Northeast Wisconsin Intermodal Freight Facility Study

Final Report

Prepared for:

East Central Wisconsin Regional Planning Commission

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Northeast Wisconsin Intermodal Freight Facility Study

The objective of the Northeast Wisconsin Intermodal Freight Facility Study is to determine the economic viability, operational feasibility, and potential location for rail-truck intermodal services in Northeastern Wisconsin.

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- East Central Wisconsin Regional Planning Commission
- Brown County
- New North Inc.
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- Wisconsin Department of Transportation
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Opinions

Unless otherwise indicated, the opinions herein are those of the authors and do not necessarily reflect the views of the East Central Wisconsin Regional Planning Commission.

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List of Acronyms

Acronym	Term
BNSF	Burlington Northern Santa Fe Railway
CFE	Chicago, Fort Wayne, and Eastern
CN	Canadian National Railway
CP	Canadian Pacific Railway
CRAA	Columbus Regional Airport Authority
CRISI	Consolidated Rail Infrastructure and Safety Improvements
DOT	Department of Transportation
EPA	Environmental Protection Agency
FEC	Florida East Coast
FOXY	Fox Valley and Lake Superior Rail System
FRA	Federal Railroad Administration
FRIIP	Freight Rail Infrastructure Improvement Program
FRPP	Freight Railroad Preservation Program
GDP	Gross Domestic Product
GSP	Greenville-Spartanburg
HIG	Heartland Intermodal Gateway
IAIS	Iowa Interstate Railroad
IMX	Intermodal
LINCS	Local Intermodal Connections
MWVIF	Mid-Willamette Intermodal Facility
NS	Norfolk Southern Railroad
OTC	Oregon Transportation Commission
PIDP	Port Infrastructure Development Program
PSR	Precision Scheduled Railroading
RAISE	Local and Regional Project Assistance Program
RIP	Rickenbacker Inland Port
ROW	Right of Way
RLR	Rail Line Relocation and Improvement Capital Grant Program
RPC	Regional Planning Commission
SIB	State Infrastructure Bank
TEA	Transportation Economic Assistance Program
TEU	Twenty Foot Equivalent Units
TIFIA	Transportation Infrastructure Finance and Innovation Act
TLC	Total Logistics Cost
UP	Union Pacific Railroad
USDOT	United States Department of Transportation
WSOR	Wisconsin and Southern Railroad

Executive Summary

Northeast Wisconsin's Intermodal Challenge

Northeast Wisconsin's shippers face challenges in securing affordable and reliable intermodal transportation services. These challenges relate to at least two major factors:

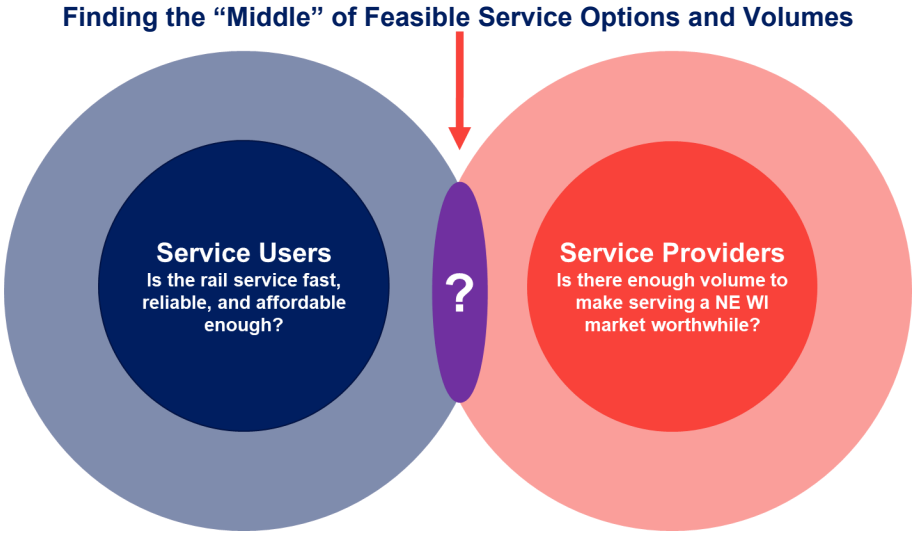
- The relatively long drive under congested traffic conditions between Northeast Wisconsin and major intermodal terminals in Chicago, and
- The acute shortage of truck drivers in the United States.

This study focuses on the first major issue and aims to determine the feasibility of developing an intermodal service in Northeast Wisconsin. The topic of intermodal access is particularly important for the region given its high concentration of freight dependent businesses—including manufacturing.

The establishment of a locally-based intermodal rail transportation service has the potential to address these problems. Intermodal has historically been best-suited for the movement of medium-value items like consumer goods and manufactured products over moderate to long distances and is an important transportation option for both domestic and international shipping in the United States. Yet, Northeast Wisconsin has been without direct intermodal service since the closure of Wisconsin Central's intermodal facilities in 2001. With surging demand from the region's manufacturers, this study seeks to establish the potential feasibility of developing a new facility to newly anchor intermodal service in 2022 and beyond.

Two Perspectives on Intermodal Service Feasibility

Viable development and operation of intermodal service require the participation, collaboration, and support of 1) shippers such as beneficial cargo owners and third-party logistics firms, and 2) service providers such as railroads and terminal operators. The following figure illustrates the idea of identifying the characteristics of the "intersection" between what service potential users want, and the types of service railroads are willing to provide. This project sought to improve information about the topic of service feasibility from the perspective of both groups through work such as consultations, commodity flow data analysis, and a logistics cost model.



Shippers' Perspective: Potential Demand and Market Feasibility

If the cost of using an intermodal service in Northeast Wisconsin does not offer a savings over current transportation options, then it is likely not something the industry would use. Therefore, it is important to understand the expected cost competitiveness of intermodal service in northeast Wisconsin. Potential market demand and market feasibility of a new intermodal service in Northeast Wisconsin were estimated using a total logistics cost (TLC) model. The model assumes that when given multiple viable transportation options, a shipper will favor the transportation option that minimizes the total logistics cost of their operations from origin to destination. The three scenarios assessed under the model include 1) Fully-trucked routing from origin to destination; 2) Use of an intermodal facility in Chicago; and 3) Use of an intermodal facility in Northeast Wisconsin. The model incorporated total shipping, handling, and storage costs for different types of goods, trade lanes, and routings.

The project model suggests there is sufficient market demand for Northeast Wisconsin intermodal service to be competitive from a time and cost standpoint.

Based on the model, there is sufficient market demand for intermodal freight service in Northeast Wisconsin to operate at 25 lifts per day, 5 days a week. Feasibility is contingent on a market capture rate at approximately 7% of potential market demand noted in the following figure.

Total Potential Market Demand for Northeast Wisconsin Intermodal Service

Units:	Value:	Weight:
97,253	$5.8 billion	1.5 Million Tons

Source: CPCS Total Logistics Cost Model for Northeast Wisconsin Intermodal Study

Limitations of the Model: At this time, most of the intermodal shipping demand is focused on domestic movements and is highly concentrated on outbound movements. Due to directional imbalance, the service will need to ensure the availability of equipment by working with shippers to reposition empty containers. Additionally, actual shipper demand for the intermodal service will hinge on rail service schedules; company production schemes; total transit time for specific lanes; existing supply chain structures, contracts, and relationships; and other factors.

Potential Locations and Costs

This study also included a high-level location screening and cost estimation exercise to determine potential locations and planning-level cost estimates for facility development. A facility that could handle the volumes listed above would cost an estimated $3 million to construct (land cost not included), and there are many feasible sites for development, particularly along major highway corridors such as I-41 between Appleton and Green Bay and I-41 between Neenah and Oshkosh.

Railroads' Perspective: Operational Feasibility

Intermodal service with a terminal or terminals located in Northeast Wisconsin has the potential to be an attractive option for the region's shippers. However, the ultimate feasibility of intermodal service also depends on the partnership of a railroad willing to serve terminal users with offerings that are reliable and cost-effective.

Intermodal service's feasibility in Northeast Wisconsin is less a question of shipper demand, and more of carrier participation: is a Wisconsin-based intermodal service compatible with railroads' business models and system capacities?

Two primary rail service providers in Northeast Wisconsin could support intermodal service: the Canadian National Railway (CN), and Watco. CN is one of North America's largest railroad operators and has a business model that prioritizes handling long-distance movement of goods. By comparison, Watco operates smaller regional railroads such as the Wisconsin and Southern (WSOR).

For both operators, there are potential challenges to establishing and supporting service, including an expected imbalance between inbound and outbound cargo flows, questions about short-haul operations' potential misalignment with CN's business model, and capacity constraints on existing rail lines and railroad yards in Chicago. Another key consideration for operational feasibility is the need for partnership with additional major railroads in Chicago, as both CN and WSOR lack direct connections to the eastern and western US destinations that make up the most-promising trade lanes for potential intermodal service. Some factors that could improve feasibility in the future include increasing demand for sustainable and energy-efficient freight transportation options and future emphasis on growing large railroads' local business and shorter-haul trade lanes.

Advancing Intermodal Service in Northeast Wisconsin

Northeast Wisconsin's intermodal transportation demand profile is unique and does not closely resemble many of the previously established services in the Midwest and broader United States. While other services are built on international imports and large-volume shippers, Northeast Wisconsin's demand for container services appears to be focused most heavily on outbound domestic shipments. This difference in demand combined with the short-haul nature of connections to Chicago suggests that Wisconsin will likely need a new model for intermodal development. To drive development forward and secure partnership with a railroad, freight stakeholders in Northeast Wisconsin will have to create a business case built on actionable information and commitment from shippers. This business case must demonstrate enough demand to hold the attention of railroad partners and overcome the operational challenges of setting up a short-haul service.

Next steps for freight stakeholders in Northeast Wisconsin include:

- **Identify project champions** – trusted partners who can drive development forward, either by aggregating demand or by virtue of their own significant demand.
- **Secure shipper commitments** – identify potential volumes for intermodal shipment on specific trade lanes.
- **Solicit railroad commitments** – use the assembled commitments to continue engagement with railroads and demonstrate demand and commitment for service.
- **Select terminal location and refine cost estimates** – this study provides high-level location screening and cost estimates, but the ultimate location of a facility will depend on potential partners.
- **Determine a business model and funding sources** – the nature of partnerships will determine the type of business model, such as license agreements and joint ventures.

Future development efforts will rely on sustained public and private engagement, commitments from shippers and railroads, an actionable business case, and funding for both the facility and rail infrastructure to bring the project to fruition.

1 Northeast Wisconsin's Intermodal Context

Northeast Wisconsin's shippers face challenges in securing affordable and reliable intermodal transportation service. Many of these challenges are related to the long drive and traffic congestion between Northeast Wisconsin and major intermodal terminals in Chicago.

Intermodal rail transportation has historically offered a balance between moderate shipping costs and travel times and has been best-suited for the movement of medium-value items like consumer goods and manufactured products over moderate to long distances. Therefore, intermodal service has been an important transportation option for both domestic and international shipping in the United States.

1.1 Intermodal Transportation Basics

Intermodal transportation refers to the movement of goods in shipping containers or truck trailers across multiple modes of freight transportation. For example, intermodal containers are often loaded in Wisconsin, carried by truck to Chicago, and then loaded onto trains for further shipment elsewhere.

Intermodal shipping is attractive for certain types of shippers because of its potential cost, time, safety, and sustainability benefits.

As of 2020, intermodal made up close to 25% of revenue for U.S. railroads[1] – more than any other rail traffic segment. Intermodal shipping's significant growth and widespread global adoption were driven in large part by its major benefits for shippers. These main benefits for shippers and receivers in the United States include:

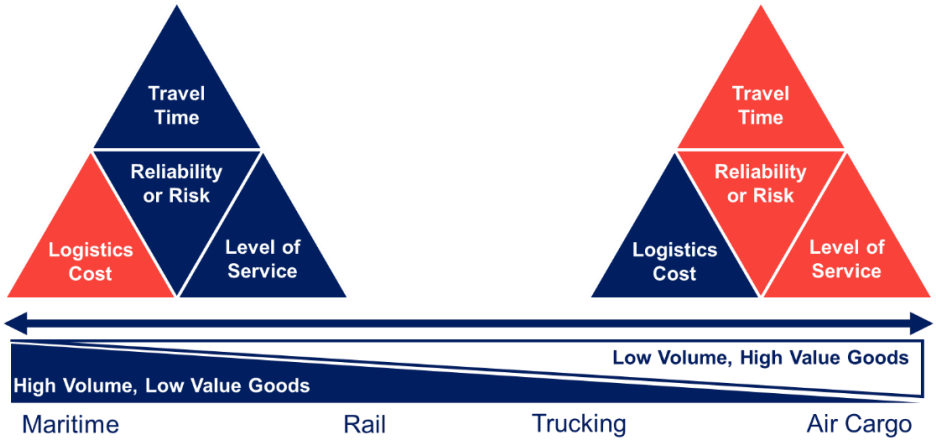
- **Cost Competitiveness:** Intermodal rail shipping generally offers a lower cost for medium-to-long distance routes compared to trucking due to factors such as shortages in truck drivers, fuel costs, cross-docking of goods, and available rail capacity, especially on high-volume lanes. Customers can also enter contracts to lock in rates and capacity.
- **Time:** Transit times for intermodal rail shipping have generally improved over time with increased demand and route optimization. This has made intermodal rail more competitive with trucking for time-sensitive cargo.
- **Safety and Security**: Intermodal rail has a lower crash rate than trucking, and safety risks associated with weather, shared roadway lanes, or road construction are also reduced. New rail technologies such as advanced signaling systems, monitoring systems, locked cars, and pick-up numbers also increase the safety and security of intermodal rail shipping.

[1] American Association of Railroads, "What Railroads Haul: Intermodal", April 2021

- **International Trade:** intermodal rail shipping provides efficiencies in international trade through streamlined customs, tax, and clearance processes. Rail also faces lower border delays compared to trucks' border queueing time, and the standardized size of containers ensures easy movement in different countries.
- **Efficiency:** Intermodal rail can scale according to the demand of a shipper, with differing sizes of containers available depending on the trade lane. Intermodal shipping may offer double-stacked containers on train cars, fewer labor requirements, and no need to transfer and repack goods from one truck to another. Together, factors like this maximize efficiency for high-volume shipments.
- **Sustainability:** Intermodal shipping can reduce the negative air emissions created by freight transportation by leveraging rail shipping's energy efficiency. Rail is three to four times more fuel-efficient than trucks and can move one ton of freight almost 500 miles on a single gallon of fuel. Rail also emits 75% fewer greenhouse gases per ton-mile compared to trucks.[2] Consultees have noted that these environmental benefits of rail have become increasingly important selling points for use of intermodal.

In terms of comparison between modes of transportation, intermodal transportation lies in the "middle" of the spectrum of transportation options - between rail and truck transportation. Travel time for intermodal moves may be slightly longer than long-haul truck trips, but shipping costs may be lower as well. Therefore, the types of goods most likely to be carried by intermodal containers are moderate-value. Figure 1 illustrates this concept of different modal options and their value proposition. In terms of optimal shipping distance, the relatively higher shipping cost or lower capacity of trucks means that for any given product, trucking is most cost-effective for short-haul moves. By comparison, the higher capacity and efficiency of rail means that rail is well-suited as a medium- to longer-distance option.

Figure 1: Transportation Service "Spectrum"



Given these considerations, intermodal transportation in the United States has historically been best suited for intermediate and finished goods of moderate value that are shipped often and consistently in similar quantities at distances of 800 miles or higher. When compared to bulk or break-bulk shipping, intermodal commodities tend to have a higher value-to-weight ratio.

[2] American Association of Railroads, "The Environmental Benefits of Moving Freight by Rail", July 2019

Intermodal transportation strikes a balance between moderate shipping cost, and moderately fast travel time, making it suitable for medium-value items like consumer goods and manufactured products.

1.2 Intermodal Transportation Challenges for Northeast Wisconsin

Northeastern Wisconsin had intermodal service through much of the 1990s, as the Wisconsin Central Railroad operated intermodal terminals in Green Bay, Neenah, and Stevens Point. Of these three terminals, Green Bay sustained the greatest volume of traffic. By comparison, Stevens Point failed to build a sustainable base of traffic volume, and Neenah was too close to both Green Bay and Stevens Point to develop significant traffic volumes. All three of these yards closed after the Canadian National Railway acquired Wisconsin Central in 2001. Outside of the Northeast Wisconsin region, the nearest container terminal was a Canadian Pacific facility in Milwaukee, but this operation closed in 2012. Because of these closures, businesses in northeast Wisconsin that wish to use intermodal shipping usually must dray their containers to intermodal terminals in Chicago.

Chicago is served by six major national railroads and provides extensive connections to the rest of the United States and Canada. Therefore, Northeast Wisconsin's intermodal transportation users have come to rely heavily on Chicago's intermodal terminals. However, there are multiple challenges with trucking containers (also referred to as *drayage*) to and from Chicago.

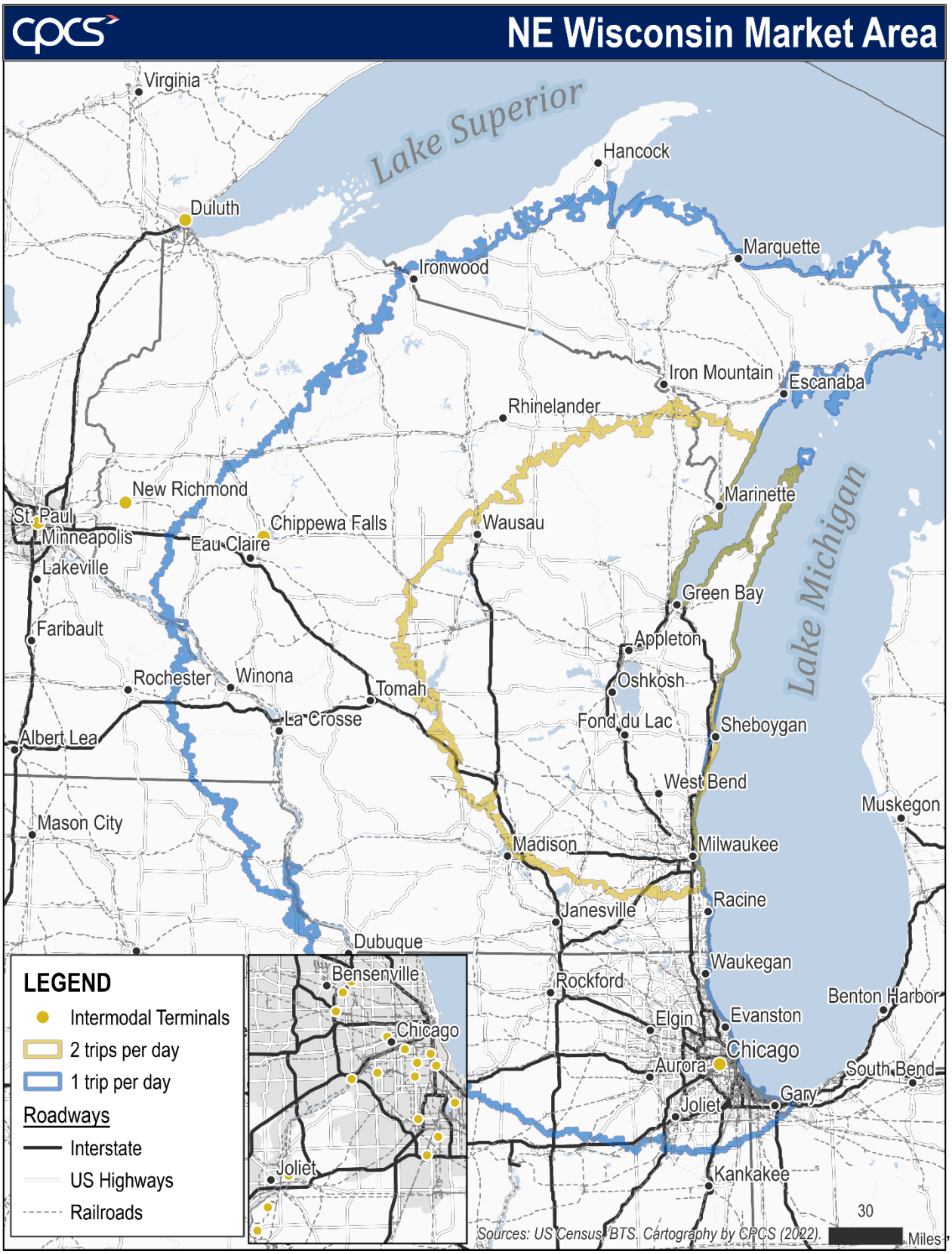
- **Long driving distance**. Chicago's intermodal facilities lie at the edge of a 1-day round-trip truck trip from Northeast Wisconsin, which limits the number of containers that can be moved. Figure 2 on the following page illustrates the general boundaries of this driving distance.
- **Increasing congestion and unreliable travel times.** Chicago consistently ranks as one of the United States' most congested metropolitan areas, and congestion can affect truck drivers' ability to complete round-trip runs to and from Northeast Wisconsin.
- **Shortage of truck drivers**. The United States continues to experience a shortage of truck drivers, and a lack of drivers can impact both the cost and reliability of trucking services.
- **Increasing additional costs**. Truck transportation costs are increasing due to cost of drivers, insurance, fuel costs, and Illinois Tollway tolls.

The outcome of these challenges is increased shipping costs for Northeast Wisconsin businesses looking to dray loads to and from Chicago. Furthermore, given the uncertainty of congestion and its impact on drivers' schedules and availability, multiple consultees have noted that Chicago and Milwaukee drayage companies charge a premium to serve customers in Northeast Wisconsin.

Northeast Wisconsin's intermodal users must pay a premium for drayage to and from Chicago, increasing their overall transportation costs.

Additionally, some consultees have indicated that, beyond premium pricing, there are challenges with drayage service reliability as well. Chicago and Milwaukee drayage companies and drivers may be unable or unwilling to devote their limited resources to serving relatively far away Northeast Wisconsin.

Figure 2: Round Trip Truck Driving Distances from Northeast Wisconsin



1.3 Project Background

The topic of intermodal access is particularly important for Northeast Wisconsin, as businesses reliant on freight transportation for their core operations (such as manufacturing firms) represent 56% of Northeast Wisconsin's GDP and are critical to the economy. Among these freight-reliant industries, paper, wood product, food, and machinery manufacturing stand out as uniquely concentrated or strong industries in the Northeast Wisconsin region. Moreover, the region's major manufacturing industries have been growing over time, suggesting sustained and growing demand for freight transportation services. The challenges listed above can threaten the competitiveness of these firms as well as the economic strength of the region.

Safe, efficient, and reliable transportation services are important factors for Northeast Wisconsin's economic well-being.

Starting with this broad concern, it follows that Northeast Wisconsin's intermodal users could benefit from the establishment of an intermodal container service with a terminal or terminals within or closer to Northeast Wisconsin. A closer service could reduce or eliminate many issues, including:

- Drayage driving distance and time (and thus cost),
- Travel time reliability problems associated with Chicago's road congestion and the truck driver shortage, and
- Chicago-specific costs such as tolls.

In turn, lower transportation costs and increased reliability would help Northeast Wisconsin's intermodal users maintain or improve some of their competitive advantages.

In response to general concerns about intermodal access in Wisconsin and the potential benefits of improved intermodal access in the future, the Wisconsin Freight Advisory Committee's Intermodal Freight Subcommittee created a report on intermodal conditions in 2019. This effort was followed by an intermodal summit in Appleton organized by The New North, Inc. This study is the result of those prior efforts and was focused on analyzing the viability of an intermodal freight facility, including considerations of required volumes, potential users, potential sites, and development costs.

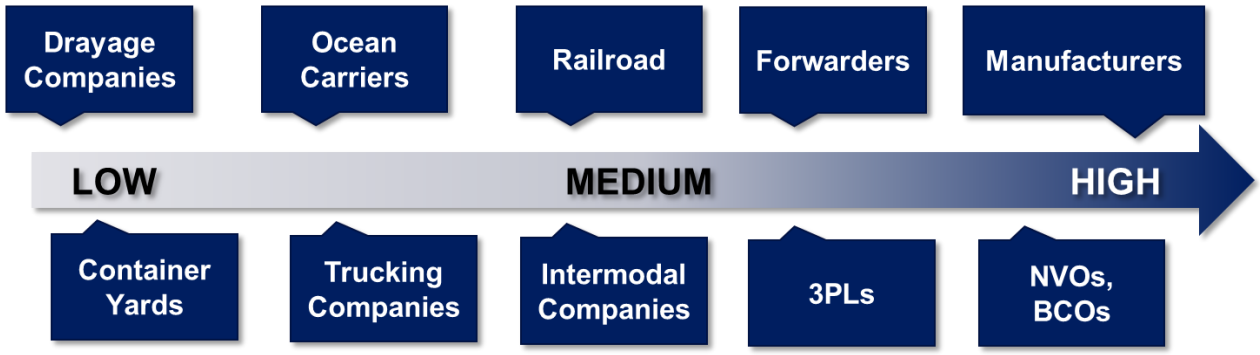
2 Market Feasibility Considerations for Intermodal Service

An intermodal freight service in Northeast Wisconsin operating at 25 lifts per day, 5 days a week, is feasible from a market perspective if the facility is able capture approximately 7% of the potential market demand. Most of the intermodal shipping demand in Northeast Wisconsin is focused on outbound domestic movements.

2.1 Perspectives on Feasibility

Shipping choices are made by private businesses, and intermodal facility development and operations are primarily conducted by private businesses. The more control over and visibility into when and where cargo is needed, the greater the influence on routing decisions. At one end of the spectrum are drayage companies and container yards that do not have visibility on cargo routing. In contrast, manufacturers and beneficial cargo owners (BCOs) have the highest control over where cargo is routed. Figure 3 illustrates the variety and relative influence of private stakeholders who are commonly engaged in intermodal service operations.

Figure 3: Intermodal Service Development Private Stakeholders



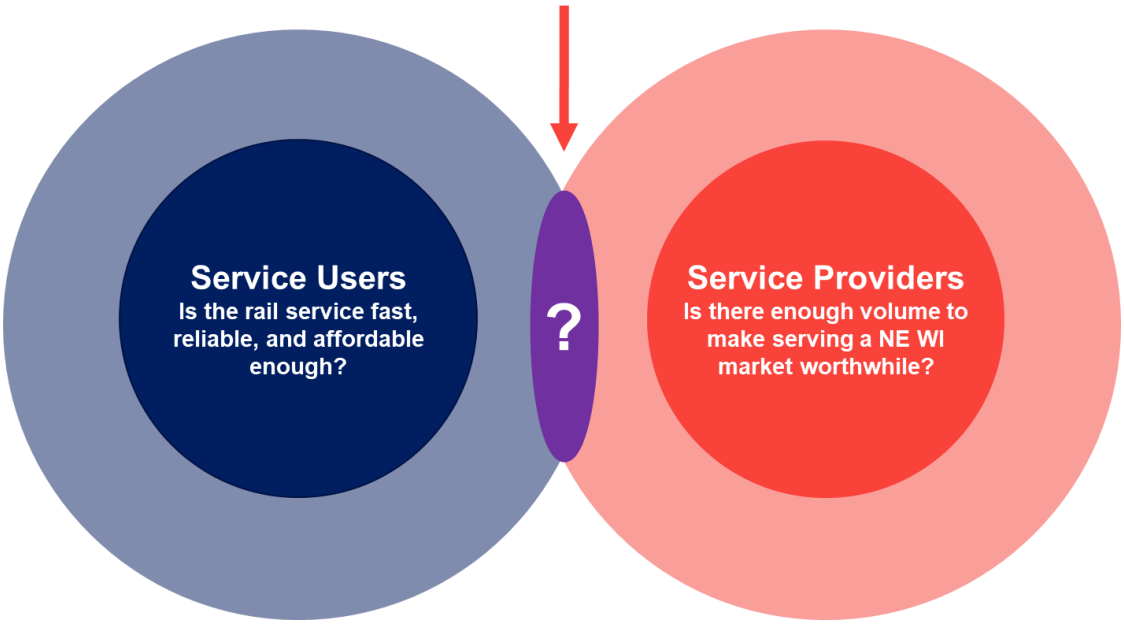
Intermodal service requires the participation and support of those private stakeholders that are most able to influence routing decisions.

In theory, if demand for intermodal shipping in the Northeast Wisconsin region was high enough, and the business case for a local intermodal service was strong enough, private parties like the ones listed above could successfully undertake service development and operation. However, this entirely-private development has not come to pass, partly because service and terminal development is a complex effort requiring cooperation between many potential stakeholders. More fundamentally, however, **there was a lack of recent information about the potential demand for an intermodal service in Northeast Wisconsin, and service alternatives to Chicago.** This lack of information about the area's collective potential demand and service opportunities was a potential barrier to service development because private stakeholders may be unwilling or unable to invest resources in data collection and marketing for an uncertain opportunity.

Therefore, this project sought to improve information about the topic of service feasibility from the perspective of both shippers and carriers and to determine the "overlap" between what service potential users want, and what type of service rail operators are willing to provide. Figure 4 provides a visual of the project's challenge in understanding the perspectives of two key groups:

- **Intermodal service users**: What is the potential demand for service in Northeast Wisconsin in terms of cargo tonnage and container lifts? And, what are the service offerings or characteristics needed for them to route their containers through a Wisconsin terminal?
- **Intermodal service providers**: What is the volume of inbound and outbound containers needed to make a service viable? Does the creation of a service fit within a railroad's operational strategy? What value-added services could be offered to further attract business?

Figure 4: Finding the "Middle" of Feasible Service Options and Volumes



In addition to market feasibility and service feasibility, this study also examined potential locations where an intermodal facility could be developed and created high-level cost estimates for facility construction. These considerations are presented in Section 2.3.

2.2 Potential Market Demand

Multiple considerations can influence a shipper's choice to use a particular transportation mode or route, including travel time, reliability, and level or frequency of service. However, transportation cost is usually the most important consideration that drives mode and route selection for most types of goods: if the cost of using an intermodal service in northeast Wisconsin does not offer a savings over current transportation options, then it is not something shippers would use.

To estimate the potential demand for intermodal shipping services in Northeast Wisconsin, this study utilized a total logistics cost (TLC) model that synthesized information from a variety of sources to estimate the travel time and total cost of various shipping routes and modes. The study team also conducted research and analysis to inform model development, including:

- Consultations with freight stakeholders to determine their transportation issues and needs, and level of interest in intermodal service. A list of consultees is provided in **Appendix A.**
- Identification of the market area for a Northeast Wisconsin service based on truck driving times and the location of potential competitor facilities (**Appendix B**), and
- Identification of the types of commodities that would be most likely to be routed through an intermodal service (**Appendix C**).

The market area and eligible commodity considerations that informed model development are briefly described below, with further information available in **Appendices D and E.**

The Northeast Wisconsin Intermodal Market Area

The potential market area in Northeast Wisconsin is delineated by truck driving distances from Northeast Wisconsin as well as the presence of other intermodal terminals in the Upper Midwest. Northeast Wisconsin's truck catchment area extends past I-39 and Wausau, and as far east as the central Upper Peninsula. Competitor facilities in Chicago, Duluth, Chippewa Falls, New Richmond, and the Twin Cities place bounds on the region where a Northeast Wisconsin terminal could attract traffic.

The market area based on truck driving distances and the location of other facilities is shown in Figure 5. The market area includes both the exclusive market area – those that are within a 1- or 2-turn-per-day driving distance of the potential intermodal facility in Northeast Wisconsin – and the fringe market area – those that are within 2-turn per day driving distance of both the potential Northeast Wisconsin intermodal facility and another intermodal facility.

