

Ohio Maritime Plan

DRAFT



Department of
Transportation

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Executive Summary

The maritime transportation system is a strategic asset that anchors Ohio's role in global commerce, supports key industries, and strengthens the state's multimodal freight network. The Ohio Maritime Plan outlines the system's economic impact, infrastructure needs, environmental value, and the actions required to secure its long-term contribution to statewide growth.



Tugboat on the Maumee River, iStock

Ohio's maritime transportation system (MTS) is a vital but underrecognized driver of Ohio's economy. Each year, more than 60 million tons of goods, worth over \$10 billion, move through Ohio's ports on Lake Erie and the Ohio River, supporting thousands of jobs and connecting regional industries to global markets. The system plays a central role in the state's supply chain efficiency, environmental performance, and multimodal connectivity.

Ohio Maritime Plan Purpose

The Ohio Department of Transportation (ODOT) led development of the Ohio Maritime Plan (OMP) to provide maritime stakeholders with a clear, data-driven assessment of the system's value and future potential. While ODOT does not own or operate maritime infrastructure, the agency plays a critical role in shaping policy, facilitating infrastructure investment, and advancing multimodal connectivity.

Developed through extensive stakeholder engagement and technical analysis, the OMP includes a detailed system inventory, evaluates system performance, identifies capital needs, and presents actionable recommendations to strengthen Ohio's competitiveness. It charts a path to modernize facilities, improve freight mobility, support environmental goals, and position maritime as a cornerstone of the state's economic future.

This is a pivotal moment for Ohio's maritime system. Increased federal attention to maritime transportation, along with rising demand for sustainable freight solutions and more resilient supply chains, have created opportunities and an urgency for maritime coordination and investment. The OMP responds to this window by providing a shared strategy for public- and private-sector leaders to move Ohio's maritime system forward.

By engaging stakeholders, identifying shared challenges, and aligning maritime priorities with broader transportation goals, the OMP will help ensure Ohio's maritime system remains competitive, resilient, and positioned for future growth.

System Inventory

Ohio is bounded by two major waterway systems – Lake Erie to the north and the Ohio River to the south – along with other tributaries like the Maumee River and the Cuyahoga River. These vital waterways comprise Ohio's MTS.

Lake Erie and the Ohio River

Lake Erie, the fourth largest of the Great Lakes, connects Ohio to seven US states and the province of Ontario. It provides access to the St. Lawrence River and, through the Seaway, to international markets via the Atlantic Ocean, enabling trade with Canada, Europe, and beyond. The Ohio River, the largest tributary of the Mississippi River System, runs from Pittsburgh, Pennsylvania, to Cairo, Illinois, where it joins the Mississippi and flows to the Gulf of Mexico. This connection supports domestic barge movement and provides access to global trade routes through the inland waterway system.

Locks and dams are essential to both systems. On the Great Lakes, St. Lawrence Seaway locks manage elevation changes and connect Ohio's ports to deep-water navigation. On the Ohio River, a network of locks and dams ensures consistent depth for year-round barge traffic despite variable river conditions. These structures enable safe, reliable, and efficient freight movement across Ohio's maritime corridors.

Ports and Port Statistical Areas

Ohio's maritime system includes nine ports along Lake Erie and three Port Statistical Areas (PSAs) on the Ohio River. Each has distinct functions, infrastructure, and commodity profiles. Lake Erie ports primarily serve Ohio's manufacturing and construction sectors, handling high volumes of aggregates, iron ore, and steel. The Port of Cleveland is Ohio's only container-handling port. By contrast, facilities on the Ohio River have historically specialized in energy-related bulk commodities, such as coal, petroleum products, and chemicals, and are closely tied to regional industrial activity.

Ferry services also play an important role in Ohio's maritime system, providing essential connections for both residents and visitors. On Lake Erie, ferries offer scheduled passenger and vehicle service between mainland ports and island communities, including docks in Put-In-Bay Harbor, Port Clinton, Sandusky, and Kelleys Island. For these islands, ferries are a critical link, supporting local mobility and contributing to the state's tourism economy by facilitating access to popular destinations. On the Ohio River, two ferries connect Ohio to Kentucky, one operating from Cincinnati and the other from Higginsport.

Ohio's MTS At-A-Glance



730+
Miles of
navigational
waterways



7
Great Lakes and
St. Lawrence
Seaway Locks
and Dams



9
Ohio River
Locks and Dams



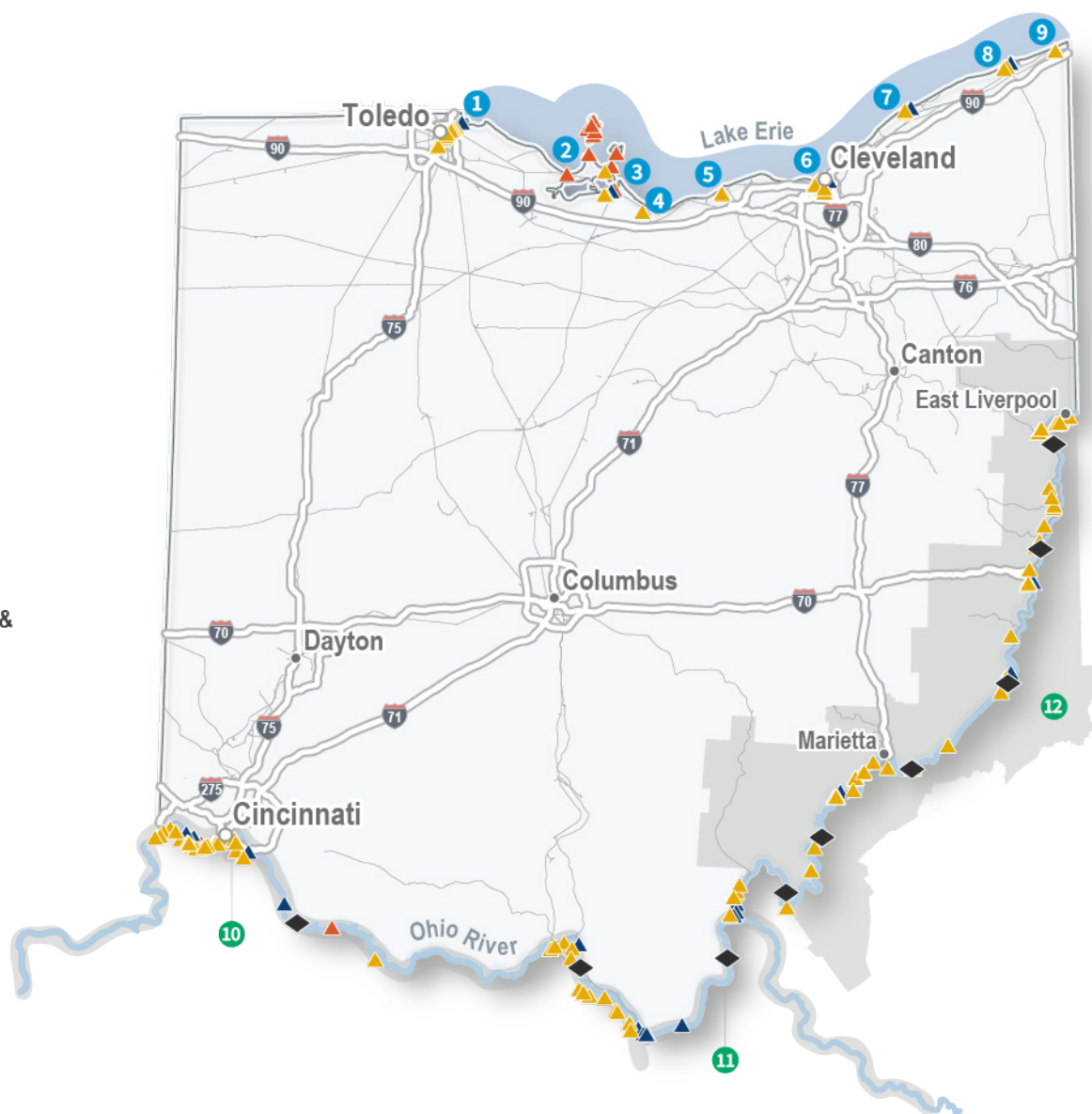
193
Active Freight
Docks



12
Passenger Ferry
Docks

Figure ES-1: Ohio's Maritime Transportation System

- 1 Port of Toledo
- 2 Marblehead
- 3 Sandusky Harbor
- 4 Huron Harbor
- 5 Lorain Harbor
- 6 Port of Cleveland
- 7 Fairport Harbor
- 8 Ashtabula Harbor
- 9 Conneaut Harbor
- 10 The Ports of Cincinnati & Northern Kentucky
- 11 The Port of Huntington Tri-State
- 12 Mid-Ohio River Valley Port District



- ▲ Freight Docks
- ▲ Mooring/Fleeting or Repair Docks
- ▲ Ferry Docks
- PSA Boundaries
- ◆ Locks & Dams
- Interstate
- Railroads
- Ports
- PSAs

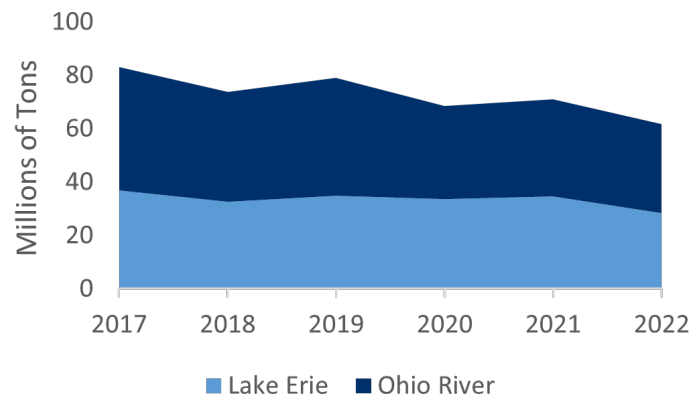
System Use

Ohio's extensive network of ports and PSAs accommodates a wide range of commodities, vessel types, and multimodal connections, with each experiencing different trends. The Ohio River has long carried the majority of goods on the MTS, in both tonnage and value. The share of Ohio's cargo tonnage associated with each transportation system has remained constant, with Lake Erie accounting for between 44 and 49 percent of maritime tonnage, and the Ohio River accounting for 51 to 56 percent of tonnage. However, due to Ports on the Ohio River generally carrying lighter goods with higher value, the river's share of system value is much higher at roughly 80 percent.

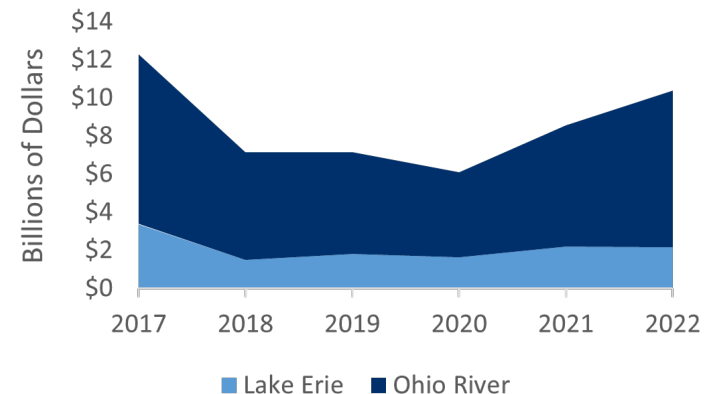
Together in 2022, the lake and river shipped 61.7 million tons and \$10.39 billion in freight, handling the second-highest volume of goods of all Great Lakes states.

The MTS serves a key role in the State's multimodal freight transportation system; it efficiently moves large volumes of bulk goods over long distances at lower cost, compared to other freight modes such as rail or truck. Because of this, and its strategic geographic location and industries, Ohio has two of the top ten busiest Great Lakes ports by tonnage and offers the first and only regular maritime shipping connections to Europe and international markets.¹ Three PSAs stretch across the 451 miles of the Ohio River on Ohio's southern border and are home to some of the nation's busiest inland ports by tonnage. Both the Port of Cincinnati/Northern Kentucky and the Port of Huntington Tri-State have been named the largest port by tonnage on the Ohio River in the last five years.

**Figure ES-2: Tonnage Share by Lake and River,
2017 - 2022**



**Figure ES-3: Value Share by Lake and River,
2017 - 2022**



Source: USACE Planning Center of Expertise for Inland Navigation (PCXIN), State Profiles

¹ USACE, The Great Lakes Navigation System, N.D. https://lre-ops.usace.army.mil/OandM/GLNAV/Main_Page/NavSystemBrochure.pdf

Figure ES-4: Ohio Maritime Freight Flow by Direction and Tonnage (Millions), 2022

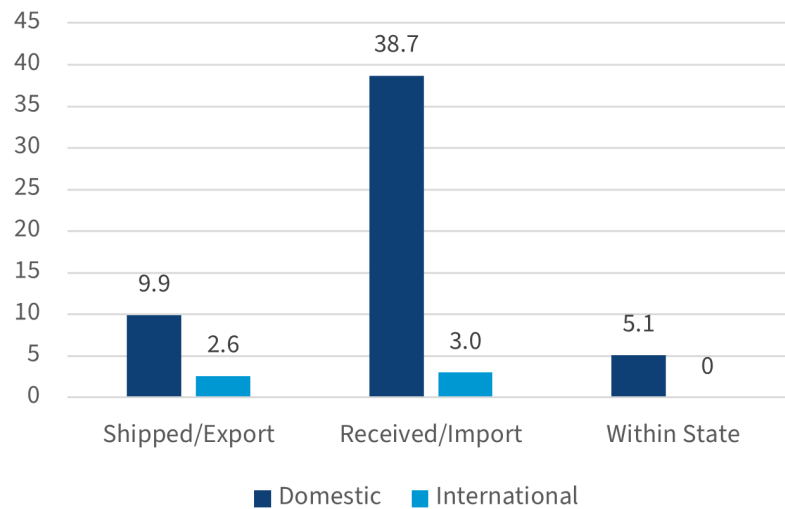
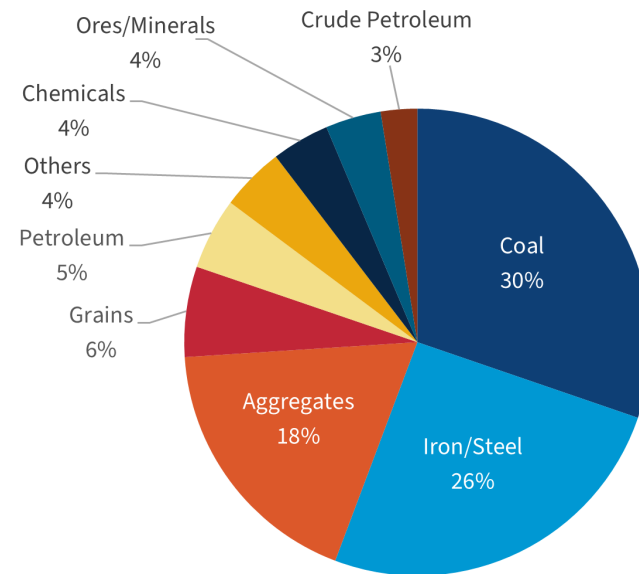


Figure ES-5: Ohio Maritime Key Commodities by Tonnage Share, 2022



Source: WSP Analysis of USACE Waterborne Commerce Statistics Ohio Data Tabulation



Barge on the Ohio River in Cincinnati, iStock

System Economic Impact

The economic impact of Ohio's maritime system is closely linked to the strength and growth of the state's core industries, including advanced manufacturing, chemicals, pharmaceuticals, and plastics; energy; construction materials; and food and agriculture. By connecting Ohio businesses to domestic and international markets, the system enhances supply chain reliability, reduces transportation costs, and reinforces the state's economic competitiveness regionally and nationally.

Ohio's maritime system supports trade, drives business investment, and contributes to economic resilience across the state.

In 2023, waterborne cargo activity at the state's ports and terminals generated \$39.9 billion in total economic impact. The system supports 130,798 jobs, including 17,439 direct jobs tied to cargo handling and related industries. These positions produced \$1.1 billion in direct wages, with an average annual salary of \$60,500. This income generated an additional \$2.5 billion in economic activity and supported more than 16,000 induced jobs across the state.

Ohio MTS's Economic Impact at a Glance



\$60,500

Average Earnings per
Direct Employee



\$1.1B

Direct Labor Income



130,798

Jobs



\$39.9B

Economic Revenue



Willow Island Lock & Dam, CPCS

System Performance

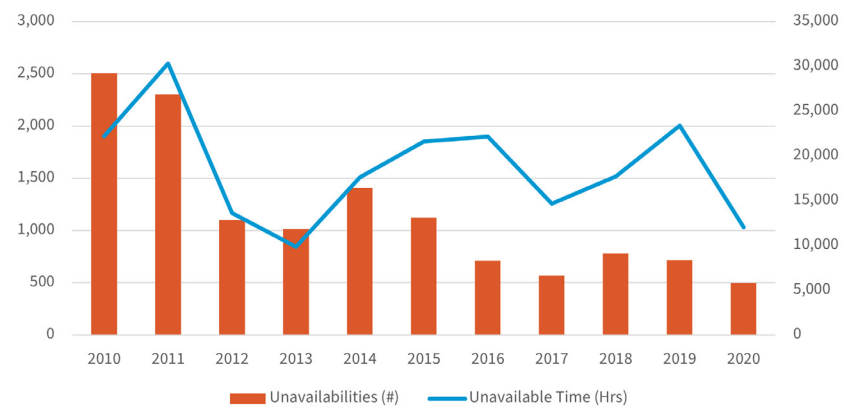
Ohio's maritime system delivers clear economic and environmental benefits. It supports key industries, moves goods efficiently, and reduces emissions, congestion, and fuel use compared to other freight modes. But ports operate within a dynamic environment, one shaped by evolving industry and supply chain needs, but also by fluctuating water levels, sediment buildup, and shoreline erosion. To fully realize the system's benefits, three primary performance challenges must be addressed: infrastructure condition, system connectivity, and dredging requirements. Each presents barriers to growth, but also opportunities for targeted investment and coordinated action.

Infrastructure Condition

Ohio's maritime infrastructure is aging and in need of regular maintenance. According to the American Society of Engineers' 2021 Infrastructure Report Card, Ohio's inland waterways, dams, levees, and ports all received grades of C or below. Ohio's maritime infrastructure faces an estimated \$300 million in dam repairs, \$120 million in inland waterway maintenance needs over the next 15 years, and urgent levee assessments to protect over 150,000 residents and \$27.5 billion in property.²

Over 80 percent of river locks and dams are more than 50 years old, and many are approaching or past their design life. These conditions reduce system efficiency, limit vessel access, and increase the risk of unplanned outages (see figure).

Figure ES-6: Ohio River Lock Unavailability by Occurrences and Duration



Source: CPCS Analysis of USACE data

² 2021 Report for America's Infrastructure: Ohio, American Society of Civil Engineers, <https://infrastructurereportcard.org/state-item/ohio/>

System Connectivity

First- and last-mile connections are essential to the overall performance of the maritime system. While maritime transportation is efficient over long distances, it depends on road and rail access to move goods between vessels and inland destinations. Without reliable connections, the advantages of maritime freight, such as lower costs, fewer emissions, and reduced congestion, cannot be fully realized.

Several of Ohio's ports and terminals face connectivity challenges that limit system efficiency and freight mobility. Pavement condition issues are concentrated near the Mid-Ohio Valley and Huntington Tri-State PSAs, particularly in Belpre, Hannibal, and Portsmouth. Bottlenecks and congestion are most significant around the urban areas of Cincinnati and Cleveland. The six ports and PSAs of Marblehead, Sandusky, Fairport Harbor, Conneaut, and parts of Cincinnati and the Mid-Ohio Valley lack direct connections to the National Highway System or National Truck Network.

Rail access also plays a critical role. Docks that have direct rail connections receive more than twice the number of vessel stops as those without, underscoring the value of intermodal access. However, 41 percent of docks on the Ohio River are not rail-served, and several Lake Erie ports, including Marblehead and Lorain, lack direct rail connections. These gaps limit freight flexibility, reduce system utilization, and constrain access to broader domestic markets.



Intel OSOW Superload, ODOT

Dredging

Regular dredging is essential for maintaining safe and efficient navigation in the Great Lakes and the Ohio River, and for accessing dock facilities, especially where vessels require deeper channels than naturally occur. The US Army Corps of Engineers (USACE) prioritizes dredging projects based on cargo volume, fleet availability, and environmental constraints. As a result, larger ports with cleaner sediments are more likely to receive regular federal support.

In 2022, the USACE allocated \$20.9 million for dredging operations at major Ohio ports, including Toledo, Sandusky, Lorain, Cleveland, Fairport, Conneaut, and Ashtabula. Funding decreased to \$18.84 million in 2023.³ On average, about 1.5 million cubic yards are dredged annually.

Due to limited resources, three Great Lakes ports, Huron, Marblehead, and Port Clinton, no longer receive regular USACE dredging unless needed for safety or environmental reasons. Huron ceased commercial service in 2024 but may still receive maintenance dredging for recreational use. Conneaut Harbor resumed dredging in 2024 after a multi-year delay. Marblehead and Port Clinton now rely on private contractors to manage dredging for recreational and navigational access.⁴

On the Ohio River, USACE conducts annual dredging to maintain the 9-foot navigable channel across the river and its seven tributaries. While the USACE maintains the main channel, individual terminals are responsible for dredging at their docks, often requiring private funding and contractors. Dredging on the river also supports water quality, as the Ohio River supplies drinking water to communities throughout the valley.⁵

Ohio Dredging Fast Facts

1.5 Million	\$18.84 Million	3
Cubic yards dredged annually on average	Total USACE maintenance dredging cost in 2023	Great Lakes Ports no longer dredged by USACE

Source: USACE, Ohio Dredging Newsletter, November 2023.



Dredging at the Port of Cleveland, Port of Cleveland

³ USACE, Ohio Dredging Newsletter, November 2023; ⁴ USACE, The Great Lakes Navigation System Brochure, https://lre-ops.usace.army.mil/OandM/GLNAV/Main_Page/NavSystemBrochure.pdf; ⁵ USACE, Navigation on the Ohio River/Ohio

Capital Needs

Targeted investment is required to maintain and modernize Ohio’s maritime system infrastructure. While both the UASCE and port operators continue to make investments, critical infrastructure needs remain. Many assets require modernization, and ongoing funding gaps may limit the system’s reliability, capacity, and long-term contribution to economic growth. Additional investment is essential to fully realize the system’s potential. Investment needs have been organized by the agency responsible, including the USACE and individual ports and PSAs.

US Army Corps of Engineers

For FY 2025, the USACE requested \$210.1 million in funding for operations and maintenance work across Ohio’s maritime system. Of this, \$37.3 million (18%) is allocated for Lake Erie harbors and \$172.8 million (82%) for the Ohio River system.

Lake Erie funding primarily supports maintenance of deep-draft navigation, including dredging, engineering, and breakwater repairs. Needs vary year to year based on sediment levels and harbor conditions. On the Ohio River, 91 percent of the requested funds are directed toward locks and dams, with the remaining 9 percent (approximately \$15 million) designated for channel dredging.

These investments support the continued navigability and safety of the system but fall short of covering the full range of needs across both the lake and river corridors.

Ports and Port Statistical Areas

The capital needs of ports and PSAs were identified through reviews of port master plans and consultations with port and terminal operators. Fifty near-term projects (expected to begin within the next five years) remain unfunded or only partially funded, representing a combined need of \$252.3 million. This reflects 38 lake system projects and 12 river system projects. All Ohio River projects and 21 of the 38 Lake Erie projects require state or federal funding to proceed. The Port of Cleveland accounts for the largest share of needs, with half of all identified projects and 35 percent of total project costs. The Lorain Port Authority follows with seven projects totaling \$73 million. On the river system, Monroe County leads with \$18 million in needs, followed by Washington County at \$15 million.

Projects span six categories:

- Access – Roadway and rail improvements
- Decarbonization – Emissions-reducing equipment and infrastructure
- Dredging – Berth and channel maintenance
- Technology – Advanced systems for safety, security, and operations
- Terminal – Upgrades to storage, piers, wharves, and equipment
- Other – Projects not falling into the above categories

Terminal projects account for the largest share of costs, totaling \$122 million (63%) on the lake system and \$39 million (74%) on the river system.

Figure ES-7: Cost Federal or State Assistance Required

	Assistance Needed	
	Total Cost	# of Projects
Lake	\$179,892,157	21
River	\$53,430,000	12
State Totals	\$233,322,157	33

Source: Consultations, WSP

Ohio Maritime Assistance Program

The Ohio Maritime Assistance Program (MAP), established in 2019, is the only state-funded grant program specifically aimed at improving and maintaining Ohio's MTS freight-based operations. The program offers funding to eligible Ohio port authorities to support planning, design, acquisition, and infrastructure projects that enhance the efficiency or capacity of maritime cargo terminal operations. This funding program was established based on the advocacy of Ohio's public port authorities to the state legislature.

Since 2020, the Ohio Maritime Assistance Program has invested \$56 million in 24 projects across four public port authorities on the Great Lakes and Ohio River. The Ohio MAP award recipients used the funding in several different ways, with all projects focused on improving the capacity and conditions of general cargo terminals, repairing dock walls, dredging efforts, and intermodal connectivity. The MAP closes several funding gaps for small ports, river maritime stakeholders, and private businesses that have few funding resources available to them, particularly in the grant size available through the MAP.



Wellsville Terminals, Project Funded by MAP, CPCS

Taking Action

The Ohio Maritime Plan was developed through close collaboration with a wide range of stakeholders; hundreds of voices were heard from port authorities, terminal operators, public agencies, private industry, environmental groups, regional leaders, and others. These stakeholders are already active in the maritime system – investing in infrastructure, improving freight logistics, mitigating environmental impacts, and advancing local priorities. The planning process brought these efforts into focus and established a strong foundation for continued partnership.

Among these stakeholders there is a broad consensus on the actions needed to preserve and expand Ohio's maritime system. The OMP makes recommendations and defines distinct roles across federal, state, regional, public, and private-sector partners involved in both freight and passenger movement. Recommendations are organized into five action areas, aligned with the core responsibilities of the entities best positioned to lead. To support implementation, ODOT will advance a Memorandum of Understanding among willing partners, reinforcing shared commitment and coordinated action to strengthen Ohio's maritime future.



Planning Opportunities & Actions

Planning opportunities and actions aim to better support the Ohio MTS by promoting the development of Ohio's ports and maritime infrastructure, promoting the inclusion of the maritime system in state, regional, and local

modal plans and studies, and ensuring the safety and sustainability of the maritime transportation system. As experts in transportation and the movement of goods, ODOT can provide guidance to federal, state, and local officials on these matters.



Operations & Maintenance Opportunities & Actions

Operations & Maintenance opportunities prioritize the preservation and improvement of navigation channels, ports, and other infrastructure throughout the MTS. This will require taking stock of asset conditions, identifying where there are needs, and making investments to maintain and improve system infrastructure. This also includes ensuring connectivity between the maritime infrastructure and road and rail connections to ports where it is needed.



Innovation & Technology Opportunities & Actions

Innovation & Technology opportunities begin with the implementation of new port equipment to efficiently handle diverse cargo. This supports the needs identified by stakeholders to modernize port technology for Ohio to remain competitive in the market. In turn, these technological improvements can be used to support other goals, such as improved environmental outcomes due to lower emissions via the adoption of alternative fuel vehicles or implementing new practices based on best practice research for dredging disposal and port assistance.



System Investment Opportunities & Actions

System Investment opportunities lie in promoting investments that benefit Ohio's economy, workforce, and communities. To do so, Ohio's maritime system stakeholders must secure long-term, stable funding to support the necessary investments to continue and improve operations. This includes administration of the Ohio Maritime Assistance Program (MAP) to ensure it best addresses system needs, and ODOT, ports, and other stakeholders advancing system investment by supporting or providing grants, technical assistance, or taking other actions toward maintenance or major investment projects.



Coordination & Partnership Opportunities & Actions

Coordination & Partnerships are a vital part of securing a successful future for the Ohio MTS. Improved coordination is important to facilitate better decisions in each of the other opportunity areas. This, in turn, will allow for better planning, investments, coordination, and alignment among stakeholders. A new opportunity to improve coordination and partnerships among the system's many stakeholders includes engaging with the new Ohio River Commission and the existing Lake Erie Commission to harness the synergies of those organizations to improve the overall MTS.

Aligning the Ohio Maritime Plan with Broader Initiatives

The Ohio Department of Transportation developed the Ohio Maritime Plan in partnership with maritime stakeholders to guide investment, policy, and coordination across the state's ports and waterways. While ODOT does not own or operate maritime assets, it plays a critical role in supporting infrastructure investment, shaping transportation policy, and advancing multimodal connectivity.

The OMP builds on and complements a series of existing ODOT plans and studies that collectively aim to strengthen Ohio's freight network, promote economic development, and enhance system resilience. By aligning with these initiatives, the OMP reinforces a coordinated, statewide approach to transportation planning and investment.



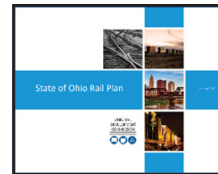
Ohio Maritime Strategy (2018) is a policy document that articulates the distinct roles of Ohio's ports and waterways stakeholders in the state's multimodal freight system. The work identified opportunities to position the state for long-term growth through maritime system investment. This strategy contributed to establishing the Ohio Maritime Assistance Program.



The Economic Impacts of Ohio River Maritime Activities on the State of Ohio (2019) study quantified the significant role of the Ohio River in the state's economy. The study found that Ohio River ports and waterways contribute to job creation, supply chain efficiency, and reduced transportation costs, strengthening the state's competitiveness in both domestic and global markets.



Transport Ohio (Ohio State Freight Plan) (2022) outlines strategies to enhance the efficiency, reliability, and competitiveness of the state's freight transportation system. It assesses Ohio's multimodal network—including highways, rail, air cargo, and maritime—identifying key infrastructure needs, capacity challenges, and opportunities for growth. An Action Plan was developed and is currently maintained by the Ohio Freight Advisory Committee.



Ohio State Rail Plan (2019) provides a strategic framework for enhancing the state's rail network to support economic growth, freight efficiency, and passenger mobility. It assesses Ohio's extensive freight rail system and identifies key infrastructure needs, including rail capacity improvements, grade crossing safety, and multimodal connectivity with ports and highways.



Access Ohio 2045 (2020) is Ohio's long-range statewide transportation plan that provides a comprehensive vision for the state's multimodal transportation system. Access Ohio 2045 serves as a guiding framework for decision-making to support Ohio's role as a national transportation hub.

How to Navigate This Document

The Ohio Maritime Plan (OMP) was developed to provide Ohio and its maritime stakeholders with an updated and comprehensive understanding of the Ohio maritime transportation system, its assets, challenges, opportunities, and potential strategies for action. It acts as a guide for both ODOT and its partners in future planning efforts for the system. The Ohio Maritime Plan is organized within six chapters and includes seven resource documents:

1. System Assets and Use
2. Economic Impact of Ohio's Maritime System
3. System Performance
4. System Opportunities and Successes
5. Capital Needs
6. Key Strategies and Actions

Resource A: Acronyms, Abbreviations & Common Maritime Concepts

Resource B: Ohio Maritime System Visual Timeline

Resource C: Port & Port Statistical Area Profiles

Resource D: Stakeholders, Outreach, and Key Findings

Resource E: Project Evaluation Framework

Resource F: Funding Resource Guide

Resource G: Action Matrix

For Further Information

The Ohio Maritime Plan was informed by input from hundreds of MTS stakeholder consultations, seven working papers, and other key deliverables, all developed in coordination with a project Steering Committee. Each working paper and supporting resource is hyperlinked throughout this document.

Key Deliverables

Working Paper 1: Ohio Maritime System History

Working Paper 2: Existing Conditions Analysis

Working Paper 3: System Performance Analysis

Working Paper 4: Ohio Maritime System Economic Value

Working Paper 5: Key Supply Chains

Working Paper 6: Environmental Framework

Working Paper 7: Needs Analysis

Strengths, Weaknesses, Opportunities, and Threats Memo

Dredging Spotlight Report

Ohio MTS Infographic



1. System Assets and Use

Ohio's maritime transportation system has played a crucial role in the state's economic and industrial development, centered around the Great Lakes and the Ohio River. The system has supported critical industries across Ohio and beyond. Today, Ohio's ports and waterways remain key to freight and passenger movement, contributing to Ohio's role as a national logistics hub.

A Historically Connected System

In the more than 14,000 years that Ohio has been inhabited, the state's waterways have played a crucial role in facilitating transportation, trade, recreation, defense, and growth for Ohioans as well as markets domestic and worldwide. As shown in Figure 1, on the northern boundary, Lake Erie connects Ohio to the larger Great Lakes shipping system, connecting eight US states and two Canadian provinces with the Atlantic Ocean via the St. Lawrence River. Spanning Ohio's entire southern border, the Ohio River is the largest tributary of the Mississippi River, connecting six states with the Gulf of Mexico. The Ohio River's major navigable tributaries – the Tennessee, Cumberland, Green, Big Sandy, and Kanawha Rivers – also enable connections between Ohio and other states in the region.

Mid and Late 1800s

Multimodal and industrial expansion: The 1800s were a time of significant growth and change for Ohio's maritime system. Rapid expansion of railroads allowed for river and lake facilities to serve much larger market areas with greater efficiency. Construction of canals and locks eased transportation between Lake Erie and the rest of the Great Lakes while the River and Harbor Act (1892) legislation authorized the deepening of Great Lakes navigational channels, building the system's shipping capacity. Advancements in steel manufacturing and exponential growth in coal production throughout the century set the stage for some of Ohio's key industries that have long benefitted from the state's well-connected and evolving MTS.

Early 1900s

Regulation and modernization: The 20th Century saw continued investment in and increasing utilization of Ohio's maritime transportation system. The Ohio River system underwent significant investment across the 20th century to improve navigation and modernize control structures, with each change stimulating major increases in tonnage, trip length, and cargo

diversification. The River and Harbor Act of 1910 allowed for the deepening and widening of Ohio River channels to their current-day size as well as the construction of a full set of locks and dams that enabled safe and efficient year-round river navigation.² In 1954, the USACE Ohio River Navigation Modernization Program upgraded all locks and dams on the river.³ The increasingly developed river system and valley quickly became a center for the production of aluminum, supplementing its already strong coal and steel industries.

Mid and Late 20th Century

Port Authorities enter the picture: In 1955, the first Ohio Port Authority was created, the Toledo-Lucas County Port Authority.⁴ This was followed by the creation of port authorities for other maritime counties and communities across Ohio. Four years later, the opening of the St. Lawrence Seaway provided Ohio's Lake Erie ports with direct access to foreign markets.

