Ohio Department of Natural Resources

OHIO'S LAKE PORTS

FACILITIES, CARGO, AND PROBLEMS

Ohio Coastal Zone Management Program

STATE OF OHIO

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF WATER

OHIO'S LAKE PORTS

FACILITIES, CARGO, AND PROBLEMS

compiled by

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CONTENTS

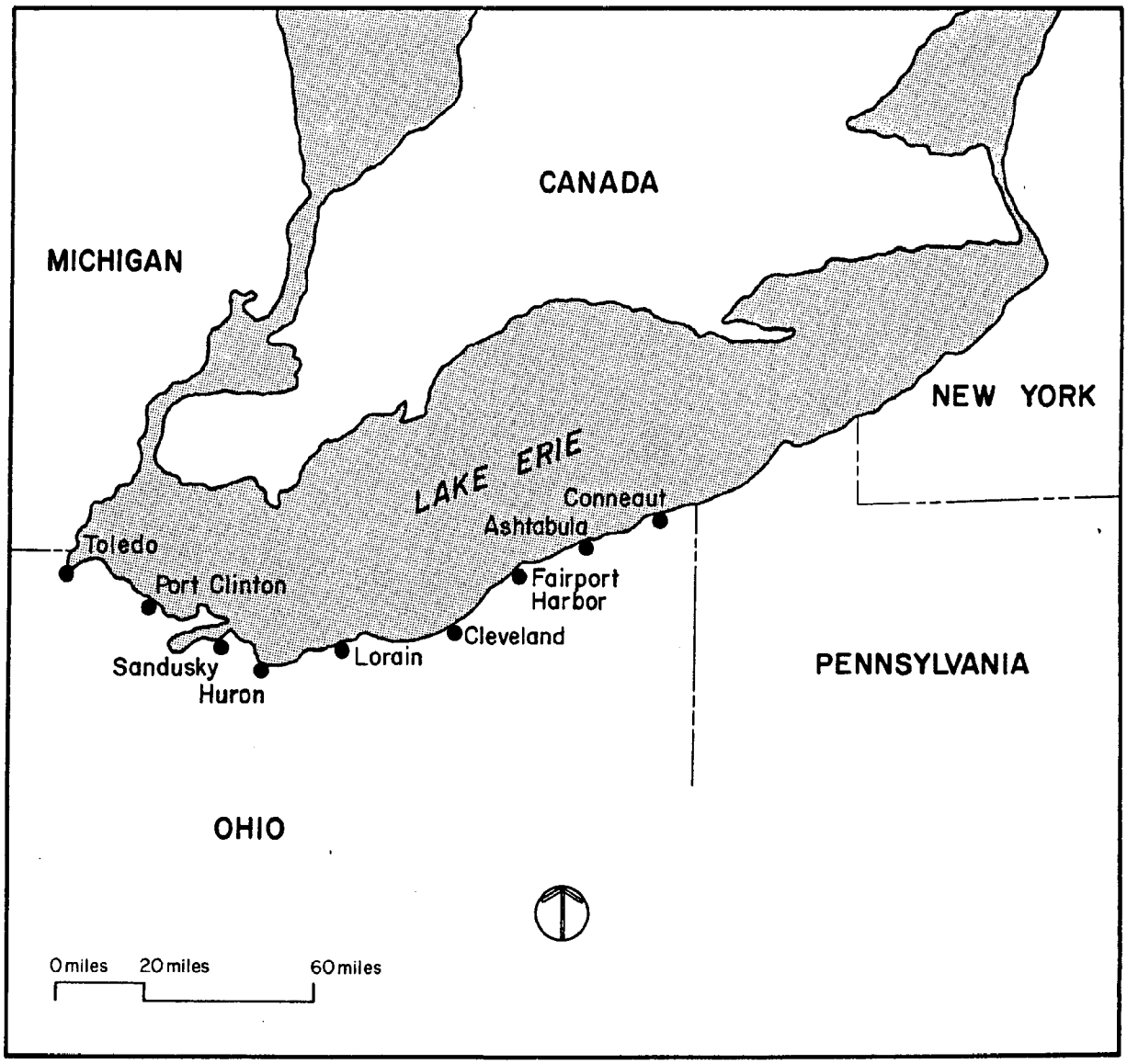
INTRODUCTION

Ohio's Lake Erie harbors are a vital link in the State's transportation system. There are nine commercial ports on the Ohio shoreline. They are: Toledo, Port Clinton, Sandusky, Huron, Lorain, Cleveland, Fairport Harbor, Ashtabula and Conneaut (see map on following page). In 1975 alone, nearly 90 million tons of cargo was shipped through these ports. Ports contribute directly to the local economies and attract related industries into the coastal zone. Many industries of the State and region are served by the land-water transportation link of the ports.

The Coastal Zone Management (CZM) Act of 1972 mandates consideration of the economic development needs of coastal areas, states and regions. State CZM programs must account for this in developing plans for more effective land and water uses. Ohio's CZM Program, during the second grant year, sought information from port authorities on facilities, problems and future needs. Also, information from Corps of Engineers' reports was extensively used. The purpose of this report is to summarize these findings.

PORT AUTHORITIES

Chapter 4582 of the Ohio Revised Code authorizes any municipal corporation, township or county to establish a port authority. Contiguous municipal corporations, townships and counties may later join upon conditions of agreement with the political subdivisions comprising the port authority and its board of directors. If the port authority has a voted tax levy, both the joinder and the tax levy must be approved by a majority vote of electors of each participating political subdivision.



OHIO'S LAKE ERIE PORTS

The area of jurisdiction of the port authority is coincident with the area of political subdivision(s) creating the authority.

Port authorities have been established at the Lake Erie cities of Ashtabula, Cleveland, Conneaut, Fairport Harbor, Huron, Lorain, and Toledo. Cleveland and Toledo have combined with Cuyahoga and Lucas Counties, respectively, to form joint port authorities with directors appointed by both city and county. Sandusky Harbor is administered by the City Commission. Port Clinton Harbor, principally utilized by recreational craft, is administered by the City. Huron Harbor is administered by a joint city-township port authority. Port authorities vary in degree of involvement from port to port. Table 1 illustrates the organization, support and function that Ohio's port authorities have on Lake Erie.

TABLE 1: OHIO LAKE ERIE PORT AUTHORITIES

Port	Port Authority Home	Organizational Structure	Public Financial Support	Function
Ashtabula	Port of Ashtabula	City	---	Coordination
Cleveland	Cleveland Cuyahoga County Port Authority	City-County	Tax Levy	Coordination Promotion, Owners/Leases
Conneaut	Conneaut Port Authority	City	---	Coordination
Fairport Harbor	Fairport Harbor Port Authority	City	Tax Levy	Coordination
Huron	Huron Joint Port Authority	City-Township	---	Coordination
Lorain	Lorain Port Authority	City	City Appropriation and Bond Issue	Coordination Owners/Leases
Port Clinton	No Port Authority	City	City Funds	Coordination
Sandusky	No Port Authority	City Commission	City Income Tax	Coordination
Toledo	Toledo-Lucas County Port Authority	City-County	Tax Levy	Coordination Promotion Owner/Leases

TOLEDO HARBOR

Location

Toledo Harbor is located at the western end of Lake Erie where the Maumee River flows into Maumee Bay. It is presently handling more cargo than any other Lake Erie port. The port area consists of the lower, seven-mile, deep-draft section of the Maumee River, and a dredged channel extending 18 miles through Maumee Bay to deep water in Lake Erie.

Facilities

PIERS, WHARVES, AND DOCKS

There are 41 piers, wharves, and docks located at the Port of Toledo. Seven are located on Maumee Bay, east of the mouth of the Maumee River; and 34, are divided equally along the right and left banks of the lower seven miles of the Maumee River.

The Toledo-Lucas County Port Authority Facility No. 1 Wharf handles general and containerized cargo in foreign trade, and is operated by the Port Authority and Toledo Overseas Terminals Company. This wharf is located on the right bank of the Maumee River, near the mouth, and provides 4,196 feet of berthing space with a water depth of 27 feet alongside at low water datum. Two transit sheds (Sheds A and B) provide a total of 122,500 square feet of space for cargo in transit. During the closed navigation season, the transit shed space is used for public storage. Open storage space is also available at the terminal for storing waterborne cargo not requiring protection from the weather. Two connecting surface tracks are located on the wharf apron, and one platform-level track extends along the rear of each transit shed; these tracks together with other trackage serving the terminal connect with the Chesapeake

and Ohio Railway. The Industrial Molasses Corporation receives molasses, vegetable oils, and chemicals through pipeline connections on the south portion of the wharf. The Toledo Foreign-Trade Zone Operators, Inc., operates Foreign-Trade Zone No. 8, located approximately 300 feet in rear of Transit Shed A.

