

8– Chapter 8: Freight Policies and Strategies

8.1 Introduction and Background

This chapter presents the Freight Plan’s policies, followed by discussion of how each policy has a bearing on improving freight functionality in Wisconsin. The policies and strategies address highways, local roads, railroads, ports and waterways, air, and pipelines. The policies, strategies and data analysis presented in this chapter are designed to meet the goals and objectives identified in Chapter 1, *Introduction*.

Overview of Chapter 8

The intent of this chapter is to:

- Present multimodal policies and strategies to address freight transportation trends and issues
- Summarize the factors influencing the development of freight policies and strategies

Chapter 9, *Investment and Implementation*, focuses on implementing the policies, strategies and data analysis presented in this chapter in an effort to achieve the plan’s goals of:

- Enhancing safety, security, and resiliency
- Ensuring system preservation and enhancement
- Enhancing system mobility, operations, reliability, efficiency, and connectivity

The policies presented in this chapter were developed using previous planning documents such as *Connections 2030*, stakeholder feedback, input from the Freight Advisory Committee (FAC), and data analysis by Wisconsin Department of Transportation (WisDOT) staff. The Freight Plan defines policies for all modes and develops a data-based analysis method to define critical infrastructure for each mode.

WisDOT’s Freight Advisory Committee and Stakeholder Involvement

WisDOT’s FAC advises and is responsible for assisting the department in the development of, and subsequent updating of, the Wisconsin State Freight Plan (SFP). As WisDOT identifies and modifies its freight recommendations and policies, the department will continue to convene the FAC as a forum for developing consensus on policies and projects, and to identify future projects and policies for consideration. The information and feedback provided by WisDOT’s FAC has provided valuable insight into the full range of issues and interests of the freight industry.

As a result of the public involvement process outlined in Chapter 3, *Public Involvement*, this chapter and Chapter 9, *Investment and Implementation* include new policies and specific actions WisDOT will explore in the implementation of the SFP. Specific policies and actions include the development of maritime and intermodal strategies, freight considerations in the development of projects, communication with industry and the general public, the use of tools and data in WisDOT and its stakeholders’ decision-making, rail safety and investment, and reducing the environmental impacts of freight and oversize-overweight (OSOW) freight.

Data Analysis

During development of the SFP, WisDOT began advancing various data, tools, and methods that will continue to be used, refined, and shared with WisDOT’s partners to aid in identifying freight mobility needs and support data-driven investment decisions.

WisDOT leveraged transportation data to define Wisconsin's critical corridors and facilities and develop a freight-orientated system where the infrastructure promotes the safe, efficient, and reliable movement of goods through the entire supply chain. The network will streamline logistics and enhance efficiency - especially the "first and last mile" connection between facilities and corridors.

Freight shippers are unique transportation system users in that modal choice is often driven by characteristics not common to the general traveling public. Often the cost, speed, and reliability of a particular mode of freight transportation is considered. Multimodal data was compiled by mode to better analyze freight mobility needs and demands. The data was then analyzed to assess strategies to maximize the return to freight shippers.

WisDOT has primary responsibility for the maintenance and performance of the state's highway system. The department supports rail, water, and air with administration of funding, technical assistance, and data collection and dissemination.

One way in which that data was analyzed was through development of the freight data analysis framework that was used to identify Wisconsin's critical freight corridors and other facilities. In order to evaluate the importance of an asset to freight movement, a set of criteria was established and weighted. In addition to using key data sets for freight tonnage and value, factors such as connectivity to important freight facilities, including intermodal and transload locations, were also used. The scores were then normalized over a scale from 1 to 99, the higher number indicating facilities with the greatest importance to freight-related movements. This framework is further detailed in Chapter 9, *Investment and Implementation*.

Wisconsin's critical corridors and facilities were identified so that a freight-orientated system could be defined where the infrastructure promotes the safe, efficient, and reliable movement of goods through the entire supply chain. The freight data analysis framework will serve as an aid for the department to facilitate connections between key economic centers and major freight generators. It will assess the "first and last mile" connectivity between facilities and corridors. In the future, the framework may also be used to analyze freight transportation needs statewide and define a method to inform freight policy and recommended investment decisions.

8.2 Highway Policies and Strategies

Identified in Chapter 5, *Wisconsin's Transportation System Assets*, Wisconsin's State Trunk Highway System (STH) consists of approximately 11,800 centerline miles of Interstate highways, U.S. highways and state trunk highways, including more than 5,200 bridges.^{1,2} The STH system handled 58 percent of the vehicle miles traveled (VMT) in 2015, while comprising just over 10 percent of the total statewide roadway network.³ The state's Backbone System, a subset of the STH, represents 13.5% of STH centerline miles, and carries half of the traffic using the STH; in addition, 85% of truck-born freight traversing Wisconsin's STH uses the Backbone System.

Table 8-1 and Table 8-2 display the total truck tonnage and value by flow type. Overall, both tonnage and value show a relatively even distribution of flows outbound, inbound, within, and overhead traffic. In comparison to other modes, truck traffic is less likely to be overhead traffic, suggesting that trucking facilitates more Wisconsin-centric travel because shippers might not be able to access the other modes, such as rail and water, as easily.

¹ Wisconsin Department of Transportation, Bureau of Planning and Economic Development.

² Wisconsin Department of Transportation, Bureau of Structures, "Annual Bridge Report." (April 2016).

³ Wisconsin Department of Transportation, Bureau of Planning and Economic Development.

Table 8-1: 2013 Truck Tonnage by Flow Type (millions)

	Outbound	Inbound	Within	Overhead	TOTAL
Truck Tonnage	98.2	80.2	112.0	50.8	341.1
Proportion of Truck Flows	(28.8%)	(23.5%)	(32.8%)	(14.9%)	(100.0%)
All Modes	142.0	147.6	115.4	171.6	576.6
Proportion of All Flows	(24.6%)	(25.6%)	(20.0%)	(29.8%)	(100.0%)

Source: 2013 IHS Transearch Database

Table 8-2: 2013 Truck Value by Flow Type (millions)

	Outbound	Inbound	Within	Overhead	TOTAL
Truck Value	\$140,496.6	\$108,924.5	\$70,497.6	\$125,750.2	\$445,669.0
Proportion of Truck Flows	(31.5%)	(24.4%)	(15.8%)	(28.2%)	(100.0%)
All Modes	\$153,963.7	\$127,533.8	\$72,347.2	\$283,853.9	\$637,698.7
Proportion of All Flows	24.1%	20.0%	11.3%	44.5%	100.0%

Source: 2013 IHS Transearch Database

In general, freight shipments by truck dominated the state's goods movement in 2013 with nearly a 60 percent share by weight and 70 percent by value. Over 341 million tons of freight, valued at more than \$445 billion were transported to, from, within, or through Wisconsin by truck in 2013 on Interstates and state highways.⁴

Funding

As the system ages, maintenance and preservation activities typically change. Costs tend to increase, particularly those related to real estate, energy, and construction materials. This is a factor for both WisDOT's and local governments' investment decisions regarding maintaining and preserving existing infrastructure.

In some cases, state and local roadways are not designed to handle the number of trucks or the heavy loads associated with trucking. As a result, the timing required to address pavement deterioration and system capacity issues may be accelerated.

WisDOT and local governments must apply asset management strategies to make needed improvements at the appropriate times over the life of all transportation modes. Applying appropriate asset management strategies enables transportation providers to keep pace with both emerging and existing needs.

WisDOT is committed to providing the safest, most efficient, and highest quality transportation system that best serves the needs of the state. In order to maximize return-on-investment,

WisDOT is working to make the best use of funding available by establishing performance measures that can inform investment decisions (see Chapter 9, *Investment and Implementation*).

Asset Management

Asset management considers the entire life cycle of transportation decisions, including planning, programming, construction, maintenance, and operations. It emphasizes integration across these functions, reinforcing the fact that actions taken across this lifecycle are interrelated. It also recognizes that investments in transportation assets must be made with consideration of a broad set of objectives, including physical preservation, congestion relief, safety, security, economic productivity, and environmental stewardship.

⁴ 2013 IHS Transearch Database.

As discussed in Chapter 9, *Investment and Implementation*, throughout the 20-year plan implementation period, WisDOT is developing and will implement an asset management approach to evaluate the broad range of priorities and analyze potential trade-offs among the actions to address system needs that maintain system health.

Technology

As discussed in Chapter 7, *Freight Transportation Trends, Issues, and Forecasts*, technology presents challenges and opportunities. Keeping pace with ongoing updates and improvements in technology can be expensive. A technological system that may have been state-of-the-art five to ten years ago may no longer be used or supported today. In addition, using technology for data collection to monitor traffic flow and identifying system needs and potential improvements has raised questions about individual privacy concerns and data storage requirements.

Finally, ensuring that technologies are available during an emergency or incident requires system redundancy or backups. For example, many signalized intersections also have stop signs that can be uncovered if the traffic signals malfunction.

State Trunk Highway System Preservation Policies and Strategies

The Backbone System includes the highest value multi-lane (or planned multi-lane) divided highways, which connect all regions and major economic centers in the state and are tied to the national transportation network. These include Interstates and critical higher volume state highways across the state. Continuing investments in the Backbone System is important for the reliable movement of goods throughout Wisconsin.