Reaching capacity: Regulations on shipbuilding, vessel size, and shifts in raw material markets would all influence the volume and type of goods using Ohio's MTS throughout the 20th century. The

Merchant Marine Act of 1920 (Jones Act) dictated that only vessels that are US-built, US-registered, and US-crewed may move cargo between ports in the US, significantly increasing the US-flag fleet costs compared to their Canadian counterparts.⁵ The Soo Locks reached their modern maximum size in 1968, dictating the construction of the "thousand-footer" vessels that remain the largest vessels on the Great Lakes. Lastly, while US steel and iron production declined, St. Lawrence Seaway traffic would still reach an all-time high in 1977, shifting towards grain exports and steel imports.⁶

21st Century

21st Century evolution and diversification: Though the start of the 21st century saw high points in maritime tonnage post-1980s recession, trends in the MTS's key industries have caused system use and tonnage to gradually decline over the last 23 years. Despite this decline, Ohio's maritime system continues to evolve, handling new cargo and offering opportunities to reduce congestion and carbon emissions associated with other modes of transportation. In 2007, the US Marine Highway Program designated the Ohio River as Marine Highway 70 and established three

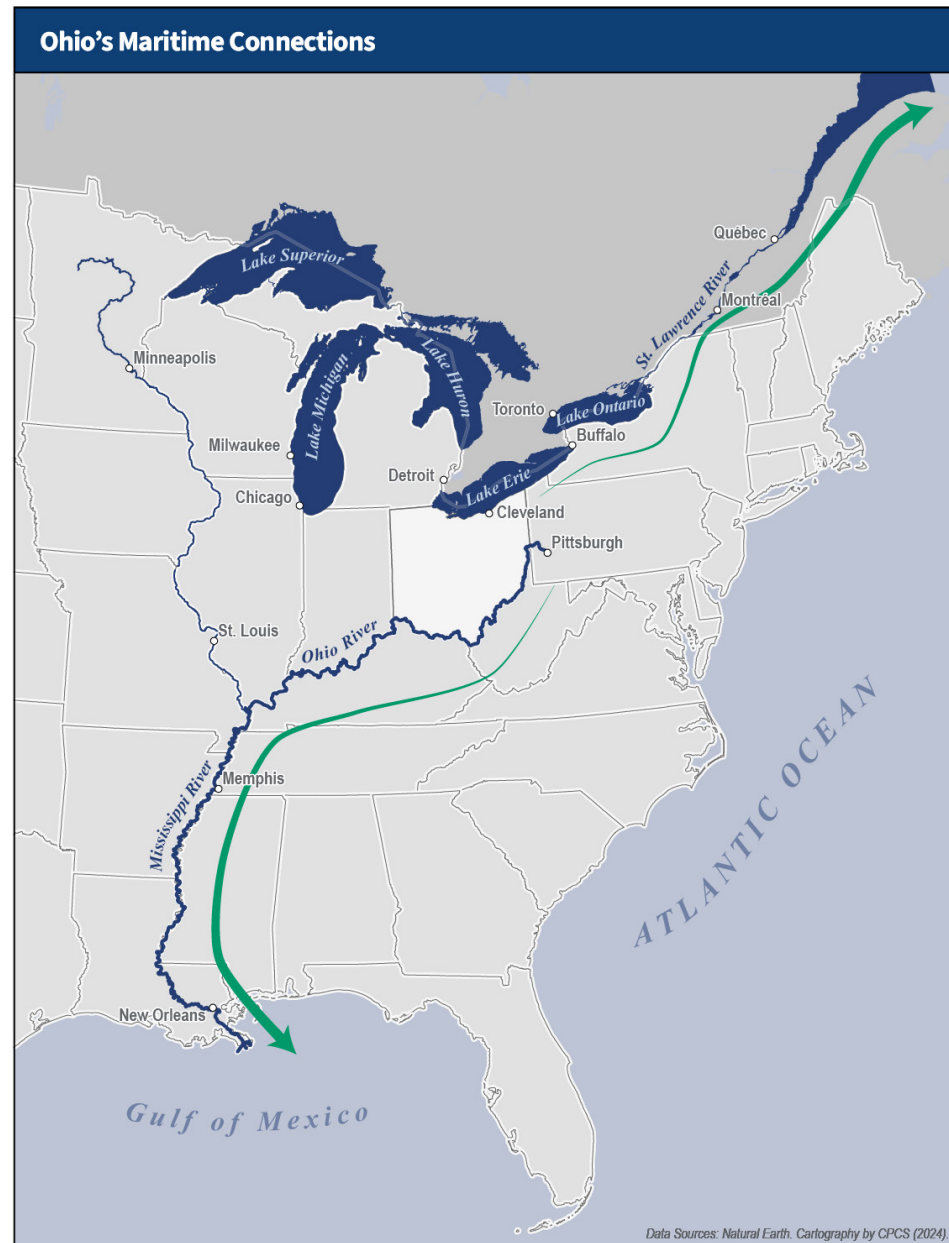
¹ US Congress, 52 USC Chapter 158: An act making appropriations for the construction, repair and preservation of certain public works or rivers and harbors, and for other purposes, July 1892. <https://tile.loc.gov/storage-services/service/l1/l1/c52/l1c52.pdf#page=115>; ² F.A. Irick, Construction of Locks and Dams on the Ohio River, Purdue University Engineer, 1915.; ³ History of Navigation in the Ohio River Basin. Navigation History NWS 83-5. Robinson, Michael. United States Army Corps of Engineers. 1983.; ⁴ Toledo Lucas County Port Authority, About Us, N.D. <https://www.toledoport.org/about-the-port/>; ⁵ Revitalizing Coastal Shipping for Domestic Commerce. Congressional Research Service. 2017.; ⁶ History of Great Lakes Navigation. Navigation History NWS-83-4. Larson, John. US Army Corps of Engineers. 1983.

Figure 1: Ohio Maritime System Map

additional Marine Highways (90, 75, 71/77) on Lake Erie. Cleveland-Europe shipping service started in 2014 and resumed regularly scheduled container shipping services to the Great Lakes. Ohio's electrical power generated from coal dropped nearly 50 percent between 2010 and 2022. Cruise tourism also noticeably grew on the Great Lakes throughout the 2010s.

Setting up today for future growth: The evolution and diversification of the maritime system in the 21st Century has been accompanied by significant efforts by the Ohio legislature and ODOT to regulate and fund increased resilience, safety, and efficiency of the MTS. In 2015 Ohio implemented a ban on open-lake disposal of dredged material that prevented contaminant build-up in Lake Erie. In 2018 ODOT finalized its first Ohio Maritime Strategy that would guide planning and implementation for public and private maritime stakeholders alike. And most recently, the Ohio legislature enacted the Maritime Assistance Program (MAP) to provide grant support to port authorities. These major strides in maritime planning and funding have improved coordination and action among maritime stakeholders to respond to shifts in industry trends and take advantage of MTS assets.

A visual history of the system can be found in **Resource B: Ohio Maritime System Visual Timeline.**

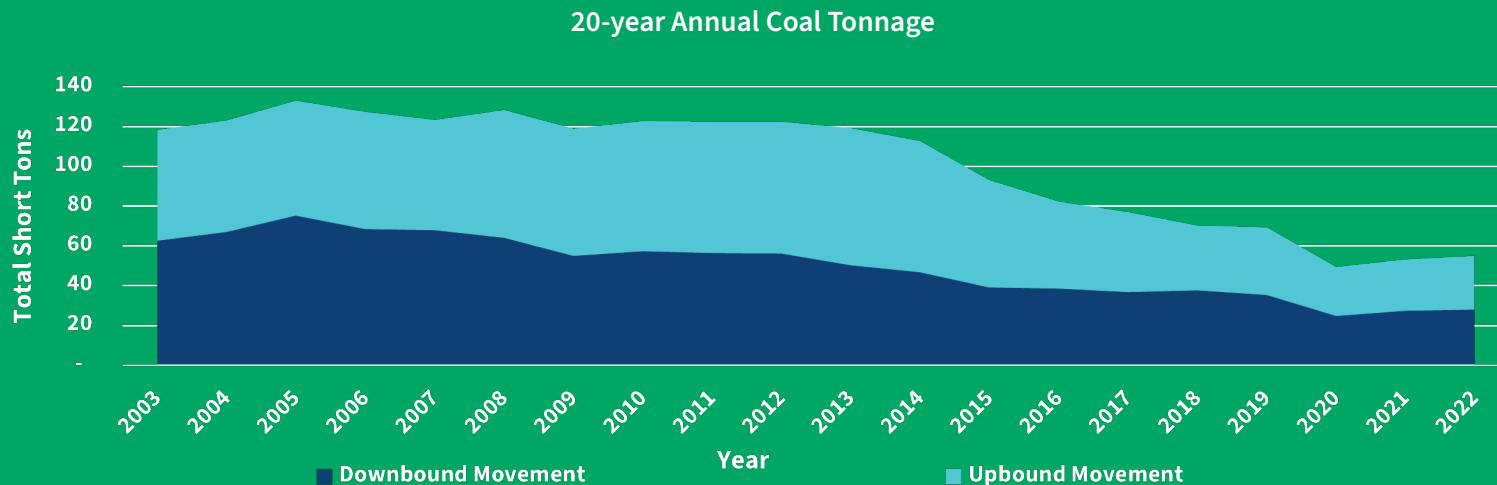


Ohio's Energy Revolution

The Ohio River has historically played a vital role in transporting coal, a crucial energy source for Ohio and the nation. While Ohio has a long coal mining and production history, the tonnage shipped along the river has significantly declined due to stricter environmental regulations, evolving practices and policies, and increase of natural gas and other renewable energy sources. These factors have resulted in a significant shift in commodities carried by the MTS as well as how the system is adapting to take advantage of new growth in the energy sector.

The closure of the majority of Ohio plants is reflected in the decrease in tonnage moving along the river year over year. 20 years ago, Ohio had over 100 operating coal plants. As of 2024, only four remain, all located on the Ohio River. The total coal tonnage transported in Ohio has greatly declined by almost 50 percent over that time, both in downbound and upbound movements as shown in the figure. All coal products trend downward overall and are included in the analysis as one commodity. Other factors such as the price of alternative energy sources impact the trend as seen in the 34 percent spike of downbound coal coke transport in 2021.

Though coal is still a dominant commodity on the Ohio River in terms of volume, industrial development near the MTS as well as tonnage trends are shifting quickly towards goods like petroleum, natural gas, and nuclear energy. Natural gas plants now generate nearly 60 percent of the state's electricity and nuclear energy 12 percent. Ohio now ranks 12th in the nation for oil production and is the top producer in the Appalachian basin, relying on barge, pipeline, and truck transport to reach destinations within Ohio and domestically.



Source: CPCS Analysis of WCSC Port-Level Commerce Data, 2022

Ohio's Maritime Transportation System Assets

The Role of Maritime in a Multimodal Transportation System

Ohio's waterways play a vital role in the state's multimodal freight network, evolving and adapting through decades of physical changes, industrial shifts, and funding and regulatory transitions. While each mode of transportation offers different performance characteristics, such as cost, speed, reliability, and shipment size, the MTS provides a cost-effective option for moving high-volume, bulk, and lower-value goods over long distances.

The capacity of Ohio's maritime system supports the efficient movement of goods today while allowing room for future growth across both its lake and river systems. A single barge can carry the equivalent of 70 large semi-trucks (Figure 2), making maritime transport not only more efficient but also significantly more sustainable. Barges reduce highway congestion, lower freight-related emissions, and use 78 percent less fuel per ton-mile compared to trucking.

To operate safely, efficiently, and sustainably, Ohio's MTS depends on an extensive network of multimodal infrastructure and assets. Each plays a distinct role in moving goods and people within and beyond the state and must be evaluated both individually and as part of an interconnected system. This is evident when examining the layout of a single port or Port Statistical Area (PSA), as shown in Figure 2 and Figure 3. These examples highlight the varied waterside and landside infrastructure necessary for efficient MTS operations. Basic maritime terms and assets are defined below with a more detailed list of terms in **Resource A: Acronyms, Abbreviations & Common Maritime Concepts**.

Ohio MTS System Equivalencies



Lake Vessel
70,000 Tons/unit



River Barge
1,750 Tons/unit



Rail Cars
110 Tons/unit



Large Semis
25 Tons/unit

Source: Waterways Council, Inc. & Interlake Steamship Company

Figure 2: Lake Maritime Ecosystem

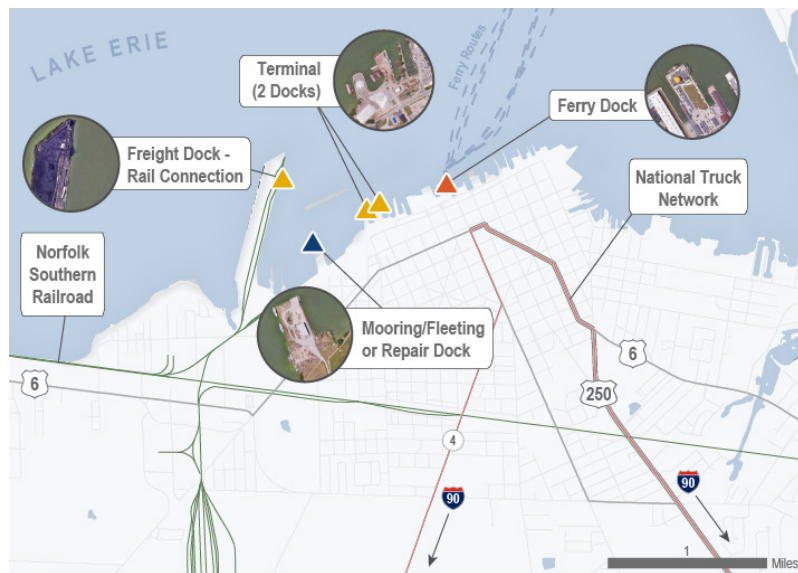
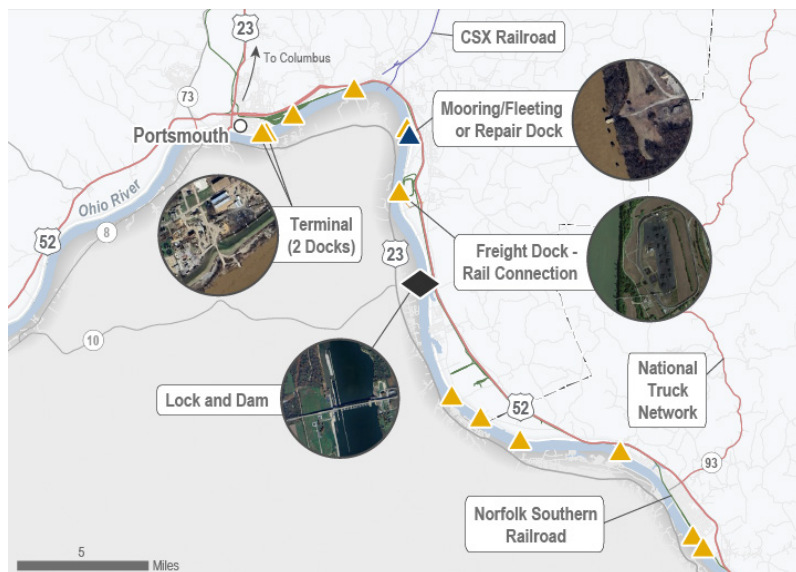


Figure 3: River Maritime Ecosystem



Supporting Landside Infrastructure – South Point Industrial Park Development

In addition to the need to support existing infrastructure, there are new developments that can modernize the system. South Point Industrial Park is a great example of redevelopment along the Ohio River, located in the Huntington Tri-State PSA in Southern Ohio. The Point is a designated developable site, offering significant cost savings for companies due to its pre-existing infrastructure and site preparation. It has a range of development-ready land parcels as well as vacant buildings and storage tanks available for immediate occupancy. South Point, Ohio, offers a strategic location with over 500 acres of prime, developable land. The site benefits from excellent transportation infrastructure, including seven miles of rail and 3,400 feet of Ohio River frontage.



South Point Industrial Park Site

Source: The Point: South Point's Industrial Park on the Ohio River, as of 2019, accessed Feb 2025, https://www.lawrencecountyohio.org/the_point/

MARAD National Strategy

In 2020, MARAD published the National Maritime Strategy. Though MARAD does not directly operate any of the national waterway system, this plan provided guidance to governmental authorities and directives under USDOT to better integrate the maritime system into transportation and infrastructure planning. The strategy established four goals for the agency and its partners aiming to:

1. Leverage maritime capabilities to strengthen national security and economic prosperity
2. Ensure the availability of a US maritime workforce
3. Support enhancement of US port infrastructure and performance
4. Enable maritime industry innovation in information, automation, safety, environmental impact, and other areas.

As part of the Marine Highway network, ODOT and other MTS stakeholders may align their planning goals with this strategy to promote a collaborative and unified approach in encouraging system use and funding critical projects.

Marine Highways

The US Department of Transportation (USDOT) established the Marine Highway Program in 2007 to reduce landside congestion and promote greater use of the nation's maritime transportation system. The program specifically aims to increase the efficiency and utilization of domestic freight and passenger transport routes between US ports.

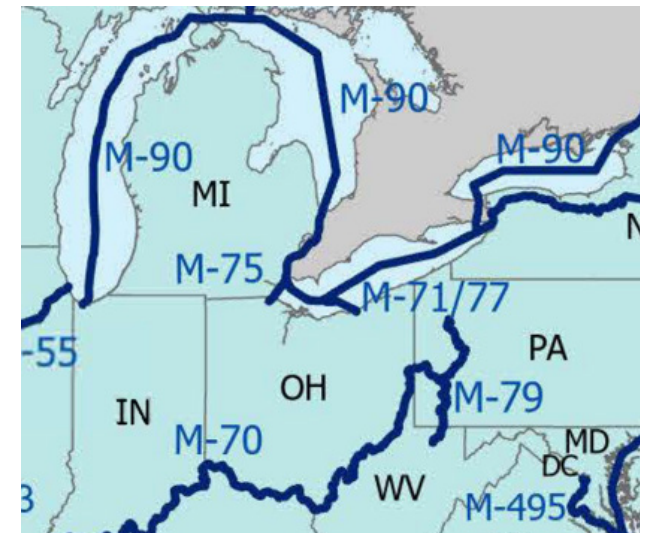
Since its inception, 25,000 miles of navigable waterways have been designated by USDOT as Marine Highway Routes, making them eligible for dedicated federal funding to support maritime operations and advance MTS projects.

Marine Highway designations are granted by the USDOT Secretary of Transportation based on specific criteria. Eligible routes must: be a navigable waterway capable of handling freight, have potential to relieve landside congestion on coastal corridors, promote short sea transportation, and align with the interests of both public- and private-sector stakeholders.⁷

Ohio is served by five separate marine highway routes: M-90, 71, 77, 75, and 70 (Figure 21). M-90 traverses the entirety of the Great Lakes through the St. Lawrence Seaway while M-71, 77, and 75 each connect M-90 to Ohio's ports on the Great Lakes. M-70 accounts for the entirety of the Ohio River. With Ohio's entire MTS designated as Marine Highways, federal funds can be leveraged by public entities and private businesses with public sponsors to develop and expand port and landside infrastructure, grow the shipbuilding industry, and support the planning and design of other marine highway projects. Additionally, Ohio MTS

stakeholders and their interests may play a role in MARAD's National Strategy for the development of marine highways.

Figure 4: Ohio's Marine Highway System



⁷ <https://www.maritime.dot.gov/sites/marad.dot.gov/files/2023-09/USMHP%20Final%20Rule.pdf>

Safety and Security of the Maritime System

Enhancing the safety and security of the maritime system is a goal highlighted in the National Maritime Strategy produced by MARAD.

The Federal Role

At the federal level, the US Coast Guard (USCG) plays a critical role in ensuring safety by enforcing safety standards for vessels, overseeing navigation, and responding to emergencies. They regularly inspect commercial vessels, enforce environmental protection laws, and conduct training drills for search and rescue operations. Under the Maritime Transportation Security Act (MTSA), vessels and marine terminals for both freight and passenger use must develop and implement security plans that detail the qualifications of their staff, document any preventative measures taken to deter unauthorized access to facilities, and ensure safe handling of cargo. If a marine terminal fails to comply, the terminal may be asked by the USCG to halt all shipping activity until security needs are met. Ohio's major ports, such as those in Cleveland, Toledo, and Sandusky, follow stringent safety protocols that comply with the Maritime Transportation Security Act (MTSA) and collaborate with the USCG and other agencies to minimize risks.

In addition to complying with the MTSA, Ohio's waterways are well-marked with buoys, lights, and other navigational aids maintained by the USCG to ensure safe transit for commercial and recreational vessels. Additionally, the state's rivers and lakes are regularly dredged and maintained by USACE to ensure vessels can navigate safely.



USCG Station in Toledo

Source: Google imagesMarinas.com, USCG Station Toledo

State Stakeholders

Within Ohio, the University of Findlay is the only academic institution with a maritime security program. The program is crucial to providing the necessary training to security personnel at maritime facilities as mandated by federal agencies.

The Ohio Department of Natural Resources (ODNR) takes further measures to ensure the safety of recreational boaters by enforcing boating regulations and responding to waterway incidents. Ohio has a large number of recreational boaters, and the state promotes boating safety through public awareness programs. Boaters are encouraged to take safety courses, wear life jackets, and follow proper navigational rules.

Though relatively infrequent, both federal and state agencies collaboratively respond to maritime accidents. The USCG, the Ohio Department of Public Safety, and emergency response teams are trained for search and rescue, oil spill responses, and firefighting on water in addition to ODNR's assistance in recreational boating accidents. Due to strong regulatory oversight and ongoing safety initiatives, Ohio's maritime system is considered safe for both commercial and recreational use.

Public Ports and Port Statistical Areas

Ports: In the context of physical infrastructure, a port signifies an area situated along a waterway or harbor where the land interfaces with water, facilitating the docking of ships for commercial purposes. A port's primary role involves handling cargo and/or passengers from vessels and is typically served by other modes of transportation, such as trucks and rail. Each port in Ohio is profiled in detail in **Port & Port Statistical Area Profile** and shown in Figure 5 and Figure 6. Many of Ohio's ports on the Great Lakes and Ohio River are established through Ohio's Revised Code Section 4582 and are managed by a public port authority, though some non-legislative ports that are privately operated are also found lakeside.

Port Statistical Areas (PSAs): As a port refers to the physical infrastructure along the waterway, a Port Statistical Area refers to the broader geographical boundaries of a port's operating limits as defined by USACE in partnership with established port authorities. This designation allows for collecting and assigned reporting of waterborne commerce data along the entire specified corridor, combining the reporting for multiple ports within an area, and making port and marine highway funding available for stakeholders throughout the designated area. Ohio's three PSAs are contiguous along the Ohio River and often encompass counties in Ohio's neighboring states. Therefore, their delineations do not align with any Port Authority boundaries and are not bound to any legal or administrative entities. Each PSA in Ohio is profiled in detail in **Port & Port Statistical Area Profile**.

Ohio MTS Fast Facts



9

Lake Erie
Freight Ports



3

Ohio River
PSAs



193

Active Freight
Docks



12

Ferry Docks



7

GLSLS Locks
and Dams



9

Ohio River Locks
and Dams

Figure 5: Ohio Ports on Lake Erie

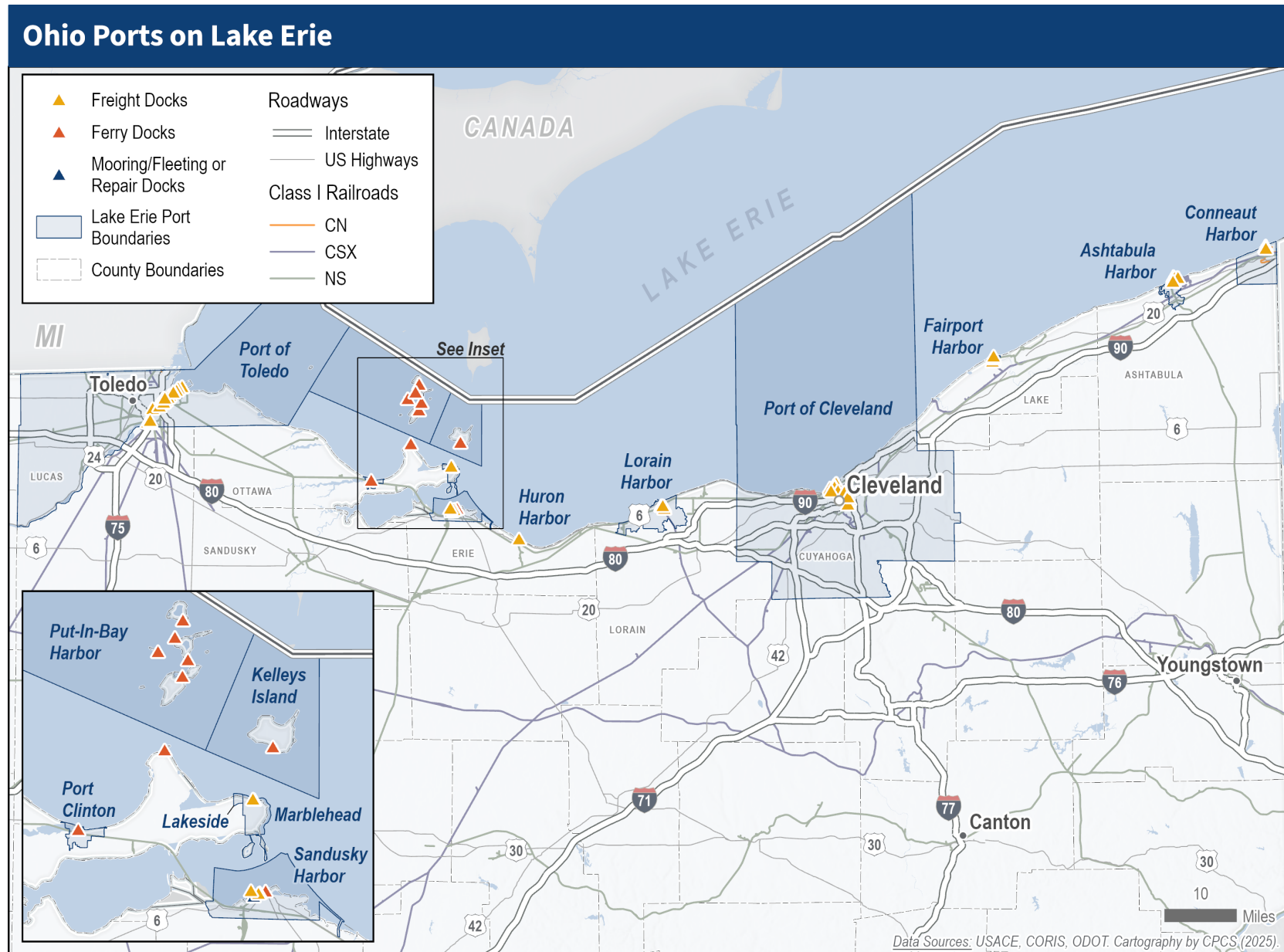
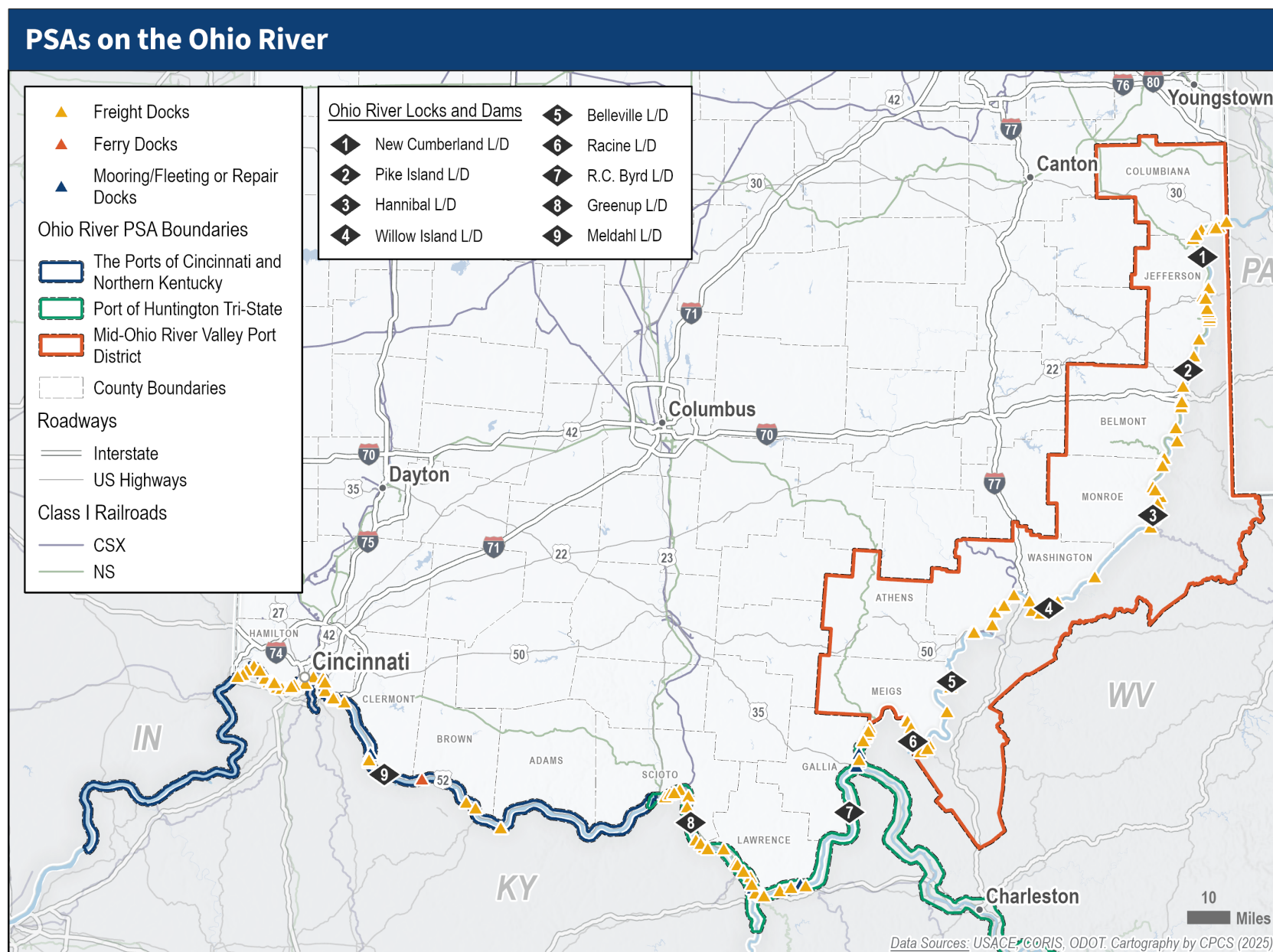


Figure 6: PSAs on the Ohio River



Freight Docks, Private Ferries, and Ferry Docks

Docks: Docks are physical structures constructed along navigable waterways to provide platforms for vessels to anchor and facilitate the receipt or discharge of cargo. A terminal at a port may be comprised of multiple docks. Docks can also be used for passenger vessels like ferries in addition to serving cargo vessels, or for passenger service alone.

Private Ferries: Ferries provide connections between eight ferry docks; five located in Put-In-Bay Harbor, two in Port Clinton, and one on Kelleys Island as shown in Figure 7. Each of these ferry routes offer scheduled and daily service to passengers and vehicles. These ferries offer an island's only multimodal connections to other parts of the Great Lakes and Ohio. Two ferries are also operated on the Ohio River, with one dock located in Cincinnati for transport to Hebron, Kentucky and the other in Higginsport, OH for transport to Augusta, KY.

Figure 7: Ferry Docks on Lake Erie

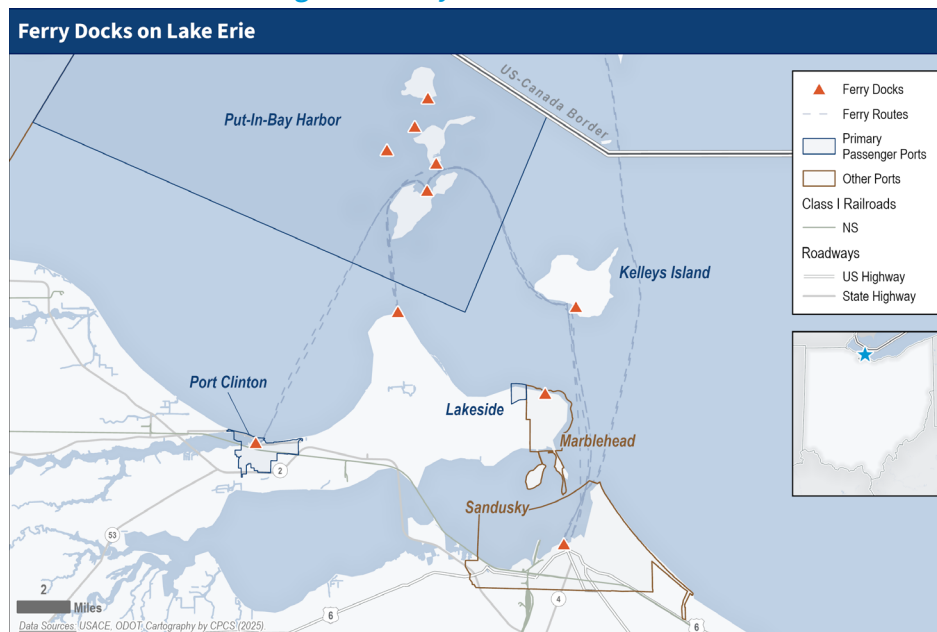
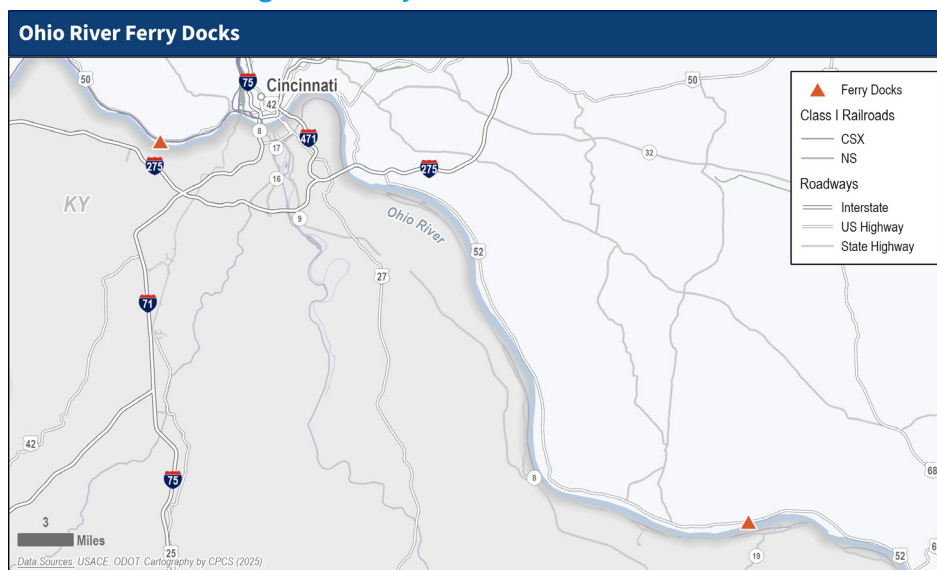


Figure 8: Ferry Docks on the Ohio River



Locks and Dams

Locks and dams are essential components of a maritime navigation system, enabling vessels to traverse different water levels. A dam's purpose is to raise the water level upstream, creating a navigable depth of water. The locks, comprised of a watertight chamber and gates at both ends, are then used to raise or lower boats between the different water levels by being filled or emptied, as needed. The locks with the greatest capacity in Ohio's MTS can be found in the St. Lawrence Seaway, with each able to accommodate ships with 25,000 metric ton capacity. The Soo Locks at the St. Marys River in Michigan also allow for vessel navigation along the Great Lakes. Locks and dams on the Ohio River are significantly smaller, though the largest can accommodate a 15-barge tow in one lockage. Many of these locks and dams on both the lake and river are nearing their lifespans, many having been constructed nearly or over 50 years ago.



