match any rates published in USDA PL 480 cargos by Atlantic or Gulf ports, as such rates are generally equalized among the Gulf, Atlantic and Great Lakes seaboard.

9. St. Lawrence Seaway tolls are not applicable on USDA cargos in the Great Lakes/Mediterranean Tariff cited above.

H. Abilene, Kansas, to Valpariso, Chile

2. Via Duluth: Abilene to Minneapolis .66 cwt per WTL 332 Proportional; Minneapolis to Duluth .17½ cwt WTL 332 Proportional; total rate .835 cwt. Via New Orleans: .86 cwt, item 2320 UP Tariff 3060, descriptive item 415, Grain Products Bulgur Flour.

6. Handling charges at New Orleans: unloading charges 4.23/NT per item 500-F(a), NOLA Dock Tariff FMC-T No. 1; wharfage charges .60/NT per item 117-I (same tariff); total charge 4.83/NT at 1,000 equals $4,830.

7. Great Lakes Transcaribbean Tariff No. 108-B, FMC-24: 63.00 per 2,000 pounds; 8.25 bunker surcharge; total rate 71.25 per 2,000 pounds. Rate includes handling charges at Duluth, but not seaway tolls.

U.S. Atlantic and Gulf/West Coast of South America Conference Tariff FMC-1: 68,000 per 2,000 pounds; 8.25 bunker surcharge; total rate 76.25 per 2,000 pounds. Chilean government tax three

percent, exemption Catholic Relief, Care, UNICEF. (Assumed shipment is one of these agencies and hence no tax applicable.) No specific rate published on soy-fortified bulgur. The closest applicable descriptive rate was used.

9. St. Lawrence Seaway tolls applicable from Duluth of 40¢ per NT at 1,000 tons equals $400.

I. Crete, Nebraska, to Bombay, India

2. Via Chicago: Crete NE to Omaha NE .21 cwt per item 5542, BN Tariff 41; Omaha NE to Chicago .52½ cwt per WTL Tariff 332; total rail rate .735 cwt.

Via New Orleans: 1.22½ cwt per item 2056, BN Tariff 55.

Via Baltimore: Crete to Omaha .21 cwt per item 5542, BN Tariff 41; Omaha to Chicago .52½ cwt WTL Tariff 332-G; Chicago to Baltimore .94 cwt item 9030, CTR Tariff 245. Total rail rate 1.675 cwt, rate includes 12¢ port charge per item 220 of same tariff.

6. Handling costs at New Orleans: unloading charge 4.23/NT per item 500-F(a), NOLA Dock Tariff FMC-T No. 1; wharfage charge .60/NT item 117-I (same tariff); total cost 4.83/NT at 6,250 NT $30,188.

Handling costs at Baltimore: unloading charge (non-palletized cargo) 5.92/NT per Baltimore Marine Term. Assoc. Tariff No. 3, FMC agreement No. T-1941, page 18; absorbed by railroads 3.80/NT per B & O Tariff 309-T, item 400-G; total charge 2.12/NT. Wharfage charges are for the account of the vessel; therefore, they are encompassed in the ocean rate and not applicable. Total cost 2.12/NT at 6.250 NT equals $13,250.

7. India, Pakistan, Bangladesh, Ceylon, and Burma Outward Freight Conference Tariff No. 13, FMC-2, Baltimore to Bombay, 92.50 per 2,240 pounds; minus 10 percent discount for relief goods 9.25, plus 12½ percent surcharge for Cape diversion 10.41; bunker surcharge 28.00; total rate 121.66 per 2,240 pounds.

Shipping Corp. of India Freight No. 1, FMC-24, Chicago to Bombay, 93.75 per 2,240 pounds; minus 10 percent discount relief commodities 9.38; plus 12½ percent Cape diversion 10.55; bunker surcharge 14.50 per revenue ton 14.50; total rate 109.42 per 2,240 pounds.