OIL HANDLING AND OIL BUNKERING

Nine of the waterfront facilities are equipped to receive and/or ship petroleum products, bunker vessels, or to load a tank barge based at the port for bunkering vessels at berth; eight are along the right bank and one is on the left bank of the Maumee River.

Marine Fueling, Inc., operates the "Anna", a diesel-powered towboat with a rating of 200 horsepower, and a tank barge "Marine Fueler" for delivering bunker fuel to vessels at berth in the harbor; the towboat and barge are based at the Standard Oil Marine Dock. The tank barge has an overall length of 144 feet, a width of 27 feet, and a loaded draft of nine feet. It is equipped with heating coils and diesel pumps, has a cargo-carrying capacity of 5,200 barrels, and has six tank compartments for Bunker C and diesel fuel. Depending on the location, vessels at berth are occasionally supplied with bunker fuel by tank trucks. The tabulation on the following page gives information of the facilities equipped to handle petroleum products.

OIL-HANDLING AND OIL-BUNKERING FACILITIES

OPERATOR AND/OR USER	STORAGE TANKS NUMBER	STORAGE TANKS CAPACITY (BARRELS)
Right bank, Maumee River		
Atlantic Richfield Co.	14(1)	770,000
Ashland Oil, Inc.	14(2)	376,000
Standard Oil Company of Ohio	21(5)	1,021,000
Gulf Oil Co. - U.S., Division of Gulf Oil Corp.	24(5)	1,515,600
Phillips Petroleum Co.	2(6)	50,000(7)
Sun Oil Company of Pennsylvania	30(5)	2,300,000
The Toledo Edison Co.	1	47,600(8)
Left bank, Maumee River		
Shell Oil Co.	8(1)	216,000
TOTAL	114	6,396,200

1. Wharf is equipped to receive and ship petroleum products, but at time of the survey, storage tanks at terminal were receiving products by inland pipeline.
2. Storage tanks also receive petroleum products by inland pipeline.
3. Loading tank barge for bunkering barges at berth.
4. Bunkering vessels.
5. Twenty-eight of the storage tanks located at company-owned refinery.
6. Storage tanks located at company carbon black manufacturing plant about 0.25 mile inland.

7. Decanted oil.

8. Fuel oil for plant consumption.

COAL AND ORE HANDLING

Six of the waterfront facilities at the port are equipped to ship coal and/or receive iron ore. Five of these facilities are located at two terminals on the south side of Maumee Bay, adjacent to and east of the mouth of the Maumee River; and one facility is located on the right bank of the Maumee River, about 0.28 mile above the Norfolk and Western Railway bridge. One of the terminals on Maumee Bay is operated by the Lakefront Dock and Railroad Terminal Company, and one by the Chesapeake and Ohio Railway Company; the waterfront facility on the Maumee River is operated by Interlake, Inc.

The terminal of the Lakefront Dock and Railroad Terminal Company, Piers Nos. 2 and 3, is owned by Chesapeake and Ohio Railway Company, Baltimore and Ohio Railroad Company, and Penn Central Transportation Company. Two, fixed, electric car dumpers are located on Pier No. 2 (one on each side) for loading vessels with coal. The average vessel-loading rate is 45 70-ton rail cars per hour. Each of the car dumpers is served by a car-thawing plant. Four, traveling, electric, Hulett-type ore unloaders are on the east side of Pier No. 3; the combined average rate of the ore unloaders is 2,500 tons per hour. Rail tracks serving the terminal connect with the Chesapeake and Ohio Railway, the Baltimore and Ohio Railroad, and tracks of the Penn Central Transportation Company via the Toledo Terminal Railroad.

The adjacent Chesapeake and Ohio Railway Company terminal, owned by the Toledo-Lucas County Port Authority, includes the Ore and Coal Dock,

the Middle Pier, and the West Pier. The outer portion of the Ore and Coal Dock is served by a traveling, electric, coal-loading tower having an 80-foot, hinged-cantilevered boom equipped with a telescopic chute and an automatic trimming head. The tower has a vessel-loading rate of 6,000 tons per hour and is served by a 96-inch, electric, belt-conveyor system extending from six receiving hoppers located under a rotary car dumper in rear; two cars coupled can be dumped simultaneously. The inner portion of the dock is served by three, traveling, electric, Hulett-type ore unloaders which have a combined maximum rate of 2,000 tons per hour. On the Middle and West Piers, there is a total of three, fixed, electric, car dumpers; each dumper has an average vessel-loading rate of fifty 120-ton rail cars per hour. The coal-loading tower and each of the three car dumpers are served by a car-thawing plant. Rail tracks and storage yards serving the terminal connect with the Chesapeake and Ohio Railway via the Toledo Terminal Railroad.

Each of the five, fixed, electric, car dumpers, at the two terminals, consists of a rail car elevator which raises and dumps coal into a hinged-receiving pan. From this point, the coal flows through a telescopic chute equipped with a trimming head, which distributes the coal to all parts of the vessels' holds. The pan and telescopic chute swing upward to allow vessels to be positioned under the chute; the car dumpers are also used for supplying vessels with bunker coal.

Interlake, Inc., receives iron ore, coal, and limestone at its facility on the right bank of the Maumee River. The wharf is equipped with three, 5-ton, electric, traveling, straight-line, gantry cranes for unloading ore; and one 7 1/2-ton, electric, traveling, gantry crane

equipped with an electric magnet for loading vessels with pig iron. The combined average rate of the three iron ore unloading cranes is 550 tons per hour. Coal is usually received at the wharf by self-unloading vessels. Two electric, traveling, bridge cranes, equipped with 10-ton coal and 15-ton ore clamshell buckets, serve the open storage areas at rear of the wharf; these areas have a capacity for 550,000 tons of iron ore and 100,000 tons of coal. Rail tracks serving the wharf connect with Norfolk and Western Railway.

GRAIN ELEVATORS

Eight grain elevators with a total capacity of 39,200,000 bushels are located in the Toledo area; four of these are located along the waterfront, three of which have facilities for the shipment of grain by water.

One of the waterfront elevators is privately owned and operated by Nabisco, Inc., and is located on the right bank of the Maumee River, between the foot of Craig Street and Paine Avenue extended. This elevator has a capacity of 6,000,000 bushels and receives and ships grain by rail.

Cargill, Inc., owns and operates a 2,000,000-bushel elevator on the right bank of the Maumee River below the Penn Central Transportation Company railroad bridge. Bulk grain is received by rail and highway truck and shipped by water from the company's wharf. Additional storage for 4,400,000 bushels of grain is available at the company's Maumee elevator, located about eight miles distant.

A 4,800,000-bushel elevator is located above the Penn Central Transportation Company railroad bridge, on the right bank of the Maumee River. This elevator and wharf are owned and operated by Mid-States Terminals, Inc., and are equipped to receive grain by rail and highway truck

and ship grain by water.

The Andersons River Terminal Elevator and wharf are on the left bank of the Maumee River, near the upper side of the Penn Central Transportation Company railroad bridge. Bulk grain is received at the 2,000,000-bushel capacity elevator by rail hopper cars and highway trucks from The Andersons 14,000,000-bushel capacity elevator at Maumee, Ohio. The list below gives the grain storage facilities in the Toledo area showing the operator, location, and capacity of the elevators.

LIST OF GRAIN STORAGE FACILITIES

NAME OF OPERATOR	LOCATION	STORAGE CAPACITY (BUSHELS)
*The Andersons	Toledo, Ohio	2,000,000
The Andersons	Maumee, Ohio	14,000,000
*Cargill, Inc.	Toledo, Ohio	2,000,000
Cargill, Inc.	Maumee, Ohio	4,400,000
Michigan Elevator Exchange .	Ottawa Lake, Mich.	4,000,000
*Mid-States Terminals, Inc. .	Toledo, Ohio	4,800,000
Nabisco, Inc.	Toledo, Ohio	6,000,000
Rice Grain Co.	Toledo, Ohio	2,000,000
	TOTAL	39,200,000

* Elevators located along Maumee River and equipped with waterfront facilities for shipment of grain by water.

RAIL LINES

The port area of Toledo is served by the following railroads:

Ann Arbor Railroad
Baltimore and Ohio Railroad
Chesapeake and Ohio Railway
Detroit, Toledo and Ironton Railroad
Detroit and Toledo Shore Line Railroad

Lakefront Dock and Railroad Terminal Company
Norfolk and Western Railway
Penn Central Transportation Company
Toledo, Angola & Western Railway
Toledo Terminal Railroad

Trackage among these railroads enables each to interchange cars with the others, either directly or through connecting roads.