The exclusive market area in Wisconsin includes: Brown, Calumet, Door, Fond du Lac, Green Lake, Kewaunee, Manitowoc, Marinette, Marquette, Menominee, Oconto, Outagamie, Shawano, Sheboygan, Waupaca, Waushara, Winnebago counties. The fringe market area in Wisconsin includes: Adams, Columbia, Dodge, Florence, Forest, Langlade, Marathon, Portage, and Wood counties. Additional market area counties in the Upper Peninsula include Iron, Baraga, Marquette, Delta, Menominee, and Dickinson counties.

Appendix B provides further information on the estimation of drive time and location of competitor facilities.

Northeast Wisconsin's Intermodal Rail Eligible Commodities

After a geographic boundary had been set, this study identified a set of commodities that are likely to be transported by intermodal rail or are rail-eligible. This includes the top intermodal rail-carried commodities within the U.S. and goods identified through literature review and consultations. These eligible commodities were extracted from Wisconsin DOT's TRANSEARCH commodity flow dataset for analysis, providing estimates of local cargo flows that are eligible for intermodal rail transportation.

Figure 6 illustrates one way of thinking about intermodal rail eligibility and shows a set of commodity tiers that are based on the frequency that different types of commodities are containerized. At the top, high-value machinery and electronics are most likely to be containerized. Food and agriculture, chemical products, and other manufactured products are in the next tier, and their containerization may depend on their value, the availability of empty containers, and the goods' origin and destination. **Appendix C** provides further information on the commodities shipped in and out of the study area.

Figure 5: Northeast Wisconsin Intermodal Market Area

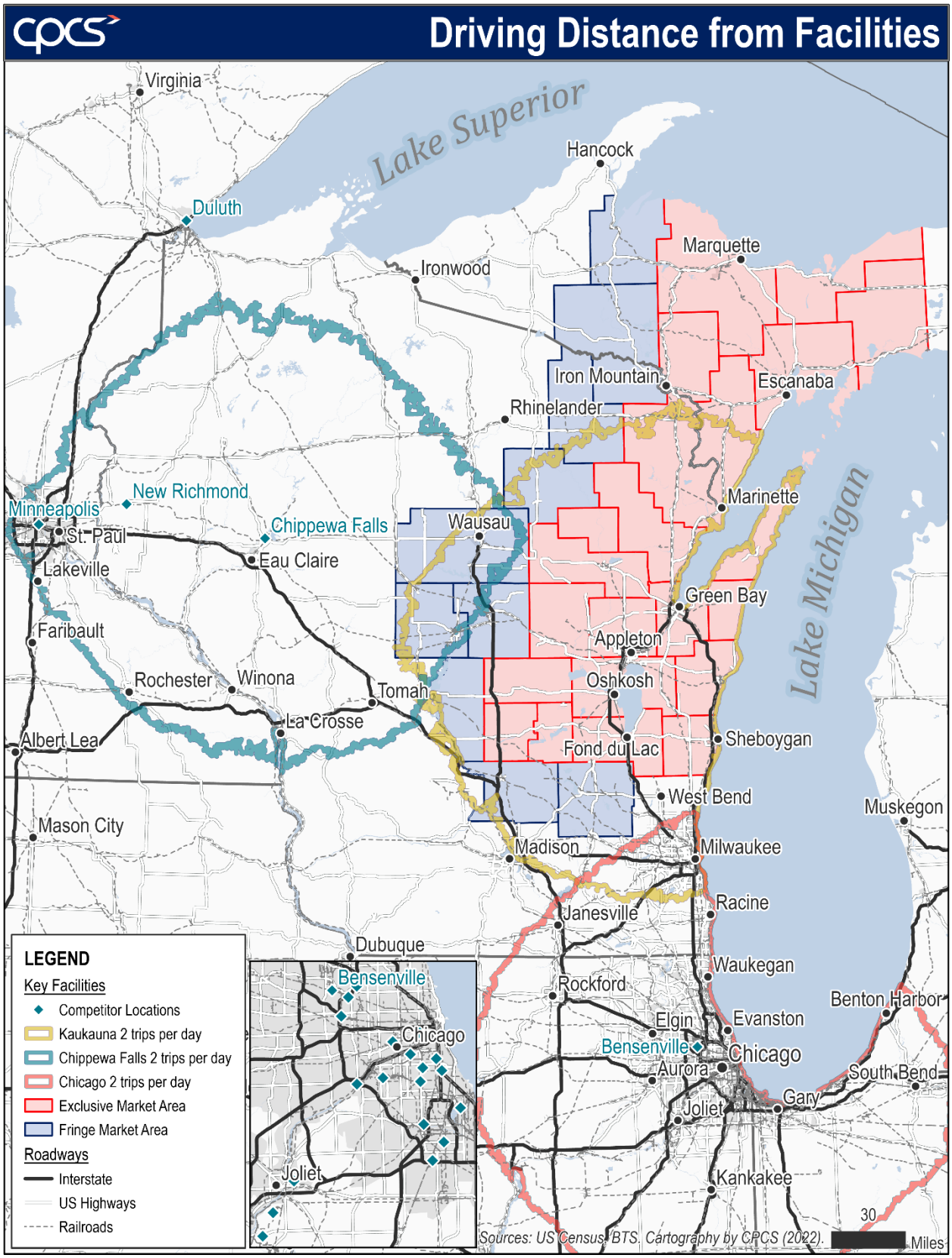
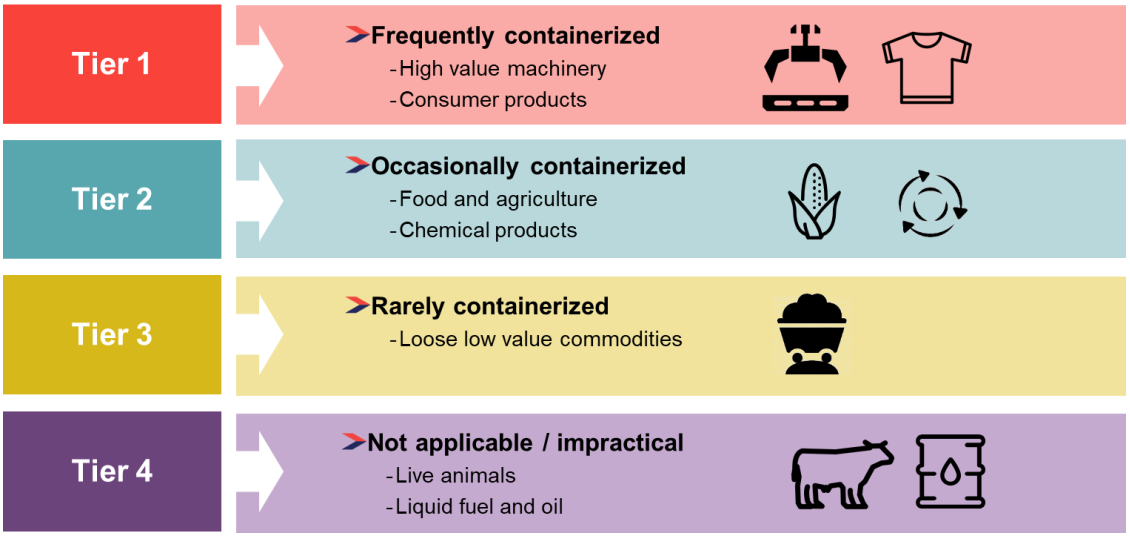


Figure 6: Commodities' Frequency of Containerization



Source: CPCS analysis based on industry consultations and Holguín-Veras et al. 2021.

Market Demand Estimate

The project team then constructed a total logistics cost model to estimate the volume of goods traveling to and from Northeast Wisconsin that could be cost-effectively routed through an intermodal service when compared to two existing routings: (1) end-to-end truck trip and (2) intermodal service through Chicago. Details of the data and assumptions used in the modeling process, as well as the volumes of intermodal-eligible commodities, are provided in **Appendix D.**

The potential market demand for an intermodal service based in Northeast Wisconsin is as follows:

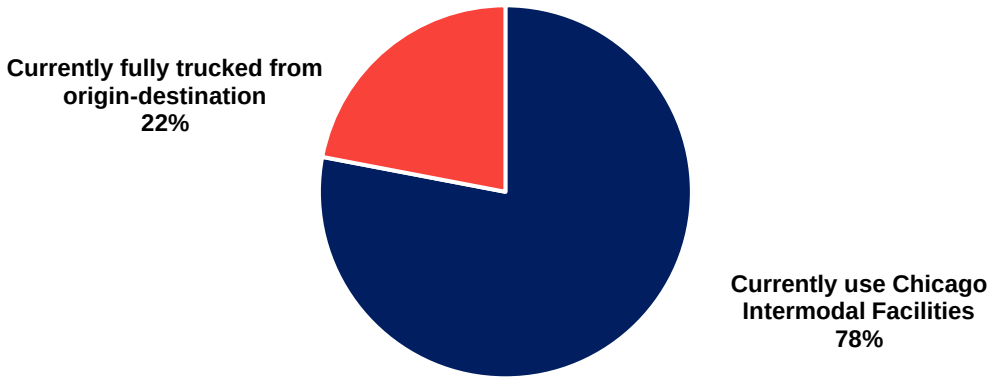
Figure 7: Potential Market Demand for Northeast Wisconsin Intermodal Terminal

Source: CPCS Analysis

Potential Market Demand – Current Flows:

Of the units that make up potential market demand: 78% are currently drayed to/from Chicago intermodal facilities. The remaining 22% currently travel fully by truck to/from Northeast Wisconsin to/from their origins or destinations. Figure 8 illustrates the relative size of these two types of commodity flows.

Figure 8: Current flows for Intermodal Market Demand

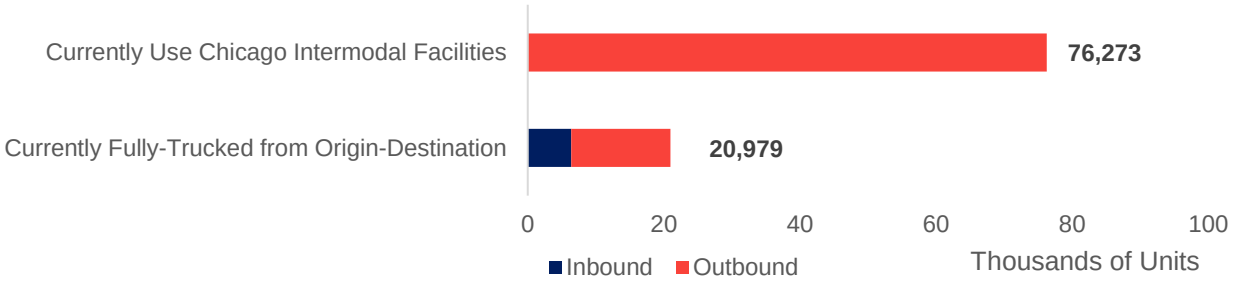


Source: CPCS Analysis

Potential Market Demand – Directions:

Virtually all flows within the Northeast Wisconsin market demand that currently use Chicago intermodal facilities are outbound movements, while fully-trucked flows are 30% inbound and 70% outbound. Figure 9 illustrates the size and balance of the two types of flows.

Figure 9: Northeast Wisconsin Facility Potential Market Demand – Current Directions



Source: CPCS Analysis

This imbalance is a potential concern because railroad service providers emphasize balanced inbound and outbound loads as criteria for serving an intermodal facility. Due to this concern, identification of potential inbound shippers could be a priority task for parties engaged in service development (see Chapter 4 for further details), as the Northeast Wisconsin service will need to ensure the availability of equipment by working with shippers to reposition empty containers. The service may also work with manufacturers and agricultural exporters to sign contracts with carriers indicating expected volumes and to obtain carrier commitments. While the availability of equipment can be a common problem at many facilities due to trade imbalances, repositioning empties can be expensive and time-consuming due to the opportunity costs to carriers. The costs of this activity may also result in increased drayage rates for outbound shipments and decreased drayage rates for inbound shipments.

Potential Market Demand – Commodities:

The top 10 known commodities in the total potential market demand include plastic products, metalwork, stone products, paper containers, prepared/canned feed, concrete products, field crops, iron or steel castings, wood products, and primary metal products. This group represents 42% of the currently fully-trucked goods.

Commodity types for flows that currently use Chicago intermodal facilities are unavailable in the IHS TRANSEARCH 2019 dataset. A full breakdown of fully-trucked commodities within the Northeast Wisconsin intermodal facility potential market demand and the top trade lanes for fully-trucked commodities are provided in **Appendix E.**

Market Capture Rate:

Figure 10: Estimated Necessary Market Capture Rate

A market capture rate of approximately 7% of 98,227 units would enable full use of an intermodal facility at 25 lifts per day, five days a week (6,500 lifts per year). While a 7% market capture rate is not an easy bar to clear, it also is not impossible. Challenges include rail service schedules (time of day), company production schedules, total transit time in specific lanes, existing supply chain structures and relationships, and other factors. This is ultimately what the local market will respond to. For these and other constraints, not all companies or all shipments will be able to use the service. On the positive side, all of the market is local to northeastern Wisconsin. In other words, the facility is not relying on volumes that are not moving either to or from the local region, which would require substantial changes to existing supply chains.

If the facility operates with less frequency, the total container capacity will also decline. However, if the frequency of operations is limited, this may also limit the number of users due to their shipping requirements.

The project model suggests there is sufficient market demand for a Northeast Wisconsin intermodal facility to be competitive from a time and cost standpoint.

However, the viability of service is ultimately contingent upon railroad participation, rail routing and/or development of additional rail infrastructure to strengthen connections to Chicago, capital and operational costs of the facility, location of the facility, and the ability to attract inbound intermodal shipping. This may include converting certain commodities to intermodal shipping such as grain, feedstock, and/or raw materials. This next section details potential intermodal locations followed by cost considerations.

2.3 Facility Development Considerations

In addition to assessing market feasibility, this study examined the potential locations for facility construction and the potential cost of creating various facilities. The results of location and development cost analysis are provided here for the context of further discussions, with additional details in appendices F and G.

Potential Locations

The location of intermodal facilities is often driven by choices made by the private sector including railroads, terminal operators, or industrial developers. In particular, distance to existing railroad lines is a key consideration for facility locations, as the construction of long spurs of new railroad tracks can be cost-prohibitive. Since facility siting choices are often driven by the private sector and are influenced by rail line locations, this study did not focus on identifying individual potential intermodal sites. Instead, a regional approach was used to identify general areas that may be more favorable for intermodal facility development in the future.

It is important to acknowledge that two intermodal facilities previously existed within the Northeast Wisconsin region. Wisconsin Central operated a terminal in Green Bay on Ashland Avenue between 5th and 7th Street, and a terminal in Neenah at the current site of the Canadian National Neenah Yard between Winneconne Avenue and Cecil Street The location of these two prior facilities is marked on maps on the following pages, and the former facilities appear to still rank highly for their value as intermodal sites in the future.

Figure 11 illustrates the results of the facility location screening. **Appendix F** includes a set of county-level maps summarizing facility location screening results.

Multiple areas in Northeast Wisconsin are suitable for intermodal facility development.

Notable areas with relatively higher potential for intermodal facility development include:

- **The I-41 corridor between Appleton and Green Bay**. This area has many high-scoring sites thanks to the availability of open land between Kaukauna and De Pere, multiple access points for I-41, and vacant agricultural land adjacent to the Canadian National mainline. Since much of this area is agricultural, the potential for conflicts with residential areas is reduced relative to potential sites within cities like Green Bay or Neenah. This area also has the benefit of being able to easily serve industrial clusters in both Green Bay and the Fox Valley.
- **I-41 corridor between Neenah and Oshkosh**. Like the corridor above, this area benefits from easy access to both I-41 and the Canadian National mainline, as well as open agricultural areas that could be developed with relatively little conflict with neighboring communities.
- **WSOR access west of Oshkosh**. WSOR already operates a transload terminal west of Oshkosh, and the facility screening identified this area near the end of WSOR's line as a potentially viable area for intermodal facility development.
- **The Green Bay area.** This area ranks highly due to its large number of rail-served industrial parcels and includes the area of Wisconsin Central's former intermodal yard at Ashland Avenue.
- **I-41 south of US-151 and Fond Du Lac**. This area has parcels near the CN mainline, as well as nearby access to both I-41 and US-151.
- **US-10 clusters in Weyauwega and Waupaca**. Some areas of potentially feasible sites emerged around Waupaca and Weyauwega thanks to available rail-served land that is relatively close to US-10 interchanges.

Based on the review summarized in Figure 11, multiple areas within Northeast Wisconsin may be suitable for the development of an intermodal facility, and space or location constraints are not an overall concern for the potential viability of a new intermodal facility in Northeast Wisconsin.

Facility Development Cost Considerations

Intermodal facility development requires an upfront investment for a variety of items including land, site preparation, utilities, road and rail infrastructure, cargo handling equipment, and fences and lighting. Since the purpose of this project is not to evaluate the expected cost of development at a specific site, generalized cost estimates were created based on three "phases" of intermodal facility development. The goal of these estimates is to provide the project team with a general sense of potential construction costs and inform further discussions about development feasibility. Figure 12 illustrates the general infrastructure characteristics of these three "phases," and **Appendix G** provides details of the cost estimate inputs, assumptions, and limitations.

Figure 11: Areas of Potential Intermodal Facility Development

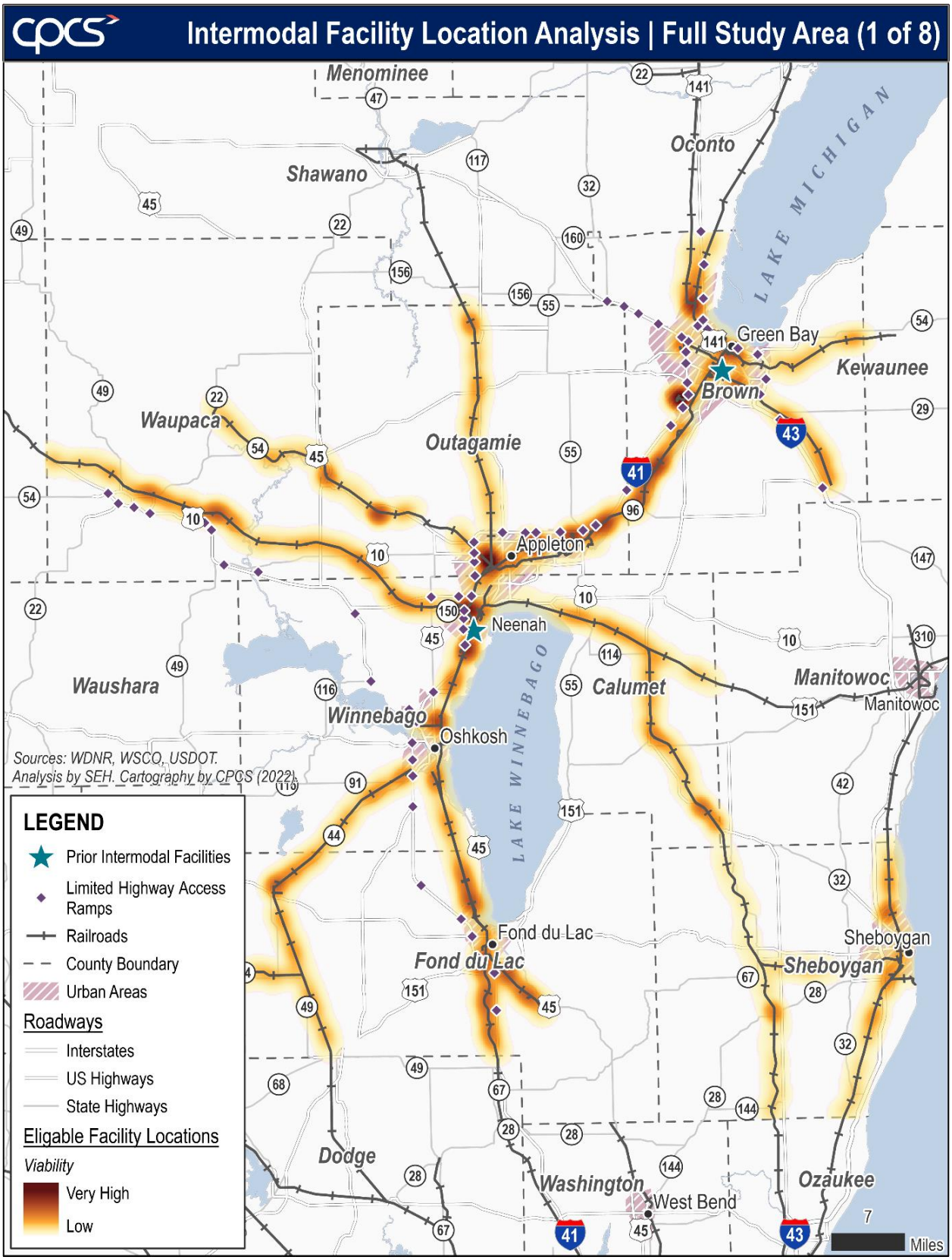


Figure 12: Phases of Facility Development and Estimated Cost

	Phase I *Similar to Arcadia, WI*	Phase II *Similar to Chippewa Falls, WI*	Phase III *Expansion of Phase II*
Minimum Acreage	7	15	25
Recommended Acreage	15	30	50
Daily Container Lifts	25	50	100
Railcar Capacity (3-unit 53' double stack well cars)	5	5	10
Trackage Length (feet)	950	1,900	3,800
Mainline Turnouts (switches)	1	2	2
Site Turnouts (switches)	0	2	2
Container Storage	250	500	1,000
Reach Stackers	1	1	2
Operating Space	One side of track	Both sides of track	Both sides of track
Common Attributes	• 65 feet of loading/offloading space is provided adjacent to track • Fencing and lighting on 3 sides • Office trailer for staff (larger office with Phase III) • Security shack provided at main gate		

A "phase I" facility that can meet the estimated level of market demand would cost roughly $3 million to construct, not including land purchase.

3 Operational Feasibility Considerations for Intermodal Service

An intermodal service in Northeast Wisconsin can be viable option for shippers who currently use terminals in Chicago, and Northeast Wisconsin has ample rail-proximate land available for intermodal facility development. However, outstanding questions remain about the feasibility, frequency, and routing of intermodal railroad service in Northeast Wisconsin.

3.1 Introduction

Locally-based intermodal service has the potential to be an attractive option for Northeast Wisconsin's shippers, and there are many areas where the development of an intermodal facility may be feasible. However, the ultimate feasibility of intermodal service also depends on a railroad partner to provide intermodal service in the region that is reliable and cost-effective. This section provides an assessment of the feasibility of intermodal service from the perspective of transportation service providers, such as railroads.

Intermodal service's feasibility in Northeast Wisconsin is less a question of shipper demand, and more of carrier participation: is a Wisconsin-based intermodal service compatible with railroads' business models and system capacities?

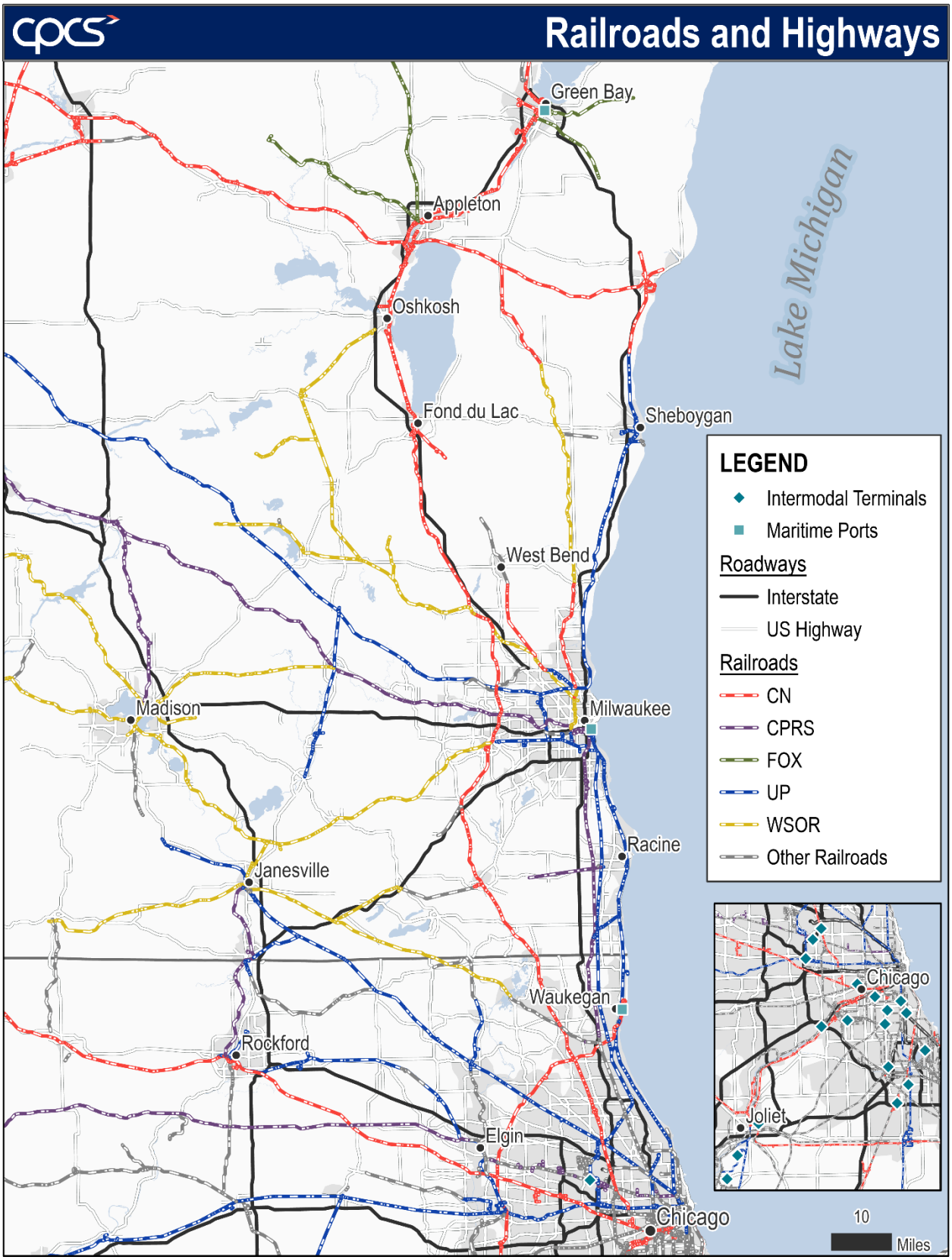
3.2 Northeast Wisconsin's Rail Landscape

As discussed in Chapter 2, Northeast Wisconsin's intermodal-eligible commodities are bound for a variety of locations in both the western and eastern United States. Therefore, railroad connections out of Northeast Wisconsin to other railroads are an important consideration for operational feasibility. The Northeast Wisconsin region is connected to Chicago and the rest of North America via a limited set of railroads, which are illustrated in Figure 13. The two primary railroads serving the region are the Canadian National (CN), and Watco, which operates the Wisconsin and Southern Railroad (WSOR) southwest of Oshkosh, and the Fox Valley and Lake Superior Rail System (abbreviated as FOXY) in the Appleton and Green Bay area. The Union Pacific (UP) railroad also has track in the region along Lake Michigan, connecting Sheboygan with the Milwaukee area. This study has focused on feasibility considerations for CN and WSOR, as these two railroads serve the "core" of the Northeast Wisconsin region and both railroads have connections to Chicago and the broader US railroad network.

Canadian National (CN):

Canadian National emerged as a significant railroad stakeholder in Wisconsin after it purchased the Wisconsin Central railroad in 2001. CN's track in Northeast Wisconsin makes up part of one of its most important and busiest routes, which links Chicago and the US Gulf Coast with the Canadian west coast. More-locally, Canadian National's track in Northeast Wisconsin provides direct connections to the Chicago area, including CN intermodal terminals. CN can also interchange with other railroads in the Chicago area. In addition to substantial operations in Chicago, CN also operates intermodal terminals in Duluth, Chippewa Falls, New Richmond, and Arcadia.

Figure 13: Northeast Wisconsin's Transportation Connections



Watco:

Watco is a transportation services company that operates railroads and cargo terminal facilities across the United States. In Northeast Wisconsin Watco owns WSOR and FOXY. After CN's extensive network, the WSOR is Northeast Wisconsin's second significant connection to other railroads and the Chicago area, as WSOR has access to Chicago through agreements with multiple railroads. WSOR's routes to Chicago are illustrated in Figure 14 and include:

- WSOR lines running from a transloading facility in Oshkosh to Chicago via Milwaukee and Janesville. At its Chicago terminus in the southwest side neighborhood of Clearing, WSOR can access other railroads via the Belt Railway of Chicago. The Clearing yard is also adjacent to a CSX intermodal yard.
- WSOR access to Chicago via CN trackage rights. WSOR has the opportunity to route some trains to Chicago via the existing CN tracks in Wisconsin, but the use of this route depends on agreement from CN.
- WSOR access to Chicago via Canadian Pacific trackage rights. WSOR can access Chicago via Canadian Pacific's line from Milwaukee to Chicago, but is currently only allowed to operate grain unit trains on this connection.

In addition to WSOR's routes into Chicago, WSOR has interchanges with the Union Pacific, Canadian Pacific, and CN via a variety of locations including Milwaukee, Madison, and Janesville.

Watco Acquisition of CN Branches for FOXY

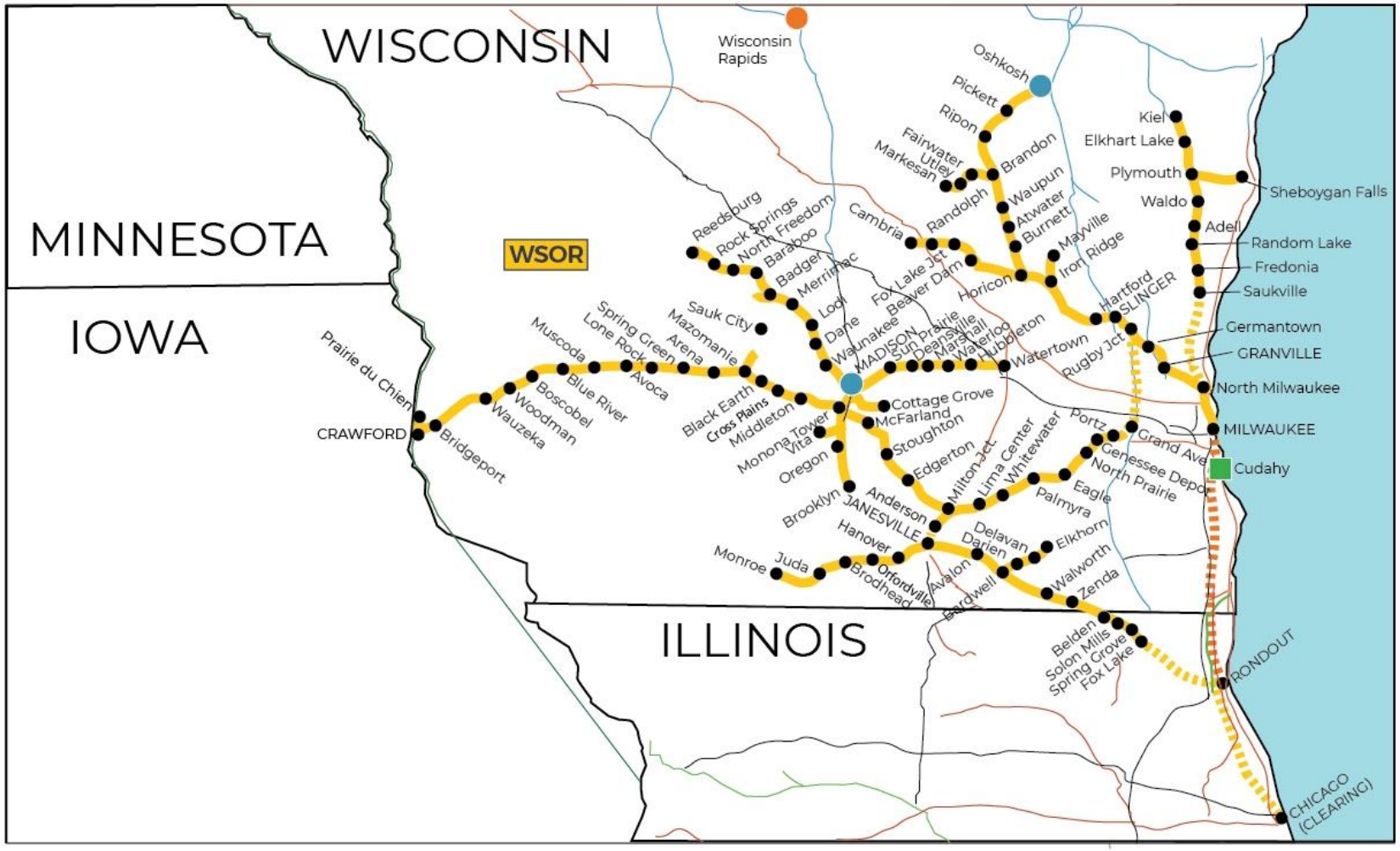
In 2022, the Surface Transportation Board approved sale of some CN branch lines in Wisconsin and the Upper Peninsula to Watco. This transaction enabled Watco to create the Fox Valley and Lake Superior Rail System. While Watco will own the FOXY system, it will act as a handling carrier and will still rely on CN to move rail cars elsewhere in the United States. Under this arrangement, CN still retains control of pricing and scheduling for cars moving from FOXY to points elsewhere on the CN system. This means that CN will remain a key railroad service partner if intermodal service is developed on the FOXY system.

