



EUPRPDC Transportation & Logistics Strategy Feasibility Analysis

prepared for

EUPRPDC

prepared by

Cambridge Systematics, Inc.

and

Global Logistics Development Partners

report

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Phase 1: Feasibility Analysis

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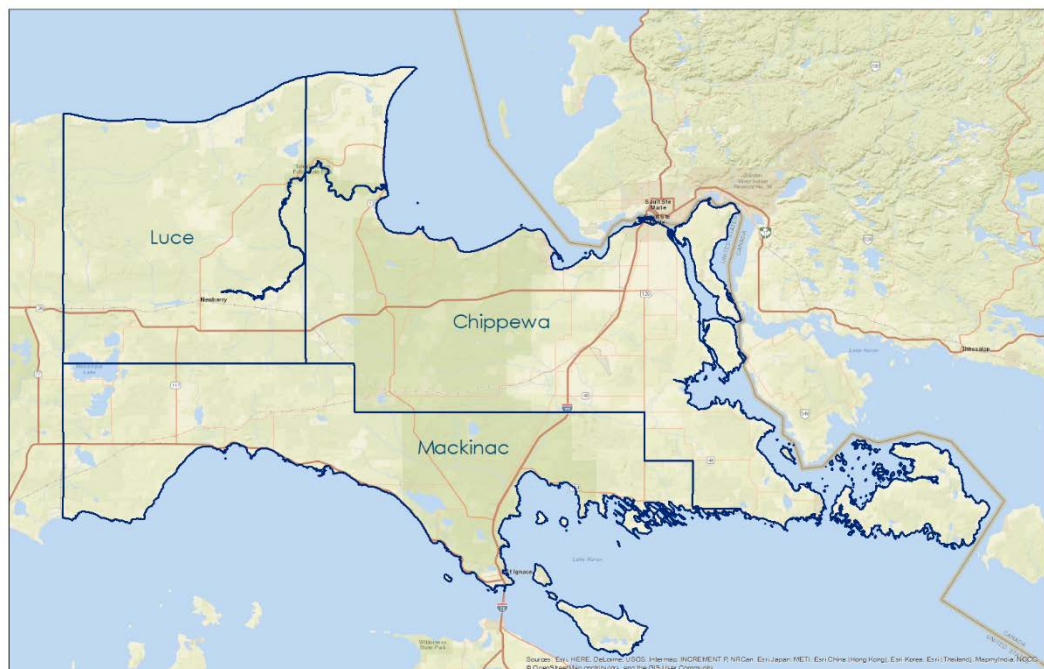
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1.0 Background and Overview

1.1 PURPOSE AND ORGANIZATION OF STUDY

The Eastern Upper Peninsula Regional Planning & Development Commission (EUPRPDC) commissioned this Transportation Logistics Strategy to better understand the existing and emerging freight, industry, and logistics trends that are affecting goods movement in the United States, Canada and specifically in the Eastern Upper Peninsula of Michigan and the cross border area of Ontario; to identify and assess the factors that lead to attracting logistics-based development opportunities; to identify policies, projects, and strategies to improve overall economic competitiveness and to investigate the feasibility of the Eastern Upper Peninsula (EUP) as a micro multi-modal transportation hub. The results of this study will provide EUPRPDC with a delivery roadmap regarding the types of economic development investments, policies, and market development tools that will most effectively take advantage of the existing transportation assets and importantly enhance the competitiveness of the region.

Figure 1.1 EUP Study Area



This is an opportune time for EUPRPDC to develop a logistics-based development strategy, as the State of Michigan has invested in major projects over the past several years which have helped bring high-level attention and focus on freight and logistics needs and issues, and particularly how goods movement investments relate to economic development opportunities, and how they can further strategic

transportation and economic goals and objectives. That said, the focus on the potential of cross-border opportunity and in the northern portions of the State won't necessarily receive adequate attention without local initiatives such as this.

- ▶ Change is creating opportunity in places with transport and certain other competitive advantages. Development of a modern and extensive logistics base in the EUP region will create the foundation for supporting business attraction for logistics companies as well as value-added activity from manufacturing supply chains and manufacturing business segments. They all will benefit from the good transport links, road, rail, seaport and airport, to key domestic and international supply chain hubs.

This project defines the links between transportation assets and specific economic development strategies to build upon existing assets and encourages EUPRPDC and its partners to take steps to make demonstrable progress toward the goal of making the region more competitive. The components of the Study include:

- ▶ The key industries driving the regional economy both now and in the future: Successful development of this Study must start with a detailed assessment of the types of industries that are most significantly contributing to the region's current economy (in terms of jobs, revenue, and links to other important industries), how they are expected to change in the future, This Study can help EUPRPDC and its partners better understand how its industry clusters are evolving, allowing the State and the region to more effectively leverage its strategic advantages to attract and retain the industries it targets. This requires a team that not only understands how to identify key industries today and in the future, but how industry attraction and retention is affected by outside influences such as changing technology, evolving business requirements, and shifts in global demand.
- ▶ The ability of the region to compete in the global marketplace: To compete effectively the region must very clearly understand its market "sweet spots", the requirements of those markets and specifically how it competes with other markets. A major focus of this Study will be to describe how the EUP fits within existing and emerging domestic and international supply and distribution chains. This requires a team with hands-on experience in domestic and international logistics that can help EUP understand the specific needs and issues of the shipper/carrier community, identify the types of industries and supply chains that provide the most promising opportunities, and implement programs and strategies to capitalize on them.
- ▶ The ability of the region to engage in more Canadian cross border opportunities: This Study represents an opportunity to identify the most promising partnerships with Canada, such as utilizing the Algoma side of the region so that all regional infrastructure is maximized as well as the tactical value of specific supply chains taking advantage of the east-west

access in Canada merging with the north-south access in the US. This requires a team that not only understands border operations, but also the transportation and economic development priorities of Canada at both the Federal and provincial levels.

- ▶ Developing realistic and implementable business development propositions that can attract private sector investment and logistics service: A final and important component of the study will be to identify the most attractive industrial sectors and supply chain verticals as targets for the region and then define a specific market/business proposition for each sector that can be used as the “pitch” to a specific set of prime target companies. This requires a team that has hands on experience in understanding industry sectors, the destructive influences on supply chains, how these influences are affecting the way companies do business and finally how companies are making locational decisions in the new world order.

The study is organized as follows:

- Infrastructure and Potential for Growth;
- Current Market Conditions;
- Feasibility Summary; and
- Positioning the EUP for the Future.

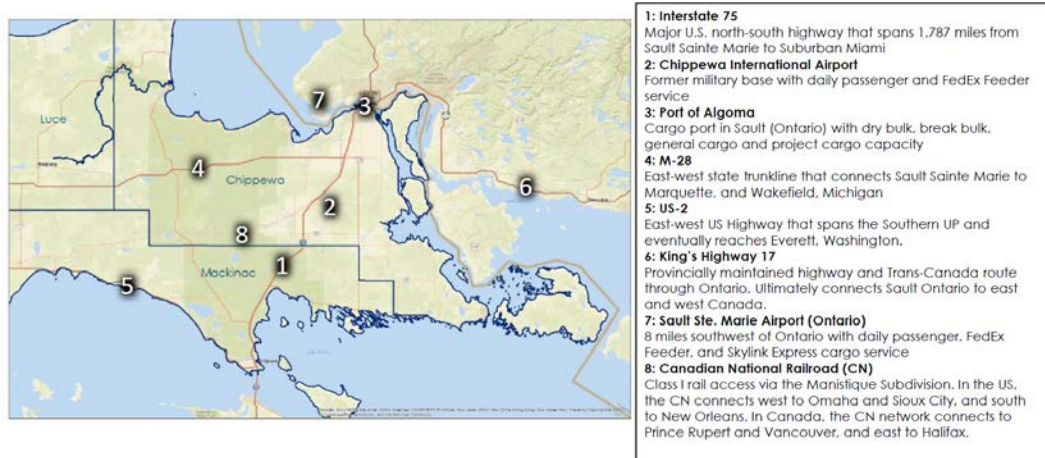
2.0 Infrastructure and Potential for Growth

Compared to many regions of similar size, the EUP presents a number of unique infrastructure assets from a freight infrastructure and market accessibility perspective. This section discusses existing local EUP transportation assets, multimodal infrastructure conditions, and proximity to regional and global markets.

2.1 FREIGHT-RELATED INFRASTRUCTURE AND ASSETS

As an initial step, the project team identified major infrastructure assets within the EUP study area. Figure 2.1 displays these assets. As shown, the EUP does have access to major north-south and east-west highway infrastructure, the Great Lakes-Saint Lawrence Seaway, integrated air service, and class I rail service. The limiting factor is that while there is substantial transportation access, these modes don't provide immediate access to major consumption and production markets. In terms of highway infrastructure, the combination of Interstate 75, US Highway 2, Michigan 28, and King's Highway 17 afford access to/from the EUP from every direction; with I-75 creating a spine that spans from Sault Ste Marie to South Florida.

Figure 2.1 EUPRPDC Infrastructure Assets

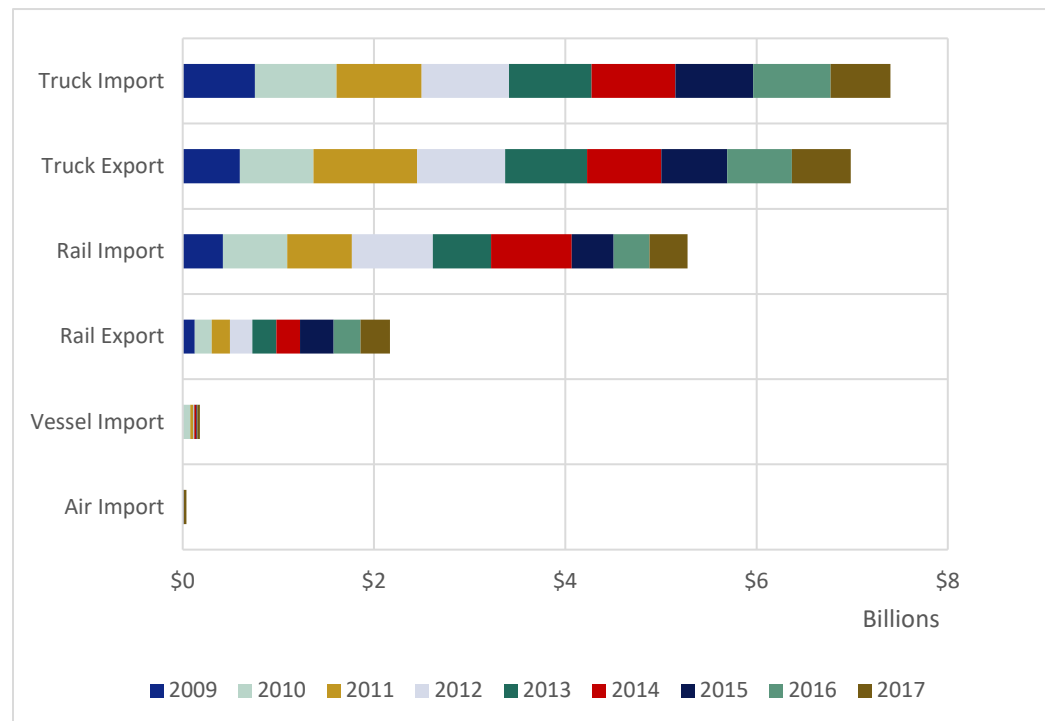


Port of Entry

One of the EUP's unique qualities is that it is home to a port of entry. Aside from Sault Sainte Marie, Thunder Bay (~440 miles west), Niagara Falls (~500 miles east), and Windsor (~635 miles east) are the nearest gateways between Ontario and the Midwestern US. Figure 2.2 displays the Sault Sainte Marie Port of Entry import and export value, by mode, from 2009 through October 2017. There are several highlights in this activity:

- Truck exports have steadily declined from a peak in 2011 to 2016 (-38%)
- Rail imports have steadily declined from a peak in 2012 to 2016 (-56%)
- Air imports have dramatically increased since 2014, from \$315k to \$23 million (ytd) in 2017.

Figure 2.2 Sault Ste. Marie Port of Entry



Railroad Infrastructure

The first railroad tracks in the EUP were laid in 1880's. Since then, mergers and acquisitions have resulted in the service depicted in Figure 2.3. Canadian National's Manistique Subdivision is the sole rail accessibility for the EUP region. In the EUP, CN's main line runs from Sault Ste. Marie southwest through Trout Lake, Gladstone, and Menominee. This line eventually spans Eastern Wisconsin and continues to Chicago. While there is a small yard in Kinross, the nearest CN classification yards are in Gladstone and Ishpeming. As of 2014, CN operates one daily train between Soo and Gladstone (Figure 2.4).

Figure 2.3 Upper Peninsula Rail Infrastructure¹

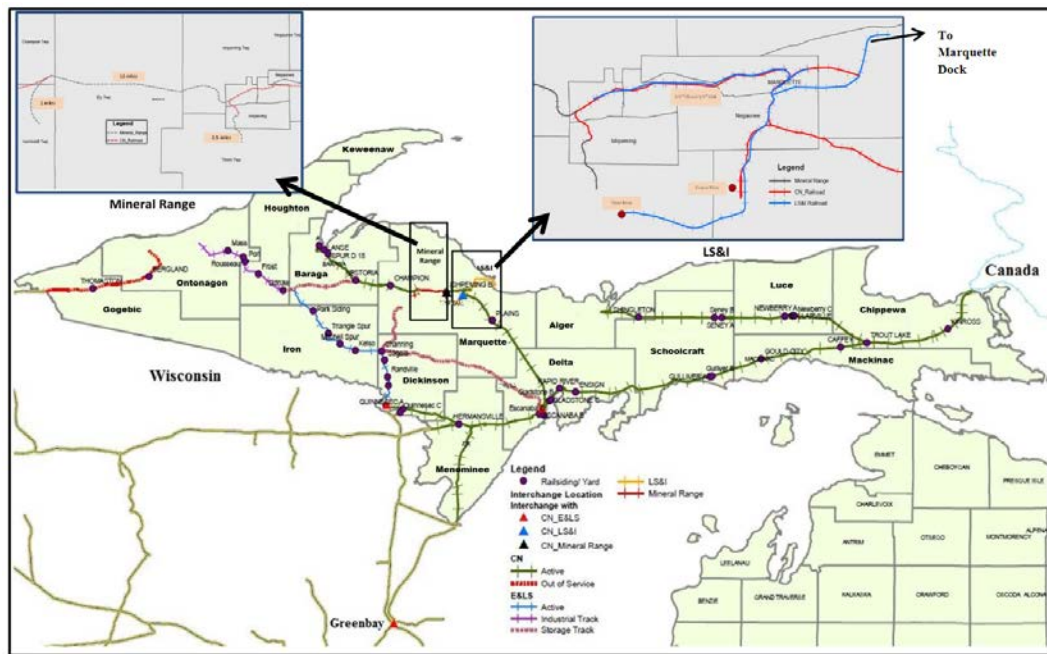
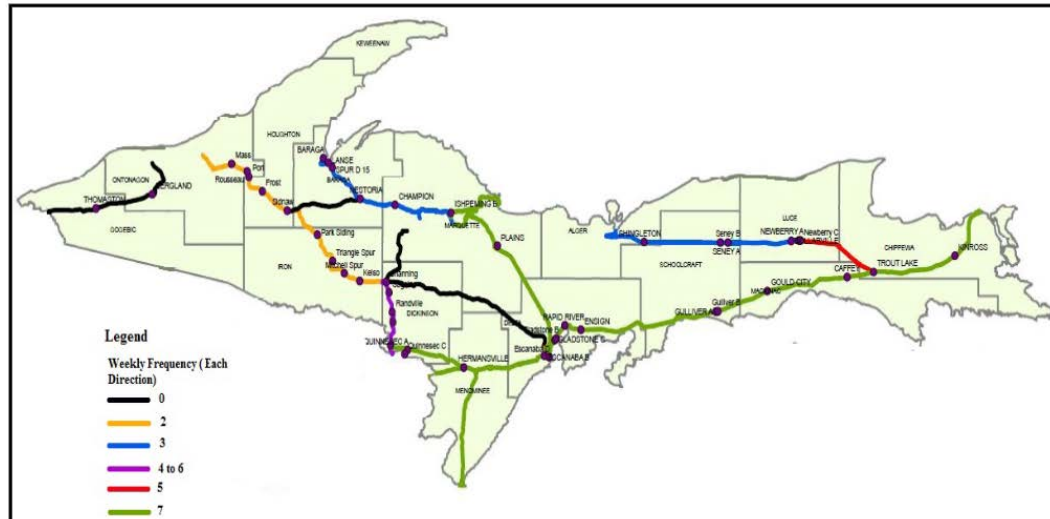


Figure 2.4 Upper Peninsula Weekly Train Frequency²



¹ “Rural Freight Rail and Multimodal Transportation Improvements - The Upper Peninsula of Michigan”, Pasi Lautala et al., 2014, NuRAIL Transportation Center. Available at: https://www.michigan.gov/documents/mdot/RC1606C_470325_7.pdf

² Ibid.