9. St. Lawrence Seaway tolls are .40 per NT or .40/NT at 6,250 NT equals $2,500.

J. Crete, Nebraska, to Calcutta, India

2. Via Duluth: Crete to Omaha .21 cwt per item 5542, BN Tariff 41; Omaha to Minneapolis .42½ cwt per WTL 332-G, Proportional; Minneapolis to Duluth .17½ cwt per WTL 332-G, Proportional; total

rate .81 cwt. Via New Orleans: 1.22½ cwt per item 2056, BN Tariff 55.

6. Handling costs at New Orleans: unloading charges 4.23/NT per item 500-F(a), NOLA Dock Tariff FMC-T No. 1; wharfage charges .60/NT per item 117-I (same tariff); total cost 4.83/NT at 6,745 NT $32,578.

   Handling cost at Duluth: Terminal Transfer Charge; Item 15A provides "In the case of U.S. agricultural commodities, under Public Law 480, titles II and III (b), the transfer charge shall apply and be chargeable to and for the account of the vessel, its owners/charterers or their agents."

7. India, Pakistan, Bangladesh, Ceylon, and Burma Outward Freight Conference Tariff No. 13, FMC-2; New Orleans to Calcutta: 87.50 per 2,240 pounds, minus 10 percent discount on relief cargo, plus 12½ percent surcharge for Cape diversion 9.84; bunker surcharge 28.00; total rate $116.59 per 2,240 pounds.

   Shipping Corp. of India Line Freight Tariff No. 1, FMC-24, Duluth to Calcutta: 87.50 per 2,240 pounds, less 10 percent discount on relief cargo 8.75 plus 12½ percent surcharge for Cape diversion 9.84; bunker surcharge 14.50; total rate $103.09 per 2,240 pounds.

9. St. Lawrence Seaway tolls at 40¢/NT or .40/NT at 6,745 NT equals $2,698.

Table 3

Fuel Consumption and Costs
for Certain Movements of USDA P.L. 480 Cargos*

Orgin/Destination	Total Weight(1) (lbs.)	Portion by Rail: Miles(2)	Portion by Rail: Fuel Consumed(3) (gal.)	Portion by Rail: Cost(4) @ 36.9/gal.	Portion by Vessel: Miles(5)	Portion by Vessel: Fuel Consumed(6) (gal.)	Portion by Vessel: Cost(7) @ .33/gal.	Total: Fuel(8) gal.	Total: Cost(9)
A. N. Kansas City, Mo. to Djakarta, Indonesia	2,200,000								
via Green Bay		590	3,090	$ 1,140	15,347	53,593	$ 17,686	56,683	$ 18,826
via New Orleans		869	4,552	1,680	13,868	48,428	15,981	52,980	17,661
via Mobile		856	4,484	1,655	13,845	48,348	15,955	52,832	17,610
B. Abilene, Kansas to Alexandria, Egypt	9,000,000								
via Green Bay		767	16,436	6,065	6,847	97,814	32,279	114,250	38,344
via New Orleans		924	19,800	7,306	7,326	104,657	34,537	124,457	41,843
via Mobile		961	20,593	7,599	7,265	103,786	34,249	124,379	41,848
C. St. Joseph, Missouri to Siagon, Vietnam &	3,000,000								
Crete, Nebraska to Siagon, Vietnam	6,600,000								
via Chicago		964	22,034	8,131	16,446	250,606	82,700	272,640	90,831
via New Orleans		1,962	44,846	16,548	13,168	200,655	66,216	295,501	82,764
via Baltimore		2,420	55,314	20,411	13,755	209,600	69,168	264,914	89,579
D. Milwaukee, Wisconsin to Buenaventura, Columbia	2,151,000								
via Milwaukee		7.5	38	14	5,266	17,980	5,933	18,018	5,947
via Newport News		999	5,116	1,888	2,497	8,525	2,813	13,641	4,701
via Mobile		922	4,722	1,742	2,030	6,931	2,287	11,653	4,029
E. Milwaukee, Wisconsin to Freetown, Africa	10,800,000								
via Milwaukee		7.5	193	71	5,798	99,394	32,800	99,587	32,871
via Newport News		999	25,689	9,479	4,394	75,326	24,858	101,015	34,337
via Mobile		922	23,709	8,749	5,300	90,857	29,983	114,566	38,732
F. Wichita, Kansas to Istanbul, Turkey	3,742,000								
via Milwaukee		699	6,228	2,298	6,888	40,913	13,501	47,141	15,799
via New Orleans		841	7,493	2,765	7,306	43,395	14,320	50,888	17,085
via Galveston		628	5,595	2,065	7,506	44,583	14,712	50,178	16,777
G. Cobbeyville, Kansas to Casablanca, Morocco	10,000,000								
via Milwaukee		664	15,810	5,834	5,004	79,429	26,212	95,239	32,046
via New Orleans		716	17,048	6,291	5,422	86,063	28,401	103,111	34,692
via Galveston		571	13,595	5,017	5,622	89,238	29,449	102,833	34,466
H. Abilene, Kansas to Valparaiso, Chile	2,000,000								
via Duluth		736	3,505	1,293	8,027	25,483	8,409	28,988	9,702
via New Orleans		924	4,400	1,624	4,656	14,781	4,878	19,181	6,502
I. Crete, Nebraska to Bomba, India	12,500,000								
via Chicago		525	15,625	5,766	14,713	291,925	96,335	307,550	102,101
via New Orleans		1,041	30,982	11,432	13,673	271,290	89,526	302,272	100,958
via Baltimore		1,271	37,827	13,958	13,231	262,250	86,632	300,347	100,590
J. Crete, Nebraska to Calcutta, India	13,490,000								
via Duluth		538	17,280	6,376	15,988	342,346	112,974	359,626	119,350
via New Orleans		1,041	33,436	12,338	14,855	318,086	104,968	351,522	117,306