Other Rail Connections of Note

Outside of the connections provided by CN and WSOR, two other railroads are potentially-relevant for Northeast Wisconsin, but have limited coverage:

- **Union Pacific** operates track in Sheboygan and Ozaukee counties, which connects to the larger Union Pacific network around Milwaukee. This service option was not studied in-depth because Union Pacific's trackage does not serve the core of the Northeast Wisconsin region.
- **Canadian Pacific** has track between Chicago, Milwaukee, and La Crosse, but does not serve Northeast Wisconsin directly.

Figure 14: WSOR Lines in Wisconsin



Source: Watco.

3.3 Operational Feasibility Challenges

While multiple connections exist between Northeast Wisconsin and the rest of the United States' rail network, the actual operational feasibility of rail service faces a variety of challenges related to transportation connections and economic geography. Understanding these challenges is important because they will be likely to influence the near-term feasibility of service, characteristics of a proposed service, and the specific railroad stakeholders who must be engaged to establish service.

Imbalanced flows, short-haul rail distances to Chicago, and the need to coordinate service with another Class I railroad may be the greatest challenges to establishing intermodal service.

Imbalanced cargo flows. A key consideration for intermodal developers and operators is balanced inbound and outbound flows. Some degree of inbound/outbound balance is important because moving empty containers or re-positioning container equipment generates little to no revenue for railroads or drayage companies and increases overall shipping costs.

Historically, Northeast Wisconsin has had an imbalance of cargo flows, with large volumes of goods moving out of the region, but relatively few goods moving in. This problem was previously documented in a variety of projects, including the 2019 Overview of Intermodal Freight in Wisconsin report, and the Center for Freight and Infrastructure Research and Education's 2013 container pooling study. This imbalance is a potential challenge for the operational feasibility of establishing intermodal service, however, some significant stakeholders noted that they already pay to dray empty containers up from Chicago, an insight that suggests continued willingness to pay for empty re-positioning in the future.

Northeast Wisconsin is relatively close to Chicago. Northeast Wisconsin lies just close enough to Chicago to feasibly support 1-day truck drayage turns, but this proximity is a challenge for intermodal service development because it is a relatively short distance in the world of intermodal shipping, where intermodal primarily achieves its greatest economic advantages on moderate to long-haul routes. This challenge of close proximity is further complicated by limited rail service options, described below.

Partnership with additional Class I rail partners. Most intermodal-eligible goods in Northeast Wisconsin are moving to the eastern or western United States. However, CN's network has very limited connections to the eastern or western US, and WSOR only provides regional connections. Therefore, containers, blocks of railroad cars, or entire trains would need to be interchanged to another major railroad somewhere in Chicagoland or the central United States. Stakeholder feedback and lessons learned from prior terminals suggest that interchanges of blocks or cars or entire trains with another railroad are needed, as "rubber wheel" truck-based interchange between intermodal yards in Chicago is expected to be too expensive and congested to make service attractive to shippers. This need for a "steel wheel" railroad interchange means that intermodal service will need to be established in partnership with another US major railroad.

Short-haul movements don't align with Class I railroad business models. CN's current business model focuses on fast, longer-haul, scheduled service on long trade lanes. Existing CN intermodal terminals in Wisconsin and Minnesota are oriented around import and export movements to coastal ports – not domestic shipping. Short-haul domestic intermodal movements to and from Wisconsin and Chicago do not match this focus, as the operation of short-haul trains would be expected to generate less revenue than longer-haul movements, while taking up railroad line capacity for longer-haul trains. In this context, it may be difficult to develop a partnership with CN that would provide short-haul rail shipping service that would be cost-competitive with drayage. Additionally, much of CN's railroad

mainlines in Wisconsin are single-track, and some stakeholders have noted that capacity to accommodate additional trains within existing schedules may be difficult.

WSOR has limited infrastructure and operational capacity to access Chicago. WSOR provides connections to other railroads in Wisconsin as well as Chicago. Since Watco is focused on local and regional railroad operations, it is possible that Watco may wish to take on intermodal development as part of its ongoing business development efforts in Wisconsin.

However, compared to CN, WSOR has a longer and more circuitous rail route between Northeast Wisconsin and Chicago, which runs from Oshkosh to Chicago through Milwaukee and Janesville. This network requires twice switching to larger rail networks where WSOR has trackage rights. WSOR's network also includes some low-clearance road bridges that are too low for double-stack intermodal movements, and which would require significant investment to raise if double stack operations were desired. A further challenge is limited capacity, as WSOR can only access Chicago's railroad interchanges during overnight hours when commuter trains are not operating.

A focus on domestic intermodal movements. The most common model for intermodal service development identified in this project's case studies (available in **Appendix H**) focuses on internationally-oriented service development, with inbound imported consumer goods and manufacturing materials, and outbound exported agricultural products. However, Northeast Wisconsin's intermodal demand profile is focused much more strongly on domestic intermodal moves, which means that prior models of intermodal service development may be inappropriate for the region.

3.4 Operational Feasibility Opportunities

While there are many challenges to establishing intermodal service that meets Northeast Wisconsin's needs, these many challenges do not preclude the region from establishing intermodal service in the future, and there are several significant trends that could increase the opportunity for establishing intermodal service in Northeast Wisconsin. Before discussing potential operational models or a path to development, it is helpful to understand some trends that may create further opportunities for establishing intermodal service. Trends such as these should be tracked and considered by parties looking to support the development of intermodal transportation in the region.

Greater demand for environmentally-sustainable transportation. Intermodal offers a shipping option that is typically faster than traditional rail and emits fewer emissions than a truck-only trip, and some logistics providers have started marketing intermodal specifically for its reduced environmental impact relative to trucking. Several carriers and shippers in northeast Wisconsin received EPA's SmartWay Freight Partner Excellence Awards in 2020. In a consultation interview, one such company identified their use of intermodal transportation as a key reason they received that recognition from EPA. Continued emphasis on the reduction of supply chain emissions could drive additional freight to intermodal shipping in the future.

Maturing Precision Scheduled Railroading. All of the United States' Class I railroads except for the Burlington Northern Santa Fe have implemented some form of Precision Scheduled Railroading (PSR), a business strategy intended to improve operating efficiency and asset utilization while reducing capital and labor expenses. In theory, the efficiency generated by the mature implementation of PSR should give railroads the capacity to take on new cargo and business development opportunities. In particular, Canadian National has indicated that thanks to their implementation of PSR, they began a "pivot to growth" in the late 2010s, a time when

CN expanded intermodal service in Wisconsin and Minnesota.[3] However, a PSR-driven "pivot to growth" remains to be observed in much of the United States, and implementation of PSR in portions of the US has led to complaints about poor rail service quality, or railroads discontinuing service for less-profitable lines or shippers.

Increasing regulatory scrutiny of rail service, competition. Considering continued supply chain disruptions in the wake of COVID-19, and shipper complaints about the adequacy and reliability of Class I railroad service, the Biden Administration has issued an Executive Order pushing the Surface Transportation Board to further consider the competitive conditions and service quality provided by major railroads. In theory, regulatory action to more strictly interpret and enforce railroads' common carrier obligations could result in large railroads more aggressively pursuing local and shorter-haul business opportunities than they did in the past.

3.5 Service Opportunities

While there are many challenges to establishing intermodal service that meets Northeast Wisconsin's needs, these challenges do not preclude the region from establishing intermodal service in the future. Instead, the unique geographic, market, and operational challenges of Northeast Wisconsin may require the development of intermodal services that do not match the models common for prior development elsewhere in the US.

Northeast Wisconsin will likely need a new service development model, different from approaches used for intermodal development elsewhere in the United States.

Developing and sustaining intermodal service has been an often-discussed transportation topic across the Upper Midwest as well as the broader United States for over a decade. For this study, 18 previously-established or developing projects or services were reviewed, including the creation of CN's new terminals in Duluth, Chippewa Falls, and New Richmond, and partnerships between Class I and smaller railroads to serve terminals in Illinois, Iowa, Indiana, and Ohio. Brief summaries of the previously examined projects or services can be found in **Appendix H**. Some common themes for development were observed, and by comparing these common themes against Northeast Wisconsin's market demand and operational considerations, the picture of the region's unique characteristics emerges.

A focus on domestic intermodal traffic and the need for short-haul intermodal support are the most unique characteristics of Northeast Wisconsin's operational considerations

Almost all the terminals reviewed had their initial traffic base built upon the long-haul movement of incoming imports, especially consumer goods or semi-finished products from Asia. In some larger terminal developments, the mix of importers was broader, but the nearby population base was larger as well. Domestic container shipping was either not offered at all or developed as an add-on service on top of the international traffic base.

[3] Stephens, Bill. "Canadian National executive explains railroad's pivot to growth under Precision Scheduled Railroading." Trains.com. November 14, 2019.

Based on this focus on international moves, many of the other recently established terminals in the Midwest can pack empty containers with agricultural products for export, and some terminals were jointly developed in partnership with agricultural shippers. The immediate goal of this approach is to help ensure the terminal has balanced inbound and outbound flows, but it also provides local agricultural producers with additional shipping options.

By comparison, Northeast Wisconsin has a different demand profile, with the need for the movement of domestic goods as the most pressing motivator for development. Some other development principles that were commonly observed, and *are* shared with Northeast Wisconsin are listed below. These common principles provide further context for the recommendations in Chapter 4.

Partnership with a Class I railroad is needed

Almost all the reviewed projects had support from a Class I partner in some way. In the case of terminals operated by Class II and Class III railroads, a partnership with a Class I was critical to obtaining connections to the rest of the United States. Therefore, it is important to note that even if a Class II or III railroad is willing to develop or serve a terminal, the terminal's business case usually must still appeal to a larger Class I partner. This is important to consider in Northeast Wisconsin, where WSOR may be able to partner with a Class I railroad to provide service.

Even if a Class II or III railroad is willing to develop or serve a terminal, the terminal's business case must still appeal to a larger Class I railroad partner.

Balanced flows are important

Case studies, as well as consultations with railroads, 3PLs, and other stakeholders have all noted that the expectation of balanced inbound and outbound flows is an important condition for establishing new service.

Anchor tenants and logistics firms drive projects forward

Most of the identified projects were driven to implementation by one of two types of project "champions." First, a single major company acted as an "anchor" tenant that helped ensure a consistent and sustained inbound flow for the facility. Second, some project developments were driven by logistics service providers who had a large or diverse portfolio of clients and could bring clients and other interested parties together to demonstrate a high level of potential facility utilization and engage a Class I railroad in further development.

Co-location of value-added logistics services

Many of the profiled services and terminals also had value-added logistics services provided onsite. At a bare minimum, these services often included agricultural container packing services. For larger terminals in urban areas, more diversified services were often provided, including warehousing and customs clearance services. Co-location provides a benefit for terminal development because it can help attract additional users to the facility, while also helping some users to reduce their overall supply chain costs.

4 Next Steps for Service Development

There is significant demand for intermodal service in Northeast Wisconsin. To drive development forward, a project champion is needed to collect the actionable data and commitments to build a business case that potential railroad partners can engage with. This business case information needs to reflect some degree of commitment from potential users, as well as commitments for specific volumes on specific trade lanes.

4.1 Feasibility Summary

Northeast Wisconsin's intermodal transportation demand profile does not closely resemble many of the previously established services in the Midwest and broader United States. While other services are built on international imports, Wisconsin's demand for container services is focused most heavily on outbound domestic shipments. This difference suggests that Wisconsin will likely need a new model for intermodal development. Figure 15 summarizes the notable Strengths, Weaknesses, Opportunities, and Threats that affect the feasibility of intermodal service in Northeast Wisconsin, and which informed the development of the recommendations below.

Figure 15: Regional Intermodal Facility Strengths, Weaknesses, Opportunities, and Threats

Dimensions	Elements
Strengths	• **Economic Competitiveness:** A concentration of competitive industries including food manufacturing, paper manufacturing, agriculture/grain, and other manufacturing. • **Business Interest:** multiple large shippers in the region have expressed very strong interest in using intermodal shipping.
Weaknesses	• **Business Interest:** businesses have competing supply chain needs (some shippers focus on low cost, while others are more concerned with transit time and reliability), and the volume of materials shipped from individual firms may not be consistently focused on the same lanes or patterns of lanes. • **Container imbalance:** need to fill empty inbound containers may prove challenging, particularly due to equipment shortages. Prior Brown County and Center for Freight and Infrastructure Research and Education studies show that imbalances could be overcome, though equipment shortages still pose a challenge for the region. • **Volumes:** the majority of commodity flows in the region are destined within 400-miles of Northeast Wisconsin. • **Geography:** Northeast Wisconsin is less than 250 miles away from Chicagoland – the national center of intermodal rail. • **Operational Challenges:** short-haul intermodal services are difficult to compete with trucking to Chicago in cost, time, and reliability.
Opportunities	• **Green supply chains** – more businesses are now interested in intermodal service to reduce greenhouse gas emissions. • **High trucking costs** – increased congestion and high drayage costs to Chicago make short-haul intermodal service more attractive to shippers.

Dimensions	Elements
	• **Increasing tolerance for longer travel times** – given ongoing supply chain disruptions, some consultees have indicated they are willing to forgo fast freight travel times in favor of more consistent, reliable service.
Threats	• **Rail operations** – Class I railroads' focus on precision scheduled railroading limits the ability of regional intermodal service to integrate into their systems, capacity limitation on lines and in yards in Chicago. • **Competitive landscape** – existing intermodal facilities in Wisconsin may compete for freight in certain lanes; NE Wisconsin is competing with many other regions to establish regional intermodal facilities and service; truck rates may become even more competitive with advances in technology-driven truck operations.

4.2 Continuing to Build a Business Case

Intermodal service has the opportunity to be successful in Northeast Wisconsin but will require the long-term engagement of shippers and operators to build a business case.

Future service development requires stakeholders to identify project champion(s), secure shipper commitments, secure railroad commitments, select locations and refine cost estimates, and determine intermodal facility business models and funding sources.

Identify Project Champion(s)

Future service development is contingent on having one or more "project champions". These include both public partners as well as private partners – operators, marketers, railroads, and steamship lines. A strong project champion would be a private company ideally with sufficient market volumes to serve as an "anchor tenant" for the intermodal facility. **This study found that many companies are interested in a Northeast Wisconsin intermodal service, and some companies have sufficient intermodal volume to act as an anchor.** Additionally, some third-party logistics firms can act as demand "aggregators" – combining demand from multiple client firms to begin building a business case, an approach that was used in establishing the Duluth Cargo Connect intermodal service.

Secure Shipper Commitments

Next, the project champion(s) must secure shipper commitments to demonstrate there are sufficient aggregate customers and container volumes for the facility. The first step may be to obtain actionable shipper information such as potential cargo volume for specific trade lanes, pricing and travel times for individual shippers, and assessing interest from potential inbound intermodal users. This study attempted to collect some of this information during TLC model development, but many stakeholders were reluctant to share this information due to confidentiality concerns, and if the information was shared with the project team, it was not disclosed in reports. Due to the challenges of obtaining confidential business information, stakeholders may wish to engage a third-party firm to market the facility to target businesses, aggregate the data, and match loads with origin/destinations (developing as much market balance as possible) to develop an actionable business case.

An important consideration for securing shipper commitments is **identifying specific trade lanes for service**. This element is important because a partnership with a Class I railroad in Chicago will likely be needed to provide connections to the rest of the United States, and knowledge of specific trade lanes of opportunity will inform which railroads could be approached. This approach is also important

because consultees suggested that "steel wheel" interchange of railcars or entire trains directly between railroads was strongly preferable to "rubber wheel" cross-town drayage in Chicago, as "rubber wheel" interchanges were expected to be expensive and unreliable enough to make service unfeasible. **Appendix E** lists some of the most-significant trade lanes for potential development.

Solicit Railroad Commitments

Intermodal service requires the participation and commitment of the railroads. At present, intermodal demand in Northeast Wisconsin does not align well with the dominant Class I railroad intermodal business model, which focuses primarily on imports and exports. Additionally, many of Northeast Wisconsin's commodity flows are destined for areas not served by the region's primary railroads, meaning interchanges with another railroad and sufficient capacity at railroad yards in Chicago are needed.

While there are challenges to railroad operations at present, there may be opportunities for future service development. Depending on the profiles of intermodal facility users and their origins/destinations, the rail routing must be selected. A few potential rail routes are noted below, each with its own operational challenges to overcome:

- **CN-operated service with short-haul to interchanges in Chicago**. While direct, this approach does not align well with CN's existing business model focused on longer-haul train movements.
- **A Watco-operated terminal with CN service to Chicago**. In theory, this option would remove some of the switching responsibilities for CN but does not solve the fundamental issue of introducing additional traffic and complexity to CN's heavily-utilized rail network.
- **A Watco-operated terminal and Watco-operated trains** running on CN track to Chicago. Stakeholders indicated that this service option had been discussed previously, but still introduces concerns about congestion on CN's mainline.
- **WSOR service from Oshkosh to Chicago via Milwaukee and Janesville**. This approach would remove the challenges associated with using CN's network but introduces some other challenges. First, the circuitous route adds many miles to the overall trip length, making it harder for the service to compete with much more direct trucking routes. There are geometric constraints preventing double-stack operations, WSOR has very limited access hours for Chicago, and a Class I partner railroad would still be needed for interchange in Chicago.
- An additional approach advocated by the Lake States Shippers Association is **"remote intermodal"** or "Local Intermodal Connections" (LINCS), which calls for the development of intermodal access at multiple locations not ready to sustain more-traditional intermodal terminals. This approach would reduce drayage time for local users and reduce the potential infrastructure start-up costs compared to a more mature terminal. From this point, intermodal volumes could be grown further. However, this approach still requires CN partnership.

Select Location and Refine Cost Estimates

This study identified several potential intermodal facility locations, including the I-41 corridor between Appleton and Green Bay, the I-41 corridor between Neenah and Oshkosh, WSOR access west of Oshkosh, I-41 and I-43 in the Green Bay area, I-41 south of US-151 and Fond du Lac, and US-10 clusters in Weyauwega and Waupaca. Depending on shipper commitments to the facility and railroad feedback, stakeholders should select the best-fit location for the facility. Preliminary cost estimates provided in this study should also be refined based on specific site engineering needs and capacity of

the facility, as well as railroad needs whether addressing low-clearance bridges or other operational constraints. Project stakeholders should also determine the facility's ongoing operational costs as a precursor to determining the intermodal facility business model in the next step.

Determine Intermodal Facility Business Model and Funding Sources

There are several potential business models for developing an intermodal facility with various public-private arrangements, such as a license agreement, management contract, or joint venture. The best business model for Northeast Wisconsin will depend on the types of users and where funding is available for the facility's capital costs. Business models can also evolve as funding/financing sources and risk profiles change.

- **A License Agreement** is where a public agency enters into a ground lease with a landowner and site improvements and construction funding are the public's responsibility. The public agency would enter into a license agreement with a facility operator, contracting them to conduct sales and marketing, staffing, equipment, IT services, and operations and maintenance. The public agency would be financially-responsible for the ground lease, debt service obligations, and structural repair/replacements.

- **A Management Contract** is an arrangement where a public agency enters into a management contract with a qualified operator. The operator would be responsible for sales and marketing, management staffing, and day-to-day operations. The difference with a license agreement is that the operator would be eligible for variable compensation fees based on volumes, revenues, or profitability based on set performance measures. The public agency would be responsible for ground lease, debt service obligations, and structural repair/replacements.

- **A Joint Venture** is where a public agency enters into a Joint Venture agreement with an operator with prorated ownership percentages based on capital contributions. The operator would be eligible for profit sharing based on their ownership shares and the facility assets can be either owned or leased from a third party.

Future development efforts will rely on sustained public and private engagement, commitments from shippers and railroads, an actionable business case, and funding for both the facility and rail infrastructure to bring the project to fruition.

4.3 Wisconsin's Public Policy for Intermodal Service Development

While intermodal service development, operation, and use are most often in the purview of private sector stakeholders, WisDOT, and Northeast Wisconsin transportation stakeholders will still have a role to play in potential service development.

WisDOT's Vision, Goals, and Strategies for Engagement with Intermodal

WisDOT has affirmed its integral role in supporting safe and efficient freight transportation and recognizes the link between freight transportation and economic productivity. There are two WisDOT mandates from the *State Freight Plan* that closely relate to the topic of intermodal development:

- A goal to: enhance system mobility, operations, reliability, efficiency, and connectivity.
- A guiding strategy to: promote statewide multimodal freight access and connection – promote adequate rural and urban access to regional and national multimodal connections to freight facilities and services.

Within the broad mandate of this goal and strategy, the 2019 *Overview of Intermodal Freight in Wisconsin* report established a list of 16 suggested state government roles for engaging in the topic of intermodal freight. The following four suggestions are directly relevant to the ongoing work of this project, and serve as the context for future recommendations in this project:

- Provide grant assistance for the development of intermodal facilities, including support in federal grant applications, and
- Help orchestrate partnerships and investments, including local governments and the private sector.
- Serve as a repository for data, including identification of promising regions for facility development.
- Support marketing coordination and cooperation – leveraging data to encourage business development and facility investment. (Show where intermodal operations are in demand).

Local Partners' Role in Intermodal Development

As noted above, WisDOT recognizes that local governments and businesses are key partners in the evaluation and development of intermodal terminals. In the case of this project, some of the key local partners for this project are:

- East Central Wisconsin Regional Planning Commission
- Brown County
- New North, Inc.
- Lake States Shippers Association
- And others, including the Bay-Lake RPC, and West-Central Wisconsin RPC.

The 2019 *Overview of Intermodal Freight in Wisconsin* report also identifies potential roles for local partners like these:

- Help support roadway infrastructure planning and investments, especially first/last mile connections.
- Help support redevelopment of brownfields sites.
- Leverage tools like Tax Increment Financing districts to support or fund terminal development.
- Conduct site assessments.
- Develop corridor transportation plans.
- Regional coordination among local municipalities, counties, and town governments, especially regarding grant writing.

4.4 Conclusion

There is significant demand for intermodal shipping in Northeast Wisconsin, and models suggest that a locally-based intermodal service can be fast enough and cost-effective enough to be an attractive option for local shippers. However, there are operational challenges associated with railroad service, such as the relatively short distance between Northeast Wisconsin and Chicago, differences in railroad business models, and potential capacity limitations on connecting railroad lines. These challenges do

not preclude service from being successful, and a strong business case will be needed to secure railroad partnership. Therefore, the development of intermodal service in Northeast Wisconsin will require a local project champion to take ownership of the topic, and diligently build a business case that is informed by real-world data and shipper commitments for specific volumes on specific trade lanes.

Appendix A – Consultations

The project team gratefully acknowledges the following organizations for their contribution of time in phone and written consultations.

- Amcor
- Ascent Global Logistics
- Canadian National Railway
- Central Wisconsin Manufacturing Alliance
- Del Monte
- GKM Inc.
- GLC Mineral
- Green Bay Packaging
- Hapag-Lloyd
- Johnsonville
- KBX Logistics
- Kimberly-Clark
- Klimek Rail Consulting
- Kohler
- Lake States Lumber Association
- Lake States Shippers Association
- Lake Superior Warehousing
- Lakeside Foods
- McDonald Companies
- Marinette Marine
- MatchBack Services
- ME Dey & Co
- Menards
- N&M Transfer
- Oshkosh Corp
- Paper Transport
- Proctor & Gamble
- Quad/Graphics
- Redwood Logistics
- Rockline Inc.
- Schneider
- Schreiber Foods
- Seneca Foods
- Verso
- Watco
- Werner Electric Supply
- Wisconsin Railroad Association

Appendix B – Competitor Facilities

Northeast Wisconsin's truck catchment area is large, and extends west past I-39, and as far east as the central Upper Peninsula. However, the truck catchment area is *not* the market area, as competitor facilities place bounds on the region where a Northeast Wisconsin terminal could attract traffic. Existing intermodal terminals in Illinois, Wisconsin, and Minnesota play a role in establishing the market area for a hypothetical terminal in Northeast Wisconsin. Chicago's many terminals help establish a southern boundary, while Chippewa Falls sets potential western boundaries. Duluth also covers portions of the western Upper Peninsula. In addition to these facilities, there are facilities in New Richmond, WI and the Twin Cities that further reinforce the western edge of the potential market area for a Northeast Wisconsin terminal.

The cities or terminals listed above determine the potential boundaries of a Northeast Wisconsin facility market area, but there is nuance to their operations or target markets that is important to consider during this project. Each area's relevant terminals, service offerings, and trade lanes are summarized below.

Chicago Intermodal

The Chicagoland area, including Joliet, is home to one of North America's largest clusters of intermodal facilities and is served by six class 1 railroads that provide service to all major rail-served metropolitan areas in the continental United States and Canada.

Name	Location	Railroads	Annual Lifts (2018)	Primary connections
BNSF Cicero	Cicero	BNSF	457,026	Pacific Northwest, Minnesota
BNSF Corwith	Chicago	BNSF, NS, CSX	811,974	Texas, Colorado, California, Missouri, Nebraska, Arizona
CP Bensenville	Franklin Park	CP	244,233 (estimate)	Alberta, Quebec, Ontario, British Columbia, Minnesota
CP Schiller Park	Schiller Park	CP	Closed from 2010 - 2018. Last reported 139,476 lifts in 2010	British Columbia
CSX 59th Street	Englewood	CSX	310,165	Georgia, Maryland, New York, South Carolina, North Carolina, Ohio, Michigan, Indiana, Kentucky, Tennessee, Virginia, Massachusetts, Quebec
NS 47th Street	Fuller Park	NS	630,513	New York, Massachusetts, Ohio, Michigan, Pennsylvania
NS 63rd Street	Englewood	NS	359,491	Pennsylvania, Maryland, New York
UP Global I	Near West Side	UP	336,729	Utah, Nevada, California
UP Global II	Northlake	UP	288,532	Colorado, Nevada, California, Oregon, Washington
UP Global III	Rochelle	UP	Closed.	Used to build/block trains, closed to outside users.

Name	Location	Railroads	Annual Lifts (2018)	Primary connections
UP Canal Street	Chicago	UP	Closed. Last reported 13,351 lifts in 2018	Iowa and Wisconsin
BNSF Willow Springs	Willow Springs	BNSF	668,225	New Mexico, Texas, Colorado, California, Missouri, Arizona
CN Harvey	Harvey	CN	630,000	Alberta, Nova Scotia, New Brunswick, Quebec, Saskatchewan, Manitoba, British Columbia, Ontario, Michigan, Maine, Tennessee, Louisiana
CSX Bedford Park	Bedford Park	CSX	895,983	Pennsylvania, Florida, New York, New Jersey, Massachusetts, Virginia
IAIS Blue Island	Blue Island	IAIS	Closed. Last reported 40,345 lifts in 2012	Iowa and Nebraska
NS Calumet	Calumet	NS	237,969	New York, North Carolina, Pennsylvania
NS Landers	Landers	NS	444,352	Georgia, Ohio, Kentucky, Florida, Virginia
UP Yard Center (Dolton)	Dolton	UP	173,200	Texas (Laredo, San Antonio)
BNSF Logistics Park (Elwood)	Joliet Area	BNSF	936,592	California, Oregon, Washington
Union Pacific Global IV	Joliet Area	UP	578,740	Texas, California, Arizona, Oregon, Washington
CN Joliet	Joliet Area	CN	30,000	British Columbia

Source: CMAP Chicago Intermodal Facility Lift Counts Published November 2019; Mid-America Freight Coalition

Nearby Chicago is the most important inland intermodal hub in North America, providing access to multiple Class I railroads and direct connections to most of the continent.

Chippewa Falls

Chippewa Falls' intermodal terminal is operated by Canadian National. The operations of this terminal are focused on several 'anchor' users. For inbound moves, Menards has a large nearby distribution center that receives containerized imports from the West Coast. In turn, empty containers are packed with grain or other agricultural products for export back to the West Coast. The *Overview of Intermodal Freight in Wisconsin* study notes that Chippewa Falls has limited space and equipment, and thus a limited ability to accommodate new importers or exporters. Additionally, its estimated throughput is significantly smaller than Chicago's terminals and was estimated at between 6,000-7,000 TEUs in each direction in the 2019 intermodal study. Because of its import-export focus, and major existing tenants, Chippewa Falls is potentially limited in its ability to compete with a hypothetical terminal in Northeast Wisconsin.

Duluth

Duluth's intermodal terminal is served by Canadian National and operated by the Duluth Cargo Connect, a partnership between the Duluth Seaway Port Authority and Lake Superior Warehousing. Duluth's terminal has been in operation since 2017 and serves clients in Minnesota, Wisconsin, and the Upper Peninsula. In addition to intermodal transfer service, the facility offers value-added services such as container packing and unpacking, warehousing, truck weighing, and customs clearance. Due to significant traffic growth, Duluth's terminal has undergone expansion in the past 3 years and has the capacity to support the movement of 45,000 - 50,000 TEU per year.[4]

New Richmond

Canadian National recently opened a new terminal in New Richmond, WI which serves as an inland receiving port for distribution of imported automobiles and consumer goods, and an export point for agricultural and forest product exports.

Twin Cities Intermodal Terminals

Currently, the Twin Cities has two intermodal terminals. Canadian Pacific operates Shoreham Yard in Minneapolis, and Union Pacific recently opened its own terminal in southern Minneapolis. These terminals are a significant distance from Northeast Wisconsin but are noteworthy because they further reinforce the fact that businesses in Western Wisconsin are unlikely to use a terminal in Northeast Wisconsin.

Arcadia

Wisconsin has a third intermodal terminal, in Arcadia. This terminal is served by Canadian National and owned by Ashley Furniture. Inbound shipping service is unavailable for any other companies, and some companies can ship goods outbound through Ashley's terminal.

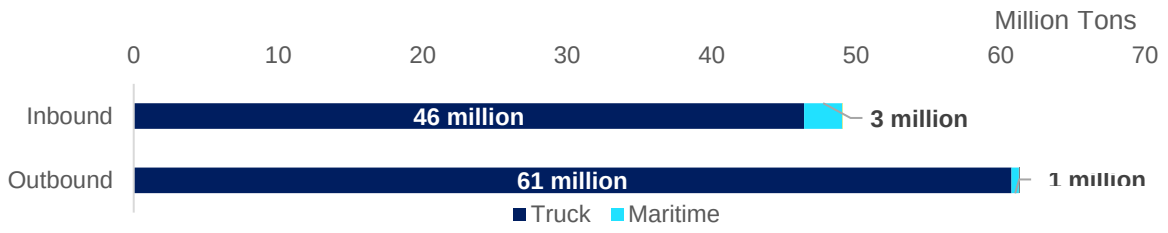
[4] Duluth Seaway Port Authority Financial and Compliance Report. 2020.