The State Highway Rehabilitation (SHR) subprogram involves three components:

- Existing highways
- State bridges
- Backbone rehabilitation

The existing highways component of the SHR subprogram deals with improvements to the non-backbone portion of the state highway system. It funds "3R" improvements—resurfacing, reconditioning, and reconstructing existing roadways—and the minor addition of lanes, traffic and safety improvements, and minor realignments of roadway.

The types of improvement are categorized as resurfacing, reconditioning, pavement replacement, and reconstruction:

- **Resurfacing** - rehabilitating the surface of a pavement to provide a smoother ride and to extend the pavement's structural life. This can also include pavement widening and/or shoulder paving to improve safety and reduce shoulder maintenance costs.
- **Reconditioning** - resurfacing and, in addition, improving an isolated grade, curve or intersection.
- **Pavement replacement** - the highest type of "resurfacing" whereby the existing pavement structure is replaced with a new one. This does not include widening of the roadway.
- **Reconstruction** - total rebuilding of the highway to provide a safer facility, to improve geometrics (i.e., longer passing and stopping sight distances, broader turning radii, or additional lanes at intersections) and increased traffic-handling capabilities. Other benefits include a smoother ride, reduced travel time, and lower maintenance costs.

WisDOT uses several different systems to monitor the conditions of its facilities, including a Bridge Management System and a Pavement Management System. These are brought together in a comprehensive tool, the Meta-

Manager database. With truck weights and volumes now at higher levels than when many structures and roads were built, WisDOT must continue to monitor the routes most heavily used for freight. Where freight traffic increases are documented, projects to improve the durability and safety of the corridors should be considered. Project cycles that incorporate anticipated resurfacing may need to be supplemented with reconditioning or even spot replacement and reconstructing to address geometric and infrastructure deficiencies. To support preservation activities, WisDOT will:

- Use a performance-based approach to identify state trunk highway system preservation needs, including development of a bridge asset management system
- Refine and expand a state-of-the-art process for prioritizing needs and identifying cost-effective state trunk highway construction alternatives
- Monitor national best practices and other initiatives related to reducing freight's impact on the environment
- Review and revise the Facilities Development Manual (FDM) to include freight considerations

Use a performance-based approach to identify state trunk highway system preservation needs, including development of a bridge asset management system

WisDOT will continue to use a comprehensive asset management approach to identify and address state trunk highway system needs. This allows WisDOT staff to analyze preservation needs using data based on physical condition, safety, operation, function, and connectivity. It also allows WisDOT staff to consider a range of funding and road construction alternatives, which results in a systematic and objective approach to cost-effective state trunk highway system preservation.

This policy divides state trunk highway system preservation activities into three categories:

- Structures and bridges
- Pavements
- Interchanges

Refine and expand a state-of-the-art process for prioritizing needs and identifying cost-effective state trunk highway construction alternatives

As stated earlier, WisDOT will continue to use pavement condition data and performance thresholds to identify highway segments that need reconditioning, rehabilitation, or reconstruction.

Meta-Manager Management System Database

Meta-Manager, a comprehensive data repository for WisDOT, was developed by the Division of Transportation Investment Management's Bureau of State Highway Programs to meet the data requirements for a variety of needs and performance analyses.

The Meta-Manager database is an excellent resource for assessing system condition, analyzing need and performance, and supporting project development. It geographically integrates a variety of data, including pavement information, system deficiencies, safety, congestion, and other information. The database also includes future projections of physical condition data.

WisDOT continues to enhance its prioritization methods using asset management tools such as the department's Meta-Manager Management System Database. This prioritization process will include using thresholds for pavement, bridges, and safety (for more information, see Chapter 6, *Transportation System Condition and Performance*).

As mentioned previously, the department's maintenance and preservation efforts address system needs and help extend the system's life. Wisconsin's highest preservation priority continues to be the structural preservation of bridges. For this reason, structural bridge needs will continue to receive priority funding. For the remaining STH system, WisDOT will prioritize preservation needs using state-of-the-art methods. The process applied will include

a dual-priority approach that selects projects based on both the cost-effectiveness of the preservation strategy and the importance of the roadway to the overall system function. Establishing a functional priority will enable WisDOT to better prioritize needs.

The department will also continue to emphasize proactive pavement preservation actions to extend service life and minimize the life-cycle cost of other system needs.

In addition, roadway maintenance costs can be expensive over the life of a highway. These costs should be recognized before the roadway is constructed. As part of monitoring existing system conditions and setting priorities for new roadways, WisDOT will incorporate freight into its long-term investment plan (see Chapter 9, *Investment and Implementation*).

Monitor national best practices and other initiatives related to reducing freight's impact on the environment

Central to both the vision for the plan and goal of the National Highway Freight Program is the need to reduce the environmental impacts of freight movement on the National Highway Freight Network. Additionally, grant programs available to freight projects such as FASTLANE have required that applicants consider how enhancements to critical infrastructure help protect the environment.

In developing transportation plans, WisDOT already considers the range of federally-required planning factors, which includes protecting the environment, promoting energy efficiency, and the connectivity between different transportation modes. For many highway projects, the design stage includes environmental studies and mitigation.

The process of considering the natural environment and sensitive populations has already been initiated. Chapter 10, *Environmental Justice Analysis*, evaluates potential adverse impacts of addressing freight mobility needs on minority populations and low-income populations. This analysis provides a qualitative review of potential disproportionately high and adverse effects to groups identified in Executive Order 12898 resulting from implementing the plan's recommendations. Similarly, Chapter 11, *System-Plan Environmental Evaluation (SEE)*, provides a qualitative review of the potential natural environmental impacts resulting from recommendations identified in this plan. The results of these analyses inform WisDOT on the potential impacts of implementing the plan's recommendations and assessing mitigation strategies to minimize adverse impacts. The analyses provided in both chapters are long-range, high-level assessments and do not replace project-specific analyses required by the National Environmental Protection Act (NEPA) or the Wisconsin Environmental Protection Act (WEPA). WisDOT will also monitor national best practices and other initiatives related to reducing freight transportation impacts on the natural and human environments and assess how they may be applied to Wisconsin.

Review and revise the Facilities Development Manual to include freight considerations

WisDOT's professional engineers adhere to the department's Facilities Development Manual (FDM). The FDM provides policy, procedures, design standards, and general guidance on the facilities development process required by WisDOT. It is applicable to all types of highway improvements on the STH system, other street/highway systems for which federal-aid highway funds may be utilized, state facilities funded with state funds administered by the department, and other highways and roads for which the department may act as an administrative agent.

WisDOT will review and revise the FDM to better reflect freight considerations in its guidance. The intent of this review, and subsequent revisions, is to update and close gaps in the FDM so projects can be advanced that reflect the needs, and do not negatively impact the freight community. Numerous policy and strategy recommendations in this chapter are linked to this item and are a result of the analysis conducted during plan development, as well as stakeholder consultation.

As the review is conducted, it is expected that additional areas for updating/revising will be identified.

Major Highway Development Program Policies and Strategies

WisDOT will continue and improve the performance of the Major Highway Development Program. Specifically, WisDOT will complete currently enumerated Major Highway Development projects, study approved corridors, and complete currently enumerated Southeast Wisconsin Freeway Megaprojects.

Complete currently enumerated Major Highway Development projects

Major highway development projects, or “Majors,” are generally the most complex, costly, and potentially controversial projects initiated by WisDOT. They are long-term solutions to the most serious deficiencies on highly traveled segments of the highway system. Freight movement is, and will continue to be, an important consideration in the selection of major highway development projects (see Chapter 9, *Investment and Implementation*).

Wisconsin state statutes define a Major Highway Development project candidate. Majors generally include significant capacity expansion projects, new highways, and bypasses. The majors program does not just focus on capacity issues, but also safety needs and enhancement of economic development opportunities. WisDOT provides an analysis and recommendation of Major project candidates for study or construction to the Transportation Projects Commission (TPC). This analysis includes factors such as safety and congestion (refer to Chapter 9, *Investment and Implementation*).

The TPC, using WisDOT's analysis and public hearing comments, recommends to the Governor and Legislature a list of major highway projects and an appropriate annual funding level to support the ongoing major highway program. The Legislature may add or delete projects, and may change the recommended funding level from the TPC's recommendation.

WisDOT will complete the projects actively enumerated for construction, as well as complete environmental studies of the approved corridors for study, unless the State Legislature de-enumerates a project.

Complete corridor studies approved by the Transportation Projects Commission

Before projects are considered for enumeration, WisDOT conducts environmental and engineering studies so all projects brought before the TPC will have undergone an approved Environmental Impact Statement or Environmental Assessment. This ensures that only projects likely to be future major project candidates are considered for enumeration. The TPC must approve projects for environmental study.