FOOTNOTES

* Compiled from rate comparisons by the Milwaukee Board of Harbor Commissioners, J. A. Seefeldt, Municipal Port Director, September 10, 1975.

1/ Weight of commodity.

2/ Railroad miles determined by applicable 28300 rate basis between points involved.

3/ Total weight(1) x RR miles (2) ÷ 210 ton miles. For 1973, a total of 4,050,483,161 gallons of #2 diesel fuel was used by class 1 railroads. During 1973, class 1 railroads total freight shipments amounted to 851,808,610,000 ton miles. By dividing ton miles by gallons, one gallon will move a ton ton of freight by rail approximately 210 miles.

4/ Gallons of fuel consumed x 36.9¢. Fuel costs per gallon of Grade 2 diesel fuel as quoted by the Chessie System Railroad.

5/ Vessel miles per U.S. Naval Oceanographic Office, H. O. Pub. No. 151, Distances Between Ports 1965.

6/ Fuel weight(1) x vessel miles(5) ÷ 315 ton miles. Average size of vessel for lakes with total dead weight cargo capacity of 7,000 tons. From Milwaukee to Montreal = 1,186 miles; fuel consumed, Milwaukee to Montreal = 97.5 tons; one gallon of fuel = 7.4 lbs. By dividing the number of ton miles by gallons of fuel consumed, one gallon of fuel will move a ton of freight by vessel 315 miles.

7/ Gallons of fuel consumed x 33¢. Average fuel costs for all vessels, regardless of type of fuel oils burned was about $100 per long ton in January 1975.

8/ Total fuel consumed = fuel consumed by railroads(3) + fuel consumed by vessel(6).

9/ Total fuel cost = cost of fuel consumed by rail(4) + cost of fuel consumed by vessel(7).

APPENDIX B

COMMENTS RECEIVED

The purpose of this section is to complete the contractual arrangements between the Wisconsin Department of Administration (DOA) and the Wisconsin Department of Transportation (DOT) under which the DOT agreed to complete subtask F.1.(a) of the "Wisconsin Coastal Zone Management Development Program Initial Grant Application". "The objective of subtask F.1.(a) is to analyze in report form alternative futures of Great Lakes ports in Wisconsin's integrated transportation system." To achieve this objective, DOT agreed to:

1. Document available information on both the historic and current roles of commercial Great Lakes Ports in an integrated state transportation system through the compilation of existing data and analysis. (Recreational ports and recreational aspects of commercial ports are not included and will be part of a separate study, for which DOT is not responsible.)