Appendix C – Commodity Flow Analysis

Transportation Modes

In 2019, the Northeast Wisconsin region handled 49 million tons of inbound cargo and 62 million tons of outbound cargo according to IHS Markit. Most flows traveled by truck as shown below.

2019 Regional Commodity Flows (in Million Tons)

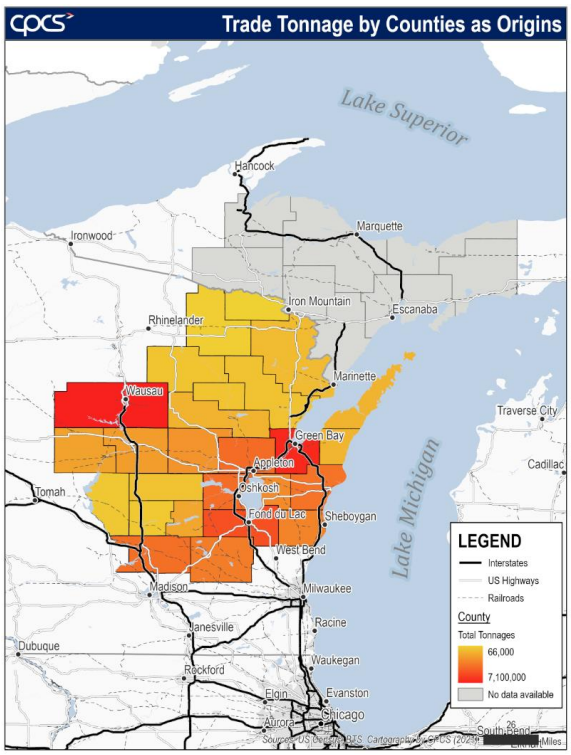


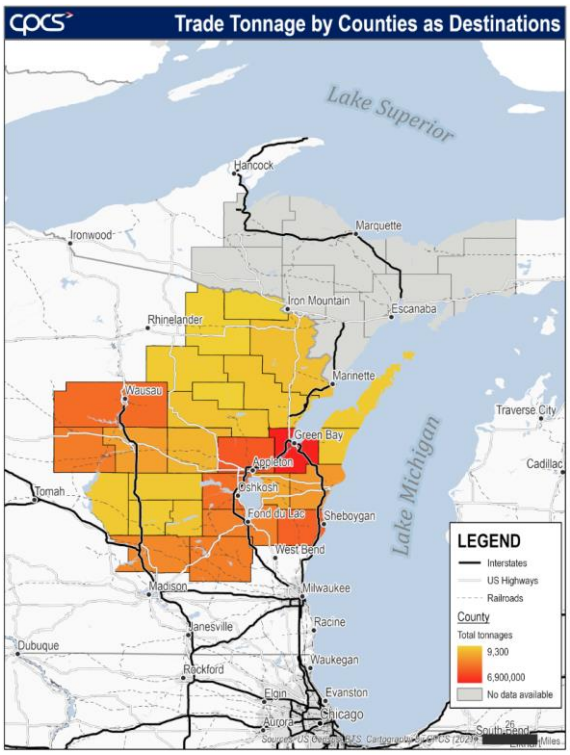
Source: IHS Markit Transearch 2019

Locations

Among the 49 million tons of inbound cargo, the highest concentration of cargo was destined for Brown County, followed by Outagamie, Marathon, and Sheboygan counties. In contrast, the counties with the most outbound cargo include Brown and Marathon counties, followed by Fond du Lac County. The top counties by origins and destinations are illustrated below.

Northeast Wisconsin Origins and Destinations

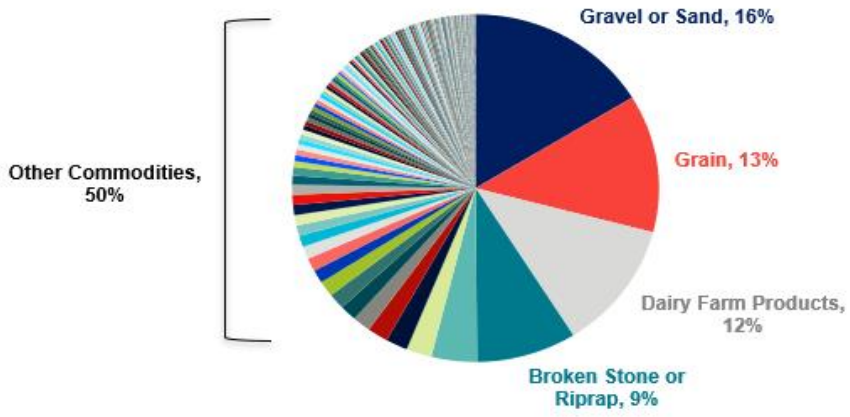




Top Commodities

The top inbound commodities in this region by weight include gravel/sand, grain, dairy farm products, and broken stone – making up 50% of all inbound commodities. These commodities are not frequently containerized as they are lower-value or have specialized transportation requirements (e.g. refrigeration).

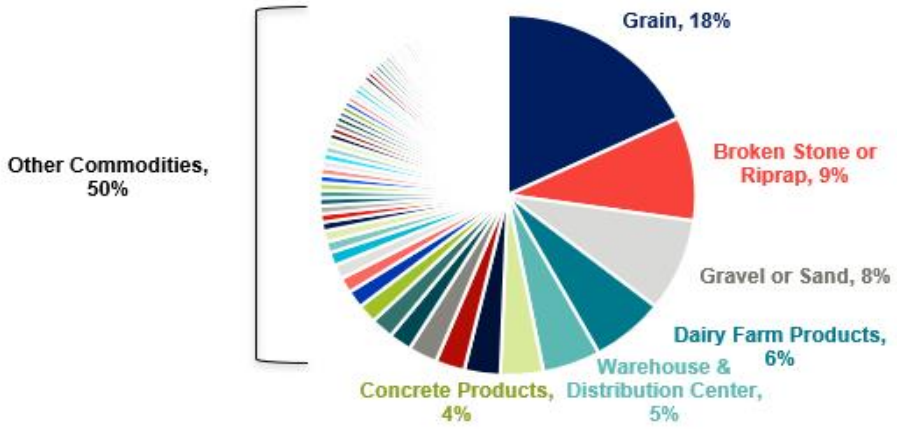
Inbound: Top Commodities by Weight



Source: IHS Markit Transearch 2019

The top outbound commodities in this region by weight include grain, broken stone, gravel/sand, dairy farm products, warehouse and distribution center, and concrete products, also making up 50% of all outbound commodities. Among these top commodities, warehouse and distribution center goods and concrete products are most likely to be containerized.

Outbound: Top Commodities by Weight



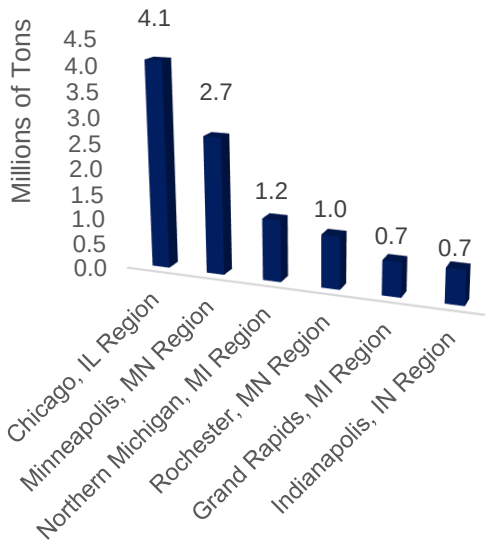
Source: IHS Markit Transearch 2019

Top Origins and Destinations

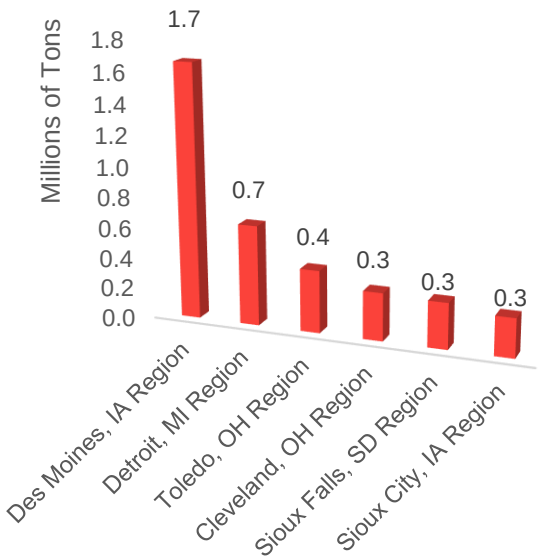
The top origin and destination from this region by cargo weight is the Chicago metropolitan area, followed by Minneapolis. Both locations are unsuitable for intermodal shipping due to their close distance. Top origins and destinations over 400 miles in order of largest to smallest include Des

Moines, Detroit, Houston, Toledo, Los Angeles, Dallas, Denver, Toledo, Cleveland, Sioux Falls, and Sioux City.

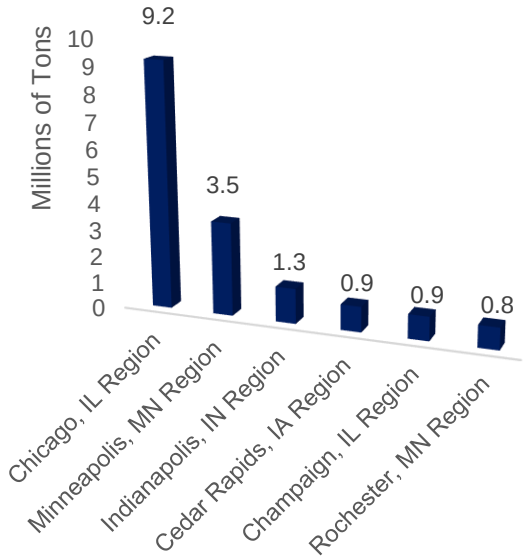
Top Origins Under 400 Miles



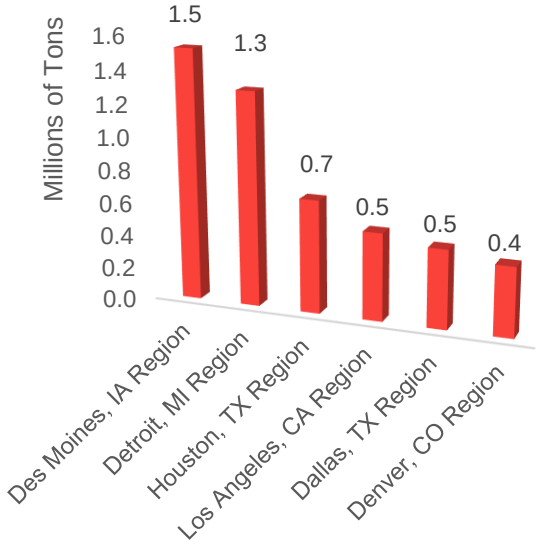
Top Origins Over 400 Miles



Top Destinations Under 400 Miles



Top Destinations Over 400 Miles



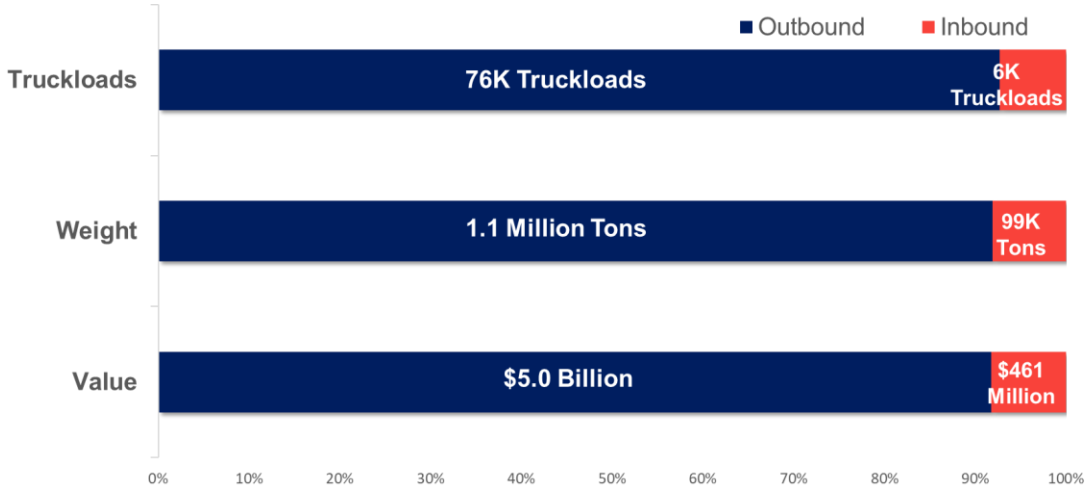
Source: IHS Markit Transearch 2019, excludes Wisconsin origins and destinations

Estimates of Truck Drayage to and from Chicago

Outbound drayage truckloads to Chicago intermodal rail ramps outnumbers inbound by almost 13:1.

According to IHS, in 2019 outbound truck drayage represented 76 thousand truckloads compared to 6 thousand inbound truckloads. The figure below illustrates truckload drayage by direction, truckload, weight, and value. Note: this information is based on IHS Markit and is subject to its limitations. Consultations, other data, resources, and modeling efforts further understanding of the magnitude of container imbalances in the Northeast Wisconsin region.

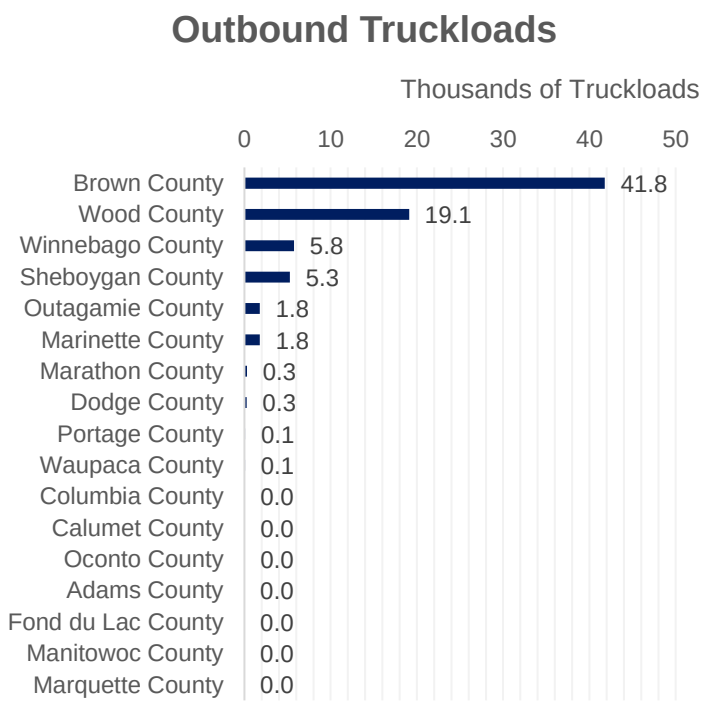
Estimates of Truck Drayage To/From Chicago Intermodal Rail Ramps, 2019

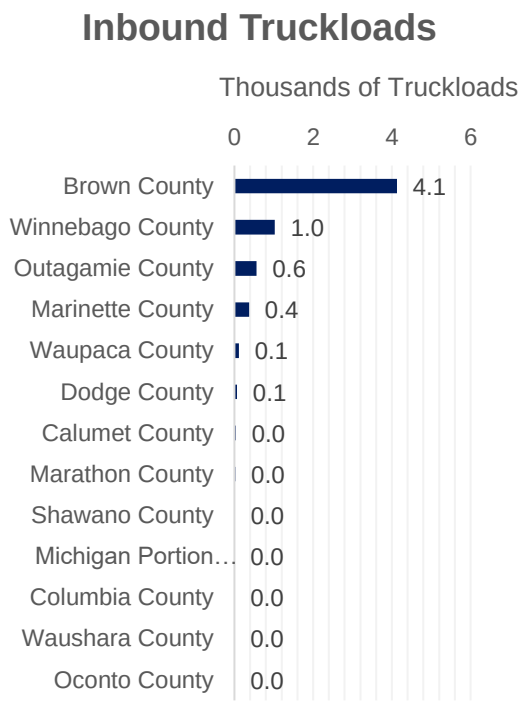


Source: IHS Markit Transearch, 2019

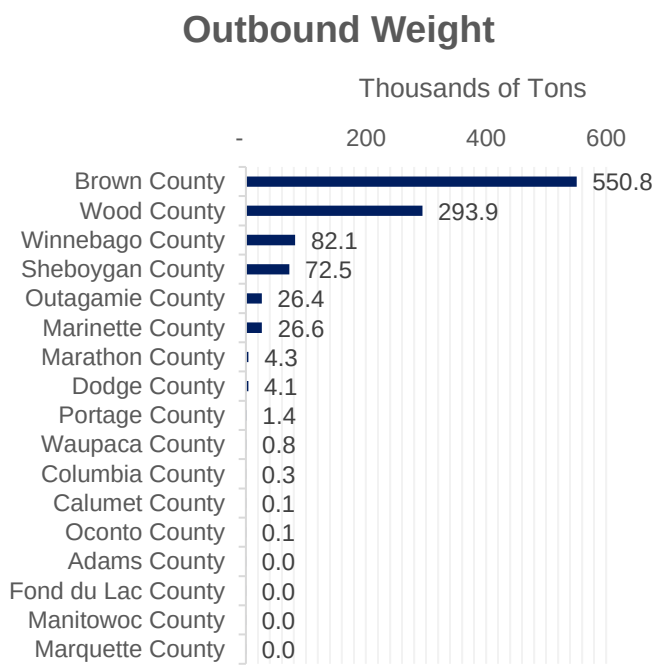
The subsequent sections break out outbound and inbound drayage at a county level in Northeast Wisconsin by truckloads, tonnage, and value.

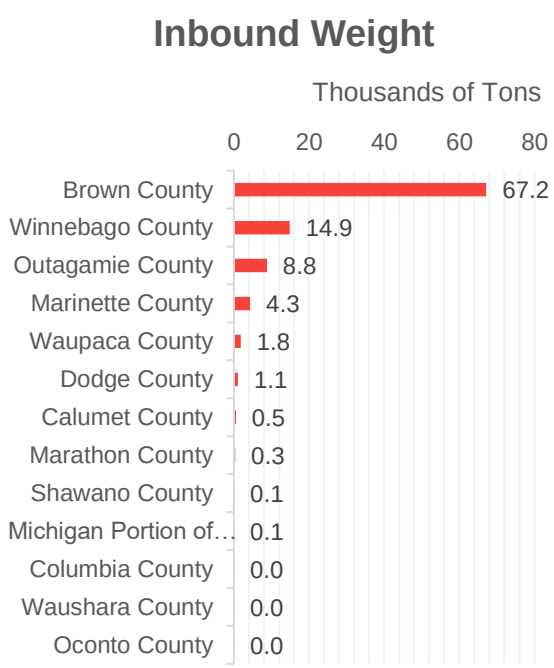
Estimates of Truckload Drayage to and from Chicago for Intermodal Rail, 2019



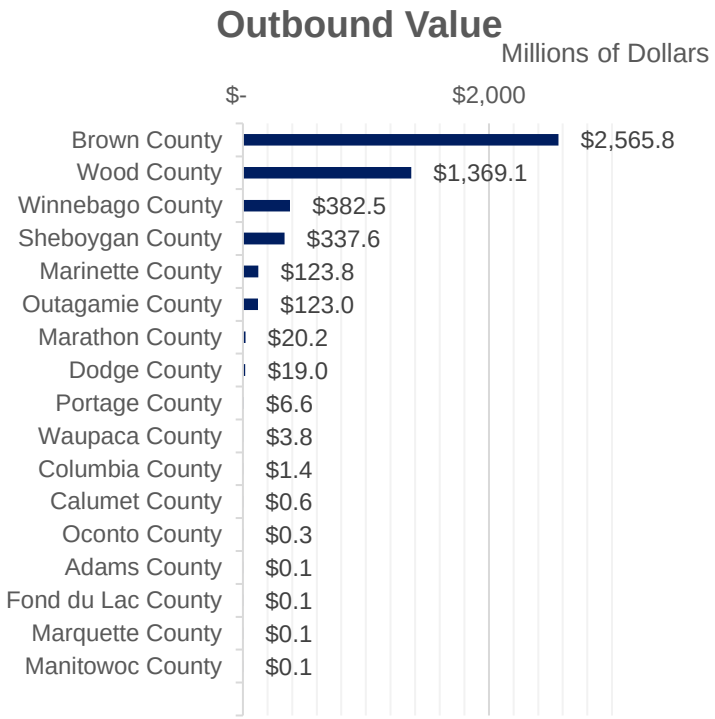


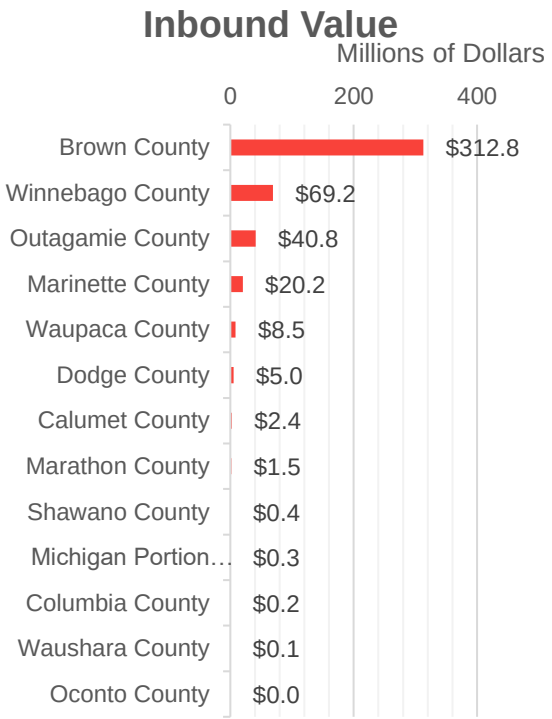
Estimates of Truck Drayage Weight to and from Chicago for Intermodal Rail, 2019





Estimates of Truck Drayage Value to and from Chicago for Intermodal Rail, 2019





Top Freight-Generating Industries

The sections that follow provide a profile of the top freight-generating industries (by weight) in northeastern Wisconsin. In addition to volume, origins, and destinations of shipments also play an important role in supply chain operations and mode choice. Each profile contains commodity volumes, domestic and international inbound and outbound volumes, and top domestic origins and destinations. As the profiles depict, there is great variability between industries and among commodities within each industry. Further, even within a commodity group, transportation characteristics can vary. For example, within the dairy sector shipments of milk are highly time-sensitive and would move by truck rather than rail. Cheese, on the other hand, is not as perishable and could likely move by intermodal rail. This diversity of supply chain needs provides context for understanding the challenges in developing intermodal facilities.

Paper Products Industry

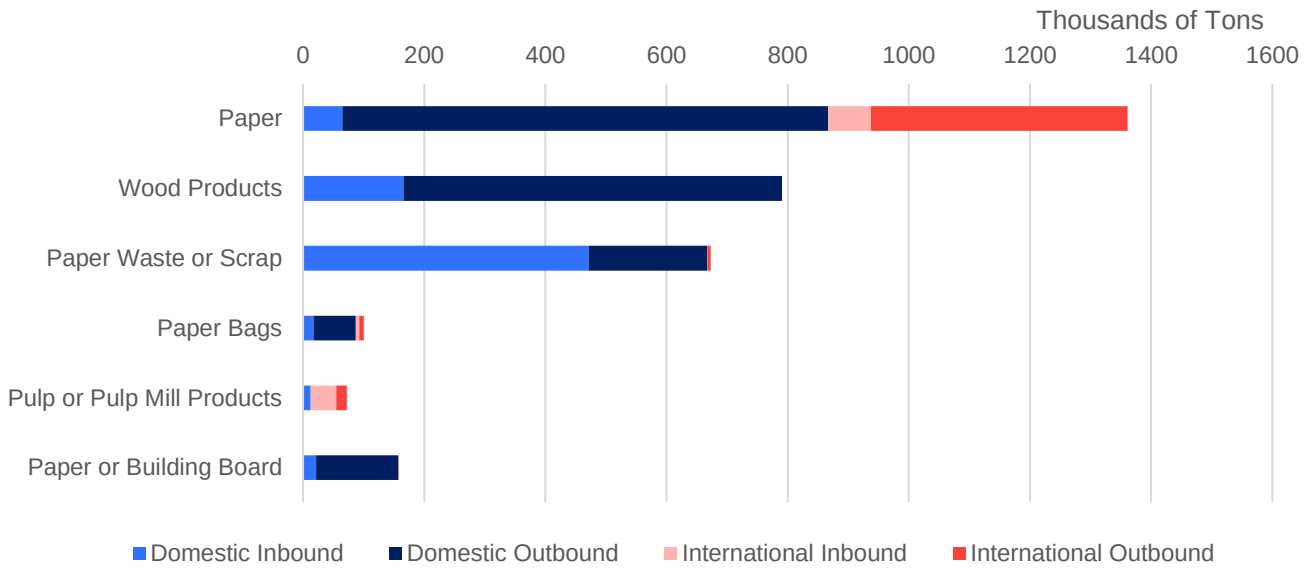
Paper is by far the largest outbound commodity in the region's paper products industry – representing 1.2 million tons of outbound cargo.

801 thousand tons of paper are exported to domestic locations and 424 thousand tons are shipped to international locations. The second top outbound commodity is wood products which make up 625 thousand tons of outbound cargo, all shipped to domestic locations. In contrast, the top inbound

commodity is paper waste/scrap, representing 472 thousand tons of inbound cargo primarily from domestic origins. The other top regional commodity flows for this industry can be found in the figure below.

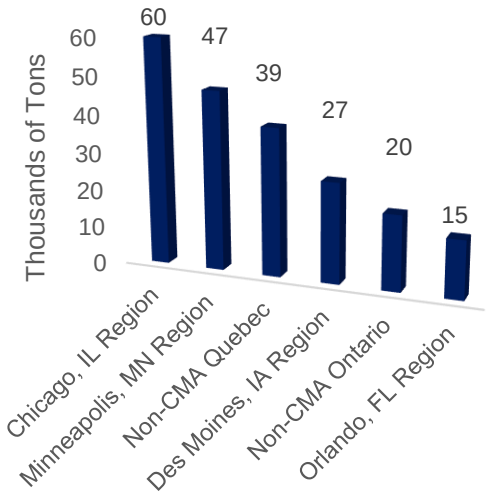
In the 20 years since the region has had intermodal service, this industry has reconfigured its supply chain to operate without the local service. Paper manufacturers, according to those participating in consultation interviews, use intermodal today in Chicago. If intermodal service were available in the region, they would find that of value, particularly for long-distance shipments. The key focus for this industry would be on cost. In some long-haul lanes, even though it takes longer, shippers use intermodal service to a more distant ramp and truck the freight to its destination rather than using the local intermodal yard to lower their transportation costs. If the cost of using an intermodal service in northeast Wisconsin does not offer a savings over their current operations, then it is not something the industry would use.

Paper Products Industry – Top Commodity Flows 2019

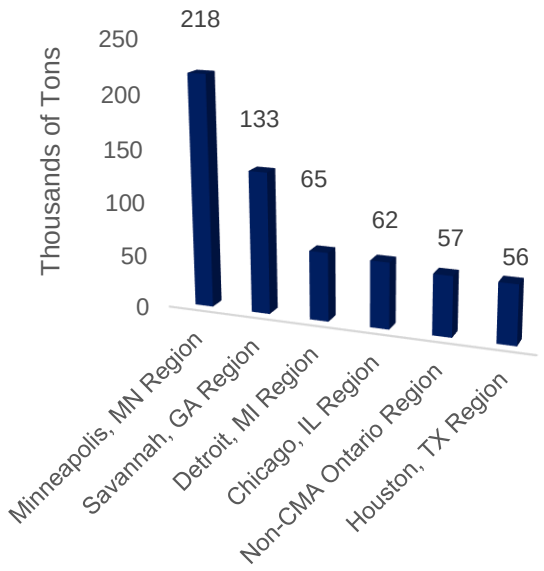


Source: IHS Markit Transearch 2019, excludes within region movements

Top Regional Paper Industry Origins



Top Regional Paper Industry Destinations



Source: IHS Markit Transearch 2019, excludes Wisconsin origins and destinations

Food Manufacturing Sector

The top inbound and outbound commodity for the food manufacturing sector is dairy farm products – making up 9.8 million tons in bidirectional movements.

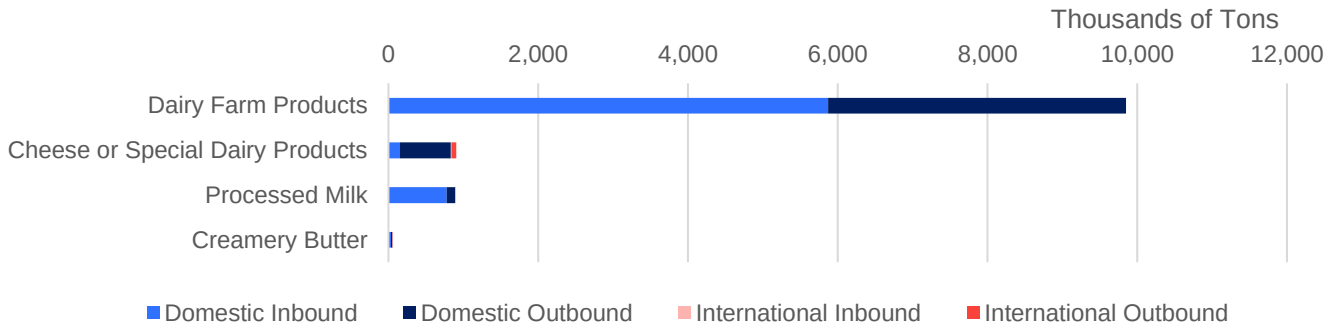
The next highest inbound commodities include processed milk (778 thousand tons), distilled or blended liquor (478 thousand tons), misc. fresh vegetables (233 thousand tons), and frozen fruit, vegetable, or juice (187 thousand tons).

Top outbound commodities after dairy farm products include cheese or special dairy products (743 thousand tons), canned fruits and vegetables (494 thousand tons), and misc. fresh vegetables (454 thousand tons). The top commodities for dairy products, beverages and spirits, meat manufacturing, and other food manufacturing industries are shown below.

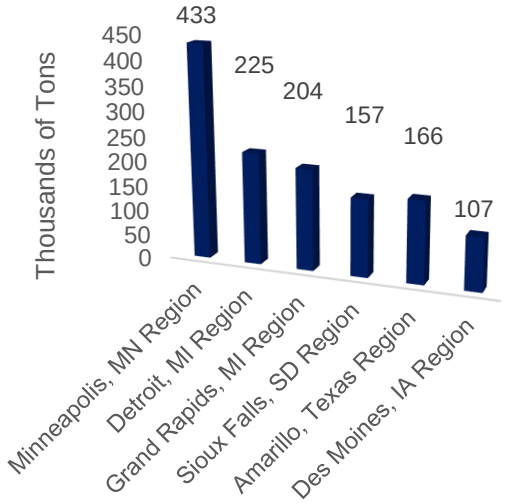
This sector provides another example of varying supply chain requirements. Consultations with shippers in the food sector yielded different performance expectations for intermodal service. Several firms in the region ship food products with low perishability. However, some ship directly to customer facilities and others to intermediate distribution centers. Those shipping directly to their customers' distribution centers or stores require highly reliable, fast service. They can face costly financial penalties for late delivery into their customers' supply chains. As a result, their expectation for intermodal service is that it be fast and reliable. However, companies shipping to an intermediate facility are more focused on cost than speed since they have designed their supply chains to enable them to buffer against delay. These companies, therefore, focus their desire for intermodal service around cost, rather than speed.