The Toledo Terminal Railroad is a belt line that encircles the City of Toledo. It performs extensive switching service for industries located along its route, as well as switching for most of the rail lines in Toledo. The Lakefront Dock and Railroad Terminal Company is owned jointly by the Baltimore and Ohio Railroad, Chesapeake and Ohio Railway, and the Penn Central Transportation Company. Its purpose is to operate their coal and ore dock facilities, Piers 1, 2, and 3 and the adjacent supporting rail yards; these facilities are located on Maumee Bay east of the mouth of the Maumee River.

Spoil Disposal

In light of the fact that sediments in the Maumee River have been declared polluted by U.S. EPA, the Corps of Engineers is obligated to confine the dredge material. In 1976 a 242-acre diked disposal facility in Maumee Bay, near the mouth of the river, was completed and put into service. This facility (Facility No. 3) will contain the dredge spoil material for a period of 10 years. When filled, this structure will become a part of the Toledo-Lucas County Port Authority's facilities.

Commodities and Tonnage

The tonnage of commodities handled at the Port of Toledo declined steadily from 1966 (43,932,128) to 1974 (21,556,519) but increased to 23,628,827 tons in 1975. The major reason for the decline has been

decreases in handling of coal. The principal commodities handled at the port are coal, iron ore, grain, fuel oil, and general cargo. The following shows the tonnage of commodities handled since 1966.

1966	43,932,128
1967	38,830,236
1968	34,659,837
1969	31,117,975
1970	31,932,493
1971	27,310,667
1972	25,248,550
1973	24,921,753
1974	21,556,519
1975	23,628,827

Port Management

Toledo Harbor is controlled by the Toledo-Lucas County Port Authority. The Port Authority adheres to the rules and regulations for port authorities as promulgated in Chapter 4582 of the Ohio Revised Code.

The Port Authority presently owns 4,000 acres within the harbor, but is continually expanding. The City of Toledo controls land uses both within and adjacent to the harbor through zoning ordinances.

Major Problems

Four major problems face the Port of Toledo:

1. competition with other Great Lakes and ocean ports for business;
2. maintenance dredging the non-federal areas of the harbor;
3. shortened navigation season; and
4. the need for bulk storage areas.

Public Access

Numerous public access areas are found within the Toledo Harbor.

The Port Authority is presently working with the City of Toledo and the Toledo Metropolitan Area Council of Governments on the restoration of the lower Maumee River. This project is heavily recreation oriented and will include plans for public access and recreation sites along the harbor.

PORT CLINTON HARBOR

Port Clinton Harbor is located at the mouth of the Portage River. The navigable channel is maintained at a depth of 10 feet from the mouth of the river to the Monroe Street Bridge.

Port Clinton Harbor is a small harbor principally serving recreational craft. Some sand and gravel is shipped from Canada and one commercial fish company uses the dock facilities.

The City of Port Clinton has no port authority. The City owns property along both sides of the harbor. Land uses within and adjacent to the harbor are controlled by city zoning ordinances.

There are three major problems facing the harbor:

1. The need to dredge upstream from the Route 2 bridge to expand recreational use;
2. the breakwalls at the mouth are riprap and consequently are dangerous to the public seeking access to the lake; and
3. the drawbridge at Monroe Street creates quite a traffic problem on busy weekends.

The location and construction of a confined spoil disposal site are no longer problems as further studies by the U.S. EPA in 1975 showed the sediments to be only partially polluted. Consequently, this did not warrant the construction of a site. The dredged materials will now be dumped into the open lake.

There are numerous public access points along the harbor, particularly at the mouth where there are riprap breakwaters. Fishing is popular along these areas.

SANDUSKY HARBOR

Location

Sandusky Harbor is located on the southeast shore of Sandusky Bay. Entrance to the Bay and Lake Erie is via a dredged channel between Sand and Cedar Points.

Facilities

PIERS, WHARVES, AND DOCKS

Fourteen piers, wharves, and docks are described in this report for the Port of Sandusky, Ohio. All are located on the south side of Sandusky Bay; eleven, along a one-mile stretch of the city's waterfront between Perry and Shelby Streets, and three, at the west end of the harbor between the foot of Broadway and Olds Streets extended.

COAL HANDLING AND COAL BUNKERING

The Lower Lake Dock Company operates Piers Nos. 1 and 3 for the shipment of cargo coal and for supplying bunker coal to vessels. These piers are owned by the Norfolk and Western Railway Company and are located at the west end of the harbor. A fixed car dumper, with a maximum lift capacity of 120 tons, is located on each of these piers. On Pier No. 1, the dumper is steam-electric operated and has a vessel-loading rate of 35 cars per hour; and on Pier No. 3, the dumper is electrically operated and has a loading rate of 40 cars per hour. The car dumpers are also used for supplying vessels with bunker coal. The car dumper on Pier No. 3 also serves a belt-conveyor system extending to an open storage area in the center of the pier. The storage area has a capacity for 850,000 tons of coal and is served by a stacker-reclaimer equipped with a conveyor boom for stacking and a bucket wheel

for reclaiming. Coal is reclaimed at a rate of 1,500 tons per hour and travels via belt conveyor to three surge silos. Vessels are loaded at a rate of 6,000 tons per hour via a belt conveyor extending from the surge silos to the car dumper hopper pan. Extensive backup yards of the Norfolk and Western Railway serve the two car dumpers. Pier No. 2 is used exclusively for mooring vessels during the closed navigation season.

RAIL LINES

The Port of Sandusky is served by three trunkline railroads: Baltimore and Ohio Railroad, Norfolk and Western Railway, and the Penn Central Transportation Company. Joint trackage agreements provide interchange service between all railroad lines. Direct access to the port area from the state highways is by local streets. State Highways 2 and 4 and U.S. Routes 250 and 6 provide access to the surrounding areas.

Recreation within the harbor area consists of motorboating, water skiing, sailboating, and fishing. There are numerous small boat harbors along the city waterfront and a passenger ferry service to and from Canada. The harbor is served by the Customs and Immigration Service, a commercial fishing operation, and a ferry service to Kelleys Island.

Spoil Disposal

Selection of a suitable site for the construction of a confined spoil facility is unquestionably the most crucial problem facing the Port of Sandusky. The Sandusky City Commission and the Ohio Department of Natural Resources have proposed several sites within the Bay; however, all have been disapproved by the U.S. Fish and Wildlife Service. Prospects for finding a suitable site are not favorable.

Commodities and Tonnage

The annual tonnage handled by the Port of Sandusky has fluctuated considerably from 1966 to 1975. Coal has been by far the most important commodity handled by the port. The following shows the tonnage handled from 1966 to 1975.

1966	3,805,129
1967	5,910,481
1968	6,921,785
1969	6,857,358
1970	5,078,007
1971	4,883,103
1972	5,612,730
1973	4,913,719
1974	4,220,604
1975	4,532,500

Port Management

The City of Sandusky has no port authority. However, it does have an active port committee appointed by the City Commission. The port committee is responsible for making recommendations to the City Commission on port-related matters.

The City owns land within the harbor at Battery Park and at the Jackson Street Park. The remainder of the harbor area is privately owned. The City controls land uses within and adjacent to the harbor through zoning ordinances. Also, the City controls land-filling along the harbor.

Major Problems

Two major problems face the Port of Sandusky:

1. Selection of a suitable site for the disposal of dredged materials. To date, the U.S. Fish and Wildlife Service has disapproved any site which would require filling of any portion of Sandusky Bay; and

2. competition with other Great Lakes and ocean ports for business.

Public Access

There are many spots along the harbor where there is public access. Two of the more heavily used areas include Battery Park and Jackson Street Park. In both areas, fishing, picnicking and other forms of active recreation can be enjoyed.

HURON HARBOR

Location

Huron Harbor is located on the south shore of Lake Erie at the mouth of the Huron River. The harbor comprises the lower mile of the Huron River, a turning basin, two connecting slips, and an outer harbor and connecting channel.

Facilities

PIERS, WHARVES, AND DOCKS

Six wharves and docks are described in this report for the Port of Huron. One, located on the left bank of the Huron River above the foot of Wall Street, is used for the receipt of fish. The remaining five waterfront facilities are located along the right bank of the river and the sides of two privately owned slips. One, The Pillsbury Company Grain Elevator Wharf, used for the receipt and shipment of grain, is located on the west side of Slip No. 2; one, the Norfolk and Western Railway Company's dock, used for the receipt of iron ore, is located on the east side of Slip No. 2; and one, operated by the Huron Lime Company, used for the receipt of limestone, is situated on the east side of the mouth of the Huron River and the outer east side of Slip No. 1. The remaining two are not used for handling waterborne commerce, but are used for mooring vessels during the closed navigation season. The west side of the harbor is used exclusively by recreational craft.