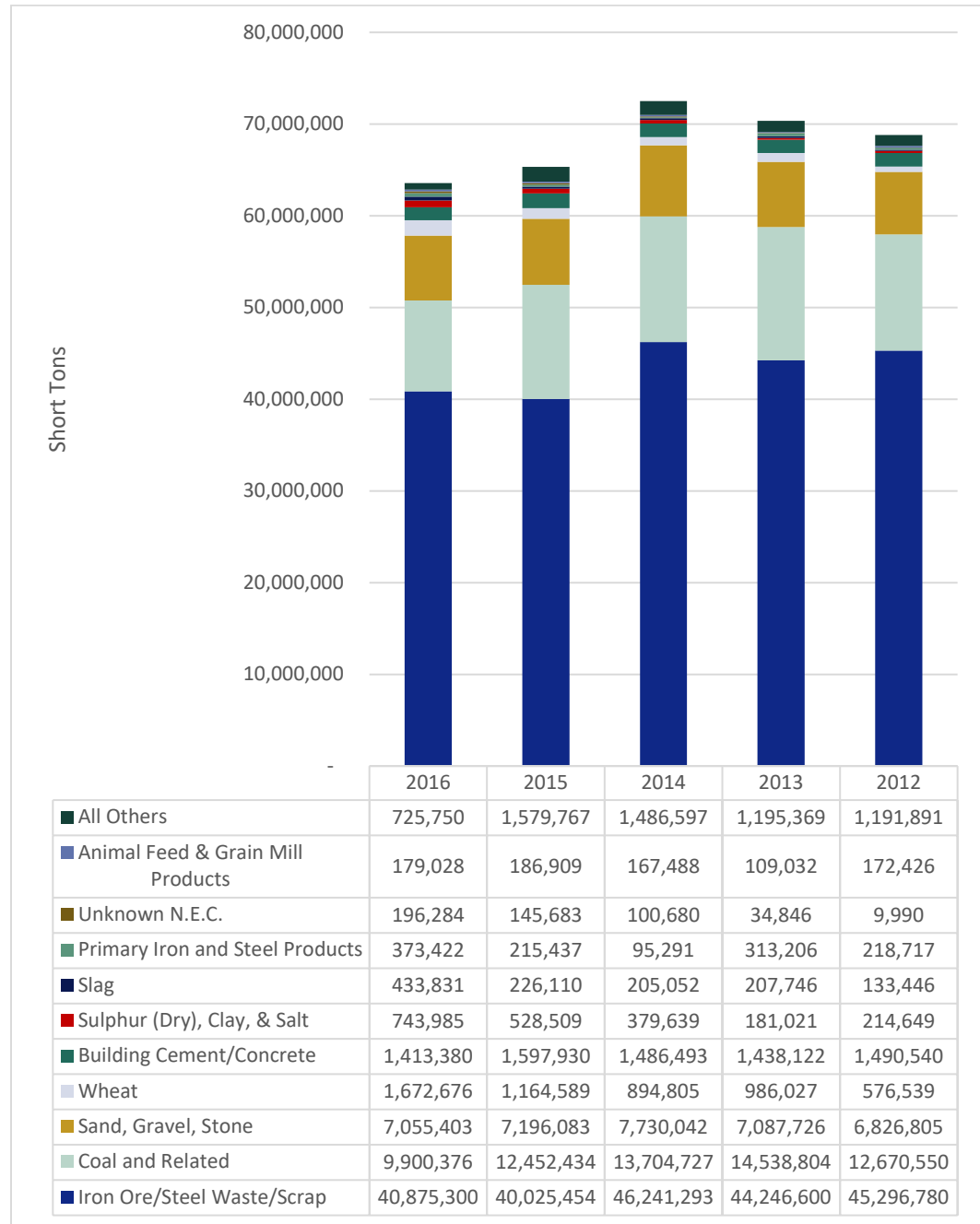
The EUP region is geographically adjacent to the St. Mary's River/Soo Canal and Locks, which connects Lake Superior to Lake Huron (Figure 2.5). Figure 2.6 displays lock traffic for the canal, which is approximately 98% through traffic. The EUP is also at the nexus of two Federal Marine Highway Routes, M-55 (South) and M-90 (East-West) (Figure 2.7).

Figure 2.5 Soo Locks³



³ Source: The St. Lawrence Seaway Management Corporation, Saint Lawrence Seaway Development Company. Available at: <http://www.greatlakes-seaway.com/en>

Figure 2.6 St. Mary's River Traffic by Commodity Type, 2012-2016⁴



⁴ Source: USACE, Navigation Data Center. Available at: <http://www.navigationdatacenter.us/wcsc/webpub>

Figure 2.7 Waterway Access⁵

Currently, the operable port facilities in the region are on the Canadian side of the waterway at Port of Algoma, though Sault Michigan has historically had landside access to the waterway at Reiss Coal Dock, but this site is no longer in service. The Carbide Dock is operational on the east side of the canal, though significant structural improvements will need to be made in the near future. A snapshot of recent Algoma activity is shown in Figure 2.7. Historically, the port has served Essar Steel Algoma, though now there is a separate business entity, "Essar Ports Global Holdings Ltd, Mauritius, to redevelop the port as an International Marine Gateway for handling all commercial cargo including Essar Steel Algoma cargo".⁶ Highlights, according to the port, include:

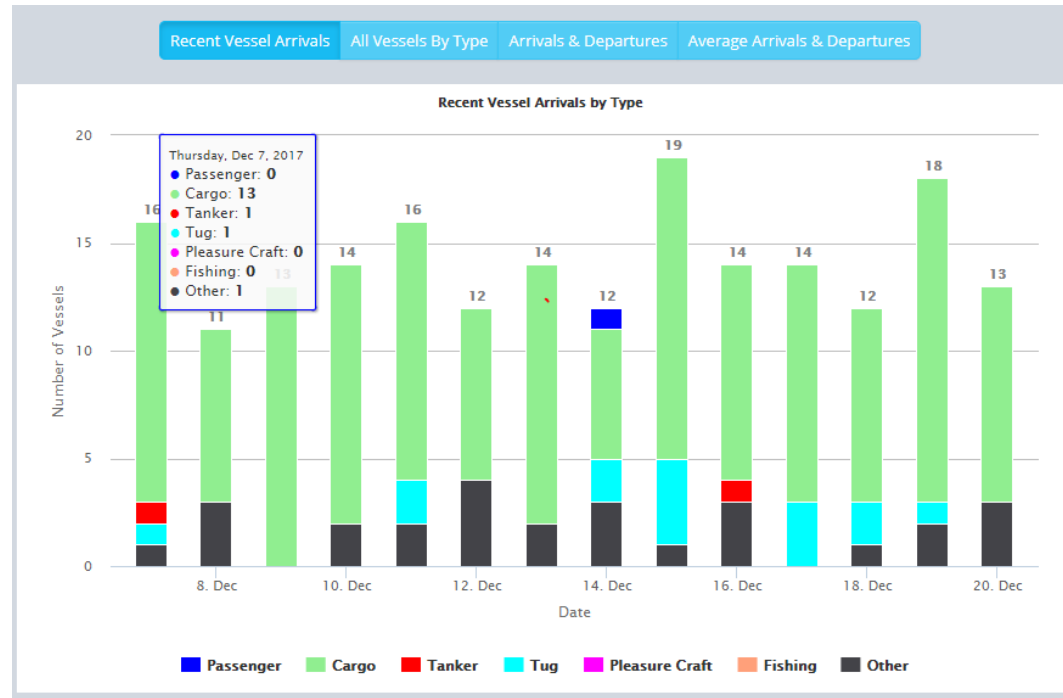
- Current capacity handles a variety of vessels carrying 5.5 million tons of cargo (~500 vessels) per year
- Nine docks with total length of 1376 meters
- Water depth of up to 27 feet, capable of accommodating seaway draft "lakers" and "salties"
- Equipped with a range of cargo handling equipment including ship loaders, stackers, conveyors, front end loaders, pole trucks, fork lifts,

⁵ USDOT, Maritime Administration (MARAD),

⁶ Source: Port of Algoma. <http://www.algomaport.com/>

scrapers, large capacity cranes of up to 300 ton, and weigh scales capable of handling a variety of cargo like dry bulk, break bulk, general cargo and project cargo

Figure 2.8 Sault Ste. Marie Recent Port Traffic (CA)⁷



2.2 MARKET ACCESSIBILITY

One of Sault Ste. Marie Michigan’s major challenges is efficient access to consumer markets. Figure 2.8 displays relative distance between Sault Michigan and Major Canadian and US Markets. However, a key consideration is US Federal Hours of Service Regulations, in combination with electronic logging requirements. In effect, this requires over-the-road commercial vehicle operators to adhere to strict operational and reporting requirements. Figure 2.7 summarizes high-level hours of service regulations. Generally, truck drivers can operate a maximum of 11 hours per day (with some qualifiers), which means that an interstate regional haul from the EUP would max out at about five and one-half hours (out and back).

⁷ Source: Marine Traffic. Queried: December 21, 2017

Figure 2.9 Relative Distance from Sault Ste. Marie, Michigan

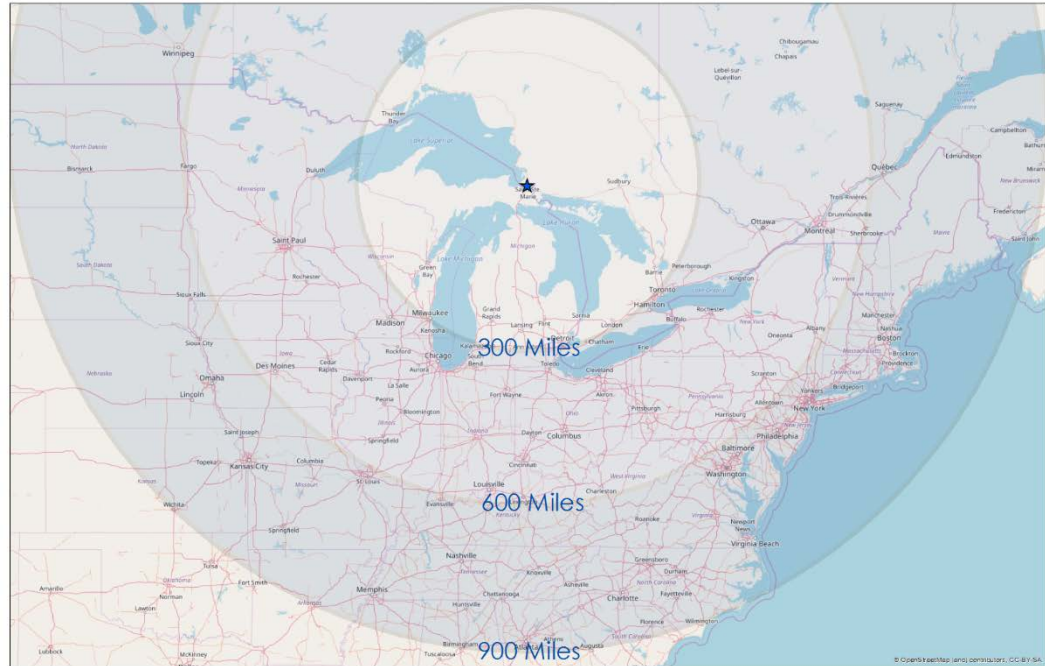
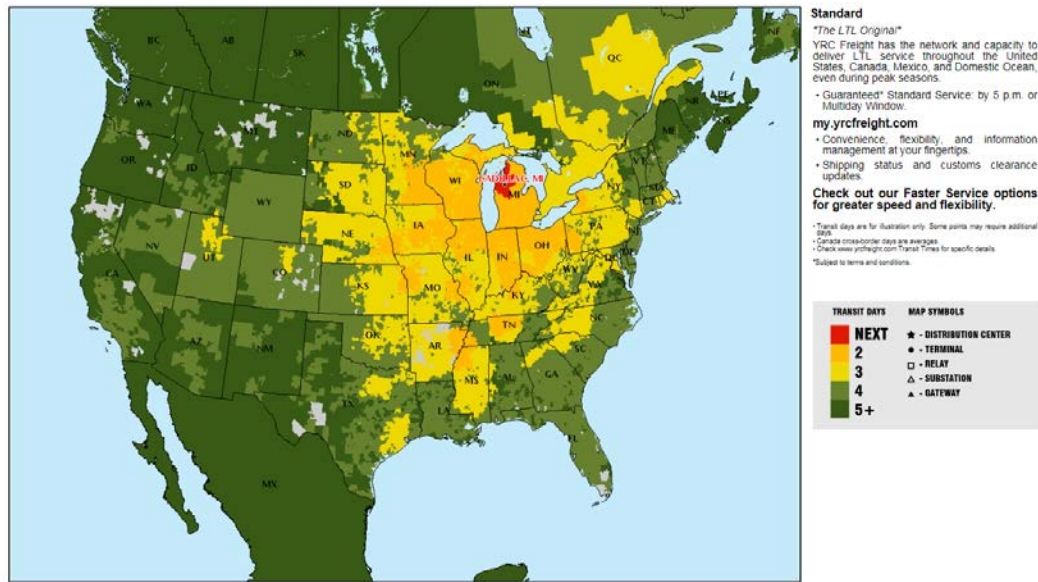


Figure 2.10 Hours of Service Rules

HOURS-OF-SERVICE RULES	
PROPERTY-CARRYING DRIVERS	PASSENGER-CARRYING DRIVERS
11-Hour Driving Limit May drive a maximum of 11 hours after 10 consecutive hours off duty.	10-Hour Driving Limit May drive a maximum of 10 hours after 8 consecutive hours off duty.
14-Hour Limit May not drive beyond the 14th consecutive hour after coming on duty, following 10 consecutive hours off duty. Off-duty time does not extend the 14-hour period.	15-Hour Limit May not drive after having been on duty for 15 hours, following 8 consecutive hours off duty. Off-duty time is not included in the 15-hour period.
Rest Breaks May drive only if 8 hours or less have passed since end of driver's last off-duty or sleeper berth period of at least 30 minutes. Does not apply to drivers using either of the short-haul exceptions in 395.1(e). [49 CFR 397.5 mandatory "in attendance" time may be included in break if no other duties performed]	60/70-Hour Limit May not drive after 60/70 hours on duty in 7/8 consecutive days.
60/70-Hour Limit May not drive after 60/70 hours on duty in 7/8 consecutive days. A driver may restart a 7/8 consecutive day period after taking 34 or more consecutive hours off duty.	Sleeper Berth Provision Drivers using a sleeper berth must take at least 8 hours in the sleeper berth, and may split the sleeper berth time into two periods provided neither is less than 2 hours.

As a point of reference, the team scanned a sample of current truck service providers in and near the EUP to gauge service distance and travel time from the region. This also provides insight into market accessibility for potential business recruitment from the region. Figure 2.10, Figure 2.11, and Figure 2.12 display transit times from Gaylord and Cadillac service centers for a hypothetical less-than-truckload trip (note: there are no major service centers currently sited in the EUP). Generally, next day service means that Chicago, and markets in Indiana, and Ohio are serviceable. For two-day service, the majority of consumer markets in the Midwest, Northeast, and parts of the Southwest are accessible.

