

Freight White Paper

Introduction

The [Michigan Freight Profile Report](#) from the 2035 MI Transportation Plan detailed the movement of freight by mode, using commodity tonnage and value statistics from 2009 sources. The report also presented several barriers that hinder the movement of freight and opportunities the state could take advantage of to facilitate the movement of goods. This white paper will update the tonnage and value statistics by mode with more recent source materials from 2013 and 2014, and will describe issues that each mode encounters and the strategies that the department is employing to alleviate such issues.

Statistics for tonnage and value movements are taken from the Transearch database, produced by IHS Global Insight. This data set includes county-to-county movements for all modes in 2013. The economy has rebounded over the last few years, and freight movements have started to increase again. The Transearch database includes forecasted freight movements to the year 2040, and all future year forecasts show increases in tonnage and value moved by all modes.

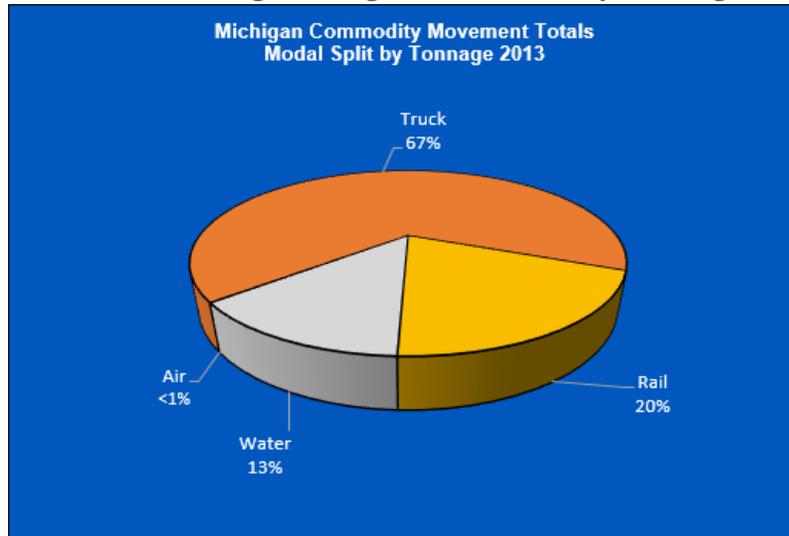
The major difference between this paper and the last report is base-year data used. The 2009 data used in the previous white paper detailed how hard Michigan manufacturing was hit by the recession. The automobile industry has made many gains in production, which helps the state's economy as a whole. This paper will describe the overall statewide totals, individual modal statistics, and cross-border international trade. Within each modal section, the issues and strategies will be detailed. Congress recently enacted the Fixing America's Surface Transportation (FAST) Act, and the conclusion will note how Michigan aims to comply with the provisions set forth in the act.

Statewide Totals

The tonnage moved throughout the state has increased substantially since 2009. The total tonnage moved to, from, within, and through Michigan in 2013 was more than 505 million tons. This is approximately 70 million tons more than 2009, an increase of 16 percent. The modal shares remained largely the same (Figure 1). While all modes saw an increase in overall tonnage, water increased the least relative to 2009, leading to a decrease in share from 14 percent to 13 percent. This was met by an increase in rail from 19 percent in 2009 to 20 percent in 2013.

The overall increase in freight tonnage is a direct result of the economy rebounding from the recession. Michigan lost nearly half of its manufacturing employment from 2000 to 2010, mostly in the automobile sector. Starting in 2010, the state has been slowly adding these jobs back. The [Bureau of Labor Statistics](#) shows a job growth from 2009 to 2014 of 24 percent in the manufacturing industry, including a 39 percent increase in the automobile manufacturing sector. Overall tonnage moving in Michigan is forecasted to increase about 80 percent by 2040, up to around 900 million tons.

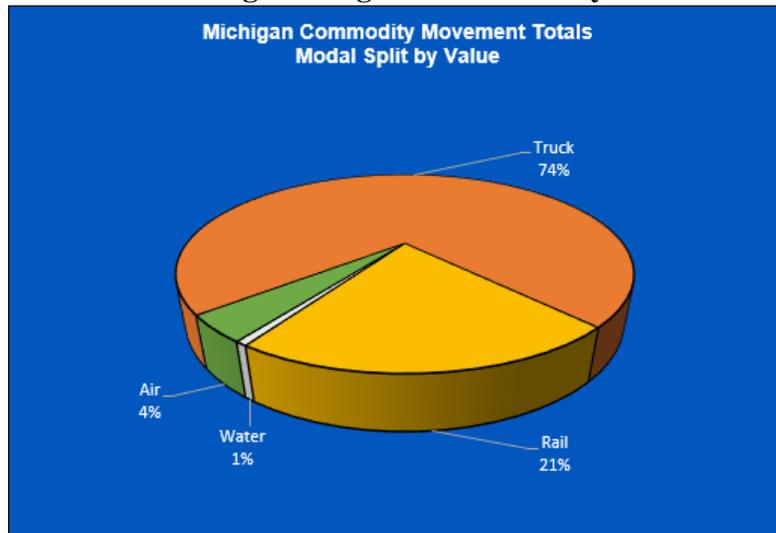
Figure 1: Mode Share of All Michigan Freight Movements by Tonnage 2013