ORE HANDLING

Iron ore is received at the Norfolk and Western Railway Company's Ore Dock located on the east side of Slip No. 2. The wharf is operated by the Lake Erie Dock Company, is of concrete bulkhead construction with

solid fill at rear, and provides 1,400 feet of berthing space with water depths of 26 to 27 feet alongside at low water datum. Two electric, Hulett-type ore unloaders are located on the wharf; each is equipped with a 17-ton bucket. Together they can unload 1,700 tons per hour. Ore can be unloaded from vessels directly into rail cars under the unloaders or deposited in an open ore trough at rear. Ore is transferred from the trough to an open storage area at rear by use of an electric, traveling, bridge crane equipped with a 12-ton bucket; the open storage area has a capacity for 600,000 tons of ore, and the trough has a capacity for 45,000 tons. Three marginal surface tracks of the Norfolk and Western Railway extend along the wharf and connect with two tracks along the east side of the ore trough; these tracks have a total capacity for 120 cars.

GRAIN ELEVATORS

The Pillsbury Company owns and operates a 1,300,000-bushel grain elevator located at rear of their wharf; this wharf extends along the west side of Slip No. 2 and provides 832 feet of berthing space with water depths alongside ranging from 26 to 27 feet at low water datum. The elevator is equipped to receive and ship grain via highway trucks, rail cars, and vessels. A fixed, vessel-unloading and -loading tower, equipped with a marine leg and loading spout, is located near the center of the wharf; the marine leg has a unloading rate of 35,000 bushels per hour, and the loading spout a rate of 25,000 bushels per hour. Grain is unloaded from rail cars by an electric, automatic, car dumper at a rate of eight cars per hour; and rail cars can be loaded by use of a spout at a rate of 15,000 bushels per hour. A truck dumper, with a lift capacity of 50 tons, can unload a truck carrying 600 bushels of bulk grain in 55 seconds. An

8-story mill building is located adjacent to the west side of the elevator; the mill, formerly used for manufacturing animal and poultry feed, was not in use at the time of the survey. A 12-inch pipeline extends from the face of the wharf to three, steel, molasses storage tanks having a total capacity for 4,642 barrels; neither pipeline nor tanks were in use at the time of the survey. Plant trackage connects with the Norfolk and Western Railway.

RAIL LINES

Huron is served by the Norfolk and Western Railroad and the Conrail System and their connections, and is considered a mainline point on both roads. The Norfolk and Western Railroad owns the ore unloading area which is operated under lease to the Lake Erie Dock Company. In addition, the land being used by the Huron Lime Company is leased from Norfolk and Western Railroad which also owns most of the land on the eastern bank of the Huron River south of the railroad bridge to the southern boundary of Huron Township.

Spoil Disposal

At the close of 1975 the Corps of Engineers completed construction of a diked disposal structure to contain the polluted spoil materials removed during the regular annual maintenance of the navigation channel. The semicircular structure, located on the lake side of the west pier, occupies approximately 63 acres and has a designed capacity of 2,150,000 cubic yards to accommodate spoil material for a 10-year period. When completely filled the site will be converted into recreational complex by the City of Huron.

Commodities and Tonnage

The tonnage of commodities handled at the Port of Huron increased steadily from 1966 (1,305,995) to 1973 (3,655,463), dropped slightly in 1974 to 3,325,132 tons, and decreased dramatically to 2,115,680 tons in 1975. The port handles almost entirely bulk cargo; namely iron ore, limestone, and grain. The following shows the tonnage handled from 1966 to 1975.

1966	1,305,995
1967	1,676,915
1968	2,552,666
1969	3,314,531
1970	2,942,354
1971	3,332,027
1972	3,380,742
1973	3,655,463
1974	3,325,132
1975	2,115,680

Port Management

Huron Harbor is controlled by the Huron Joint Port Authority. The Port Authority adheres to the rules and regulations for port authorities as promulgated in Chapter 4582 of the Ohio Revised Code.

The City owns no land within the harbor. The Port Authority is currently looking to expand their facility southward of the Route 2 bridge. The City of Huron controls land uses both within and adjacent to the harbor through zoning ordinances.

Major Problems

There are three major problems facing the Port of Huron. They are:

1. Lack of funding for better port promotion and management;
2. need for port planning funds; and
3. competition with other Great Lakes and ocean ports for business.

Public Access

There are numerous public access areas on the west bank of the harbor. The west breakwater stretches for more than one-half mile lakeward, providing public access along its entire length. Also, numerous other small access points are located on the west bank. All of these provide access for fishing or observation.

LORAIN HARBOR

Location

Lorain Harbor is a major lake harbor located on the south shore of Lake Erie at the mouth of the Black River. The harbor consists of an outer harbor formed by a system of converging breakwaters in Lake Erie; and an inner harbor which includes the lower three miles of the Black River. The outer harbor covers an area of about 60 acres and the breakwaters have a total length of 8,500 feet. The entrance to the Black River is protected by two parallel piers, the outer ends of which are located about 1,800 feet from the outer harbor entrance.

As a result of the continuing maintenance program of the Corps of Engineers, harbor depths correspond to those in connecting waterways of the St. Lawrence Seaway-Great Lakes System. The harbor areas can accommodate the largest vessels on the Great Lakes.

Facilities

PIERS, WHARVES, AND DOCKS

The Port of Lorain has 23 piers, wharves and docks. Three are located on the outer harbor, and seven are situated on the left bank, and 13 on the right bank of the Black River within the City of Lorain.

OIL HANDLING AND OIL BUNKERING

There are no waterfront facilities at the port operated for the receipt and/or shipment of petroleum products by vessel.

Marine Fueling, Incorporated, operates a self-propelled tank vessel--"Marine Fuel II"--for delivering bunker fuel to vessels at berth in the harbor. This diesel-operated, 175-horsepower vessel, based at the Erie Sand & Gravel Company, Lorain Dock, has an overall length of

101 feet, a width of 20 feet, and a loaded draft of nine feet. It is equipped with heating coils and pumps, and has a cargo-carrying capacity of 1,140 barrels of Bunker C and 47 barrels of diesel fuel. Bunker C is furnished to vessels at a rate of 500 gallons per minute and diesel fuel at a rate of 3 barrels per minute. A 1,430-barrel capacity tank barge moored at the dock is used for storage.

COAL HANDLING AND COAL BUNKERING

The Toledo, Lorain & Fairport Company operates the Baltimore and Ohio Railroad Company's Coal Pier for the shipment of cargo coal, and for supplying bunker coal to vessels. This pier is located between the foot of Hamilton and Oberlin Avenues, and has 1,095 feet of berthing space on the northeast side with 27-foot depth of water alongside at low water datum. A fixed, electric, car dumper, on the northeast side of the pier, dumps 38 to 45 cars per hour into a hinged, receiving, hopper pan (dumper can handle cars up to 120-ton capacity). From this point, the coal flows through a telescopic-loading chute into the vessels' holds. The car dumper is also used occasionally for supplying vessels with bunker coal. Tracks of the Baltimore and Ohio Railroad serving the dumper include four loaded-car tracks with a capacity for 130 cars and four empty-car tracks with a capacity for 160 cars. These tracks join with the nearby Erie Avenue Yard, which has a capacity for 300 cars.

ORE HANDLING

At the Port of Lorain, two wharves receive iron ore, the principal commodity handled. One wharf is owned by the Baltimore and Ohio Railroad Company and the other, by the United States Steel Corporation.

The Toledo, Lorain & Fairport Company operates the Baltimore and Ohio

Railroad Company's Ore Dock. This wharf is located on the left bank of the Black River between its mouth and the Erie Avenue Bridge, and has 1,775 feet of berthing space with a water depth of 27 feet alongside at low water datum. Three electric, traveling, straight-line, gantry cranes on the west portion of the wharf can unload ore from vessels at a combined rate of 1,000 tons per hour; each of the cranes is equipped with a 10-ton traveling bucket. Ore can be unloaded from vessels directly into rail cars or trucks under the cranes, or deposited into a 100,000-ton, open storage area at rear. An additional 750,000-ton, open storage area for ore lies east of the Erie Avenue Bridge. The wharf is also used for receiving limestone by self-unloading vessels. Three marginal surface tracks of the Baltimore and Ohio Railroad extend along the rear of the face of the wharf, have a capacity for approximately 200 cars, and connect with the railroad's Erie Avenue Yard.