Major Highway Project Definition

"Major highway project" means a project, except a project providing an approach to a bridge over a river that forms a boundary of the state, a high-cost state highway bridge project (state statute 84.017), or a southeast Wisconsin freeway megaproject (state statute. 84.0145), that satisfies any of the following:

- The project has a total cost of more than \$30,000,000, subject to adjustment under the Department of Transportation Price Index, Yearly Moving Average, and involves any of the following:
 - Constructing a new highway 2.5 miles or more in length
 - Reconstructing or reconditioning an existing highway by either relocating 2.5 miles or more of the existing highway or adding one or more lanes 5 miles or more in length to the existing highway
 - Improving to freeway standards 10 miles or more of an existing divided highway having 2 or more lanes in either direction
- The project has a total cost of more than \$75,000,000, subject to adjustment under the Department of Transportation Price Index, Yearly Moving Average

The department shall annually adjust the amounts specified above to reflect the annual change in the Wisconsin Department of Transportation Price Index, Yearly Moving Average, as maintained by the department or, if at any time the department no longer maintains this index, another suitable index as determined by the department. Beginning in 2012, prior to October 1 of each year, the department shall compute the annual adjustment and shall publish the new adjusted amount applicable, which amount shall become effective on October 1 of that year.

Transportation Projects Commission

Created in 1983, the 15-member Transportation Projects Commission (TPC) reviews major highway project candidates and makes recommendations to the Governor and Legislature regarding projects to be "enumerated" or included in the next two-year state budget.

The TPC includes five Wisconsin State Senators, five Wisconsin State Assembly Representatives, and three citizen members. The Governor serves as the Commission Chairman. The WisDOT Secretary serves as a non-voting member.

Typically, the Commission considers major highway project candidates on a two-year cycle. In the fall of odd-numbered years, the TPC begins the process by looking at projects to advance to the environmental study stage.

In the fall of even numbered years, the Commission reviews, and can recommend for enumeration, projects that have successfully completed the environmental review phase. State law prevents the TPC from recommending projects for enumeration unless funding is available to begin work within six years.

Complete currently enumerated Southeast Wisconsin Freeway Megaprojects Program

Southeast Wisconsin has some of the busiest highways in the state and also some of the most complex highway infrastructure. Consequently, its highway infrastructure is among the most expensive to replace. Southeast Wisconsin megaprojects are defined as freeway projects in the seven-county southeast region with estimated costs (inflation adjusted) of over \$500 million. Southeast megaprojects must be enumerated in the *Wisconsin State Statutes* prior to construction.

Not all highway-related construction projects are defined as Major Highway Development or Southeast Megaprojects. WisDOT will also continue to undertake other highway projects to improve safety, reduce congestion and support economic growth (see Chapter 9, *Investment and Implementation*).

Southeast Freeway System

There are 270 miles of freeways serving seven counties in southeast Wisconsin, with each carrying thousands of cars and trucks every day. The Southeast Freeway System is the economic lifeline not only for the region, but for the entire state, and motorists depend on safe and efficient freeway conditions. Manufacturers in Milwaukee, tourism destinations in Door County, and commuters in Washington and other southeastern Wisconsin counties depend on safe and efficient freeway connections.

The system also includes several freeway-to-freeway interchanges, providing access from one freeway to another. In Milwaukee County, four major interchanges serve as the hubs of the Southeast Freeway System:

- The Marquette Interchange, linking I-43, I-94 and I-794 in downtown Milwaukee
- The Zoo Interchange, connecting I-94, I-894 and US 45 in western Milwaukee County
- The Hale Interchange, connecting I-43, I-894 and US 45 near Hales Corners
- The Mitchell Interchange, linking I-43, I-94 and I-894 near General Mitchell International Airport in Milwaukee

Highway Technology and Operations Policies and Strategies

As discussed in Chapter 6, *Transportation System Condition and Performance*, WisDOT's vision is focused on delivering a safe and efficient transportation system that moves people and goods to their destinations safely and within a reasonable time frame. WisDOT will continue to manage the state transportation system so that it is reliable, resilient, and seamlessly connected. To maximize STH operations, WisDOT will:

- Monitor the state trunk highway network and respond to operational needs
- Improve emergency response
- Improve motor carrier efficiency
- Explore approaches to improve motor carrier enforcement
- Investigate ways to simplify, streamline, and provide more permitting options
- Identify and preserve a sub-system of state highways that accommodate over-height (up to 20 feet), over-weight, and over-size loads
- Work with other states to identify harmonization opportunities
- Support communications along state highway corridors of freight significance, to ensure drivers can remain informed of changing conditions

- Support greater use of technologies to improve the safety and efficiency of operations along corridors with high freight movement frequencies
- Support an increase in the availability of truck parking at state-owned facilities and raise the awareness of its availability

Monitor the state trunk highway system and respond to operational needs

The department's efforts to monitor daily traffic flow on the STH are conducted primarily through close coordination of law enforcement, first responders, other agencies, the media, and staff at WisDOT's State Traffic Operations Center (STOC).

With the aid of cameras, road sensors, and area responders throughout the state, STOC staff work with others to identify and track incidents and initiate appropriate responses. Currently, the STOC has direct responsibility to monitor and coordinate responses to incidents in Southeast Wisconsin, Madison, and Wausau. To serve statewide needs, the STOC coordinates incident responses with local emergency providers through a toll-free telephone number. The center provides information to the public using direct communication, variable message signs, Highway Advisory Radio, and weather displays at rest areas.

The STOC plays an important role in highway safety by coordinating statewide emergency response (see Chapter 6, *Transportation System Condition and Performance*).

Improve emergency response

WisDOT's STOC monitors highways in Milwaukee, Madison, Green Bay, and Wausau using video technology and coordinated communication efforts. The center also coordinates statewide emergency responses through a toll-free telephone number available to law enforcement agencies.

In urban areas, WisDOT will continue to use intelligent transportation systems (ITS) technology for faster detection and response to incidents. Statewide, WisDOT will continue to invest in communication system redundancy and integration throughout the plan period. This includes interoperability systems and standards that allow several agencies and responders to exchange communications across a single channel.

While secondary to safety considerations, enhancements to incident response systems and procedures will also help to mitigate unexpected or non-recurring congestion (see Chapter 6, *Transportation System Condition and Performance*). Rapid detection and response to crashes will also reduce the number of secondary crashes that occur in congested situations. The STOC is also developing best practices for incident management. WisDOT will support the adoption of such practices, and it will support a regular review process to update these practices.

Improve motor carrier efficiency

WisDOT issues permits for OSOW vehicles and loads to provide for their safe and efficient movement. WisDOT will continue to maintain its Internet-based OSOW automated permit issuance system for customers to apply for and self-issue new permits and to renew existing permits.

Explore approaches to improve motor carrier enforcement

WisDOT will continue to apply Weigh-In-Motion, Virtual Scales, PrePass, and other technologies for motor carrier enforcement operations. WisDOT will integrate roadside data captured by these systems with the commercial motor vehicle data networks maintained by the department through CVISN. Integration will provide seamless monitoring for compliance and allow better data analysis of commercial motor vehicle carrier operations.

Investigate ways to simplify, streamline, and provide more permitting options

In Wisconsin, a permit is issued to a carrier to allow operation of a vehicle or load that exceeds the statutory limits. A permit is typically required if vehicle dimensions exceed the values in the table below.

Table 8-3: Vehicle Dimensions Exceeded Requiring a Permit

Dimensions	
Width	8 feet, 6 inches
Height	13 feet, 6 inches
Length –	
Single vehicle and load	45 feet
Combination of 2 vehicles	70 feet
Truck/tractor and semi-trailer	75 feet ⁵
Weight –	
Any one wheel or wheels supporting one end of an axle	11,000 pounds
Truck tractor steering axle	13,000 pounds
Single axle	20,000 pounds
Tandem axles	34,000 pounds
Maximum gross vehicle weights on all axles	80,000 pounds

Source: Wisconsin Department of Transportation, Bureau of Vehicle Services

Permits are generally issued for non-divisible loads, with some exceptions. Wisconsin also places restrictions on certain routes for vehicles traveling on permits.

During development of this plan, shippers and carriers indicated they would like WisDOT to investigate ways to simplify, streamline, and provide more permitting options. As an example, comments reflect that more permitting options are needed for intermodal (i.e., 5/6 axle permit options) movements. WisDOT will continue to investigate ways to simplify, streamline, and provide more permitting options in the state for ease of doing business.

⁵ Must adhere to the appropriate axle spacing to achieve a maximum gross vehicle weight of 80,000 lbs. [348.15].

Identify and preserve a sub-system of state highways that accommodate over-height (up to 20 feet), over-weight, and over-size loads

Wisconsin's transportation system has experienced considerable growth in OSOW freight demand over the past few decades, and this trend is expected to continue. The size and frequency of OSOW vehicles and loads increases stress on bridges and pavements and produces highway operational considerations specific to OSOW movements. These concerns extend from state and federal highways to many local roads and bridges with weight and size restrictions that are posted below legal limits. Wisconsin, along with many other states (including neighboring states), has made significant strides in developing a transportation system that accommodates OSOW loads. However, additional efforts are required to improve safe and efficient movement of these loads – both within the state and across state lines.