System Owners, Operators, and Key Stakeholders

The planning, maintenance, and use of the MTS is dependent on a wide range of stakeholders across industries, geographies, and roles. Each plays a crucial part in the growth and preservation of the system, many of which are currently making strides individually to improve and take advantage of the MTS. The OMP consulted with hundreds of Ohio's MTS stakeholders to better understand system needs, strengths, and opportunities. A more detailed stakeholder list can be found in **Resource D: Stakeholders, Outreach, and Key Findings**.

Public Port Authority: Public port authorities are the administrative and developmental authorities of a port district outlined in Ohio Revised Code Section 4582. Port authorities have the power to issue permits for constructing port infrastructure, regulate the entry and exit of vessels, acquire and lease port facilities and land, and coordinate with federal maritime agencies on port development.

Port Communities: Local and regional governments and their residents in and around port districts play a role in providing workforce, partnerships, and economic activity to port authorities and local private industry. Port communities are made up in part of dock workers, recreational users of the system, business owners that rely on the MTS, and planning agencies that coordinate with other MTS stakeholders to foster economic activity. Port communities contribute and benefit from MTS activity but are affected by the externalities of port-related industrial activity like traffic, pollution, and land use. As a crucial resource to ports and their operations, it is

essential that future planning and growth of MTS activity consider the surrounding communities.

Private Industry: Many of Ohio's key industries rely on the MTS for efficient and reliable transport of goods. Both businesses that own port terminals or docks as well as businesses in central or rural Ohio relying on multimodal connections to the MTS are stakeholders in the MTS. Businesses located inside the gate can be partly responsible for the maintenance and updating of their port facilities and may also play a role in applying for loans and grants that further port growth. Businesses inside and outside the gate can affect volumes on the MTS as trends in their industry directly affect demand for goods traveling on the lake or river.

Planning Entities: Planning entities refer to the organizations at the state, regional, and local level that influence both inside and outside the gate operations through regulation, funding, and coordination. In Ohio, this can refer to ODOT, local Metropolitan Planning Organizations (MPOs), Regional Transportation Planning Organizations (RTPOs), federal agencies like USACE and MARAD, Ohio EPA and ODNR, and regional coalitions like the Appalachian Regional Commission among others. Though each has a specific role and responsibility within the MTS, many of them share the ability to coordinate and partner with ports and port communities to further MTS development, apply for and supply funding opportunities, and adapt regulation to system needs.

Non-Profit Organizations and Coalitions: This group of stakeholders refers to non-governmental organizations, non-profit organizations, and state or local coalitions of MTS stakeholders. Each can be champions for their members in voicing system needs and opportunities to planning entities or port authorities. They are also crucial to helping enact outside-the-gate change through public education efforts, partnerships with planning entities, and application for funding opportunities. In Ohio, some of these include the Ohio Freight Advisory Committee and the Central Ohio River Business Association.

Ohio Maritime Plan Steering Committee: The Ohio Maritime Plan Steering Committee was essential in the development of this plan, providing input on system needs and providing feedback for each step of the plan writing. The Steering Committee was comprised of system stakeholders including ports, planning agencies, private industry, and federal agencies. All Steering Committee efforts and meetings throughout this process can be found on the plan website [here](#).

Critical Role of the US Army Corps of Engineers

The US Army Corps of Engineers (USACE) plays a role in nearly every aspect of operations on the water for the MTS. Originally authorized to improve safety and navigation on the Ohio and Mississippi Rivers, USACE is responsible for maintaining 12,000 miles of inland waterways and over a thousand coastal and Great Lakes channels for the purpose of commercial, recreational, and defensive use. These responsibilities include planning, designing, constructing, operating, and maintaining navigational waterways and their infrastructure like ports, locks, and dams.



**US Army Corps
of Engineers®**

In Ohio, USACE works closely with public ports to improve infrastructure within port districts, modernize aging locks and dams along the Ohio River and the St. Lawrence Seaway, address dredging needs, and regulate system use. Recent efforts include the construction of a new lock on the St. Marys River and ongoing maintenance of lock and dam systems on the St. Lawrence Seaway and Ohio River.

Beyond operating its own infrastructure, USACE regulates and reviews permits for construction and development on navigable waterways and wetlands, ensuring protection of water quality and maintaining navigability. USACE also plays a critical role in both routine and emergency dredging at Ohio's Great Lakes ports and within Ohio River PSAs. While it directly conducts dredging at most of Ohio's ports and harbors, it also permits and oversees dredging activities by private entities.

USACE partners with ports to meet federal standards for the management and beneficial use of dredged material. Under the Water Resources Development Act of 2020, USACE is required to evaluate and advance beneficial use opportunities when preparing or updating Dredged Material Management Plans (DMMPs). USACE has set a national goal to beneficially use 70 percent of all sediment dredged from federal navigation channels by 2030 and is actively developing DMMPs for Ohio's Lake Erie ports. The USACE Waterborne Commerce Statistics Center (WCSC) is responsible for collecting, processing, managing, and distributing a series of datasets, such as the Transportation Operational Waterborne Statistics Database. These data points help stakeholders understand the capacity and use of the maritime system in Ohio and better make investment decisions and plan for future improvements.

This provides stakeholders with updated information to better understand system needs and performance as well as opportunities for growth.



Soo Locks Maintained by USACE

Source: Construction Equipment Guide, 2020



Lorain Harbor, Lorain Port and Finance Authority

Port Profiles

Ohio's extensive network of ports and PSAs accommodate a wide range of commodities, vessel types, and multimodal connections. As a result, each experiences different trends in tonnage and development and should be inventoried and evaluated individually. The Ohio River has long carried the majority of goods on the MTS, in both tonnage and value. Ports on the Ohio River generally carry lighter goods with higher value while ports on the lake handle lower-value goods in bulk. Therefore, while the river's share of tonnage in 2022 was 54 percent, its share of overall value was near 80 percent as shown in Figure 9 and Figure 10. Each port and system's unique facilities and markets, however, are necessary to handle the tonnage and growing value of goods systemwide. Together in 2022, the lake and river shipped 61.7 million tons and \$10.39 billion in freight, handling the second highest volume of goods of all Great Lakes States.

All port profiles with additional detail on facilities, equipment, and recent developments are found in the **Port Profiles Document** and **Working Paper 2: Existing Conditions Analysis**.

Figure 9: Tonnage Share by Lake and River (2017 - 2022)

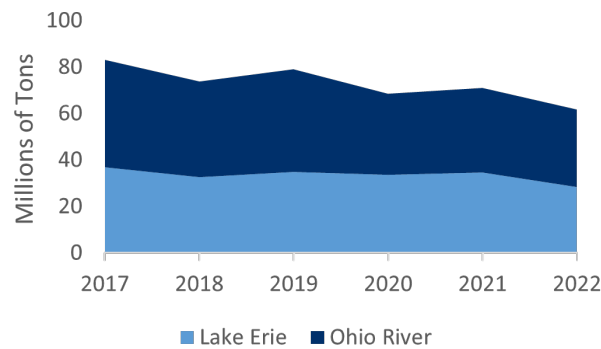
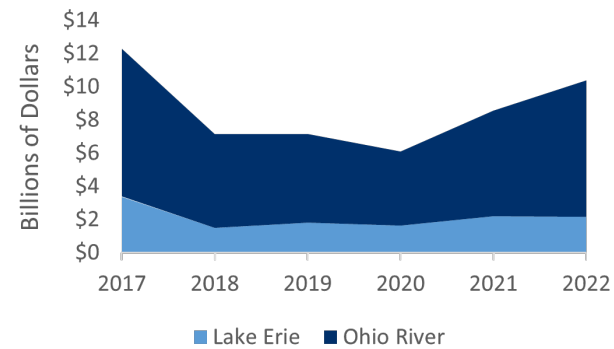


Figure 10: Value Share by Lake and River (2017 - 2022)



Source: USACE Planning Center of Expertise for Inland Navigation (PCXIN), State Profiles

Port of Toledo

The Port of Toledo was established in 1955 and is overseen by the Toledo-Lucas County Port Authority. Of their 15 terminals, the majority are privately owned and/or operated under lease, with the general cargo terminal owned by Midwest Terminals.

Multimodal Connections

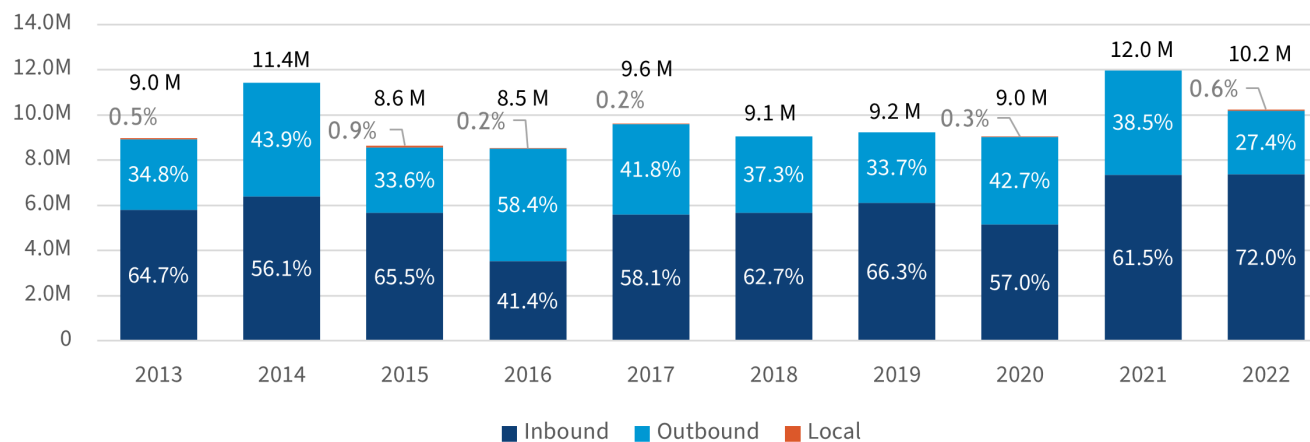
All terminals at the Port of Toledo have easy access to Class I railroads and Interstate roadways. While the more inland terminals rely on Norfolk Southern (NS) lines, those closer to the lakeside benefit from CSX, NS, and CN mainlines all converging near the general terminal. Roadway access is consistent for all terminals, with proximity to I-75 and I-280. Access is also improved by a designated oversized/overweight corridor where overpass and weight restrictions are modified for dimensional cargo.

Facility Use

Surrounded by farmland and industrial parks operated by the port authority, the Port of Toledo has significant potential for expansion compared to other lakeside ports. Though the ten-year tonnage trend for the port has shown fluctuating levels of inbound and outbound cargo, total flows saw a large increase in 2021 although the tonnage dropped in 2022 by about 2 million tons.⁸ According to the Port of Toledo's Year-End Report, the total volume of commodities handled by the Port continued to increase in 2023, growing to 11.7 million.

Though able to accommodate nearly any type of cargo, the Port of Toledo most notably transports iron ore and coal, accounting for 74 percent and 57 percent of inbound and outbound flow, respectively (Figure 11). Both inbound and outbound cargo are primarily comprised of raw or dry goods like sand and gravel, oilseeds, dry clay, salt, and building materials. However, the port benefits from a wide array of inbound and outbound commodities like fertilizers, fabricated metal products, and gasoline.

Figure 11: Port of Toledo Ten-Year Tonnage Trend (Short Tons) (2013-2022)



Source: USACE WCSC Commerce Data, 2024.

⁸ The Port of Toledo's Year-End Report shows slightly different tonnages from the ones reported by USACE - 9.4 million tons in 2020, 11.4 million tons in 2021, and 11.7 million tons in 2022. For the sake of consistency, this working paper uses USACE WCSC Commerce data for the tonnage trend reporting at the Port of Toledo.

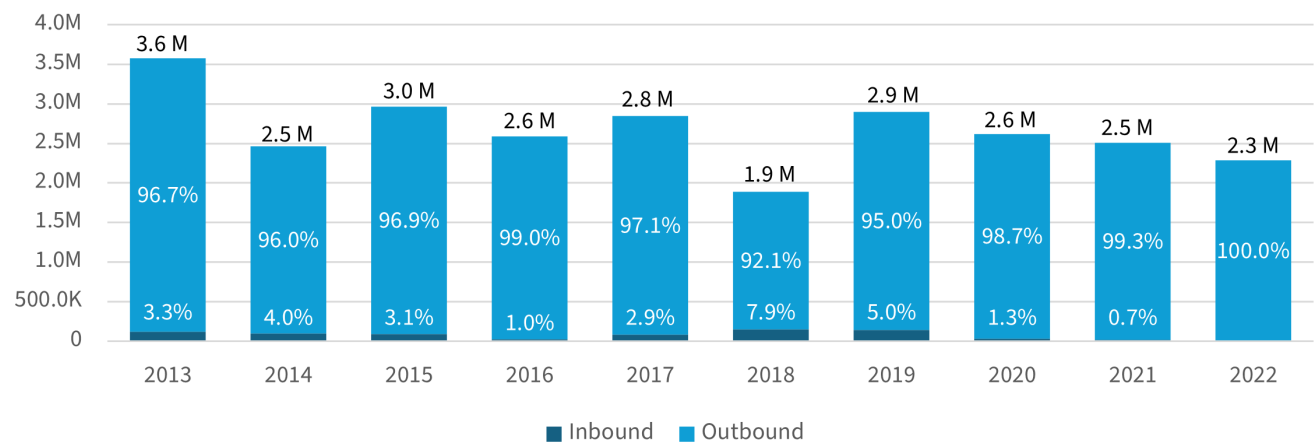
Marblehead

Marblehead is a limestone shipping port with one active freight dock operated by Holcim just north of Sandusky that occasionally handles other types of cargo from nearby Lake Erie ports. Marblehead’s specialized cargo is due to its proximity to the town of Marblehead’s limestone quarry and regularly ships over two million tons annually outbound on the St. Lawrence Seaway or to other regional ports. Due to its location, the port has no access to rail or major roads aside from SR 2 running through Danbury five miles to the west.

Facility Use

Due to the port’s reliance on limestone, annual variations in volumes are largely due to fluctuations in the domestic market. As a result, cargo trends for the last decade look different than other Lake Erie ports, with volumes gradually falling since 2019, though slightly higher than a decade ago. Marblehead has no plans to expand operations in the future to accommodate more traffic or other commodities.

Figure 12: Marblehead Ten-Year Tonnage Trend (Short Tons) (2013-2022)



Source: USACE WCSC Commerce Data, 2024.

Sandusky Harbor

Sandusky Harbor is heavily used to transport a single commodity outbound to other ports along the Great Lakes and to Canada. Operating primarily as a coal dock since 1891, the harbor is jointly owned by the City of Sandusky and Norfolk Southern.

Multimodal Connections

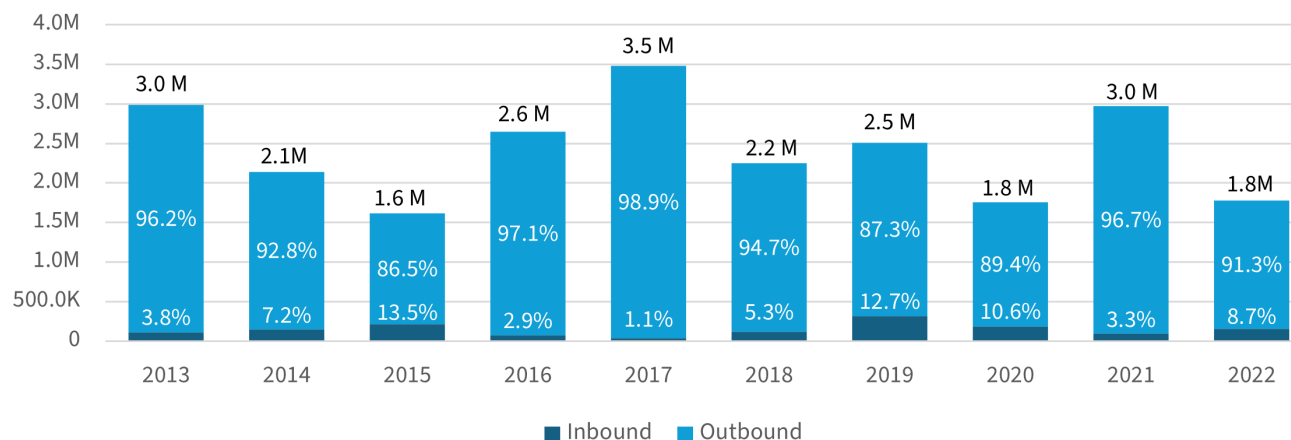
Having been operated by NS nearly since the port's inception, the NS mainline is the coal dock's primary intermodal connection. NS relies heavily on Sandusky for coal transport along the Great Lakes and into Ohio. NS trains primarily run between coal mines in Pennsylvania to the port almost daily during the shipping season for transport to Great Lakes steel mills and manufacturing plants.⁹ Though less relied on, the port also benefits from roadway access to US-250, ultimately connecting it to I-90.

Facility Use

Sandusky Harbor ships upwards of 1.5 million tons of coal annually. 100 percent of that coal is destined for outbound destinations, either along the Great Lakes and St. Lawrence Seaway or directly to Canada. Due to its reliance on a single outbound commodity and outbound tonnage making up the majority of overall volume handled by the Port, tonnage trends fluctuate often with little trend. 2021 tonnage was up significantly from 2020 levels but remains roughly the same as tonnage levels from 2012. However, in 2022, the tonnage was almost half that of 2021 (Figure 13).

While coal is the primary outbound commodity at Sandusky Harbor, the harbor handles a limited amount of inbound goods through Geo Gradel's docks, including sulfur, clay, processed grains, and oats or rice. Steady trends in coal movements at the Port can in great part be due to NS's 2016 move of its coal operations to Sandusky after closing its operations at Ashtabula.

Figure 13: Sandusky Ten-Year Tonnage Trend (Short Tons) (2013-2022)



Source: USACE WCSC Commerce Data, 2024.

Huron Harbor

Huron Harbor is located in the City of Huron, between the cities of Sandusky and Vermillion. In operation since 1905, all slips within the port are privately owned and operated, though port activities are monitored by the Huron Joint Port Authority. The Port Authority comprises a board of directors and officials of the Huron Township. The Port Authority also oversees development projects and considers potential funding opportunities for port expansion and maintenance. The main dock is then operated by the Carmeuse Huron Lime Company with slips also available for Corn Products Company and the Lake Erie Dock Company.

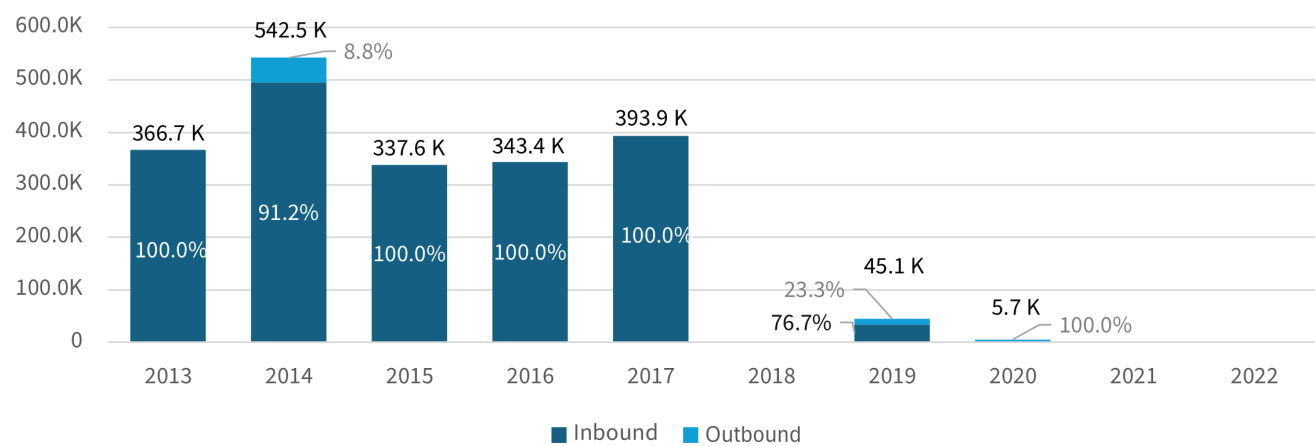
Multimodal Connections

The harbor is served by a Class I railroad and a US highway. Most essential to the port is its connection to NS Railway, providing rail access to all three slips. Besides the railroad connection, US 6 also runs on the south side of the facility.

Facility Use

Huron Harbor has been nearly inactive in cargo handling in recent years, handling 5,700 tons of cargo in 2020 (Figure 14). No commodity data was recorded for 2021 or 2022 though the falling trend in cargo flows began in 2018 when zero cargo was handled.

Figure 14: Huron Harbor Ten-Year Tonnage Trend (Short Tons) (2013-2022)



Source: USACE WCSC Commerce Data, 2024.

Lorain Harbor

Designated as a foreign trade zone in 1934, Lorain Harbor is owned and operated by the Lorain Port and Finance Authority. The port authority not only oversees port development but operates as the development arm of the City of Lorain through the creation of incentive and financing programs. From the Harbor's inception, maritime activity has been largely driven by production from the town's US Steel mill. The mill's closure in 2020 has since shifted the port away from typical commodities and operations. Two terminals are available for commercial vessels, both privately operated but overseen by the Port Authority.

Multimodal Connections

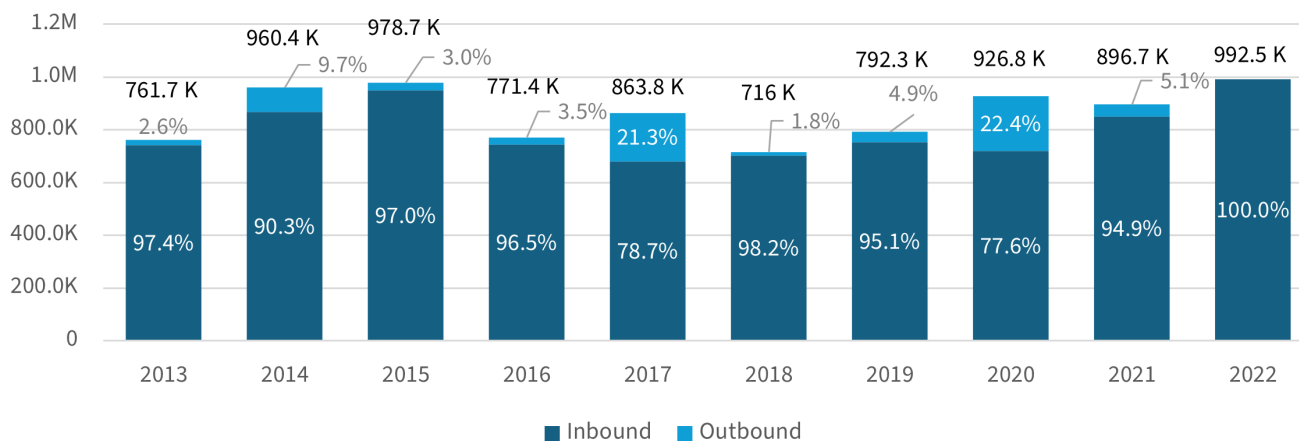
Lorain Harbor has access to both railroads and roadways. On the railroad side, the Lorain Harbor benefits from multimodal connections including service from the Class III Lake Terminal Railroad Company, ultimately connecting the port to NS and CSX lines. This short line operates 17 miles of track along the Black River and offers transload services for manufacturing plants and private facilities near the Port. In terms of roadway connection, the Port of Lorain is connected to US 6 and I-90.

Facility Use

Lorain Harbor's main focus in terms of commodities is bulk cargo related to the steel industry. Proximity to multiple steel and steel tubing manufacturers, the harbor handles coal, ore, limestone, and taconite pellets among other goods. The Terminal Ready Mix and Holcim docks carry grain, salt, and slag while the Amcor terminal primarily handles potash, salt, and limestone. The last dock, Carmeuse Lorain, mostly receives crushed stone from self-unloading vessels as well as occasional miscellaneous dry-bulk materials.

The harbor has consistently relied on inbound shipments rather than outbound, with inbound cargo representing the entire flows in 2022. Due to its dependence on a narrower sector of goods, the Port of Lorain fluctuates annually and follows little trend in terms of total flows. However, when compared to tonnage from ten years ago, the harbor has seen a moderate increase in flows, up by 230 thousand tons since 2013 (Figure 15).

Figure 15: Lorain Ten-Year Tonnage Trend (Short Tons) (2013-2022)



Source: USACE WCSC Commerce Data, 2024.

Port of Cleveland

The port is owned and operated by the Cleveland-Cuyahoga County Port Authority, established in 1968, and has several additional private facilities on Lake Erie as well as the Cuyahoga River, Old River, and Whiskey Island. Cleveland is the only port on the lake that currently manages container shipments while offering breakbulk, dry bulk, and over-sized services.

Multimodal Connections

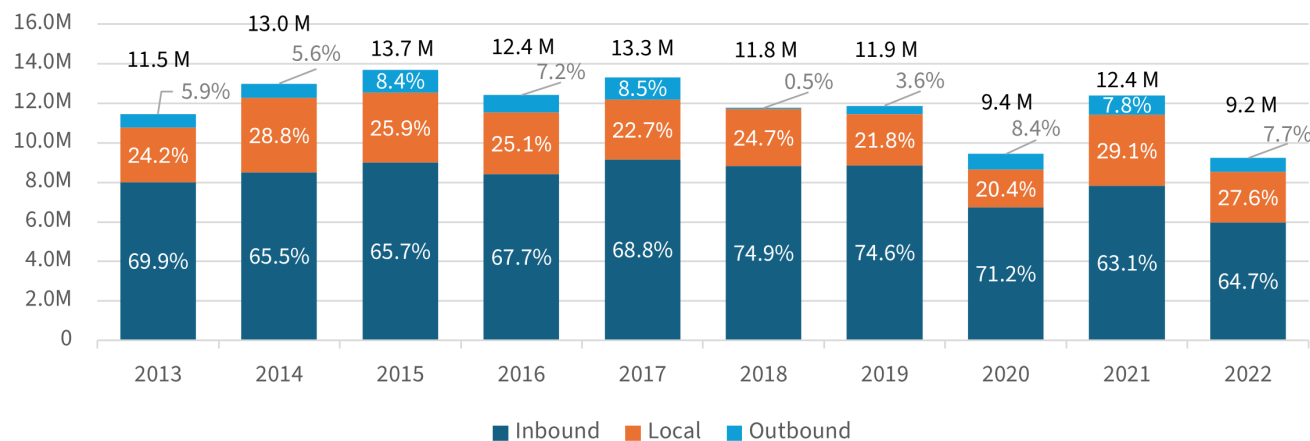
The Port of Cleveland is well-served by Class I railroads and Interstate highways. It avails itself of two Class I connections: CSX and NS. I-90, I-77, and I-490 also serve the port, though the bulk terminal has more limited access to these roadways.

Facility Use

Like other larger ports along Lake Erie, cargo trends of the Port of Cleveland, as shown in Figure 29, have fluctuated over the last decade. Still, 2021 experienced the largest single-year jump in total flows in ten years, recovering quickly from the pandemic-era fall in trade. However, the 2022 total tonnage level fell to 9.2 million tons, lower than the 2020 volume. The inbound flow has long accounted for the majority of freight going through the port, followed by local freight, and finally outbound.

Though the port handles containers, the top commodities at the Port of Cleveland are similar to other Lake Erie ports. Iron ore, sand, cement, and sulfur account for some of the top commodities handled by the port.

Figure 16: Port of Cleveland Ten-Year Tonnage Trend (Short Tons) (2013-2022)



Source: USACE WCSC Commerce Data, 2024.

Fairport Harbor

Established as a port in 1825, the harbor is overseen and owned by the Fairport Ohio Port Authority. The Port Authority leases facilities to private tenants and issues revenue bonds for port facilities and permanent improvements. Among the privately owned facilities are those for SRM Concrete, Morton International, Carmeuse Lime, Osborn Concrete and Stone, and two recreational marinas.

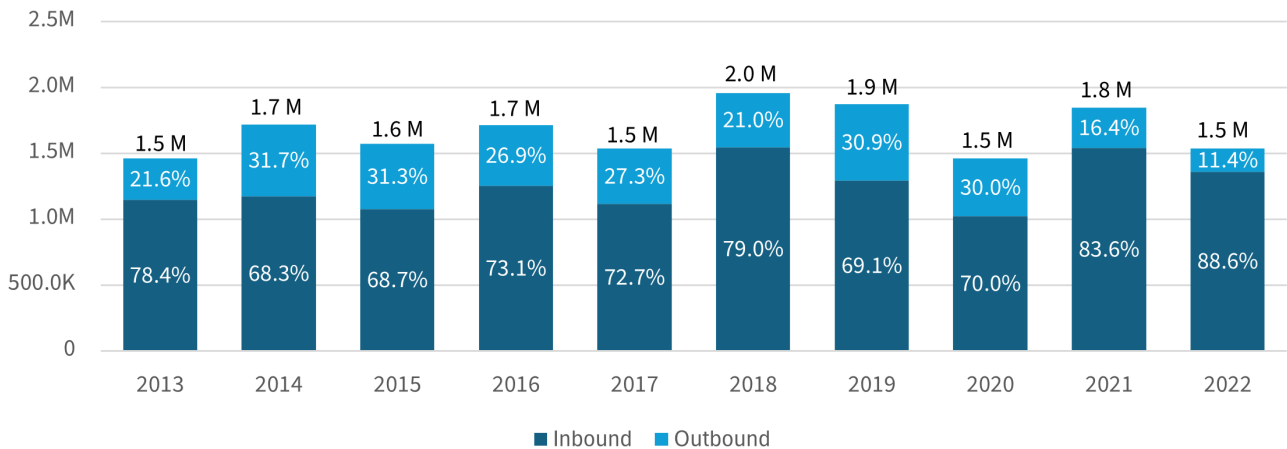
Multimodal Connections

Fairport Harbor is not immediately connected to major US or Interstate highways and therefore relies mainly on its connection to CSX and proximity to Cleveland for connection to major markets. SR 44 is the nearest highway to the port facility, with options further south to connect to SR 2 and travel west to Cleveland and Lorain.

Facility Use

As shown in Figure 17, Fairport Harbor has been reliant on inbound cargo rather than outbound. The various private limestone, salt, and iron businesses along the channel primarily receive and process freight for transfer to rail or truck. Though down from 2018 and 2019 cargo flows, tonnage has been relatively consistent for the port over the last decade. About 1.5 to two million tons of goods are handled across the port each year, mostly made up of stone, salt, gravel, and iron ore.

Figure 17: Fairport Harbor Ten-Year Tonnage Trend (Short Tons) (2013-2022)



Source: USACE WCSC Commerce Data, 2024.

Ashtabula Harbor

Ashtabula Harbor is overseen and operated by the Ashtabula City Port Authority, established in 1988, with individual docks and plots leased to private tenants. Among private facility owners are Kinder Morgan/Pinney Dock and Transport and Norfolk Southern.

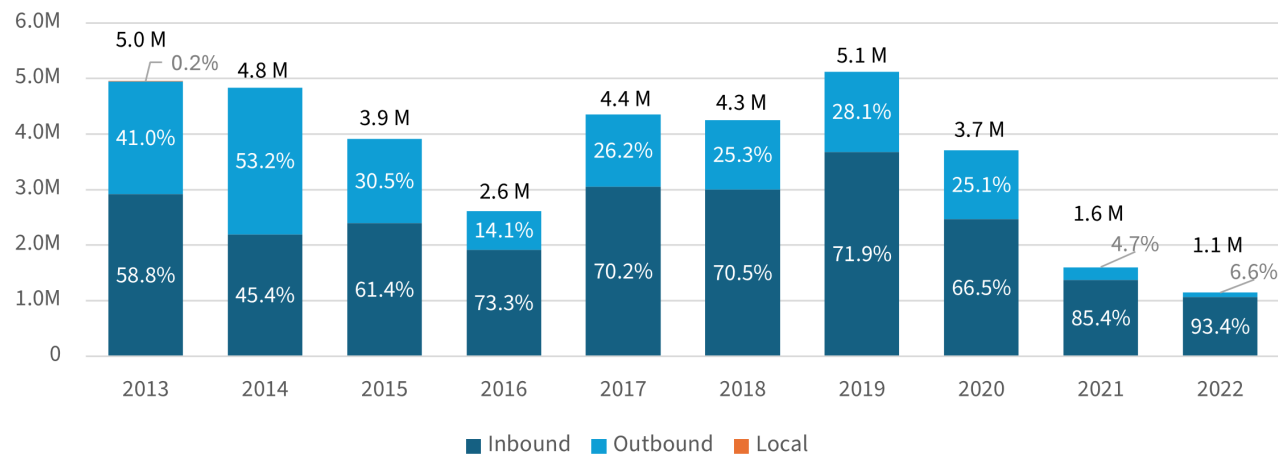
Multimodal Connections

Ashtabula Harbor is easily accessed by highway and rail with I-90 located 5 miles from the harbor. SR 11 and 531 also give the port easy access to north/south roadways. The harbor has access to two Class I railways: CSX and NS. NS specifically is connected directly to one of the harbor's docks handling coal, sand, and stone.

Facility Use

Once the third largest iron ore port in the world, Ashtabula Harbor continues to export high levels of iron ore while importing sand, gravel, sulfur, and fertilizers among other goods. In 2021 and 2022, however, the port saw a significant decline in total freight flows, falling 2.1 million and 0.5 million tons from the previous years, respectively. (Figure 18). The 2022 tonnage also hit a low for the past ten years when total annual tonnage typically averaged around 3.7 to 5.1 million tons, with the exception of 2016 and 2021. Additionally, the split between inbound and outbound goods has been somewhat even in previous years though 2021 recorded only 15 percent of total flows going outbound. The 2021 decrease can likely be attributed to the global decline in iron ore shipments due to COVID-19's effect on common suppliers in Brazil, China, and Australia.¹⁰

Figure 18: Ashtabula Ten-Year Tonnage Trend (Short Tons) (2013-2022)



Source: USACE WCSC Commerce Data, 2024.

¹⁰Iron Ore, Observatory of Economic Complexity, 2022. <https://oec.world/en/profile/hs/iron-ore>

Conneaut Harbor

Located 15 miles east of the Ashtabula Harbor, Conneaut Harbor is owned and operated by the Pittsburgh and Conneaut (P&C) Dock Company under CN Railroad. P&C is the sole owner of the largest pier at Conneaut, handling all goods entering the port.