The wharf of the United States Steel Corporation, Lorain Works, also is used for the receipt of iron ore and limestone. It is located on the left bank of the river at the upper limits of navigation, and has 2,490 feet of berthing space with water depths of 23 to 28 feet alongside at low water datum. Three electric, Hulett-type, ore unloaders on the wharf can unload vessels at a combined rate of 1,500 tons per hour; each of the unloaders has a 20-ton bucket. Ore can be unloaded directly into rail cars under the unloaders, or transferred by use of two 15-, and one 20-ton, electric, traveling, bridge cranes to a 2,590,000-ton capacity, open storage area at rear, including trough. The bridge cranes are also used for loading material from the open area into cars for transfer to blast furnaces or to other plants. The wharf is also used for the

receipt of limestone by self-unloading vessel. Tracks serving the wharf and steel plant in rear connect with the Lake Terminal Railroad.

RAIL LINES

The Lorain Harbor is served by three trunkline railroads: Baltimore and Ohio Railroad; Penn Central Transportation Company; and Norfolk and Western Railway; a terminal switching carrier, the Lake Terminal Railroad; and a short-line freight carrier, the Lorain and West Virginia Railway (owned by the Norfolk and Western Railway). The Lake Terminal Railroad has interchanges with the Baltimore and Ohio Railroad at Lorain, and with the Lorain and West Virginia Railway, Penn Central Transportation Company, and Norfolk and Western Railway in South Lorain.

Spoil Disposal

A diked disposal structure is currently under construction adjacent to the east breakwater. The area enclosed by the dike will cover about 58 acres and will accommodate 1,850,000 cubic yards of sediments over a 10 year period.

Commodities and Tonnage

The annual tonnage handled by the Lorain Harbor has fluctuated considerably since 1966. Iron ore, coal, and limestone have continually been the most important commodities handled at the port. The following shows the annual tonnage of commodities handled at the port since 1966.

1966	6,620,983
1967	5,553,438
1968	10,624,684
1969	9,112,820
1970	8,573,098
1971	7,483,789
1972	10,173,023
1973	11,584,368
1974	9,076,890
1975	7,650,341

Port Management

Lorain Harbor is controlled by the Lorain Port Authority which was created in 1964 to further Lorain's position as a world port. The Port Authority adheres to the rules and regulations for port authorities as promulgated in Chapter 4582 of the Ohio Revised Code. Some of Lorain's major achievements have been the financing of a million dollar dry dock and improvements for the American Ship Building Company through an industrial revenue bond share. The Port Authority also financed the construction of a five million dollar terminal facility for Allied Oil Company which has improved Lorain's water transportation resources.

With the advent of the 1,000 foot vessels, the Port Authority has requested the Corps of Engineers to undertake a study to determine the improvements needed for the Lorain Harbor to accommodate passage and safe navigation of 1,100 foot vessels. The House of Representatives Public Works and Transportation Committee has adopted a resolution recommending that the Corps of Engineers be authorized to undertake such a study.

With the exceptions of the Lakeview Park project on the west side of the harbor and the area near the sewage treatment plant, all of the area within the harbor is privately owned. The City controls land uses within and adjacent to the harbor through zoning ordinances.

Major Problems

Three major problems face the Port of Lorain:

1. The Route 2 bridge is a definite detriment to navigation;
2. the Port of Lorain's only future is in the handling of bulk commodities; and

3. competition with other Great Lakes and ocean ports for business.

Public Access

There are two public access points within the harbor; both are on the west bank. One is the Lakeview Park Project and the other is a several hundred foot stretch of the east bank near the sewage treatment plant.

CLEVELAND HARBOR

Location

The Port of Cleveland, the second largest port on Lake Erie, is located on the south shore of Lake Erie at the mouth of the Cuyahoga River. It consists of a 5-mile long outer harbor area along the Cleveland lakefront, an inner harbor area extending 5.8 miles up the Cuyahoga River, and a connecting Old River (the former Cuyahoga River mouth).

Facilities

PIERS, WHARVES, AND DOCKS

The Cleveland Harbor has 38 piers, wharves, and docks for cargo handling. Fourteen are located in the East and West Basins of the Outer Harbor; 11, along the banks of the Old River; and 47, along the deep-draft section of the Cuyahoga River.

OIL HANDLING AND OIL BUNKERING

Ten of Cleveland's waterfront facilities are equipped to receive and/or ship petroleum products, fuel towboats, or load a tank vessel based at the port for bunkering vessels at berth; seven are along the left bank and two are on the right bank of the upper part of the improved channel of the Cuyahoga River, and one is on the Old River.

Marine Fueling, Inc., operates a self-propelled tank vessel--"Marine Fuel Oil"--for delivering bunker fuel to vessels at berth in the harbor. This diesel-operated vessel has an overall length of 116.6 feet, a width of 31.6 feet, and a loaded draft of 10.6 feet. It is equipped with nine diesel pumps, has a cargo-carrying capacity of 4,330 barrels, and has three tank compartments--one each for No. 6, No. 2, and No. 1 fuel oils. No. 6 fuel is furnished to vessels at a rate of 1,000 gallons

per minute and No. 1 and No. 2 fuel oil at a rate of 800 gallons per minute.

Depending on the location, vessels at berth are occasionally supplied with bunker fuel by tank trucks.

OIL-HANDLING AND OIL-BUNKERING FACILITIES

OPERATOR AND/OR USER	STORAGE TANKS	
	NUMBER	CAPACITY (BARRELS)
OLD RIVER		
Allied Oil Co., a Division of Ashland Oil & Refining Co.	17	372,000
International Salt Co.	3	3,060(2)
CUYAHOGA RIVER		
Shell Oil Co.	39	165,700
Texaco, Inc.	13(4)	437,095
Mobil Oil Corp.	4	171,400
Gulf Oil Co.-U.S., Division of Gulf Oil	11(4)	386,543
Byerlyte Co., A Dept. of Koppers Co., Inc.	8(6)	96,085
Atlantic Richfield Co.	8(7)	45,694
Marine Fueling, Inc.	3	108,082
Republic Steel Corp., Cleveland District	2	35,715
Jones & Laughlin Steel Corp.	2	107,510(2)
TOTAL	110	1,928,884

1. Metered pump on wharf for fueling tugs.
2. Fuel oil for plant consumption.
3. Wharf equipped to receive and ship petroleum products by water, but at time of survey, storage tanks at terminal were receiving products by inland pipeline.
4. Storage tanks also receive petroleum products by inland pipeline.

5. Loading tank barge for bunkering vessels at berth.

6. Six tanks used for storing asphalt, total capacity 59,050 barrels; and 2 tanks for storing petrochemicals, total capacity 37,035 barrels.

7. Storage tanks receive petroleum products by inland pipeline.

ORE HANDLING

Seven of the waterfront facilities at the port receive iron ore. In addition to handling ore, four receive limestone by self-unloading vessels; two, ferrous scrap; one, fuel oil for plant consumption; two ship steel products; and one, pig iron. Each is a marginal, solid-filled, bulkheaded-type wharf, and has water depths alongside ranging from 30 to 10 feet at low water datum. All, with the exception of one, have rail connections.

Five of the seven ore wharves are operated by three steel companies and are equipped to transfer ore directly from the storage areas in rear to nearby, company-owned, steel plants. The wharves are along both banks of the Cuyahoga River, between the Center Street Bridge and the head of navigation. Jones & Laughlin Steel Corp., Central Furnaces Ore Wharf, and Republic Steel Corp., Cleveland District, Upper Dock are along the right bank; and Republic Steel Corp., Cleveland District, Lower Dock, and Jones & Laughlin Steel Corp., Cleveland Works Wharf are along the left bank of the river.

The two remaining wharves are used for the receipt of iron ore for rail shipment: Penn Central Transportation Co.'s Ore Dock No. 11, operated by the Ohio and Western Pennsylvania Dock Co., is on the lake-front at the west end of the West Basin; and the Erie-Lackawanna Railway

SUMMARY OF ORE-HANDLING FACILITIES

OPERATOR	BERTHING SPACE (FEET)	DEPTHS ALONGSIDE AT LWD (FEET)	UNLOADING EQUIPMENT TYPE	UNLOADING EQUIPMENT RATE (TONS/HR.)	STORAGE CAPACITY (TONS)
Ohio and Western Pennsylvania Dock Co.	1,875	30-24	4 Huletts	800, each	1,036,000
Erie Dock Co.	1,620	26-21	3 Huletts	2,500, total	--- (1)
Jones & Laughlin Steel Corp.	920	23-19	Self-unloading vessels		100,000(2)
United States Steel Corp.	900	23-21	2 Huletts	350, each	530,000
Republic Steel Corp.	3,340	23-10	2 Huletts	1,000, total	750,000
Jones & Laughlin Steel Corp.	1,780	23-19	2 Gantry 1 Bridge	300, each 500	955,500(3)
Republic Steel Corp.	1,250	23-20	2 Huletts	500, each	785,500

1. No storage available at wharf, iron ore is unloaded directly from vessels to rail cars for shipment.

2. Reserve storage.

3. Additional open storage area for 261,200 tons of ore available north of Clark Avenue Viaduct.

Co.'s Ore Dock, operated by Erie Dock Co., is on the right bank of Old River, west of the Willow Avenue Bridge.