OSOW loads can only be transported on roads capable (roadway design) of carrying them. If roadways are not designed to accommodate these large loads, they can create barriers to the safe and efficient movement of goods. Chapter 5, *Wisconsin's Transportation System Assets*, describes the state's OSOW Truck Route Network (Figure 8-1) and the proposed OSOW high clearance routes (Figure 8-2). Identifying these routes is critical to ensuring roadway improvements consider whether a corridor should be able to accommodate freight loads.

In addition to identifying key OSOW routes statewide, the department's FDM must also be updated (see previous strategy – Revise the Facilities Development Manual) to reflect these corridor designations. Updates will provide direction and recommendations on appropriate design considerations, and preservation of facility attributes to maximize the department's investments and ensure that freight loads can be accommodated safely and appropriately.

FAC OSOW Concerns & Suggestions

The FAC was asked to identify potential opportunities to enhance OSOW freight mobility and safety across the state, and to identify tangible steps WisDOT may take either solely, or in partnership with stakeholders, to address OSOW challenges and needs. Attendees at the April 14, 2016 FAC meeting expressed the following recommendations:

- FAC members discussed support for the return of a "Hauler's Hotline" (a parallel to the "Digger's Hotline") as a way to ensure compliance with all the needed contacts for utility assistance during a high/wide load move.
- Mega-loads (those in excess of 400,000 pounds) generate a large amount of extra department work and system impacts. The FAC advised that WisDOT initiate more communication with haulers, logistics planners, and shippers of significant loads to better identify their needs and the department's capabilities to ensure that OSOW commerce can move without disruption.
- The FAC suggested WisDOT should be a resource center and lead more partnerships that bring together shippers, local governments/MPOS/RPCs, law enforcement, utilities, manufacturers, and others using OSOW to share information, identify critical obstacles, and seek solutions.
- Take steps to harmonize permitting rules and availability across state lines, including Minnesota, Iowa, Illinois, and Michigan.
- Work with external partners to improve the availability and ease of acquiring permits.
- Redesign the system for issuing OSOW permits, allowing for more efficient and consistent issuance.

Figure 8-1: OSOW Truck Routes

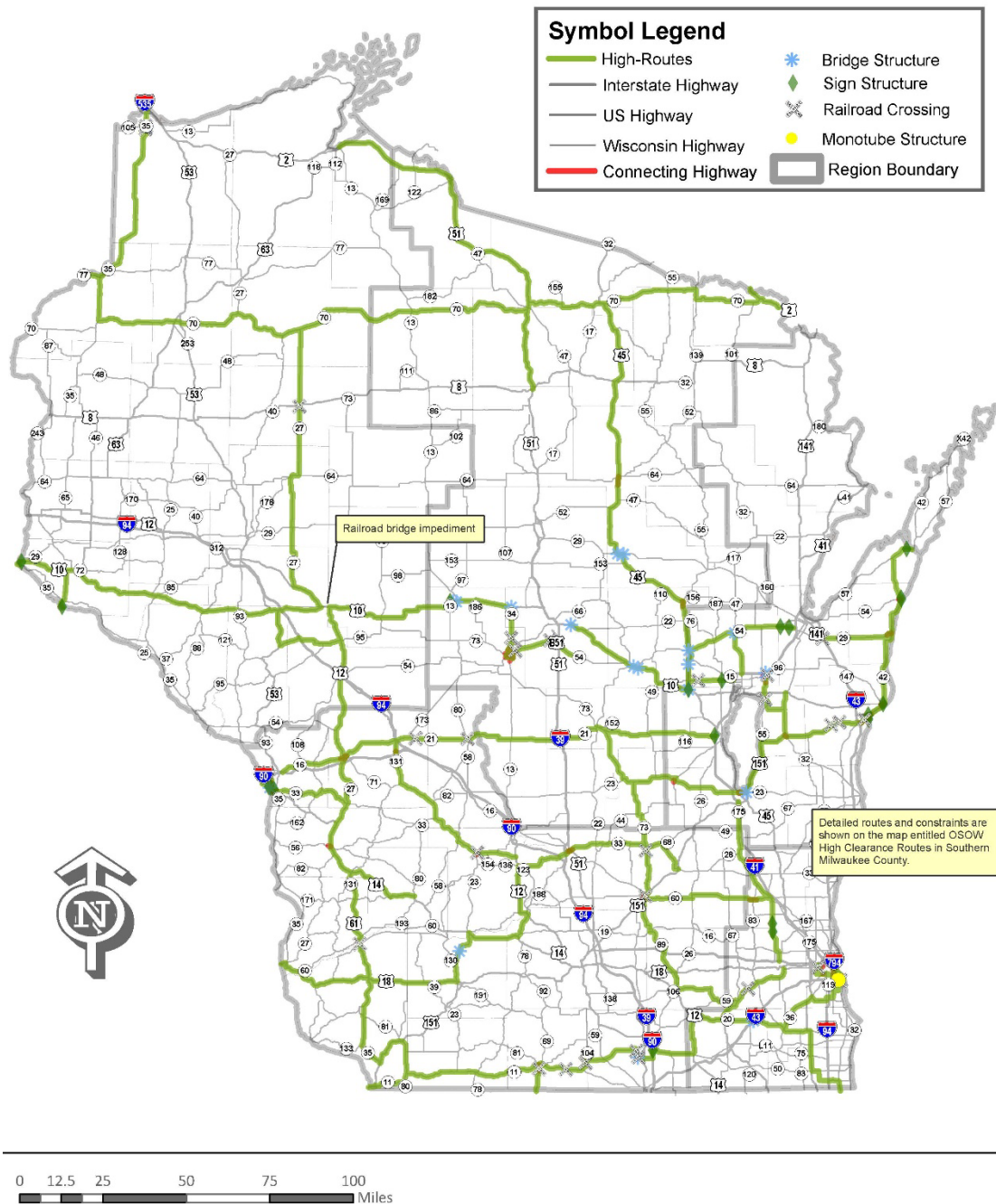
OSOW Truck Route

Data Current as of 3/26/2016



Source: Wisconsin Department of Transportation, Bureau of Highway Maintenance

Figure 8-2: Draft OSOW High Clearance Routes



***Map shows bridge and sign structure constraints with minimum vertical clearance of 20 feet or less. Monotubes structures shown are only for those where mitigation by counter-directional movements is known to not be an option.

March 7, 2017

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Source: Wisconsin Department of Transportation, Southeast Region Planning

Work with other states to identify harmonization opportunities

While it is critical for OSOW loads to have efficient routing within the State of Wisconsin, it is also crucial these movements have sufficient routes to exit and enter the state, as needed. A recommendation from the FAC was that WisDOT take steps to harmonize permitting rules and availability across state lines, including Minnesota, Iowa, Illinois, and Michigan. As in the past, WisDOT will continue to work with other states to identify harmonization opportunities.

Support communications along state highway corridors of freight significance, to ensure drivers can remain informed of changing conditions

While cellular phone, text, and data sharing has created great efficiencies in freight operations, the coverage of those networks is not complete in the state. This places operators along portions of our STH Backbone System at a disadvantage for remaining in coverage with their offices and with Wisconsin's traffic operations system. As new generations of cellular technology are introduced, basic coverage along key corridors should not be neglected.

Support greater use of technologies to improve the safety and efficiency of operations along corridors with high freight movement frequencies

WisDOT has a strong history of using technology to maintain and improve the transportation system. Beyond cellular systems, many other communications, detection, and safety technologies are being developed and implemented for freight applications. Broadening the use of remote screening technologies such as Weigh-In-Motion and PrePass technologies for motor carriers and setting the framework for monitoring, researching, developing, and supporting technologies applicable to the STH system and other transportation modes are both great examples of how use of appropriate technologies can be of benefit to transportation system users.

Support an increase in the availability of truck parking at state-owned facilities and raise the awareness of its availability

Although access to safe and convenient parking areas for trucks is essential for a robust freight transportation network, truck drivers consistently have difficulty finding areas to safely rest. In 2013, a MAP-21 survey revealed that 83 percent of drivers routinely took longer than 30 minutes to find parking.⁶ This presents two potential problems. First, this loss of productivity while searching for parking adds six percent or more to labor costs associated with moving goods through the national freight network.⁷ Second, drivers who have not located parking before reaching their hours of service limits may park illegally or unsafely, often on the shoulders of highways, on off-ramps, or at abandoned facilities.

In response to these concerns, a Mid-American Association of State and Transportation Officials (MAASTO) partnership of Kansas, Indiana, Iowa, Kentucky, Michigan, Minnesota, Ohio and Wisconsin is developing a multi-state Regional Truck Parking Information and Management System (TPIMS). The project is funded through a \$25 million Transportation Investment Generating Economic Recovery (TIGER) grant and state funds.

The Regional TPIMS is envisioned to be a network of safe, convenient parking areas with the ability to collect and broadcast real-time parking availability to drivers through a variety of media outlets including dynamic signs, smart phone applications, in-cab communications, and traveler information websites. The System's implementation in 2018 will help drivers proactively plan their routes and make safer, informed parking decisions. Since over-the-

⁶ Mid America Association of State Transportation Officials, "Tiger Proposal 2015: Regional Truck Parking Information and Management System."

⁷ Jason's Law Truck Parking Survey, 2013.

road truck drivers typically travel at least 500 miles in a day, they will benefit most from this seamless system unbound by state lines and capable of future expansion to additional freight corridors and states.