Dairy Products:

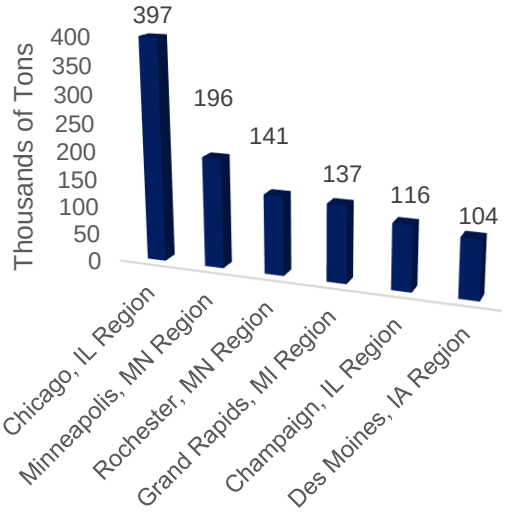
Dairy Products Industry – Top Commodity Flows 2019



Top Regional Dairy Products Industry Origins



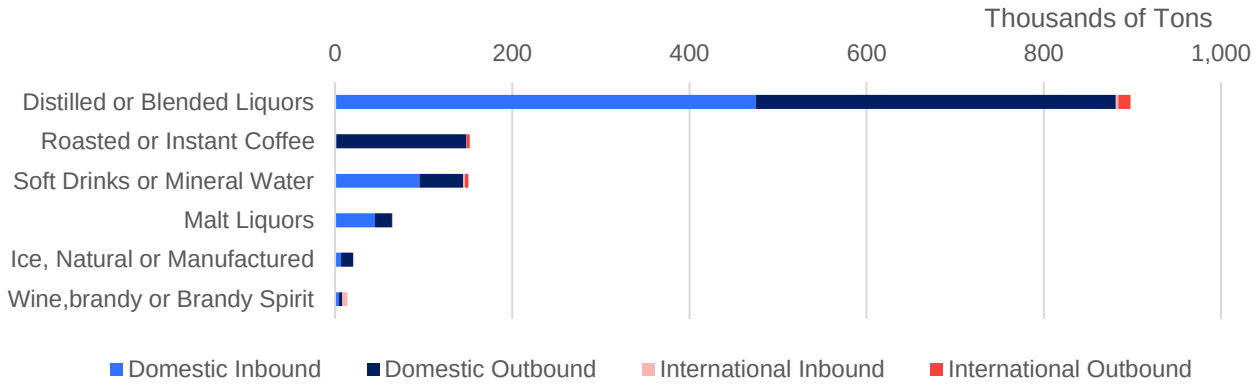
Top Regional Dairy Products Industry Destinations



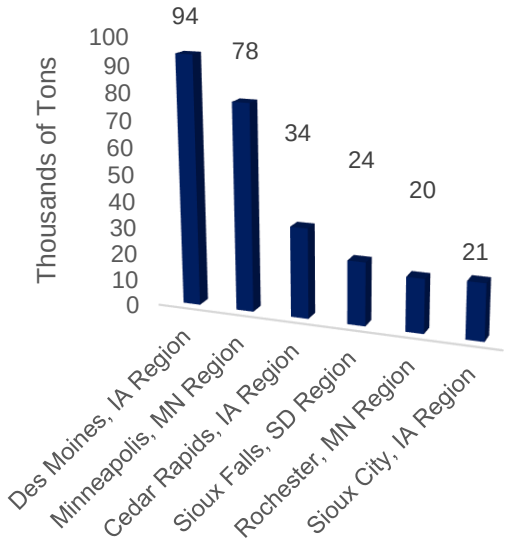
Source: IHS Markit Transearch 2019, excludes Wisconsin origins and destinations

Beverages and Spirits:

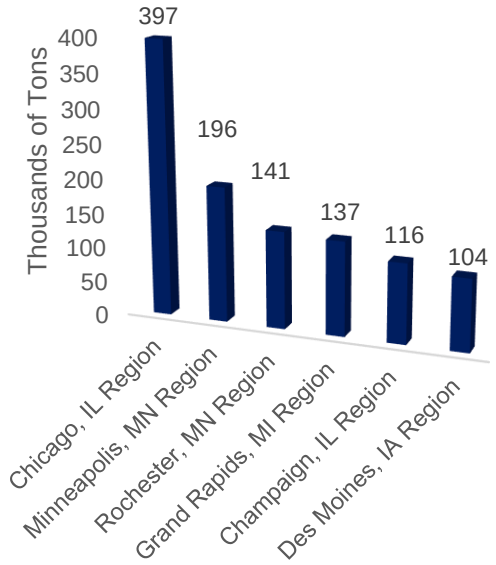
Beverages and Spirits Industry – Top Commodity Flows 2019



Top Regional Beverages and Spirits Industry Origins



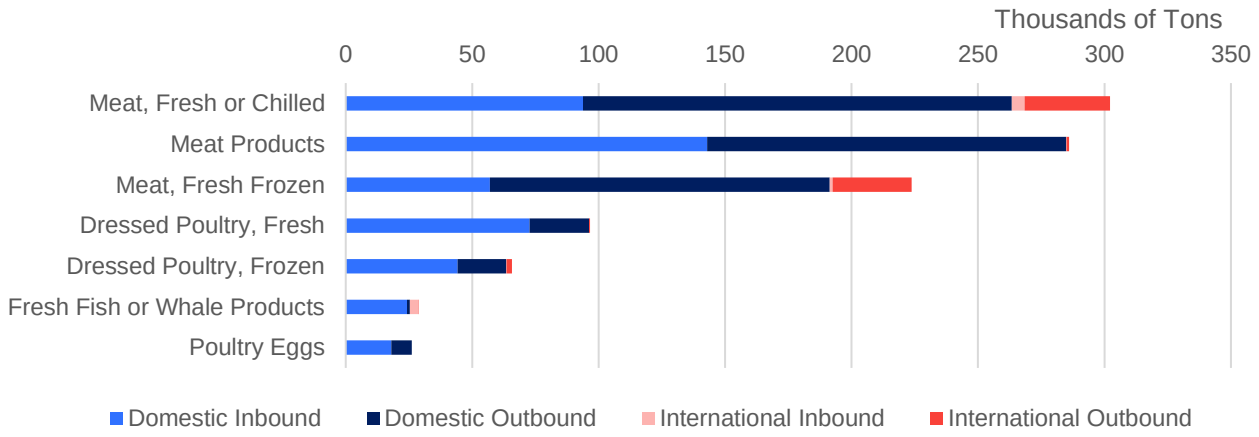
Top Regional Beverages and Spirits Industry Destinations



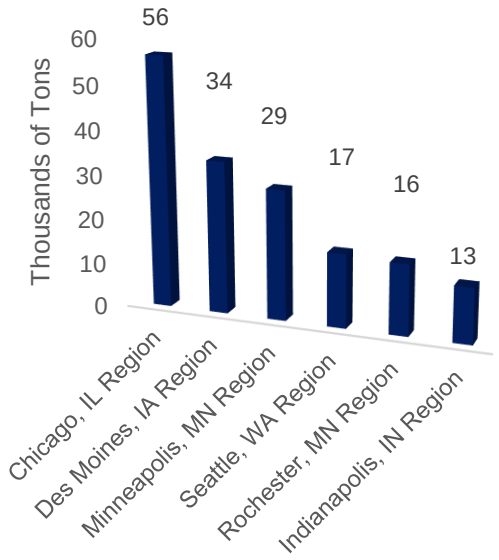
Source: IHS Markit Transearch 2019, excludes Wisconsin origins and destinations

Meat Manufacturing:

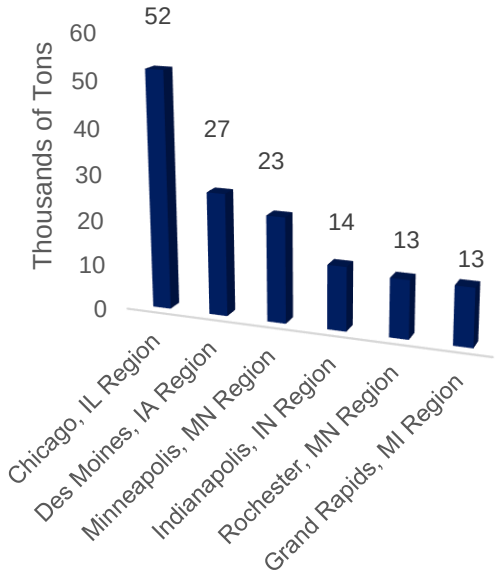
Meat Manufacturing Industry – Top Commodity Flows 2019



Top Regional Meat Manufacturing Industry Origins



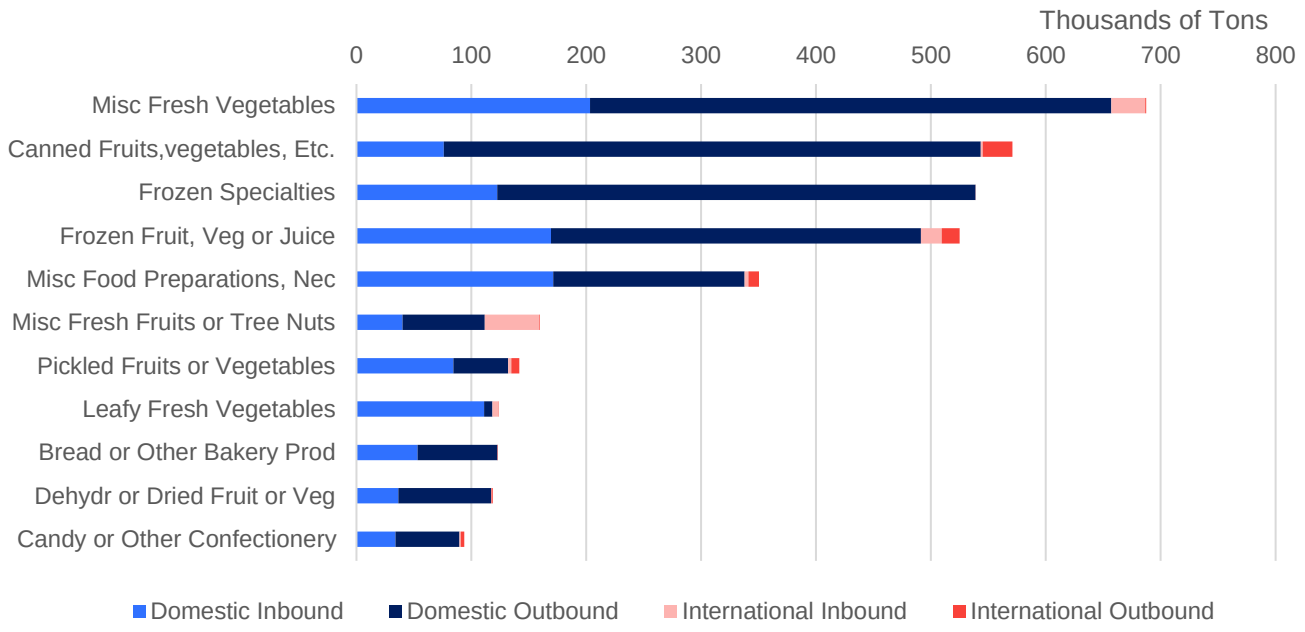
Top Regional Meat Manufacturing Industry Destinations



Source: IHS Markit Transearch 2019, excludes Wisconsin origins and destinations

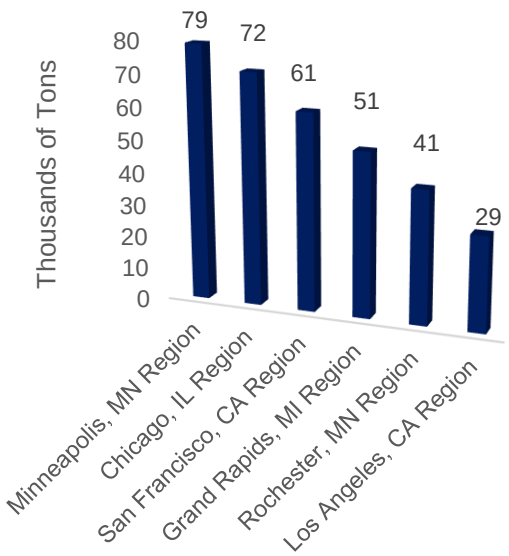
Other Food Manufacturing:

Other Food Manufacturing Industry – Top Commodity Flows 2019

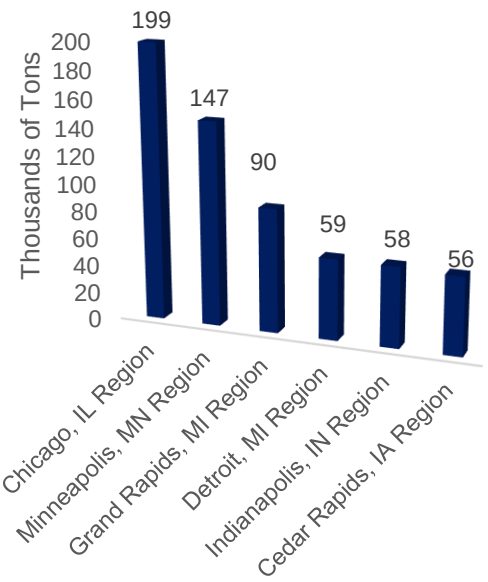


Source: IHS Markit Transearch 2019, excludes within region movements.

Top Regional Other Food Manufacturing Industry Origins



Top Regional Other Food Manufacturing Industry Destinations

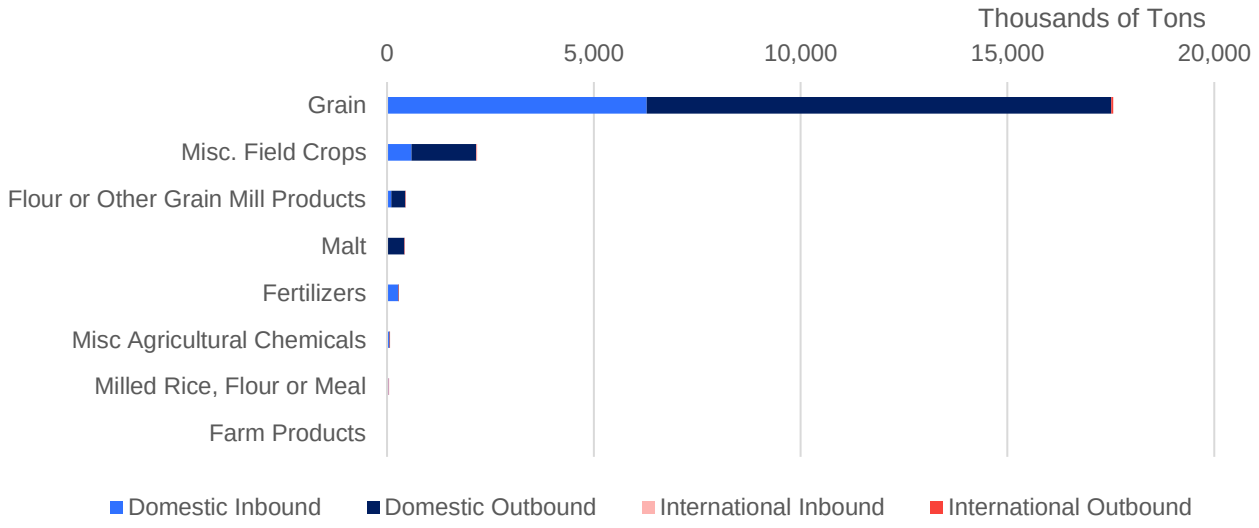


Source: IHS Markit Transearch 2019, excludes Wisconsin origins and destinations

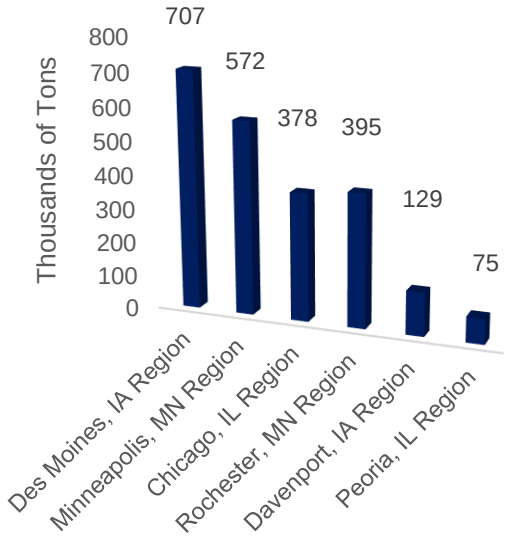
Grain Industry

Grains are the top regional outbound commodity – 11.3 million tons of outbound cargo. Inbound movements are also significant at 6.3 million tons.

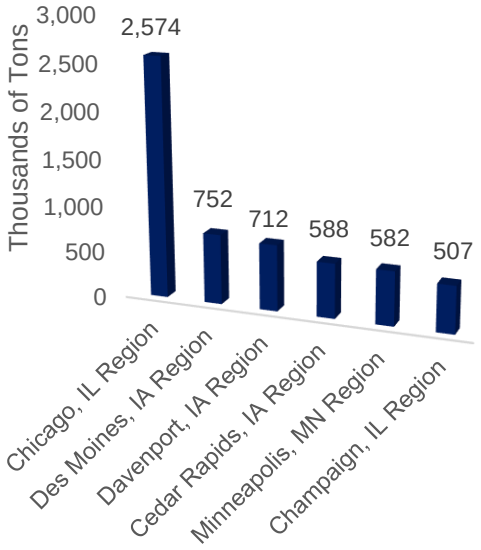
Grain Industry – Top Commodity Flows 2019



Top Regional Grain Industry Origins



Top Regional Grain Destinations



Source: IHS Markit Transearch 2019, excludes Wisconsin origins and destinations

Appendix D – Total Logistics Cost Approach

The total logistics cost (TLC) model reflects the transportation decision-making process used by businesses and assumes that, when given multiple viable transportation options, a shipper will favor the transportation option that minimizes TLC for their operations. These could be different options in terms of mode of transportation (road vs rail) as well as different routings. This modeling work incorporates many variables to build up estimates of total shipping, handling, and storage costs for different types of goods. These variables are included below:

Variables for Total Logistics Cost (TLC) Model

Variable	Description	Data Source(s)
Commodity	The commodity shipped	IHS Markit Transearch 2019
Origin	The origin of the commodity shipped	IHS Markit Transearch 2019
Origin Mode	The mode of transportation at the origin of the shipment	IHS Markit Transearch 2019
Destination Mode	The mode of transportation at the destination of the shipment	IHS Markit Transearch 2019
Destination	The destination of the commodity shipped	IHS Markit Transearch 2019
Unit	The units for the specific shipment	IHS Markit Transearch 2019
Value	The value for the specific shipment	IHS Markit Transearch 2019
Tonnage	The weight for the specific shipment	IHS Markit Transearch 2019
Dry Van Rate	The cost of shipment per mile between the origin and destination by dry van	FreightWaves Truckstop Indices 2019
Intermodal Rail Rate	The cost of shipment per mile between the origin and destination by intermodal rail	Freightwaves Intermodal Indices 2019 and Industry Consultations
Truck Mileage	The distance by truck directly between the origin and destination	CPCS Travel Time Model
Intermodal/Transloading Cost	The commodity-specific cost of handling/transloading material between modes	Industry Consultations
Drayage Cost	The cost of draying material between one facility and another	Dry Van Rate x Truck Mileage
Shipment Time	The average number of days between origin and destination by mode	CPCS Travel Time Model for Trucking, STB Waybill Routing for Rail and Class I Rail Schedules

Scenarios

This study utilized three illustrative scenarios with different modes of transportation or transportation routings to compare total logistics costs. The next page summarizes the three scenario types and major variables associated with each scenario.

Truck Only Freight Movement

This scenario estimates the cost of shipping various types of commodities between Northeast Wisconsin and their origin/destination directly by truck. It assumes that rail would not be considered by shippers, even though the commodities are determined to be rail-eligible.

Use of Chicago Intermodal Facility

This scenario estimates the cost of draying commodities by truck between Northeast Wisconsin and Chicago, along with using an intermodal facility in Chicago for rail shipping to origin/destination by intermodal rail. It considers the use of rail to/from Chicago from origins/destinations outside Northeast Wisconsin and local truck drayage between Chicago and Northeast Wisconsin.

Northeast Wisconsin Intermodal Facility

This scenario estimates the cost of shipping various commodities to/from Northeast Wisconsin by using a facility within this region. The scenario considers (1) the use of rail between Northeast Wisconsin and Chicago, (2) the use of transloading at Chicago, (3) the use of rail between Chicago and the origin/destination, and (4) the local truck movement between the railhead and the origin/destination.

Total Logistics Cost (TLC) Scenarios

Truck-Only Freight Movement	Use of Chicago Intermodal Facility	Use of NE WI Intermodal Service
• Total value, tons, and units by commodity, and origin and destination • Truck transportation costs between origin and destination	• Total value, tons, and units by commodity, and origin and destination • Rail transportation cost • Truck transportation costs to and from Chicago intermodal facility • Rail transloading costs	• Total value, tons, and units by commodity, and origin and destination • Rail transportation cost • Rail transloading costs • Chicago drayage costs

Data Limitations

There are a few data limitations in the TLC modeling related to data availability and quality. First, TLC estimates were developed to reflect order-of-magnitude logistics cost rates in line with industry averages. Due to the proprietary nature of negotiated shipping rates, those values used for this analysis are based on spot rates and not based on official shipper quotes or actual contracted rates.

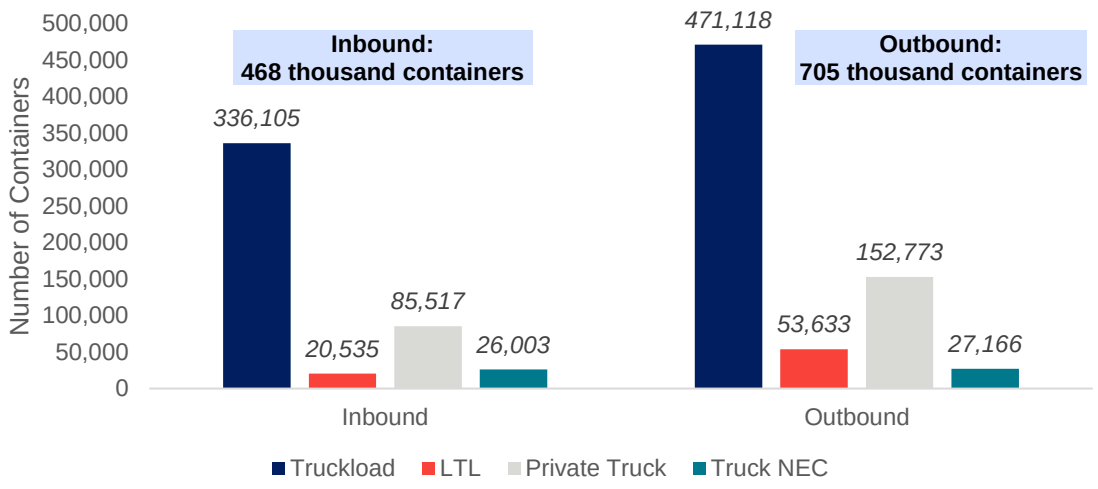
Second, the model does not account for risks within the logistics cost estimation. Risks may include the reliability of on-time delivery, cargo damaged while in transit, etc. While these risks have associated costs, they are unique to each shipping decision and therefore cannot be estimated with confidence.

Third, the market area for Northeast Wisconsin was assumed based on the driving distance a driver can accomplish within a working day. However, some types of freight such as high-value, one-off shipments may or may not be competitive within this distance and these types were not factored into the market assessment.

Hypothetical Market Size

This section illustrates the hypothetical intermodal transportation market size, irrespective of time and cost factors. To calculate the market size, the Project Team filtered commodity flow data with an origin or destination in Northeast Wisconsin that would be eligible for intermodal shipping (a route of 600 miles or longer) and based on commodities that are eligible for containerization. Among the remaining commodities, the hypothetical market size includes 468 thousand containers inbound and 705 thousand containers outbound.

Hypothetical Market Size (Number of Containers)



The top inbound trade lanes include Amarillo (TX), Dallas, Casper (WY), Denver, Los Angeles, Wichita (KS), Atlanta, Houston, San Francisco, and Philadelphia – making up 133 thousand containers. These top inbound lanes and their key commodities are summarized below.

Top inbound lanes for Northeast Wisconsin have origins distributed primarily across the west and southwest and include a mix of small and large metropolitan areas.

Top Northwest Wisconsin Inbound Trade Lanes for Intermodal Eligible Commodities

#	Inbound Trade Lane	Tons	Containers	Value	Top Three Commodities (Tons)
1	Amarillo, TX	307,776	19,423	175,852,564	Dairy Farm Products, Fresh or Chilled Meat, Fresh/Frozen Meat
2	Dallas, TX	284,291	15,407	431,080,878	Dairy Farm Products, Warehouse/Distribution Center Products, Fiber, Paper, or Pulpboard
3	Casper, WY	337,288	14,124	29,241,948	Chemical or Fertilizer Minerals (Crude), Misc. Field Crops, Clay Ceramic/Refrac Minerals
4	Denver, CO	234,350	13,636	230,067,347	Dairy Farm Products, Misc. Field Crops, Processed Milk

#	Inbound Trade Lane	Tons	Containers	Value	Top Three Commodities (Tons)
5	Los Angeles, CA	250,029	13,503	1,180,971,527	Warehouse/Distribution Center Products, Leafy Fresh Vegetables, Bulbs/Roots/Tubers
6	Wichita, KS	233,994	13,268	280,141,942	Dairy Farm Products, Misc. Field Crops, Warehouse/Distribution Center Products
7	Atlanta, GA	254,708	12,816	758,744,821	Warehouse/Distribution Center Products, Fiber/Paper/Pulpboard, Woven Carpets/Mats/Rugs
8	Houston, TX	205,634	10,868	450,881,673	Warehouse/Distribution Center Products, Tropical Fruits, Cyclic Intermediates/Dyes
9	San Francisco, CA	189,125	10,357	428,780,024	Dairy Farm Products, Leafy Fresh Vegetables, Misc. Fresh Vegetables
10	Philadelphia, PA	197,764	9,876	339,631,119	Tropical Fruits, Misc. Fresh Fruits/Tree Nuts, Dairy Farm Products

The top outbound trade lanes include New York, Los Angeles, Denver, San Francisco, Houston, Atlanta, Dallas, Seattle, Boston, and Washington, DC – making up 249 thousand containers. These top outbound lanes and commodity types are summarized below. Unlike inbound lanes, outbound lanes are more geographically diverse from east to west and are focused primarily on large population centers. This emphasis on large population centers reflects Northeast Wisconsin's role as a significant producer of consumer goods including paper and food products.

Outbound trade lanes are more focused on large metropolitan centers, and destinations are spread across both the eastern and western United States.

Northwest Wisconsin Outbound Trade Lanes for Intermodal Eligible Commodities

#	Outbound Trade Lane	Tons	Containers	Value	Top Three Commodities
1	New York, NY	823,649	41,135	1,657,947,637	Wood Products, Dairy Farm Products, Malt
2	Los Angeles, CA	540,838	28,898	1,134,859,531	Cut Stone/Stone Products, Misc Plastic Products, Concrete Products
3	Denver, CO	536,582	27,291	1,141,190,426	Warehouse/Distribution Center Products, Cut Stone/Stone Products, Flat Glass
4	San Francisco, CA	463,868	25,369	1,280,417,254	Newspapers, Cut Stone/Stone Products, Misc Fresh Vegetables

#	Outbound Trade Lane	Tons	Containers	Value	Top Three Commodities
5	Houston, TX	458,425	23,887	1,356,943,113	Paper, Cut Stone/Stone Products, Wood Products
6	Atlanta, GA	450,196	22,458	961,938,369	Warehouse/Distribution Center Products, Prepared/Canned Food, Cheese/Special Dairy Products
7	Dallas, TX	433,771	22,373	1,052,795,220	Warehouse/Distribution Center Products, Wood Products, Paper
8	Seattle, WA	412,986	21,749	939,591,077	Cut Stone/Stone Products, Concrete, Paper
9	Boston, MA	394,350	20,319	828,391,541	Dairy Farm Products, Wood Products, Chemical or Fertilizer Minerals (Crude)
10	Washington, DC	317,878	15,946	537,925,829	Dairy Farm Products, Chemical or Fertilizer Minerals (Crude), Warehouse/Distribution Center Products

Commodities of Interest

The top known commodities in the potential market demand for the Northeast Wisconsin intermodal facility are listed below. Please note this represents only those flows that are currently fully trucked from origin-destination (20,979 total units). Commodities that are currently drayed to Chicago intermodal facilities are not known within the IHS TRANSEARCH 2019 dataset.