GRAIN ELEVATORS

Two private, waterside, grain elevators are located at the port; each has facilities for receiving grain by rail and by water.

The International Multifoods, Inc., owns and operates a 590,000-bushel elevator at the rear of its wharf on the right bank of the Cuyahoga River, approximately 270 feet above the Center Street Bridge. This elevator, consisting of two wooden, storage bins and 20 concrete silos, is used in connection with the milling operations of the company. The wharf provides 350 feet of berthing space with 22- to 18-foot depths of water alongside at low water datum. A marine leg unloads grain from vessels at a rate of 8,000 bushels per hour; grain is unloaded from rail cars by power shovels at a rate of four cars per eight hours. Rail tracks serving the elevator and flour mill connect with tracks of the Penn Central Transportation Co.

The elevator and wharf of Sherwin-Williams Chemicals, a division of The Sherwin-Williams Co., are on the left bank of the Cuyahoga River, approximately 475 feet below the West 3rd Street Bridge. The wharf provides 763 feet of berthing space with 23- to 18-foot depths of water alongside at low water datum. A marine leg unloads flaxseed from vessels into nine steel storage tanks at a rate of 5,000 bushels per hour. The tanks, at rear of the upper part of the wharf, have a total capacity for 700,000 bushels. Additional storage for flaxseed is provided in the holds of vessels moored alongside the wharf during the closed navigational season. In addition to receiving flaxseed, the company also

uses the wharf for the shipment of linseed oil. Two, 3-inch pipelines extend to the wharf from 22 storage tanks located at the mill in rear; the tanks have a total capacity for 2,000,000 gallons. Rail tracks serving the elevator and linseed oil mill connect with the Erie-Lackawanna Railway.

The Port Authority expects to expand its facilities and improve its harbor in the near future. The Cleveland-Cuyahoga County Port Authority has purchased 17.5 acres of land from the Penn Central Transportation Company. This parcel will be used for the construction of a 150,000 square foot warehouse and a new container terminal on the lakefront. The entire project will cost nearly $5.5 million, including a $1.25 million grant from the Economic Development Administration that was approved in June of 1972. Existing overseas piers are modern, but limited. The warehouse-terminal project and related land acquisition from the Penn Central will provide backup space and improve utilization of the piers.

The Authority has put considerable time and money into aiding the interlake trade, even though these facilities are predominately private, and hence non-revenue producing for the Authority. This effect involves eliminating or minimizing the bottlenecks caused by channel constraints and older bulk cargo facilities on the Cuyahoga River.

RAIL LINES

Cleveland, Ohio, is served by four trunkline railroads: Baltimore and Ohio Railroad; Erie-Lackawanna Railway; Norfolk and Western Railway; and Penn Central Transportation Co.; by two terminal railroads: Cuyahoga Valley Railway and River Terminal Railway; and by one belt line, Newburgh and South Shore Railway. The belt line handles only carload freight in

terminal switch movement between industries on its line and other railroads, or in intermediate switch movements between railroads.

Spoil Disposal

Construction began in early 1977 on the new seven-year spoil disposal site (Site 14) near Gordon Park. This site will be completed in late 1978. Presently, the dredgings are being dumped into Site 12, a three-year site.

Commodities and Tonnage

The tonnage of commodities handled at the Cleveland Harbor was relatively stable from 1966 to 1974, averaging over 22 million tons per year. In 1975, however, the tonnage dropped to 18,145,180 tons. Iron ore, limestone, non-metallic minerals, and general cargo are the most important commodities. The following shows the tonnage handled since 1966.

1966	24,020,820
1967	20,685,918
1968	23,307,504
1969	24,649,054
1970	22,857,537
1971	20,551,928
1972	23,865,810
1973	24,828,323
1974	21,933,874
1975	18,145,180

Port Management

Cleveland Harbor is controlled by the Cleveland-Cuyahoga County Port Authority. The Authority adheres to the rules and regulations for port authorities as promulgated in Chapter 4582 of the Ohio Revised Code.

The Port Authority presently owns 20 acres within the harbor. The

majority of the harbor is in private ownership. The City of Cleveland controls land uses both within and adjacent to the harbor through zoning ordinances.

Major Problems

There are five major problems facing the Port of Cleveland. They are:

*1. Both the lakefront harbor entrance and the channel configurations and depths are restrictive. Modern vessels of 1,000 feet and more can not operate due to physical restrictions in the harbor entrance and river channel;

2. expansion of existing pier facilities is an early requirement with particular need for bulk cargo storage and a tank farm for petroleum and other liquid commodities;

3. lack of funding for proper promotion and management of the port;

4. competition with other Great Lakes and ocean ports for business; and

5. the inefficiencies created by the shortened navigation season.

Public Access

There are numerous public access points to the Cleveland Harbor. The most heavily used areas are the Ninth Street Pier, Pier 34 (Gateway Project), Gordon Park, and Edgewater Park. The proposed Cleveland Lakefront State Park would dramatically increase access to the harbor.

*The Corps of Engineers has thoroughly studied this problem. They have arrived at a series of potential alternatives, and their benefit-cost ratios, for solving the problem. Their studies are documented in the "Cleveland Harbor Feasibility Study".

PORT OF FAIRPORT HARBOR

Location

Fairport Harbor is located on the south shore of Lake Erie at the mouth of the Grand River. The harbor consists of a breakwater-protected area of about 360 acres on the lake--the outer harbor--and the lower 1.5 miles of the Grand River--the inner harbor. The east breakwater extends southeast from the lake entrance for a distance of about 1,300 feet, thence in an easterly direction for about 5,450 feet; the east end of the breakwater is about 2,800 feet offshore. The west breakwater is 3,878 feet long and extends north-northeast from the shore.

Facilities

PIERS, WHARVES, AND DOCKS

There are 16 wharves and docks located in Fairport Harbor. All are located along the banks of the Grand River, extending from the mouth to a point approximately 1.5 miles upstream; 11 of these are on the left bank and five are on the right bank of the river. Three of the wharves are contiguous and provide almost 2,800 feet of continuous berthing space with average depths alongside of 18 feet at low water datum.

RAIL LINES

Fairport Harbor, Ohio, is served by two trunkline railroads and one industrial switching line: Baltimore and Ohio Railroad (Chessie System); Penn Central Transportation Company; and the Fairport, Painesville and Eastern Railroad. The Baltimore and Ohio Railroad has interchanges at nearby Painesville with tracks of the Penn Central Transportion Company and the Norfolk and Western Railway.

The Fairport, Painesville and Eastern Railroad (a subsidiary of Diamond Shamrock Corporation) is a short line which furnishes terminal and switching service through direct connections with the Baltimore and Ohio Railroad at Fairport Harbor; and with the Penn Central Transportation Company and Norfolk and Western Railway at Perry, Ohio.

Spoil Disposal

The location and construction of a spoil disposal site are no longer problems, as further studies by U.S. EPA have shown that the harbor is only marginally polluted and does not warrant the construction of a confined spoil disposal site.

Commodities and Tonnage

The annual tonnage handled by Fairport Harbor has gradually increased since 1966. The principal commodities handled include limestone, sand and gravel, and rock salt. The following shows the annual tonnage of commodities handled since 1966.

1966	2,074,456
1967	1,774,599
1968	2,163,223
1969	2,612,126
1970	2,655,458
1971	2,679,385
1972	2,913,317
1973	3,681,272
1974	2,937,601
1975	3,020,122

Port Management

The port is controlled by the City of Fairport Harbor Port Authority. The Port Authority adheres to the rules and regulations for port authorities as promulgated in Chapter 4582 of the Ohio Revised Code. The Authority currently owns a small lot near the marina. The remaining area

within the harbor is privately owned by industrial and marina interests. The City presently controls harbor and adjacent land uses through zoning ordinances.