The Regional TPIMS will be deployed at over 150 parking sites on high-volume freight corridors including: I-35, I-64, I-65, I-70, I-71, I-75, I-80, I-94 and I-135.⁸ These routes are among some of the most important corridors in the MAASTO region, with truck volumes on many of these routes already exceeding 25,000 trucks per day and expected to grow. These high truck volumes create congestion at parking sites, making it difficult for truck traffic to easily locate safe, convenient parking during peak rest hours.

MAASTO's Regional TPIMS is the first such regional effort in America, leveraging efforts already underway in Michigan, Wisconsin, and Minnesota. This initiative offers a great opportunity to improve the country's global competitiveness while boosting the region's economic growth through improvements to freight movements to and from both coasts and significant corridors connecting with Canada and Mexico.

Highway Safety Policies and Strategies

As discussed in Chapter 6, *Transportation System Condition and Performance*, WisDOT will establish a prioritized series of practices to improve safety across all modes in the freight sector. Such efforts would build on existing actions already being taken by WisDOT's Division of State Patrol, including greater deployment of technology to detect safety concerns from commercial vehicle operation. WisDOT will use these and other methods to continue to identify the risks in freight transportation and continue to target operators for inspections and other compliance efforts. Specifically, WisDOT will continue to:

- Improve standards for infrastructure
- Identify freight-specific safety concerns and develop strategies for solutions

WisDOT also envisions support of future safety strategies emerging from the growth of connected vehicle technology, such as on-board warning systems that relay notification to trailing vehicles from commercial vehicles that are stopped or slowed due to incidents.

Improve standards for infrastructure

As mentioned in Chapter 7, *Freight Transportation Trends, Issues, and Forecasts*, highway design standards are continually researched, reviewed, and updated to ensure characteristics such as speed, lane width, shoulder width and slope, and stopping-sight distance meet current traffic requirements. Roadway engineering improvements during the past several decades have changed the mix of causal factors and injury outcomes for traffic crashes. Design tools such as guard rails, divided highways, cable barriers, clear zones, and shoulder-edge rumble strips not only reduce the negative influences of roadway design, roadway condition, or environmental factors, but also minimize the impacts of driver error.

These tools help keep vehicles on the road, and minimize the consequences of leaving the road – two key department safety goals. Roadway engineers apply both proactive and reactive tools in their efforts, such as designing facilities, including roundabouts, to modify driver speed behaviors. This requires engineers to anticipate potential problems and determine how drivers could avoid them, while at the same time identifying existing

⁸ Mid America Association of State Transportation Officials, ""Regional Truck Parking: Truck Parking Information Management Systems (TPIMS)."

problems and designing the facilities to eliminate or reduce their impacts. WisDOT will continue to improve safety standards for infrastructure.

Identify freight-specific safety concerns and develop strategies for solutions

WisDOT will examine motor carrier inspection and crash records (for highway modes), federal safety reports (for highway and non-highway modes) and other available sources to develop and prioritize a list of the safety concerns that are specific to freight equipment and operations. By understanding the types of problems and the scale of their impacts to safety, WisDOT can better target efforts to improve safety in the freight transportation sector, as well as the traveling public as a whole (see Chapter 6, *Transportation System Condition and Performance*). This process will be integrated with the Department's Strategic Highway Safety Plan.

WisDOT also administers the Highway Safety Improvement Program (HSIP) and will use available data to identify "hot spots" for crashes. A portion of HSIP funds are used for local road safety project needs. Other projects include developing speed management guidelines for roadways, conducting intersection studies for major corridors, and analyzing cross-median crash data.

As WisDOT continues its efforts to improve the safety of the state's roadway network, including Wisconsin's local roads and bridges, WisDOT coordinates with local governments to manage available safety funding and program safety improvements. In addition, WisDOT coordinates with locals on data sharing, providing technical assistance, and addressing safety issues.

8.3 Local Roads Policies and Strategies

As discussed in Chapter 5, *Wisconsin's Transportation System Assets*, Wisconsin's locally-owned and maintained road and bridge system serves as a critical link in the state's total transportation network. With over 100,000 miles of county, town, and municipal roads and nearly 9,000 bridges, the local road network accounts for approximately 90 percent of Wisconsin's public road mileage.^{9,10} Typically, these are local roads owned and operated by local jurisdictions.

As a critical companion to the STH, the local road system offers connections not only to local activity centers, but also to state and national facilities of importance such as ports and economic business centers.

Local roads connect to the STH, airports, rail stations, and bus and ferry terminals. They are the first, and usually last, link facilitating farm-to-market commerce and offer critical links for area businesses and tourists.

Local Road Functional Classification
The local road system classification is based on functionality. Functional classification is the process by which highways are grouped into classes according to the character of service they are intended to provide, ranging from a high degree of travel mobility to land access functions. For the purpose of the local road freight analysis, particular attention was paid to the <i>collector</i> functional classification because of their direct access to commercial and industrial areas, and this classification had data that could be analyzed. Collectors, by definition provide direct access to residential neighborhoods, commercial, and industrial areas. As the name implies, these routes collect and distribute traffic between local streets and arterials.

⁹ Wisconsin Department of Transportation, Bureau of Planning and Economic Development.

¹⁰ Wisconsin Department of Transportation, Bureau of Structures, "Annual Bridge Report." (April 2016).

Local Road Preservation and Safety Policies and Strategies

Preserving the local road and bridge system is critical to the continued growth of Wisconsin's economy. To support Wisconsin's local road and bridge system, WisDOT will:

- Assist in providing asset management strategies and tools for local governments to ensure that selected system preservation improvements provide cost-effective service life extension
- Work with local entities to identify and address key safety issues on the local system
- Partner with local governments to manage and invest in the local road and bridge network

Assist in providing asset management strategies and tools for local governments to ensure that selected system preservation improvements provide cost-effective service life extension

WisDOT will work with local governments to develop and adopt asset management strategies to extend the life of existing investments at the lowest cost.

Developing and adopting asset management strategies enables decision-makers to analyze preservation needs using data based on physical condition, safety, operation, function, and connectivity. While WisDOT has initiated efforts with the development and use of Wisconsin Information System for Local Roads (WISLR), gaps remain in data necessary to fully adopt and implement a local road network asset management approach (see Chapter 6, *Transportation System Condition and Performance*). To assist, WisDOT will focus on the following efforts:

- Continue to support WISLR as a data and pavement asset management tool
- Work with local entities to enhance their ability to quantify local road infrastructure needs

Work with local entities to identify and address key safety issues on the local system

WisDOT will continue its efforts to improve the safety of the state's roadway network, including Wisconsin's local roads and bridges. Addressing safety needs is critical regardless of where they occur. Depending on the location, the department's role and responsibility varies.

For the local road system, the department will work with local governments to manage available safety funding and program safety improvements, provide data, enhance analytical tools, and provide technical assistance to address safety issues.

Partner with local governments to manage and invest in the local road and bridge network

Decisions regarding transportation at the state and local levels will continue to emphasize cooperation and coordinated decision-making. All levels of government are responsible for transportation system management and efforts should be made to ensure that decisions are coordinated. WisDOT will continue to work with local governments when managing corridors to ensure that decisions regarding operations, access management, project planning design, or construction consider concerns and issues at the local level.

In addition, WisDOT will work with its stakeholders and local governments to evaluate issues and proposed actions regarding the transport of OSOW loads on Wisconsin's roads. Overweight trucks may accelerate deterioration of highways and bridges, and can result in the need for additional infrastructure investment. Allowing OSOW vehicles on Wisconsin's roadways requires a balance between increasing freight movements to meet economic development goals and minimizing impacts to local roads, highways, and bridges.

Local Road Safety Policies and Strategies

As WisDOT continues its efforts to improve the safety of the state's roadway network, including Wisconsin's local roads and bridges, WisDOT coordinates with local governments to manage available safety funding and to program

safety improvements. In addition, WisDOT coordinates with locals on data sharing, providing technical assistance, and addressing safety issues.

Local governments may use WisDOT data and technical assistance related to safety issues to prioritize applications for funding through WisDOT local programs. WisDOT local programs primarily rely on local governments and metropolitan planning organizations (MPO) to prioritize and, in some cases, select projects based on safety and other locally-determined criteria within funding limitations set by WisDOT for certain programs, project types, or geographical areas. This process allows local governments to consider safety improvements as part of an eligible project in any WisDOT local program.

As identified in Chapter 6, *Transportation System Condition and Performance*, WisDOT also oversees the HSIP and can use data software that can identify “hot spots” for crashes. A portion of HSIP funds are used for local road safety project needs. Other projects include developing speed management guidelines for roadways, conducting intersection studies for major corridors, and analyzing cross-median crash data. These studies fold into other tools, including the FHWA’s urban demand models and the Decision Support System for WisDOT.

8.4 Railroad Policies and Strategies

As identified in Chapter 5, *Wisconsin’s Transportation System Assets*, rail provides a low-cost alternative transportation mode for industry. Low-value, high-volume commodities are typically handled by rail. Rail cars transport millions of tons of coal for the state’s electricity-generating plants. Train cars serve as rolling warehouses, which reduces inventory and warehousing costs, making Wisconsin manufacturers and producers more competitive in the global marketplace. Heavy machinery, manufacturing, auto assembly, and pulp and paper product manufacturing are some of the state’s key industrial sectors that are dependent upon rail to deliver finished goods to domestic and foreign markets.