Source: IHS Global Insight Transearch Database

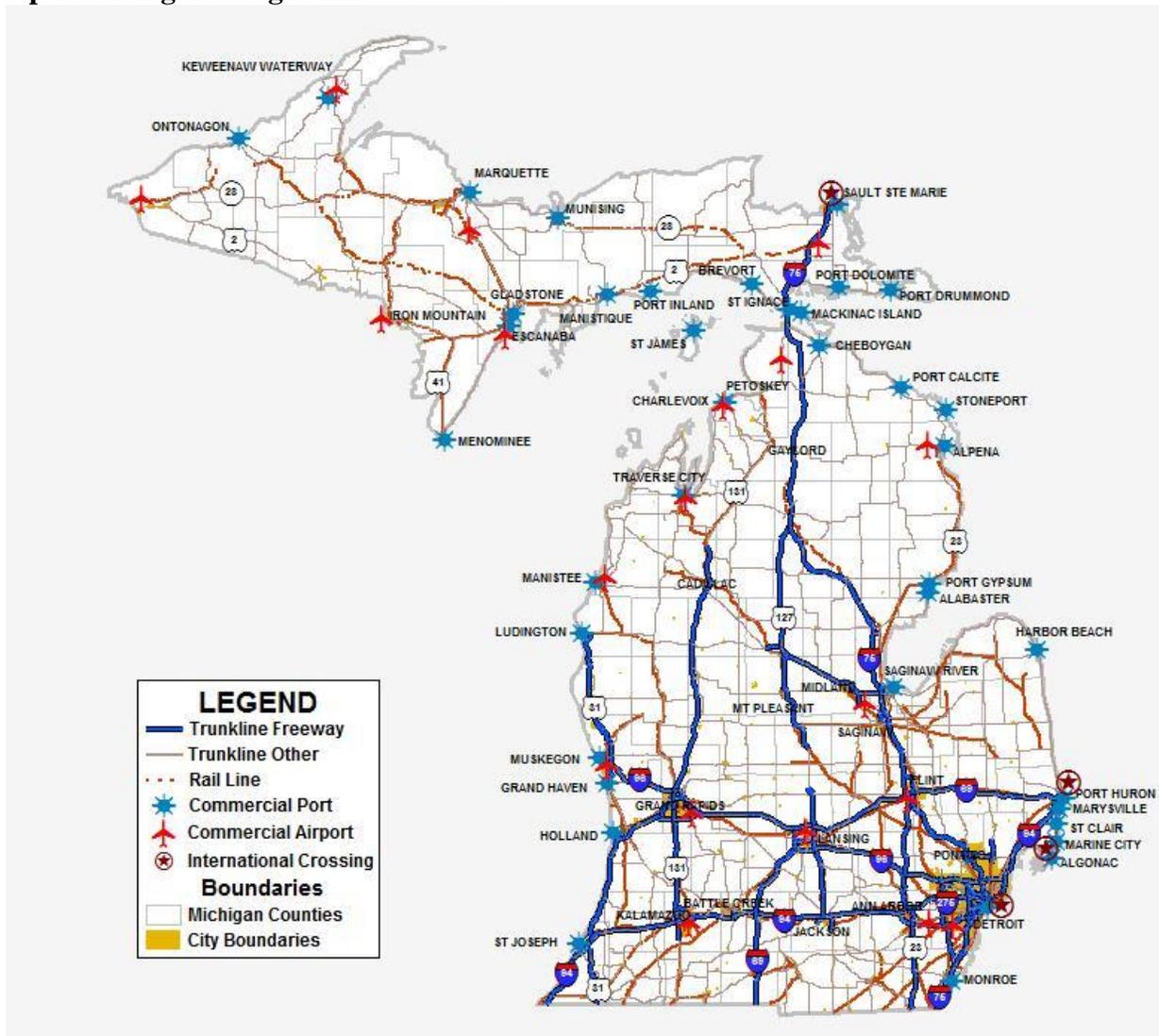
The value of all movements throughout Michigan in 2013 was more than \$761 billion. In 2009, this total was approximately \$520 billion. The 46 percent increase is larger than the increase in tonnage, and much of this is attributable to more movements of transportation equipment and motorized vehicles, an extremely high-value product. Figure 2 shows the modal share of freight value. The share for air increased from less than 1 percent in 2009 to 4 percent in 2013. As a result, the trucking share of the value decreased from 78 percent to 74 percent during this period. The share of rail cargo value increased slightly to 21 percent and water movements maintained the same share.