2. Identify alternative roles of Great Lakes Ports in a future multi-modal transportation system utilizing such information as is currently available. Positive and negative aspects of each alternative will be identified.

3. Provide, for further public discussion, several (3 or 4) alternative state-wide public policies relating to the role of the public sector in furthering a statewide multi-modal transportation system through inclusion of Great Lakes Ports and their corresponding water routes.

All of the above were addressed in the draft report titled "Wisconsin's Great Lakes Ports: Background and Future Alternatives" prepared by Dr. Harold M. Mayer of the Center for Great Lakes Studies, University of Wisconsin-Milwaukee for the DOT. While the draft report does discuss all of the required subject areas, this final report also documents briefly, various aspects of the above three topics. For more detailed information, not found in this report, reference should be made to the draft report.

The DOT also agreed to incorporate public review comments into this final report and to conduct additional research and documentation, where possible under the contractual arrangements, to accommodate the comments received. A summary list of the comments received through review by the three regional planning commissions and the Coastal Management Coordinating Advisory Council and Citizens Committee at their various meetings is given below. Some of the comments and suggestions request further information that is beyond the original scope, intent, and limited resources of the study. However, while this study does not, or cannot address some of the concerns expressed, ongoing or proposed studies at the federal and other levels of government should be able to answer many of the comments that are not covered in this report.

Comment	Disposition
There is a need for a better comparison of the rate structure for different modes of transportation serving the Great Lakes area. In addition to a clearer delineation and understanding of existing rate structures (displayed in an easily comparable manner). There should be specific mention of the car ferry abandonment issue and its implications for Wisconsin (re: Coordinating & Advisory Council Resolution on car ferry abandonment, December 2, 1975).	The rate structure, its problems and a rate comparison is contained in Appendix A (P. 43). The car ferry abandonment issue is discussed as an issue on page 38 and background information is presented on page 7 under "Shipping Services Across Lake Michigan".
There is a need to amplify the options for the future of smaller ports in Wisconsin. There will be a background statement needed in laying out the alternatives for small ports. This statement should also detail cost considerations as they may impact on the state.	Page 36 addresses in policy form the issue of the future of smaller ports. Background information can be found on page 11. There has been no attempt made to provide detailed information or recommendation for each individual small port.
There is a need for more thorough projections on the usages of different kinds of ports in Wisconsin with regard to the dangers of public over-investment in port facilities. Projections should include data on potential cargo plus more current information on impacts of the ports.	Movement through Wisconsin's ports is influenced and controlled by the private free enterprise system. Projections, thus become a reflection of a guess of future economic conditions. Page 11 begins a short section on "Internal Great Lakes Traffic" which discusses some of the foreseeable economic factors. Movement projections of the principal commodities through the major ports on the Great Lakes is shown in figures 8-13.
The final draft should include an update on any Legislative changes that take place in the coming month or so (December 1975).	SB699 has been signed into law. It creates a 5 member committee to draft bi-state port authority legislation for Superior/Duluth. Minnesota has passed and signed a similar bill. No other port related legislation or proposals have seen floor action nor has any been presented to the Governor for signature.

Comment	Disposition
The report needs to provide a more explicit delineation of the alternative roles for the State of Wisconsin to play in port development.	The draft port report presents an analysis of future options beginning on page 27. Under the issue of present state statutes in this final report, several policy recommendations are made (P. 29).
More information is needed to establish each port's hinterland and its commodity potential. In the Lake Superior region hardwood, softwood, iron and copper potential and markets need to be clarified.	To fully identify a port's hinterland, the origin and destination of all commodities moving through the port would need to be known. No studies for all of the traffic of Wisconsin's ports have been completed. Such a study is beyond the scope of this report. If the study were conducted the results would probably indicate an overlapping hinterland of the state's ports. "Traffic of Wisconsin's Great Lakes Ports" is discussed starting on page 3.
Identify role of ports as part of the statewide transportation system and local economy. (The Great Lakes, Mississippi River and land modes together.)	"Relation of the State to Port Planning" and "Table 1" beginning on page 10, briefly identify the ties between the ports and land modes of transportation.
Address identification of alternative roles of ports in a future transportation system.	The discussion (p. 11) and the issues (P. 36) on the role of smaller ports identifies alternative roles of smaller ports. A port may change classification and would thus fall in a different category as described on pages 3-6.
Background information in the draft report is useful to the public as a whole. (Must be made more appealing and understandable. More graphics in place of tables, terms explained.)	More graphics and figures have been used in this report than in the draft report.
Reads like text book. Doesn't present alternative futures.	Alternative policies are now stated in relation to the various issues.
Define foreign trade zone, free port.	Foreign trade zones and free ports, which have no commodity import/export taxes until the commodity moves inland beyond the port, are not discussed in this report. See page 64 of the draft report.