Freight Rail Preservation and Vitality Policies and Strategies

While the majority of freight rail in Wisconsin occurs on tracks owned and cars operated by one of the private Class I railroads, the state supports a small but important percent of the freight rail network. WisDOT’s focus on freight rail has resulted in a 14 percent increase (2014 to 2016) in the state-supported rail system operating at Class 2 standards (speeds over 10 and less than 25 miles per hour with car loads of 286,000 pounds) (see Chapter 6, *Transportation System Condition and Performance*).¹¹ The state-supported rail system is critical for providing regional access to rail shippers and communities that wish to connect to the national rail system.

WisDOT recognizes the challenges Wisconsin shippers face (see Chapter 7, *Freight Transportation Trends, Issues, and Forecasts*). WisDOT works to ensure that freight rail remains a viable mode of transportation for Wisconsin shippers. The action steps identified in this section are in response to service issues raised by shippers and communities that rely on freight rail service.

¹¹ Wisconsin Department of Transportation, MAPSS.

The railroad policies identified in this chapter are:

- Preserve rail corridors, including rights-of-way, for freight service
- Work with stakeholders to facilitate a discussion to develop an intermodal strategy for Wisconsin
- Maintain state-owned rail lines to allow service levels to continue uninterrupted and without additional restrictions
- Acquire rail lines into public ownership, when appropriate, to preserve essential railroad service
- Fund track upgrades for publicly-supported rail lines to meet changing industry standards

Preserve rail corridors, including rights-of-way, for freight service

WisDOT will continue efforts to preserve rail freight service when the service is judged essential, cost effective, and financially viable based on transportation efficiency cost-benefit analyses.

While the state is committed to maintaining essential freight rail service for Wisconsin communities, this must be balanced with preservation of the existing system. WisDOT will continue to work with communities and shippers to assess opportunities to acquire railroad lines if they are deemed essential to maintaining the state's short line rail service. Historically, Wisconsin's focus for short line/regional rail service needs has centered on two components: preservation of key rail corridors through acquisition or rail banking, and infrastructure improvements to meet industry standards. WisDOT's Freight Rail Preservation Program (FRPP) helps to fund rail line acquisitions. The program is also the primary funding source used to improve the infrastructure of state-owned lines. At current funding levels, the department's focus is on prioritizing preservation of the existing publicly-owned network to ensure stewardship of the system. Acquisitions remain a focus and are considered on a case-by-case basis. The rail transit commissions (RTC) have contracted with the Wisconsin and Southern Railroad (WSOR) to operate the majority of this network for a period of 40 years (expiring in 2047). A number of smaller railroads operate over other rail lines.

WisDOT works with railroads to maintain, improve and increase service in Wisconsin. By monitoring railroad activity and creating partnerships among businesses and railroads to increase the use of rail, it is hoped there will be fewer service reductions and, as a result, fewer abandonments and rail line acquisitions. Despite these efforts, rail lines can be taken out of service or be abandoned.

When preservation of rail service is not possible and a railroad abandons a rail line, the department shifts to a rail corridor preservation approach. Rail corridor preservation ensures that rights-of-way can be used in the future for transportation purposes. In the interim, the corridors can be developed as recreational trails commonly known as Rails-to-Trails.

FAC Input: Rail Service, Access, Competition & Options

Many of the state's top industries depend on rail service for timely, cost-effective transportation of raw materials and finished products, using both state-owned and privately-held corridors and operators. Therefore, infrastructure conditions, performance, and availability of freight rail service are critical factors in the state's overall economic competitiveness.

Attendees at the September 16, 2015 Freight Advisory Committee meeting saw a number of roles for WisDOT in improving rail access/service. FAC members suggested the first role is to facilitate public-private partnerships for economic development. A second role is to educate the public and the business sector on the role of rail.

Additionally, attendees complimented WisDOT for being more engaged than other states in rail preservation, and requested WisDOT take a more proactive approach to improve education and promote:

- Freight Railroad Infrastructure Improvement Program (FRIIP) and FRPP programs, fully marketing these rail programs and their economic development potential as a goal.
- Development of more regional railroads (such as WSOR), encouraging Class I lines to sell their light density lines to WisDOT, which would then contract for operation. The objective for the state should be, at a minimum, preserving right-of-way.
- Evaluation of what corridors should stay in service to ensure strategic connections are retained.
- Collaboration with other agencies and with Class I railroads to help grow business along existing rail lines.
- Encouragement of public-private partnerships, including input from railroads, rail customers, manufacturers, and third-party logistics companies. One important goal of these partnerships should be to obtain quality data on freight movement needs from businesses and use that data to establish the viability of rail service – whether provided by a Class I or a short line.
- The condition and availability of rail cars, particularly log and box cars for the paper industry, drew concern and suggestions for state involvement.
- Wisconsin's role in track and bridge safety inspections is also a concern, especially in cities.

Another option for corridor preservation is to rail bank or land bank a corridor. WisDOT, alone or with local partners, may purchase track and land (rail bank) or land only (land bank). In this case, the corridor is not used as a trail in the interim. Rail banking is an option when local partners have plans to restore rail service in the near term. If attempts to generate business fail, then it is possible for the corridor to be used as a trail under the National Trails System Act. In cases where there is no interest by either the state or local communities to preserve a rail corridor, the rail corridor is allowed to be abandoned, and the property is returned to the owners. Funding for most land acquisitions for Rails-to-Trails will continue to come from the Wisconsin Department of Natural Resources (DNR).

Rail service in some communities could be restored during the life of this plan. Decisions to restore service may be based on economic feasibility, creating system redundancy, or other considerations. A redundant transportation system can provide "backup" or alternative routing for other freight modes, and provide relief from congestion that may occur on national rail corridors. Creating redundancy may also support homeland security efforts and provide alternate routing.

Work with stakeholders to facilitate discussion to develop an intermodal strategy for Wisconsin

WisDOT already works with railroads to maintain, improve, and increase service in Wisconsin. The department will not only continue to do this, but also facilitate discussions with key stakeholders to better understand opportunities for intermodal service in the state. Specifically, WisDOT will work with stakeholders to develop an intermodal strategy that articulates state intermodal service issues, as well as the role of WisDOT and its partners in addressing the issues.

Wisconsin's location between two major freight hubs - Chicago and the Twin Cities - places it at a competitive disadvantage for attracting and retaining true intermodal freight facilities, but that is not to say that there are not pockets of opportunity for service enhancement. For example, the desire to re-establish an intermodal freight facility in the Green Bay area is noted in local long-range plans and other reports, as well as mentioned by Green Bay-area stakeholders during the SFP consultation process. Within the last two years, the states of Kansas and Iowa both further explored their role in intermodal and transload facility development and could serve as best practices for WisDOT.

Intermodal and Transload Facilities

Intermodal Facilities: In its broadest sense, intermodal freight is any freight load that is transferred at least once between transportation modes during shipping. This could cover bulk (unpackaged commodities such as iron ore, gravel, corn, etc.) or containerized loads (commodities shipped in a container) transported by truck, rail, air, vessel, and/or pipeline from origin to final destination. The freight sector has adopted a narrower definition as the transport of shipping containers and truck trailers by rail.¹²

Transload Facilities: Transload freight may follow part or all of the same route between origin and destination points, but it is not containerized. Transload freight may include:

- Rail carloads being unloaded at a warehouse to be distributed via truck to customers
- Bulk ores or grains transferred from rail car to vessel
- Petroleum products shipped via pipeline to terminals where specialized trailers are loaded and trucked to gasoline stations or other customers

¹² Association of American Railroads, "What We Haul: Intermodal."

FAC Input: Intermodal Facilities

Intermodal facilities are designed to transfer containerized shipments between rail and truck. Over the past two decades, at least four intermodal facilities in Wisconsin have been closed, forcing shippers to use highway drayage to and from higher-volume facilities in Illinois and Minnesota. The remaining two facilities - Chippewa Falls and Arcadia - retain their operations due to their major customers (Menards and Ashley Furniture, respectively). The FAC explored WisDOT's role as it relates to the establishment and operation of intermodal facilities.

Attendees at the April 23, 2015 Freight Advisory Committee meeting offered a number of suggestions regarding potential WisDOT solutions to intermodal freight transportation barriers. FAC members suggested solutions could include:

- Collaborating with local economic development agencies and local governments
- Exploring opportunities through short-line rail
- Closing communication gaps between government, railroads, and private enterprise
- Conducting more "value of" studies
- Maintaining safe roads for trucking and providing quality systems across all modes
- Working with railroads to improve connections between one railroad and another
- Studying and identifying traffic and ocean connections, and informing private terminal operators to encourage appropriate placement/development
- Providing education on the benefits of intermodal freight
- Working as a facilitator with other agencies
- Better utilizing free trade zones
- Thinking macro/globally and how local products and business fits into the big economic picture

Maintain state-owned rail lines to allow service levels to continue uninterrupted, and without additional restrictions

WisDOT will work with operating railroads to maintain, improve, and, where possible, increase service in Wisconsin. As identified in Chapter 2, *Transportation Stakeholders and Institutions*, RTCs were created under the provisions of Wisconsin Statutes 59.968 and 66.30 to help preserve rail service or the potential for rail service, and to influence policies on the future use of rail corridors if existing rail service is proposed to be discontinued.