Major Problems

Three major problems face the Port of Fairport Harbor:

1. Lack of local interest in the port;
2. lack of money to implement the harbor improvements for channel deepening and widening as proposed by the Corps of Engineers; and
3. competition with other Great Lakes and ocean ports for business.

Public Access

The public has access to the port along most of the harbor area. There is a city park located immediately east of the harbor which is heavily used by the public. The park includes a beach, picnic area, and active recreation area. Also, Headlands Beach State Park is located west of the harbor area.

PORT OF ASHTABULA

Location

Ashtabula Harbor is located on the south shore of Lake Erie, at the mouth of the Ashtabula River. The harbor consists of an outer harbor and an inner harbor. The outer harbor is protected by two converging breakwaters and covers about 185 acres of water area. The west breakwater, with a pierhead at its outer end, is 7,891 feet long and extends in a northeast direction from shore. The east breakwater lies in a northwest-southeast direction, has a total length of 4,342 feet, and is comprised of three connecting offshore sections, each joined at varying angles. Two private slips open directly into the outer harbor. The Penn Central Transportation Company Minnesota Slip has depths of 25 to 23 feet at low water datum, a width of 250 feet for about 1,400 feet, and 150 feet for the remaining 1,600 feet. The entrance to the slip is flared to a width of 580 feet, and is protected by a 1,398-foot long, angular-shaped, inner breakwater located about 450 feet offshore of the entrance. In the east part of the harbor, the Pinney Dock & Transport Company Slip has depths of 27 to 24 feet at low water datum, a width of 200 feet, and a length of 2,000 feet. The inner harbor includes the navigable portion of the Ashtabula River, a length of about 10,500 feet above the entrance.

Facilities

PIERS, WHARVES, AND DOCKS

There are 16 wharves located in the Port of Ashtabula. Ten are located in the inner harbor along the banks of the Ashtabula River, extending from the mouth to a point approximately 0.8 mile upstream, and

six are on the south side of the outer harbor. Four of the six outer harbor wharves are along the sides and at the entrance to the Penn Central Transportation Company's Minnesota Slip, and two are located along the sides of the Pinney Dock and Transport Company, Slip No. 2.

The Pinney Dock & Transport Company, Inc., owns and operates Pinney Dock No. 4 for handling general cargo in foreign trade. This wharf, located in the outer harbor along the east side of the company's Slip No. 2, provides 2,000 feet of berthing space with a water depth of 27 feet alongside at low water datum; the wharf forms a 150-foot wide slip with Pinney Dock No. 3 which is used for the receipt of dry bulk materials by self-unloading vessels. Three transit sheds are located on the wharf: two with a total of 121,600 square feet of space are used for short- or long-term storage of cargo as required; and one, with 120,280 square feet of space, is used exclusively for storing various dry bulk commodities. A storage warehouse, known as the East Shed, is located in rear of the transit sheds and has 27,000 square feet of space available for public storage. In addition to covered storage, approximately two acres of paved, open storage area are available for waterborne cargo not requiring protection from the weather. One 1,600-foot surface track on the wharf apron connects with tracks of the Penn Central Transportation Company. The wharf has two 15-ton, electric, traveling, full-portal, gantry cranes which straddle the surface track on the apron.

COAL HANDLING AND COAL BUNKERING

The Lower Lake Dock Company operates the Penn Central Transportation Company, Coal Handling Dock No. 10 for the shipment of coal; if the need arises, vessels can also be supplied with bunker coal. This wharf, located

on the left bank at the mouth of the Ashtabula River, consists of a 2,800-foot, marginal, concrete bulkhead with solid fill; water depths of 27 to 14 feet are alongside at low water datum. An electric coal loader travels 700 feet on rails on the north portion of the wharf and has a horizontal, retractable-type conveyor boom with a 60-foot outboard reach; the boom is equipped with a telescopic, vessel-loading chute and electric trimming head, maximum loading rate 8,000 tons per hour. A 60-inch, electric, belt conveyor extends via a high-level, arched bridge across the Asthabula River, from a rotary car dumper located in rear of Penn Central Transportation Company, Dock No. 7 to a 1,500,000-ton capacity, open storage area in rear of the wharf. A 72-inch wide, electric, belt conveyor extends from the open storage area to three 4,000-ton, concrete, storage silos at rear of the north end of the wharf. The open storage area and belt conveyor extending to the storage silos are served by an electric, crawler, rotary, bucket-type, coal stacker-reclaimer with a stacking capacity of 3,000 tons and reclaiming capacity of 3,500 tons per hour. The vessel coal loader is served by an 84-inch wide, low-level electric, belt conveyor extending along the rear of the wharf from the storage silos. Tracks and rail car storage yards of the Penn Central Transportation Company serve the rotary car dumper and an adjacent car-thawing shed.

ORE HANDLING

Two wharves are equipped to receive iron ore at the Port of Ashtabula; both are owned by the Penn Central Transportation Company. The Ashtabula & Buffalo Dock Company operates Dock No. 1 Extension, and the Union Dock Company, a subsidiary of Jones & Laughlin Steel Corporation,

operates Dock No. 2 Extension. These docks are located opposite each other along the outer portion and sides of the entrance to the Minnesota Slip. Four 17-ton, electric, Hulett-type, ore unloaders are located on the slip side of each of the docks. The ore unloaders on Dock No. 1 Extension have a capacity of 625 tons per hour each, and on Dock No. 2 Extension, 500 tons per hour each. Dock No. 1 Extension provides 1,165 feet of berthing space along the slip side and Dock No. 2 Extension provides 1,198 feet of berthing space along the slip side; each of the docks has a water depth of 27 feet alongside at low water datum. Ore can be dumped directly into rail cars from the unloaders, or deposited into open, concrete, storage troughs along rear of the unloaders. The storage trough on Dock No. 1 Extension has a capacity for 50,000 tons, and the trough on Dock No. 2 Extension, 45,000 tons. Each of the docks has an open storage area in rear for 1,000,000 tons of ore, and each of the storage areas is served by an electric, traveling, bridge crane equipped with a 15-ton bucket. The bridge cranes transfer the ore from the storage troughs to the open storage areas. Four marginal surface tracks of the Penn Central Transportation Company extend along the rear of each dock and join with nearby storage yards.

RAIL LINES

Ashtabula is served by two trunkline railroads: Norfolk and Western Railway and the Penn Central Transportation Company. Tracks serving the waterfront facilities at the port connect directly with the Penn Central Transportation Company.

Spoil Disposal

The U.S. Environmental Protection Agency has classified the Ashtabula

River Channel and a portion of the outer harbor to a line 400 feet lakeward of the mouth of the river as clean to marginally polluted and not acceptable for unconfined disposal. Material dredged from the remainder of the outer harbor is classified as acceptable for deposition in Lake Erie at the designated open lake disposal site. Dredging of polluted sediments and disposal in Lake Erie is being performed as needed until a confined disposal area is constructed and available for disposal of these polluted dredgings.

Commodities and Tonnage

The annual tonnage handled by the Port of Ashtabula has fluctuated from 7 to 12 million tons per year since 1966. Coal and iron ore have been the principal commodities handled at the port. The following shows the annual tonnage of commodities handled since 1966.

1966	9,314,794
1967	7,099,994
1968	8,230,520
1969	10,823,891
1970	11,925,980
1971	11,261,010
1972	12,063,864
1973	10,872,484
1974	10,852,259
1975	8,738,094

Port Management

The port is controlled by the City of Ashtabula Port Authority. The Port Authority adheres to the rules and regulations for port authorities as promulgated in Chapter 4582 of the Ohio Revised Code. Presently, the Port Authority owns no land within the harbor; all is in private ownership. The City controls land uses both within and adjacent to the harbor through zoning ordinances.

Major Problems

There are five major problems facing the Port of Ashtabula:

1. Lack of funding to operate and manage the port authority;
2. need for replacement of the Lake Road bridge;
3. need for port plans;
4. need for additional storage space to meet future demand; and
5. need to find a spoil disposal site.

Public Access

Numerous areas along the harbor afford public access. There is a city park with a beach and small picnic area located immediately west of the harbor.

PORT OF CONNEAUT

Location

Conneaut Harbor is located on the south shore of Lake Erie at the mouth of the Conneaut Creek. Conneaut Harbor consists of an outer harbor sheltered by breakwaters and an inner harbor formed by the lower 3,000 feet of the Conneaut Creek.

The outer harbor, triangular in shape, is formed by two converging breakwaters and covers about 185 acres of protected water area; approximately 142 acres of this protected area have been deepened. The west breakwater is angular in shape with a pierhead at its outer end and has a total length of 5,938 feet; a 100-foot gap in the breakwater is located 1,670 feet from shore. The east breakwater is 3,675 feet long with a light foundation at its outer end; a circulation gap of about 100 feet is located between the inner end of the east breakwater and the outer end of a 1,187 foot breakwater extension to shore.