Comment	Disposition
Identify relationships of commercial ports to recreational ports, small harbors, and other ports.	While a study of the relationships between commercial and recreational ports is beyond the scope of this study, the subject is referenced in the discussions of some of the suggested policies and presented under the topics of "Traffic of Wisconsin's Great Lakes Ports" (P. 3) and "The Future of Smaller Ports" (P. 11).
Identify water and land uses in harbor areas (conflicts and demands for recreational purposes).	Water and land uses are discussed as a policy under the current state statute issue (P. 29)
Identify waterfront land use focusing on trends, regulations and priorities.	Present waterfront land use is described in Appendix A of the draft report. Current trends, regulations, and issues relating to waterfront land use are addressed throughout this report.
Need more measurable costs and benefits of port development. (Specifics on facility development and industrial development impacts.)	Many port facilities have been developed by the private sector as opposed to the public. Current development is following this pattern. No attempt has been made to inventory all costs (or benefits) of specific ports.
Private investment in general port facilities unlikely, except private development of specialized facilities such as in Superior.	The private sector has and will probably continue to provide enough incentives to continue private development where development is needed.
ICC act does not apply to water carriers transporting commodities in bulk.	The Interstate Commerce Commission (ICC) regulates interstate traffic. Much of the water carrier's traffic originates or terminates outside the United States or is of an exempt bulk commodity type; rate making conferences and international treaties regulate overseas type of traffic. The Federal Maritime Commission, Maritime Administration and the Coast Guard regulate rates and safety of waterborne commerce, respectively.
Identify energy shortage as it relates to rates.	The attached Appendix A and the section titled "Energy Effectiveness" address the energy shortage problem (P. 21).

Comment	Disposition
Reference Great Lakes as recognized fourth seacoast.	The fourth seacoast designation, as referenced in the draft report, opens the Great Lakes, its ports, its shippers, and its operators to the same funding and administrative opportunities as the tide water ports. (Full discussion of these opportunities is beyond the scope of this report.)
Identify costs and benefits for winter navigation extension.	Winter navigation is addressed as an issue on page 42. The demonstration program is continuing. As such, all costs and benefits have not been fully tabulated as yet.
Discuss disposal of dredged material, long term impacts of dredging and disposal, and high water levels on dredging requirements.	Dredging is discussed as an issue on page 40. A very brief background on dredging can be found on page 24.
Identify across Lake Michigan ferry service, make comparison of its rates, identify impacts on industrial development at ferry ports.	The across Lake Michigan ferry service is discussed as an issue (P. 38) and background information given in the section titled "Shipping Services across Lake Michigan". The problem of rate comparison is addressed in the same section and in Appendix A. Industrial development is also addressed in the referenced section. A detailed analysis of industrial development is beyond the scope of this study.
Address commercial fishing.	The topic is not a subject of this study, however, references to commercial fishing are made where the future of small ports is discussed on page 11.
Identify environmental and social impacts of potential state policies.	Social and environmental impacts are discussed in very general terms under the pros and cons of some policies.
Recognize the bi-state port authority subject for Superior-Duluth.	The bi-state port authority is discussed as an issue on pages 41 and 58.
Include section in intercity personnel movement (ferries, sightseeing boats, etc.)	Passenger aspects of waterborne transportation were considered to be beyond the scope of this report. Passengers can and do ride some of the rail ferries that are discussed in this report. Also, there are ferry operations which link Madeline Island and Washington Island to Wisconsin's mainland.

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