RTCs originally emerged as a mechanism to provide state funding in support of railroad improvements when the state was constitutionally prohibited from directly funding rail improvements through railroad operators. Even though the 1992 passage of an amendment to the constitution allows state funds to be used for railroad improvement purposes, the mechanism of public ownership with the RTCs remains. Grant agreements between WisDOT and RTCs determine how the lines can be used. There are seven RTCs currently operating in Wisconsin, and they are responsible for the oversight and management of the state's publicly-supported 718 miles of rail lines.¹³

The commissions continue to be an important partner with WisDOT in preserving rail service. In this partnership arrangement, WisDOT provides resources, information, staff support, general oversight, and funding. The commissions provide matching funds and coordinate with shippers, freight rail operators, and local governments.

While WisDOT has the ability to purchase rail lines, RTCs have the ability to enter into partnership arrangements with railroads and WisDOT to manage the rail service. RTCs provide matching funds for the purchase and

¹³ Wisconsin Department of Transportation, Bureau of Transit, Local Roads, Railroads and Harbors.

rehabilitation of rail corridors. They also contract with a private operator to provide the freight rail service. Wisconsin's publicly-supported rail lines are jointly owned by the state and a combination of RTCs, consortia, and/or transit authorities (collectively Rail Transit Commissions).

By monitoring railroad activity and creating partnerships among businesses and railroads to increase the use of rail, it is hoped there will be fewer service reductions and, as a result, fewer abandonments and rail line acquisitions.

Acquire rail lines into public ownership, when appropriate, to preserve essential railroad service

WisDOT will continue efforts to preserve rail freight service when the service is judged essential, cost-effective, and financially viable based on transportation efficiency cost-benefit analyses.

In the cases where those corridors are listed for abandonment or other disposition, WisDOT policy will continue to be to evaluate acquisition of these corridors, when supported by local partners, even if service cannot be preserved in the short-term. During the plan period, WisDOT will evaluate the potential for current and future service on light-density lines, and develop a series of criteria for corridor preservation and improvement.

WisDOT recognizes the importance for long distance rail transportation, but the department also has to balance acquisition needs with the costs associated with preserving and maintaining the rail system the department already owns. While no precise mechanism is available to identify a corridor's current and potential future value, consideration of a corridor's potential importance can be established in determining just how extensively WisDOT should preserve (and potentially rehabilitate) a rail corridor. Below is a ranking system for identifying the corridors, and the degree to which WisDOT would respond.

Lowest ranking – No Action. Line has no current or existing rail customers and is unlikely to have them in the near future. Line also does not connect to any port or transload facility, and does not comprise a segment of a larger corridor. Wisconsin DNR may consider a purchase as a recreational trail, or it would revert to private ownership.

Low Ranking – Acquire as Rail Bank or No Action (see Chapter 5, *Wisconsin's Transportation System Assets*). Line has at least one of the following attributes to justify retaining it as a transportation corridor: 1) a potential customer base in the future, as demonstrated by the presence of rail-using businesses and/or comprehensive plans and zoning; 2) the line is a segment in a larger corridor that connects metropolitan areas within Wisconsin, or it connects Wisconsin to other states; or 3) the line serves a port or transload/intermodal facility. In situations where one of the three attributes exists, WisDOT may elect to either rail bank the line or take no action. If no action is taken, Wisconsin DNR may consider a purchase as a recreational trail, or the line would revert to private ownership.

Medium Ranking – Three Potential Opportunities based on the Attributes of the Rail Line. The relevant rail line attributes include the rail line having a potential future customer base, the line is a segment in a larger corridor connecting metropolitan areas within Wisconsin or connecting Wisconsin to other states, or the line serves a port or transload/intermodal facility.

- 1.) **Acquire Rail Line as a Rail Bank Corridor.** Line has at least two of the three attributes listed above. Rail banking is an option when local partners have plans to restore rail service in the near term. If attempts to generate business fail, it is then possible for the corridor to be used as a trail under the National Trails System Act.

- 2.) WisDOT Facilitates Discussions to Direct Lease the Rail Line to a Third Party Operator. Line has a current customer base and at least one of the other attributes above, or it serves an important regional economic role. Under this tier, the responsibility for repairs/rehabilitation would be borne by the owning and/or operating railroad, although businesses along the line could be eligible for the Transportation Economic Assistance (TEA) Grant Program.
- 3.) Acquire and Contract with a Third Party Operator. Line has a current customer base, at least one of the three attributes, and it serves an important regional role; or it has a current customer base and at least two of the three attributes. Under this tier, WisDOT and the RTC have joint ownership of a rail line, and the corridor would be eligible for limited FRPP funding. Additional rehabilitation costs would be borne by the RTC, the operating railroad, and/or customers along the line (who would be eligible to apply for the TEA Program).

Highest Ranking – Acquire and Lease, With Rehabilitation Program via FRPP. Line has a current customer base, at least two of the three attributes, and it serves an important regional economic role. Under this tier, ownership would be shared with a RTC, and a set per-mile level of rehabilitation costs would be assured through FRPP. Additional rehabilitation costs would be borne by the RTC, the operating railroad, and/or customers along the line (who may be eligible to apply for the TEA Program).

Fund track upgrades for publicly-supported rail lines to meet changing industry standards

Growth in rail movements has resulted in longer freight trains, which places a higher demand on the railroad infrastructure to carry longer carloads. To improve their carrying capacity, railroads are increasingly hauling heavier loads in each rail car – moving from 263,000-pound cars to 286,000-pound cars. Long distance freight trains are generally longer than passenger trains, with greater length improving efficiency. The length of a freight train may be measured in number of wagons (for bulk loads such as coal and iron ore) or in feet for general freight. Train lengths and loads on electrified railways, especially lower voltage 3,000 V DC and 1,500 V DC, are limited by traction power considerations. Drawgear and couplings can be a limiting factor, tied in with curves, gradients, and crossing loop lengths. Conventional freight trains in the United States can average nearly 6,600 ft. or 1.25 miles in length. Freight trains with a total length of three or four times that average are possible with the advent of distributed power units, or additional locomotive engines between or behind long chains of freight cars (referred to as a "consist"). These distributed power units enable much longer, heavier loads without the increased risks of derailling that stem from the stress of pulling very long chains of train-cars around curves. Nationally, freight trains are limited by air brake capability (electronically controlled pneumatic braked), which is usually approximately 180 wagons (nearly 10,000 feet or 1.9 miles in length). Track upgrades may assist in accommodating longer trains in Wisconsin.

In addition, Class I railroads are aggressively moving to maximize double-stacked intermodal trains. On routes with this service, railroads have been increasing clearances by raising bridges and lowering trackage to accommodate these containers. It is unclear whether other car heights will also be expanded in the future. Were that to occur, the railroads and WisDOT would need to work together to accommodate this larger equipment on state-owned corridors, as carload weights would increase and geometric clearance issues would become more prevalent.

As identified in Chapter 7, *Freight Transportation Trends, Issues, and Forecasts*, the state's short-line railroad system needs to be able to accommodate heavier car loadings prevalent on Class I railroads to meet industry demands. Two types of infrastructure improvements that will meet this need are:

- Track upgrades to industry standards (286,000 pounds)
- Bridge upgrades to handle heavier car weights

The state-owned system was rehabilitated to Federal Railroad Administration Class 2 Track Safety Standards after it was acquired in the 1980s. Market standards have since changed. Approximately 63 percent of the state-owned system can accommodate 286,000 pound cars. WisDOT will continue to work with RTCs, WSOR, other operators, and stakeholders to study the economic impacts of the publicly-owned rail system and the opportunity costs of this effort to accommodate heavier car loadings.

Rail Safety Policies and Strategies

WisDOT is the primary state agency responsible for roadway-railway crossing improvements statewide. WisDOT regularly improves crossings as part of highway projects. These improvements typically address crossing surfaces and active warning devices. Several WisDOT efforts address the security of roads, bridges, buildings, and other transportation assets including rail corridors and stations. Because railroads are typically owned and operated by private interests, WisDOT's enforcement efforts are focused on road traffic at grade crossings. WisDOT also promotes rail safety and security through its Internet site and educational programs such as Operation Lifesaver. At the planning level, WisDOT coordinates with local jurisdictions, MPOs, regional planning commissions (RPC), railroads, and RTCs in considering rail safety improvements.

8.5 Ports and Waterways Policies and Strategies

As identified in Chapter 5, *Wisconsin's Transportation System Assets*, in 2013, more than 28 million tons,¹⁴ or approximately five percent of Wisconsin's freight by weight, worth over \$2 billion (less than one percent of the total state freight value) was transported by and through ports and waterway facilities.¹⁵ Despite the amount of freight transported by and through ports and waterway facilities, the waterways that surround Wisconsin, the Mississippi River and the Great Lakes, are underutilized as a means to move freight. Recent estimates indicate that the Great Lakes System is operating at about half its potential capacity. Reasons for this underutilization have to do with the type of commodities traditionally transported by water and the lack of intermodal connections.