The inner harbor consists of the mouth of Conneaut Creek, a turning basin, and the Pittsburgh & Conneaut Dock Company Slip. Two piers constructed at the mouth of the river are approximately 350 feet apart at the outer end and gradually converge to about 290 feet at the inner end of the west pier. A Federally improved channel extends 2,450 feet upstream from the outer end of the west pier. At the upstream end of the Federal channel, private interests have widened and deepened an area forming a turning basin approximately 700 feet in width. The natural river channel bends sharply to the east from the turning basin and has not been developed for commercial purposes. The Pittsburgh & Conneaut Dock Company Slip, about 1,350 feet long and 165 feet wide,

extends from the south side of the turning basin in line with the Federally improved channel.

Facilities

PIERS, WHARVES, AND DOCKS

There are seven wharves located at the Conneaut Harbor. Six of these wharves are located in the inner harbor, which consists of the mouth of the Conneaut River, a turning basin, and a slip; the remaining wharf is located on the south side of the outer harbor between the foot of Broad and Sandusky Streets.

The Pittsburgh & Conneaut Dock Company operates the six wharves located in the inner harbor; these wharves are owned and served by tracks of the Bessemer and Lake Erie Railroad Company. Each of the wharves is of solid fill, marginal, bulkhead-type construction with water depths alongside ranging from 18 to 28 feet at low water datum. Four of the wharves handle limestone, iron ore, and pig iron or coal; one was used for mooring vessels and as base for harbor towboats; and one, at the time of this survey, was not being used for handling waterborne commerce. During the closed navigation season, the wharves are available for winter mooring.

The wharf located on the outer harbor is owned by the City of Conneaut and operated by the Conneaut Port Authority. It is used for the receipt of fish and for mooring and fueling recreational craft and fishing boats.

COAL HANDLING AND COAL BUNKERING

The Pittsburgh & Conneaut Dock Company operates Dock No. 3 for the shipment of coal and occasionally supplying bunker coal to vessels. This wharf is located in the inner harbor, along the east side of a 160-foot

wide slip, and provides 1,250 feet of berthing space with water depths of 27 to 28 feet alongside at low water datum. Two electric coal loaders are located on the wharf apron: one is a fixed tower with a 120-foot hinged boom (100-foot outboard reach), rate 7,000 tons per hour; and one is a slewing-type loader with a 120-foot boom (100-foot outboard reach), rate 4,000 tons per hour. The boom travels in an arc on a curved rail track on the wharf apron and is raised and lowered over the vessels' holds by use of an electric hoist. Each of the booms on the coal loaders is equipped with a vessel-loading chute and trimming head. The coal loaders are served by a system of electric belt conveyors ranging in width from 24 to 84 inches and extend from two 6,000-ton storage silos in rear, a nearly 900-ton capacity surge bin, rail hopper car receiving pits, and reclaiming pits located under a 3,500,000-ton capacity open storage area. The open storage area is also served by a traveling coal stacker, rate 3,850 tons per hour; and a traveling, bucket wheel type, coal reclaimer, rate 9,000 tons per hour, which serves a traveling, bucket wheel, hopper car. Tracks of the Bessemer and Lake Erie Railroad serve the terminal and a nearby 450-car capacity storage yard.

ORE HANDLING

Iron ore is received at the Pittsburgh & Conneaut Dock Company's Dock No. 4, located on the east side of the inner harbor near the entrance. The wharf provides 1,228 feet of berthing space with water depths of 27 feet alongside at low water datum. Five electric, Hulett-type, ore unloaders, each equipped with a 17-ton capacity bucket and capable of handling 875 tons per hour, travel under the wharf to positions opposite the vessels' hatches. Ore can be dumped directly into rail cars from

the unloaders at a rate of 40 cars per hour, or deposited in a concrete trough behind a retaining wall separating an 8-acre open storage area from the tracks along the wharf. The open storage area has a capacity for 1,500,000 tons of ore and is served by an electric, traveling, bridge crane equipped with a 15-ton bucket and capable of handling 900 tons per hour. The bridge crane serves a 42-inch, electric, belt-conveyor system which extends the full length of the storage area. During the period between the closing and opening of navigation seasons, this system is used to move ore from the storage piles to carloading hoppers located at the north end of the storage area. Five marginal surface tracks of the Bessemer and Lake Erie Railroad extend along the wharf to the ore unloaders. These tracks have a total length of 5,330 feet and connect with the 550 loaded-car capacity ore yard and a 400 empty-car capacity yard.

RAIL LINES

Conneaut is served by three trunkline railroads: Bessemer and Lake Erie Railroad; Norfolk and Western Railway; and Penn Central Transportation Company. The Bessemer and Lake Erie Railroad is the only railroad which has direct connections with the waterfront facilities serving the port.

Spoil Disposal

The location and construction of a spoil disposal site are no longer problems, as further studies by the U.S. EPA in 1975 showed that only 10 percent of the harbor sediments is polluted. Consequently, this did not justify the construction of a spoil disposal site. The dredged spoil will be disposed of in the traditional open lake disposal area, the only restriction being that the polluted sediments be "sandwiched" or covered with clean sediment.

Commodities and Tonnage

The annual tonnage handled by the Port of Conneaut has steadily increased since 1966. Iron ore, coal and limestone have been the principal commodities handled at the port. The following shows the annual tonnage of commodities handled since 1966.

1966	12,822,154
1967	14,001,620
1968	14,350,331
1969	13,916,845
1970	15,534,433
1971	15,851,802
1972	14,683,654
1973	16,731,912
1974	16,566,435
1975	19,192,311

Port Management

The port is controlled by the City of Conneaut Port Authority. The Authority adheres to the rules and regulations for port authorities as promulgated in Chapter 4582 of the Ohio Revised Code. The Port Authority has just acquired property along the outer harbor area (on the west bank near the sewage treatment plant) to serve as a public marina. The City also operates a public dock and a park on the west shore. The remaining area within the harbor is privately owned, principally by the U.S. Steel Corporation and subsidiaries. The City presently controls harbor and adjacent land uses through zoning ordinances.

Major Problems

The major problems facing the Port of Conneaut can be classified into four major categories:

1. Maintenance dredging on non-Federal channels and the disposal of the dredge materials;
2. lack of money for the operation and management of the port;

3. the impact of the proposed U.S. Steel Plant on the port and its facilities; and

4. competition with other Great Lakes and ocean ports for business.

Public Access

Two points within the harbor provide public access. One is a public dock where the public can moor a boat, fish, or simply observe harbor activities. This is located just west of where Conneaut Creek enters the outer harbor area. The second is a township park located immediately west of the west breakwater. The park includes a public beach and picnic area, both of which are heavily used.

OHIO LAKE ERIE PORT FACILITIES

Port	Piers, Wharves, and Docks Total	Cargo Handling Facilities	General Cargo Facilities	Coal Handling Facilities	Iron Ore Facilities	Limestone or sand and gravel Handling Facilities	Grain Handling Facilities	Marine Repair or Mooring	Piers, Wharves, and Docks Not Uses
Ashtabula	16	7	X	X	X	X		X	1
Cleveland	72	38	X		X	X	X	24	3 (Not Used) 7 (Not Used)
Conneaut	7	7		X	X	X		2	1 (Not Used)
Fairport Harbor	16	8				X		5	3
Huron	6	4			X	X	X	2	2 (Not Used)
Lorain	23	14		X	X	X		9	
Port Clinton								X	
Sandusky	14	6		X		X		4	1 (Not Used) 3 (Ferry Terminals)
Toledo	41	26	X	X	X	X	X	11	4

Source: U.S. Army Corps of Engineers, Port Series

CONCLUSIONS

Two major problems affect Ohio's Lake Erie ports. The first is the need for better port planning. Port planning is necessary to ensure the ports' future competitiveness. Ohio's Lake Erie ports are generally managed by the cities or the cities' port authorities with a minimal budget. In some cases, the port authorities have no funds. Consequently, there is generally little or no money available for planning.

The second major problem facing the ports is the lack of local interest and promotion of ports. Ohio's lake ports play a vital role in the northern Ohio economy. Unfortunately, few people, even many whose livelihoods depend on ports, recognize their importance in maintaining a healthy regional economy. Even using conservative techniques, the nearly 90 million tons of cargo handled at the lake ports in 1975 generated at least 500 million dollars income for the port cities.

The lack of local interest compounds the task of port promotion. Without local interest and consequent local funding, good port promotion and overall port management are difficult

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