Figure 2: Mode Share of All Michigan Freight Movements by Value 2013



Source: IHS Global Insight Transearch Database

Map 1: Michigan Freight Infrastructure



Source: MDOT, SUTA Section

Truck Freight

In 2013, trucking accounted for more than 338 million tons of commodity movements to, from, within, and through Michigan. Once again, this is a large increase from the 290 million tons in 2009. By value, truck movements in Michigan totaled more than \$563 billion. Total commercial vehicle miles traveled statewide in 2014 was 3.9 billion miles. In 2010, this total was a little more than 3 billion miles, an increase of 30 percent. Truck volumes are expected to increase substantially over the next 25 years, with truck tonnage approaching 600 million tons in 2040, 77 percent higher than 2013. See the 2014 [commercial average daily traffic map](#) for the latest truck volumes.

Volumes may have been increasing recently, but the corridors with the highest commercial volumes remain unchanged: I-75 between Detroit and Toledo remains the busiest corridor with 15,500 trucks per day; I-94 (Detroit Industrial Freeway) through Romulus and Taylor has 14,300; I-94 near Battle Creek has 12,400; I-94 between Benton Harbor and the Indiana state line has 11,400; and I-696 through Warren carries 10,400 trucks per day.

Non-metallic minerals are the top commodity moved in the state by tonnage, with 65.7 million tons in 2013. This is mostly in-state sand and gravel movement to construction locations and is 36 percent more than what it was in 2009. Farm products ranked second with more than 39 million tons. By value, transportation equipment was highest with nearly \$113 billion moved by truck, and secondary traffic (including movements of mixed freight to and from warehouse and distribution centers, intermodal terminals, and air cargo facilities) next at \$81.7 billion. The transportation equipment commodity ranks ninth in tonnage, but extremely high-value goods keep it ranked number one in terms of value. Table 1 shows the top 10 commodities moved in the state by tonnage and value in 2013.

Table 1: 2013 Top 10 Commodities Moved by Truck in Michigan

Commodity Tonnage Rank	Total Truck Tons (Millions)	Commodity Value Rank	Total Truck Value (Billions)
Non-metallic Minerals	65.71	Transportation Equipment	\$112.90
Farm Products	39.20	Secondary Traffic	\$81.70
Waste or Scrap Material	39.10	Machinery	\$50.47
Food Products	33.49	Food Products	\$44.99
Secondary Traffic	32.86	Chemical Products	\$40.80
Primary Metal Products	19.71	Electrical Equipment	\$37.04
Clay, Concrete, Glass or Stone	19.58	Primary Metal Products	\$36.10
Chemical Products	13.76	Fabricated Metal Products	\$27.75
Transportation Equipment	12.97	Farm Products	\$26.06
Petroleum or Coal Products	12.25	Rubber and Plastics	\$19.92
<i>Other Commodities</i>	<i>49.50</i>	<i>Other Commodities</i>	<i>\$85.87</i>
Grand Total	338.14	Grand Total	\$563.60

Source: IHS Transearch Database

Truck Issues/Strategies

Issue: Travel Time/Congestion

According to the [Texas A&M Transportation Institute's 2015 Urban Mobility Scorecard](#), delay for commercial vehicles nationwide was calculated at \$28 billion in 2014. While trucks only account for 7 percent of the miles traveled in urban areas, they represent 17 percent of the total cost of congestion. Michigan has some congested corridors, mainly during peak-hour traffic in urban areas. Also, construction zones can tie up traffic and cause delay. Multiple construction zones within one statewide corridor add significant time to trips of greater distance.

Strategy: The Michigan Department of Transportation (MDOT) has established the I-94 Corridor Operations Partnership, which aims to improve traffic operations and system reliability along the corridor statewide. The goals of the program are to improve work zone standards, implementation, coordination, and operations to manage delays so that customers' travel times through the corridor are consistent and reliable. The partnership will improve customer communication and give timely information to motorists to guide their travel decisions. Currently, the MDOT Operations Division is measuring the user delay costs in this corridor relating to weather impacts, speed reliability, single-trip delay, and traffic incident management.

Strategy: MDOT continues to rehabilitate and reconstruct poor highway pavements and bridges each year. The department's highway infrastructure improvements help create travel time savings for households and businesses, and investment in construction and engineering. This investment results in economic benefits for Michigan, creating a system attractive to freight industry.

Strategy: Michigan has been a national leader with its intelligent transportation systems (ITS) program, having created large systems in the Detroit and Grand Rapids areas. Both systems include a transportation management center that utilizes closed circuit television (CCTV) cameras, detection equipment, and dynamic message signs (DMS) to manage traffic on regional freeways. They focus on incident management activities and traveler information with the goal of improving the safety and mobility of the traveling public. ITS helps reduce commercial freight movement travel times by forewarning shippers of problems ahead of time and providing travel options in these congested areas.