Figure 2.11 YRC Freight – Cadillac Service Center⁸



⁸ YRC Freight, Queried December 2017

Figure 2.12 Holland – Gaylord Service Center⁹

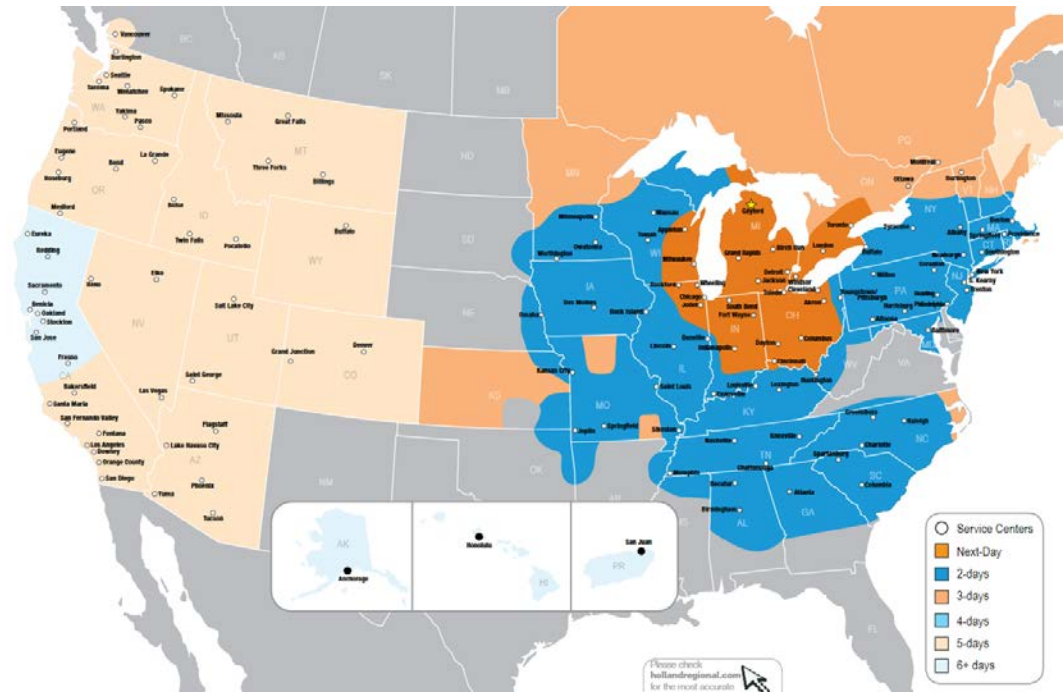
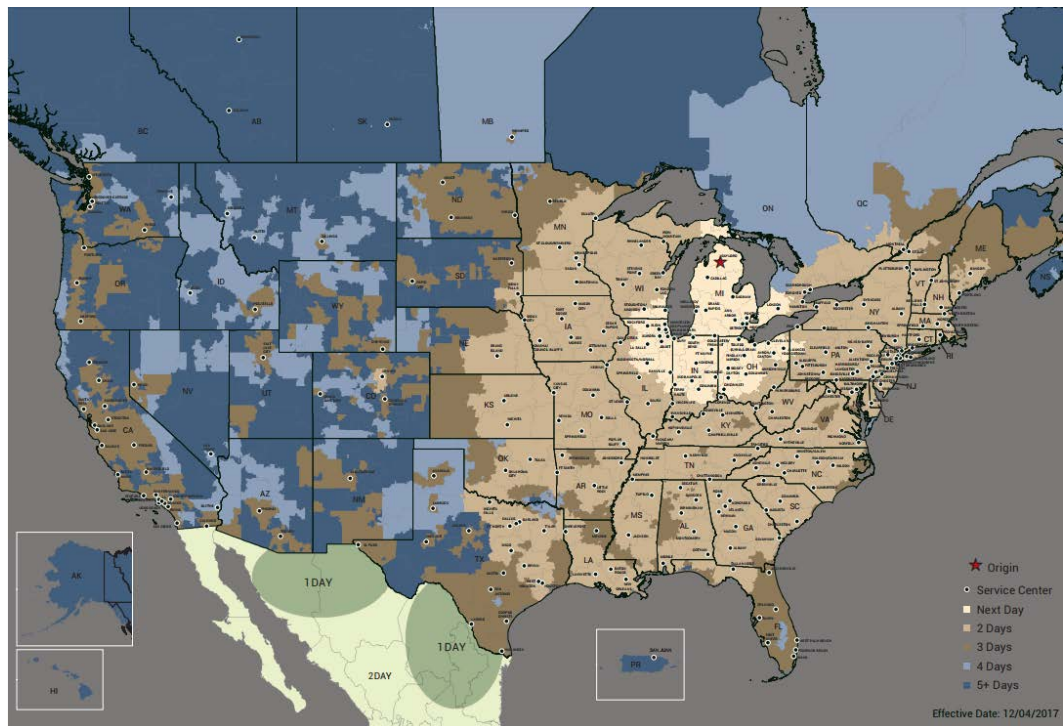


Figure 2.13 XPO Logistics – Gaylord Service Center¹⁰



From a rail perspective, the EUP is reliant in Canadian National (CN) for rail service in the region. While CN offers broad connectivity throughout Canada and the Southern US (Figure 2.13), there are no sizeable classification yards in the EUP. As discussed earlier, CN operates a daily train through the Upper Peninsula, and primarily services mining and bulk operations.

Figure 2.14 Rail Markets¹¹



2.3 LAND USE AND ZONING TRENDS¹²

EUPRPDC maintains an online inventory of county, township, and city/village zoning maps housed in an online GIS format. Figure 2.14 provides an overview of the status for each type of jurisdiction, if available. Generally, there is an

⁹ Source: Holland Transportation, Queried December 2017

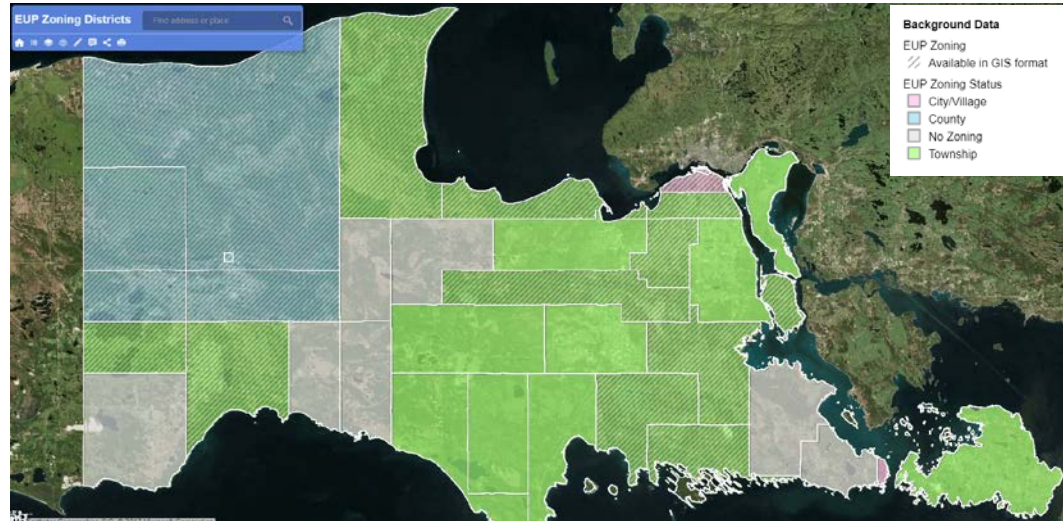
¹⁰ Source: XPO Logistics Company, Queried December 2017

¹¹ Source: Canadian National Railway Company, Queried December 2017

¹² Source: Sault Sainte Marie Master Plan, 2017-2037

abundance of developable land in the study region, with no obvious zoning or land use impediments.

Figure 2.15 EUP Zoning Status¹³



The City of Sault Ste Marie recently updated its master plan (2017-2037), and current zoning and land use highlights are shown below. The important takeaway from an industrial and commercial development perspective is that a vast majority of land within the city limits is zoned residential and natural resources (Figure 2.15). Similarly, Figure 2.16 and Figure 2.17 indicate that existing land use activities and structures are primarily dedicated to residential and natural resource uses, along with smaller pockets of industrial and retail uses.

¹³ Source: EUP Planning GIS Department, Zoning Districts.

Figure 2.16 City of Sault Ste. Marie Zoning - 2016

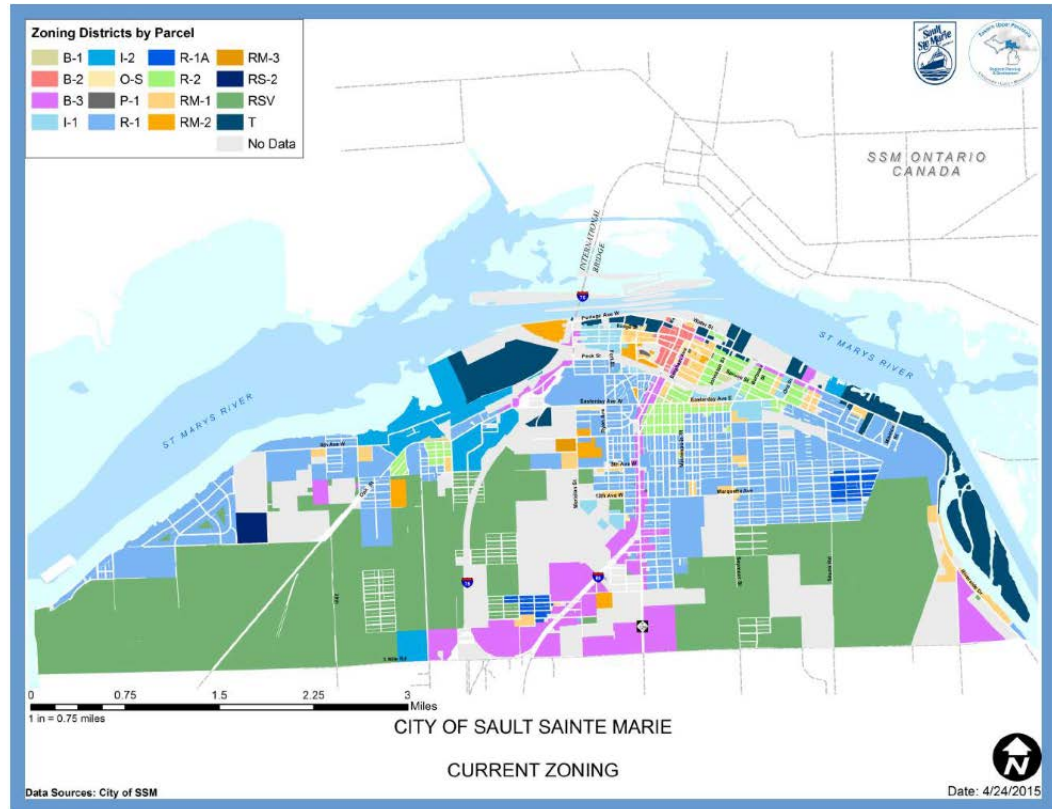


Figure 2.17 City of Sault Ste. Marie Existing Land Use – Activity¹⁴

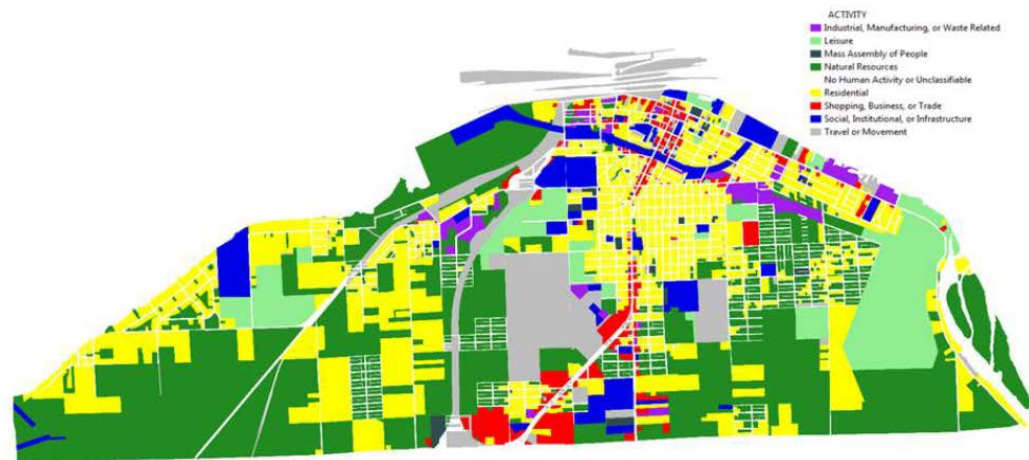
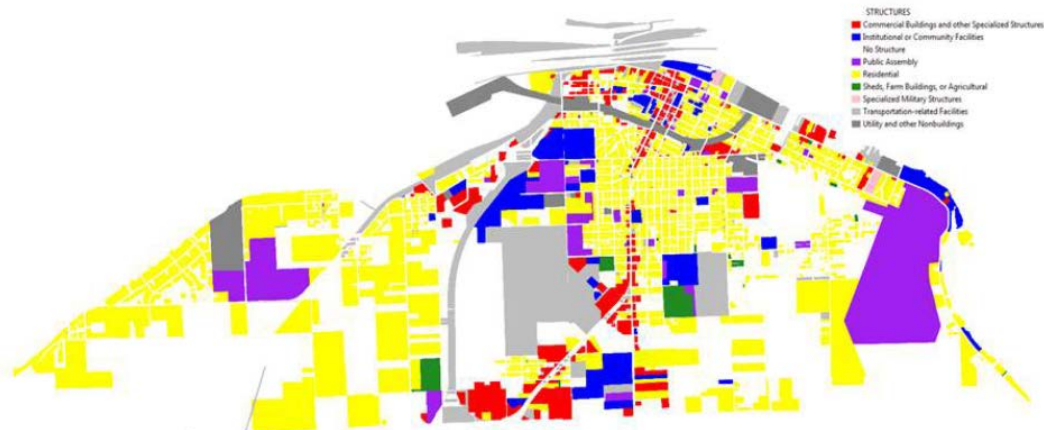


Figure 2.18 City of Sault Ste. Marie Existing Land Use – Structures¹⁵



¹⁴ Source: Sault Sainte Marie Master Plan, 2017-2037

¹⁵ Source: Sault Sainte Marie Master Plan, 2017-2037

3.0 Current Market Conditions

Due to its population size, geography, international border location and relative supply chain isolation, the Sault Ste Marie/Eastern Upper Peninsula region of Michigan represents a highly unique business product. Investment attraction opportunity will be based on specific niches where the EUP can take advantage of the uniqueness of its access to bespoke transportation assets, raw feedstocks and border setting.

Fundamentally, from an investment attraction perspective, the region has some structural competitive advantages and disadvantages which are important to understand as we review specific opportunities.

3.1 SAULT STE MARIE/EUP REGION ADVANTAGES

- An overall business cost structure that is relatively low as compared to key Upper Midwest market urban region competitors
- Competitive proximity to natural resources which can serve as raw feedstocks to the wood products (wood harvesting) and steel products (steel production)
- Local presence of an important public university; where the relationship between academic, business and economic development communities could be further developed to support key investment sector opportunities
- The region is served by substantial freight transport infrastructure to markets and supply chain points to the south; and is a strategic connector between raw materials source points in Canada, and also to the production base in portions of Ontario.
 - The EUP enjoys freight cross-border rail connections by Canadian National Railroad, and to the Escanaba and Lake Superior railroad. The rail system offers connections to the Western UP, to Northern and Eastern Wisconsin and onto the national Chicago rail hub.
 - Via I-75 southward through Michigan and onward to the Ohio Valley and other Midwest US markets and to Canada Route 17 which connects natural resource extraction source points and to Sudbury and points east.
 - The Port of Algoma is located just across the International Bridge in Sault Ste Marie, Ontario, and serves as an inbound/outbound logistics hub, largely for the movement of agricultural products, iron ore and steel products. The Port's Saint Lawrence Seaway access provides the EUP region an efficient maritime connection to markets through the entire Seaway System (SE Michigan, Indiana,

Ohio, New York, Ontario, Quebec and Nova Scotia) and extending into distant markets on the US East Coast, South America and Europe.

- By its very nature, the region has fairly few leader/ decision-makers and is motivated to act as a region, both on the US-side and combined with its Canadian region partner. The EUP enjoys being able to offer the benefits of a unified smaller community, but with the uniqueness of a binational business setting.
- Being the US component of a combined US-Canada international border market, the EUP region has the special opportunity of offering a US customs-cleared business location, with quick and seamless access to the huge US market.

3.2 SAULT STE MARIE/EUP REGION DISADVANTAGES

- The region's location makes it somewhat distant from key US Midwest and Ontario supply chain hubs and consumption centers. The closest major production and consumption markets are in Michigan, with Flint, Detroit, Kalamazoo and Lansing all a 4-5 hour truck haul. These markets represent at least a half-day dray with only a small window for a single-day round-trip. Beyond Michigan, markets in Ohio, Indiana and Illinois are all full day one-way drays.
- Considering only the US-side, the EUP region has a relatively small population that is somewhat dispersed over a wide area. Population size (and skills competencies) are a crucial factor in investment attraction, especially for projects of size or technical skills. Combined with the Canadian-side, the region becomes a 100,000+ population offer which begins to meet a higher threshold that will be set by some investors.
- Due to a historically modest industrial base and corresponding property market, there is a lack of available and suitable serviced modern industrial property and vertical property product ready for occupancy

3.3 FREIGHT FLOWS AND PROJECTIONS

The team derived freight flows for Chippewa, Luce, and Mackinac Counties from the Freight Analysis Framework (FAF) version 4.2. The FAF is a database maintained by the Federal Highway Administration and is largely based on data from the Census Bureau's Commodity Flow Survey. The FAF estimates flows of commodities between FAF regions for both a base year (2015) and a forecast year (2045). For the purposes of the EUP, we projected for shorter time periods of 2020 and 2030 to capture a realistic sample of how freight traffic might change for the region. This section highlights key findings from several different perspectives of the data.

Tonnage by Mode

Figure 3.1, Figure 3.2, and Figure 3.3 depict the total inbound and outbound freight tonnage for the EUP for 2015, 2020, and 2030 respectively.