Commodity Type	Units	Value	Tons
Misc Plastic Products	2,727.51	125,273,152.74	32,125.33
Misc Metal Work	903.50	38,381,735.23	15,979.07
Cut Stone or Stone Products	799.15	2,227,424.73	13,490.10
Containers or Boxes,paper	771.40	40,132,031.06	18,413.49
Prepared or Canned Feed	754.64	3,162,823.27	17,190.76
Concrete Products	733.12	2,003,648.80	11,171.56
Misc. Field Crops	635.92	2,801,648.98	13,152.79
Iron or Steel Castings	559.77	37,264,267.75	13,680.13
Wood Prod, Nec	540.76	11,483,122.57	14,517.67
Primary Metal Products, Nec	465.97	22,118,882.42	11,805.59
Industrial Gases	411.51	2,272,919.25	7,827.26
Bread or Other Bakery Prod	403.45	27,816,428.59	9,285.17
Misc Converted Paper Products	395.01	23,178,619.39	9,551.21
Sanitary Paper Products	390.56	23,138,949.74	9,471.75
Wallpaper	388.70	25,758,893.72	9,370.94
Fabricated Structural Metal Products	351.60	20,703,139.66	6,196.30

Commodity Type	Units	Value	Tons
Potassium or Sodium Compound	350.40	2,492,609.47	7,168.66
Sheet Metal Products	333.89	14,034,112.19	6,153.58
Aluminum or Alloy Castings	325.13	14,158,939.57	7,837.10
Reclaimed Rubber	310.85	7,694,928.88	3,722.71
Adhesives	309.65	18,712,107.72	6,457.14
Mineral Wool	307.14	1,198,503.09	5,233.66
Dog, cat or Other Pet Food,nec	304.87	3,090,795.96	7,000.89
Grain	269.92	424,835.62	4,163.23
Plywood or Veneer	246.08	5,533,911.84	6,420.27
Specialty Cleaning Preparations	233.07	10,798,723.34	5,279.06
Valves or Pipe Fittings	231.97	23,074,118.41	4,173.19
Metal Shipping Containers	224.04	12,069,642.39	3,935.67
Flour or Other Grain Mill Products	215.85	2,033,920.90	4,926.34
Wood Cont. or Box Shooks	209.28	4,454,200.94	5,291.14
Paints, Lacquers, Etc.	205.99	14,628,950.24	4,286.02
Sanitary Food Containers	203.21	8,446,310.68	4,912.41
Flat Glass	192.87	901,471.90	3,587.38
Misc Fresh Vegetables	191.74	7,407,072.35	4,086.61
Chem or Fertilizer Mineri Crude	189.44	160,669.10	4,605.26
Metal Doors, Sash, Etc.	183.01	10,430,340.31	3,242.41
Aluminum or Alloy Basic Shapes	176.78	20,777,035.80	4,536.04
Bolts, Nuts, Screws, Etc.	170.45	17,104,283.56	3,196.83
Misc Agricultural Chemicals	163.38	13,958,345.87	3,501.49
Paper Bags	157.62	6,749,147.23	3,784.63
Malt	147.52	1,466,585.91	2,982.55
Dehydr or Dried Fruit or Veg	144.95	2,768,394.70	3,319.44
Mech Power Transmission Equipment	143.77	16,697,402.55	1,887.52
Chemical Preparations, Nec	139.79	10,560,820.78	2,878.21
Fertilizers	139.17	874,650.91	2,806.23
Soap or Other Detergents	131.57	5,504,708.53	2,863.70
Blended or Prepared Flour	125.60	3,030,465.37	2,942.95
Cyclic Intermediates or Dyes	112.94	2,814,355.93	2,253.22
Misc Fresh Fruits or Tree Nuts	110.33	1,655,094.01	2,322.58
Steel Springs	108.80	4,506,401.03	1,929.38
Wet Corn Milling or Milo	106.77	1,152,651.40	2,457.17
Tires or Inner Tubes	106.44	7,951,890.09	1,291.55
Misc Fabricated Wire Products	99.76	5,137,361.57	1,835.25
Metal Cans	90.84	4,965,806.01	1,747.28

Commodity Type	Units	Value	Tons
Glass Containers	90.74	1,267,598.79	1,678.62
Lime or Lime Plaster	88.94	412,875.76	1,587.65
Rub or Plas Hose or Belting	88.84	6,598,986.50	1,071.49
Clay Brick or Tile	85.85	794,413.03	1,385.12
Envelopes	83.57	5,382,522.77	2,066.36
Misc Nonferrous Castings	82.17	5,132,346.99	2,071.80
Iron or Steel Forgings	80.92	4,315,730.53	1,962.47
Milled Rice, Flour or Meal	72.88	859,491.83	1,627.41
Nonmetal Minerals, Processed	70.50	135,455.93	1,292.07
Portland Cement	66.21	124,815.33	1,065.17
Cosmetics,perfumes, Etc.	65.77	6,601,074.47	1,478.46
Fibre Cans, Drums or Tubes	65.60	4,618,756.47	1,561.62
Ceramic Floor or Wall Tile	64.38	586,779.85	1,069.04
Cork Products	61.37	1,292,024.03	1,647.42
Soybean Oil or By-products	61.34	521,768.43	1,315.10
Steel Wire, Nails or Spikes	61.02	6,407,115.67	1,507.63
Explosives	60.74	1,878,685.39	1,296.41
Inorganic Pigments	60.61	4,723,999.48	1,236.65
Biscuits, Crackers or Pretzles	59.21	3,272,809.49	1,362.50
Wooden Ware or Flatware	56.56	1,200,404.83	1,517.63
Architectural Metal Work	56.02	3,574,334.60	992.65
Bulbs,roots or Tubers	52.91	1,722,424.11	1,104.19
Prefab Wood Buildings	52.26	2,898,015.05	1,349.24
Cereal Preparations	46.08	1,702,004.88	1,068.10
Deciduous Fruits	45.99	662,757.68	980.01
Animal By-prod,inedible	45.11	387,317.89	1,055.51
Structural Wood Prod, Nec	44.59	3,008,567.74	1,136.55
Pressed or Molded Pulp Goods	36.73	2,216,352.83	885.79
Poultry Eggs	36.52	375,623.53	563.22
Misc Structural Clay Products	33.08	518,454.26	611.46
Refractories	31.99	475,800.74	595.28
Cotton,raw	31.70	521,953.22	418.90
Die-cut Paper or Ppbd Products	29.22	1,485,201.60	699.40
Leafy Fresh Vegetables	27.63	937,244.00	591.74
Clay Ceramic or Refrac Minerals	25.47	30,115.87	619.07
Electrometallurgical Products	25.46	699,597.85	628.85
Misc Glassware,blown or Pressed	24.37	1,792,695.97	456.01
Oil Kernels, Nuts or Seeds	23.71	63,335.00	365.67

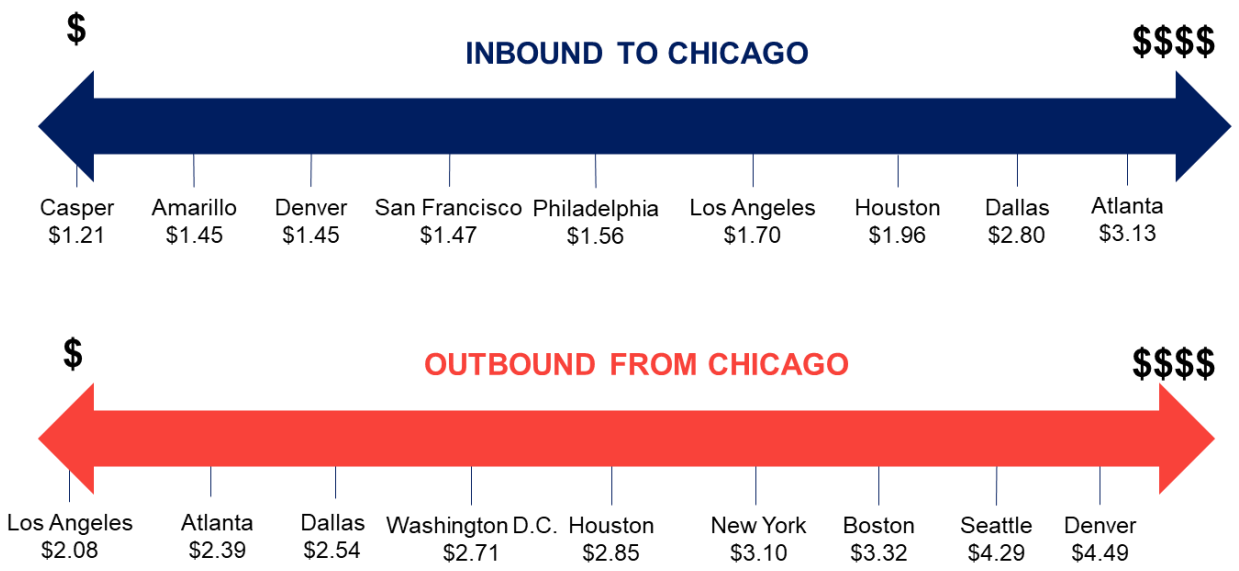
Commodity Type	Units	Value	Tons
Venetian Blinds,shades, Etc.	20.91	1,253,057.83	312.16
Printing Ink	19.90	2,578,849.83	425.58
Misc Flavoring Extracts	19.52	1,435,967.72	451.67
Copper or Alloy Basic Shapes	18.58	1,625,020.09	480.93
Macaroni,spaghetti, Etc.	15.34	686,972.03	355.30
Copper or Alloy Castings	12.38	920,774.44	292.08
Rattan or Bamboo Ware	10.02	223,766.19	269.19
Gaskets or Packing	9.71	1,133,041.48	182.93
Scaffolding Equip or Ladders	9.08	175,946.21	222.44
Gypsum Products	9.03	46,828.34	145.11
Metal Sanitary Ware	9.00	384,597.60	160.07
Metal Safes or Vaults	8.90	306,545.28	155.30
Lasts or Related Products	8.73	185,395.29	234.39
Nonferrous Metal Forgings	7.20	275,123.04	175.85
Vitreous China Plumbing Fixtures	6.77	239,307.82	129.82
Hand Tool Handles	6.37	145,706.92	171.16
Photographic Equip or Supplies	5.32	1,493,821.70	67.23
Edge or Hand Tools	4.99	1,800,546.33	92.92
Cutlery,not Electrical	4.56	1,320,011.46	84.48
Asbestos Products	4.46	14,435.05	84.94
Porcelain Electric Supplies	3.60	483,051.50	66.70
Pulp or Pulp Mill Products	3.49	29,149.10	83.92
Curtains or Draperies	3.01	216,316.69	49.85
Misc Forest Products	2.95	78,917.16	68.61
Vitreous China Kitchen Articles	2.53	334,912.10	47.22
Matches	2.16	8,286.27	42.62
Surface Active Agents	1.85	92,904.82	37.33
Misc Pottery Products	1.83	139,855.17	33.93
Field Seeds	1.75	54,824.76	27.07
Barks or Gums,crude	1.43	82,427.66	33.20
Misc Wood Products	0.23	3,927.08	6.31
Hand Saws or Saw Blades	0.06	17,989.83	1.09
Grand Total	**20,979.16**	**794,126,983.21**	**413,161.47**

Logistics Cost and Time

Logistics Cost: Using FreightWaves data for July 1, 2021, the Project Team identified that 78% or 913 thousand units of the hypothetical market (1.2 million units) contain reasonable information on costs and tender rejection rates to estimate dry van and intermodal rates per mile. The other 22% (260 thousand units) of the market had no rate information available and was therefore excluded from the analysis. The Project Team assessed rate patterns for the top trade lanes over a 52-week period to choose July 1, 2021, as the benchmark date for rates. The benchmark of July 1, 2021, was chosen to isolate seasonal patterns of holidays and the extreme weather event patterns on rates in the late summer.

The below figure illustrates a sample list of dry van rates per mile inbound and outbound to/from Chicago sorted from least expensive to most expensive. Trade lane pairings with the largest discount between dry van rates and intermodal rates are more likely candidates for the Northeast Wisconsin intermodal facility.

Sample List of Dry Van Rates Per Mile Inbound and Outbound to/from Chicago (July 1, 2021)



Time Sensitivities: In addition to cost consideration, shippers are sensitive to shipping time, as some types of commodities are more time-sensitive than others. For example, fresh food products such as produce, milk, and cheese are more time-sensitive than paper. The figure below illustrates the relative sensitivities to time for each commodity type.

Commodity Sensitivities to Time

The Project Team identified time sensitivities based on commodity type and filtered fully-trucked commodity flows within the hypothetical market. The transit time for each commodity flow was modeled for rail using STB Waybill routing information using average Class I rail speeds, and the Chicago Metropolitan Agency for Planning's freight rail transit time data of 22 hours for Chicago terminal dwell

time and 31 hours for transit time for freight to pass through the metropolitan area.[5] For truck transit time, the data is based on US Federal Highway Administration's Freight Analysis Framework routing and a travel time model based on typical congestion patterns.

Current Fully-Trucked Commodity Flows: After filtering the fully-trucked commodity flow dataset for sensitivity to time, these flows make up 4% of the hypothetical market. This represents 48,325 units.

Current Chicago Intermodal Rail Flows: The Project Team also retained all current drayage to Chicago intermodal rail facilities that are potentially competitive using the Northeast Wisconsin intermodal facility. These flows make up 7% of the hypothetical market or 76,273 units.

Cost Scenarios: Next, the Project Team calculated the total logistics cost for the three scenarios: fully truck from origin-destination, use of Chicago intermodal facility, and use of the Northeast Wisconsin intermodal facility. The following equations were applied for each scenario, incorporating a combination of truck, rail, drayage, and facility costs:

Total Logistics Cost Scenarios

Component	Scenario 1: Fully Truck from Origin-Destination Cost	Scenario 2: Use of Chicago IMX Facility Cost	Scenario 3: Use of Northeast Wisconsin IMX Facility Cost
Northeast Wisconsin-Chicago Cost	Drayage to Chicago: *Inbound or Outbound Dry van rate x mileage*	Drayage to Chicago: *Inbound or Outbound Dry van rate x mileage*	IMX Rail to Chicago: *Inbound or Outbound Intermodal rate x mileage*
Rail Fees	N/A	Chicago Intermodal Fees: *International or Domestic Container Handling / Transloading Costs*	Northeast Wisconsin Intermodal Fees and Chicago Drayage Fee: *International or Domestic Container Handling / Transloading Costs + Local Chicago Drayage Fee*
Chicago-Origin/Destination Cost	Drayage to Origin/Destination: *Inbound or Outbound Dry van rate x mileage*	IMX Rail to Origin/Destination: *Inbound or Outbound Intermodal rate x mileage*	IMX Rail to Origin/Destination: *Inbound or Outbound Intermodal rate x mileage*

Source: CPCS Analysis, Blue Shading for Rail Costs. Note, when intermodal rates were unavailable, a Class I benchmark of a 15% discount rate was applied to dry van rates to derive intermodal rates.

Based on the total logistics costs for the three scenarios, 43% of the remaining fully-trucked units are competitive using the Northeast Wisconsin intermodal facility when compared to fully truck movements, a total of 20,979 units. This is shown below.

Competitiveness of Shipments through Northeast Wisconsin Intermodal Facility compared to Fully Truck from Origin-Destination Movements

	Units	Value ($ USD)	Weight (Tons)
Competitive	20,979	794,126,983	413,161
Not Competitive	27,131	800,340,938	525,284

[5] Terminal carload transit time - CMAP (illinois.gov)

Total	**48,325**	**1,614,967,360**	**941,927**

Source: CPCS Analysis

Market Demand Estimate

The potential market demand for an intermodal service based in Northeast Wisconsin is as follows:

Units:
97,253

Value:
$5.8 billion

Weight:
1.5 Million Tons

Appendix E – Competitive Trade Lanes

The most competitive trade lanes in the potential market demand for the Northeast Wisconsin intermodal facility are listed below. Please note this represents only those flows that are currently fully trucked from origin-destination (20,979 total units). The true origins/destinations currently drayed to or from Chicago intermodal facilities are not known within the IHS TRANSEARCH 2019 dataset as trips show an endpoint in Chicago.

Outbound Trade Lanes from NE WI

Rank	Destination	Units	Value	Tons	Top Commodities
1	Birmingham, AL	1,875	70,566,497	37,521	Misc Plastic Products, Prepared/Canned Feed, Misc Metal Work
2	Knoxville, TN	1,608	68,421,556	31,993	Misc Plastic Products, Iron/Steel Castings, Misc Metal Work
3	Rochester, NY	1,543	57,352,541	31,041	Misc Plastic Products, Misc Field Crops, Misc Metal Work
4	Buffalo, NY	1,520	58,204,240	30,914	Misc Plastic Products, Paper Containers/Boxes, Misc Metal Work
5	Pittsburgh, PA	1,307	46,815,316	25,996	Misc Plastic Products, Wood Products NEC, Stone Products
6	Memphis, TN	1,070	35,110,300	19,493	Misc Plastic Products, Misc Field Crops, Stone Products
7	Kansas City, MO	1,019	40,696,260	19,983	Misc Plastic Products, Concrete Products, Stone Products
8	Montgomery, AL	922	30,620,711	19,336	Prepared/Canned Feed, Misc Plastic Products, Misc Converted Paper Products
9	Joplin, MO	875	30,305,313	17,740	Prepared/Canned Feed, Misc Plastic Products, Stone Products
10	Charleston, WV	744	30,361,538	15,058	Misc Plastic Products, Sanitary Paper Products, Paper Containers/Boxes

Inbound Trade Lanes from NE WI

Rank	Origin	Units	Value	Tons	Top Commodities
1	Memphis, TN	1,081	35,455,263	20,803	Potassium/Sodium Compounds, Misc Plastic Products, Chemical Preparations NEC
2	Birmingham, AL	738	32,657,829	13,599	Misc Plastic Products, Fabricated Structural Metal Products, Misc Metal Work
3	Knoxville, TN	621	24,221,927	11,985	Adhesives, Misc Plastic Products, Paper Containers/Boxes
4	Pittsburgh, PA	569	24,940,123	10,975	Adhesives, Misc Plastic Products, Reclaimed Rubber
5	Charleston, WV	448	17,322,852	8,458	Misc Agricultural Chemicals, Misc Plastic Products, Potassium or Sodium Compounds
6	Kansas City, MO	443	17,598,597	8,609	Misc Plastic Products, Potassium or Sodium Compound, Metal Doors
7	Buffalo, NY	425	14,885,576	7,755	Misc Plastic Products, Mineral Wool, Glass Containers
8	Rochester, NY	367	15,438,801	7,174	Misc Plastic Products, Deciduous Fruits, Glass Containers
9	Joplin, MO	338	10,086,127	6,322	Misc Plastic Products, Pet Food NEC
10	Lexington, KY	219	7,773,221	4,127	Mineral Wool, Rubber Hosing, Steel Springs

Appendix F – County Location Screening Methodology

Location Screening Methodology

Railroad intermodal facilities can require significant investments in land, site preparation, road, and rail infrastructure, and associated site-specific infrastructure such as fences, lighting, cargo handling equipment, and buildings.

The location of these facilities is often driven by choices made by the private sector including railroads, terminal operators, or industrial developers. In particular, distance to existing railroad lines is a key consideration for facility locations, as the construction of long spurs of new railroad tracks can be cost-prohibitive.

This study did not focus on identifying individual potential intermodal sites in Northeast Wisconsin because intermodal facility development is often guided by the placement of rail lines and choices made by private sector service providers and because facility development can take multiple years. Instead, a regional approach was used, to identify general areas that may be more favorable for intermodal facility development in the future.

It is important to acknowledge that two intermodal facilities previously existed within the Northeast Wisconsin region. Wisconsin Central operated a terminal in Green Bay on Ashland Avenue between 5th and 7th Street. Wisconsin Central also operated a terminal in Neenah at the current site of the Canadian National Neenah Yard between Winneconne Ave. and Cecil St. The location of these two prior facilities is marked on maps on the following pages, and the former facilities appear to still rank highly for their value as intermodal sites in the future.

Geographic Selection

In consultation with the Core Team, a select set of counties were chosen for facility screening. These counties were chosen due to their highway network and railroad connections, and general location centered in the Northeast Wisconsin study area.

Parcel Screening Criteria

The regional approach involved screening eligible land use parcels against a variety of scoring criteria and point awards which are listed below. These criteria were developed and refined in consultation with the study's Core Team.

Location Screening Attributes, Criteria, and Points

Attribute	Criteria	Points Awarded
Railroad Access	Parcel within 250 feet of rail line	5
	Parcel within 1,000 feet of rail line	3
	Parcel within ½ mile of rail line	1
Highway Access	Parcel within 2 miles of limited-access highway ramp	5
	Parcel within 4 miles of limited-access highway ramp	3
	Parcel within 6 miles of limited access highway ramp or 2 miles from non- limited-access highway	1
Land Use	Parcel designated as a manufacturing use	4
	Parcel designated as agriculture, forestry, undeveloped, or other/unclassified	2
Environmental Impacts	Parcel overlaps with environmentally sensitive areas or water bodies	- 2
Community Impacts	Parcel at least 100 feet from any property with residential land use	4
	Parcel between 10 and 100 feet from any property with residential land use	2
	Parcel adjacent to any property with residential land use	0

Railroad Access

The construction of a new railroad track can be an expensive infrastructure investment, so proximity to existing railroad lines is a key consideration for the creation of new intermodal terminals. Given this cost consideration, any parcels more than ½ mile from an existing railroad line were considered ineligible for development, and parcels closer to railroad lines received a greater number of points.

Major Highway Access

Since a terminal is likely to serve shippers from a large area (as shown in the market area map below), the facility must have efficient and reliable access to major regional highways. Therefore, parcels were screened for their proximity to access points for major highways such as I-43, I-43, and WI-29. US-10 was also included as a significant regional route for the highway access screening.

Land Use Classification

To limit the number of parcels being screened for eligibility, only certain types of land uses were considered “eligible” for freight facility development. Using the Wisconsin Statewide Parcel Map, parcels marked as “manufacturing” land use received the highest number of points. Parcels with land use that could likely be converted to an intermodal terminal, such as agricultural, forestry, and undeveloped land were also considered eligible. Land classified as residential or commercial was considered ineligible for development.

Environmental Impacts

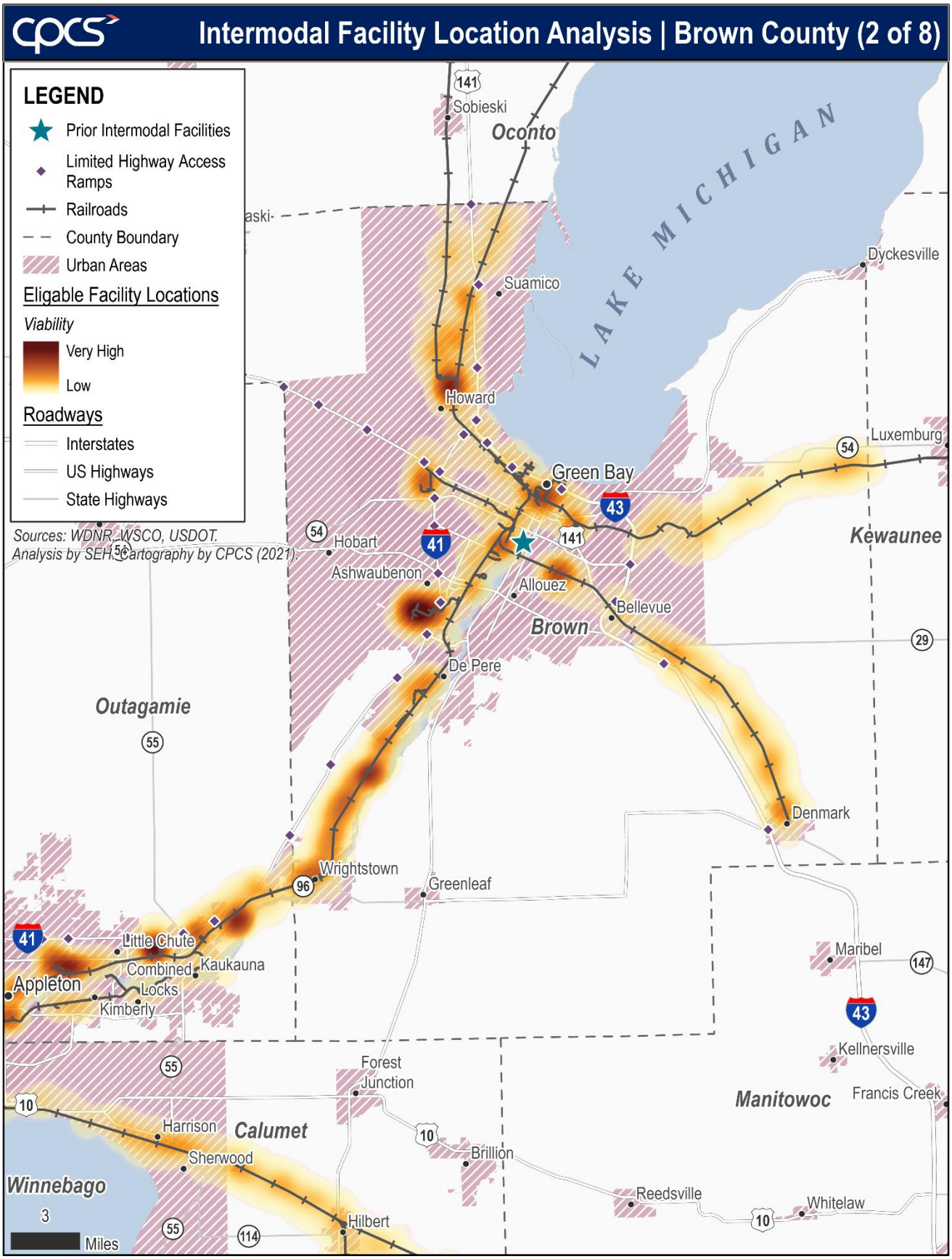
When possible, new development of intermodal facilities should avoid impacting wetland, waterways, or other environmentally sensitive areas. This approach can mitigate negative environmental impacts of freight transportation, as well as potentially costly work to replace or restore environmentally-sensitive areas elsewhere. In recognition of these considerations, parcels that were classified as

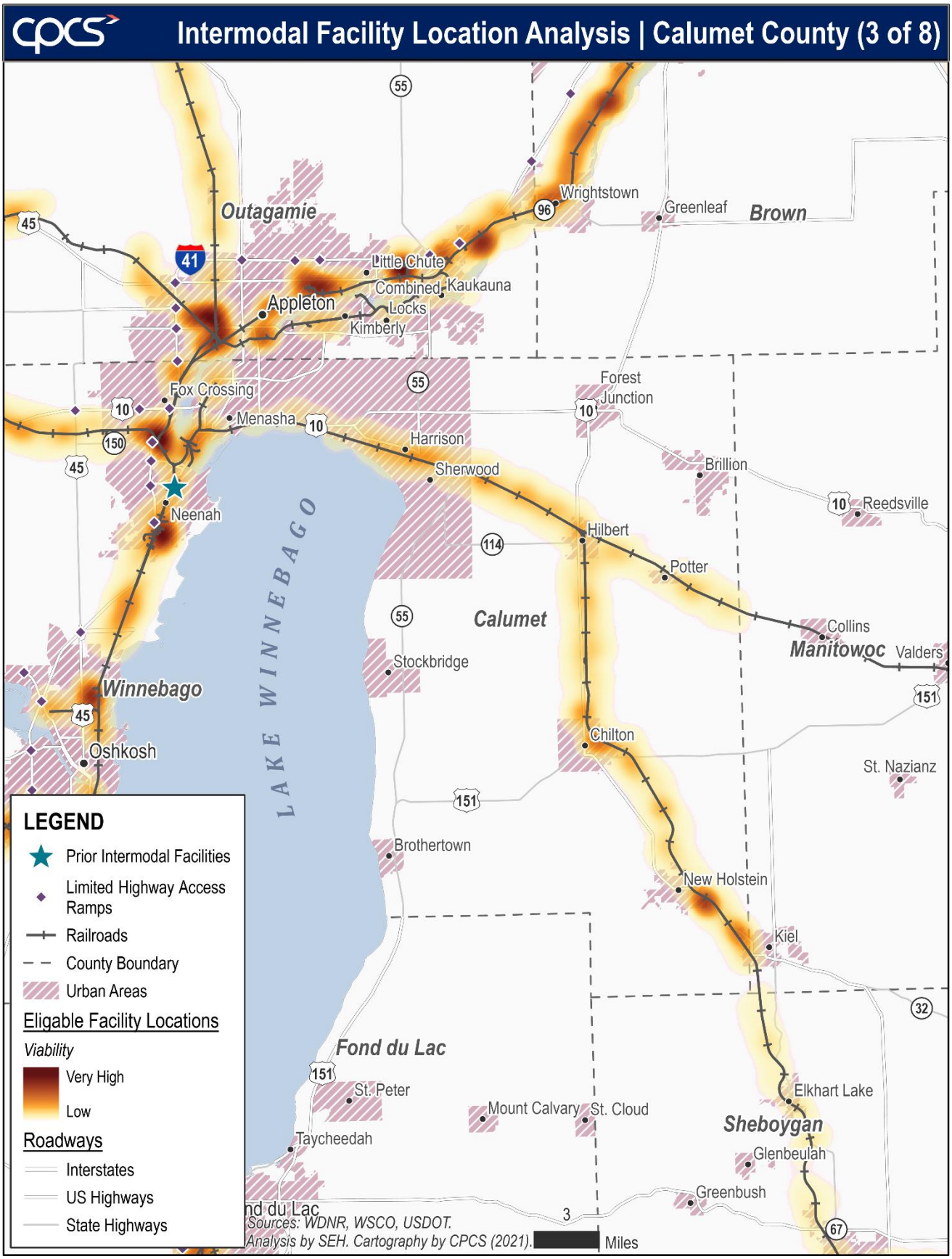
environmentally sensitive areas or wetlands received negative points. These areas were identified using Wisconsin Department of Natural Resources hydrology layers, and the Wisconsin Wetland Inventory.

Community Impacts

Cargo handling operations at intermodal terminals can create undesirable impacts for nearby residents, including noise, light, vibrations, and increased truck traffic. In consideration of community impacts, parcels that were further from residential areas received more points than parcels closer to residential areas.

Each page below provides county-level maps of intermodal facility site feasibility.