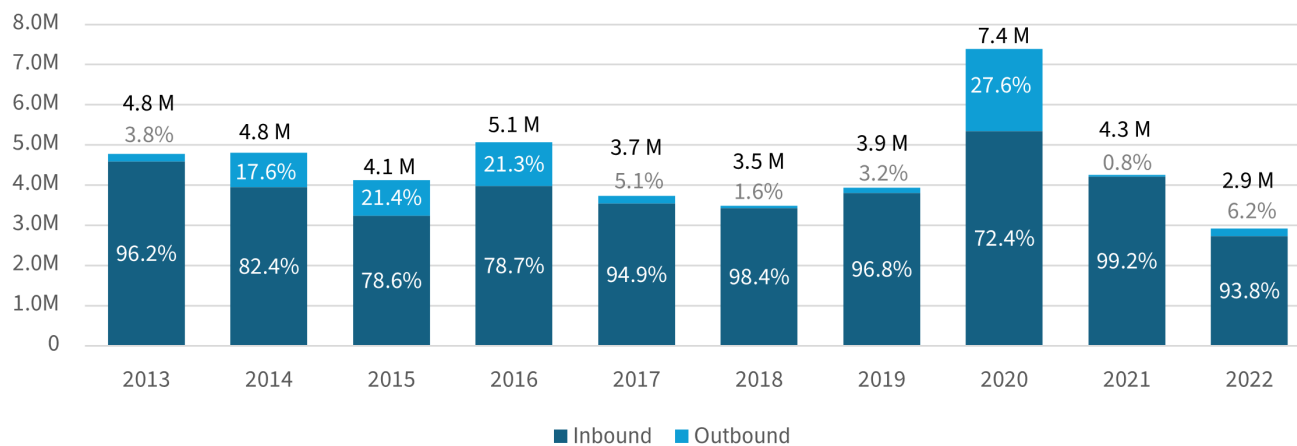
Multimodal Connections

Conneaut Harbor has historically had little roadway access though it benefits from service from the Class II Bessemer and Lake Erie railway. This rail line connects Conneaut with Western Pennsylvania and provides the port with a connection to the NS mainline. Road service will improve in coming years, however, with the construction of the road between the port and US 20.

Facility Use

Conneaut Harbor, like its neighboring ports, is heavily dependent on iron ore and steel waste, occasionally handling limestone, salt, and slag. As the three main private docks handle the overwhelming bulk of all cargo, the fourth dock, operated by the US Steel Corp, is rarely used for significant levels of cargo. As illustrated in Figure 19, the harbor handles almost entirely inbound freight, with the portion of inbound freight nearly reaching 94 percent in 2022. Apart from 2020, annual tonnage has remained between 2.9 and 5.1 million tons. Future infrastructure improvements and connections to truck and rail routes may increase the capacity and cargo activity in the port once completed.

Figure 19: Conneaut Harbor Ten-Year Tonnage Trend (Short Tons) (2013-2022)



Source: USACE WCSC Commerce Data, 2024.

The Ports of Cincinnati & Northern Kentucky PSA

The Port of Cincinnati and Northern Kentucky spans 226.5 miles along the Ohio River and Licking River in Kentucky. The PSA covers 15 counties across the two states, from mile marker 576 in Trimble County, Kentucky, to mile marker 356 in Scioto County, Ohio. The Port of Greater Cincinnati Development Authority is an independent unit of government with legislative authority to partner with the City of Cincinnati and Hamilton County officials, economic development organizations, municipalities, and foundations.

The Ohio portion of the Ports of Cincinnati and Northern Kentucky is now home to 44 active freight docks and two ferry docks. Hamilton and Brown County hold all 47 active freight docks, while Clermont, Adams, and Scioto County do not have any active freight docks in this PSA.

Multimodal Connections

Both the Kentucky and Ohio side docks are serviced mainly by CSX. In the areas along the Ohio River that have fewer frequency of docks, their main railroad connection is to the CSX railroad. There is a smaller railroad, the Central Railroad of Indiana (CIND) that connects to several docks in the Cincinnati area. In terms of roadway connections, the Ports of Cincinnati and Northern Kentucky are well-served by Interstates, including I-71, I-74, I-75, I-275, and I-471, and a few US Highways – US 27, US 25, and US 42/127.

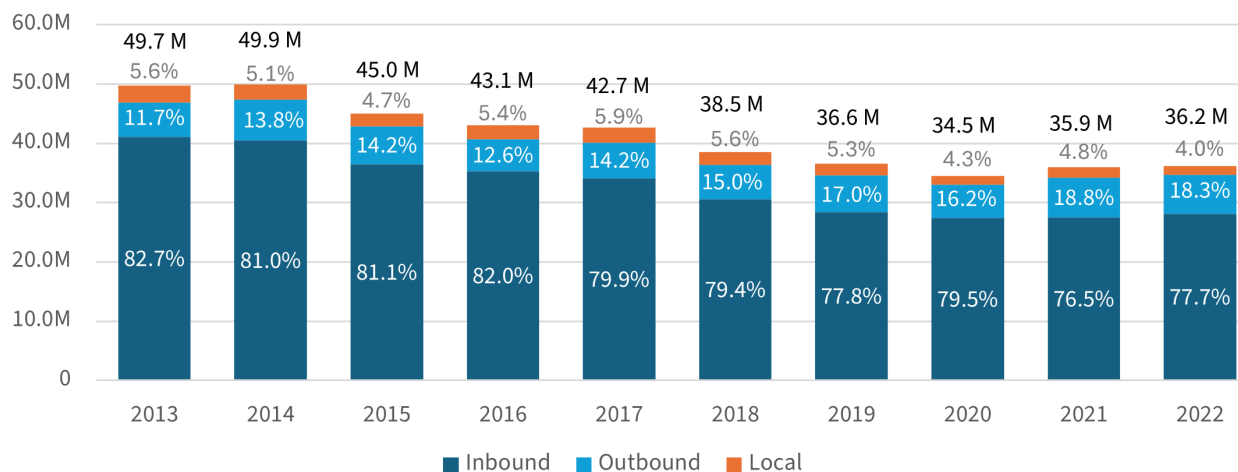
Facility Use

As shown in Figure 20, between 2013 to 2022, between 2013 to 2022, there have been notable shifts in the tonnage handled by the Ports of

Cincinnati and Northern Kentucky. After reaching its peak in 2014, the tonnage trend shows a downward trend due to a variety of factors including a decline in the use of coal at power plants and stricter environmental regulations on industrial activity near the river. The lowest point in 2020 may also likely be attributed to the repercussions of the COVID-19 pandemic.

Inbound shipments to the Ports of Cincinnati and Northern Kentucky consist predominantly of coal and lignite, comprising over 60% of the total tonnage. Sand, gravel, stone, rock, etc. were the largest outbound commodities by volume, making up over 40% of the total tonnage. Notably, the export of agricultural products, including corn, oilseeds, and animal feed products also contributed a substantial amount of the total outbound volume, amounting to over 34%.

Figure 20: Port of Cincinnati & Northern KY Ten-Year Tonnage Trend (Short Tons) (2013-2022)



Source: USACE WCSC Commerce Data, 2024.

¹¹ Ohio River towboat captain navigates a changing America, Reuters, December 2017. <https://widerimage.reuters.com/story/ohio-river-towboat-captain-navigates-a-changing-america>

Port of Huntington Tri-State PSA

The Port of Huntington Tri-State is overseen by the Huntington District Waterways Association. The members of the association are made up of corporations, firms, partnerships, and individuals who depend on the Ohio, Big Sandy, and Kanawha Rivers. The main responsibility of the association is to provide support for improvement projects along the inland waterways through advocacy and stakeholder involvement.

The PSA has 18 active freight docks within its jurisdiction in Ohio, eight in Scioto, six in Lawrence, and four in Gallia County.

Multimodal Connections

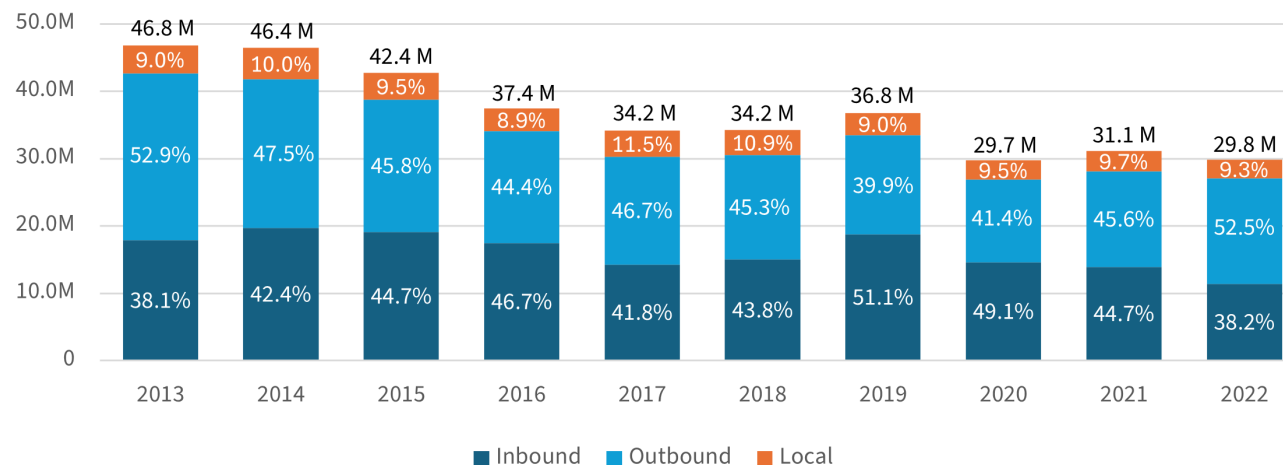
The Port of Huntington Tri-State is served by both Norfolk Southern Railway (NS) and CSX lines with the majority of the NS lines connecting with docks in Ohio. The roadway access in the area is mainly provided by US and State Routes, including US 52, OH-243, OH-7, OH-775, and OH-217.

Facility Use

Figure 21 shows the Port of Huntington Tri-State tonnage trends by inbound, outbound, and local trade. There has been a steady decline in tonnage since 2013, likely due to the decrease in coal production which is a major import and export for the port. The competition of other energy sources such as renewables also suppresses the demand for coal.¹²

The commodities handled by the port predominantly reflect the industries prevalent in the statistical district, where a significant portion of coal energy is generated within the region. Besides energy products, the PSA also received a significant amount of sand, gravel, stone, rock, limestone, soil, and dredged material, making up 21% of the inbound volume.

Figure 21: Huntington Tri-State Ten-Year Tonnage Trend (Short Tons) (2013-2022)



Source: USACE WCSC Commerce Data, 2024.

¹² U.S. Energy Information Administration, More U.S. coal-fired power plants are decommissioning as retirements continue, U.S. EIA, published July 2019, <https://www.eia.gov/todayinenergy/detail.php?id=40212#:~:text=Between%202010%20and%20the%20first%20quarter,102%20gigawatts%20%28GW%29%20of%20generating%20capacity.&text=Between%202010%20and%20the,%28GW%29%20of%20generating%20capacity.&text=and%20the%20first%20quarter,102%20gigawatts%20%28GW%29%20of>

Mid-Ohio River Valley Port District

The Mid-Ohio River Valley Port District is the newest PSA in Ohio. Its designation in 2021 allowed for data collection to be streamlined and ensure consistent quality in waterborne commerce information analyses. This designation closed the gap between the Ports of Huntington Tristate and the Pittsburgh port area, making the entire Ohio River abutting Ohio part of a PSA. One difference between this PSA compared to the other two major PSAs in Ohio is the inclusion of large land areas. The Mid-Ohio River Valley Port District includes 16 counties, seven of which are in Ohio (Meigs, Athens, Washington, Monroe, Belmont, Jefferson, and Columbiana) and about 220 miles of navigable waterways between mile markers 40 and 256.8.¹³

Within Ohio, there are 54 active freight docks, Athens is the only county that does not have a dock within its boundaries. The Mid-Ohio River Valley Port District also has five locks and dams on the river, including Belleville, Willow Island, Hannibal, Pike Island, and New Cumberland from west to east. The PSA largely supports the trade of materials such as coal, lignite, sand, gravel, and other energy products.

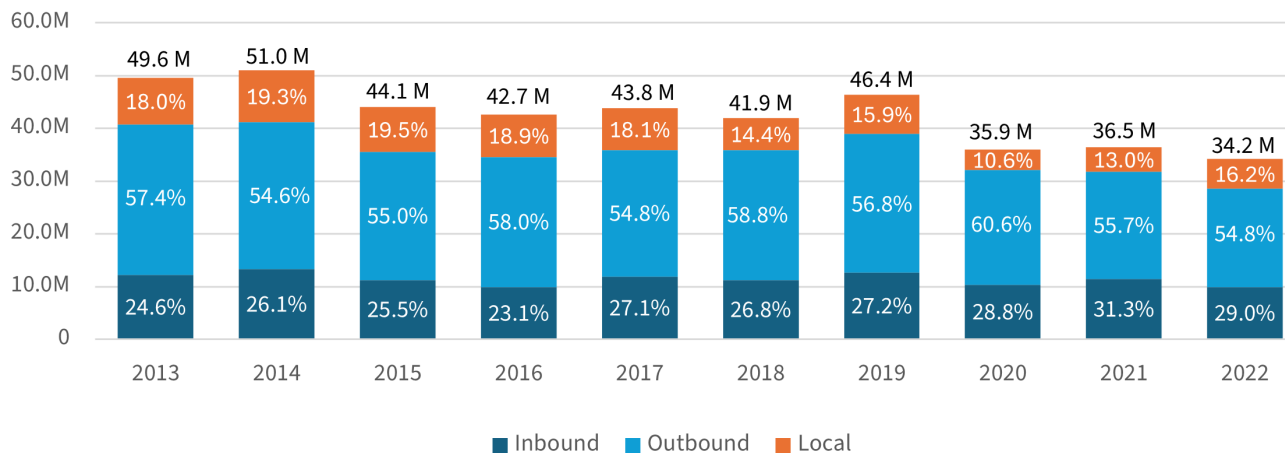
Multimodal Connections

The Mid-Ohio Valley Port District is served by both CSX and NS railroad lines. The majority of the CSX connections are in West Virginia, with a few connecting to NS. It is mainly on the Ohio side that is serviced by NS lines on their docks. Nearly all docks on the Ohio side of the Port District are also accessible from SR 7, which runs North and South along the River., SR 618 and 124 also serve several terminals along the River within the PSA and connect docks otherwise not directly on SR 7.

Facility Use

The volume of freight activities has generally decreased between 2013 and 2022, with a slight increase in 2019, as shown in Figure 22. Similar to the cargo activities handled by the Port of Huntington Tri-state, outbound and intra-state products are mostly made up of coal and lignite. There is a noticeable shift in inbound products, which are primarily comprised of raw materials such as sand, gravel, rock, and concrete.

Figure 22: Mid-Ohio Valley Ten-Year Tonnage Trend (Short Tons) (2013-2022)



Source: USACE WCSC Commerce Data, 2024.

¹³ CPCS Analysis of USACE Data



2. Economic Impact of Ohio's Maritime System

Ohio's maritime system plays a vital role in the state's economy, serving as a backbone for key supply chains in manufacturing, construction, agriculture, energy, and chemicals. It provides a cost-effective, energy-efficient way to move bulk goods, reduces highway congestion, and enhances supply chain reliability. Supporting over 130,000 jobs and generating \$40 billion in annual economic impact, the system is essential to Ohio's economic strength and competitiveness.

Ohio's Maritime Industries and Key Supply Chains

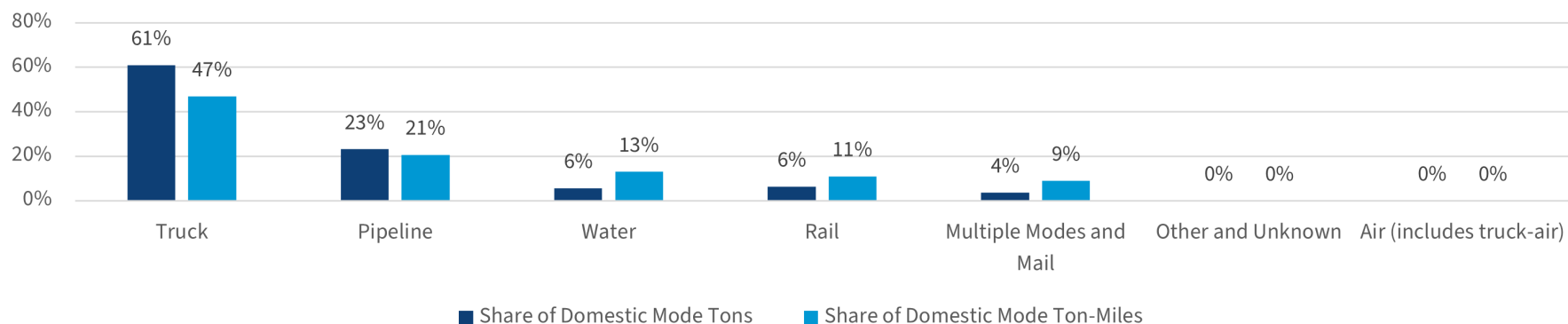
The Great Lakes ports facilitate the movement of raw materials such as iron ore, limestone, and taconite, which are essential for steel production and industrial manufacturing. The Ohio River serves as a key transportation route for bulk commodities, including coal, petroleum products, and chemicals, and agricultural exports like soybeans and corn. These waterborne supply chains integrate seamlessly with rail and trucking networks, enhancing efficiency and reducing transportation costs.

Freight transportation is an essential business service. Industries engaged in resource extraction and development require freight transportation to receive equipment and supplies and to ship products to markets and users. Industries engaged in manufacturing require freight transportation to receive raw resources, intermediate components, equipment and supplies, and to ship products to next-stage users, including other manufacturers, warehouse/distribution facilities, retailers, or other end-user locations. Industries engaged in logistics require freight transportation to receive a wide range of raw materials, intermediate components, and finished goods for storage, modal transfer, and/or value-added processing, and to ship those goods on to the next stage in their journey.

Collectively, the arrangements a business makes about how it receives and ships goods – from where to where, by what transportation mode or combination of modes, and with what stages of handling, processing, and storage – are referred to as its supply chain(s). The interconnected relationships between these different elements can be depicted in many ways and is usually specific to a particular industry or process.

Despite only accounting for 6 percent of Ohio freight tonnage in 2022, maritime is a competitive transport option for several commodities and industry types. Water's share of domestic ton-miles is more than double its total tonnage share (Figure 23), demonstrating the MTS's key role in transporting large volumes of goods long distances compared to other modal options.

Figure 23: Ohio Freight Tonnage and Ton-Mileage by Mode, 2022



Source: WSP Analysis of USACE Waterborne Commerce Statistics Ohio Data Tabulation

As evidenced by the diversity of its key commodities shown in Figure 25, maritime transport is capable of carrying both high and low volume goods in large volumes with fewer shipments compared to truck, pipeline, or rail. The MTS is also responsible for transporting significant tonnage inbound from domestic origins, though shipments exported domestically and traded internationally are found throughout the MTS (Figure 24). Details on commodity and supply chain tonnage shares and their directional flows can be found in **Working Paper 5: Key Supply Chains**.

Figure 24: Ohio Maritime Freight Flow by Direction and Tonnage (Millions), 2022

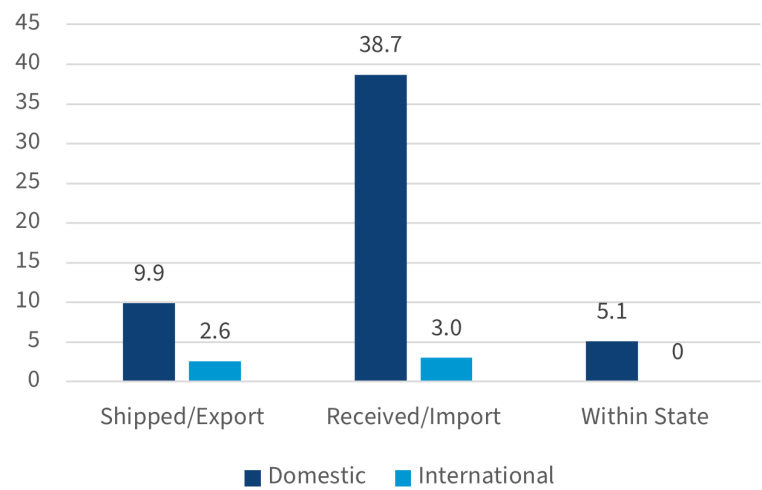
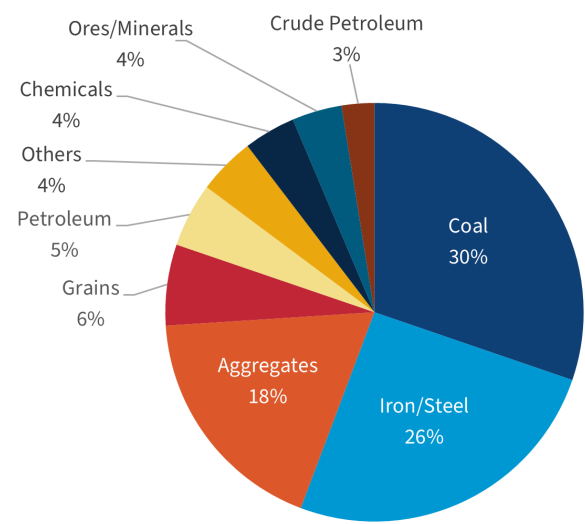


Figure 25: Ohio Maritime Key Commodities by Tonnage Share, 2022



Source: WSP Analysis of USACE Waterborne Commerce Statistics Ohio Data Tabulation

Key Commodities

A variety of raw goods and commodities that support Ohio's key industries are transported in large volumes along Lake Erie and the Ohio River. Individual waterways or ports may carry higher volumes of some commodities due to their proximity to private industry stakeholders, access to a certain vessel type, or ease of transport to a major market. Furthermore, their trends in tonnage and value may not be wholly indicative of industry trends as some might be high-volume and low-value goods like coal or vice versa for commodities like petroleum. There are several decision factors that come into play when considering what commodities to ship via the maritime system and whether additional or different modes are necessary, including shipping cost and duration of the trip. Commodities by port can be found in **Port & Port Statistical Area Profiles**.

Coal



18,679
Tons

30%
Share of MTS Tonnage

\$1.25B
Value

Coal, coal lignite, and coal coke are the most common forms of coal transported for energy production. Coal refers to the natural resource that is mined that can then be transformed into a finished product with varying concentrations of carbon. Just a little over a decade ago, the majority of Ohio's electricity came from coal, but today only 24 percent of the state's generation comes from coal. About half of Ohio's coal produced stays in the state while the other half is sent to neighboring states, such as Kentucky and West Virginia. Despite its declining role, coal still accounts for significant portions of annual MTS tonnage.

Iron/Steel



15,730
Tons

26%
Share of MTS Tonnage

\$2.7B
Value

Iron and steel refer to iron ore mined as an input, the finished product used for advanced manufacturing and construction as well as scrap that is

returned to the mill or other users. Iron ore makes up the largest share of this commodity flow and is typically received at lake terminals before being distributed to steel plants via barge or rail, with little being transported on the Ohio River. Plates, sheets, and aluminum are also mostly received at lake terminals, generally used within 50-100 miles of the dock location. Scrap, however, is river-dependent and can be recycled for new advanced manufacturing or steel products.

Aggregates



11,260
Tons

18%
Share of MTS Tonnage

\$103M
Value

As part of Ohio's construction materials supply chain, Ohio's MTS transports a variety of raw minerals like limestone, sand, gravel, clay, gypsum, and other nonmetallic minerals. In addition to their use in construction projects, crushed rock can also be used as an agricultural supplement, in water purification, and as a utility scrubber. Aggregates are primarily moved on the Ohio River and consumed locally due to their low value and cost of transport for high volumes. Though they flow in both directions and on both networks, Ohio is mostly a recipient of aggregates from other states or local producers.

Grains



3,860
Tons

6%
Share of MTS Tonnage

\$1.03B
Value

Though a small share of MTS tonnage, grain is one of Ohio's most important commodities by value. Cereal grain, feed, wheat, soy, and corn production and transport on the MTS are all crucial to Ohio's vast network of farmers. With grain growers and consumers distributed throughout the state, grain travels on both the lake and river though river ports handle the majority of grain tonnage. Aside from wheat, much of this grain is destined for export, particularly south to the Gulf for transloading to ocean-going vessels.

Key Trade Partners

Figure 26 through Figure 29 display the MTS's top trading partners by direction and part of the system used. For tonnage shipped to and from Ohio via the river, the leading trade partner states were Louisiana, Kentucky, Pennsylvania, and West Virginia. Domestic destinations for goods leaving Ohio via the lake are instead more regionally clustered. Destinations mainly include other Great Lake states like Michigan and Indiana as well as Canada and other international destinations.

Figure 26: Top MTS Trade Partners for Outbound Goods by Lake Erie

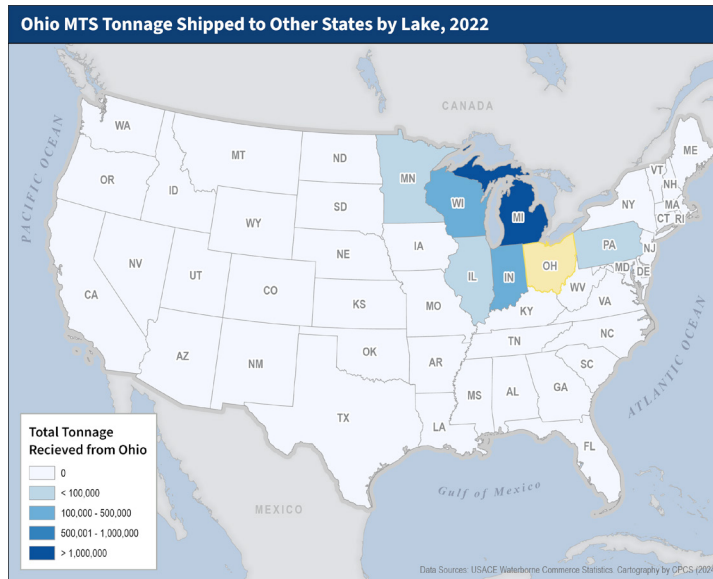


Figure 28: Top MTS Trade Partners for Inbound Goods by Lake Erie

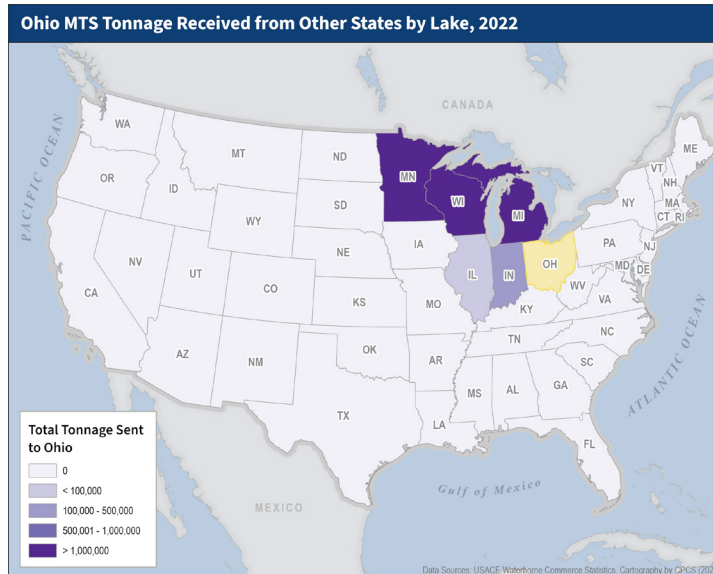


Figure 27: Top MTS Trade Partners for Outbound Goods by the Ohio River

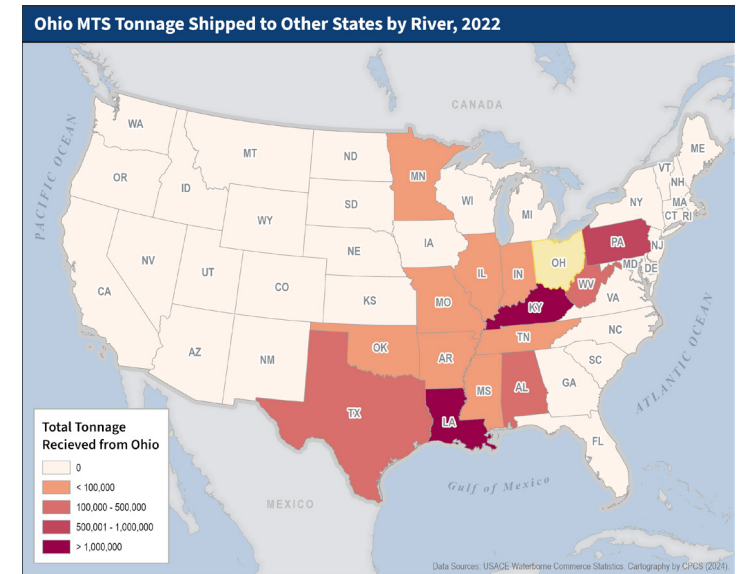
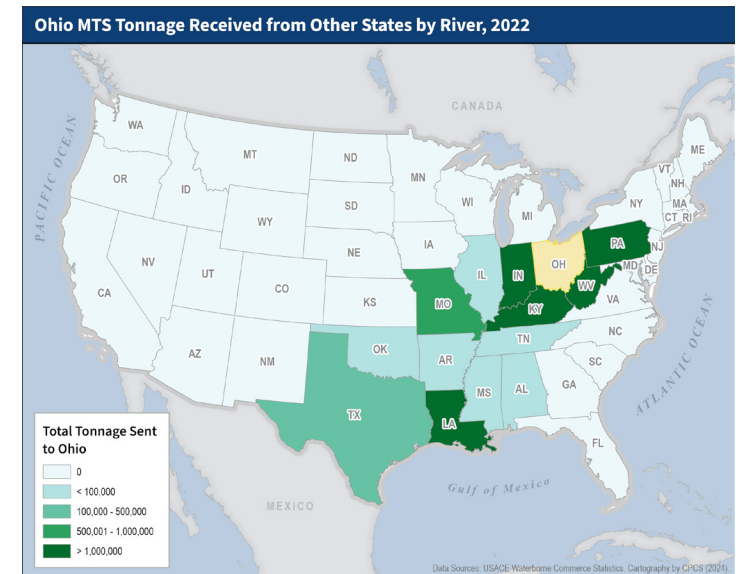


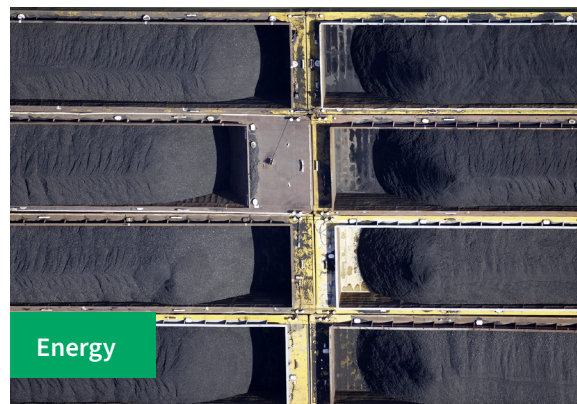
Figure 29: Top MTS Trade Partners for Inbound Goods by the Ohio River



Key Industries & Supply Chains

A business's supply chains are the arrangements it makes about how it receives and ships goods. For Ohio businesses utilizing the maritime transportation system, the supply chain will include elements such as waterways, marine terminals and ports, multimodal network connections, and processing and staging facilities. The maritime industry fills a niche supply chain between pipeline and bulk rail for the movement of goods such as gravel, gasoline, cereal grains, fuel oils, and other commodities requiring large unit shipments. These types of industries are central to Ohio's economy. Ohio's most important MTS-related supply chains can be evaluated in terms of the core industry groups established in the state's freight transportation plan, Transport Ohio.

Key Industry Groups for MTS Analysis



Images Source: iStock



#3

Largest manufacturing workforce in the U.S.



#2

Nationally in rubber product manufacturing GDP



\$15.7 Billion

Invested annually in science and engineering R&D statewide

Source: Jobs Ohio

Manufacturing

Ohio's manufacturing industry relies a great deal on raw goods transported by the MTS, including large loads of ores, concentrates, and base metals like steel and tin. Companies like Intel, Honda, Eaton, and First Solar all play a part in Ohio's robust manufacturing industry and are crucial to the industry's future growth in the state.

Today, Ohio is making key investments that position it to be a national leader in manufacturing and advanced manufacturing sectors like semiconductor, EV battery, and solar panel production. The Intel facility that is currently under construction in Central Ohio is poised to become one of the largest semiconductor manufacturing sites in the world over the next decade. Spanning nearly 1,000 acres in New Albany, just outside of Columbus, the "mega-site" can accommodate a total of eight chip factories as well as supporting operations and ecosystem partners. Construction of such a facility relies in great part on high-capacity and efficient movement of materials via the MTS. Intel has relied on more than 35 barge super loads to provide the necessary materials for this plant, each carrying a variety of aggregates, metals, and finished construction materials to docks in Manchester in Adams County.¹⁴

Historically, both input goods and finished products in the manufacturing industry rely on the lake and river to reach end users. Iron ore is primarily shipped by Lake Erie and distributed to steel plants by barge or rail. Many base metals and manufacturing products, by contrast, are largely shipped by the Ohio River, received by or

Figure 30: Planned Intel Chip Manufacturing Facility



Source: WSYX Columbus, Groundbreaking event for Licking County Intel plant postponed as CHIPS Act remains stalled, 2022.

Ohio has the 3rd largest manufacturing workforce in the US, the 4th largest manufacturing GDP of any state, and will continue to invest over \$15B annually in science and engineering R&D statewide.¹⁵

distributed to trucks and rail landside at riverside ports and terminals. Iron and steel scrap are also river reliant, using barges to reach mills on the river system in addition to rail or truck. Manufacturing shipments across the state have moderately declined since 2018 though forecasts for the industry project a gradual recovery in volumes by 2050.

Cleveland Cliffs

Cleveland-Cliffs, the Ohio steel producer, set out in 2020 to substantially reduce their emissions associated with steel production and construct a brand-new plant strategically located near mining facilities on the Great Lakes and along Ohio's MTS. The new Direct Reduction Plant began hot-briquetted iron (HBI) production in Toledo in 2020. It is the first producer of HBI in the Great Lakes region and relies on both lake and river transport to support operations. Pig iron and steel scrap are transported via the Ohio River to terminals in Cincinnati for transloading onto truck or rail. This pig iron is then delivered to the HBI plant in Toledo as an input for the clean steel finished product that is delivered to the end user via Lake Erie barges.