Key findings:

- Total *tonnage* is projected to increase by 11% in 2020 and 30% in 2030
- Modal split, in tonnage, is dominated by truck (42+) and rail (35+), and the split between modes is projected to remain consistent over the period

Figure 3.1 2015 Freight Tonnage, by Mode

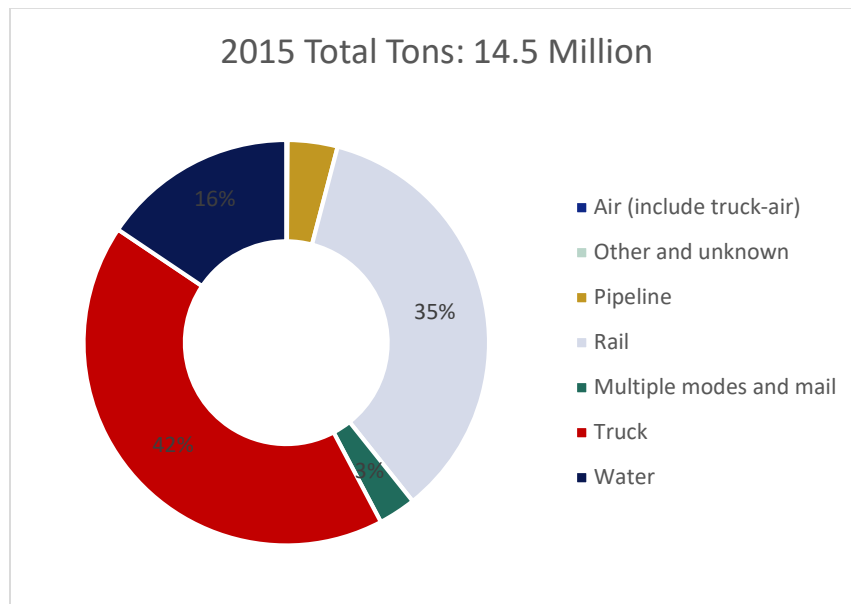


Figure 3.2 2020 Freight Tonnage, by Mode

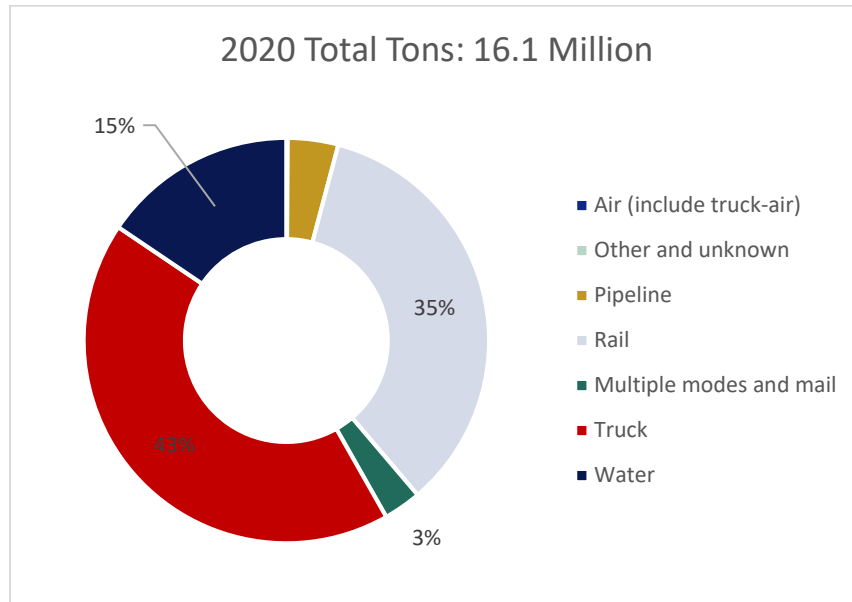
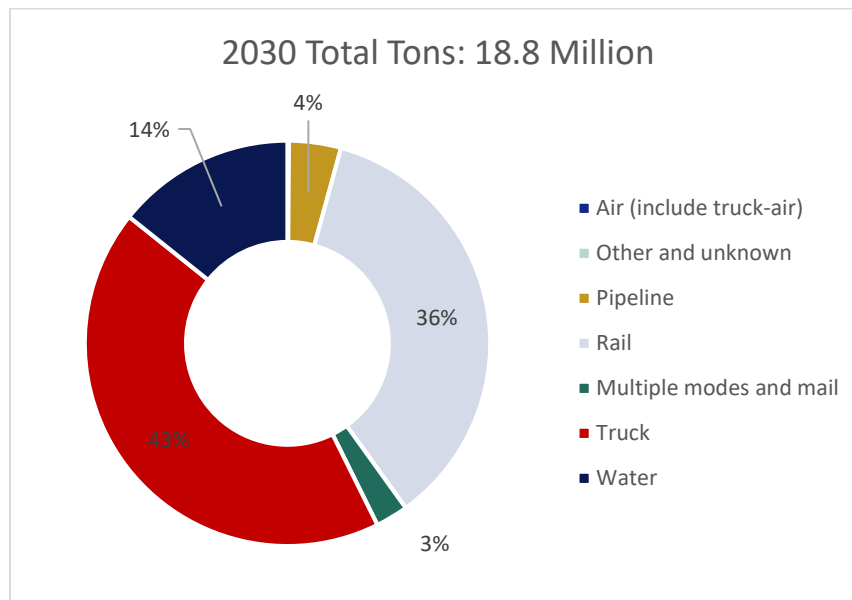


Figure 3.3 2030 Freight Tonnage, by Mode



Value by Mode

Figure 3.4, Figure 3.5, and Figure 3.6 depict the total inbound and outbound freight value for the EUP for 2015, 2020, and 2030 respectively.

Key findings:

- Total *value* is projected to increase by 13% in 2020 and 41% in 2030

- Modal split, in value, is dominated by truck (67+%), as trucks typically haul higher-value, lower weight goods. Modal split is also projected to remain consistent across all categories.

Figure 3.4 2015 Freight Value, by Mode

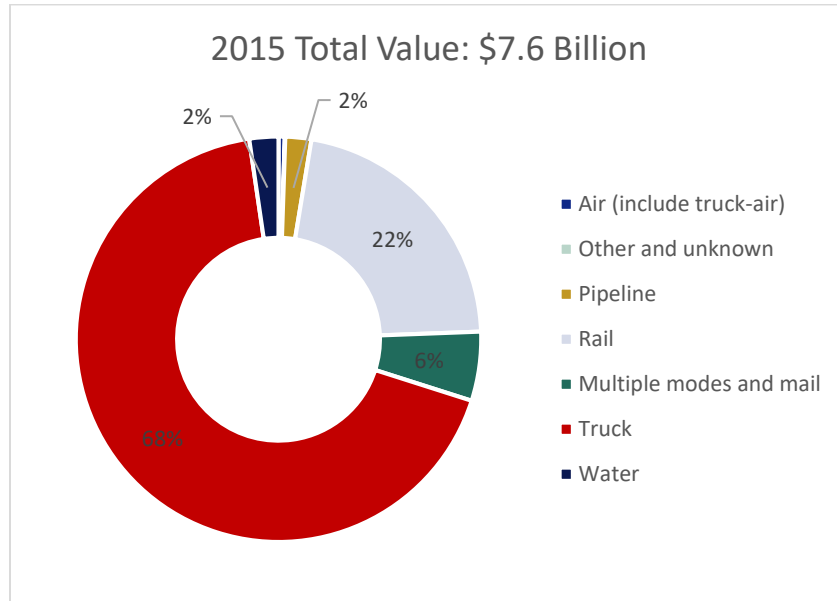


Figure 3.5 2020 Freight Value, by Mode

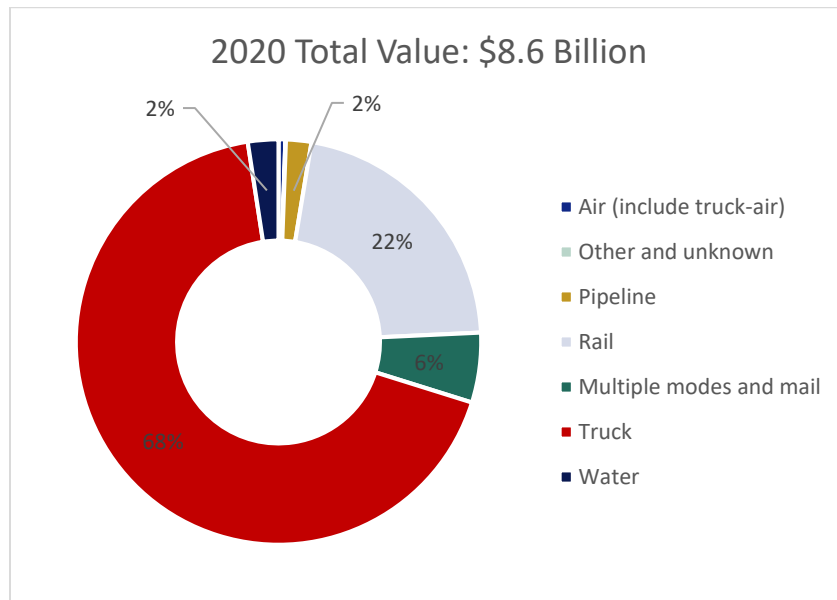
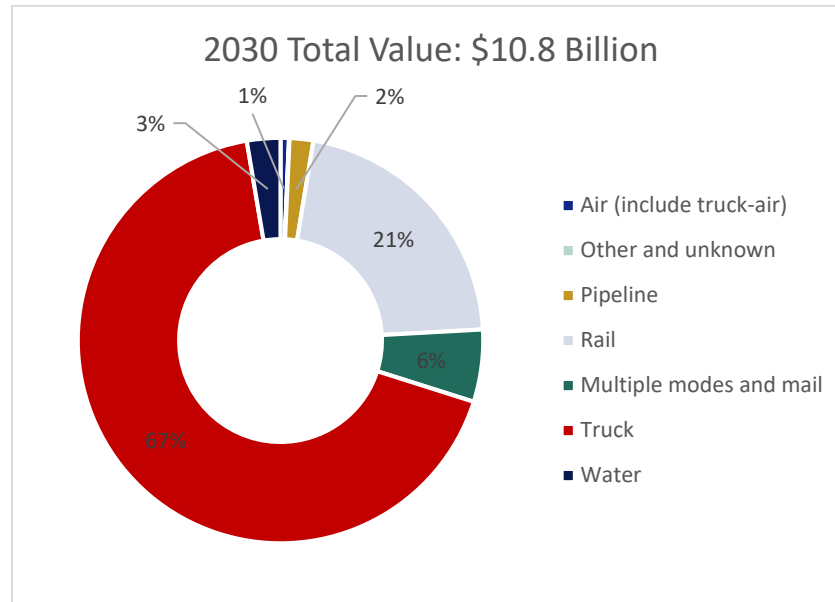


Figure 3.6 2030 Freight Value, by Mode



Commodity by Tonnage and Value

Figure 3.7 and Figure 3.8 depict top inbound and outbound commodities measured by tonnage and value in the EUP for 2015, 2020, and 2030 respectively.

Key findings:

- While the bulk goods of gravel, coal, and grains comprise a large percentage of total *tonnage*, there is a diverse array of commodities that are shipped in the region.
- The category of 'other' represents 32 other commodity groups, including many types of consumer goods. This group is projected to grow in *tonnage* by nearly 40% from 2015-2030.
- Traditional bulk goods are projected to grow in *tonnage* to/from the EUP from 2015-2030.
- Traditionally higher-valued goods comprise the top categories as measured by total *value*, however, there is no single dominating commodity group.
- In *value*, exceptional growth is projected in electronics (69%), transportation equipment (69%), precision instruments (68%), and chemical products (54%).

Figure 3.7 Freight Commodities, by Tonnage and Year

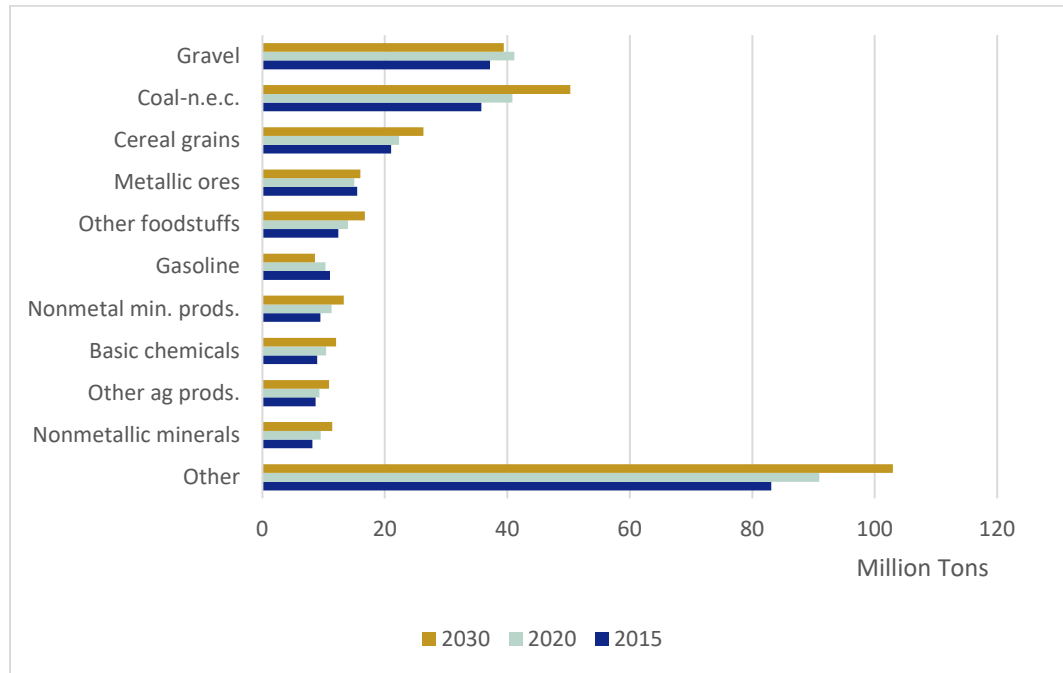
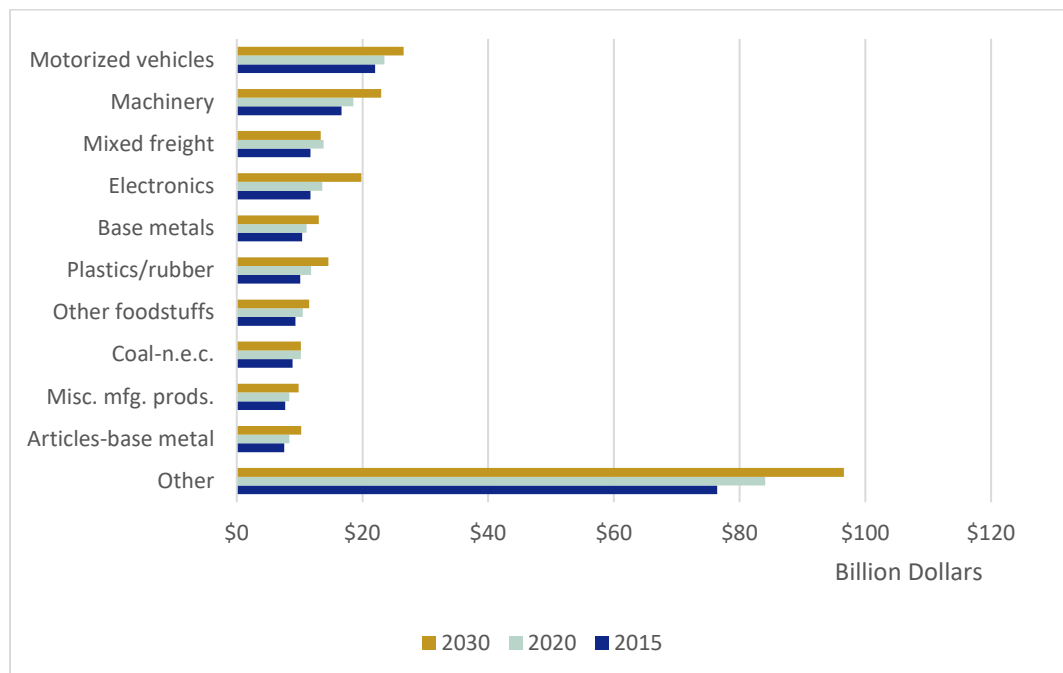


Figure 3.8 Freight Commodities, by Value and Year



Domestic Origins and Destinations

Figure 3.9, Figure 3.10, Figure 3.11, and Figure 3.12 depict top origins and destinations measured by tonnage and value in the EUP for 2015, 2020, and 2030 respectively.

Key findings:

- For inbound and outbound trade, intrastate trade dominates tonnage and value for the EUP region.
- Among the top *origin* states, Minnesota (50%) and Ohio (46%) represent the greatest tonnage growth projections.
- Among the top *origin* states, Minnesota (63%), California (63%), Texas (62%) and Wisconsin (59%) represent the greatest value growth projections.
- Among the top *destination* states, Texas (47%), Wisconsin (39%), and North Dakota (37%) represent the greatest tonnage growth projections
- Among the top *destination* states, California (64%), Minnesota (52%), Oklahoma (51%), and Wisconsin (50%) represent the greatest value growth projections.