Intermodal Facility Location Analysis | Brown County (2 of 8)
LEGEND
Prior Intermodal Facilities
Limited Highway Access Ramps
Railroads
County Boundary
Urban Areas
Eligable Facility Locations
Viability
Very High
Low
Roadways
Interstates
US Highways
State Highways
Sources: WDNR, WSCO, USDOT.
Analysis by SEH; Cartography by CPCS (2021).
LAKE MICHIGAN
Oconto
Sobieski
Suamico
Howard
Green Bay
Hobart
Ashwaubenon
Allouez
Bellevue
Brown
De Pere
Kewaunee
Dyckesville
Luxemburg
Denmark
Outagamie
Wrightstown
Greenleaf
Little Chute
Combined Locks
Kaukauna
Appleton
Kimberly
Maribel
Kellnersville
Francis Creek
Manitowoc
Forest Junction
Harrison
Calumet
Sherwood
Brillion
Reedsville
Whitelaw
Winnebago
Hilbert
3
Miles


Intermodal Facility Location Analysis | Calumet County (3 of 8)
Outagamie
Brown
Calumet
Winnebago
Manitowoc
Fond du Lac
Sheboygan
LAKE WINNEBAGO
Wrightstown
Greenleaf
Little Chute
Combined Locks
Kaukauna
Appleton
Kimberly
Fox Crossing
Menasha
Neenah
Harrison
Sherwood
Forest Junction
Brillion
Reedsville
Hilbert
Potter
Collins
Valders
Stockbridge
Oshkosh
Chilton
St. Nazianz
Brothertown
New Holstein
Kiel
St. Peter
Mount Calvary
St. Cloud
Elkhart Lake
Taycheedah
Glenbeulah
Greenbush
LEGEND
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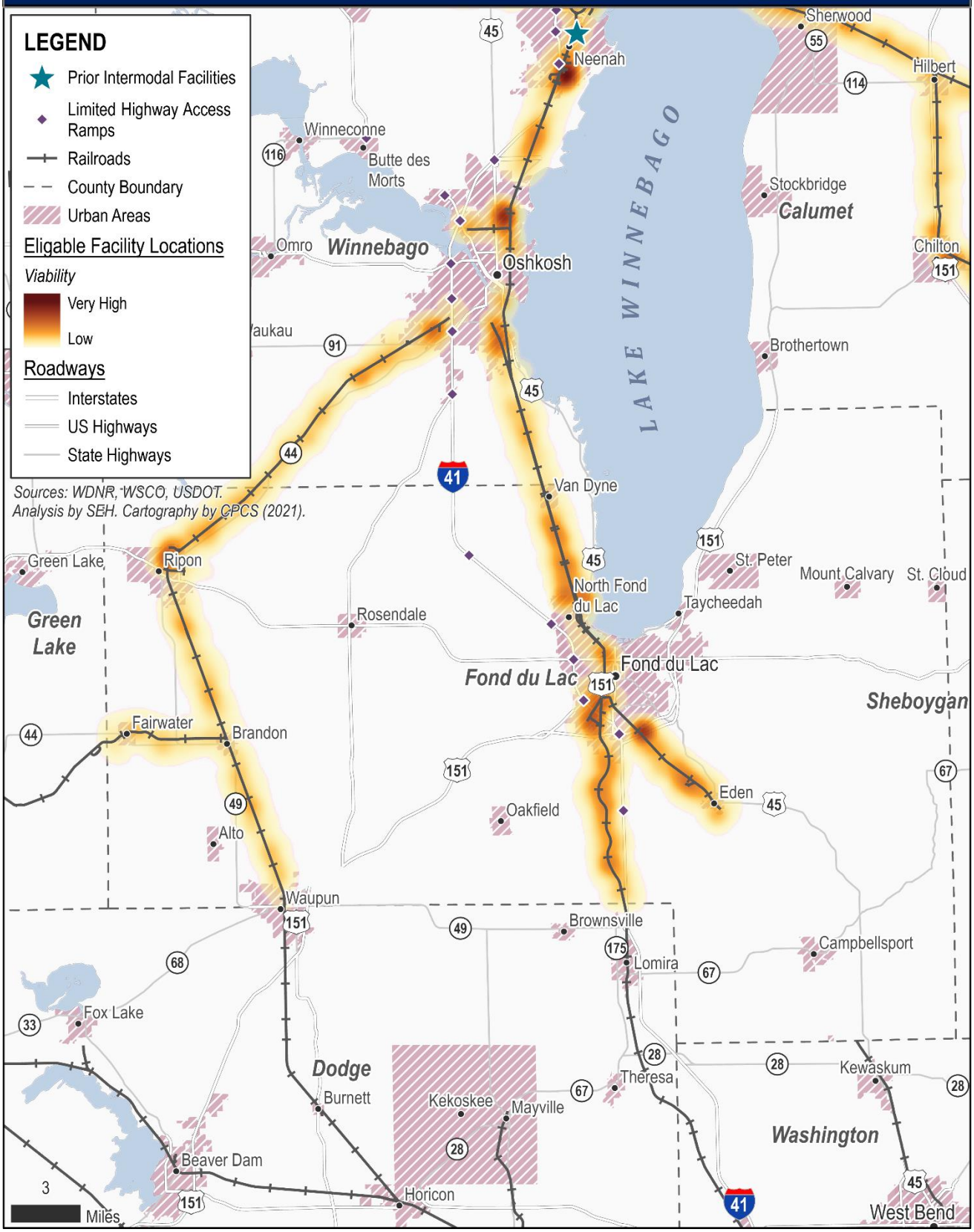
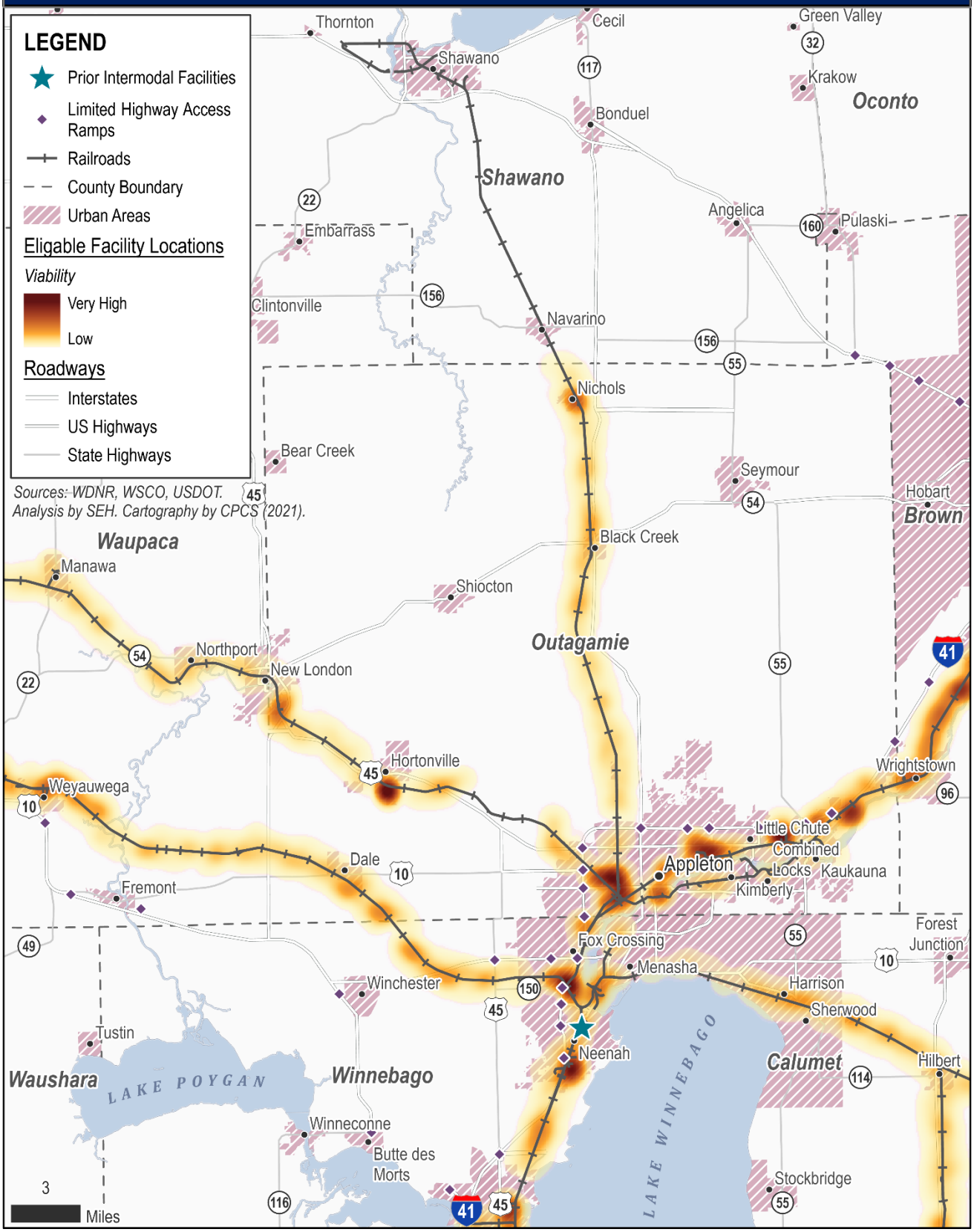
Limited Highway Access Ramps
Railroads
County Boundary
Urban Areas
Eligable Facility Locations
Viability
Very High
Low
Roadways
Interstates
US Highways
State Highways
Sources: WDNR, WSCO, USDOT.
Analysis by SEH. Cartography by CPCS (2021).
3
Miles

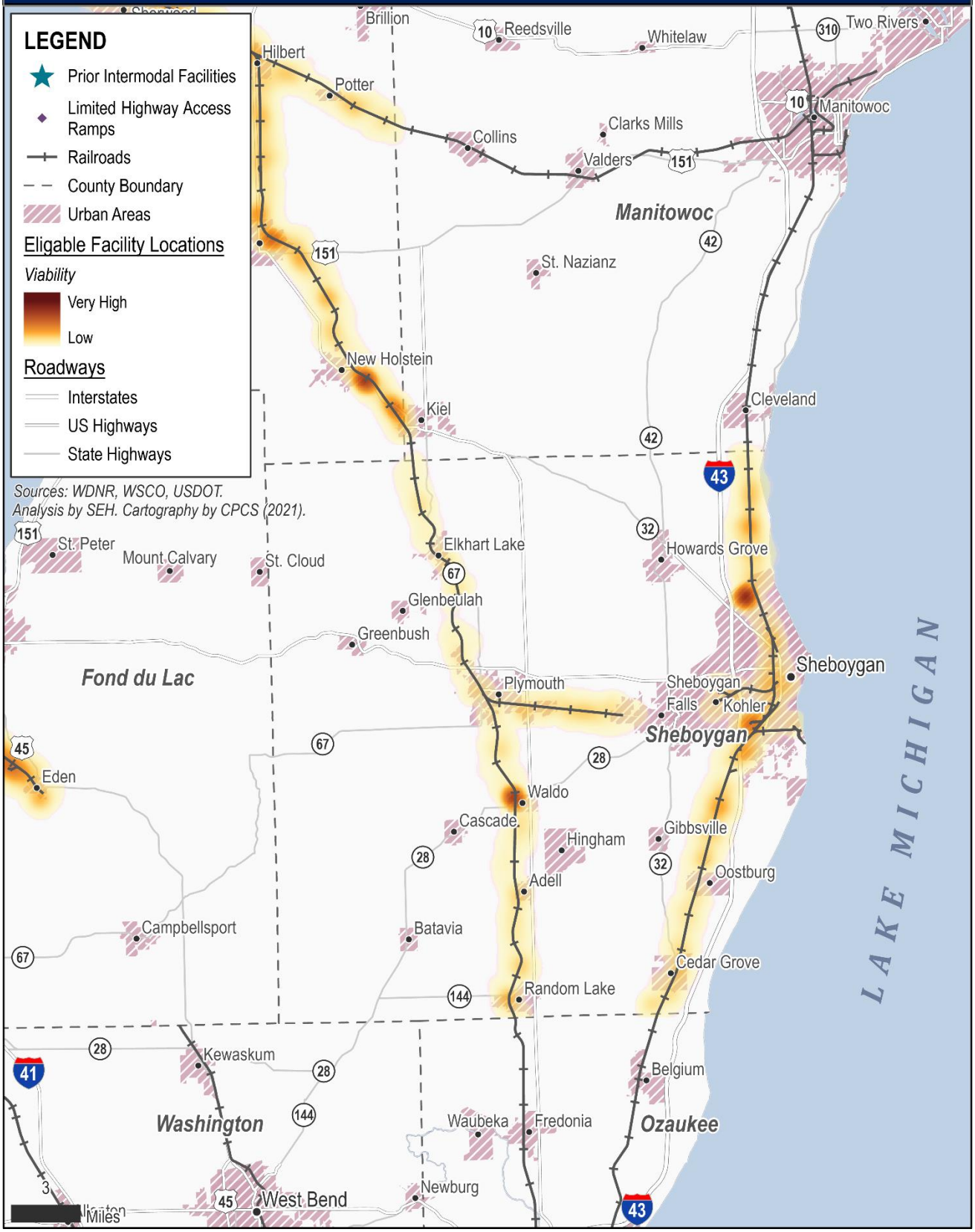
Intermodal Facility Location Analysis | Fond du Lac (4 of 8)



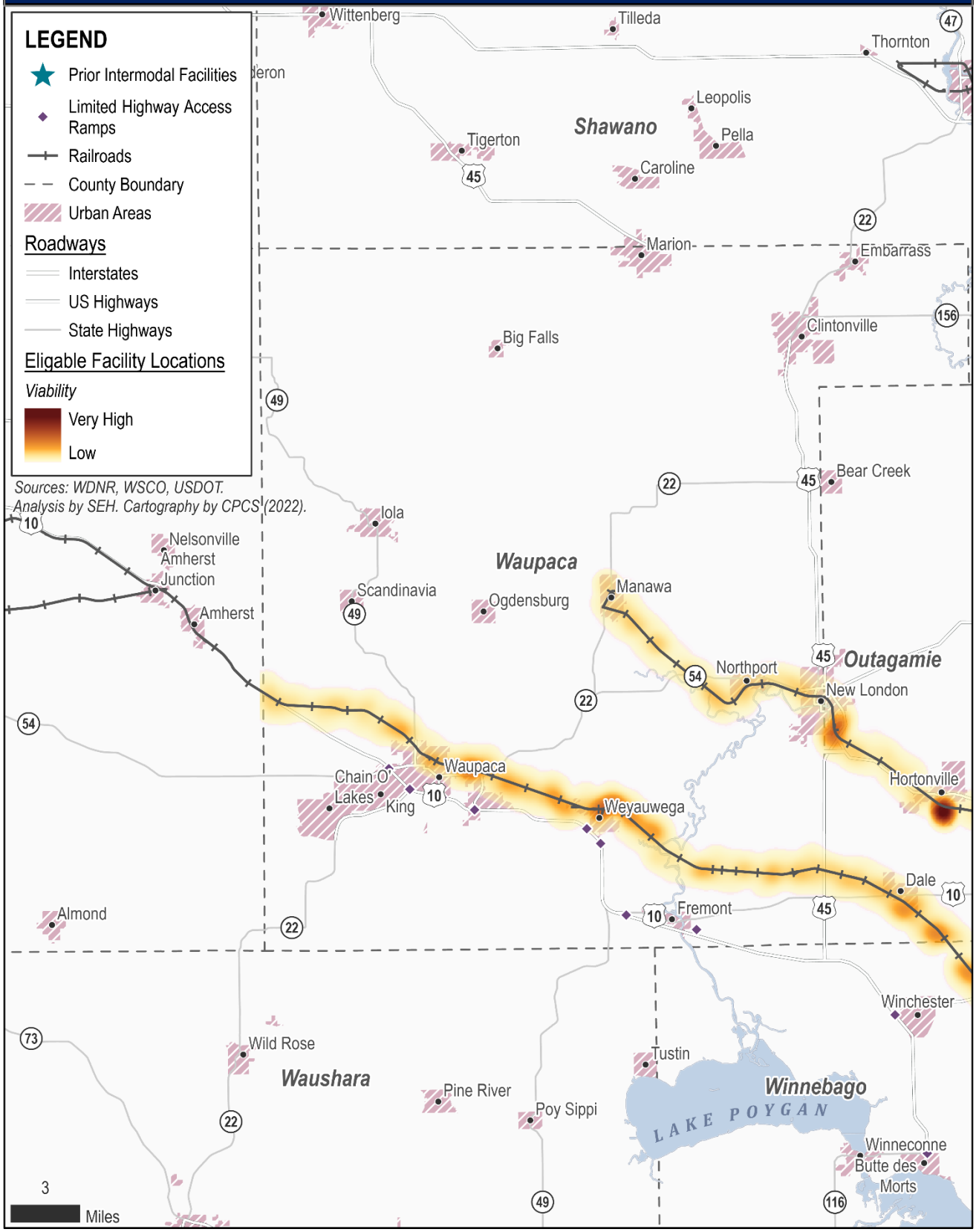
Intermodal Facility Location Analysis | Outagamie County (5 of 8)



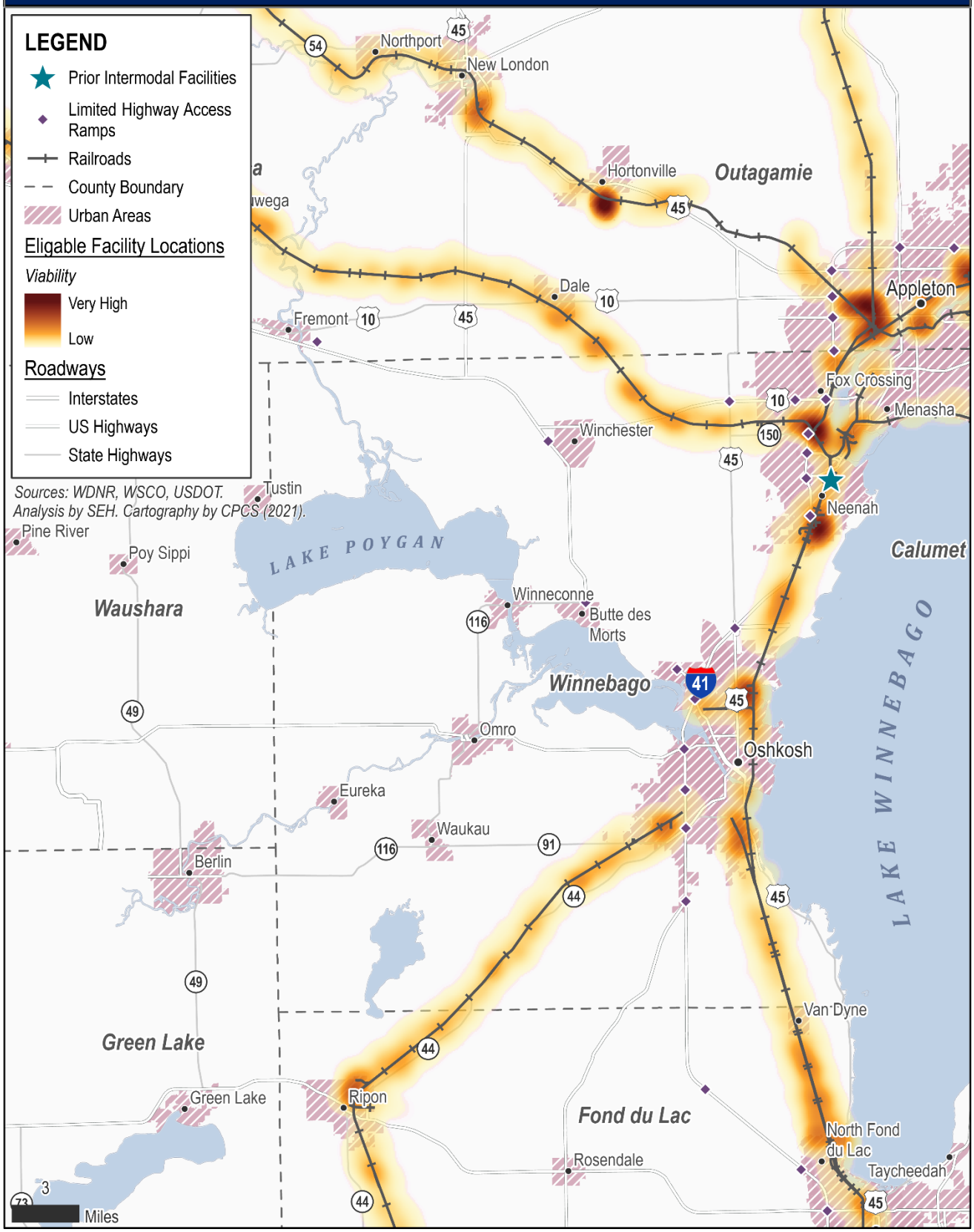
Intermodal Facility Location Analysis | Sheboygan County (6 of 8)



Intermodal Facility Location Analysis | Waupaca County (7 of 8)



Intermodal Facility Location Analysis | Winnebago County (8 of 8)



Appendix G – Cost Estimate Details

Terminal Concept

The Project Team developed a conceptual terminal layout based on the operational requirements for each phase. The cost estimate includes quantities derived from that concept layout and is based on Canadian National's typical railroad track section. The cost estimate work assumes each site would be served off of a railroad track mainline that did not require signals or power switches. Each estimate includes the following major items:

- Grading
- Crushed gravel/sub-ballast
- Drainage
- Railroad track/switches
- Fencing
- Lighting
- Security building
- Office
- Potable water
- Septic system

The cost for each of the lump sum items (power, security, office, water & septic) is increased for each phase assuming a larger demand for each phase. Phase 1 assumes a portable office trailer with Phase 3 including a 24ft x 40 ft office.

It is important to note that cost estimates are very site-dependent regarding earthwork, pavement section, and mainline turnout costs. These elements of the estimates would require further refinement upon the selection of possible sites. For this study, quantities and unit costs assume a generic site that is relatively level with minimal constraints. Examples of site constraints that may affect quantities and cost include soil conditions, terrain, geographic location, groundwater, time of year constructed, and schedule limitations. Unit costs for these items are based on SEH's experience with similar projects in the Midwest. The cost estimate includes contingency, design engineering, construction management, permitting, and financing costs.

Each cost estimate is a stand-alone project cost estimate and not an incremental development cost. The cost estimate includes gravel surfacing only for the site. There is an adder in each estimate to include bituminous pavement for the loading area and entrance road, that cost ranges from $1.1 million to $7 million depending on the phase.

Cost Considerations for Re-Use of Existing Rail-Served Sites

Northeast Wisconsin has two sites that previously hosted intermodal facilities, and has additional rail-served parcels, particularly on formerly-developed industrial sites. At first glance, it may appear that re-use or adaptation of these facilities could provide cost savings, as they may already be graded or paved, have prior rail service, or have some form of pre-existing utility connections.

However, re-use or adaptation of existing infrastructure may not provide a cost savings as they may require rehabilitation or expansion into additional property in an elevated real estate location (existing industrial zoning). These sites might also have neighbors that will not agree with the change in use or increase in truck traffic that is associated with intermodal terminals thus making permitting/local acceptance a challenge.

The cost estimates provided are for general "greenfield" sites. There is potential for additional costs for each specific site depending on topography, local jurisdictional requirements (stormwater, screening, access, utilities, systems development charges), and mainline rail provider (power turnouts and signaling vs manual turnouts). Some of this area may also fall within the railroad's right of way (ROW) which could mean an additional cost in the form of an annual lease payment for the use of the ROW. Further, the railroad could compel the intermodal facility owner operator to construct a lead from the tracks into the facility. This can often be designated to begin at a place best aligned with the railroad's operations and may not be the shortest possible distance. There are many variables at play when costing the development of this kind of facility.

As site selection is narrowed down, there are a lot of variables that will influence how much property is needed for each phase. The high points include:

- Relative terrain: how much fall is there across the site, and whether or not large cut/fill slopes will need to be done to accommodate the overall site slope.
- Stormwater requirements: whether or not retention areas are needed onsite, offsite, or at all.
- Ultimate buildout size: the Project Team recommends that facilities acquire more property or a bigger land area than is initially needed as a means to accommodate future growth. Constraining land acquisition to only meet the needs of the initial phase of development means that adjacent property development in the future could constrain or prohibit facility expansion.
- Speculative terminal space adjacent to the yard: there may be complementary services that could benefit from being adjacent to an intermodal terminal. These could include logistics value-added services such as container packing/unpacking, and warehousing, and can also include transportation services such as truck shops and trailer repair facilities.
- Zoning buffers: depending on the location of the facility, buffers may be needed to comply with local zoning and/or reduce the facility's impacts on adjacent land uses. Based on experience with other facilities, the Project Team recommends including an additional 20% land area or more for buffers.

Phase 1: Low Volume

- 25 containers per day which equates to 5 – 3 unit 53 ft long double stack intermodal cars or about 950 ft of track
- 1 manual mainline turnout

- 65 ft loading/offloading space adjacent to the tracks for maneuvering the reach stacker
- 2 weeks worth of container storage beyond the 65 ft operating space (250 containers)
- Area fenced & lit on 3 sides (1 long side occupied by the mainline)
- Office trailer for staff meetings & bathrooms
- Security shack provided at main entrance gate
- 1 reach stacker provided for Phase 1 & 2 at $800,000 capital cost.

CONSTRUCTION COST ESTIMATE

ITEM NO.	ITEM DESCRIPTION	UNIT	APPROXIMATE QUANTITY	UNIT PRICE	COST
1	MOBILIZATION	LUMP SUM	1.00	$100,000.00	$100,000.00
2	GRADING	CU YD	34,000.00	$5.00	$170,000.00
3	CRUSHED GRAVEL	CU YD	9,900.00	$35.00	$346,500.00
4	GEOGRID	SQ YD	26,000.00	$4.00	$104,000.00
5	STORM SEWER	LIN FT	2,500.00	$50.00	$125,000.00
6	CATCHBASINS	EACH	12.00	$4,500.00	$54,000.00
7	RAILROAD TRACK (RAIL, TIES, BALLAST)	TRK FT	2,200.00	$185.00	$407,000.00
8	DBL SWITCHPOINT DERAIL	EACH	1.00	$50,000.00	$50,000.00
9	SITE TURNOUTS	EACH	0.00	$85,000.00	$0.00
10	MAINLINE TURNOUTS	EACH	1.00	$150,000.00	$150,000.00
11	CONCRETE CROSSING PANELS	TRK FT	64.00	$400.00	$25,600.00
12	CHAIN LINK FENCE	LIN FT	3,300.00	$25.00	$82,500.00
13	ROLLER GATES	EACH	4.00	$5,000.00	$20,000.00
14	60 FT TALL LIGHT POLES	EACH	10.00	$15,000.00	$150,000.00
15	POWER DISTRIBUTION	LIN FT	2,000.00	$30.00	$60,000.00
16	TRANSFORMER	LUMP SUM	1.00	$45,000.00	$45,000.00
17	ENTRANCE GATE/SECURITY SHACK	LUMP SUM	1.00	$35,000.00	$35,000.00
18	OFFICE TRAILER	LUMP SUM	1.00	$40,000.00	$40,000.00
19	POTABLE WATER WELL	LUMP SUM	1.00	$25,000.00	$25,000.00
20	SEPTIC SYSTEM	LUMP SUM	1.00	$20,000.00	$20,000.00
				SUBTOTAL	**$2,009,600.00**
				30% CONTINGENCY	**$602,880.00**
				12% DESIGN, CONSTRUCTION MANAGEMENT & PERMITTING	**$241,152.00**
				5% FINANCING	**$100,480.00**
				GRAND TOTAL	**$2,954,112.00**
				ADDER FOR BITUMINOUS LOADING AREA/ROADS	**$1,150,000.00**

Phase 2: Medium Volume

- 50 containers per day which equates to 5 – 3 unit 53 ft long double stack intermodal cars on 2 tracks or about 1,900 ft of track
- 2 mainline turnouts & 2 site turnouts
- 65 ft of loading/offloading on both sides of tracks
- 2 weeks' worth of container storage on one side of the tracks beyond the 65 ft operating space (500 containers)
- Fencing, office & security same as Phase 1.
- 1 reach stacker provided for Phase 1 & 2 at $800,000 capital cost.

CONSTRUCTION COST ESTIMATE

ITEM NO.	ITEM DESCRIPTION	UNIT	APPROXIMATE QUANTITY	UNIT PRICE	COST
1	MOBILIZATION	LUMP SUM	1.00	$200,000.00	$200,000.00
2	GRADING	CU YD	83,000.00	$5.00	$415,000.00
3	CRUSHED GRAVEL	CU YD	26,300.00	$35.00	$920,500.00
4	GEOGRID	SQ YD	63,000.00	$4.00	$252,000.00
5	STORM SEWER	LIN FT	4,400.00	$50.00	$220,000.00
6	CATCHBASINS	EACH	22.00	$4,500.00	$99,000.00
7	RAILROAD TRACK (RAIL, TIES, BALLAST)	TRK FT	4,410.00	$185.00	$815,850.00
8	DBL SWITCHPOINT DERAIL	EACH	2.00	$50,000.00	$100,000.00
9	SITE TURNOUTS	EACH	2.00	$85,000.00	$170,000.00
10	MAINLINE TURNOUTS	EACH	2.00	$150,000.00	$300,000.00
11	CONCRETE CROSSING PANELS	TRK FT	128.00	$400.00	$51,200.00
12	CHAIN LINK FENCE	LIN FT	3,300.00	$25.00	$82,500.00
13	ROLLER GATES	EACH	4.00	$5,000.00	$20,000.00
14	60 FT TALL LIGHT POLES	EACH	15.00	$15,000.00	$225,000.00
15	POWER DISTRIBUTION	LIN FT	3,000.00	$30.00	$90,000.00
16	TRANSFORMER	LUMP SUM	1.00	$45,000.00	$45,000.00
17	ENTRANCE GATE/SECURITY SHACK	LUMP SUM	1.00	$35,000.00	$35,000.00
18	OFFICE TRAILER	LUMP SUM	1.00	$40,000.00	$40,000.00
19	POTABLE WATER WELL	LUMP SUM	1.00	$25,000.00	$25,000.00
20	SEPTIC SYSTEM	LUMP SUM	1.00	$20,000.00	$20,000.00
				SUBTOTAL	**$4,126,050.00**
				30% CONTINGENCY	**$1,237,815.00**
				12% DESIGN, CONSTRUCTION MANAGEMENT & PERMITTING	**$495,126.00**
				5% FINANCING	**$206,303.00**
				GRAND TOTAL	**$6,065,294.00**
				ADDER FOR BITUMINOUS LOADING AREA/ROADS	**$3,690,000.00**

Phase 3: High Volume

- 100 containers per day which equates to 10 – 3 unit 53 ft long double stack intermodal cars on 2 tracks or about 3,800 ft of track
- 2 mainline turnouts & 2 site turnouts
- 65 ft of loading/offloading on both sides of tracks
- 2 weeks' worth of container storage on one side of the tracks beyond the 65 ft operating space (1000 containers)
- Larger office for more admin staff
- Site security camera system
- Larger security shack
- 2 reach stackers provided for Phase 3 at $1,600,000 capital cost.

CONSTRUCTION COST ESTIMATE

ITEM NO.	ITEM DESCRIPTION	UNIT	APPROXIMATE QUANTITY	UNIT PRICE	COST
1	MOBILIZATION	LUMP SUM	1.00	$350,000.00	$350,000.00
2	GRADING	CU YD	150,000.00	$5.00	$750,000.00
3	CRUSHED GRAVEL	CU YD	48,500.00	$35.00	$1,697,500.00
4	GEOGRID	SQ YD	113,000.00	$4.00	$452,000.00
5	STORM SEWER	LIN FT	6,600.00	$50.00	$330,000.00
6	CATCHBASINS	EACH	33.00	$4,500.00	$148,500.00
7	RAILROAD TRACK (RAIL, TIES, BALLAST)	TRK FT	6,410.00	$185.00	$1,185,850.00
8	DBL SWITCHPOINT DERAIL	EACH	2.00	$50,000.00	$100,000.00
9	SITE TURNOUTS	EACH	2.00	$85,000.00	$170,000.00
10	MAINLINE TURNOUTS	EACH	2.00	$150,000.00	$300,000.00
11	CONCRETE CROSSING PANELS	TRK FT	128.00	$400.00	$51,200.00
12	CHAIN LINK FENCE	LIN FT	3,300.00	$25.00	$82,500.00
13	ROLLER GATES	EACH	4.00	$5,000.00	$20,000.00
14	60 FT TALL LIGHT POLES	EACH	30.00	$15,000.00	$450,000.00
15	POWER DISTRIBUTION	LIN FT	4,500.00	$30.00	$135,000.00
16	TRANSFORMER	LUMP SUM	1.00	$75,000.00	$75,000.00
17	ENTRANCE GATE/SECURITY SHACK	LUMP SUM	1.00	$150,000.00	$150,000.00
18	SECURITY CAMERA SYSTEM	LUMP SUM	1.00	$150,000.00	$150,000.00
19	OFFICE	LUMP SUM	1.00	$300,000.00	$300,000.00
20	POTABLE WATER WELL	LUMP SUM	1.00	$35,000.00	$35,000.00
21	SEPTIC SYSTEM	LUMP SUM	1.00	$50,000.00	$50,000.00
				SUBTOTAL	**$6,982,550.00**
				30% CONTINGENCY	**$2,094,765.00**
				12% DESIGN, CONSTRUCTION MANAGEMENT & PERMITTING	**$837,906.00**
				5% FINANCING	**$349,128.00**
				GRAND TOTAL	**$10,264,349.00**
				ADDER FOR BITUMINOUS LOADING AREA/ROADS	**$7,060,000.00**

Appendix H – Intermodal Case Studies

Duluth Cargo Connect – Duluth, MN

Owner/Sponsor: Duluth's intermodal facility is located on publicly owned land held by the Duluth Seaway Port Authority. The terminal's day-to-date operations are handled by Lake Superior Warehousing, which provides stevedoring and logistics services for maritime port users and local businesses as well. Canadian National provides rail service. In addition to CN, the port is served by the CP, UP, and BNSF railroads, and has direct access to I-35, US-53, and US-2. The port also has Foreign Trade Zone designation.

Concept: Duluth provides shippers in Northern Minnesota, Northern Wisconsin, and the Upper Peninsula with alternative access to intermodal ramps in the Twin Cities. Further afield, it provides connections to CN terminals in Chicago as well as east and west coast ports. The facility opened in September 2017 and has since undergone further expansion to increase its potential capacity by 85% to 45,000 – 50,000 containers per year. Much of the funding for needed infrastructure improvements or expansions has come from Minnesota DOT's freight funding programs. Lake Superior Warehousing played a key role in the facility's development, as the company's staff conducted outreach with existing and potential clients to identify the number of containers that could be attracted to the port and prepare a robust business case to secure Class I rail service.

Advantages: Duluth Cargo Connect has rapidly grown its container volumes by offering a cost-effective and convenient alternative to using intermodal transportation in the Twin Cities and allows users to have more reliable drayage service. Additionally, the port has secured traffic by offering value-added services co-located with the intermodal terminal, including warehousing, container packing and unpacking, and customs clearance services.

ADM Intermodal Ramp - Decatur, IL

Owner/Sponsor: This intermodal facility is privately owned by Archer Daniels Midland (ADM) and opened in September 2013 as part of the Midwest Inland Port project in partnership with Decatur and Macon County Economic Development Corporation. Switching is performed by a private company, which provides railroad access to Norfolk Southern, Canadian National, and Decatur Central Railroad, and Decatur & Eastern Illinois Railroad.