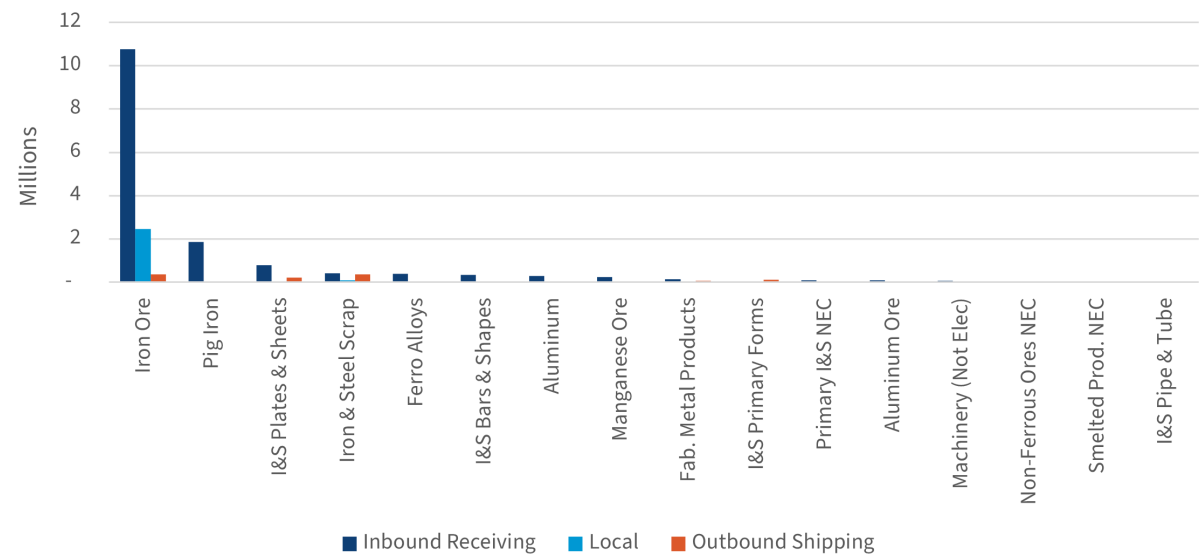


Cleveland Cliffs Direct Reduction Plant

Source: Cleveland Cliffs

Leading trade partners vary based on each commodity's manufacturing centers and reliance on the lake or river. For example, iron ore is inbound from other states, primarily from Minnesota and Wisconsin, as well as from international trade partners. Outbound manufacturing goods, however, are often shipped to Indiana, Texas, and Arkansas.

Figure 31: Maritime Tonnage by Commodity and Direction (Ohio & Multistate): Manufacturing



Source: WSP analysis of USACE Waterborne Commerce of the US Manuscript Data

NOTE: includes Ohio and non-Ohio tonnage for multi-state ports



#1

In polymer and plastics output



#2

Nationally in plastics product manufacturing GDP



#1

Consumer of polyolefin in the Midwest

Source: Jobs Ohio

Chemicals, Pharma & Plastics

The chemical, pharmaceutical, and plastics industry refers to a broad sector that encompasses the production, development, and processing of various chemicals, pharmaceuticals, and plastic materials. The chemical industry supports nearly every sector of the economy including food, agriculture, healthcare, and transportation. Both Lake Erie and the Ohio River move commodities crucial to these industries including basic chemicals, fertilizers, plastics, and rubber. Fertilizers make up the majority of this movement, facilitated by major companies like Nutrien and Dupont. PTT Global Chemical, Matsui, Sherwin Williams, and Pharmavite among others are also significant to Ohio's diverse chemicals, pharmaceuticals, and plastics industry.

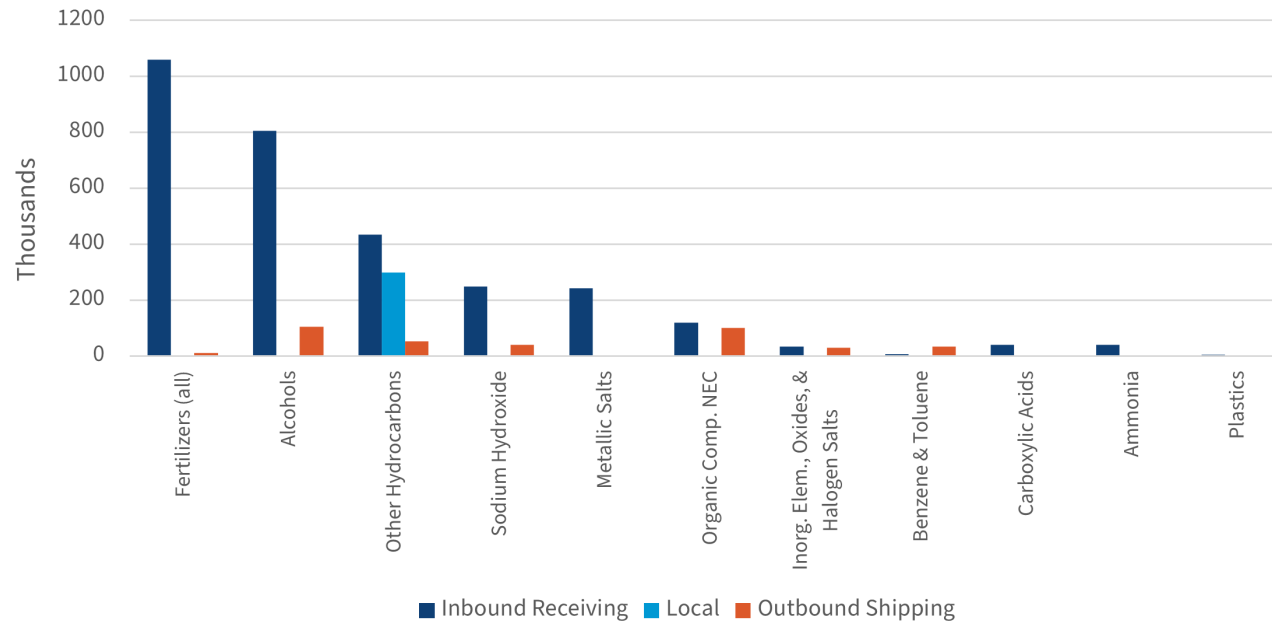
Each of these companies and the supporting supply chain make Ohio the 3rd largest chemical manufacturing state in the US, and every year the industry makes nearly \$850M in capital investment in the state.¹⁶

Ohio is also 1st in polymer and plastics output in the US and is the top consumer of polyolefin (moldable plastics) in the Midwest.⁷ As one of the fastest growing key industries in Ohio, chemical volumes are forecasted to more than double by 2050 though are susceptible especially to changes

in the agricultural industry related to fertilizer demand.

Many of the commodities that make up this industry primarily move inbound to Ohio, using the lake, river, and landside connections to reach their destination in the state. Lakeside, chemicals are moved in containers towards destinations in Northeast Ohio and potassic fertilizer and salts are shipped in bulk to and from major trading partners. The river, however, supports the majority of chemicals shipments both inbound and outbound, with fertilizers, polymers, resins, and polystyrene all relying to some degree on Ohio River transport in addition to trucks or pipelines for distribution. Only one major trading partner was identified with limited data; Louisiana is the leading origin for chemical shipments to Ohio with no destination states identified.

Figure 32: Maritime Tonnage by Commodity and Direction (Ohio & Multistate): Chemicals



Source: WSP analysis of USACE Waterborne Commerce of the US Manuscript Data.
NOTE: includes Ohio and non-Ohio tonnage for multi-state ports

Shipping Chemicals to the Gulf Coast

The Ohio River and maritime transportation in general is a popular transportation option for chemical companies particularly due to its ability to safely transport hazardous materials with low risk of environmental contamination or spills. The Ohio MTS is used by various transportation companies to move chemicals via barge service to customers across the US. One such company, Campbell Transportation Company, is headquartered in Pittsburgh, Pennsylvania and provides marine transportation services along the Gulf Coast, Mississippi River, Ohio River and its tributaries. This service frequently calls for the movement of refined and petrochemical products in both liquid and bulk form and highlights the critical connection that the Ohio River provides to key markets in Gulf states.



Campbell Transportation Company Moving Goods via Barge

Source: Campbell Transportation Company, Inc.



41,000

Workers employed in direct, indirect, or induced jobs via the construction industry



#5

In nation for production of crushed stones



Top Four

In nation for lime production

Source: Jobs Ohio and the Ohio Department of Natural Resources

Construction Materials

Ohio's construction industry is a vital component of the state's economy, encompassing a wide range of activities from residential and commercial building to infrastructure development. The construction industry uses a variety of raw material inputs including limestone, sand, gravel, clay, gypsum, and other nonmetallic minerals that are quarried throughout Ohio. Key players driving this industry's growth include Hilltop Resources, Holcim Cement, Shelly Materials, Martin Marietta, and Price Inland Terminal.

river and lake, primarily to Pennsylvania. Like many of Ohio's key industries, construction material shipments saw a gradual decline between 2018 and 2022. However, projections for the industry show that construction commodities could nearly double in volume by 2050, major sourcing or technology changes withstanding.

Industrial minerals, like those used in construction, were reported as produced or sold at 328 operations in 82 Ohio counties in 2023, with a combined value of over \$1.6B.

Ohio has also long been a top five producer nationally of industrial materials like crushed rock and limestone.¹⁸

In terms of commodity flow, inbound materials make up the majority of construction material volumes. They are received at MTS terminals via both river and lake and move outbound to end users primarily via truck to nearby states like Michigan and Indiana. In the reverse direction, construction materials move to MTS terminals primarily via truck and move outbound via both

Using the MTS for Construction Material Transport

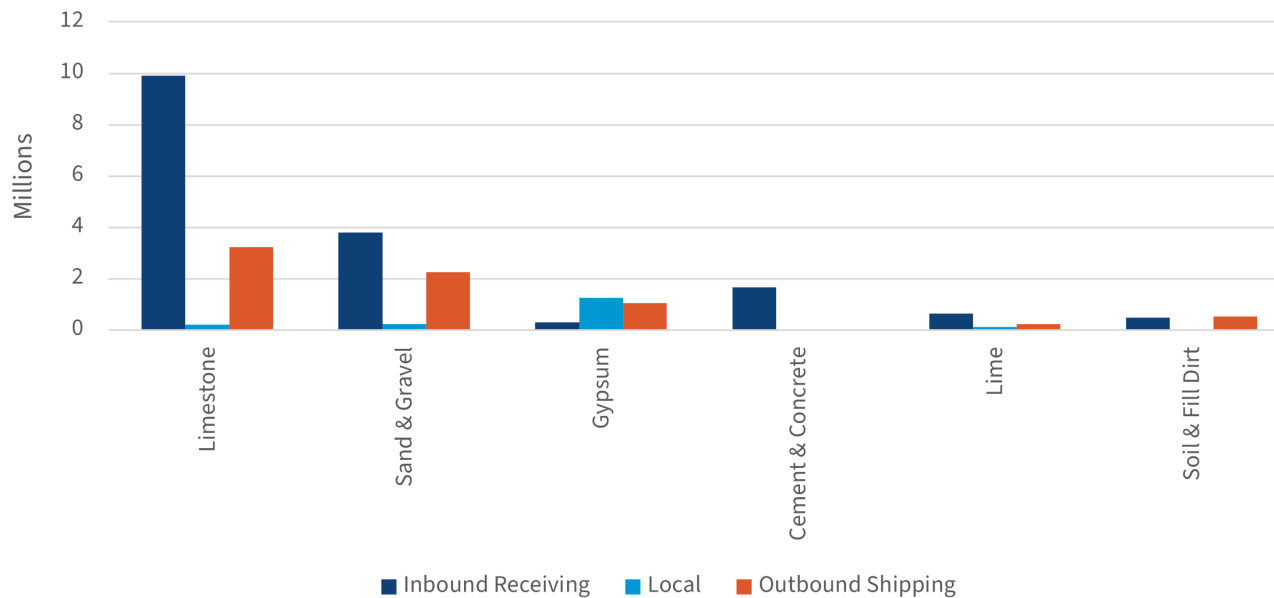
On the Ohio MTS, companies such as Carmeuse produce construction-related materials and utilize their proximity to both the lake and river to move goods to their customers or other markets. Carmeuse operates facilities at and near Lorain Harbor, the Port of Cleveland, and Ashtabula Harbor, among other locations. At their Lorain Dock and Cleveland Dock plants, Carmeuse produces construction aggregates, which are essential components of construction materials such as concrete and asphalt. Carmeuse has dock workforces which can provide port activities including stevedoring, shipboard welding, rigging, lashing, lagging, equipment upgrades/rework and cargo management.



Carmeuse Dock in Lorain

Source: Carmeuse, Dock Services

Figure 33: Maritime Tonnage by Commodity and Direction (Ohio & Multistate): Construction Materials



Source: WSP analysis of USACE Waterborne Commerce of the US Manuscript Data.
NOTE: includes Ohio and non-Ohio tonnage for multi-state ports



3,184

Permitted wells in
Ohio's Utica Shale



45%

Of the nation's natural
gas will be supplied by
the Marcellus and Utica
shale formations by 2040



#1

In the nation for shale
gas industry growth

Source: Jobs Ohio

Energy

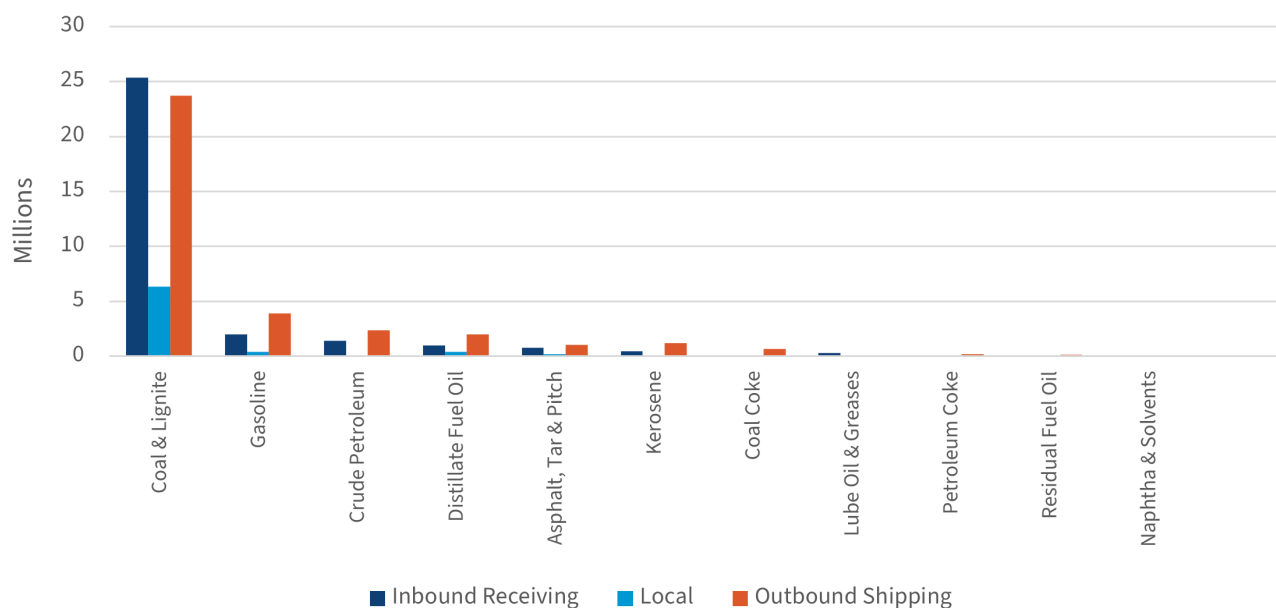
Ohio's energy sector is diverse and dynamic, encompassing traditional fossil fuels, nuclear power, and a growing emphasis on renewable energy sources. Ohio is a significant producer of natural gas, particularly from the Utica Shale formation. Historically, coal has been a major energy source in Ohio. However, its role has diminished over the years, with energy generation in Ohio instead dominated by natural gas-fired plants. These plants are generating 59.4 percent of the state's total electricity as of July 2024. Major businesses supplying, refining, and distributing these resources have established operations in Ohio including Gulfport Energy, EOG Resources, Shell, Dominion Energy, and Iberdrola Renewables.

In 2023, Ohio was the nation's eighth largest electricity producer, with natural gas fueling the majority of that generation since 2019.¹⁹

Crude petroleum and fuel both travel predominantly by river, received at marine terminals for transloading or further refinement before reaching their final destination by truck or pipeline. Coal, however, uses both lake and river transport, either consumed at marine terminals along the river or transloaded from rail onto lake barges destined for other Great Lakes states and Canada. Ohio's energy sectors are undergoing

one of the most significant changes compared to other Ohio industries. Originally dominating the state's energy sector, coal now contributes to 23 percent of the state's electricity generation. Still accounting for roughly a third of MTS tonnage, energy sector trends suggest its volumes will continue to decline in favor of growth in the shale industry and petroleum products.

Figure 34: Maritime Tonnage by Commodity and Direction (Ohio & Multistate): Energy



Source: WSP analysis of USACE Waterborne Commerce of the US Manuscript Data.
NOTE: includes Ohio and non-Ohio tonnage for multi-state ports

Petroleum Shipping by Barge

The Ohio MTS is utilized by the energy industry to transport their goods between locations and to market. Marathon Petroleum Co. uses barge transportation in Columbiana County as part of their larger fleet of boats and barges that transport light products, heavy oils, crude oil, renewable fuels, and chemicals to and from inland refineries and terminals throughout the Midwest. These barges play a key role in maximizing Marathon's operating efficiency.



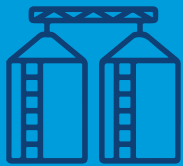
Marathon Petroleum Co. Barge

Source: Marathon Petroleum Co.



#1

In nation for swiss
cheese and sour cream
production



1,500+

Food manufacturers



13.1M

Acres of farmland



#5

Soybean production in
the nation

Source: Jobs Ohio

Food & Agriculture

Ohio's food and agriculture industry is a cornerstone of the state's economy, contributing significantly to employment, economic output, and the production of a diverse array of commodities. Ohio has over 75,000 farms covering over 13.1M acres, producing over 200 commodities. The state's leading agricultural products include soybeans, corn, chicken eggs and dairy products. Ohio is home to several key agricultural goods and food producers including Cargill, Kraft, General Mills, and Continental Grain and Barge among others.

The industry contributes \$124 billion annually to Ohio's economy, making it the largest sector in the state and roughly double the size of other Midwest agricultural industries in Illinois, Indiana, or Michigan.

It accounts for 14% of Ohio's employment, with one in seven workers engaged in agriculture-related jobs.

Much of the state's grain is sourced from West/Northwest Ohio and Northeast Indiana, then transported to Great Lakes ports like Toledo for outbound shipment. On the river, this grain arrives at a terminal by truck and is then loaded onto a barge for shipment westward or to Louisiana

for international export. Inbound, Ohio receives milled products and vegetable oils from both international origins and other states, though much of Ohio's non-export grain movement originates and terminates within the state. The food and agriculture industry has seen consistent growth since 2018 and is projected to grow rapidly over the next 20 years. However, the supply chain is volatile due to impacts that trade policy, climate change, and fertilizer technology can have on production year-to-year.

Animal Feed Transport on the River

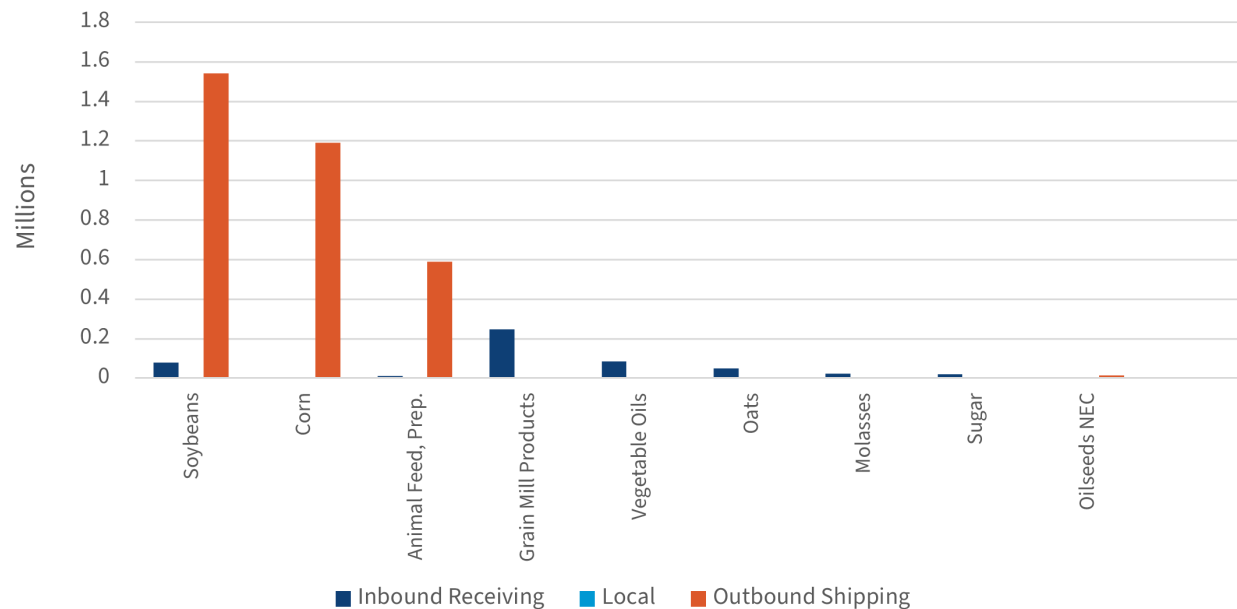
The Ohio MTS plays a crucial role in connecting Ohio-based businesses with the raw materials needed to produce their products. Quality Liquid Feeds (QLF) has a location on the Ohio River which utilizes barges to receive shipments of molasses a key ingredient in their agricultural feed products. As the molasses is sourced from Louisiana, the ability for QLF to receive large quantities via the Ohio MTS is both more economical and more efficient.



Receiving Pipeline at QLF Facility

Source: CPCS

Figure 35: Maritime Tonnage by Commodity and Direction (Ohio & Multistate): Food & Agriculture

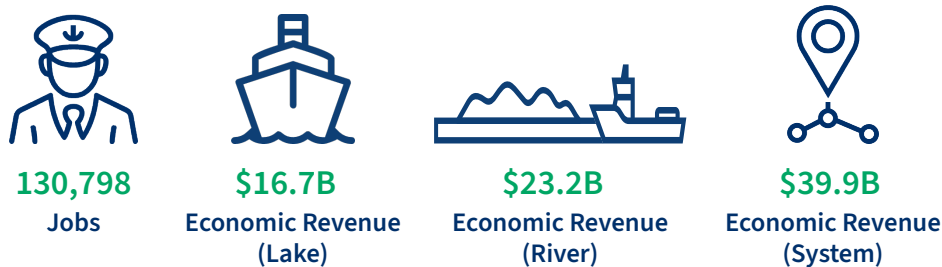


Source: WSP analysis of USACE Waterborne Commerce of the US Manuscript Data.
NOTE: includes Ohio and non-Ohio tonnage for multi-state ports

Economic Impact

Ohio's economy benefits significantly from waterborne cargo activity at the state's ports and terminals. The maritime system generates revenue for local and national firms providing vessel and cargo handling services, which in turn create jobs, support household income, contribute to state and local tax revenues, and stimulate related business activity across multiple industries. In 2023, economic impacts generated by the Ohio MTS totaled \$40 billion. A full analysis of the MTS' economic impact on Ohio can be found in **Working Paper 4: Ohio Maritime System Economic Value**.

Benefits of Ohio's Maritime Transportation System



In 2023, Ohio's MTS provided \$1.1 billion in wages to over 17,000 direct jobholders.

Cargo activity at Ohio's maritime facilities supported nearly 131,000 jobs in 2023. Of these, 17,439 were direct, cargo-dependent positions that earned \$1.1 billion in wages (about \$60,500 per worker). Household spending of those wages generated roughly \$2.5 billion in additional income in Ohio and supported more than 16,000 induced jobs.

A total of \$486.8 million in state and local tax revenue was generated in 2023 from direct, induced, and indirect cargo activity on the Ohio MTS. An additional \$483.5 million in taxes related to maritime and cargo activity further contributed to the total, bringing state and local tax revenues to \$970.3 million. Figure 36 provides a summary of the economic impacts of cargo activity on Ohio's maritime transportation system.

Economic Impact of the Port of Cleveland

As one of the largest ports on the Great Lakes, the Port of Cleveland supports over 23,000 jobs and over \$7 billion in annual economic activity. Of the 23,758 jobs supported by the Port of Cleveland, 4,442 are direct, meaning they are positions that would not exist if cargo activity at the Port of Cleveland were to cease. Direct jobs are those that provide cargo handling and vessel services, including trucking companies, terminal operators and stevedores, port tenants, members of labor unions, vessel agents, pilots, barge repair, barge towing and tug assist companies.

Additional details about the economic impact of the Port of Cleveland, and other Ohio MTS ports, can be found in **Port & Port Statistical Area Profiles**.



Port of Cleveland Bulk Terminal

Source: Port of Cleveland

Figure 36: Impacts of Waterborne Shipping Activity on Ohio Maritime System CY2023*

IMPACT CATEGORY	Ohio River	Lake Erie	Total OMS
JOBS			
Direct	7,827	9,612	17,439
Induced	6,750	9,624	16,374
Indirect	8,893	12,240	21,133
Related	<u>50,887</u>	<u>24,966</u>	<u>75,852</u>
TOTAL JOBS	74,357	56,441	130,798
PERSONAL INCOME (\$1,000)			
Direct	\$437,585	\$617,972	\$1,055,557
Re-Spending/Local Purchases	\$1,034,013	\$1,460,268	\$2,494,280
Indirect	\$575,660	\$742,278	\$1,317,937
Related	<u>\$3,525,362</u>	<u>\$1,309,402</u>	<u>\$4,834,764</u>
TOTAL INCOME	\$5,572,619	\$4,129,919	\$9,702,538
VALUE OF ECONOMIC REVENUE (\$1,000)			
Business Services Revenue	\$2,969,749	\$2,627,277	\$5,597,025
Related Output	\$19,227,988	\$12,676,917	\$31,904,905
TOTAL VALUE OF ECONOMIC REVENUE	\$22,197,737	\$15,304,194	\$37,501,930
LOCAL PURCHASES (\$1,000)	\$1,030,180	\$1,348,282	\$2,378,462
STATE AND LOCAL TAXES (\$1,000)			
Direct, Induced, and Indirect	\$204,726	\$282,052	\$486,777
Related	\$352,536	\$130,940	\$483,476
TOTAL STATE AND LOCAL TAXES	\$557,262	\$412,992	\$970,254
TOTAL ECONOMIC ACTIVITY	\$23,231,749	\$16,764,461	\$39,996,211

*Totals may not add due to rounding



3. System Performance

A clear understanding of system performance is fundamental to informed maritime planning and investment. It allows decision-makers to pinpoint strengths, identify gaps, and prioritize improvements that enhance efficiency, reliability, and economic impact. Given the range of stakeholders and data sources involved, coordinated efforts are essential to develop a shared, system-wide view of performance.

Unlike highway, rail, or transit systems, ODOT does not currently have formal performance measurement requirements for the maritime transportation system. As a result, evaluating the performance of Ohio's ports and waterways presents unique challenges, particularly given the limited consistency and availability of maritime-specific data.

To address this gap, this system performance analysis drew upon the best available data from federal sources, national research, and other maritime performance frameworks. Where possible, it applies relevant metrics aligned with ODOT's statewide transportation goals to provide a meaningful picture of how the maritime system is functioning today

This performance snapshot serves as a foundation for identifying system strengths, constraints, and future investment needs while helping to integrate maritime considerations into broader multimodal planning and policy development in Ohio. More detailed information can be found in **Working Paper 3: System Performance Analysis**.

System Performance

Safety

Safety is paramount in maritime operations, which ensures the protection of marine workers, the environment, and property. Tracking safety records, such as accidents, incidents, near misses, and compliance with regulations, provides insights into the effectiveness of safety protocols and training programs. Maritime is a generally safer mode of transportation for freight compared to other modes such as truck, rail, or air.

Incidents and Fatalities

U.S. Coast Guard data, as shown in Figure 37, indicate a steady decline in maritime incidents and fatalities in Ohio over time. Although 2020 saw a temporary increase in accidents and deaths, this was entirely attributed to recreational vessels. Commercial vessels, by contrast, have maintained a strong safety record, with zero fatalities reported over the past five years. According to the Waterways Council, for every one barge-related injury, there are 96 injuries related to rail and 1,145 injuries in the trucking industry.²⁰ For every barge-related fatality, there are 26 rail-related and 120 truck-related fatalities.²¹ The data underscore the continued need to improve safety practices among recreational boaters, given the variability in their incident rates.

Access Ohio 2045 Goal Areas



Safety



Preservation



Efficiency & Reliability



Mobility & Accessibility



Economic Competitiveness



Quality of Life



Environmental Stewardship

²⁰ Waterways Council, Inc.; ²¹ Ibid.

Vessel Spills

The USCG National Response Center (NRC) publishes an annual report detailing recreational and commercial vessel spills. In Ohio in 2023, a total of 52 vessel spills were reported by callers. Of the confirmed eight commercial vessel spills, the causes were attributed to equipment failure, dumping, or operator error, or were listed as unknown. The 52 vessel spills are displayed in Figure 38 with most incidents occurring in Cuyahoga, Ottawa, and Hamilton Counties.

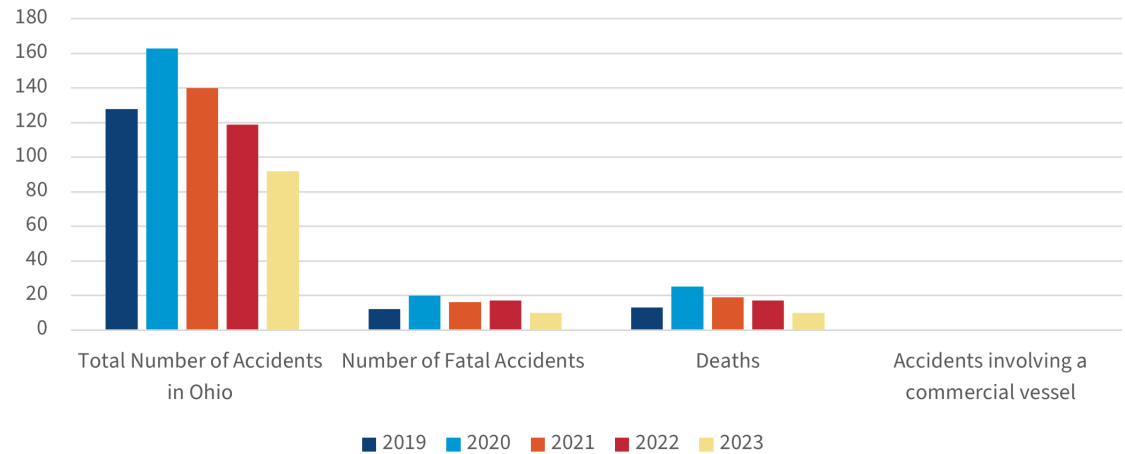
Preservation

The American Society of Civil Engineers (ASCE) released its 2021 Report Card for Ohio's Infrastructure,²² highlighting the aging condition of the state's waterway infrastructure. Many critical components, including ports, bridges, dams, levees, and drinking water systems, are nearing or have surpassed their original design life. Approximately 80 percent of Great Lakes infrastructure is at or beyond its 50-year life expectancy, significantly limiting the capacity and reliability of Ohio's lake and river systems.

Rehabilitation needs are substantial. For example, repairing Ohio's deficient dams is estimated to cost \$300 million. The state's aging levees (some also approaching 50 years old) require urgent risk assessments, as they protect more than 151,000 residents and \$27.5 billion in property. Meanwhile, the inland waterway system faces a projected \$120 million maintenance shortfall over the next 15 years.

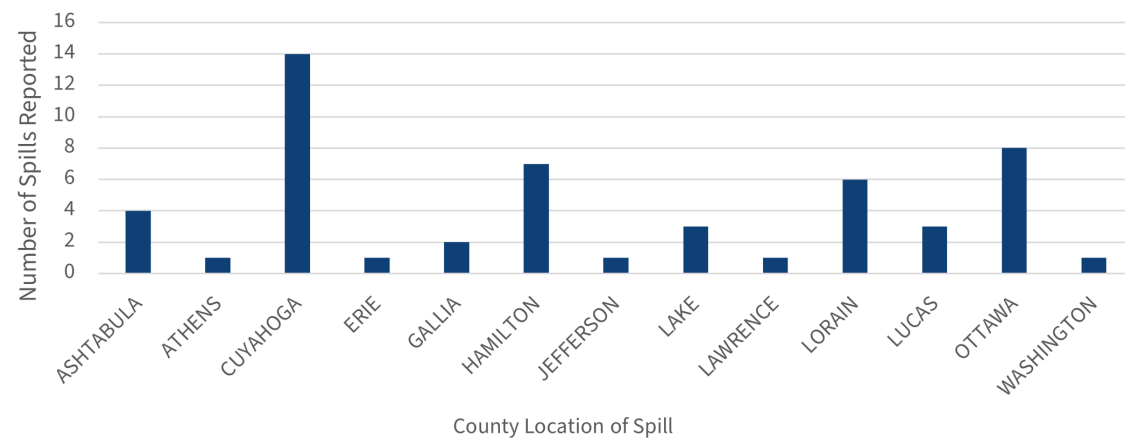
ASCE evaluates infrastructure across 16 categories, including inland waterways, dams, levees, ports,

Figure 37: Ohio's Recreational Boating Safety Statistics



Source: U.S. Department of Homeland Security, U.S. Coast Guard, Office of Auxiliary and Boating Safety

Figure 38: Ohio Vessel Spills, 2023



Source: CPCS Analysis of USCG Data

and more. In 2021, Ohio's overall infrastructure received a grade of "C-," matching the national average. Maritime-related categories received lower marks: inland waterways (D+), dams (C-), levees (D), and ports (C), as shown in Figure 39. A new Ohio infrastructure report is expected to be released in 2025, following national improvements in maritime-related grades.

Figure 39: ASCE Infrastructure Report Card

Year of ASCE Infrastructure Report Card	2013	2017	2021	2025
National Overall	D+	D+	C-	C
Inland Waterways	D-	D	D+	C-
Dams	D	D	D	D+
Levees	D-	D	D	D+
Ports	C	C+	B-	B
Ohio Overall	N/A	N/A	C-	N/A
Inland Waterways	N/A	N/A	D+	N/A
Dams	N/A	N/A	C-	N/A
Levees	N/A	N/A	D	N/A
Ports	N/A	N/A	C	N/A

Source: CPCS Analysis of ASCE Report Card

Dredging

Great Lakes: Dredging in the Great Lakes is essential to maintaining safe and efficient navigation for vessels that require depths greater than naturally occurring water levels. To secure federal funding for dredging, the USACE prioritizes projects based on factors such as dredging fleet availability, minimal environmental constraints, and the importance of maintaining navigable access to the harbor. As a result, larger ports with lower levels of sediment contamination are more likely to receive regular dredging support.

In 2022, the USACE Buffalo District allocated \$20.9 million in federal funding for dredging operations at Ohio's commercial harbors, including Toledo, Sandusky, Lorain, Cleveland, Fairport, Conneaut, and Ashtabula.²³ Funding was distributed based on local demand and the volume of annual cargo throughput at each port. In 2023, this amount decreased to \$18.84 million for dredging in Ohio.²⁴

USACE's resources and funding limit its ability to dredge all Ohio ports. USACE's project selection and dredging processes in part prioritizes ports with higher cargo volumes. As a result, three lakeside harbors in Ohio are no longer regularly dredged by USACE, unless they require emergency dredging for safety or environmental purposes.