Figure 3.9 Inbound Tonnage, by Origin State and Year

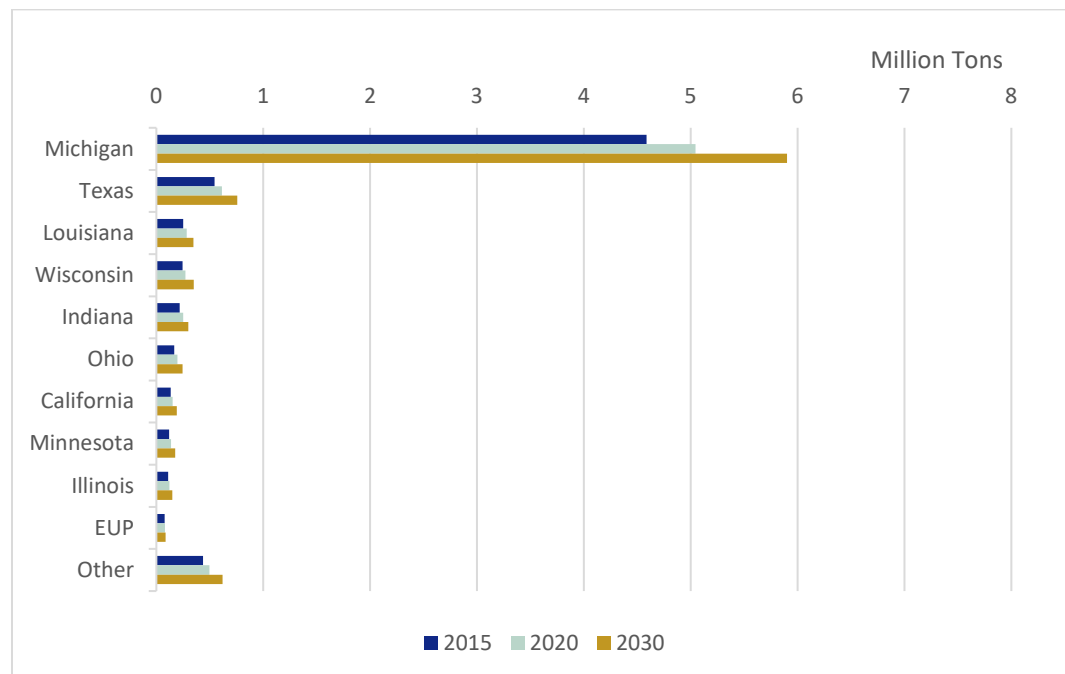


Figure 3.10 Inbound Value, by Origin State and Year

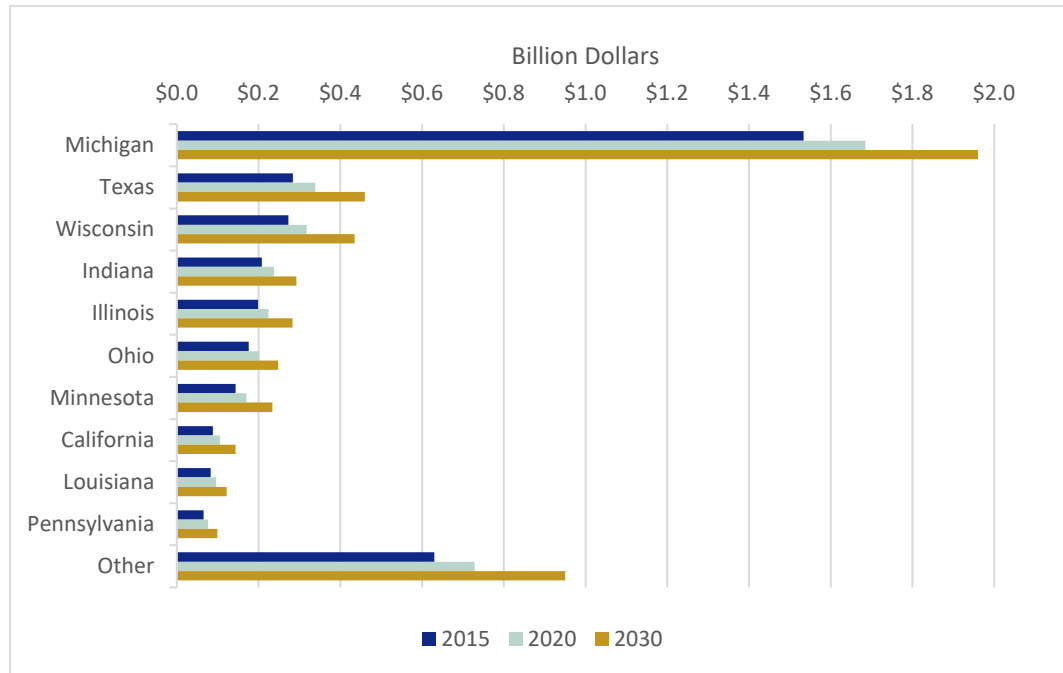


Figure 3.11 Outbound Tonnage, by Destination State and Year

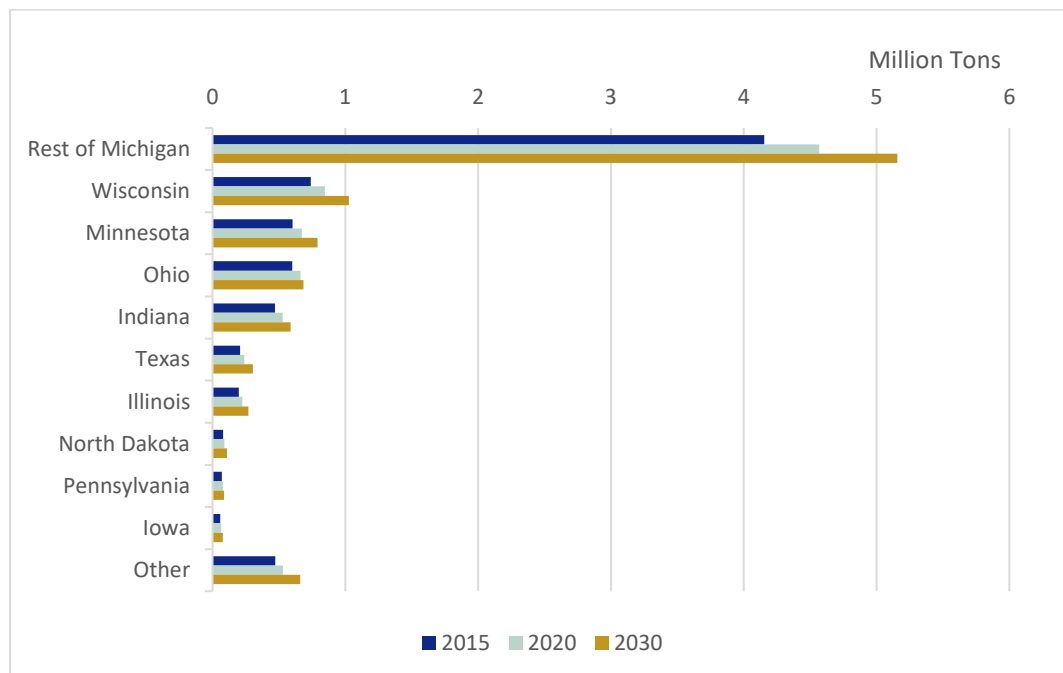
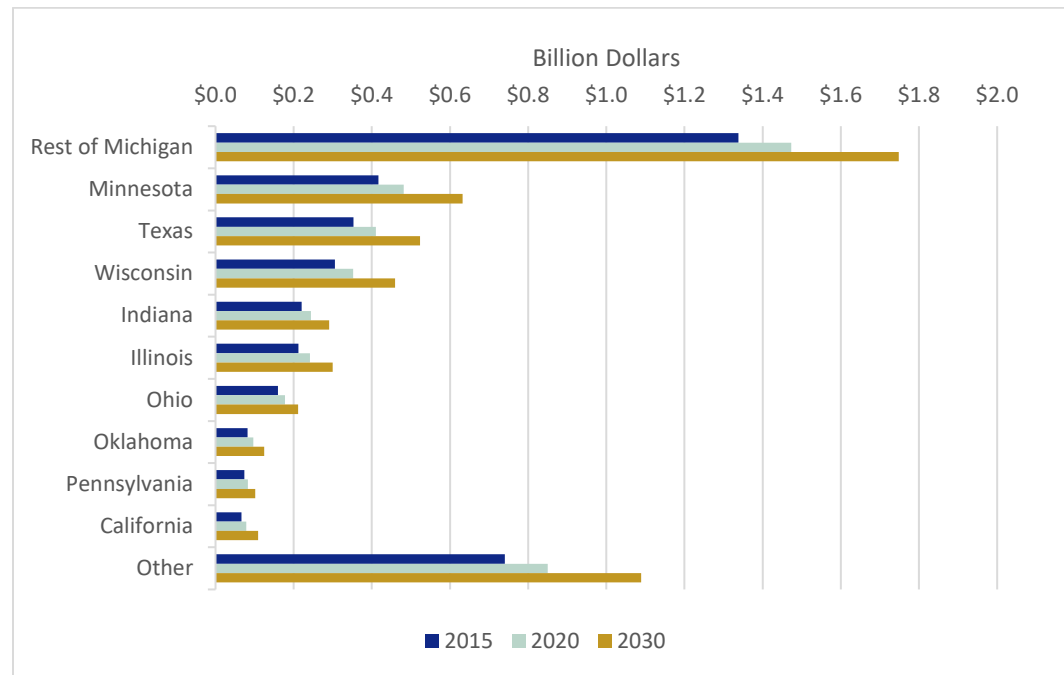


Figure 3.12 Outbound Value, by Destination State and Year



International Trade

Figures 3.13 through 3.20 depict top international origin and destination regions measured by tonnage and value in the EUP for 2015, 2020, and 2030 respectively. For legibility, Canadian trade is shown separately for each category.

Key findings:

- Canada and Mexico are the primary trading partners for imports and exports by all measures.
- For the EUP, Canada represents 77% of *import tonnage* but only 39% of *import value*.
- For the EUP, Canada represents 97% of *export tonnage*, and 68% of *export value*.
- By value, *imports* are projected to increase substantially from all regions, with Eastern Asia (98%) and Mexico (74%) representing dramatic gains.
- By value, *exports* are also projected to increase substantially from all regions, with Europe (149%), Eastern Asia (135%) and Mexico (66%) representing dramatic gains.

Figure 3.13 Import Tonnage, Canada (2015-2030)

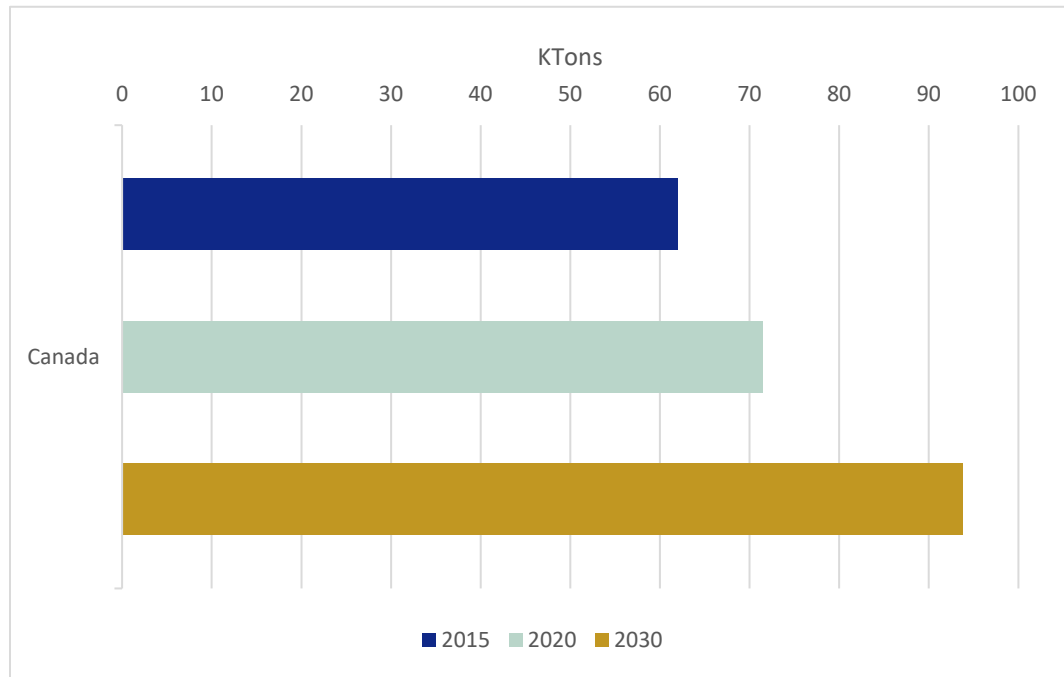


Figure 3.14 Import Tonnage, by Origin Region and Year

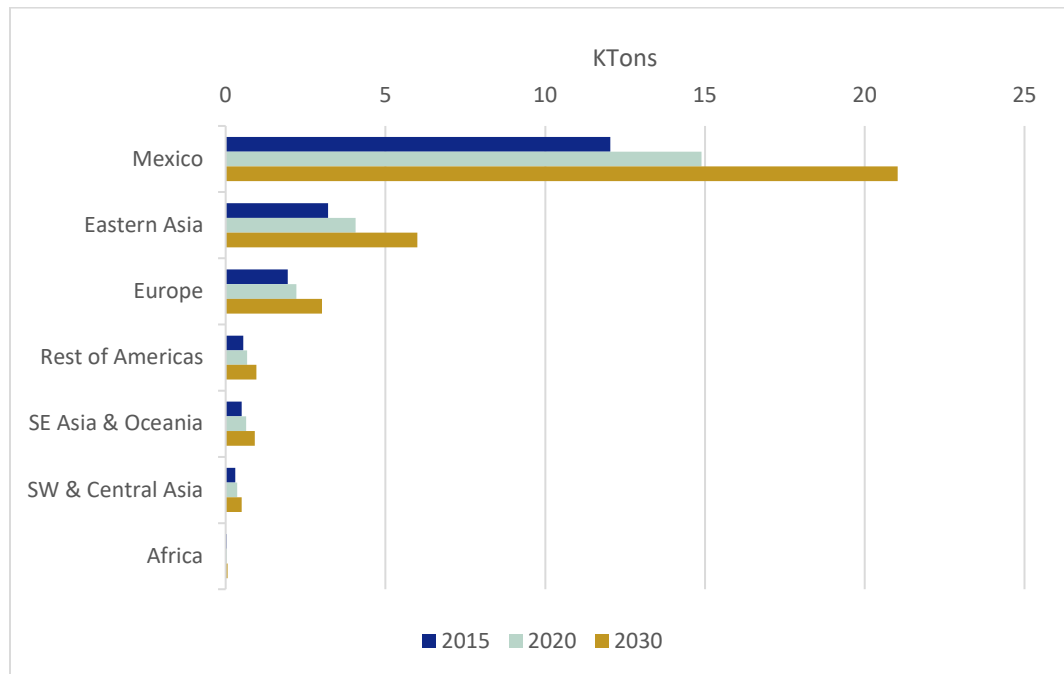


Figure 3.15 Import Value, Canada (2015-2030)