Concept: The facility is a 280-acre terminal that offers transloading and intermodal shipping as part of an effort to create a logistics hub in Decatur and avoid congestion and tolling in Chicago. This is an initiative of the Midwest Inland Port through Decatur and Macon County Economic Development Corporation. The facility has a capacity of 150,000 lifts per year and provides an opportunity to ship soybeans in Central Illinois both domestically and internationally. The facility sits at the intersection of three Class I railroads and near 5 major corridors: I-72, I-55, I-74, I-57, and US-51. There is on-site storage of over 800 FEU's including 20', 40' and ISO tanks, and 2 x 2,000 feet of working track. ADM boasts 25-minute turn times and is open from 7am to 4:30 pm Monday through Friday.

Advantages: 160 miles southwest of Chicago, the ADM Intermodal Ramp allows shippers to avoid both tolls and congestion present in Chicago. The ramp is also located at the intersection of three Class I railways and can directly connect the Midwest with the East, West, and Gulf Coasts in the U.S. and Canada. ADM also has direct access to five major corridors (I-72, I-55, I-74, I-57, and US-51) and adjacent to the Decatur Airport within Foreign Trade Zone #245 which provides transportation options,

competition, and drives down costs. ADM advertises truck, chassis, and driver availability and is centrally located between Chicago, Indianapolis, and St. Louis, with a 10-hour truck radius that reaches to Minneapolis, Chicago, Milwaukee, Detroit, Indianapolis, Columbus, Nashville, Memphis, St. Louis, Kansas City, and Omaha.

Steamship lines served include Maersk, Hapag-Lloyd, CMA CGM, Evergreen, Hyundai, Med Shipping, Hamburg Sud, Sealand, APL, and ZIM.

ADM partners with Class I railroads that transport import containers from maritime ports to Decatur. Subsequently, ADM can reload the empty containers with international grain exports back to maritime ports, creating balance in the system. Other major tenants include Tate & Lyle, Caterpillar Inc., Madison Warehouse, Parke Warehouses, Macon Center, and others.

Cedar Rapids Logistics Park, Cedar Rapids, IA

Owner/Sponsor: Alliant Energy Transportation, in partnership with the Cedar Rapids and Iowa City Railroad, Iowa DOT, and the FRA had planned to build a $46.5 million intermodal terminal, which would also include rail-truck bulk transloading and a crossdock facility.

Concept: A prior Iowa transportation optimization study had recommended the development of the park, and further evaluation had forecasted strong demand for the facility's intermodal facilities. However, regional stakeholders were not interested in the proposed cross-dock facilities, and Alliant was unable to create a rail shipping option that was either cost competitive or as fast as drayage to Chicago. As a result, the terminal's development was canceled in 2019, and $25.7 in FRA grants were declined.[6] Projects such as this demonstrate the importance of understanding shippers' perspectives as well as the true rail service possibilities and how they compare against established trucking routes.

Indiana Railroad Intermodal, Indianapolis, IN

Owner/Sponsor: The Indiana Railroad serves a terminal south of downtown Indianapolis, which opened in 2013 with the capacity to handle 24,000 containers.[7] Funding to construct the facility was provided by both the INRD and CN, as well as $600,000 from Indiana's Industrial Rail Service Fund.

Concept: The Indianapolis terminal is served jointly with the Canadian National railroad, and the Indiana Railroad provides connecting service between Indianapolis and the Canadian National mainline in Illinois. Since its creation, the Indianapolis service grew at a rate of 37% year-over-year, and additional cargo handling equipment was installed in 2017.[8] Information online suggests that the terminal receives inbound manufactured goods and can pack containers with agricultural products for export.

Advantages: This partnership gives Indiana shippers access to fast service to Asia via Canadian ports and reduces problems with high drayage costs and congestion in Chicago. It also leverages CN's

[6] Friestad, Thomas. "Alliant reconfigures $46.5 million freight hub project in Cedar Rapids." *Cedar Rapids Gazette.* Jan 15, 2020.
[7] "CN, Indiana Railroad open Indianapolis intermodal Terminal". *Progressive Railroading*. October 11, 2013.
[8] Vantuono, W. "INRD, CN mark intermodal milestones." *Railway Age*. September 10, 2017.

"bypass" around Chicago to further reduce travel times. It also allows CN to expand its service offerings beyond its existing network.

Butler Logistics Park, Shell Rock, IA

Owner/Sponsor: Union Pacific, Watco, the Iowa Northern Railway Company, and an intermodal logistics firm partnered to launch an international intermodal terminal in Shell Rock, IA. The terminal opened in December 2019.

Concept: The terminal is intended to support receipt of imports for a major retail establishment. Union Pacific brings inbound containers from Los Angeles and Long Beach, and cars are interchanged to the Iowa Northern Railway for final transport to Butler. Watco provides in-terminal operations and car loading/unloading.[9] The third-party intermodal logistics partner will help with business development.

Advantages: The terminal is advertised as an alternative to large rail hubs in the Twin Cities and Chicago, with specific benefits of reduced trucking mileage and cost, and reduced emissions.

Disadvantages: Since the terminal's business is oriented around a major importer of consumer goods, economic and supply chain shocks have the potential to reduce traffic at the facility.

Canadian Pacific's Ohio Intermodal, Jeffersonville, OH

Owner/Sponsor: Genesee & Wyoming owns the Chicago, Fort Wayne, and Eastern Railroad (CFE), as well as the Indiana & Ohio Railway. Together, these two lines connect Jeffersonville Ohio with Chicago, where CFE connects to most of the railroads that serve Chicago. In 2017 Genesee & Wyoming partnered with Canadian Pacific to provide intermodal access in the Ohio Valley

Concept: The primary concept of the service is to expand Canadian Pacific's reach into areas where it has not previously operated, and provide shippers in Dayton, Columbus, and Cincinnati with access to Canadian Pacific's port in Vancouver. In Jeffersonville, a 90-acre container terminal operated by an agricultural producer receives containers loaded with imported consumer goods, and can then fill empty containers with agricultural products for export.[10]

Advantages: The major advantage of the project is Canadian Pacific's role in handling cargo, which means efficient interchanges in Chicago, and faster transit time to and from Vancouver. By comparison, other east coast railroads operating in Ohio will often have to interchange trains with western railroads in Chicago or negotiate joint service agreements.

Marion Industrial Center, Marion, OH

Owner/Sponsor: The Marion Industrial Center's intermodal facility was created by Schneider trucking, and had service provided by

[9] "Iowa terminal to serve as Midwest hub for new intermodal service". *Progressive Railroading*. November 27, 2019.
[10] Stephens, Bill. "Canadian Pacific's Ohio move explained." *Trains Magazine*. October 11, 2017.

CSX.[11] The facility's primary connection was Chicago. Since its inception, the terminal was acquired by a third party – Jaguar Transport Holdings.[12]

Concept: Marion was originally created to handle domestic container traffic, with intermodal service provided by CSX to eastern and southern destinations. A partnership with Union Pacific provided access to western destinations. The industrial complex provides a variety of services beyond intermodal transfers, and has an estimated 8 miles of track, and 1.5 million square feet of distribution centers.[13]

Advantage: The benefit of the Marion facility appears to be the co-location of value-added warehousing and distribution facilities, as well as the substantial set of connections that CSX and Union Pacific provide.

Virginia Inland Port, Front Royal VA

Owner/Sponsor: The Virginia Inland Port (VIP) is owned by the Virginia Port Authority and received a $15 million grant from the U.S. Department of Transportation for improvements in 201814.

Concept: Located in Northern Virginia about 60 miles from Washington DC, the VIP serves primarily incoming cargo from the port complex at Norfolk, VA. It was built by the Virginia Port Authority to relieve congestion at maritime facilities and expand access to inland markets. It provides a regular schedule to its distributors by providing containerized rail service five days a week to and from Norfolk International Terminal and Virginia International Gateway in Portsmouth15.

Advantages: While the VIP does not have the same number of rail connections as other comparable facilities, such as Kansas City, it does have access to I-81 running north-south and I-66 running east-west and is served by Norfolk Southern railroad.

A major advantage is its proximity to the large metro area of Washington D.C. and the adjacent Northeast Corridor. Distributors can easily route their inbound cargo through the Port of Virginia facilities to the VIP and from there transload onto a truck bound for Washington D.C. or further inland, avoiding the heavily congested I-95, saving time and money.

Another key feature is the willingness and ability to proactively attract warehouses and distribution centers representing retailers including Home Depot, Red Bull, Newell Rubbermaid, Family Dollar,

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[11] Trunick, Perry. Schneider launches intermodal facility in Ohio Valley." *Material Handling and* Logistics. July 17, 2006.
[12] "Jaguar Transport Holdings acquires Marion Industrial Center." *Cision*. November 2, 2020.
[13] "CSX Marion Ohio" Mid-America Freight Coalition.
[14] "Virginia awarded $15.5 million federal grant for improvements at Virginia Inland Port," *Augusta Free* Press, December 12 2018, accessed 20 November 2020, https://augustafreepress.com/virginia-awarded-15-5-million-federal-grant-for-improvements-at-virginia-inland-port/
[15] "Facilities, Virginia Inland Port (VIP)," *The Port of Virginia,* accessed 20 November 2020, http://www.portofvirginia.com/facilities/virginia-inland-port-vip/

Lenox, and Mercury Paper[16]. These logistics facilities ensure a continued stream of cargo both inbound and outbound containers and help attract other businesses to the facility.

Florida East Coast ICTF, Port Everglades, FL

Owner/Sponsor: The Florida East Coast (FEC) Intermodal Terminal is owned by FEC, under a 30-year land lease from Broward County. The total cost of the project is $72.8 million. The Florida Department of Transportation funded $18 million in grants, $30 million came from the Florida State Infrastructure Bank, and the remaining was sponsored by FEC. The precursor to this project was an overpass construction allowing freight trains to access the port, costing $53 million.

Concept: Faced with continuous trade growth, increasing congestion, blocked roadways, and emission concerns, FEC developed the Port Everglades ICTF in 2012-2014. This facility enabled FEC to relocate its domestic service from its existing 12-acre intermodal yard near Fort Lauderdale to a new ICTF at Port Everglades. The terminal sits on 42.5 acres of land at Port Everglades and allows FEC to build 9,000 ft unit trains in the facility without blocking any roads.

Advantages: FEC's ICTF provides the only intermodal rail service along the east coast of Florida and is the exclusive rail provider for Port Everglades, PortMiami, and Port of Palm Beach. The system also connects to the national railway system through Jacksonville, with service to Georgia, Tennessee, South Carolina, and North Carolina. The facility focuses on the following commodities: food, beverage, paper, building supplies, household products, and retail goods. As an intermodal facility owned by a Class II railroad, FEC fuels its container market demand through its rail operations. FEC also has multiple industrial development sites within Florida to complement its businesses.

[16] "Facilities, Virginia Inland Port (VIP)," *The Port of Virginia,* accessed 20 November 2020, http://www.portofvirginia.com/facilities/virginia-inland-port-vip/

Rickenbacker Inland Port, Columbus OH

Owner/Sponsor: The Rickenbacker Inland Port (RIP) is a public/private partnership including the Columbus Regional Airport Authority (CRAA), Capitol Square, and Duke Realty Corporation. The CRAA is the public body that operates the 3 airports in the Columbus area, including Rickenbacker. Capital Square is a Columbus-based real estate investor and Duke Realty Corp. is a national commercial real estate developer. The RIP was funded by $30 million in federal highway funding and a matching investment by Norfolk Southern Railroad, as well as site improvement investments made by the local government[17].

Concept: The RIP was developed to take advantage of the surplus of airports in the Columbus area after the merger of the Rickenbacker Port Authority with Port Columbus in 2003. This created a designated passenger airport (John Glenn Columbus Int.) and a designated freight airport (Rickenbacker Int.). Its central location is a one-day truck drive to nearly half of the U.S. and one-third of the Canadian population, and its rail connections made it an ideal place for an intermodal terminal.

Advantages: The RIP is well connected geographically. It has connections to both major eastern Class 1 rail lines, CSX and NS. The RIP also has connections to I-70 (East-West) and I-71 (North-South) and is located on the "Heartland Corridor" between the port complex at Norfolk and Chicago. The RIP is well situated close to a large economic base. Its large freight cargo airport is within 600km (370 miles) of more than 40% of the US population[18], and the city of Columbus itself has a metropolitan area population of over 2 million. RIP also operates a foreign trade zone helping manufacturers and distributors defer or eliminate import/export tariffs. This is attractive to distributors shipping products internationally who can save on cost and navigate legal red tape.

In addition, the RIP has several hundred acres of available land for warehouse development[19] and actively works to attract suppliers. It has the right combination of geography and governance to make it a very attractive option to distributors. Tenants within or near the inland port include Goodyear, FedEx, Crate & Barrel, Amazon, and Anheuser Busch.

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[17] Rebecca Kanable, "Rickenbacker Intl: an economic engine by air, rail & road," *Airport Improvement,* May 2013, accessed 20 November 2020, https://airportimprovement.com/article/rickenbacker-intl-economic-engine-air-rail-road-0

[18] Rebecca Kanable, "Rickenbacker Intl: an economic engine by air, rail & road," *Airport Improvement,* May 2013, accessed 20 November 2020, https://airportimprovement.com/article/rickenbacker-intl-economic-engine-air-rail-road-0

[19] "Rickenbacker International Airport, Available Land," *Cushman and Wakefield*, accessed 20 November 2020, http://www.columbusairports.cushwakesites.com/rickenbacker-airport-available-land.html

Mid-Willamette Valley Intermodal Center, Millersburg, OR

Owner/Sponsor: The Mid-Willamette Intermodal Facility (MWVIF) is owned and under construction by the Linn Economic Development Group, a non-profit economic development organization whose mission is strengthening the local economy of Linn County, OR. The MWVIF received $25 million in funding from the Oregon State Legislature and Linn County has provided $600,000 upfront and has committed up to $250,000 per year for 10 years towards the project.[20]

Concept: After the Port of Portland lost container service in 2015, mid-valley exporters faced a transportation disadvantage. They would now have to rely on Puget Sound ports for their exports. Between the additional distance and congestion in and around port facilities in the Puget Sound region, a single truck turn given hours of service rules was difficult. An intermodal facility was seen as the best option to improve transportation options for exporters. The Oregon Transportation Commission selected this site in Millersburg over a competing location in the valley based on a competitive application process.

The Mid-Willamette intermodal facility is proposed to connect agricultural producers with export terminal facilities in Puget Sound. The proposed is connected by a short line railroad (Portland Western) to Class 1 rail lines UP and BNSF in Portland. Now that container service has returned to Portland, the facility will also offer connections to service there.

Advantages: The location in the middle of the Willamette Valley is the proposed facility's primary advantage. Situated in the heart of Oregon's grass seed country other large agricultural export products, such as compressed hay, MWVIF is at the center of Oregon's largest concentration of containerized ocean exports. It also offers the potential to reposition empty containers near a dense concentration of exporters.

Disadvantages: Although Millersburg was selected over another location further north in the Willamette Valley by the Oregon Transportation Commission (OTC), the concept has had to overcome several challenges. Agriculture, such as grass seed, compressed hay, and other containerized field crops, is largely the economic base in this region. Therefore, the proposed facility relies solely on agricultural exports, which require low rates for the use of the facility to be viable. Use of the facility would add more handling of the containers – once at this yard and once at the yard in Portland in addition to a terminal in Puget Sound – adding to the cost of the transportation. This terminal faces stiff competition from truck deliveries for shippers closer to international export terminals in Portland.

Status: As part of the grant-making process, OTC has required the facility to meet certain milestones, such as operating agreements with railroads. As of January 2021, OTC and Oregon DOT staff have determined that the facility sponsors had substantially met the first set milestones and have released funding for construction. Sponsors must still meet a set of milestones around construction and

[20] Alex Paul, "Linn group makes its best pitch in Salem for an intermodal facility" *Albany Democrat Herald* June 19 2019, accessed 20 November 2020, https://democratherald.com/news/linn-group-makes-its-best-pitch-in-salem-for-an-intermodal-facility/article_20739106-526e-598f-8fa2-7e59b10ba65c.html

operations; if they should fail to meet those milestones, OTC has authorized the DOT to pursue recovery of all state funds invested in the facility.[21]

Heartland Intermodal Gateway, Pritchard, WV

Owner/Sponsor: The Heartland Intermodal Gateway (HIG) is currently owned by the West Virginia Public Port Authority but is in the process of being auctioned off. The terminal received funding from a USDOT grant ($12.7 million), the State of West Virginia Special Railroad and Intermodal Enhancement Fund ($18 million), and Norfolk Southern Railroad ($1 million)[22]. NS also donated the land for the site.

Concept: The HIG was originally conceived to capture intermodal freight traveling on the Heartland Corridor through West Virginia and provide jobs and economic diversification to West Virginia. Local manufacturing was seen as a potential source of volume. There is a nearby Toyota manufacturing plant as well as lumber manufacturing. The HIG is located on land donated by the NS railroad in a mountainous valley near Huntington, West Virginia, a city of around 50,000 people.

Advantages: As the name suggests, the HIG is located on the Heartland Corridor, the same corridor serving the successful Rickenbacker Inland Port. However, this is where the similarities end. Key differences in the facility's planning and management led to the announcement in 2020 of HIG being auctioned off while the Rickenbacker facility is still thriving.

Disadvantages: The Heartland Intermodal Gateway (HIG) did not have the transportation links its competitors do. It is served by only one rail line and is nearly 20 minutes away from the nearest interstate. Its only road link is a 4-lane winding highway through the mountains. Funding was also unsecured despite promises. The facility is also located on a river but would require dredging for more than 2 miles to accommodate barge traffic. Geography also constrained development, the HIG was unable to attract complementary warehouse development due to mountains on either side of the site. Furthermore, the terminal was unable to match container types between potential local shippers. Toyota's manufacturing plant imported mainly 20ft containers, while the major exporter was the lumber industry, which requires 40ft containers.

In the third quarter of 2018, the facility only moved just 184 containers, well below the forecast of 30,000 a year and the breakeven of 14,400. On July 2, 2019, West Virginia Transportation Secretary, Byrd White, announced the facility would go to the auction block after the state lost about $500,000 a year operating the facility[23]. The HIG was constrained geographically, politically, and economically. The facility's lack of consumer base and transportation linkage deficit and the absence of funding for related transportation system improvements proved insurmountable obstacles.

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[21] John Boren, Staff Report on the Connect Oregon Intermodal Facility Dedicated Projects, January 12, 2021, and Oregon Transportation Commission by unanimous consent, Oregon Transportation Commission Statement on CO Intermodal Facilities, January 21, 2021

[22] "Project Profile: Heartland Corridor," US Department of Transportation Federal Highway Administration, accessed 20 November 2020, https://www.fhwa.dot.gov/ipd/project_profiles/wv_heartland.aspx

[23] Phil Kabler, "Once Touted as an Economic Boon, W.Va. Intermodal Facility Faces Auction Block ," *Transport Topics News, July 3 2019, 20 November 2020,* https://www.ttnews.com/articles/once-touted-economic-boon-wva-intermodal-facility-faces-auction-block

Savage Railport-Southern Idaho, Pocatello, ID

Owner/Sponsor: Currently under construction, this will be Idaho's first intermodal terminal. Savage has agreed with the Union Pacific (UP) to build and operate a transload facility on UP's Pocatello railyard.

Concept: When complete, the facility will transload agricultural products grown in southeastern Idaho into ocean-going containers. The UP will then haul the containers to Northwest Seaport Alliance ports in Seattle and Tacoma for export to Asia. The facility will handle most agricultural products, such as hay. Savage expects to move 75 double-stack rail cars (150 containers) per week upon opening and increase that volume to 125 double-stack rail cars (250 containers) per week by the end of 2021.

Advantages: Savage selected the site not only because of its location in a container export-rich agricultural region, but also to leverage the existing rail infrastructure at UP's existing Pocatello railyard. The yard lies on UP's mainline connecting Chicago with Pacific Northwest ports. This results in no over-the-road drayage from the transload facility to the rail ramp and no additional handling before its final destination. Before the opening of the facility, the region's shippers had no other choice than to dray their products to Puget Sound ports. This transload facility, by creating another transportation option, will provide shippers from southeastern Idaho with an opportunity to lower their transportation costs.

Inland Port Greer, Greer, SC

Owner/Sponsor: The Inland Port Greer is owned and operated by South Carolina Ports Authority. Greer is currently undergoing an expansion project – with an initial investment of $50 million, another $51 million has been committed by a combination of South Carolina Port Authority, Norfolk Southern, and a federal grant to enable 60% expansion of working/storage tracks, an expansion of the Norfolk Southern lead track, container yard expansions of 7,800 additional TEU, a new chassis yard, a new terminal operations office, expansions to the equipment maintenance shed, improvements to the Norfolk Southern 7-mile yard in Charleston, and expansion of the Carlisle siding on the Norfolk Southern line between Charleston and Greer.

Concept: Inland Port Greer is a rail-served inland port facility 212 miles inland that takes import loads from Charleston through to the local Norfolk Southern Intermodal ramp to Greer within 1 day six days per week through an overnight express shuttle service. The inland port has a chassis pool on-site with maintenance provided. Greer is located in the Greenville-Spartanburg (GSP) port of entry and cargo can move under the ocean carriers' bond to Greer. There are also customs synergies as exams and inspections are performed in Charleston, but also at bonded facilities in GSP. Import boxes are moved to rail within 24-hours of release by customs.

Advantages: Inland Port Greer is within 500 miles of 94 million consumers, including Metro Atlanta, Nashville, Western North Carolina, Charlotte, Columbus, and Western South Carolina. The overnight express daily shuttle six days per week on dedicated Norfolk Southern trains provides reliability and flexibility for BCOs, and extended free time can be provided, with 24/7 operating hours. The port touts that it can reduce empty miles, and provide higher truck productivity and lower chassis/per diem/detention charges. Greer is situated on I-85 between Charlotte and Atlanta, which is the fastest growing corridor in the country and has good connectivity to FedEx and UPS ground systems, along with air cargo services adjacent to the port for e-commerce needs.

Appalachian Regional Port, Murray County, GA

Owner/Sponsor: The Appalachian Regional Port is a joint project created by the Georgia Ports Authority, the State of Georgia, and Murray County, Georgia, which is located northwest of Atlanta. The 42-acre terminal has access to I-75 and has a capacity of 65,000 container lifts per year with further expansion expected. Rail service is provided by the CSX railroad, and the site has 3 6,000-foot long tracks. Initial construction costs included $10 million from the State of Georgia, $9.7 million for the Ports Authority, $500,000 from Georgia's state economic development agency, and $200,000 from the Murray County Economic Development Authority.[24]

Concept: The Appalachian Regional Port is intended to provide container service for shippers in Northwest Georgia, as well as portions of Alabama, Tennessee, and Kentucky. The CSX provides direct connections to Georgia's port facilities 388 miles away in Savannah. Additional services onsite include multiple days of container storage. The port handles finished goods imports and exports in both directions.

Advantages: The Appalachian Regional Port advertises benefits of shorter and more reliable truck trips. For the State of Georgia itself, a major benefit is the removal of 710+ miles of truck drayage trips per container between Savannah and markets in Georgia, Alabama, Tennessee, and Kentucky. For shippers, there are benefits of shorter drayage trips, as well as greater visibility of container moves provided by the Georgia Ports Authority's online tracking tools.

Northeast Georgia Inland Port, Hall County, GA

Owner/Sponsor: The Georgia Ports Authority is currently planning for the creation of another inland port, northeast of the Atlanta area. This facility is expected to occupy 104 acres with a starting capacity of 80,000 container lifts per year, and a fully-built capacity of 150,000 container lifts per year. Rail service will be provided by Norfolk Southern. Initial trackage would consist of 9,000 feet, with a maximum of 18,000 feet when the facility is fully built-out. The estimated fully-built cost for the project is $100 million, with initial elements costing $15 million.[25]

Concept: The Northeast port is intended to service manufacturing and logistics firms along I-85 and I-985 in Northeast Georgia. A particular emphasis may be receipt of consumer goods, as the surrounding counties have a population of 1.5 million. The project is also intended to support economic development by attracting additional manufacturing, warehousing, and distribution companies to the area.

Advantages: In addition to shortage drayage trips, anticipated advantages of the Northeast port include reduced costs for chassis and container fees, reduced Free Trade Zone administrative fees, and a reduction in shipping lead times.

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[24] Oliver, Charles. "Georgia Inland Port Gets Almost $20 Million in Funding." Transport Topics. July 26, 2016. https://www.ttnews.com/articles/georgia-inland-port-gets-almost-20-million-funding
[25] "Inland Port Coming to Northeast Georgia." Transport Topics. December 5, 2018. https://www.ttnews.com/articles/inland-port-coming-northeast-georgia

Navarre NeoModal, Stark County, OH

Owner/Sponsor: The Stark County Economic Development Board developed the NeoModal terminal in 1995 using federal funds. The facility's development was intended to support the expansion of a large manufacturer in the area.[26] The 28-acre facility has three main tracks and had three overhead cranes for the movement of containers and trailers.

Concept: The NeoModal facility was intended to provide intermodal and trailer on flatcar support for businesses in the Canton area, as well as another intermodal facility capable of serving major cities across Ohio. The estimated radius of the facility's market area was 120 miles.[27] Projected volumes for the facility had been 150,000 lifts per year (based on crane capacity), but the actual peak appears to have been no more than roughly 6,000 lifts per year.

Status: In practice, the Navarre NeoModal terminal was unable to offer any time savings over other intermodal trade lanes, and demand for service was never high enough to sustain operations. A further complicating factor was Ohio's changing railroad stakeholders: when the facility was built, three were three Class I railroads in the area, but changing railroad ownership and operations meant that much of the potential traffic for the facility was shifted to other facilities in Ohio.[28] Later analysis by the Washington State Department of Transportation and anecdotal evidence suggests that Navarre's failure is likely connected to the fact that railroad partners were not supportive of routing traffic through the facility, and there was a lack of a relationship with an intermodal service provider, particularly a Class I railroad. The Wheeling and Lake Erie Railroad appears to continue to use the facility for break-bulk transloading and car storage.

Kingsbury Industrial Park, LaPorte County, IN

Owner/Sponsor: The Kingsbury Inland Logistics Port concept was developed by LaPorte County using funding from the Indiana Economic Development Corporation. The facility has been in development for over 8 years, with the most recent work including the construction of a $6 million rail spur to connect to CSX track.[29]

Concept: The 600-acre facility is located on the site of a former munitions factory adjacent to CSX track, and the development of the facility is intended to attract new industrial tenants to the region. One potential tenant would be a produce supplier receiving two trainloads of cold produce from Florida each week via CSX.

Status: The development of the Kingsbury facility has not materialized due to slow action on the part of facility developers, with news articles going back to 2013 detailing how development deals with private partners have either stalled or failed.[30] The experiences of Kingsbury suggest that careful attention must be paid to securing tenants or users for an intermodal facility.

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[26] Bennett, David. "Driven to Change." Crain's Cleveland Business. September 18, 2006.
[27] Washington State Department of Transportation. "Determining the Potential Economic Viability of Inter-Modal Truck-Rail Facilities in Washington State. December 2004.
[28] Global Insight. "Freight Movement in the Hartford Metropolitan Area" December 30, 2005.
[29] LaPorte County Life. "LaPort County and State Officials Announce $1 Million State Grant to Permit Connection of County Rail Spur at Kingsbury Industrial Park with CSX Mainline." January 30, 2020.
[30] Maddux, Stan. "LaPorte County's Intermodal Facility Hits a Snag." South Bend Tribune. August 29, 2013.

Appendix I – Development Funding

The following section outlines potential state and federal rail funding and financing programs that may be utilized to access capital for the intermodal facility. This list includes both formula and discretionary (competitive) programs. For detailed information on project eligibility and application requirements, please consult with official program descriptions.

State Rail Funding and Financing Programs

Wisconsin Freight Railroad Preservation Program (FRPP): FRPP is a grant program to industries, railroads, and local government agencies to purchase, preserve, and rehabilitate essential rail lines. The program provides grants up to 100% of the cost to acquire rail lines and 80% of the cost to conduct rail line improvements to continue freight service or other preservation of the opportunity for future rail service and rehabilitate facilities such as tracks or bridges on publicly-owned rail lines.

Freight Railroad Infrastructure Improvement Program (FRIIP): FRIIP loans fund a broad array of improvements to the rail system as well as rail-related projects such as loading and transloading facilities. The program provides loans of up to 100% of the cost of a rail project that connects industry to the national railroad system, makes improvements to enhance transportation efficiency, safety, and intermodal freight movement, accomplishes line rehabilitation, and helps further develop the economy.

Wisconsin Transportation Economic Assistance Program (TEA): TEA aims to attract and retain business firms and create or retain jobs in the state. About 25% of funds have gone to rail projects. Applications are ranked based on the cost per job promised, as well as the local unemployment rate and benefits to regional transportation. The program provides 50% funding grants to eligible communities or private businesses, and there is a $1 million cap on TEA grants.

Wisconsin State Infrastructure Bank (SIB): The SIB provides loans and other financial assistance to sponsor surface transportation needs. Communities may apply for loans that help preserve, promote, and encourage economic development and/or promote transportation efficiency, safety, and mobility.

Federal Rail Funding and Financing Programs

INFRA Grants: This federal program is available to states, MPOs, local governments, and other government agencies for projects that improve safety, generate economic benefits, reduce congestion, enhance resiliency, and hold the greatest promise to eliminate freight bottlenecks and improve critical freight movements. This program has been used for rail projects in Wisconsin: in 2020, $6.75 million in INFRA grants were awarded to support rehabilitation of a WSOR railroad bridge.

Rail Line Relocation and Improvement Capital Grant Program (RLR): This federal program provides grants to states and communities to “mitigate adverse effects” of railroad operations on safety, congestion, and quality of life. Program funds are typically earmarked for specific projects with the remainder eligible for competitive grants.

Railroad Rehabilitation and Improvement Financing Program: FRA directs federal loans and loan guarantees through this program to railroads, state and local governments, government-sponsored authorities and corporations, joint ventures that include at least one railroad, and freight shippers. The funding is used to acquire, improve, or rehabilitate intermodal or rail equipment or facilities, refinance outstanding debt incurred and develop or establish new intermodal or railroad facilities. Direct loans

can fund up to 100% of a railroad project, but the borrower must pay a credit risk premium for the loan. Note: Wisconsin does not use this program.

Local and Regional Project Assistance Program (RAISE): This program funds freight rail transportation projects, port infrastructure investments including inland port infrastructures, and others. No more than 15% of funds may be awarded to eligible projects in a single state per fiscal year. The federal share of the cost shall not exceed 80% except in rural areas, historically disadvantaged communities, or areas of persistent poverty.

Highway-Rail Grade Crossing Program: These federal funds are available to improve safety for highway-railway grade crossing improvements and are administered for improvements to grade crossings including design and traffic control devices.

Consolidated Rail Infrastructure and Safety Improvements (CRISI): Projects eligible for funding under this grant program can include capital projects that address congestion challenges affecting rail service, rail line relocation and improvement projects, regional rail and corridor service development plans and environmental analyses, projects necessary to enhance multimodal connections or facilitate service integration between rail service and other modes, and others. The federal share of CRISI project costs will not exceed 80% and preferred applications will have a 50% federal share or less.

Port Infrastructure Development Program (PIDP) Grant: This program aims to improve facilities within, or outside of and directly related to operations or an intermodal connection of coastal seaports, inland river ports, and Great Lakes ports. The federal share will not exceed 80% unless in a rural area or for ports with a tonnage below 8 million short tons per year.

Transportation Infrastructure Finance and Innovation Act (TIFIA) Program: TIFIA provides financing for large-scale surface transportation projects, including intermodal freight and rail projects. An eligible project must be included in the applicable State Transportation Improvement Program. TIFIA credit assistance is limited to a maximum of 33% of total eligible project costs.

Private Activity Bonds: This is a tax-exempt financing program to facilitate private investment in eligible projects by granting private companies with tax-exempt status on the bonds. This provides private developers and operators with access to tax-exempt interest rates, substantially lowering the cost of capital and enhancing investment prospects.