Strategy: An interdepartmental committee consisting of MDOT, the Michigan State Police (MSP), the Federal Highway Administration (FHWA), and the Federal Motor Carrier Safety Administration was established to review truck speed limits and determine if changes are justified to reduce travel time and congestion.

Issue: Highway Safety

According to 2014 data from the [Michigan Traffic Crash Facts website](#), the number of crashes involving a truck in Michigan numbered more than 13,300, with 98 being fatal accidents. This is a large decrease from the 16,600 truck crashes and 121 fatalities in 2004. Progress has been made to make Michigan roadways safer for all users, but more can be done.

Strategy: MDOT implemented an innovative cable median barrier program in 2008, and has installed 333 miles as of 2014. The department will continue to install additional cable barriers in the future as needed. A [Study of High-Tension Cable Barriers on Michigan Roadways](#) done by Wayne State University in 2014 found that fatal and incapacitating injury crashes were reduced by 33 percent after cable barrier installation. The analysis also showed the median-crossover crash rate was reduced by 87 percent and the rate of rollover crashes was reduced by more than 50 percent. Cable barriers have prevented more than 100 serious injuries and 20 fatalities since the program began.

Strategy: The department began installing rumble strips on much of Michigan’s state trunkline system in 2008. Rumble strips are a proven and cost-effective countermeasure to lane departure crashes brought on by driver drowsiness, distraction, and/or inattention. A total of 5,700 miles of centerline and 1,700 miles of shoulder rumble strips have been placed to date. A before-and-after crash study performed for the 2008-2010 installation locations found significant reductions across all crash severities and lane departure crash types, including a 50 percent reduction in head-on crashes; a 46 percent reduction in run-off-the-road crashes; a 51 percent reduction in fatal crashes; and a 41 percent reduction in incapacitating injury crashes.

Strategy: The American Transportation Research Institute (ATRI) publishes a map of the [top truck rollover locations](#) within each state. MSP also tracks rollovers as part of its summary of traffic crashes. MDOT’s Operations Division is reviewing the list for Michigan and will recommend courses of action to improve these locations, including proper sign installation, design, sightlines, etc.

Issue: Truck Size and Weight

Michigan encourages efficient movement of heavy commodities. Higher capacities and reduced costs are achieved by allowing more axles while limiting the allowable weight per axle, reducing pavement damage. Overweight vehicles on the state roadways can severely harm pavement quality and reduce the life expectancy of the road.

Strategy: The Commercial Vehicle Strategy Team was established in 2005 to build a strong partnership between MDOT and the MSP Traffic Safety Division. The team’s Infrastructure Subcommittee has investigated new practices and technologies, leading to a more efficient strategy for the enforcement of truck size and weight laws. The team prioritizes needs for projects that advance enforcement strategies, such as weigh-in-motion (WIM) equipment, wireless WIM monitoring, the Truck Weight Information System, and weigh station infrastructure upgrades.

Strategy: An interdepartmental committee consisting of MDOT, MSP, FHWA, and the Federal Motor Carrier Safety Administration (FMCSA) was established to review trailer lengths and axle configurations for certain commercial vehicles in order to determine if efficiencies can be achieved, while not conflicting with existing federal law. The Legislature enacted minor changes in state law in 2012 and 2015.

Issue: Truck Parking

With the increase again in commercial vehicle volumes, this issue has become more problematic to the trucking industry. New hours of service rules for truckers have put more of an emphasis on the limited number of parking spaces available in several areas, and Michigan is no exception. Rest areas are over-filled with trucks at times, while the private sector has not kept up with the demand for spaces.

Strategy: MDOT developed the I-94 Truck Parking Management and Information System (TPMIS) in 2014, which includes alerts and the use of DMS to notify drivers of parking space

availability in the corridor at rest areas and truck stops. The information is available on websites, smartphone apps, connected vehicle equipment, and through industry logistics networks. In 2015, MDOT worked in partnership with other state DOTs in Wisconsin, Minnesota, Iowa, Kansas, Kentucky, Ohio, and Indiana to expand the system beyond the I-94 corridor. A federal Transportation Investment Generating Economic Recovery (TIGER) grant of \$25 million was awarded to all eight states to establish a regional truck parking and information management system.

Issue: Jurisdictional Roadway Issues

Trucks pay taxes for use of road facilities. However, trucks are not permitted on all roadways due to local ordinances. A lack of consistency in access to trade centers with special regulations on trucks creates a barrier for the movement of goods to markets.

Strategy: MDOT has established procedures for ensuring compliance with the federal requirements in the law. Complaints regarding reasonable access to the truck network on roadways under local jurisdiction are reviewed, and MDOT issues a decision on their findings regarding safety and size restrictions.

Rail Freight

Railroads carried more than 100 million tons of freight throughout Michigan in 2013, an increase of nearly 17 percent from 2009. The value of these movements totaled about \$161 billion, an increase of 49 percent. Forecasts for rail show a more than 50 percent growth in tonnage and 70 percent growth in value by 2030.