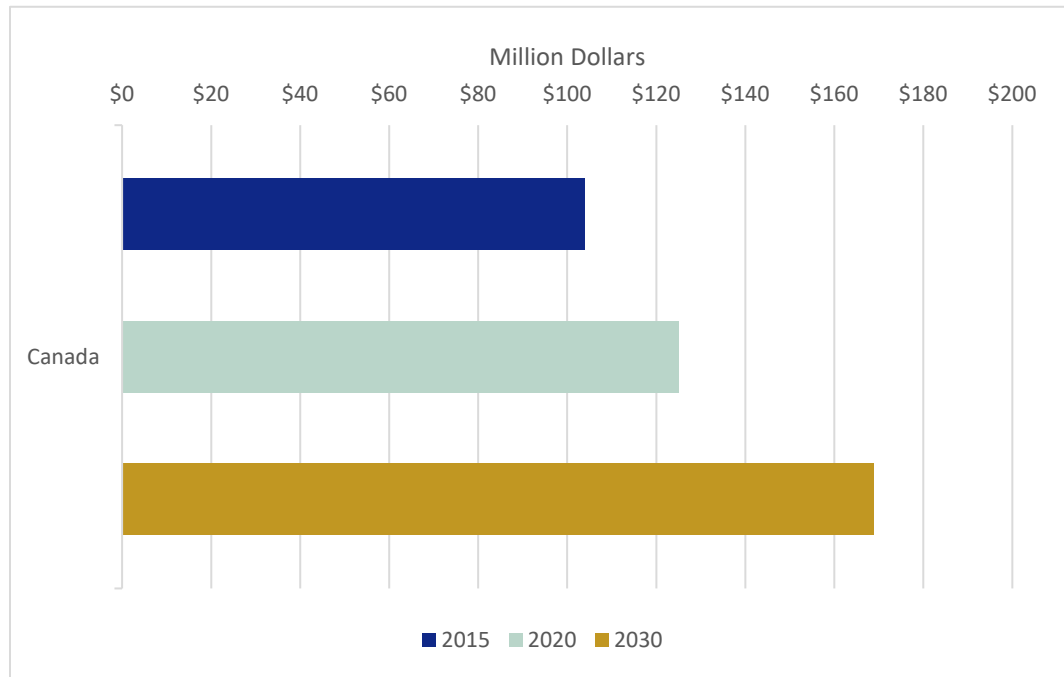


Figure 3.16 Import Value, by Origin Region and Year

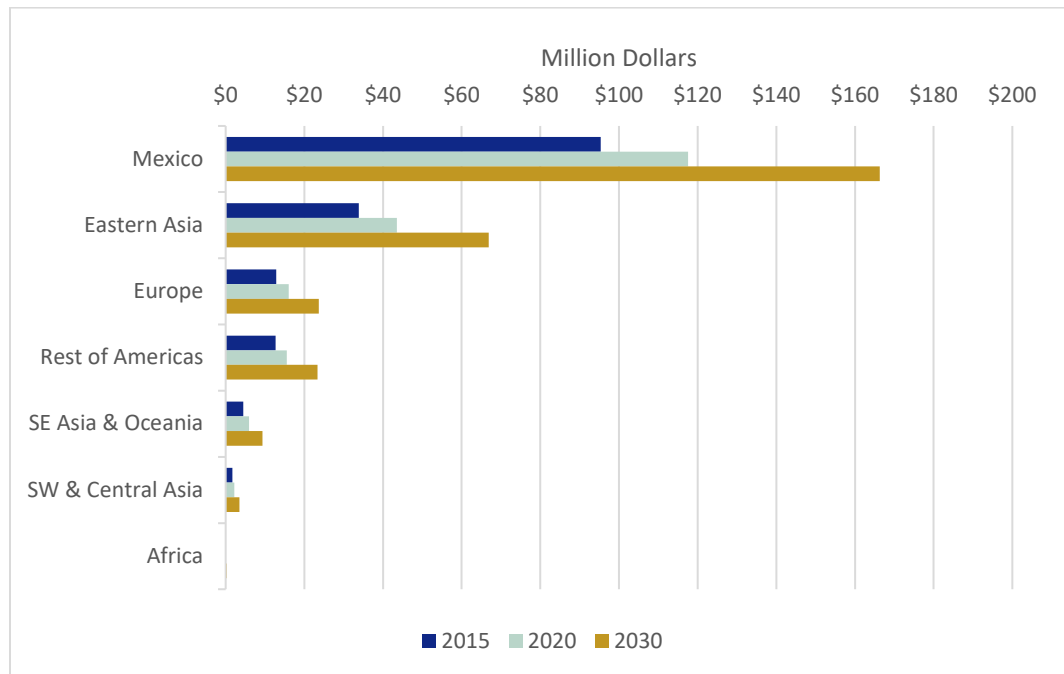


Figure 3.17 Export Tonnage, Canada (2015-2030)

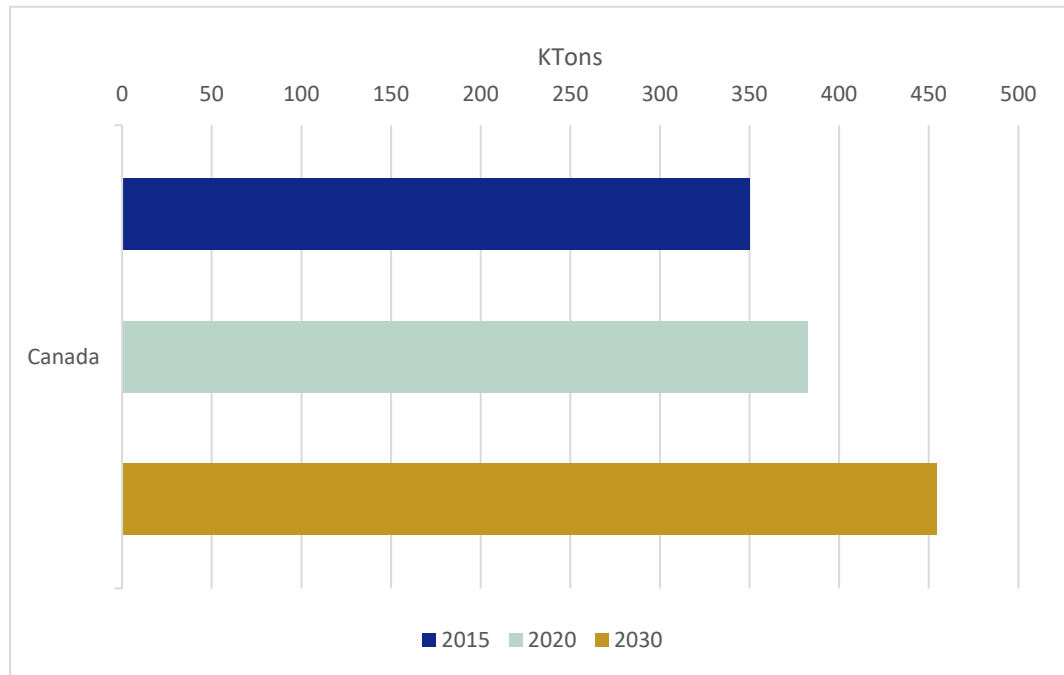


Figure 3.18 Export Tonnage, by Destination Region and Year

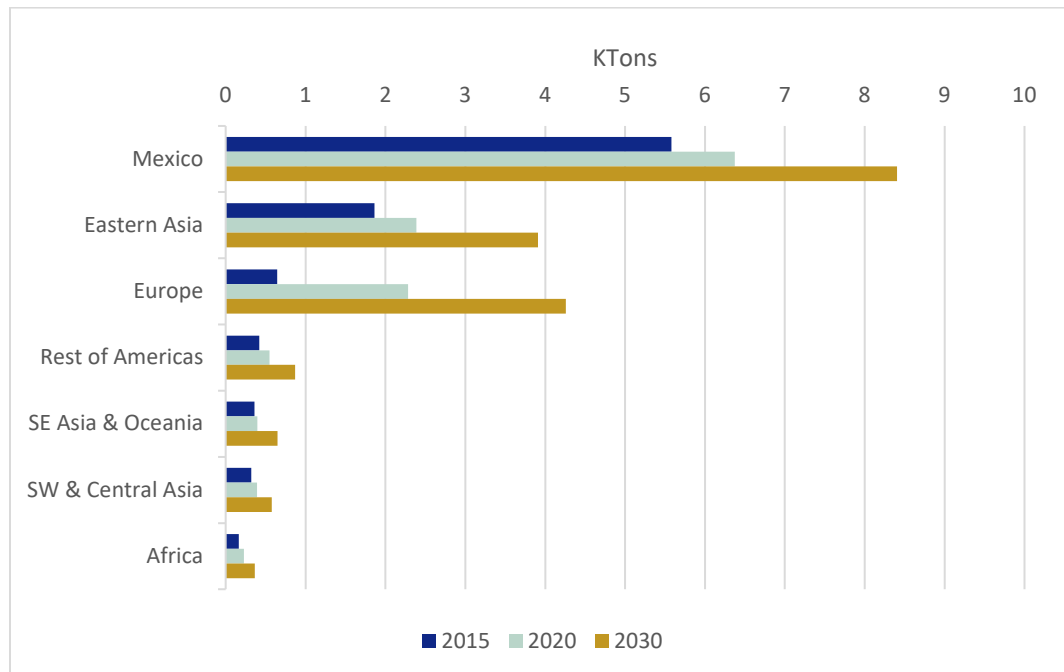


Figure 3.19 Export Value, Canada (2015-2030)

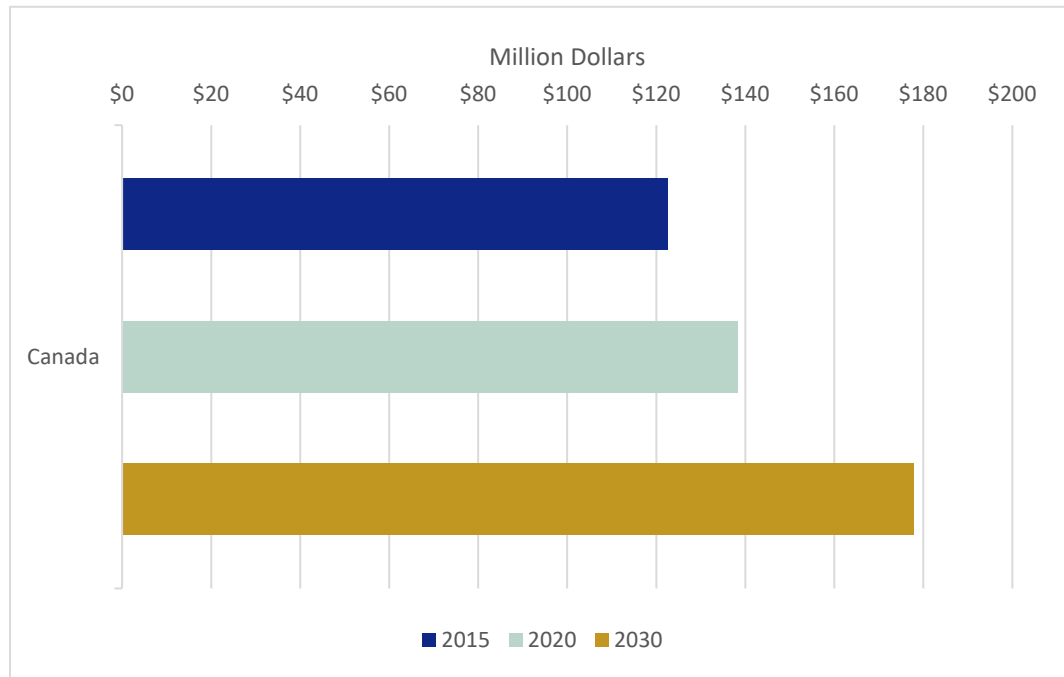
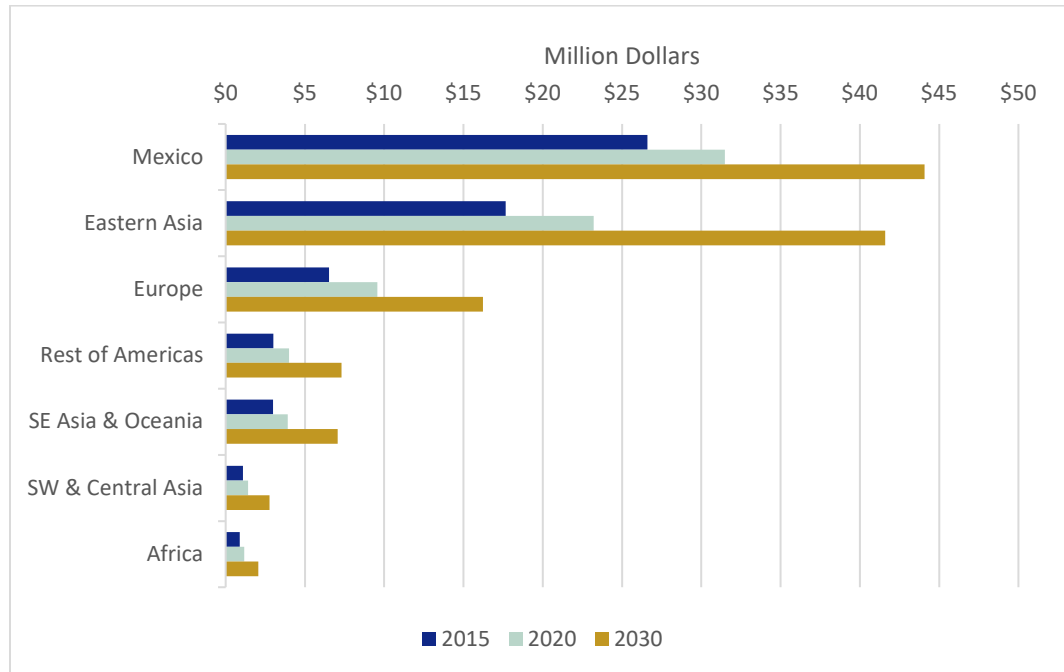


Figure 3.20 Export Value, by Destination Region and Year



3.4 EMERGING TRENDS

Logistics and Supply Chain Management Trends

There are several logistics trends that currently and could potentially impact the EUP. Those are described below.

Electronic Logging - Including Canada - Recent U.S. Federal legislation requires most carriers and drivers to comply with an electronic logging device (ELD) rule to maintain detailed hours-of-service (HOS) records. The rule also applies to drivers domiciled in Canada and Mexico, barring exception. According to the Federal Motor Carrier Safety Administration, “this allows easier, more accurate HOS recordkeeping. An ELD monitors a vehicle’s engine to capture data on whether the engine is running, whether the vehicle is moving, miles driven, and duration of engine operation (engine hours).” From a practical implementation perspective, ELD reinforce HOS regulations, and translate to limited flexibility for drivers and carriers in terms of trip length, hours of service windows, and distance that a driver can cover within daily service windows.

Automation in the Supply Chain Facilities - Automation is already well-established in many logistics freight management centers around the world, but the use of advanced technology has largely been limited to distribution center operations in the preserve of corporate giants that are able to build purpose-designed automated warehouses. The situation is changing as more and more manufacturers and distributors are able to utilize warehouse robotics solutions due to cost reduction, higher levels of acceptance and increased requirements for cost and operational efficiency.

An important tipping point in the warehouse robotics trend will arrive when technology vendors master the art of true robotic picking, where robots are able to pick orders from conventional racking. Currently, trends in robotic picking are related to systems which bring goods to the picker, requiring a considerable amount of specialized racking and conveyance equipment.

Examples of innovation:

Climbing Robots in France: A French robotics company has developed a warehouse robot that can actually climb warehouse racks to pick from any level, then transition to surface transportation to carry orders to human workers. Capable of picking up to 400 orders in an hour, the robots are already in operation with one French online retailer.

Swarming Robots in England: An ecommerce grocery chain brought a new automated warehouse into full service this year. The warehouse has no aisles and every inch of floor-space is filled to just below ceiling height with inventory. A swarm of hundreds of robots works above the stacks of inventory, digging down to grab boxes and carry them to the minimal human workforce, which then packs the groceries for home delivery.

Autonomous Road Transportation - Autonomous truck development has been a trend that's grown very quickly over the last few years. With Uber subsidiary Otto, Anheuser Busch has demonstrated that it can haul a full load of finished goods point-to-point. Volvo recently unveiled a new prototype autonomous truck in Beijing, China, and in the United States, a company called Embark Trucks is testing driverless technology while hauling refrigerators on a 650-mile route along low-volume highways between Texas and California.

Rising Appeal of Supply Chain Social Responsibility - Sustainability, carbon footprint reduction, and supply chain transparency have, over the last several years, merged and morphed into what we now like to call corporate social responsibility. CSR is being regarded less as a compliance-related necessity, and more as an approach to increase revenue, secure customer and employee retention and generate brand appeal. Driven by positive motivational factors and aided by a growing base of specialist service providers, many more supply chain and logistics organizations will integrate CSR into their strategies over the course of the next few years

Social responsibility continues to gain momentum in supply chain organizations as 2017 draws toward the end of its final quarter. Some companies that have been recognized for supply chain social responsibility initiatives this year include:

- PepsiCo: Ramped up sustainability initiatives in the supply chain, including water and carbon reduction
- Walmart: Launched Project Gigaton, a greenhouse gas reduction program involving suppliers
- Dell: Launched a wide-ranging CSR initiative called 2020 Legacy of Good, which among other things, seeks to achieve global supply chain responsibility

Improvements to the Last Mile - The most cost-intensive part of the supply chain is the final leg of the delivery. Quite a lot of attention is being paid to last mile efficiencies due to the explosion in ecommerce/omni-channel retail which has increased both the demand for last-mile resources. Over the next few years, there will be a rise of specialized last-mile fulfillment service providers, as shippers seek alternatives to parcel carrier services or in-house distribution fleet ownership.

We may for example, see growth in solutions such as locally situated public "smart lockers" into which deliveries can be made for later collection by consumers, and which may also help to streamline the process of returns, which continue to grow in volume as a result of changes in shopping habits.

Rise of the Virtual Logistics Team - The concept of remote working and virtual teams has become pervasive across many commercial sectors, enabling companies to access talent globally rather than locally and to cut down on travel expenses and property needs. Many larger companies which once had planners located in each distribution center have made the shift to centralized planning.