As of March 2024, Huron Harbor no longer supports commercial traffic and is the most recent Ohio port to discontinue USACE-maintained dredging. It will continue to receive maintenance dredging as needed to support recreational use. Conneaut Harbor, which had not been dredged since 2019 due to project delays, resumed dredging in 2024. Two harbors, Marblehead and Port Clinton, manage their own dredging operations using local private contractors to meet recreational and navigational needs.²⁵

Figure 40 illustrates the volume and cost of dredging performed by USACE at Ohio harbors in 2023. Dredging costs reflect total contract values, which can vary based on factors such as the use of USACE-operated disposal sites, tipping fees paid to non-federal sediment management facilities, and whether those facilities receive state or external funding. As a result, Cleveland Harbor's dredging costs, for example, exceed those of Toledo Harbor despite handling a smaller volume.

²³ USACE, Ohio Dredging Newsletter, August 2022 ²⁴ USACE, Ohio Dredging Newsletter, November 2023; ²⁵ USACE, The Great Lakes Navigation System Brochure, https://lre-ops.usace.army.mil/OandM/GLNAV/Main_Page/NavSystemBrochure.pdf

River Dredging: Dredging on Lake Erie’s port channels and along the Ohio River follows a similar process. The USACE conducts annual dredging on the Ohio River and its seven navigable tributaries to maintain a 9-foot navigable channel through the river’s three major port districts. While the USACE is responsible for dredging the main channel, individual port terminals and docks are typically responsible for contracting their own dredging services.

Dredging at these private terminals depends heavily on companies’ access to funding and the availability of local private dredging contractors. Because the Ohio River also serves as a source of drinking water for residents in the Ohio River Valley, routine dredging is essential not only for navigation but also to support water quality.²⁶

Ohio Dredging Fast Facts



Source: USACE, Ohio Dredging Newsletter, November 2023.

Figure 40: Ohio Ports: USACE Dredging Volumes and Costs, 2023*

Port/Harbor	Amount Dredged (CY)	Average USACE Annual Cost to Dredge
Cleveland Harbor	225,000	\$8.52m
Toledo Harbor	800,000	\$4.37m
Fairport Harbor	85,000	\$1.1m
Sandusky Harbor	140,000	\$1.0m
Huron Harbor	121,000	\$1.5m
Ashtabula Harbor	80,000	\$1.1m
Lorain Harbor	72,000	\$4.1m

Source: USACE, Ohio Dredging Newsletter, November 2023

*Dredging volumes and costs not available for Ohio River port districts.

²⁶ USACE, Navigation on the Ohio River/Ohio River Basin, <https://www.lrd.usace.army.mil/Water-Information/Navigation/Ohio-River>

Dredging Spotlight

Dredging refers to the act of removing sediment from the bed of a river, lake, or harbor. As currents in rivers, lakes, and harbors create build-ups of sediment, dredging in Ohio is primarily done to ensure the safe and efficient navigation of vessels that require more than the natural depth of the waterbody to travel. Not only does this process remove contaminants quicker than a body of water's natural processes, the sediment can then also be transported to a treatment site for beneficial use purposes depending on quality. Dredging can also be used to prevent overgrowth of aquatic vegetation such as seaweed and algae. Once the sediment is extracted, it is then managed, either through beneficial use, storage, or disposal. Dredging for navigational purposes occurs throughout the state of Ohio, though dredging is also done statewide for environmental sustainability and mining.

As part of the Ohio Maritime Plan's environmental analyses, dredging practices and needs throughout the state were reviewed and compiled in a **Dredging Spotlight paper**. Dredging in Ohio harbors presents numerous challenges, including limited disposal capacity, funding shortages, and environmental concerns. While ports strive to balance economic activity with environmental responsibility, the process of obtaining permits, securing funding, and coordinating with various agencies can be time-consuming and complex. Even so, several ports in partnership with statewide agencies and initiatives have made major strides in not only properly disposing of dredged material but also repurposing it through beneficial use.

Ohio's Healthy Lake Erie Fund helped establish dredge material management systems, wetland restoration projects, and other beneficial use programs at seven Lake Erie ports, providing grants and connections with local sponsors to not only mitigate environmental harm but make dredged material an asset to ports, port communities, and key industries.

The Cleveland Harbor Eastern Embayment Resilience Strategy (CHEERS) was partially funded by the MAP and received additional financial assistance from the National Fish and Wildlife Foundation. The \$3.9 million project used MAP funding to plan and design a public facility that could be built through the beneficial use of dredged material. The plan includes habitat and wetland restoration, as well as a reinforced lakefront that is more resilient to climate change and erosion. In addition to creating an environmentally friendly public space and rehabilitating the shoreline, the project aims to use dredged material from the Port of Cleveland, reducing the burden on their confined disposal facilities. This will prolong the capacity of their dredged material storage and treatment sites, thereby allowing the Port of Cleveland to regularly meet dredging demand and lessen disposal costs.



Sandusky Bay Initiative Cedar Point Causeway Wetland



Farm Field Dredge Soil Amendment Demonstration Project

Sources: Ohio EPA, October 2024

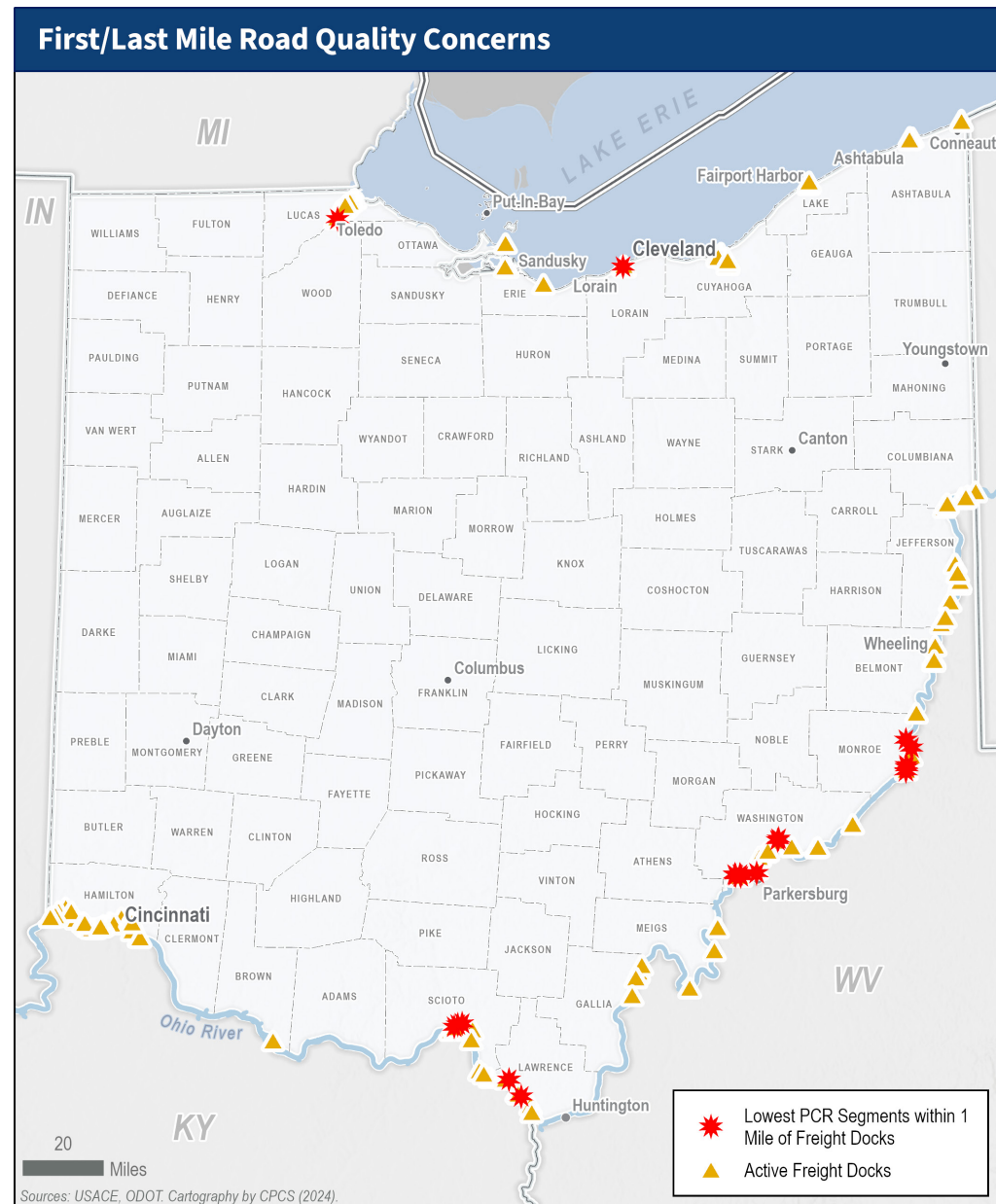
First-Last Mile Connector Condition

Assessing the condition of first and last mile connections to ports is critical to ensuring the reliability, efficiency, and competitiveness of Ohio's maritime freight system. These short but essential roadway segments link port terminals to the broader freight network and, if poorly maintained or congested, can undermine the overall performance of multimodal supply chains.

This analysis was informed by data from ODOT's Transportation Information Mapping System (TIMS) and focused on pavement condition rating (PCR). The roadways reviewed included the National Truck Network (NTN) and designated National Highway System (NHS) Intermodal Connectors within one mile of active freight docks.

As shown in Figure 41, pavement quality concerns were especially notable along the Ohio River, particularly in the Mid-Ohio Valley Port District and the Port of Huntington Tri-State Areas (13 of the 20 worst condition segments are within the Mid-Ohio Valley region, while five are within the Huntington Tri-State region). Specifically, Belpre, Hannibal, and Portsmouth had the most significant deficiencies. ODOT and local agencies are already taking strides to improve first-last mile connector conditions near ports, using federal and state grants for projects on both the Lake and River.

Figure 41: First/Last Mile Road Quality Concerns



Efficiency and Reliability

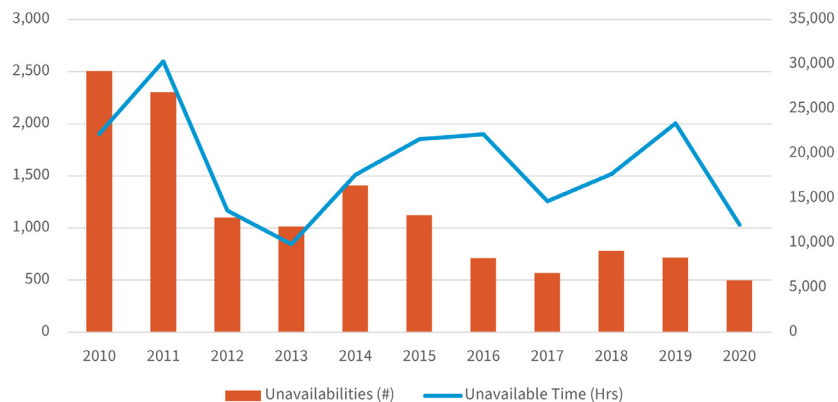
Lock Performance

The efficiency and reliability of the Ohio MTS depend heavily on the condition and operation of its physical infrastructure. Ports throughout the system rely on a network of locks and dams, including those along the St. Lawrence Seaway, Saint Marys River, and the Ohio and Mississippi River systems, to ensure navigability. Much of this infrastructure is aging; over 80 percent of locks and dams are at least 50 years old. Many are nearing the end of their design life and cannot accommodate the larger vessels used today, resulting in frequent and sometimes unplanned closures (Figure 42).

Seasonal closures add to these challenges. Locks and dams on the Great Lakes system are closed during the winter, halting navigation for several months. Although these closures allow time for maintenance, they also limit year-round use of the system.

Another limiting factor is vessel speed. Marine freight moves relatively slowly, especially on inland waterways. Barges typically travel at 9 knots, taking about 10.5 days to reach New Orleans from St. Louis and up to 21 days from Pittsburgh. These transit times can be further extended by lock closures, compounding delays.

Figure 42: Ohio River Lock Unavailability by Occurrences and Duration



Source: CPCS Analysis of USACE data

Olmsted Lock and Dam Project

Located 17 miles upstream from where the Ohio River meets the Mississippi River, the Olmsted Lock and Dam project exemplifies issues with lock aging and delays on the system as well as the effect the Corp's maintenance backlog has on system efficiency. The Olmsted allows for two-way travel between the Ohio and Mississippi Rivers and is critical to the flow of agricultural goods, over a quarter of coal flows in the region, and petroleum. Federal funding was approved to reconstruction in 1988, slated to cost \$775 million and complete construction in 2008. However, a combination of restrained funding, inflation, poor river conditions, and low initial cost estimations, the dam's reconstruction wasn't completed until 2018 at a cost of \$2.9 billion. Throughout construction, lockages could take upwards of 2 hours and the full process of filling and emptying the lock taking up to 72 hours. USACE calculated that delays in completing the project have resulted in \$640 million to \$800 million in lost benefits to the U.S. annually. Aging and decaying locks like the Olmsted present a notable challenge in efficiency and economic competitiveness for the region, making it essential that regular state of good repair be maintained for these assets on the lake and river.



Olmsted Lock and Dam

Source: Professional Mariner, Thirty years and \$3 billion later, Olmsted ready to lock and roll, September 2018.

First-/Last-Mile Roadway Congestion and Bottlenecks

This analysis used data from ODOT's Transportation Information Mapping System (TIMS) and focused on key metrics congestion index (CMS), bottleneck scores, and bridge clearances. The review covered roadways within one mile of Ohio's active freight docks, including the National Truck Network (NTN) and designated Intermodal Connectors.

Traffic bottlenecks and congestion challenges were primarily concentrated in Ohio's urban areas. The 10 most congested roadway miles, based on TIMS congestion index, are located west of Cincinnati along the Ohio River. These findings were confirmed by ODOT's Traffic Operation Assessment Systems Tool (TOAST), which identified significantly poor bottleneck scores only in Cincinnati and Cleveland.

Figure 43: First-/Last-Mile Roadway & Bottlenecks, Cincinnati



Figure 44: First-/Last-Mile Roadway & Bottlenecks, Cleveland



Mobility and Accessibility

Roadway Access

The mobility and accessibility of the system considers how access to the maritime mode may be increased and how increased access may affect businesses. First- and last-mile connectivity to road and rail networks is essential for making maritime shipping a viable, cost-effective option for more businesses across Ohio. Strengthening these connections increases access to the maritime mode and can help expand its use, supporting economic growth through more affordable and efficient goods movement. Road connectivity enables the movement of goods between ports or PSAs and the broader road network. Analysis identified six ports or PSAs with gaps between their locations and NHS Intermodal Connectors and the National Truck Network. A full discussion of results can be found in **Working Paper 3: System Performance Analysis**. Ports and PSAs with gaps include:

- Marblehead
- Sandusky
- Fairport Harbor
- Conneaut
- Parts of Cincinnati and Northern Kentucky
- Parts of Mid-Ohio Valley

Two examples of the lack of connectivity between key docks and roadways around Conneaut and parts of the Cincinnati and Northern Kentucky PSA are shown in the following figures.

Figure 45: First-/Last-Mile Roadway Connectivity Gap: Cincinnati & Northern Kentucky PSA

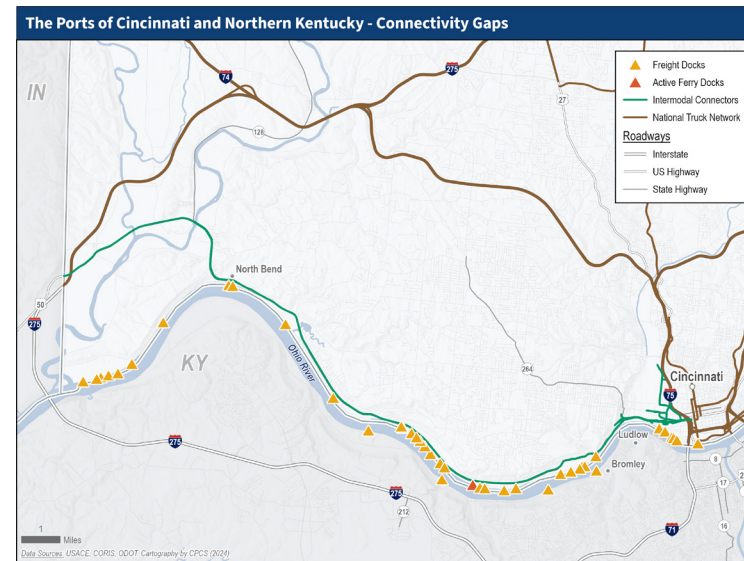
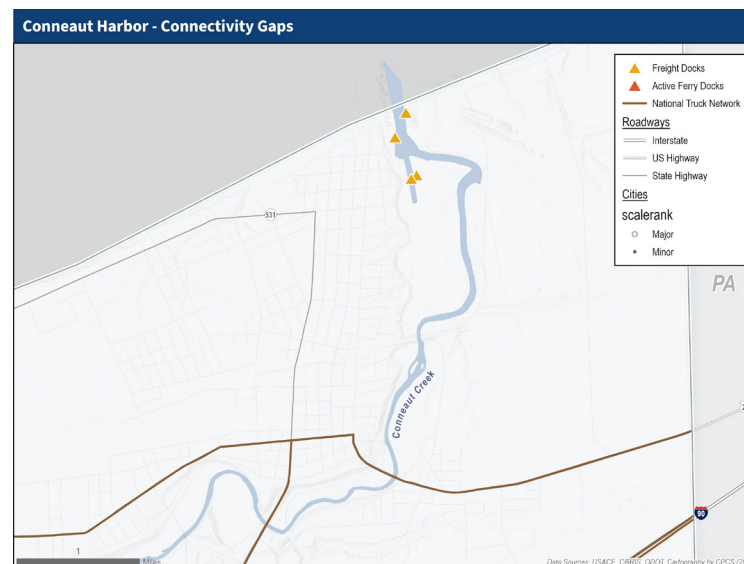


Figure 46: First-/Last-Mile Roadway Connectivity Gap: Conneaut Harbor

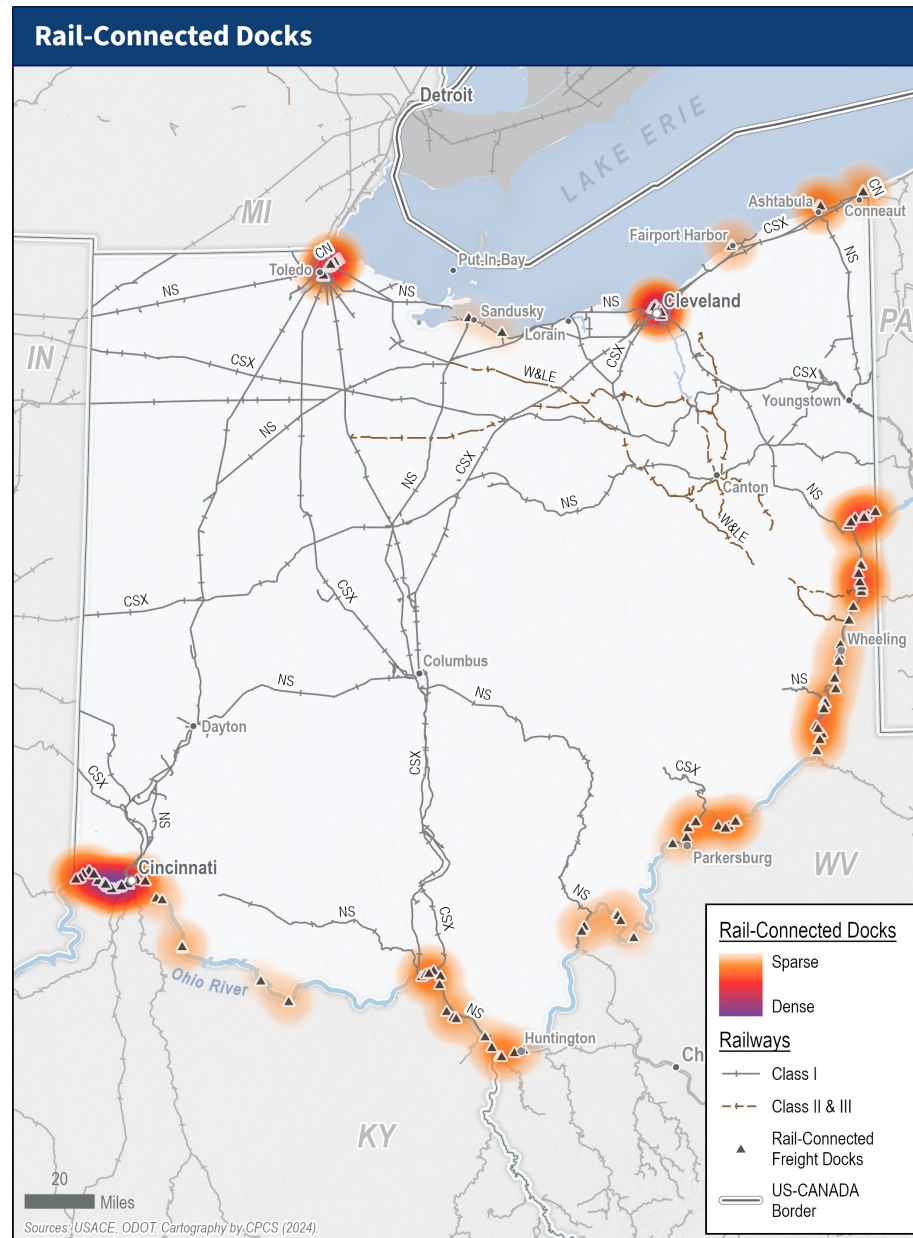


Rail Access

Rail connectivity is a critical component of the multimodal freight system, enabling efficient movement of goods between maritime and inland transportation modes. Because water transport is typically low-cost, goods are often shipped by vessel before being transloaded to rail or truck for inland delivery. As such, the quality of first- and last-mile rail connections plays a key role in the overall performance of the maritime transportation system.

In Ohio, many maritime facilities are well-connected to the rail network (Figure 47), but notable gaps remain. For example, the Marblehead and Lorain ports on Lake Erie lack direct rail access, and 41 percent of docks along the Ohio River are not served by rail. Enhancing landside connectivity in these areas would expand access to domestic markets and improve the system's overall efficiency.

Figure 47: Rail-Connected Docks



AIS Analysis

To support the system performance evaluation, Automatic Identification System (AIS) data was analyzed to generate insights into the operational characteristics of Ohio's Maritime Transportation System. The dynamic, real-time nature of AIS data allows for a more nuanced understanding of freight mobility and reliability across Ohio's waterways. For the Ohio Maritime Plan, the AIS data was used to identify vessel stops, analyze port activity, and assess vessel interactions with ports, routes, and rail connections. Given the dynamic nature of vessel movements, AIS data provides insights into transport linkages and freight flows.

AIS activity is most concentrated within the three Ohio River Port Statistical Areas, with the Huntington-Tristate PSA recording the highest average number of vessel stops per dock. On Lake Erie, AIS traffic is heaviest at the major ports of Cleveland and Toledo, reflecting their roles as key gateways for maritime commerce. Additionally, the analysis revealed that docks with direct rail connections recorded more than twice the number of AIS stops compared to non-rail-connected docks, both in total volume and in average stops per facility. This suggests that intermodal connectivity significantly enhances the attractiveness and utilization of maritime facilities, reinforcing the critical role of rail access in supporting efficient freight movement.

By linking vessel stops to specific docks and associated commodities, the analysis provided insight into the types of goods moving through Ohio's maritime system and the frequency of

activity by commodity group. Among the seven key industry commodity groups reviewed, the Energy group, including petroleum, coal, and related products, accounted for the highest number of vessel stops, underscoring the strategic importance of Ohio's maritime network to the state's energy economy.

Route Analysis: Ohio River

Figure 49 illustrates a portion of the 2023 movements of the Caroline N., a tugboat registered in the Port of St. Louis, Missouri, as tracked through AIS data.

Owned by the Marquette Transportation Company of Jefferson, Louisiana, the Caroline N. operated extensively on the Ohio River system, as well as the Mississippi and Illinois Rivers. While this map highlights the tug's activity on the Ohio River, it frequently returned to the Mississippi River via Cairo, Illinois, before continuing service to docks across Ohio, Indiana, Kentucky, West Virginia, and Pennsylvania. Between late June and late July, the vessel made two round trips to western Pennsylvania, stopping for fuel near Gallipolis, Ohio, on each journey. Notable Ohio docks visited included the Marietta Industrial Enterprises Terminal and S.H. Bell's East Liverpool facility. The

tug also stopped at a McGinnis location in Saylor Park, Ohio, which provides barge repair, cleaning, and drydock services.

Route Analysis: Great Lakes

Figure 50 highlights the movements of the M/V Sam Laud, a self-unloading, diesel-powered lake freighter, during January 2024 within the Great Lakes system. Owned by the American Steamship Company and in operation since 1975, the Sam Laud typically transports bulk commodities such as iron ore, coal, limestone, and gypsum—reflected by the facilities it visited throughout the month.

After departing Detroit, the vessel stopped at St. Mary's Cement before transiting the Poe Lock of the Soo Locks. It then called at Cleveland-Cliffs' Northshore Mining facility in Silver Bay, Minnesota, before passing back through the Poe Lock just ahead of its seasonal closure on January 15. The vessel's route continued with stops at Cleveland-Cliffs in Burns Harbor, Indiana, and the CSI Plant in Brevort, Michigan. On its return along Lake Erie, the Sam Laud made multiple stops, including at CSI Sands and ADM Milling in Buffalo, New York; Cleveland Bulk Terminal and Cleveland-Cliffs facilities in Cleveland, Ohio; and finally, Kinder Morgan in Ashtabula, Ohio.

Figure 48: Number of Stops by Rail Connected Dock

Rail Connection?	Docks	Number of 2023 Stops	Stops/Dock
Yes	123	78,611	639
No	65	27,641	425

Source: CPCS Analysis of AccessAIS Data compared to Ohio maritime dock inventory. Note: Nine docks were excluded from this evaluation because it is unclear whether they currently have an active rail connection.

Figure 49: Path of Vessel Movement on the Ohio River System

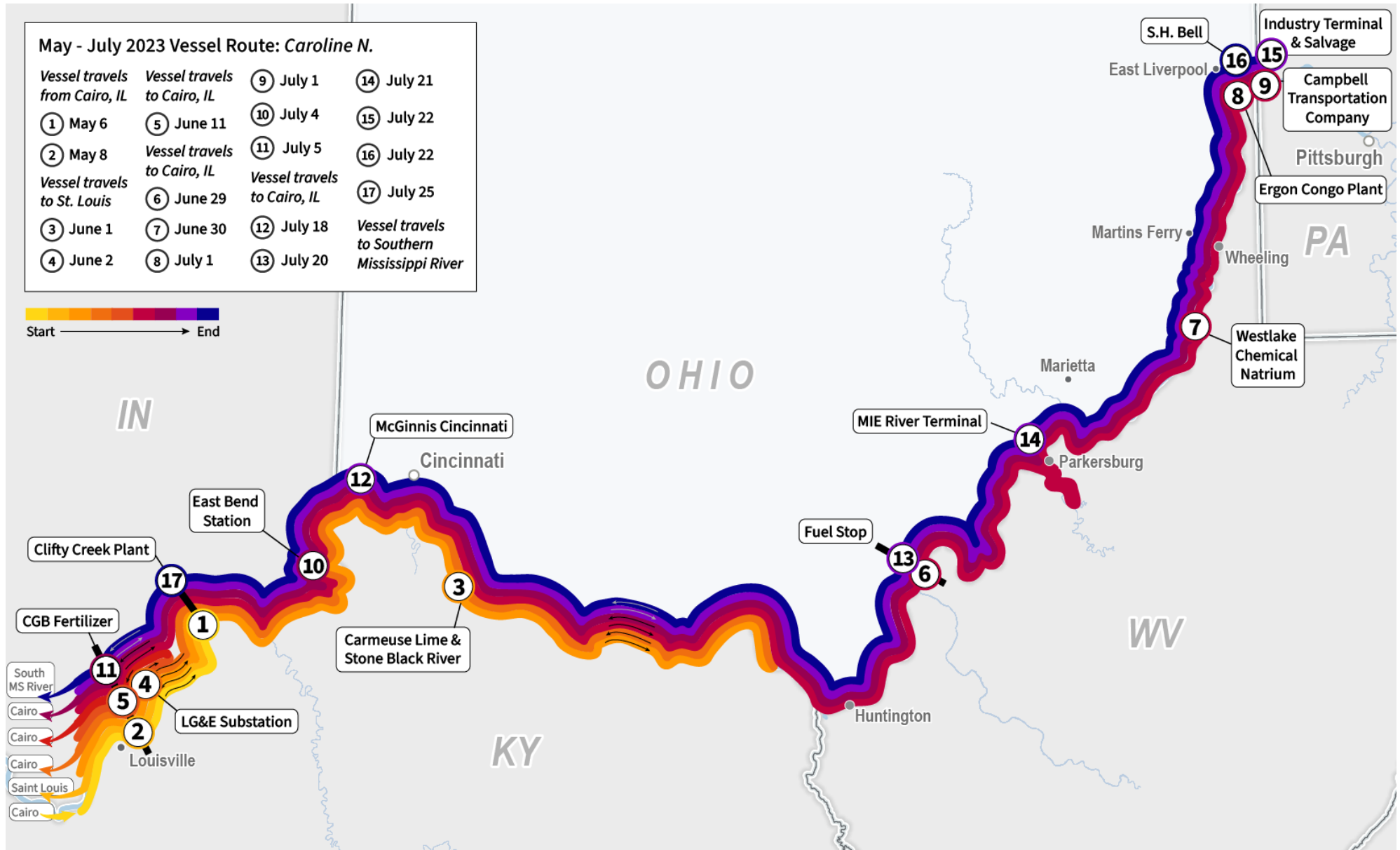
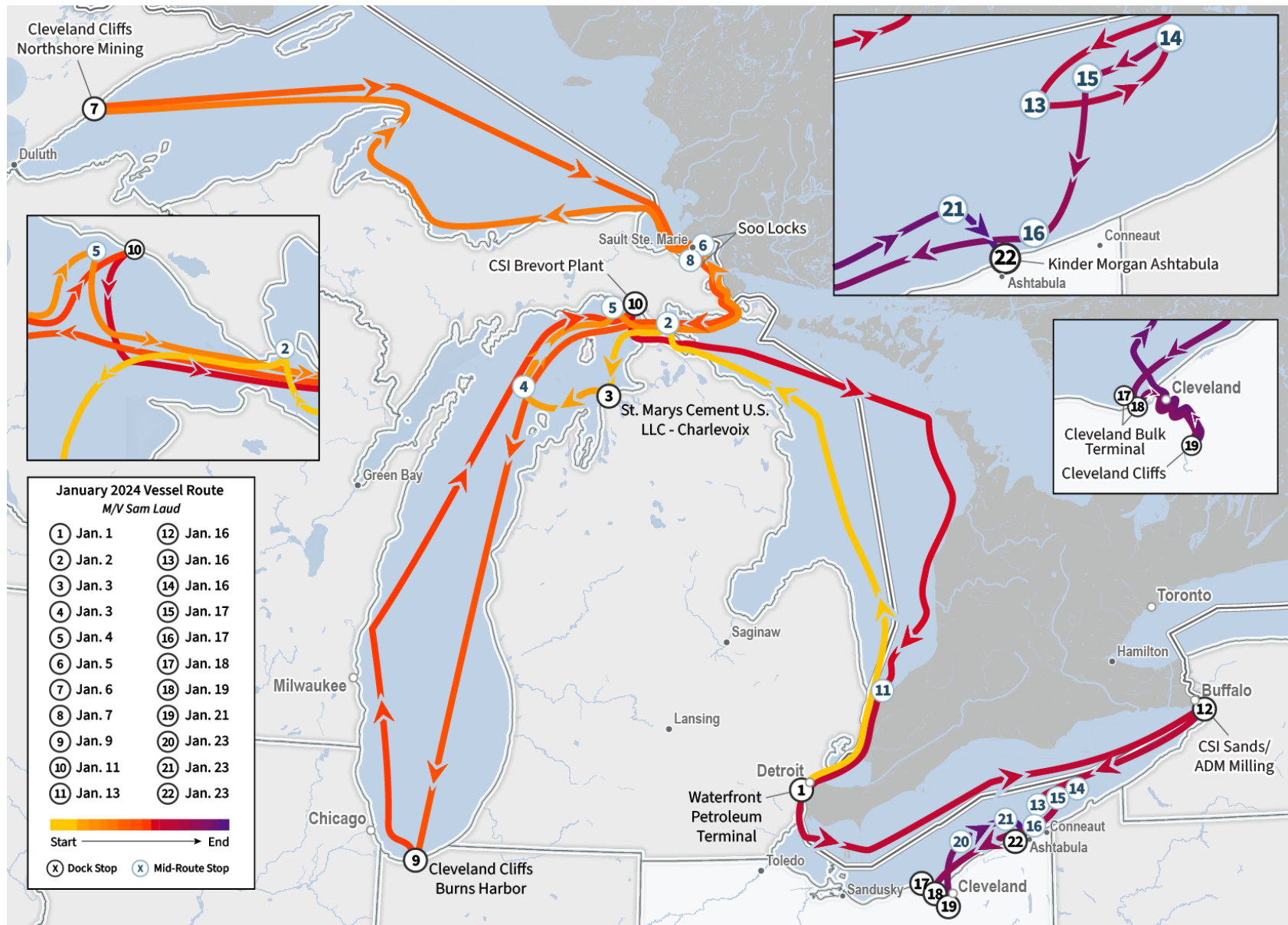


Figure 50: Path of Vessel Movement on the Great Lakes





James Barker on Lake Erie, Matt Lance

Shared System Challenges

Identifying shared challenges among all users, owners, and operators of Ohio's maritime system is essential for fostering collaboration and developing effective solutions. Common issues include infrastructure condition and maintenance, system disruptions, regulatory requirements, and workforce shortages. By establishing a collective understanding of these challenges, stakeholders can align priorities, advocate for strategic investments, and implement policies that enhance efficiency, sustainability, and resilience.

A detailed description of Ohio's system challenges and opportunities gleaned from the inventory of Ohio's MTS assets, interviews with stakeholders, and performance assessments of Ohio's MTS infrastructure can be found in **Working Paper 3: System Performance Analysis** and the **Strengths, Weaknesses, Opportunities, and Threats Memo**.

Unified Strategic Vision

The primary challenge with the Ohio MTS is the lack of a unified strategic vision, which results in fragmented decision-making and missed opportunities for growth and investment. With numerous uncoordinated stakeholders – including port authorities, private operators, industries, and local governments – there is no single, cohesive approach to advancing infrastructure, policy, or funding priorities. This disjointed structure can lead to inefficiencies, competition for limited resources, and difficulties in advocating for statewide maritime needs at the federal level. Without a coordinated strategy, Ohio risks underutilizing its vast maritime capacity, limiting economic potential, and falling behind in an increasingly competitive freight and logistics landscape.

Economic Competitiveness

Maintaining Ohio MTS' economic competitiveness is vital to the overall success of the system. Many industries key to Ohio's broader economy rely in great part on the maritime transportation system to ship and receive inputs and final goods. As a result, their productivity and efficiency are inextricably tied to maritime system performance. Each of the state's key maritime system-reliant industries have experienced growth in competitiveness in the last three years and together support more than 130,000 employees.