Coal, chemicals, and metallic ores are the top commodities moving by rail in Michigan. Coal is entirely imported and is destined to power generating facilities and industries throughout the state. Michigan imported nearly 17.4 million tons of coal, a decrease of 12 percent from 2009. Chemicals are ranked second in tonnage, mostly being through-movements. Metallic ores are predominately outbound, mostly iron ore from the mines in Marquette County. This commodity is railed to docks in Marquette and Escanaba for shipment across the Great Lakes for steel production. Some is railed directly to the steel manufacturing facility in Sault Ste. Marie, Ontario. Transportation equipment is easily the most valued commodity moving by rail, with almost \$81 billion moving in the state, up over 64 percent from 2009. Table 2 shows the top commodities moved by tonnage and value.

Table 2: 2013 Top 10 Commodities Moved by Rail in Michigan

Commodity Tonnage Rank	Total Rail Tons (Millions)	Commodity Value Rank	Total Rail Value (Billions)
Coal	17.40	Transportation Equipment Miscellaneous or Mixed	\$80.96 \$23.00
Chemical Products	13.28	Shipments	
Metallic Ores	12.57	Chemical Products	\$19.52
Transportation Equipment	8.86	Primary Metal Products	\$12.72
Primary Metal Products	6.76	Paper and Pulp Products	\$5.45
Petroleum or Coal Products	5.49	Petroleum or Coal Products	\$4.11
Farm Products	4.62	Crude Petroleum and Natural Gas	\$3.12
Miscellaneous or Mixed			\$2.02
Shipments	4.47	Food Products	
Crude Petroleum and Natural Gas	4.40	Farm Products	\$1.59
Paper and Pulp Products	4.07	Metallic Ores	\$1.57
<i>Other Commodities</i>	<i>18.44</i>	<i>Other Commodities</i>	<i>\$6.80</i>
Grand Total	98.35	Grand Total	\$160.86

Source: IHS Transearch Database and STB Waybill

Rail Freight Issues/Strategies

Issue: Rail Capacity

The Detroit region has lacked long-term capacity for increasing rail movements. The throughput and efficiency of the multiple existing terminals are not adequate to meet anticipated future demands of intermodal rail freight. The existing Detroit River Rail Tunnel cannot accommodate certain double-stack containers and taller Automax railcars. Future growth in rail-dependent industries, specifically the auto industry, may be dampened by the physical restrictions in this area.

Strategy: MDOT partnered with the Class I railroads to develop the Detroit Intermodal Freight Terminal (DIFT). This project will expand throughput capacity by consolidating multiple terminals, providing equipment and infrastructure availability needed in this competitive industry.

Strategy: MDOT will continue to provide technical and political support for improvement to the Detroit River Rail Tunnel as the funding issues with the private rail industry and government are resolved.

Issue: Rail Congestion/Travel Times

Bottlenecks in the rail system hinder movements in the Detroit region. Freight trains often wait at locations for other trains to pass before being able to continue.

Strategy: As part of the DIFT project, connections will be improved to alleviate long delays at junctions in Metro Detroit. Multiple train movements will be enabled at junctions where one train is delayed for hours while other trains pass. Also, highway access to the DIFT will ease the flow of trucks into and out of the facility, improving the rail intermodal facilitation. In a related effort, MDOT recently completed a new connection track at West Detroit, which was designed to eliminate conflicts between passenger and freight service.

Issue: Safety

While the number of crashes at railroad crossings continues to decline, car-train crashes are 30 times more likely to result in a fatality than crashes between highway vehicles. Train derailments also occur on the system, increasing delays and costs to business and shippers, while causing safety concerns.

Strategy: MDOT maintains an active inventory of public railroad crossings. The department conducts inspections at every crossing at least once every two years, notifies railroads and road authorities of maintenance deficiencies, and issues regulatory orders regarding crossing safety.

Strategy: MDOT's local grade crossing program provides funding for safety enhancements at higher-risk crossings on local roads. The department funds surface improvements, as well as safety enhancements on select state trunkline crossings. With the passage of the recent revenue package, MDOT anticipates additional dedicated funding for this program in the future.

Issue: Rail Accessibility

As a peninsular state, access to rail service in Michigan has been problematic, especially in the rural, northern part of the Lower Peninsula. Many of these rural lines were not economically viable to major carriers and were either abandoned or transferred to short lines. "Through"-lines are situated in the southern part of the state and in the Upper Peninsula.

Strategy: In the 1970s and 1980s, MDOT purchased some of these abandoned rail lines and upgraded the infrastructure to continue to make rail accessible to business. MDOT currently owns about 665 miles of track and contracts with five private freight rail operators to maintain service on those lines.

Strategy: MDOT's Freight Economic Development Program assists rail users in constructing new or expanded spur tracks, rail yards or trans-load facilities.