Hyper-Local Supply Chains - Expect more focus on made in the USA, locally sourced/produced/designed goods and products made/marketed for specific cities and regions. Customers want to know where their products came from in addition to getting them delivered same day. Hyper-local and getting products closer to customers will be the key to faster, cheaper delivery times.

Interconnected IT - The internet of things is a technology mainly used to enable machine-to-machine communication and improve shipping efficiency, but, IoT is expected to play a bigger role in the future of logistics in and increase speed, reduce waste and decrease overall costs. Many believe that IoT will enable communication with other new technologies, such as AIDC (Automatic Identification and Data Capture,) RFID (Radio Frequency Identification,) or Bluetooth to identify elements that need to change according to demands of companies and customers.

4.0 Feasibility Summary

The objective of this task is to conduct an analysis of the competitiveness of the EUP for current and future industry opportunities, taking into account the unique features of the region, including its workforce, its location and connections to other markets, and other aspects that influence potential development in the region.

4.1 POTENTIAL GROWTH OPPORTUNITIES AND MARKERS

Current Establishments

To provide a baseline, the team inventoried existing establishments in Sault Ste. Marie, Michigan and Sault Ste. Marie, Ontario for NAICS two-digit categories that are involved in some component of the regional freight system. The categories include Agriculture, Forestry, & Fishing (NAICS 01-09), Mining (NAICS 10-14), Construction (NAICS 15-17), Manufacturing (NAICS 20-39), Transportation & Warehousing (NAICS 40-49), Wholesale & Distribution (NAICS 50-51), and Retail Trade (NAICS 52-59).

Figure 4.1 (Sault, Michigan) and Figure 4.3 (Sault, Ontario) display employment by establishment for each sector, while Figure 4.2 (Sault, Michigan) and Figure 4.4 (Sault, Ontario) represent 2016 sales volume by establishment for each sector. The data indicate that retail dominates employment and sales on both sides of the border. In Sault Michigan, wholesale and distribution represent a large volume as sales as well. Interestingly, manufacturing represents the fourth-highest employment in Michigan, but the second-highest in Ontario. Conversely, Michigan employs nearly three-fold of Ontario in wholesale & distribution. More than twice as many employees work in manufacturing in Ontario than Michigan. Agriculture, mining and construction comprise about 8% of freight-related employment in Michigan; and the same categories represent 11% of employment in Ontario.

Figure 4.1 Sault, Michigan Establishments by Employment and Category

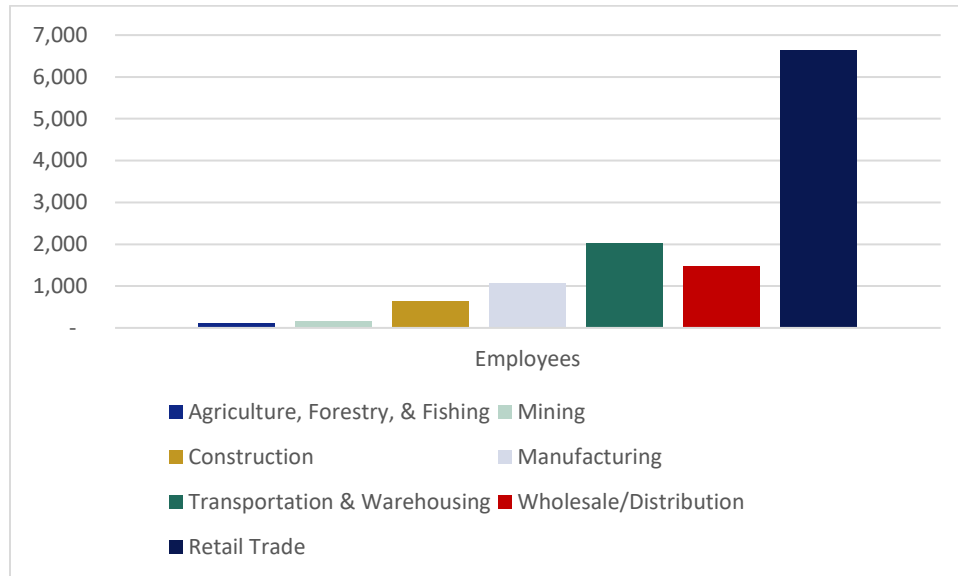


Figure 4.2 Sault, Michigan Establishments by Sales and Category



Figure 4.3 Sault, Ontario Establishments by Employment and Category

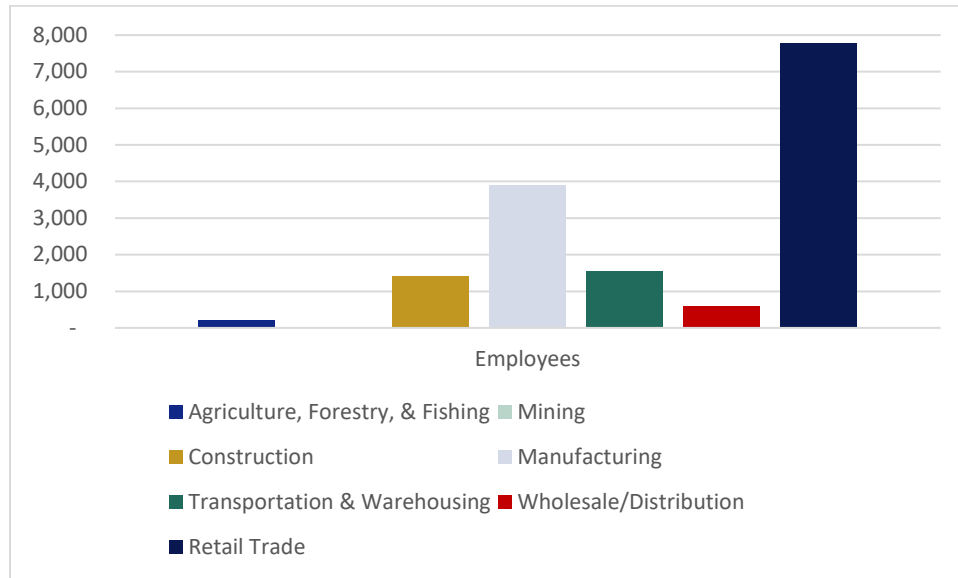


Figure 4.4 Sault, Ontario Establishments by Sales and Category



Investment

At the outset of the study, a great deal of stakeholder interest surrounded expansion of the warehousing and distribution sector. In the course of its work, the team developed a wider perspective on potential investment for the region. In addition to the warehouse and distribution sector, several other sector targets were identified as meaningfully appropriate, given the special advantage offered by close access to natural material feedstocks and the Port of Algoma.

Generally, an increase in warehouse and distribution sector would come from significant demand of some sort. This could mean a rapid influx of new residents or shift in age or demographics, a change in the regional businesses, or other types of surges to the regional economy. In the EUP, none of these phenomena appear to be happening, as population has slightly decreased over the past several years, and the number and make-up of businesses has remained relatively consistent. The region is also not proximate to large-scale consumer bases that would cause such demand. The remainder of this section discusses the trends in the warehouse and distribution sector, as well as two possible industry targets based on existing raw goods availability: specialty lumber manufacturing, and steel. Lastly, the section discusses opportunities to build upon cold weather testing facilities.

Understanding the Warehouse and Distribution Sector

As manufacturers become more focused on reducing costs, increasing customer satisfaction, and optimizing their supply chain to resources, suppliers and customers, they are paying much more attention to the number and location of their distribution facilities and the functions they perform. Physical distribution involves a spectrum of activities involved in the movement of goods from points of production to final points of sale and consumption. Physical distribution is comprised of the functions of movement & handling of goods, specifically transportation services (trucking, freight rail, air freight, inland waterways, marine shipping, and pipelines) and transshipment and warehousing services (consignment, storage, inventory management). Distribution activities are classified in under NAICS 493100 - Warehousing and Storage.

Distribution centers are the main facilities from which most logistics are coordinated and these assets include a facility or a group of facilities that perform consolidation, warehousing, packaging, decomposition and other functions linked with handling freight. Their main purpose is to provide value-added services to freight, which is generally stored for relatively short periods of time. DCs are often in proximity to major transport routes or terminals.

DCs or their variations can also perform light manufacturing activities such as assembly, kitting, labeling or packaging. In contrast, a warehouse is a facility designed to store goods for longer periods of time. Distribution centers tends to focus on the demand requirements while a warehouse is generally driven by supply considerations.

Today, technology is the driving force behind growth, development, and increased productivity around the world and in the distribution and logistics industries. Technology has produced a wide range of innovations, including barcode scanning, automated storage and retrieval systems, state-of-the-art material handling equipment, computerized freight tracking, voice recognition and advanced communications systems, and the automated purchasing, production and sales systems that support just-in-time inventories and distribution.

The location goal of most warehouse/distribution/logistics centers is to select a site that offers the lowest possible transportation costs with the easiest access to the greatest number of customers. The location process typically used in the selection of an appropriate site takes into consideration the products for which a distribution facility is desired; the market area or areas that are to be served and the degree of market penetration necessary. Just-in-time has increased significantly the importance of being within a day's travel time (500-mile maximum) of suppliers and customers.

There are a variety of company structures that comprise the distribution sector. Distribution operations serve both retail and wholesale supply chain support functions. Many DCs are operated directly by or for retailers (or wholesalers), while others are operated by outsourced logistics firms. These third-party firms will generally operate facilities and in some cases, they will also perform other logistics functions such as transportation planning, transport carriage and as mentioned above, some manufacturing functions.

Transportation Requirements

Interstate, highway, and truck access are critical for the delivery of raw materials, supplies and other input materials in the distribution of products. Distribution-related operations seek locations with access via truck routes on an interstate, limited access or other 4-lane highway, and they should be within 15 miles of an interchange of these types of roadways. Access routes must be designated for travel by 53' trucks. Travel to the highway should avoid congested commercial, retail, or residential routes. The site should have dual road access and separate auto and truck access points or entrances, and at least one traffic light should control ingress and egress to the site. Major highway visibility can be a plus.

Rail service is important for some operations. The growth of intermodal service, i.e., containers and truck trailers carried on trains over long distances, has meant additional options for cost conscious shippers as fewer distribution centers are needed to cover much larger areas. Therefore, sites served by rail, or in close proximity to rail that have the capability of access by a spur, have a competitive advantage.

Air transportation is more important for some users than for others. It is especially critical for operations handling products with a limited shelf life that are needed by just-in-time manufacturers, such as pharmaceutical companies. Air service is

also used by operations that handle products of limited weight and whose shipping costs are relatively low. Surface access within 60 minutes to a commercial airport with jet service is preferred.

For projects involving water-based shipping, there should be direct access to a navigable waterway or express access to a coastal port within 240 miles.

Proximity of Support Facilities

Warehouse/Distribution/Logistics centers prefer locations with proximity to trucking companies, truck mechanics, and other service providers; technology, computer, and telecom specialists; temporary staffing services; office and industrial supply warehouses; and courier services.

Competition/Sector Evolution

Increasingly, distribution operations are being outsourced to third-party logistics management firms. This trend is significant, with 3PL outsourcing growing by up to 20% annually (depending on specific area). Many retailers and manufacturers have found that logistics and inventory management is outside of their core competency and they have integrated purchasing and production management with outside firms that handle transportation and inventory.

Globally and especially over the past three years there has been a trend for third-party logistics firms to purchase or merge with other third-party logistics firms. These transactions have allowed firms to grow in size and geographic coverage. These combinations have also provided substantial levels of synergy and efficiency that are allowing some of these larger outsourced logistics firms to provide services beyond their historic core service offerings.

As technology advances, third-party warehousing and logistics providers are increasingly able to offer services beyond basic storage. These value-added services include cross-docking, precise inventory management, advanced labelling and ticketing, and even order fulfilment and shipping. It is increasingly likely that many of the global 3PL companies will offer a range of value-add services to their clients.

Location Issues

By definition, distribution centers are a critical component of the national logistics apparatus. With that, DCs play very different kinds of roles. Some DCs serve small radius catchment areas, while other DCs serve wider regional markets. Most distribution centers in the US are served by motor carriers for both inbound and outbound movements and because of this most DCs locate in close proximity to major highways.

Due to a range of issues, the distribution sector has changed and is continuing to evolve quite rapidly. The following factors are some of the key issues driving the future of distribution in the US:

- Large vessels calling on fewer seaports - Increasingly trans-oceanic maritime transport is fueled by larger container ships and the newest generation of mega-vessels are calling on only the major load center seaports. This dynamic has implications for distribution as cargo is being unloaded in larger “batches” and needing transport to market regions.
- Locations - Warehouses are now more frequently located in urban areas, such as California’s Inland Empire region, due to proximity to ports as well as to an urban population that can provide a supply of seasonal workers during the September to December holiday season.
- Ecommerce - Has changed the underlying fabric of the nation’s distribution network and has fueled the majority of new DC construction in recent years. The rapid evolution in the B2C ecommerce business model is causing more and smaller facilities closer to consumption markets.
- Nearshoring manufacturing to Mexico - At the expense of imports from China, Mexico has become an increasing manufacturing power. This fundamentally is changing the flow of raw inputs and finished product outputs. Due to this dynamic, logistics patterns have incrementally shifted from heavy import loads on the West Coast at a few seaports to increasing north-south traffic along the US-Mexico border.
- Reliability challenges - A range of extraordinary events have caused structural shifts in the overall logistics system and this is effecting the distribution sector quite significantly. Labor strikes and disruptions at major seaports caused companies to revise their logistics planning - and therefore their domestic supply chain/distribution points.
- Increased integration between manufacturing and logistics operations - With the amount of analytics and agile information being employed by manufacturing plants today, there is increased evidence that manufacturers are becoming very intelligent in using data to drive logistics operations both inbound and outbound and fewer products are going to DCs and instead are moving directly to consumers and users.

Specialty Manufacturing - Lumber

Capitalizing on Forest Products Sector Potential

In reviewing existing economic sector value-added opportunities in the EUP, the wood products industry stands out for (1) its large raw material base and (2) its very high commodity flows out of state with very low value creation for the economy. To create more value in the economy, the EUP for several years has identified the diversification of the Forest/Wood Products industries as a priority, based on the opinion that this unique natural resource has been underutilized and that its potential for greater wealth generation has been unrealized.

To begin the process of evaluating and identifying opportunities in the value-added wood processing industry in the EUP, it is instructive to understand the strength of the raw material base in Michigan and the EUP as well as the existing industry base and the products that are currently being produced.

The Michigan Forest Resource Alliance reports that:

- Michigan forests are growing 2.5 times more timber than is being harvested each year
- Forests are a major feature in Michigan's landscape, covering more than 52% of the state
- Michigan public forest ownership includes 3 national forests and boasts the nation's largest state forest system which accounts for 6.5 million acres
- Michigan industry forest ownership is over 2 million acres
- Michigan private forest ownership accounts for 10.5 million acres, representing approx. 55% of Michigan's total forests. These private parcels are generally less than 100 acres
- Most Michigan private forests produce one half or less than their potential
- 19 million acres of forest land contribute directly to Michigan's economy through timber production which is marketed through the forest products industry
- More than 100 different species of trees grow in Michigan
- Michigan timber products include Christmas trees, logs for lumber, pulpwood for the paper industry, and raw materials for post, piling and the home building industry.

As we evaluated opportunities, we conducted interviews by phone with businesses and took advantage of existing industry research available from leading authorities in wood products manufacturing. We have learned that there is tremendous competition in this industry as many geographical areas/states in the United States have vast resources of raw timber stock and are all looking for ways to monetize these resources to create economic opportunities in areas that are currently not experiencing job and economic growth.

There are some exciting potential opportunities in the enhancement of value-added (secondary) wood manufacturing. But there is competition from other areas of the country and these opportunities will require a commitment by both the region and the state to follow the industry closely, develop a strategy and adopt policies and initiatives that could support the growth of these industry opportunities

Opportunities:

- ✓ **Pressure Treated Lumber**

- ✓ **Wood Thermal Insulation**
- ✓ **Mass Timber Production**
 - **Glulam and CLT**

Pressure Treated Lumber

Pressure treated lumber is wood which has been surface coated (non-pressure treated wood), where the application of preservative is by brushing, spraying or dipping the piece. Pressure treatment is a process that forces chemical preservatives into the wood. The lumber is placed inside a closed cylinder, the vacuum and pressure are applied to force the preservatives into the wood. The preservatives help protect the wood from attack by termites, other insects and fungal decay. Preservative treatment processes do not alter the basic characteristics of the wood but provide a much-improved service life for wood building materials in severe weather conditions.

The wood used in the pressure treated process comes from a saw mill and there are numerous active chemicals used to treat the wood. The list of approved chemicals for preserving residential lumber in the United States includes: ACQ, borates, copper azole, copper aphthenate, copper-HDQ and colymeric betaine. Of these chemicals, ACQ is currently the most widely used wood preservative for residential applications. ACQ is a water-base preservative that prevents decay from fungi and insects. It also has relatively low risks based on its components of copper oxide and quaternary ammonium compounds.