However, difficulties with workforce access, economic policies, and inefficiencies on the MTS all threaten this potential growth.

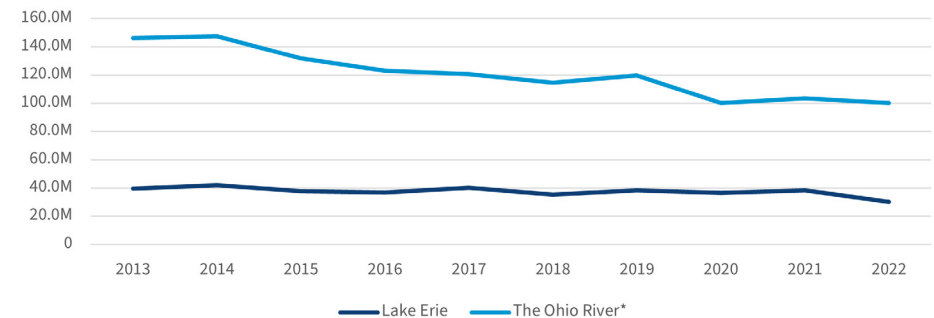
Despite the many benefits of moving goods via water, system use is declining (Figure 51). This is occurring for a variety of reasons, but changes to the industrial and manufacturing base in Ohio, geopolitical threats, and shifting demand for Ohio's primary export goods in response to tariffs are all impacting how the system is used. With increasing supply chain complexity, potential points of failure in the transportation network are multiplied.

System Resiliency

Ohio's MTS plays a central or supporting role in each of Ohio's primary industry groups. To the extent that Ohio MTS services are not available to these users, industry supply chains would have to be reconstructed around other facilities and modes – ports in other states, additional rail, longer-haul trucking – with potentially significant negative impacts on cost, speed, reliability, and availability of critically needed services. This would impact business operations in the manufacturing, chemicals, construction, energy, and food and agriculture sectors. Supply chain redundancy and resiliency are both necessary for Ohio's key industries and the MTS to adapt to economic trends, extreme weather, or other unpredictable delays and closures.

One recurring challenge for system resiliency and efficiency is handling extreme weather and water levels. Seasonality during winter months (e.g., ice conditions from late December to late March) and fluctuating water levels restrict navigation on and access to certain waterways. Lock closures often occur during these winter months and freezing requires many vessels to dock until seasons change. Even outside of winter months, severe weather events can both flood waterways and cause abnormally low water levels that can damage surrounding infrastructure, prevent navigation through locks and under bridges, and cause safety issues for vessels transiting the system. Environmental factors like these require further maintenance and funding.

Figure 51: Total Tonnage Handled at Ohio Ports and PSAs on Lake Erie and the Ohio River (2013-2022)



Source: CPCS analysis of Waterborne Commerce of the United States Annual Reports. US Army Corps of Engineers. 2023.
*Note: Besides volumes handled by ports in Ohio, the total Ohio River tonnage comprises shipments handled by out-of-state ports located within the PSAs.

Aging Infrastructure

The efficiency and reliability of the Ohio MTS is largely dependent on the operations of the physical infrastructure. Ports rely on a series of locks along the St. Lawrence Seaway and Saint Marys River to traverse the Great Lakes, as well as a long series of locks and dams along the Ohio and Mississippi River Systems. This key infrastructure is aging, with over 80 percent of the locks and dams being at least 50 years old. Due to this, many locks are reaching the end of their lifespan and are unable to accommodate the larger size of modern vessels. As a result, the system can see frequent, and often unplanned, closures of the locks.

In addition to aging locks and dams, port and vessel infrastructure requires regular maintenance and is falling behind the national standard for maritime infrastructure conditions. Ports and shipping companies must have regular access to the appropriate vessel type and equipment for handling their cargo. Shifts in supply chains and international policy can restrict access to resources and technology necessary for upgrading infrastructure, placing a greater need on local production and redundancy in regional supply chains.

Multimodal Connectivity

Assessing the mobility and accessibility of the Ohio MTS also requires consideration of landside connectivity challenges with both road and rail. Road connectivity enables the movement of goods between ports or PSAs and the broader road network. In Ohio, many areas of the maritime system have good railroad connectivity. However, connectivity may be lacking in other, critical, areas. For example, the Marblehead and Lorain facilities on Lake Erie have no direct rail service, while 41 percent of docks on the Ohio River do not have rail access. With many of Ohio's key commodities relying on rail transport inland to reach larger markets, improving this landside connectivity opens the door to increased access to the Ohio domestic market.

For those with sufficient landside connectivity, the conditions of physical infrastructure and landside connectors should also be considered. To assess these in the Ohio MTS, an analysis of the first- and last-mile road condition was performed, visualizing an analysis of ODOT inventory specific to pavement condition ratings of corridors within one mile of docks. This analysis revealed that 13 of the 20 worst connectivity segments are within the Mid-Ohio Valley region, while five are within the Huntington Tri-State region. Therefore, most of the state's worst landside connections are on the river.

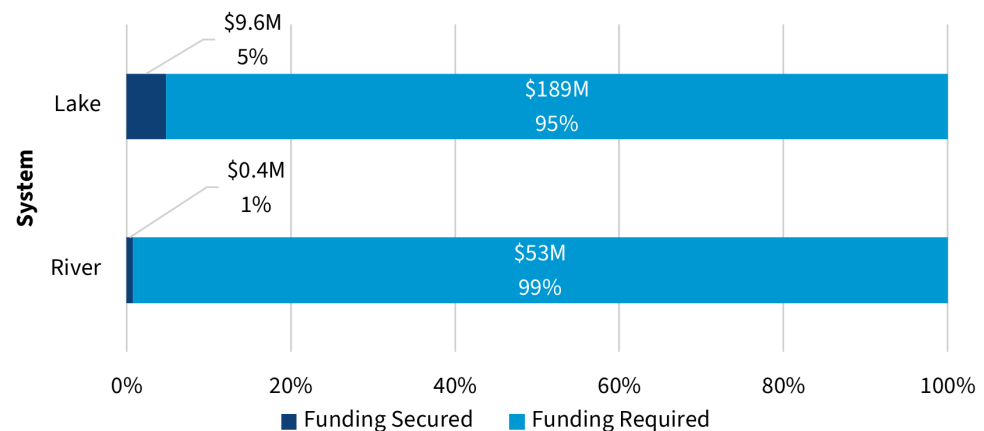
Funding

The most recent American Society of Civil Engineers (ASCE) Infrastructure Report Card rated Ohio's ports as being in below-average condition. Aging infrastructure not only increases costs for repair but also lessens the volume of maritime traffic from which Ohio's economy can benefit. This underscores the importance of securing funding to complete necessary maintenance work throughout the system.

In recent years, the Ohio MTS has faced funding shortfalls that have hindered critical infrastructure investments. For example, in FY2025, Ohio ports experienced a \$24 million shortfall in USACE funding for Great Lakes navigation maintenance.²⁷ Addressing these gaps is not the responsibility of any single stakeholder, as there is currently no coordinated system for securing consistent, system-wide funding. Instead, funding levels are largely determined by congressional appropriations, which are often influenced by political cycles. As a result, it will be essential to explore new strategies for strengthening the Ohio MTS within the constraints of existing resources.

Figure 52 shows the funding gap based on the needs of projects identified by stakeholders for both the lake and river systems. On the lake system only \$9.6 million or 5 percent of the total funding needs have been secured. On the river system around \$400 thousand has been secured accounting for 1 percent of the river system total.

Figure 52: Funding Needs Gap



Source: Consultations, WSP

²⁷ USACE, Civil Works Budget of the USACE FY2025, March 2024. <https://www.greatlakesports.org/wp-content/uploads/2024/03/FY25-USACE-Budget-Pressbook.pdf>; WSP <https://www.greatlakesports.org/wp-content/uploads/2024/03/FY25-USACE-Budget-Pressbook.pdf>; Consultations, WSP, 2024.

Quality of Life

Recreational users of the MTS, as well as port communities, all have a stake in the maintained sustainability and safety of the system. Industrial land use and traffic related to port activity can affect the air and water quality as well as general quality of life within a port district. Use and growth of the MTS should be planned with surrounding communities and system users to ensure the MTS benefits its stakeholders to the greatest extent possible.

Awareness over the use of Ohio's waterways has especially heightened following a recent sharp increase in the number of recreational boaters competing for space on the water. As more recreational boaters take to the water, safety concerns have been raised, as it is difficult for large commercial vessels to see and navigate around recreational boaters. This challenge is sometimes further complicated by the path of the river system, which includes numerous sharp bends and turns, increasing a commercial vessel's difficulty with seeing and avoiding conflicts with recreational boaters.

Environmental Stewardship

It is vital that the Ohio MTS be prepared to adapt to the ongoing shifts occurring in the environment. Due in part to these environmental changes, water levels throughout the MTS fluctuate throughout the year. This has serious implications for the movement of vessels through the system, as well as increasing the risk of erosion. Flooding risks are also a serious concern, as floods can

cause catastrophic damage to port infrastructure and increase runoff. Seasonal closures due to extreme weather and freezing also disrupt freight flows, requiring many vessels to remain docked throughout the winter season.

The environmental impact of dredged materials is also an area of concern for Ohio's MTS. Dredged materials must be handled with caution, as they contain contaminants and industrial runoff pollutants. If not disposed of properly, they pose serious environmental concerns. In 2020, a ban on open-water disposal of dredged material went into effect to substantially lessen the impact contaminated sediment had on Lake Erie water quality.

Workforce

The workforce challenges the Ohio MTS has experienced are part of larger systemic issues caused by broad and long-term national industry trends, COVID-19 effects, and the nature of many positions in the maritime industry. The economic competitiveness of the system is threatened by an aging workforce. Nationally, 50 percent of the maritime workforce is made up of workers aged 45+. This is a trend also seen in Ohio's maritime workforce. The decline in workers entering the maritime industry can be attributed to a variety of reasons, but the emphasis in recent decades on formal college in lieu of skilled trades and labor positions, the high costs associated with maritime training programs, and the absence of federally designated post-secondary training and education programs in Ohio have undermined the available workforce for these types of jobs. A shrinking

workforce can introduce safety issues related to short staffing or hiring more inexperienced workers. Existing workers may also be required to work extra shifts or conduct additional duties to cover the gap in personnel. What results is a self-feeding cycle of difficulty both recruiting and retaining workers that could be addressed through increased awareness of well-paying and quality maritime positions, a more unified federal role in the maritime industry, and more educational options for those entering skilled trades. More information on workforce is included in **Working Paper 3: System Performance Analysis**.



4. System Opportunities and Successes

There is strong momentum and meaningful work underway to enhance the maritime system in Ohio. Ongoing efforts by the state, ports, private operators, economic developers and others are improving infrastructure, operations, and economic connectivity. These initiatives provide a solid foundation for future planning, collaboration, and investment to fully realize the maritime system's potential.

Unified Strategic Vision

ODOT Partnership with GSGP

The Great Lakes St. Lawrence Governors and Premiers (GSGP) unites executives on both the Canadian and US sides of the Great Lakes region to establish a unified vision for growing the region's economy and protecting its natural resources. As a partner and participant in GSGP's efforts, ODOT and the Ohio Governor's Office collaborate with GSGP and its members to further initiatives related to Ohio's MTS challenges and opportunities.



Goals established by each of GSGP's members are outlined in the organization's five-year action plan for 2021 – 2026.²⁸ This plan is the first regional maritime strategy for the region and aims to increase maritime trade with Europe, grow the cruising industry, continue construction of St. Lawrence Seaway locks, drive private capital investment in the system, and encourage use of environmentally sustainable vessels among other goals.

The GSGP's agenda identifies regional coordination as paramount to achieving the goals of its members and assists with providing consistent data and information for systemwide decision-making. It also is working towards a US-Canada maritime treaty that includes the structure for a regional administrative entity. This is a major start towards not only establishing a clear vision for Ohio's MTS stakeholders, but ensuring it is aligned with regional strategies for a collaborative approach.

Economic Competitiveness

The Cleveland-Europe Express

Long handling some of the highest volumes of container cargo on the Great Lakes, the Port of Cleveland was the first to provide container service and shipping routes between the Great Lakes and Europe when it introduced Cleveland-Europe Express in 2014. In efforts to diversify their cargo base and grow annual volumes, the Port of Cleveland partnered with the Port of Antwerp and Dutch shipper Spliethoff to establish regular shipping service between Great Lakes ports with container service and several major ports in Europe. The service provides three to four vessels monthly for both containerized and non-containerized cargo and connects Ohio's Great Lakes ports to Antwerp, Rotterdam, Hamburg, and the UK among other locations.

Since the service's establishment in 2014, the service has expanded capacity by adding more container-only vessels to accommodate supply chain issues that resulted from COVID-19. To accommodate this growth, the Port of Cleveland updated its customs and border technology to reduce wait time for trucking companies and drivers and reduce congestion surrounding the port. The ability to ship directly via the Great Lakes saves an average of 7-10 days for shippers that would otherwise have to use coastal ports for international connections.²⁹ The Cleveland-Europe Express remains the only direct scheduled service between the Great Lakes and Europe and provides Ohio with a unique source of growth and competitiveness for years to come.

Figure 53: Cleveland-Europe Express Maiden Voyage Vessel



Source: WOSU Public Media

System Resiliency

Shipbuilding at Ohio's Ports

Recognizing the essential role that the Ohio MTS plays in the regional and state economies, efforts have been made to better secure Ohio's shipbuilding industry against supply chain shocks and improve the industry's resilience. Companies such as The Great Lakes Towing Company specialize in building lake and river vessels which are used to transport goods on Ohio's MTS. The Great Lakes Shipyard is located in Cleveland and is a full-service shipyard specializing in new vessel and barge construction, fabrication, maintenance, and repairs.

Building ships in Ohio enhances supply chain resiliency by manufacturing ships locally, which reduces dependency on distant suppliers and minimizes the risk of disruptions affecting their delivery. Secondly, increasing shipbuilding at the local level improves and expands the skilled

²⁸ GSGP, Five-Year Action Plan (2021-2026), 2021. <https://gsgp.org/media/gdpcsqz1/five-year-action-plan-9-21-21.pdf>; ²⁹ Port of Cleveland, Cleveland-Europe Express, <https://www.portofcleveland.com/cleveland-europe-express/>

workforce needed to do so. This helps to ensure a steady supply of qualified professionals in the future and reduces the impact of labor shortages. Third, investments in the shipbuilding industry in Ohio encourage future investment into maritime-related infrastructure and facilities. This expands the system's overall capacity.

Shipbuilding in the U.S.

The first half of the 20th Century saw the implementation of far-reaching maritime shipping policies in the Merchant Marine Act of 1920, commonly referred to as the Jones Act. This law regulates elements of maritime commerce in US waters and between US ports. It prohibits foreign-registered, foreign-crewed, and foreign-built vessels from participating in US domestic maritime trade; only vessels that are US-built, US-registered, and US-crewed may move cargo between ports in the US. This act has protected US shipbuilding capacity by requiring companies moving cargo between US ports to purchase vessels from US shipyards.

Recent efforts to strengthen the shipbuilding industry include an executive order signed in February 2025 to create a new maritime industrial base office within the White House and offer tax incentives and increased wages to the shipbuilding industry. This order is issued in tandem with a review of current ship and submarine building costs as well as taxes and tariffs on foreign cargo to encourage domestic growth in the shipping industry.

Multimodal Connectivity

Intel Chip Plant Development

In 2022, Intel announced the construction of a \$20 billion semiconductor and microchip manufacturing plant in Columbus. These chips will play a significant role in Ohio's already strong advanced manufacturing industry and are anticipated to create roughly seven thousand construction positions and three thousand permanent positions within the company. The construction of a facility this size involved around 1.7 million cubic yards of earth, aggregate, and limestone in the first year alone, relying heavily on Ohio's construction material industry.³⁴

Figure 54: Construction Progress at Intel's New Albany, Ohio Site



Source: Columbus Business First, 2024

As of February 2025, the final super load of construction materials destined for this facility was shipped by barge along the Ohio River. Intel has relied on more than 35 of these super loads to provide the necessary materials for this plant,

each carrying a variety of aggregates, metals, and finished construction materials to docks in Manchester in Adams County. The barge super loads are then loaded onto dozens of oversize/overweight truckloads that drive a route identified and coordinated by ODOT. Ensuring proper clearance, minimal disruption to traffic, and suitable road conditions for each of these super loads has required a lot of coordination between ODOT, transportation companies, parking providers, and utility companies along the route.³¹ Partnerships and coordination between ODOT and relevant stakeholders as well as the reliance on Ohio River barge movements demonstrate the ability of the MTS to accommodate major growth and business needs across the state.

Funding

Ohio Maritime Assistance Program

The Ohio Maritime Assistance Program (MAP), established in 2019, is the only state-funded grant program specifically aimed at updating and maintaining Ohio's MTS. The program offers funding to eligible Ohio port authorities to support planning, design, acquisition, and infrastructure projects that enhance the efficiency or capacity of maritime cargo terminal operations. The program for the fiscal years 2024 and 2025 has been allocated a total of \$10 million—\$5 million each year—with funding subject to renewal in the following years. Eligible projects improve the efficiency or capacity of maritime cargo terminal operations, address an identified supply chain need, or benefit Ohio firms that export goods to foreign markets or import goods to Ohio for

³⁰ Construction Review, How is Intel's \$20B Ohio One Chip Plant: On Track or Derailed?, January 2024. <https://constructionreviewonline.com/commentary/intels-20-billion-ohio-plant-a-look-at-the-latest-updates/>; ³¹ ColtsWire, What's a 'super load'? What to know about the massive truck loads heading to Intel, Hebron, March 2024. <https://coltswire.usatoday.com/story/news/local/2024/03/15/what-to-know-about-the-super-loads-heading-to-intel-hebron/72944253007/>

manufacturing or value-added distribution.

Since 2020, the Ohio Maritime Assistance Program has invested \$56 million in 24 projects across four public port authorities on the Great Lakes and Ohio River. These investments have leveraged an additional \$145 million in federal and local match for a total of \$200 million in MTS improvements. The Ohio MAP award recipients used the funding in several different ways, with most projects focused on improving the capacity and conditions of general cargo terminals, repairing dock walls, dredging efforts, and intermodal connectivity.

Figure 55: Columbiana County Wellsville Terminal Transloading Equipment Funded Through MAP



Source: ODOT, MAP Awards Rounds 1 & 2

In 2025, through the Ohio Operating Budget for State Fiscal Years 2026–2027, the Ohio Legislature reappropriated \$10 million (\$5 million per year) for the program and introduced key revisions. These included setting aside a minimum of 10 percent of annual funding for initiatives directed by the newly established Ohio River Commission and expanding

eligibility to allow private entities to partner with public port authorities that do not operate active marine cargo facilities.

Having a state funding opportunity provides ports with a more steady grant resource that can be used for a wide variety of port needs and growth opportunities. Ohio's MAP allows for grant-funded projects around the state to be tailored towards Ohio's specific supply chain and MTS needs rather than any broader national priorities. Furthermore, smaller ports and port businesses have improved access to larger grants through this program in addition to smaller state funded grants or loans.

Quality of Life

Appalachian Community Grant Program Investments

The Ohio River and its tributaries serve as a source of economic opportunity for Ohio and its communities. Recognizing this, the Governor's Office developed the Appalachian Community Grant Program funded by Ohio's designation of American Rescue Plan Act (ARPA) dollars. The goal of this program is to provide funding to projects that will incentivize future growth, development, and collaboration in these Appalachian communities.



In 2024, the Appalachian Community Grant Program provided funding of \$152 million to Ohio's Wonderful Waterfront Initiatives. The Wonderful Waterfalls Initiative has funded projects involving outdoor infrastructure improvements, river-to-downtown connections, downtown

redevelopment and streetscape improvements, boat ramps, docks, and parks. Under this new funding, the Wonderful Waterfront Initiatives will use the funds to expand access to local waterways, revitalize historic riverfront downtowns, and create new tourism and recreational opportunities in 17 riverfront communities. Communities receiving funding include: Beverly, Portsmouth, Marietta, Gallipolis, Sardis, Higginsport, Ironton, South Point, Burlington, Ripley, Racine, Proctorville, New Richmond, Pomeroy, McConnelsville, Middleport, and Zanesville. Additionally, funding for downtown revitalizations in Caldwell and New Philadelphia will be allocated from this \$152 million.

Environmental Stewardship

Toledo Facility 3 Updates

In 2016, the Toledo-Lucas County Port Authority opened the Great Lakes Dredged Material Center for Innovation on the Maumee River in north Toledo. When a ban on open-water disposal of dredged material went into effect in 2020, the Port of Toledo sought not only to find a solution for dredged material management but also find recycling opportunities for non-toxic sediment that does not require permanent storage. The Port of Toledo leveraged over \$7 million in Healthy Lake Erie Grant Funding to resume operation and expand the capacity of their Confined Disposal Facility 3, ensuring capacity would accommodate all harbor dredged material through 2040. The remainder of the funding was used to establish the Dredged Material Center of Innovation, funding research into beneficial use of dredged

material and its potential use as an agricultural soil supplement that reduces runoff and increases crop yield.

Figure 56: Toledo Dredged Sediment As Farm Soil Test Site



Source: Dredgewire

Brownfield Remediation Program

Due to the decline in the coal industry, there are several redevelopment efforts along the river that include repurposing sites that were once used for coal production and transport. The Ohio Department of Development (ODOD) has prioritized funding via programs such as the Brownfield Remediation Program. The program provides grant funding to clean up brownfield sites that were previously for industrial, commercial, or institutional purposes. The W.H. Sammis Power Plant site is slated to be remediated by the Jefferson County Port Authority after winning a grant in 2024. The project aims to remove toxic materials from the coal conveyor system

and other demolition efforts to redevelop the industrial space. It is expected that the site will be transformed into another energy-related site due to its prime location on the Ohio River. While the coal industry in Ohio and most other states faces challenges and declining production due to the shift towards cleaner energy, the Ohio River will likely continue to play a vital role in transporting energy resources because the river remains a dependable and cost-effective transportation route for domestic and international trade.

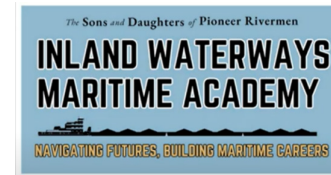
Workforce

Inland Waterways Maritime Complex and Academy

Recognizing the challenges with workforce access across Ohio's MTS and particularly the Ohio River, the Sons and Daughters of Pioneer Rivermen have launched Ohio's first river-focused maritime academy. The Inland Waterways Maritime Complex secured funding for the academy in October 2024 through a \$2.6 million grant from Ohio's Appalachian Community Grant Program. The maritime academy will offer comprehensive training programs for students and current employees seeking to acquire and improve skills needed for positions on towboats, as deckhands, and at river ports. Attendees can also acquire official certifications for vessel operation and radar among other skills.

The Academy will be located in Sardis in Monroe County, where the decline in the coal industry and closing of an aluminum plant has significantly affected the unemployment rate of

the community. Despite the town's proximity to the Ohio River, many workers in the area lack the appropriate qualifications or resources for training



for working in the maritime industry. Regional operators on the river depend heavily on local

workforce access and struggle to find sufficient staff for regular and safe service. With grant funds, Monroe County was able to purchase an old golf course for the site that ultimately provides locals with workforce education right in their backyard without the need to move for training or a long-term job. The Inland Waterways Maritime Complex is not only an example of leveraging state funding programs for local needs but also the significance of having locally accessible training programs to resolve workforce access issues.

Figure 57: New Maritime Complex and Visitor Center Rendering



Source: WXVU Public Media

Environmental Stewardship and the Ohio Maritime System

The Ohio MTS is deeply interconnected with the state's environmental landscape. The infrastructure, facilities, and operations that support freight movement along Lake Erie and the Ohio River also influence, and are influenced by, a range of environmental pressures. To inform policy and investment decisions, the Ohio Maritime plan developed **Working Paper 6: Environmental Framework** that outlines best practices to generate environmental benefits, enhance sustainability, and improve system resiliency across the MTS.

The Environmental Framework is structured around two overarching objectives: (1) achieving environmental benefits, and (2) enhancing system sustainability and resiliency. These objectives are addressed across three primary focus areas: operations, climate, and communities.

In the **operations** category, best practices focus on improving dredged material management and reuse, remediating contaminated waterfront properties, and adopting non-diesel terminal equipment. For example, the Port of Toledo has deployed the first battery-electric rail switcher in the U.S., and the Port of Cleveland is preparing for future shore power installation to reduce emissions from berthed vessels.

In the **climate** category, best practices focus on supporting modal diversion from highway to marine transport to reduce greenhouse gas emissions, electrifying terminal infrastructure, and retrofitting vessels for cleaner fuels. The Framework also highlights strategies to adapt to increased flood risk, shoreline erosion, and temperature extremes, including stormwater management, elevation of critical infrastructure, and integration of nature-based solutions such as wetlands and living shorelines.

In the **communities** category, best practices focus on improving truck routing and management to reduce local emissions and noise, mitigating the impacts of lighting and dust, and supporting land use strategies that enable recreational access and habitat restoration. The Framework also encourages workforce development and economic inclusion through partnerships with educational institutions and job training programs that expand maritime career pathways.

Collectively, these strategies highlight the importance of cross-sector coordination, performance monitoring, and long-term planning to ensure Ohio's maritime system continues to deliver economic value while minimizing adverse environmental and community impacts.

A full listing of best practices, case studies, and recommended actions is provided in **Working Paper 6: Environmental Framework**.



All-Electric Switcher Locomotive

Sources: Midwest Terminals



5. Capital Needs

For the maritime system to continue to have a strong role in serving Ohio's economy, it is crucial for system stakeholders to set a proactive path for recognizing opportunities, shaping policy, and making targeted investments that are focused on the long-term competitiveness, efficiency, and resilience of the state's ports and waterways. A coordinated, action-oriented path will ensure that Ohio's maritime system remains a vital asset for goods and people movement, economic development, and global trade in the future.

Shared System Challenges

Capital Investments

As part of the MTS planning process, port master plans were reviewed, and port and terminal operators were consulted and surveyed to identify their needs and the details of required capital investments.³² These needs have been organized into responsible agencies, including USACE and Ports/Port Authorities.

US Army Corps of Engineers

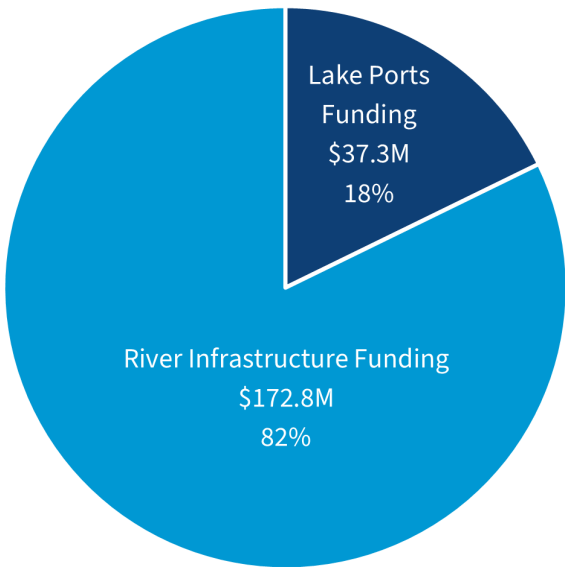
\$210.1 Million	\$37.3 Million	\$172.8 Million
Funding Requested for O&M Work for Ohio MTS (FY2025)	Funding Requested for O&M Work on Lake Erie (FY2025)	Funding Requested for O&M Work for the Ohio River (FY2025)

The USACE is a federal agency under the Department of Defense that provides engineering services for civil works projects nationwide. The USACE’s responsibilities related to freight movements within the Ohio MTS are maintaining and improving the system, specifically focused on navigation. Each year, the USACE identifies its needs for that fiscal year to support the national waterway system which is submitted and approved by Congress. For FY 2025, the USACE requested \$210.1 million in funding for operation and maintenance work for both the Lake Erie and Ohio River systems. Figure 58 shows the FY 2025 funding for both the Lake and River system. The request for harbors along Lake Erie was \$37.3 million or 18 percent of the total request, while the river infrastructure funding request was \$172.8 million or 82 percent of the total request.

The funding requests include various types of projects, including but not limited to engineering, design, and construction of piers, breakwaters, and other safety infrastructure. For lake ports, the requests primarily consist of maintaining the deep draft for commercial navigation into harbors. While dredging does occur annually, lake ports will have varying levels of needs each year.

The funding request for the river infrastructure was \$172.8 million. It’s important to note that this funding is not only for projects that about Ohio but the entire Ohio River system. As shown in Figure 58, a majority of the \$172.8 million budgeted was for the Locks and Dams along the Ohio River, accounting for 91 percent of the total request for the Ohio River. The remaining 9 percent or \$15 million was for channel dredging along the river. Figure 59 outlines the specific appropriations for FY2025 for the Ohio MTS.

Figure 58: USACE FY2025 President’s Budget



Source: Consultations, WSP

³² The consultation invitation was extended to 14 ports/Port Authorities. 8 consultations were conducted, resulting in 7 surveys on capital needs

Figure 59: Lake Erie USACE FY 2025 President's Budget Appropriations

Lake	
Port/Harbor	Total Appropriations (FY 2025)
Port of Cleveland	\$14,447,000
Toledo Harbor	\$7,252,000
Fairport Harbor	\$5,621,000
Conneaut Harbor	\$3,845,000
Ashtabula Harbor	\$3,304,000
Sandusky Harbor	\$1,584,000
Lorain Harbor	\$1,213,000
Port Clinton Harbor*	\$11,000
Vermilion Harbor*	\$8,000
Huron Harbor	\$6,000
Cooley Canal*	\$5,000
Toussaint River*	\$5,000
West Harbor*	\$4,000
Put-In-Bay	\$2,000
Rocky River Harbor*	\$2,000
Total	\$37,309,000
River	
Infrastructure	Budgeted (FY 2025)
Ohio River Locks and Dams	\$157,760,000
Ohio River Open Channel Work	\$15,059,000
Total	\$172,819,000

Source: Consultations, WSP; * Designates recreational projects

Port/Port Authority

50	\$198.9	\$53.4
Unfunded/Partially	Estimated Near-	Estimated Near-
Funded Near-Term	Term Projects	Term Projects Needs
Projects	Needs on Lake Erie	on the Ohio River
	(FY2025)	(FY2025)

Near-term projects refer to projects that will start within the next five years yet are still unfunded or partially funded. Figure 60 shows that there is a total of \$252.3 million in near-term project needs. The Lake Erie capital project needs account for 79 percent of the total project needs, while the river project needs make up for the rest 21 percent.

Through consultations with eight port authorities, a total of 50 projects – (38 projects on the lake system and 12 projects on the river system), were identified as requiring funding to be completed in the near term. These unfunded or partially funded projects make up 84 percent and 83 percent of total projects planned on the lake and the river, respectively. All of the unfunded or partially funded projects on the Ohio River require some sort of state or federal funding assistance to cover at least portions of the costs, while 21 out of 38 projects on the Lake require similar assistance (Figure 61).

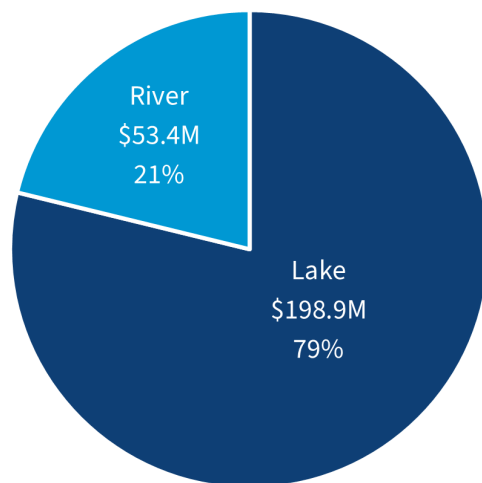
The port with the greatest number of projects and capital needs was the Port of Cleveland (Figure 62), accounting for half of all projects identified and making up 35 percent of the total costs identified. The second highest was the Lorain Port Authority, which identified seven projects totaling \$73 million. On the river system, Monroe County has the greatest cost needs at \$18 million and Washington County has the second highest costs at \$15 million. These unfunded or partially funded projects consist of the following six project types:

- **Access:** Roadway improvements and rail connections
- **Decarbonization:** Equipment and infrastructure to reduce greenhouse gas emissions
- **Dredging:** Dredging of berths and channels for navigation

- **Technology:** Advanced technology to improve facility operations, safety, security, management, etc.
- **Terminal:** Improvements to open or covered storage, pier/wharf, and other on-terminal facilities and equipment
- **Other:** Not falling into one of the above categories

Figure 63 demonstrates the project needs based on these project types. Terminal projects make up the highest percentage of costs for both the lake and river systems, accounting for \$122 million (63 percent) and \$39 million (74 percent), respectively.

Figure 60: Near-Term Port/Port Authority Project Costs by System



Source: Consultations, WSP

Figure 61: Cost Federal or State Assistance Required

	Assistance Needed	
	Total Cost	# of Projects
Lake	\$179,892,157	21
River	\$53,430,000	12
State Totals	\$233,322,157	33

Source: Consultations, WSP

Figure 62: Estimated Near-Term Port Project Costs by Port/Port Authority

Lake		
Port	Cost	Number of Projects
Port of Cleveland	\$90,506,000	25
Lorain Port Authority	\$73,000,000	7
Fairport Harbor	\$18,867,157	2
Port of Toledo	\$16,500,000	4
Lake Subtotal	\$198,873,157	38
River		
Port Authority	Cost	Number of Projects
Monroe County	\$18,500,000	3
Washington County	\$15,000,000	1
Columbiana County	\$14,000,000	4
Lawrence County	\$5,930,000	4
River Subtotal	\$53,430,000	12
State Total	\$252,303,157	50

Source: Consultations, WSP

Figure 63: Port/Port Authority Projects Needs by Type

Lake			
Project Type	Cost	Percent	Number of Projects
Terminal	\$122,855,000	63%	19
Decarbonization	\$38,450,000	20%	2
Access	\$20,067,157	10%	4
Dredging	\$9,120,000	5%	4
Technology	\$3,175,000	2%	2
Other	\$2,206,000	1%	7
Lake Subtotal	\$195,873,157	100%	38
River			
Project Type	Cost	Percent	Number of Projects
Terminal	\$39,470,000	74%	8
Other	\$10,000,000	19%	1
Access	\$3,960,000	7%	3
River Subtotal	\$53,430,000	100%	12
State Total	\$252,303,157		50

Source: Consultations, WSP

Project and Funding Guidance

As part of the Ohio Maritime Plan, two key resources have been developed to support maritime stakeholders in advancing strategic investments. **Resource E: Project Evaluation Framework** provides a framework to assess the benefits of maritime projects, helping stakeholders prioritize initiatives with the greatest potential impact. **Resource F: Funding Resource Guide** outlines practical approaches to securing financial support, including real-world examples of how ports have creatively leveraged diverse funding sources. Together, these tools offer valuable guidance for selecting and advancing high-impact maritime projects across Ohio.