Issue: Rail Track Limitations

Rail cars capable of carrying 286,000 pounds are becoming the nationwide standard for certain commodities, particularly agricultural products, and some are now moving to 315,000 pounds.

This allows for more efficient handling of products for shippers, but requires upgraded infrastructure. Many lines owned or operated by short line or regional carriers cannot accommodate the heavier cars. Without improvements, shippers encounter an increasingly limited market for their products.

Strategy: MDOT's current effort to inventory all track infrastructure will be used to identify the location of all tracks unable to accommodate the higher weighted rail cars.

Issue: Railcar Shortage

Mainly a problem for the agriculture industry, shippers have found that after moving their product to where there is a demand it is difficult to get empty cars returned. Often, cars are used for another industry, which may be in greater demand and more profitable, such as the fracking industry. Since Michigan agriculture is more seasonal, a year-round activity may utilize these cars and they may not return to Michigan.

Strategy: MDOT continues to study the extent of the issue and to raise awareness as to the cost to agriculture shippers in the state. (Note: The [Michigan State Rail Plan](#) has a complete assessment of system issues in Michigan and recommendations for improvements.)

Water Freight

Michigan ports handled just less than 67 million tons of cargo in 2013, up about 12 percent from 2009. The value of these cargoes was about \$5.2 billion, up 25 percent from 2009. The commodities shipped by water in Michigan have remained primarily the same, with more demand for natural resource materials used in manufacturing and construction during this time frame. Detroit continues to be the busiest port in the state, handling nearly 13 million tons of cargo in 2013.

Non-metallic minerals were the leading commodity shipped by water in Michigan. Almost 27 million tons were shipped, mostly outbound from the limestone quarries in northern Michigan. Metallic ores (17.7 million tons, mostly outbound) and coal (about 15 million tons, almost all inbound) were the next top commodities. Primary metal products went up, partially due to the amount of slag being shipped. Slag is the byproduct of ore smelting and is mainly destined to Michigan for use with cement in concrete production. Metallic ores have the highest value, followed by primary metal products. Table 3 shows the top commodities moved by tonnage and value.

Table 3: 2013 Top Commodities at Michigan Ports

Commodity Tonnage Rank	Total Water Tons (Millions)	Commodity Value Rank	Total Water Value (Millions)
Non-metallic Minerals	26.93	Metallic Ores	\$1,741.67
Metallic Ores	17.67	Primary Metal Products	\$804.37
Coal	14.95	Coal	\$611.52
Clay, Concrete, Glass or Stone	4.51	Petroleum or Coal Products	\$464.66
Primary Metal Products	1.08	Clay, Concrete, Glass or Stone	\$383.40
Petroleum or Coal Products	0.98	Non-metallic Minerals	\$364.04
Chemical Products	0.39	Secondary Movements	\$305.85
<i>Other Commodities</i>	<i>0.15</i>	<i>Other Commodities</i>	<i>\$499.94</i>
Grand Total	66.67	Grand Total	\$5,175.45

Source: IHS Transearch Database

Water Freight Issues/Strategies

Issue: Navigation Policy Issues

The Federal Harbor Maintenance Tax and other restrictive federal regulations hinder the development of short-sea shipping (also known as marine highways). Maintaining navigation channels is difficult due to a lack of adequate funding from the Harbor Maintenance Trust Fund and environmental regulations related to the disposal of dredged materials. State regulation of ballast water discharge discourages overseas shipping through the St. Lawrence Seaway.

Strategy: These policies are mainly under federal authority, but MDOT continues to promote awareness of the problem. When issues of funding and regulatory problems are resolved at the national level, barriers arising for Michigan’s waterborne shippers may be alleviated.

Issue: Soo Locks

Congress has authorized construction of a new large lock, which will replace two functionally obsolete locks that were constructed during World War I and are now closed. This new lock will be similar in size to the existing Poe Lock, the only lock capable of accommodating 1,000 foot-long vessels in the St. Mary’s Falls Canal. This will create much-needed redundancy for the waterway system at the location, as delays encountered with this aging lock system could be long and financially detrimental to shippers.

Strategy: MDOT was involved in the planning aspects for the project, and has fulfilled the state’s role in all efforts to date. The department will continue to work with the Great Lakes community to promote the advancement of this project. Preliminary construction has begun on aspects of the project, but efforts continue to secure the remaining funding from Congress. The Army Corps of Engineers recently received \$1.35 million for an economic re-evaluation of the project.

Air Freight

High-value, time-sensitive products often travel by air. Whether in cargo planes or in the belly of commercial aircraft, like the other modes, air freight has increased in Michigan. In 2013, Michigan airports handled more than 351,000 tons of air cargo. This is a more than 48 percent increase from 2009. Detroit Metro continues to move the most air freight. Willow Run, Grand Rapids, Lansing, and Flint make up the next tier. Table 4 shows the top airports in the state moving cargo.