Treated wood is sourced for retail, residential or industrial construction including maritime applications, and for agriculture use. Industrial uses include railroad ties and telephone/hydro poles. Pressure treated lumber for retail is delivered from lumber yards by either big box stores or through local businesses.

In speaking to a wood manufacturer, based upon the market demand the investment cost for an initial entry into this business with no land acquisition costs would be \$3-\$5 million and could employ up to 8 full time employees.

Wood Thermal Insulation

Currently there are very few manufacturers of wood based thermal insulation in North America as its use has not been widely adopted in North America. In Europe, it has gained acceptance as it is cost effective where energy prices are high and the use of it can reduce energy consumption.

This product, if adopted into North America, would be a disruptor to the traditional fiberglass insulation that is currently found in the marketplace. However, it is not unreasonable to assume that with the eco-friendly movement and the consumer's interest in green products that in time this product could find its way into the market. In fact, several European manufacturers have been quoted as saying that they are currently evaluating the prime US West Coast markets as investment locations as eco-friendly product acceptance is high on that coast.

There are two processes for creating wood fiber insulation. The wet process insulation is that chips and shavings from typically spruce and fir are retrieved as waste from the manufacture of other wood products.

- The chips are ground down into wood fiber pulp
- The pulp is mixed with water and paraffin or latex added as a binder
- The mix is pumped into a forming box as a continuous fiber mat
- About half the water is removed through pressing and vacuum pumping
- The board material is dried in an air drier
- The boards are cut to size and the edges milled
- These sheets are about 0.975 inches, but thicker sections can be built-up by gluing together sheets with white glue.
- The dry process is somewhat similar but without the use of water.
- Waste chips and shavings are retrieved from other timber manufacturing processes
- The fibers are sprayed with paraffin
- The fibers are sprayed with polyurethane as a binder
- The fiber mats are placed in a unit where the resin is cured and hardened

This is definitely a product for the future but with the massive timber resources in both the EUP and Michigan, it is an opportunity that should be followed closely. We would also recommend that connections be made to European manufacturers, such as Steico and Gutex in Germany, so that the EUP is considered when these manufacturers start to look at investing in a North American facility.

Mass Timber Production

Glulam (glue laminated timber) and CLT (cross laminated timber) are separate products but a manufacturer of CLT can produce glulam at a small additional cost as the equipment and expertise to make the product is already in place, therefore we are treating them as one opportunity.

Glulam is a structural timber product that is manufactured by gluing together individual pieces of dimension lumber under very controlled conditions. The qualities of this wood product account for its use as an attractive architectural building material and its exterior weather-exposed applications. However, it is important to note that modern building codes are quite specific on the quality of these structures.

In the manufacture of glulam the wood pieces are end jointed and arranged in horizontal layers to form a beam. The lumber used for the manufacture of glulam is a special grade (lamstock) which is purchased directly from lumber mills. Most of the time these beams are meant to be exposed and that is the reason that the

lamstock is selected because of its qualities and esthetics. It is also desired for its strength to weight ratio being two-thirds the weight of steel and only 1/6th the weight of concrete.

As the world moves towards the all wood construction of tall buildings the glulam product will be integrated along with other mass timber panelized products into prefabricated building systems.

Cross Laminated Timber (CLT)

CLTs are large engineered wood panels that are manufactured by cross laminating lumber with adhesives or fasteners. Because of CLT's structural properties and dimensional stability, the product is well suited to floors, walls and roofs and is economically competitive as a structural framing product for multi-story, even high-rise building construction: a market previously dominated by concrete and steel. The panels are used as prefabricated building components which can speed up construction practices or allow for off-site construction in remote locations.

CLT has gained traction since 2000 in the emerging green market movement. While cost will continue to be the driver in the adoption of the CLT product, the environmental advantages of mass timber over steel or concrete are significant. It has been suggested that the carbon footprint offered by mass timber is smaller than that of similar building materials of equal strength/weight characteristics. Thus, engineered wood products offer a strong combination of environmental performance and sustainability, design flexibility, cost competitiveness and structural integrity.

To date in North America, customers who would consider using CLT are developers building mid-to-high rise industrial complex because the economics do not work for smaller structures. In Europe however, where the market was established in the late 1980's, companies are moving into multi-family dwellings because this type of development is increasing. Economies of scale in the cost of CLT can be realized in multiple dwellings over a single-family dwelling.

Global supply of this product has been dominated by European suppliers. Some of this dominance is the result of European universities with strong capabilities in wood engineering producing graduates to move the industry forward. And even today the European companies are claiming that they will continue to control the CLT market in the US because of the high U.S. dollar and the continued pressure on Canadian suppliers because of the softwood lumber trade dispute.

However, CLT products are poised to expand tremendously. It is not unrealistic to assume that the North American market growth could outpace the growth in CLT use globally. At the Governor's 2015 Forest Products Summit, CLT and mass timber production were highlighted as potential products for Michigan's future.

The next step would be to conduct a round of research to provide a realistic assessment of CLT's market potential in the EUP, identify the barriers to entry,

and create a value proposition that would provide tangible and actionable outcomes to grow and strengthen this industry and the EUP economy.

Specialty Metal Manufacturing - Steel

The steel industry has a strong presence directly adjacent to the EUP. Sault Ste. Marie, Ontario, is the home of Algoma Steel, which is a fully integrated steel producer offering high strength steels for demanding applications. They offer a wide range of hot and cold rolled steel sheet and plate products for the following industries:

- ✓ **Automotive**
- ✓ **Construction**
- ✓ **Infrastructure**
- ✓ **Energy**
- ✓ **Defense**
- ✓ **Transportation (rail cars and shipbuilding)**
- ✓ **Manufacturing**

Algoma Steel is served by the Port of Algoma which is strategically located on the St. Mary's River at the tip of Lake Superior, an integral part of the Great Lakes St. Lawrence Seaway System. The location is a key point of connection between Lake Superior, Lake Huron and Lake Michigan. The port is situated in the heart of the North American continent on the Canada-U.S. border making it a globally competitive location that provides direct access to many international markets.

Sault Ste. Marie, Michigan, with its direct transportation connectivity to the Algoma Steel plant, has an opportunity to attract the investment of metal manufacturing firms to the EUP to take advantage of this rich raw material as well as the locational advantages of its excellent business climate.

According to the United States Department of Labor, metal manufacturing is the process of transforming raw metallic material into products partially or wholly comprised of metal. The industry involves the production of metal for use in a variety of other industries. Metal is used to make machines and structures and is widely used in the building industry for developing structural frames. Metal products are also used for automotive parts and equipment, weaponry and surgical equipment.

Common metal components include sheet metal, structural steel, tube stock, casting, hardware and welding wire. Metal industry companies can be grouped either on the fabrication side (where metal preparation and assembly is carried out) and/or the machine manufacturing side (where metal is used to produce machine tools). Metal manufacturing is a specialized process using both manual and automated labor, necessitating a high level of security in processes such as torching, cutting, sawing, welding and shearing.

So, in short, the general term 'metal manufacturing' accounts for hundreds of industries that involve some type of manufactured metal, depending on the type of metal and the type of construction activity being performed.

Metal manufacturing is predominantly located in the Great Lakes region where coal, iron ore and copper are most plentiful and the water system serves as a useful transportation network for heavy loads. The region also accounts for approximately 48.3 percent of the Iron and Steel Manufacturing industry in the U.S. Within this region, Indiana produces 29 percent of the iron and steel, and Ohio produces 10 percent.

The global economic crisis in 2008 caused revenue in Iron and Steel Manufacturing to drop 43.8 percent by 2009. This was largely associated with a loss in revenue from the construction and automotive manufacturing industries, which were crucial buying industries for metal manufacturing, especially steel and iron.

In 2009, the recession slowed the growth of these industries, which led to a significant decline in revenue. However, demand has dramatically improved and is rising as the automotive, electrical and construction industries have rebounded after the economic downturn. Current challenges to the metal manufacturing industry include less expensive imports and fluctuating prices of aluminum and steel.

Site Requirements

Metal manufacturing site requirements depend on a number of factors, including the type of manufacturing facility and size of the company.

Based on interviews conducted with metal manufacturers, larger companies with an expansive customer base tend to transport manufactured products locally, nationally, and in some cases internationally. For instance, Pacific Metal is an Oregon metal distributor that transports over 85,000 different products globally. The company has over 25 plants but only two are located in Oregon. For these specific sites, interstate access is a key component to manufacturing operations.

Transportation logistics are also important to the metal manufacturing industry. Interviews conducted noted that a rail connection is presently not a primary concern, but access to interstate is vital for local businesses. However, this is dependent on the location of customers and whether they were most accessible via interstate. This presumes that if the location of rail connections was more conducive to the customer-base, and less conducive for interstate, rail connection would be favorable.

The type of manufacturing facility determines the needs for natural resource requirements, including access to natural resources (water, natural gas for heating and cooling, and electricity). Based on interviews these site requirements are important but state and local regulations for the use of natural resources, especially the consumption of water, are the most important factors impacting operating costs in metal manufacturing.

Next steps would involve staying informed about existing and future advancements in the metal manufacturing industry. Metal manufacturing market research will provide awareness of emerging opportunities, changing market demands for products, materials and emerging technology.

Another valuable course of action would be to partner and collaborate with the Sault Ste. Marie Ontario EDC to develop a strong value proposition to attract metal manufacturers to invest in a binational region

Cold Weather Testing Opportunities

The EUP currently hosts two major cold weather testing facilities: GM's proprietary facility at Chippewa County Airport and Smithers Winter Test Center in Racoon, MI, about 25 miles south of Sault-Ste Marie. Both of these facilities provide an ideal environment for testing and conducting performance evaluations on vehicles, tires and components under the special challenges of extreme cold and hazardous road conditions.

The Smithers facility is owned by the Ohio-based Smithers Group which is a rubber, plastics, and polymer testing firm that works with clients in the energy, healthcare, medical, transportation, consumer products, and the auto industries. Because of confidentiality agreements, the test center can not disclose its clients but they can say that the center is used by vehicle, tire and component manufacturers from around the world, including OEMs based in Detroit.

The EUP has proven itself as excellent center for cold weather testing with guaranteed extreme temperature conditions, a sparsely populated region which ensures confidentiality, quality hotel accommodations, and good communication links to home offices.

As the technology in the auto industry rapidly changes there are new demands on the industry as well as the support system for the industry. The technology advances in propulsion, autonomy, information systems, and computing and processing power are creating new global centers of excellence in the industry and new global players.

As the largest global market, China will increasingly dominate the industry and will continue to invest in the United States. Even in the U.S., the auto technology explosion has created a second auto center of excellence in the Silicon Valley in California. But as the industry continues to grow there are a limited number of research, testing and manufacturing centers.

With the advent of autonomous vehicles technology, winter conditions will create challenges for autonomous vehicle operations. There will be many more technology applications to test which will be on-going as the technology continues to evolve.

We believe that this creates an opportunity for the cold weather testing industry to grow in the EUP, both with additional facilities and the inclusion of Lake

Superior State University is working with the industry on research projects related to cold weather testing. Component manufacturers, technology companies as well as OEMs will have an entirely new array of tests to perform as the autonomous cars are readied for the market.

The time to act is now. A working committee should be formed, a strategy developed and contacts made with both OEMs and suppliers to position the EUP for future testing opportunities.

One specific site for expanded automotive testing strategy consideration is the Continental Teves facility in Brimley near the intersection of M-28 and M-221 (Figure 4.5). Currently the site is used for testing tires, brake systems, and autonomous vehicle sensors, and has been in operation for over 20 years.

Figure 4.5 Continental Teves - Brimley



5.0 Positioning the EUP for the Future

From our review of the region's economic condition, its unique assets and competitiveness matching, we believe that the region could be competitive to sustain growth in some specialized investment areas. This growth would be enabled by capitalizing on a series of special economic characteristics and would be developed by building a larger-market platform developed from creating a fundamentally distinct binational delivery model.

Our analysis suggests that there are five focus areas where the EUP region should concentrate efforts to attract investment to the Sault International Investment District.

1. **Create a unique and specialized binational investment district** - Including the EUP region and the Sault Ste Marie, ON region, the District would be a specialized strategic rural NAFTA investment hub, which would promote binational border investment in a market that has been historically economically isolated and underdeveloped. This may be the first of its kind formal strategic border economic partnership in North America. Combined, the region can portray itself as a vital combined community with a series of key market attributes including:
 - A population of 100,000+ with a diversified and skilled labor force and consumption market which is categorized as a (lower tier) mid-sized market.
 - A region with a series of regional assets or advantages that distinguish it from an investor perspective, key objectives of the District would be:
 - Investment attraction coordination with an international seaport which is situated on the Great Lakes/St Lawrence Seaway System, providing inbound and outbound maritime service to large markets along the Seaway System and to global markets in Europe and South America. The Port of Algoma is privately owned and has developed substantial economic development relationships in Sault Ste Marie, ON.
 - Two comprehensive four-year universities which can form a custom skills development partner backbone; the attraction and retention of talent in region. Consideration should be given to provide special status encouragements to make the region uniquely attractive to prospective students, especially in key skill areas.
 - Financial incentives for investment in key infrastructure and for targeted sectors, special consideration for in-district investments

- Two regional commercial airports providing connecting service to international hubs in Toronto and Detroit; as a system, the assets can coordinate route service development, cargo development
 - With a combined labor base that rivals some larger US or Canadian Midwest communities, as a system the District can compete for projects that would be out of reach to the US-side on its own
 - With proximate access to valuable natural resources; forestry stocks, extraction minerals the District has the breadth to develop feedstock to manufacturing investment strategies
- Collaboration between regions, province/state and federal governments such that from an economic planning and development perspective.
2. **Focus on creating new property and infrastructure assets** – In order to attract investment in key sectors, it will be critical that risk capital has confidence in the market to support purpose-planned/built industrial assets. It will not be possible to attract investment in the target markets without modern, fit-for-purpose industrial property assets. We see the need for both development ready sites and vertical building assets that are advantageously located with access to key transport infrastructure (port, rail, road and potentially airport).
 3. **Investment Attraction – Steel Product Manufacturing** – Leveraging the District’s access to raw and semi-processed feedstocks, develop marketing and target-specific business development to key business category targets.
 4. **Investment Attraction – Wood Products Manufacturing** – Leveraging the District’s access to raw feedstocks, develop marketing and target-specific business targets.
 5. **Investment Attraction – Regional Distribution** – Focusing on the expanded binational consumption market, craft site and target category marketing for new consumer goods regional distribution investments.
 6. **Investment Attraction – Cold Weather Testing and Development** - Pursue specific CIU and other location development and investment attraction opportunities, specifically around expanded cold-weather and endurance testing and development facilities.

6.0 Implementation and Marketing Plan

The following represents a roster of recommended implementation tasks and business development strategies for the EUPRDC and its regional community and economic development partners.

- Develop foundational support from Government for the Sault International Investment District
 - Gain support regionally and at both State and Provincial levels for Sault International Investment District; including special legal status, joint governance structure and special incentives to businesses and for talent development and retention
 - Natural allies would be city/county partners, business representative/chamber/economic development organizations, educational leaders/universities, and business leaders
 - Following local and State support and commitment, it is important to engage both federal governments and request pilot joint federal economic zone status. This could include the following: alteration of border management practices, expanded work permission for both US and Canadian workers, streamlining for customs inspection, assignment of focused rural development funds.
- Focus on strategic property/infrastructure investment in the Sault International Investment District
 - To attract risk capital to support purpose-planned/built industrial assets, a special focus should be made to identify investment opportunities on both sides of the border
 - Create a range of sites/infrastructure that can offer the market a diverse set of products that can cater to the targeted areas
- Focus on user investing businesses: manufactured steel products, manufactured wood products, cold-weather testing, regional distribution
- Take marketing and target-specific business development forward
 - Develop brand awareness plan for the new investment district - this is new and different and would receive a lot of press attention across a range of news, trade journal and transportation & logistics audiences.

- Assign responsibility for local (US-side) joint business development strategy; common brand, product marketing and government policy and incentives supports
- Agree on responsibilities with allies for regional (binational) business development plan; mutual targets, brand, coordinated investment targeting
- Focus is on steel products manufacturing firms; component manufacturers in the following priority segments: industrial machinery, transport equipment, structural building products
- Focus is on secondary wood products manufacturing firms
- Focus is on cold weather testing users in target-specific sectors
- Focus is on creating site and investment opportunities for risk capital investors/property interests
- Coordinate a brand and product-specific plan with the State and regional economic development marketing organization
 - Establish the EUP as a strategic investment product for the entire UP
 - Establish the EUP as a strategic investment product for the Michigan Economic Development Corporation; rural, border/binational, portcentric emphasis