6. Key Strategies and Actions

For the maritime system to continue to have a role in serving Ohio's economy, it is crucial for system stakeholders to set a proactive path for recognizing opportunities, shaping policy, and making targeted investments that are focused on the long-term competitiveness, efficiency, and resilience of the state's ports and waterways. A coordinated, action-oriented path will ensure that Ohio's maritime system remains a vital asset for goods and people movement, economic development, and global trade in the future.

Guide to Actions

Based on input from the Ohio Maritime Plan Steering Committee members and system stakeholders, a set of strategies for improving the Ohio MTS were identified and organized to align with key opportunities. This includes Planning, Operations & Maintenance, Innovation & Technology, System Investment, and Coordination & Partnerships.

In addition to outlining these actions, a primary objective of the OMP is to recognize the owners and operators of Ohio's MTS, their roles and responsibilities, and opportunities for collaboration and partnership. This objective is critical as ODOT does not have ownership of port infrastructure, therefore the ability, to lead the implementation of all identified actions. Successful implementation will require leadership, support and resources of the identified stakeholders. As such, ODOT will advance a Memorandum of Understanding for execution amongst willing partners committing to a partnership for implementation.

The complete Action Matrix can be found in **Resource G: Action Matrix**.

Benefit Areas

The benefit categories reflect the five strategy areas, including Planning, Operations & Maintenance, Technology & Innovation, System Investment, and Coordination & Partnerships. They will be indicated by the icons below.



Planning



Operations & Maintenance



Innovation & Technology



System Investment



Coordination & Partnerships

Impacted MTS Area

An action can impact three MTS areas: **inside the port gate**, **outside the gate**, or **on the water** adjacent to ports.



Action Timeframe

Actions are categorized into three action timeframes: **ongoing** (0-2 years), **short-term** (2- 4 years), and **long-term** (4+ years)

Stakeholder Involvement

Stakeholders are identified for their roles and levels of involvement in executing each action – lead, co-coordinator, or interested but not directly involved.

The stakeholders that have possible leading and supporting roles include ODOT, Ohio Freight Advisory Committee, Ohio Rail Development Commission (ORDC), Ohio River Commission, other state agencies as applicable, United States Department of Transportation Maritime Administration (MARAD), USACE, Coast Guard, other federal agencies, MPOs and RTPOs, other local government, public ports, and private sector maritime stakeholders, including ferry operators.



Lead



Co-Coordinator



Interested but not directly involved

Planning Strategies



Planning strategies are critical to ensuring the long-term success and sustainability of Ohio's maritime system. These strategies offer a clear framework for addressing the evolving needs of the state's ports and port statistical areas, infrastructure, and related industries, while promoting both economic growth and environmental stewardship. Successful planning will require effective coordination among a wide range of stakeholders, including local, state, and federal government agencies, public ports, and private sector maritime entities. The following strategies are key to fostering this collaboration and driving Ohio's maritime system forward:

- Promote the development of Ohio's ports and maritime infrastructure to ensure the efficient movement of goods and bolster economic growth
- Provide guidance to federal and state officials on matters related to Ohio's maritime and related industries, ports, and waterways
- Promote maritime system safety and environmental sustainability

FHWA Ongoing Effort - Intermodal Connector Designation

TMACOG, Toledo's Metropolitan Planning Organization, has requested the addition of a National Highway System Intermodal Connector on Front Street at the entrance to the Port of Toledo. Following approvals from ODOT and the Port, the request is now pending approval by the Federal Highway Administration (FHWA). Granting this designation would unlock additional funding for the segment, improving port operations by facilitating the safe and efficient movement of traffic. Streamlined truck access to port facilities would help reduce delays and congestion.



Barge transiting Willow Island Lock, CPCS

Action 1. Evaluate National Multimodal Freight Network (NMFN) and National Highway System (NHS) intermodal connector designations to key maritime facilities and advance designation revisions, as warranted, to promote increased connectivity

The NMFN and NHS Intermodal Connectors are facilities that serve as key conduits between the major highway, rail, port, airport, and intermodal freight facilities. Having the “first-/last-mile” connections to Ohio’s key maritime facilities evaluated for NMFN and NHS intermodal connector designations could potentially unlock federal funding for improving these segments, enhancing the efficient movement of goods to and from the ports.

The action specifically touches the area **outside the gates of ports**, focusing on the connections that facilitate the flow of cargo from the port through highways and rail systems to their destinations. Strengthening these connectors improves conditions, reduces bottlenecks, improves logistics efficiency, and ensures seamless transitions for goods entering or exiting the ports.

This is considered a **short-term action**, as the designation request for NHS intermodal connector revisions or additions can be submitted to FHWA on a rolling basis, and the NMFN is required to be revisited every four years, allowing for timely improvements in Ohio’s port connectivity. Prompt action on this front will provide opportunities to secure federal funding for vital infrastructure improvements, positioning Ohio’s ports to better serve growing demand in the years ahead.

Benefit Areas



Planning



Operations &
Maintenance



System
Investment

Impacted MTS Area

**Outside the
Port Gate**



Action Timeframe

Short Term

2-4 Years

Stakeholder Involvement



ODOT



ORDC, MPOs and RTPOs, other federal agencies, other local governments



Ohio Freight Advisory Committee (FAC), public ports, private sector maritime stakeholders

Action 2. Encourage key maritime partners to conduct strategic plans that outline long term visions

By creating comprehensive and forward-looking plans, Ohio maritime partners can ensure that the state's ports understand their existing conditions and needs, positioning them better to adapt to evolving market demands and emerging global trade trends. These strategic plans help identify critical gaps in infrastructure, assess the potential for increased capacity, and pinpoint areas that require investment to remain competitive.

The action will directly impact **both the areas inside and outside the port gates, as well as the transportation and water systems used by the ports** since the recommended strategic plans will cover all areas, including but not limited to ports' existing infrastructure and equipment inventory, cargo handling capacity, types of commodities handled, anticipated capital needs, and so on.

This action is long-term in nature, as most ports lack a committed budget or plan to undertake comprehensive strategic planning. Many of the recommended analyses, such as market assessments, require time, expertise, and resources. These assessments involve evaluating trends, demand shifts, and growth projections, which may necessitate hiring consultants to support the work.

Benefit Areas



Planning



Operations &
Maintenance



Innovation &
Technology



System
Investment



Coordination &
Partnerships

Impacted MTS Area

**Inside & Outside
the Port Gate,
On the Water**



Action Timeframe

Long Term

4+ Years

Stakeholder Involvement



**Ohio River Commission, public ports,
private sector maritime stakeholders**



ODOT, MPOs and RTPOs



**Ohio FAC, ORDC, other state agencies, other
local government**

Action 3. Encourage regional and local agencies to take actions that better integrate land use, economic development, and transportation in and around Ports

MPOs, RTPOs, and local communities possess essential local knowledge, not only about the needs of ports but also about the requirements of the workers who serve them and the recreational users of the system. This regional and local expertise is critical for enhancing Ohio's maritime system by ensuring that port development aligns with the needs of both the maritime industry and its workforce. Land use planning, which must complement transportation improvements, falls under the responsibility of local agencies. Their insights are vital to ensuring that maritime-related development considers surrounding land use and residents' quality of life. Through effective coordination of transportation and land use planning, local communities can guide the development of more sustainable, efficient ports that benefit both the maritime sector and neighboring areas.

This action will impact **both the areas inside and outside the port gates, as well as the transportation and water systems used by the ports**, since the planning studies will address a broad range of topics—from equipment requirements at the port to multimodal connectivity needs and dredging concerns.

This is considered an **ongoing action** since ODOT has already been working with the listed partners to encourage local agencies to conduct the necessary planning studies for port and maritime-related development.

Benefit Areas



Planning



Operations &
Maintenance



Innovation &
Technology



System
Investment



Coordination &
Partnerships

Impacted MTS Area

**Inside & Outside
the Port Gate**



Action Timeframe

Ongoing
0+ Years

Stakeholder Involvement



**MPOs and RTPOs, other local
government**



**Ohio FAC, ORDC, Ohio River Commission,
other state agencies, public ports,
private sector maritime stakeholders**



ODOT

Operations & Maintenance Strategies



A wide range of infrastructure elements are essential to the efficient functioning of Ohio's MTS, facilitating the seamless movement of goods across the

state. Key components of this infrastructure include specialized equipment at docks, first- and last-mile road and rail connections, and navigation channels that enable safe and efficient shipping. Each of these elements plays a vital role in ensuring that goods are moved smoothly between ports, distribution centers, and end destinations. Equally important to Ohio's maritime operations is a skilled and reliable workforce. Workers are integral to managing port operations, maintaining equipment, ensuring safety, and supporting logistics functions. Together, these physical and workforce infrastructures form the backbone of Ohio's MTS, and the following strategies focus on the maintenance and improvements of them:

- Support the preservation and improvement of navigation channels and infrastructure
- Support the preservation and improvement of port infrastructure, including new equipment for ports to handle diverse cargo
- Maintain and improve road and rail connection to ports
- Collaborate with Ohio stakeholders to address the maritime industry labor shortage



MAP-funded conveyor belt in Greater Cincinnati, CPCS

Argonaut Students Training at the Port of Cleveland



Argonaut is a non-profit organization established in 2010, dedicated to building a skilled and empowered workforce in the aerospace and maritime sectors. Their mission is to provide immersive learning experiences that cultivate the next generation of talented individuals for the maritime industry. Argonaut has partnered with the Davis Aerospace & Maritime School to cultivate a curriculum that prepares high school students for entering the field of maritime upon graduation.

Sources: ABC News 5 Cleveland, Argonaut, Argonaut – Aerospace & Maritime.
Accessed February 2025

Action 4. Support statewide and port-specific guidance on safe operations between commercial and recreation vessels

Ohio's MTS serves both freight operations and as a recreational resource for its residents. With commercial vessels navigating alongside recreational boats, the potential for conflicts or accidents increases, making safety a top priority. Clear guidelines and regulations can help ensure that all users of Ohio's waterways can coexist safely and efficiently, protecting both the public and the economic interests tied to the maritime industry. By emphasizing accessible and safe operations, Ohio can foster a balanced, secure environment for both commercial shipping and recreational activities, supporting the growth and enjoyment of its maritime resources.

This action will impact activities **on the water** adjacent to the ports.

This initiative is considered a **short-term action** because it addresses an immediate safety need and can be implemented relatively quickly through coordination, education, and regulatory updates. Supporting statewide and port-specific guidance for safe operations between commercial and recreational vessels does not require major capital investment but delivers meaningful benefits to safety, efficiency, and user experience across Ohio's maritime system.

Benefit Areas



Operations &
Maintenance



Innovation &
Technology



System
Investment

Impacted MTS Area
On the Water



Action Timeframe

Short Term

2-4 Years

Stakeholder Involvement



Ohio River Commission, Lake Erie Commission, public ports, private sector maritime stakeholders, local governments



USACE, Coast Guard, other state agencies



ODOT

Action 5. Support maritime system preservation and modernization by making and supporting investments using the Maritime Assistance Program or other programs

Ohio's aging infrastructure, such as docks, locks, dams, channels, levees, and port facilities, requires significant investment to maintain and modernize. Upgrading this infrastructure is essential for ensuring the smooth and efficient movement of goods, minimizing disruptions, and maintaining Ohio's competitive edge in the global supply chain. Additionally, maintaining adequate water depths in shipping channels is vital for accommodating larger vessels, which are crucial for safe and efficient operations. Dredging operations are necessary to remove sediment and maintain navigable waterways, but these projects often face funding and coordination challenges. Supporting existing efforts through the Maritime Assistance Program and other federal and state-level programs to maintain and update infrastructure will benefit Ohio's maritime operations in the long run.

This action will impact all types of infrastructure covering the entire MTS in Ohio, including **outside and inside of the gate, as well as the adjacent water.**

The support of maritime system preservation and modernization has been underway and therefore considered **an ongoing action**. The best example is the Ohio Maritime Assistance Program administered by ODOT, which has provided funding for various maritime system projects since its creation in 2020.

Benefit Areas



Operations &
Maintenance



Innovation &
Technology



System
Investment

Impacted MTS Area

**Inside & Outside
the Port Gate,
On the Water**



Action Timeframe

Ongoing
0+ Years

Stakeholder Involvement



**ODOT, MPOs and RTPOs, Ohio River
Commission, public ports, private
sector maritime stakeholders**



**Ohio FAC, MARAD, USACE, Other State
Agencies, Other local government**

Action 6. Make investments to address safety, capacity, and pavement and bridge condition issues on first-/last-mile connections to ports

The first-/last-mile connections are crucial for the efficient movement of goods between ports and the broader transportation network, including highways and rail systems. Upgrading roads, bridges, and other infrastructure leading to and from the ports reduces congestion, improves safety for workers and freight, and ensures smooth operations. These improvements benefit not only the ports but also surrounding communities by promoting better access, supporting local economies, and enhancing overall transportation efficiency.

This action will positively impact system condition **outside the gate**.

ODOT and local agencies have already been addressing first-/last-mile connection needs across the state. This action is **ongoing** and expected to be carried out continuously.

Benefit Areas



Operations &
Maintenance



System
Investment

Impacted MTS Area

**Outside the
Port Gate**



Action Timeframe

Ongoing
0+ Years

Stakeholder Involvement



**ODOT, ORDC, MPOs and RTPOs, other
local government**



**Ohio River Commission; public ports,
private sector maritime stakeholders**

Action 7. Support national maritime workforce initiatives being led by MARAD, US Coast Guard, USACE, We Work the Waterways, and others

The workforce is crucial to Ohio's maritime operations, as skilled labor is essential for the smooth functioning of port activities, including loading and unloading cargo, maintaining vessels, and managing logistics. However, workforce challenges have been a long-standing issue for Ohio's maritime system, with concerns about labor shortages, aging workers, and the need for specialized skills in a rapidly evolving industry. As the demand for efficient and modernized port operations grows, addressing workforce development and training is key to ensuring Ohio's maritime sector remains competitive and can meet the demands of the global supply chain.

The workforce training programs will improve the maintenance and operations **on the water and inside of the port areas.**

This activity is **ongoing**. The leading agencies of this action have been aware of the maritime sector's workforce needs and have been actively addressing them. This action is expected to be carried out continuously.

Benefit Areas



Operations &
Maintenance



Coordination &
Partnerships

Impacted MTS Area

**Inside the Port
Gate & On the
Water**



Action Timeframe
Ongoing
0+ Years

Stakeholder Involvement



**Ohio River Commission, MARAD,
USACE, Coast Guard, public ports,
private sector maritime stakeholders,
other state agencies**



ODOT

Action 8. Partner with Ohio educational institutions, local and regional partners, and other interested parties to support entry into the maritime workforce

Besides federal initiatives, Ohio can also tap into regional resources and strengthen the workforce in the maritime sector. Some of the existing efforts include the Argonaut Program, Cleveland Maritime Education Program, Great Lakes Maritime Academy, Ohio River Maritime Academy, and Local Port Authority Initiatives.

The workforce training programs will improve the maintenance and operations **on the water and inside the port areas.**

Workforce development requires a long-term approach to build and sustain. Creating educational pathways, training programs, and apprenticeship opportunities requires significant planning, investment, and collaboration to ensure a steady pipeline of skilled workers. Additionally, the impacts of such programs will not be immediately felt, as it takes time for students and trainees to complete their education and enter the workforce, making this a **long-term strategy** for addressing labor shortages in Ohio's maritime industry.

Benefit Areas



Operations &
Maintenance



Coordination &
Partnerships

Impacted MTS Area

**Inside the Port
Gate & On the
Water**



Action Timeframe
Long Term
4+ Years

Stakeholder Involvement

- **Ohio River Commission, Ohio educational institutions, other state agencies**
- ◐ **MARAD, USACE, Coast Guard, Public Ports, private sector maritime stakeholders**
- **ODOT**

- Collaborate with Ohio dredging stakeholders on dredging research, planning, and best practices for dredge material management and providing ports technical assistance related to dredging.
- Support technology to improve port efficiency.
- Encourage adoption of cleaner and alternative fuel vehicles for goods movement, including trucks, locomotives, vessels, and handling equipment.

[illegible]

The Cleveland Harbor Eastern Embayment Resilience Strategy (CHEERS) is an innovative project that aims to revitalize the lakeshore for tourism and community development while addressing the critical issue of dredged material reuse. CHEERS will repurpose dredged material to create new islands connected to the Lake Erie shoreline. These islands will serve as vital habitats for wildlife and provide public parks for community enjoyment. Six project partners, including Black Environmental Leaders, the City of Cleveland and Cleveland City Council, Cleveland Metroparks, Ohio Department of Natural Resources, Ohio Department of Transportation, and the Port of Cleveland, are working together in phases over the next 25 years to contribute to the reconnection of communities to the lake, improve public health, support the economy, and benefit the environment and local habitats. Construction of the park and habitat is set to begin by 2028.

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Action 9. Provide technical assistance and support to ports with dredging projects outside of federal navigation channels

Smaller ports often struggle to meet the federal requirements for dredging assistance, which limits their ability to establish long-term dredging schedules and access necessary funding for dredging activities. Many of these ports lack financial resources, equipment, and technical capacity to perform dredging on their own, which can result in shallow water depths that prevent larger vessels from docking or navigating effectively. This lack of dredging can hinder their ability to handle a wider range of cargo, attract more shipping lines, or participate fully in regional and global trade networks. As a result, the economic development opportunities of smaller ports are stunted, limiting their growth potential and competitive edge in the maritime industry. With state agencies and USACE providing additional support, these smaller ports can unlock more economic development opportunities. This action will also help address the technical capacity gap of smaller ports that would like to advance the beneficial use of dredged materials.

The technical assistance will improve the maintenance and operations **on the water and inside of the port areas.**

This is an ongoing action that has already been led, in part, by state agencies, including the Ohio Lake Erie Commission, Ohio EPA, and ODNR, and is expected to continue.

Benefit Areas



Planning



Operations &
Maintenance



Innovation &
Technology



System
Investment



Coordination &
Partnerships

Impacted MTS Area

**Inside the Port
Gate & On the
Water**



Action Timeframe

Ongoing

0+ Years

Stakeholder Involvement



**Ohio River Commission, Ohio Lake
Erie Commission, USACE, public ports,
other state agencies**



Private sector maritime stakeholders



ODOT

Action 10. Coordinate and support research and planning of additional beneficial use sites in nearshore and upland locations

Beneficial use sites refer to areas where dredged material, often removed from shipping channels, can be repurposed in ways that provide environmental, economic, or community benefits. For example, dredged material can be used to restore wetlands, create new habitats, or help build infrastructure in nearby areas. These sites allow for the environmentally responsible disposal of dredged material, reducing the need for costly and potentially harmful disposal methods. By repurposing dredged material, Ohio can enhance coastal ecosystems, create new land for development, and reduce the environmental footprint of dredging activities. This not only helps maintain navigable waterways but also provides long-term benefits for local communities and the environment, contributing to the sustainable growth of Ohio's maritime industry and its overall economic development.

This action will improve navigation **on the water** and provide additional economic development opportunities **inside the port areas**.

This is an ongoing action. This action requires coordination among multiple stakeholders, many of whom are actively engaged in dredge material management planning focused on beneficial use. Given that some ports have already had previous experience working on beneficial use sites, this action is deemed to be an effort that can be carried out within a short period of time with the lead of USACE, public ports, Ohio Lake Erie Commission, Ohio EPA, and ODNR.

Benefit Areas



Planning



Operations &
Maintenance



Innovation &
Technology



Coordination &
Partnerships

Impacted MTS Area

**Inside the Port
Gate & On the
Water**



Action Timeframe

Ongoing
0+ Years

Stakeholder Involvement



**USACE, public ports, other state
agencies**



**Ohio River Commission, Lake Erie
Commission, private sector maritime
stakeholders, ODOT**

Action 11. Support the investment in Automatic Identification System (AIS) technology for vessel tracking

The Automatic Identification System (AIS) is a technology used to track and monitor the movement of vessels in real-time. It allows ships to transmit their position, speed, course, and other relevant information to nearby vessels and shore-based stations. This system is essential for enhancing navigational safety, preventing collisions, and improving the overall planning and efficiency of maritime operations. Analyzing the AIS data can also help stakeholders better understand the movement patterns of the vessels using the Ohio MTS, providing insights into approaches to increasing efficiency.

This action will improve operations and navigation **on the water** and enhance efficiency **inside the port areas**.

This is an ongoing action; the Ohio Maritime Plan includes insights informed by analyzing the AIS data.

Benefit Areas



Operations &
Maintenance



Innovation &
Technology



System
Investment

Impacted MTS Area

**Inside the Port
Gate & On the
Water**



Action Timeframe

Ongoing
0+ Years

Stakeholder Involvement



**Ohio River Commission, USACE,
public ports, private sector maritime
stakeholders**



**ODOT, MARAD, Coast Guard, MPOs and
RTPOs, other local government**

Action 12. Identify potential funding sources and project eligibility for emissions reduction projects in Ohio's maritime, rail, and trucking sectors

The transportation sector is a major contributor to emissions and air pollution, which can negatively impact public health and the environment. By securing funding for emissions reduction initiatives, Ohio can support the transition to cleaner technologies, such as electrification, cleaner fuels, and more efficient transportation systems. For the maritime industry, this could mean upgrading port equipment, vessels, and infrastructure to reduce emissions. Additionally, rail and trucking improvements could include investing in cleaner engines or alternative energy sources. ODOT and other state agencies can help ports, especially the smaller ones, identify emission reduction projects given their limited technical capacity and resources.

This action has the potential to help reduce emission **inside and outside the gate, as well as on the water.**

This is a short-term action; the Ohio Maritime Plan includes a Resource Guide that outlines all the state-level and federal-level funding programs and resources for emission reduction in the transportation sector. Submitting applications and securing funding for projects requires resources and time. In addition, programs typically require the development and adoption of support plans.

Benefit Areas



Planning



Operations &
Maintenance



System
Investment



Innovation &
Technology

Impacted MTS Area

**Inside & Outside
the Port Gate,
On the Water**



Action Timeframe

Short Term

2-4 Years

Stakeholder Involvement



**ODOT, ORDC, other state agencies
(Ohio EPA)**



**Ohio River Commission, MPOs and RTPOs,
public ports; private sector maritime
stakeholders**

System Investment Strategies



Addressing the needs and challenges of Ohio's MTS requires substantial and sustained funding support to ensure its continued growth and resilience. The Ohio Maritime Assistance Program

(MAP) and federal programs through MARAD have proven to be effective resources for preserving and enhancing the state's maritime infrastructure, facilitating key investments in critical areas. However, beyond the MAP and MARAD programs, there are additional funding resources and strategies that can further promote the efficiency, sustainability, and overall effectiveness of the system. The following system investment strategies explore various funding opportunities aimed at supporting the continued development and modernization of Ohio's maritime system, ensuring it remains competitive, safe, and environmentally responsible for years to come.

- Promote investments that grow the economy, improve access to jobs, minimize environmental impact, and align with community values.
- Support long term stable funding for the maritime system.
- Provide grant and funding technical assistance.
- Continue to advance the Ohio Maritime Assistance Program.



Ongoing Effort – Ohio Maritime Assistance Program

The Ohio Maritime Assistance Program (MAP) is a discretionary funding program administered by ODOT, aimed to support the development, maintenance, and enhancement of Ohio's maritime infrastructure. Through MAP, funding is provided to local ports and public agencies to improve facilities, equipment, and operations that are vital to the efficient movement of goods across the state. As of 2025, the MAP has allocated \$33 million, leveraging over \$90 million to support maritime infrastructure projects across Ohio. The selected MAP funding projects support dock walls, transloading equipment, roads, mooring cells, sediment processing facilities, ore tunnel extension, and intermodal transportation infrastructure.

Source: Ohio Maritime Assistance Program Awards, MAP_Project_Awards_10292020.pdf.

Action 13. Support investments that promote safe and efficient access by all modes to and on Lake Erie and the Ohio River, particularly in and around Ports and in consideration of freight activity

Safety and efficiency are crucial to a functional system, in consideration of both freight and recreational users. Maritime is a historically safe mode of transport, and proper investments in projects and initiatives will continue to support safety considerations for all users and improve the efficiency of the transport of goods. Diversifying funding and securing long-term funding sources will be crucial for the maintenance and modernization of Ohio's MTS.

This initiative focuses on all facets of the maritime system: on-water operations, port facilities, and landside connections. Prioritizing safety and efficiency across these domains is paramount. Enhancing freight movement safety will directly contribute to a more efficient system, while also addressing impacts to adjacent communities and recreational users of the system with strategic investments.

This action represents an ongoing commitment, as sustained investments are essential to maintain safety and efficiency standards within the maritime system. Strategic investments through programs like the Maritime Assistance Program (MAP) can address both system underutilization and directly support targeted port improvements. Collaborating with federal, state, and local stakeholders to identify and advance new and existing funding sources of maritime project funding will also be critical to making strategic system investments.

Benefit Areas



System
Investment



Coordination &
Partnerships

Impacted MTS Area

**Inside & Outside
the Port Gate,
On the Water**



Action Timeframe

Ongoing

0+ Years

Stakeholder Involvement



ODOT, Ohio River Commission, Lake Erie Commission, MPOs and RTPOs, other local governments; public ports, private sector maritime stakeholders



Ohio FAC, MARAD, USACE, other federal agencies, other state agencies

Action 14. Evaluate traditional ODOT funding programs for the integration of maritime system project scope elements

This action explores the potential for consideration of maritime system needs and improvements within traditional ODOT and external partner funding programs, including other state, regional transportation agency and local partners, that extend beyond maritime-specific initiatives like MAP. This aims to identify opportunities for enhanced multimodal integration, which could increase overall system efficiency and utilization.

This action **impacts ports, facilities, connections, and port surroundings**. The funding could improve the facilities that connect the maritime system.

This action is described as ongoing as the Ohio Maritime Plan can serve as an immediate resource to MPOs and RTPOs, and ODOT's internal program managers to identify opportunities for integration of maritime system components for project funding consideration.

Benefit Areas



System
Investment

Impacted MTS Area

**Inside & Outside
the Port Gate**



Action Timeframe

Ongoing
0+ Years

Stakeholder Involvement



**ODOT, MPOs and RTPOs, County
Engineers Association of Ohio (CEAO),
local governments**



ORDC

Action 15. Promote revised eligibility criteria for federal passenger ferry-related funding programs, that currently restrict access to funds based on minimum route mileage and public ownership requirements

Modifying eligibility requirements for funding programs presents an opportunity to expand support for ferry-related operations, transporting both passengers and goods. Given the economic impact of Ohio's tourism industry, where numerous ferry services connect mainland locations to island destinations or communities across the river, broadening program eligibility could provide significant benefits. These short-haul ferry services would benefit from increased access to funding programs.

This action is related to **maritime corridors that ferry services use and ports and facilities** where they would dock. These areas could be the potential funding recipients if eligibility requirements were adjusted to include them.

The short-term designation of this action reflects the potential changes for funding and eligibility criteria for modification through federal reauthorization and appropriations legislation. Additionally, the introduction of new programs with distinct requirements creates periodic avenues for ferry service enhancement.

Benefit Areas



System
Investment

Impacted MTS Area

**Inside the Port
Gate & On the
Water**



Action Timeframe
Short Term
2-4 Years

Stakeholder Involvement

- **ODOT, other federal agencies, other state agencies, private sector maritime stakeholders**
- **MPOs and RTPOs, other local governments, public ports**

Action 16. Conduct an evaluation of the Ohio Maritime Assistance Program including historic benefits and expected future funding needs

The funding provided by the MAP is a newer addition (2020) to the funding available for maritime ports on the Lake and River. It is important to evaluate the ongoing impacts of the program utilizing the OMP project evaluation framework, and other metrics, to better inform future investments and action. Evaluating and documenting program impacts can help communicate successes and create awareness for continued MAP program funding and other opportunities.

This action **directly impacts all three segments of the maritime system** as the MAP funds are used by the ports for capital projects across all facilities.

This action is designated as ongoing because, for the foreseeable future, there will be projects that earn funding from the MAP. Taking an inventory of these projects is crucial for the long-term survival of the program and building a case to eventually expand it or create a new, similar funding program.

Benefit Areas



System
Investment

Impacted MTS Area

**Inside & Outside
the Port Gate,
On the Water**



Action Timeframe

Ongoing

0+ Years

Stakeholder Involvement



ODOT, public ports



Ohio FAC, Ohio River Commission

Coordination & Partnership Strategies



Ohio's MTS plays a crucial role in facilitating the movement of goods, yet its complexity lies in the fact that various stakeholders own, operate, and maintain different components of the

system. At the same time, the full economic impact of the maritime system on Ohio's economy remains largely unknown to the public. The following two strategies are designed to strengthen collaboration among these diverse stakeholders and raise awareness of the MTS's vital role in supporting Ohio's economic growth and competitiveness. These efforts aim to foster greater cooperation and highlight the importance of the system to both the state's industries and its citizens.

- Improve coordination for maritime interests and stakeholders
- Build awareness of the Ohio maritime transportation system and its benefits

Ongoing Effort – Ohio River Commission

The Ohio River Commission, created through Ohio Senate Bill 54, was signed into law by Gov. Mike DeWine on Jan. 2, 2025. The Commission consists of government officials, including members from ODOT, the Ohio Department of Natural Resources, and six other appointed members from the private sector or state residents. It will focus on economic development, managing the Ohio River's infrastructure, and promoting its use for commerce, tourism, and transport. Its responsibilities include coordinating with port authorities, evaluating policies for regional prosperity, and managing funds for river projects. Additionally, it will also advocate for Ohio River's needs and issues, bringing awareness to the maritime transportation system's infrastructure and the benefits the system brings.

Source: Ohio Governor Signs Ohio River Commission Bill Into Law, as of 2025, accessed March 2025, Ohio Governor Signs Ohio River Commission Bill Into Law - The Waterways Journal



Ohio River at Huntington, WV, iStock

Action 17. Participate and coordinate with the new Ohio River Commission and Lake Erie Commission to inform and advance maritime interests, initiatives, and Ohio Maritime Plan action strategies

The Ohio River Commission was signed into law by Ohio Governor Mike DeWine and will consist of nine members who will represent the public's wishes and advocate for businesses and operations on the Ohio River. The commission has the opportunity to help develop the river's changing economic activities. The Lake Erie Commission has been active since 1992 and serves a similar purpose: preserving, protecting, and promoting life on the Lake.

This action touches all three areas, on the water and inside and outside the gate. Actions taken by the Ohio River Commission or the Lake Erie Commission cover each body of water's maritime connections, their ports, and facilities, connections to other systems, and port surroundings.

This action is considered short-term because the Lake Erie Commission has been active and impactful for over 30 years, and the Ohio River Commission, although in the early stages of taking action as a newly formed Commission, has legislative and public backing to start making changes on the Ohio River.

Benefit Areas



Planning



Coordination &
Partnerships

Impacted MTS Area

**Inside & Outside
the Port Gate,
On the Water**



Action Timeframe

Short Term

2-4 Years

Stakeholder Involvement



**ODOT, Ohio River Commission, Lake
Erie Commission**



**Other state agencies, public ports, private-
sector maritime stakeholders**

Action 18. Continue to represent maritime stakeholders and interests on the Ohio Freight Advisory Committee

The Ohio Freight Advisory Committee (FAC) was formed in 2021 to help guide the Ohio State Freight Plan being developed and address mobility and workforce issues impacting Ohio's freight-based infrastructure. A variety of members represent different industries including ports, railroads, shippers, carriers, government entities, and other relevant agencies.³³ This action supports the continuation of the FAC supporting maritime specific activities and the system's interests.

The FAC's jurisdiction encompasses **the entire state of Ohio, including its jurisdictional waters and related maritime systems within Lake Erie and the Ohio River**. The FAC's goal is to consider all modes of transportation fairly, creating diverse areas of focus, including the maritime system.

This is an ongoing initiative, as the FAC convenes at least three times annually to address emerging changes and opportunities in freight movement throughout Ohio.

Benefit Areas



Planning



Coordination &
Partnerships

Impacted MTS Area

**Inside & Outside
the Port Gate,
On the Water**



Action Timeframe

Ongoing

0+ Years

Stakeholder Involvement



ODOT, Ohio FAC

³³ Ohio Freight Advisory Committee Charter, Ohio DOT, as of Oct 2023, accessed Feb 2025, <https://www.transportation.ohio.gov/programs/transport-ohio/fac/charter>

Action 19. Distribute Port Profiles to key transportation and economic development partners to grow understanding of Port capabilities and capacity

The Port Profiles are a valuable resource for economic development partners to understand the current capacities and opportunities for the port. Intermodal connectivity is also included and can help identify which ports may be of better service for certain commodities or reliable for increasing service.

Port profiles offer a concise summary of each port's capabilities, location, and connectivity, impacting **all MTS components**. These profiles support informed business development. Furthermore, they serve as a valuable reference for ports to quickly familiarize stakeholders with their respective capacities.

This initiative has a short-term timeline for completion, with actionable items expected within the next two years. The Ohio Maritime Plan team has developed these port profiles, and upon finalization, publication, and distribution, they will serve their intended purpose as previously described.

Benefit Areas



Planning



Operations &
Maintenance



Innovation &
Technology



System
Investment



Coordination &
Partnerships

Impacted MTS Area

**Inside & Outside
the Port Gate,
On the Water**



Action Timeframe

Short Term

2-4 Years

Stakeholder Involvement



ODOT, public ports



**Ohio FAC, ORDC, Ohio River Commission,
MPOs and RTPOs, other state agencies,
other local governments, private-sector
maritime stakeholders**

Action 20. Support the marketing of Lake Erie and Ohio River through ODOT Scenic Byways and Tourism Ohio programs

Tourism is very popular in Ohio, especially on Lake Erie with several well-known landmarks (lighthouses at some smaller ports), and popular water activities (kayaking, habitat exploration, and hiking). Tourism in Ohio is a great contributor to job creation and tax revenue for the state. In 2023, the Lake Erie coastal region boasted \$20 billion in economic impact and created over 130,000 jobs.³⁴ The Lake Erie Coastal Ohio Trail and Ohio River Scenic Byway are recognized by USDOT as National Scenic Byways & All-American Roads.

This action touches **all three areas, on the water and both inside and outside the gate**. The marketing of the recreation programs on Ohio's waterways will contribute to a better quality of life for residents and a boost to local communities supporting tourism. Lake Erie has several popular tourist destinations such as Marblehead, Sandusky, and Put-In-Bay.

This action is considered **long-term** because marketing efforts continue over time and take time to implement and see the effects of the outreach. This will also be an effort that continues over time and requires collaboration and consistent messaging from all the stakeholders involved.

Benefit Areas



Planning



System
Investment



Coordination &
Partnerships

Impacted MTS Area

**Inside & Outside
the Port Gate,
On the Water**



Action Timeframe
Long Term
4+ Years

Stakeholder Involvement



ODOT, Lake Erie Coastal Ohio Trail and Ohio River Scenic Byway Coordinating Agencies, other state agencies



Ohio River Commission, Lake Erie Commission, private-sector maritime stakeholders

³⁴ The Shores and Islands Ohio Tourism Economy Continues to Thrive, Shores and Islands Ohio, as of Feb 2024, accessed Feb 2025, <https://www.shoresandislands.com/articles/post/the-shores-islands-ohio-tourism-economy-continues-to-thrive/>