Table 4: 2013 Michigan Airport Tonnage

Top Air Cargo Airports by Tonnage (2013)			
Airport	Total Tons	Inbound Tons	Outbound Tons
Detroit Metro	220,357	126,304	94,053
Willow Run	51,876	27,521	24,355
Grand Rapids	40,198	18,995	21,203
Lansing	22,099	12,191	9,908
Flint	11,848	6,926	4,922
Traverse City	1,353	641	712
Marquette	866	536	330
Escanaba	584	420	164
Iron Mountain	562	250	312
Alpena	524	318	206
<i>Others</i>	<i>1,003</i>	<i>691</i>	<i>312</i>
Total	351,270	194,793	156,477

Source: MDOT Aeronautics

In addition to air cargo, Michigan airports handled more than 18,300 tons of mail in 2013. This is almost entirely handled at Detroit Metro, and the statewide total is the highest since 2003.

Air Freight Issues/Strategies

Issue: Willow Run Limitations

Willow Run in Ypsilanti is a primary freight handling aviation facility in the state. Due to the short length of its runways, fully loaded and fully fueled wide-body aircraft cannot take off. Therefore, these planes must take off with only enough fuel to get them off the ground and fly to Detroit Metro, 10 miles away. The plane can then obtain a full tank of fuel and re-embark on its flight. This is enormously costly, but due to the lack of availability of surrounding land, lengthening the runways proves difficult.

Strategy: MDOT has studied the feasibility and cost of obtaining property surrounding Willow Run needed for expansion in the past, but political obstacles seem to be the major barrier. An extensive Master Plan Study for Willow Run was initiated in 2015 and should be completed in 2017. Part of the study will focus on determination of the ultimate runway configuration of the airport, and the optimum runway length to accommodate existing and future freight operations.

Issue: Retaining Cargo Services

The economic downturn and the cost of fuel hurt air cargo services at many airports. The retention and recruitment of air services are problems for the industry.

Strategy: MDOT has refunded the state and local Air Service Program, which aims to retain cargo services, by giving grants to airports for capital improvements and enhancing facilities. The program also increases airport marketability for the recruitment of new business to the air cargo industry. The department hopes for increased and more stable funding in the future. Always volatile fuel prices have decreased recently which has also helped this industry recover.

Issue: All-Weather Airports

Airports that are not available in bad weather hamper the facilitation of freight, as seasonal changes can reduce certain freight movements.

Strategy: MDOT has continued an initiative to make Michigan airports all-weather accessible by employing Global Positioning System (GPS)-based instrument approach systems and automated weather observation systems (AWOS). The GPS systems alleviate the need for expensive ground navigation aids, and the AWOS provides readily available weather information to aircraft. MDOT continues to work with the airport communities to assist those in need of accessibility. Approximately 70 percent of all eligible airports in the state are now all-weather accessible.

Border Crossings and International Trade

Michigan's border crossings are vital links for international commerce and are critical to the well-being of the local, state, and national economies. As reported by the [Research and Innovative Technology Administration – Bureau of Transportation Statistics](#), the United States and Canada conduct the world's largest bilateral trade relationship, exceeding \$1.8 billion per day in 2014, about \$660 billion for the year. After a downturn in cross-border trade in 2009, imports and exports started increasing again and now are at an all-time high. Michigan continues to be the leading state trading with Canada, with more than \$74 billion in 2014.

The Ambassador Bridge is the busiest commercial border crossing in the nation, with almost 2.5 million trucks crossing in 2014, as reported by the [Public Border Operators Association](#). The Blue Water Bridge in Port Huron is the second-busiest on the northern border, with nearly 1.6 million trucks. Transportation equipment is the leading product crossing Michigan's border with Canada. Auto companies have several plants that move products between Michigan and Ontario, and in 2014 more than \$42 billion of transportation equipment passed through the border at Detroit.

In 2011, President Obama and then-Prime Minister Harper signed a “Beyond the Border” initiative that will promote the streamlining of goods movement across the U.S.-Canada border. This plan is a shared approach to security at the borders with the intent to provide easier passage of lawful trade between countries. Freight movements between Michigan and Ontario has increased, and the initiative could lessen bottlenecks at the borders to expedite truck crossings. Studies and initiatives have already begun regarding border wait time information systems and the streamlining of import/export shipments. For more information, see the [Corridors and International Borders White Paper](#).

Border Crossings and International Trade Issues and Strategies

Issue: Border Delay/Congestion

Trucks crossing the border can experience several hours of delay, waiting to clear customs inspection and in long queues leading to the bridges. This delay costs companies that do business in the U.S. and Canada tremendously.

Strategy: An agreement between Michigan and Canada will result in the construction of the new Gordie Howe International Bridge (formerly known as the New International Trade Crossing or Detroit River International Crossing) connecting Detroit and Windsor, Ontario. This will add much-needed capacity at the crossing by way of more lanes and customs booths. The crossing will also have direct freeway access on both sides. In Windsor, access to the Ambassador Bridge uses Huron Church Road, which has 18 traffic lights to get to the freeway. The new bridge will create a redundancy in the system to alleviate the risk of any potential closures of the Ambassador Bridge. For more information on this project’s status, visit www.wdbridge.com.

Strategy: The Gateway Project, completed in 2012, provides trucks with direct access from the Ambassador Bridge to the freeway system in Detroit. For years, trucks were directed to Fort Street before getting on the freeway, causing delay of commercial movements and discord for area residents.

Strategy: MDOT has planned an expansion of the Blue Water Bridge plaza to expedite traffic flow at Port Huron. The proposed expansion will provide a new customs processing and inspection area for commercial vehicles, including 12 new primary inspection lanes. It also includes 15 commercial vehicle loading/unloading docks that will allow U.S. Customs and Border Patrol (CBP) officers to unload and inspect the contents of a commercial vehicle. This project should drastically reduce delay at this crossing, but is awaiting word on funding from the federal government.

Strategy: The Free and Secure Trade program (FAST) is a joint program between the U.S., Canada, and Mexico. It allows expedited processing for commercial carriers that have completed background checks and fulfilled certain eligibility requirements. Benefits include: dedicated lanes for greater speed and efficiency in processing trans-border shipments, reduced number of inspections resulting in reduced delays at the border, and priority, front-of-the-line processing for

CBP inspections. Also, the Automated Commercial Environment (ACE) program continues to be expanded by the CBP, which modernizes and enhances trade processing with features that will consolidate and automate border processing. It provides a centralized online access point to connect the CBP and the trade community. While both are federal programs, MDOT promotes their benefits in order to reduce border delays.

Conclusion

This update of the Freight Technical Report is offered as a resource for understanding the movement of freight pertaining to Michigan's transportation system, and as an input to the update of an integrated MI Transportation Plan. The findings highlight changes in tonnages and values by mode, and in policies aimed at alleviating issues and bottlenecks in the system.

In the years since the recession, freight tonnage moved has increased for all modes. All forecasts are calling for continued growth in freight movements. The mix of commodities moving by each mode has stayed relatively the same, with manufacturing production the major driver of Michigan freight totals. The auto industry continues to play a crucial role in the overall totals of freight movements in the state. Two of the major freight-related projects in the state, the DIFT and the Gordie Howe International Bridge, have made progress and should alleviate some of the issues presented in this paper.

Starting with the Moving Ahead for Progress in the 21st Century Act (MAP-21), and then continuing to the recent FAST Act, the use of performance measures in planning could be determined as the future means to distributing funds for freight projects. This will alter MDOT's approach to analyzing projects by putting more emphasis on freight movement. Once these measures have been identified and adopted, MDOT will aim to coordinate its collection of freight data to comply with federal standards. The department is researching the FHWA-suggested approaches to bottleneck analysis and linking volumes to congestion, as well as analyzing the National Performance Management Research Data Set for travel time reliability. MDOT maintains several databases that are suitable for use in performance measurement.

The department completed the [Michigan State Freight Plan](#) in 2013, which gives details on the status of freight within the state. State freight plans were a MAP-21 recommendation, and Michigan developed its State Freight Plan in response. This paper has updated several statistics found in the plan, and the department's goal is to integrate the next update of the State Freight Plan with the next full revision of the State Long-Range Plan.

Also recently completed, the [Michigan State Rail Plan](#) provides a comprehensive assessment of the state's rail transportation network, including strategies for freight rail improvements and future investment needs. The document was created to identify future investment needs based on input received from industry groups and key stakeholder groups in order to be adequately prepared to handle the future freight demands on Michigan's rail infrastructure assets.

In recent years, there has been more emphasis put on the efficient movement of freight at the department level, as well as by other stakeholder groups and state agencies. In response to the issues of system demand and future projections for freight growth, a collaboration among MDOT, the Michigan Economic Development Corp. (MEDC), the Michigan Department of Agriculture and Rural Development (MDARD), and many other stakeholder groups has been established to leverage existing efforts in order to elevate Michigan's Transportation Distribution and Logistics (TDL) profile on a national and global scale. The [Statewide TDL Strategy](#) includes a project charter, statement of work, focus areas, and metrics to gauge the effectiveness of the partnership moving forward.

In addition to the creation of the Statewide TDL Strategy, MDOT has been involved in promoting the state as a regional supply chain hub in partnership with Michigan State University Department of Supply Chain Management, the Great Lakes Intermodal Trade and Transport Hub (GLITTH), the Southeast Michigan Council of Governments (SEMCOG), the Detroit Regional Chamber, and Wayne State University. Several studies have been conducted to highlight Michigan's infrastructure advantages, including the identification specific industry sectors for potential future economic expansion.