Bulk commodities (e.g. grain, fertilizer, and iron ore) have different service requirements than goods shipped by trucks or air, which typically need to be shipped faster. While Wisconsin's waterways are connected to an extensive waterway network, that network is not necessarily well integrated into the road and rail systems (see Chapter 7, *Freight Transportation Trends, Issues, and Forecasts*).

Maintenance and Improvement of Waterways Policies and Strategies

To promote increased freight transportation and commerce along the Great Lakes and the Mississippi River, WisDOT will maintain and improve waterways critical to Wisconsin's transportation system. Specifically, WisDOT will:

- Explore the development of a maritime strategy for Wisconsin
- Provide state assistance programs for harbor improvements
- Advocate for federal funding of navigation and environmental improvements for the Upper Mississippi River-Illinois River Waterway, Soo Lock System, and the Great Lakes and St. Lawrence Seaway

¹⁴ 2013 IHS Transearch Database.

¹⁵ Ibid.

- Encourage comprehensive harbor and waterfront land use planning
- Examine roadway issues at ports

Explore the development of a maritime strategy for Wisconsin

To build on existing statewide and regional maritime transportation planning efforts, WisDOT will develop a freestanding maritime transportation strategy. A Wisconsin maritime transportation strategy will allow WisDOT to implement strategies to improve effectiveness and efficiency of Wisconsin ports as components of the state's multimodal transportation system.

WisDOT will also continue to coordinate with state, regional, and international partners to support maritime transportation as part of a safe, efficient, and seamless freight transportation network. This includes the Wisconsin Commercial Ports Association, Wisconsin Coastal Management Program, Upper Mississippi River Basin Association, United States DOT's Maritime Administration, Lake Carriers Association, United States Army Corps of Engineers (USACE), Wisconsin Economic Development Corporation, River Resources Forum, and the Conference of Great Lakes and St. Lawrence Seaway Governors and Premiers planning efforts.

Provide state assistance programs for harbor improvements

Wisconsin projects do not compete well for federal funding, which tends to go to high-volume harbors in other regions of the United States. According to a spring 2012 survey, Great Lakes harbors projected only one percent of port and private capital expenditures from 2012 through 2016 compared with other parts of the country.¹⁶ While the state does not own any harbors, the department administers a Harbor Assistance Program (HAP) for commercial ports. The HAP supports and enables their port as an economic development resource, as well as a local and state transportation resource. Maintenance and rehabilitation projects are prioritized based on the review and recommendation of the state Harbor Advisory Council.

While the HAP recognizes and serves the economic diversity at Wisconsin ports, the focus of the program has been on projects that support freight at larger commercial ports that predominantly move freight. In looking at the entire program life, 67 percent of projects have supported freight at these ports. Projects supporting shipbuilding (12 percent of all projects), ferries (13 percent of all projects), and commercial fishing (8 percent) round out the projects. Further, 73.2 percent of the funds associated with these projects were invested in freight-supporting projects.¹⁷

Between 1980 and 2013, HAP distributed approximately \$140 million for investment (based on 2013 real dollars). Approximately 60 percent of the HAP funding went to gateway ports, 18 percent was invested in diversified cargo ports, 15 percent went to limited cargo ports and approximately 6 percent of the funding went to other ports in Wisconsin.¹⁸ WisDOT will continue to work with the Advisory Council to identify potential land- and water-side harbor improvement projects that may be funded through the HAP.

¹⁶ American Association of Port Authorities, "U.S. Port Infrastructure Investment Survey 2012-2016." (May 31, 2012).

¹⁷ National Center For Freight & Infrastructure Research & Education, "Wisconsin Commercial Ports Development Initiative - Final Project Report." (December 2014).

¹⁸ Ibid.

Advocate for federal funding of navigation and environmental improvements for the Upper Mississippi River-Illinois River Waterway, Soo Lock System, and the Great Lakes and St. Lawrence Seaway

Upper Mississippi River-Illinois River Waterway: As referenced in Chapter 5, *Wisconsin's Transportation System Assets*, Wisconsin relies on access to the Mississippi River system for shipping transportation, recreation, and fishing. The system of locks and dams on the Mississippi and Illinois Rivers allow barge transportation along Wisconsin's western boundary, as well as from Milwaukee to the Gulf of Mexico. Key state industries such as agriculture, forestry, and mining rely on the efficient movement of freight via the waterway to drive competitiveness. The majority of commodities transported out of Wisconsin ports via river barges are agricultural-related items. Freight shipments by water face several challenges including seasonal water limitations, winter lock closures, antiquated lock systems, lack of dredging, and fluctuating water levels.¹⁹

In 2014, the United States DOT's Maritime Administration approved designation of the Upper Mississippi River from St. Louis, MO to St. Paul, MN as the M-35 Marine Highway Corridor. This designation, cosponsored by WisDOT, is a necessary step toward planning for an integrated, multimodal regional transportation system. WisDOT is working with the Upper Mississippi River Basin Association (UMRBA), a group formed by the Governors of Iowa, Illinois, Minnesota, Missouri, and Wisconsin to assess the current state of river navigation to evaluate ways to increase the efficiency and reliability of the lock and dam system, and identify opportunities to increase utilization of the Upper Mississippi River.

In fall 2016, the United States DOT's Maritime Administration awarded a \$96,000 planning grant to the City of St. Louis Port Authority, along with three partners: Inland Rivers Ports & Terminals, Inc. (IRPT), Mississippi Rivers Cities & Towns Initiative (MRCTI), and UMRBA to support planning efforts focused on the development of containerized shipping along the Mississippi River, between New Orleans, LA, and Minneapolis, MN, and Chicago, IL.²⁰ With a twenty percent match shared among the St. Louis Port Authority, MRCTI, IRPT, and UMRBA, the total money available is \$120,000.

Soo Lock System: Located along St. Mary's River in Sault Ste. Marie, Michigan, the Soo Lock System provides the only water connection between Lake Superior and the rest of the Great Lakes system. About 86 million tons of freight pass through the lock system each year, of which iron ore, coal and grain are the primary commodities.²¹ These commodities account for approximately 90 percent of the total freight transported into and out of the Port of Duluth-Superior.²²

The Soo Lock system is operated by the USACE. The system consists of two currently functioning locks. Currently, the Poe lock is the only Soo lock capable of handling the largest vessels in the Great Lakes fleet. Failure of this lock would prevent these large vessels from traveling between Lake Superior's ports and other Great Lakes ports. For this reason, the USACE recommends constructing a new Poe-sized lock. The new lock would provide needed capacity and redundancy to ensure reliable service to Lake Superior's ports in the future. However, full funding for the construction of this lock has not been included in any recent USACE's budgets.

¹⁹ National Center For Freight & Infrastructure Research & Education, "Wisconsin Commercial Ports Development Initiative - Final Project Report." (December 2014).

²⁰ Maritime Administration, "Maritime Administration Awards \$4.85 Million in Grants for Marine Highway Projects." (October 26, 2016).

²¹ Sault Ste Marie, "Soo Locks - a Wonder of Engineering and Human Ingenuity."

²² Duluth Seaway Port Authority.

Great Lakes and St. Lawrence Seaway: The Saint Lawrence Seaway is a system of locks, canals, and channels in Canada and the United States that permit ocean-going vessels to travel from the Atlantic Ocean to the Great Lakes, as far inland as the western end of Lake Superior. Great Lakes and Seaway shipping generates \$18.1 billion in business revenue annually in the United States²³ International changes have affected shipping through the Seaway. Europe is no longer a major grain importer and big United States export shipments are now going to South America, Asia, and Africa. These destinations make Gulf and West Coast ports more critical to 21st-century grain exports.

WisDOT is a member of the Conference of Great Lakes and St. Lawrence Seaway Governors and Premiers. In June 2016, the Governors and Premiers approved an action plan to improve the efficiency and competitiveness of the Great Lakes maritime transportation system. Action items have been developed to increase maritime transportation efficiency and reduce costs, build new markets, increase economic activity, and plan for the future. The Conference of Great Lakes and St. Lawrence Governors and Premiers is transitioning to implementation of the plan.

Panama Canal: The Panama Canal expansion project, also called the Third Set of Locks Project, doubled the capacity of the Panama Canal in 2016. Key expansion components include the creation of a new traffic lane and the ability to accommodate more and larger ships. The increase in the size and depth of the locks will enable most larger container ships to use the canal, and will more than double its throughput capacity (measured by twenty-foot equivalent units).²⁴

For Wisconsin, passage through the Panama Canal means that the state's agricultural goods, as well as oil and natural gas from the upper Midwest, will have a dramatically shorter trip from the Gulf Coast to ports in eastern Asia. This could also increase demand for shipping by railroads that move cargo from the Midwest south and toward the Gulf.

Wisconsin Commercial Ports Association Ports Development Initiative: Any increased freight activity at Wisconsin ports is expected to provide economic benefits in the form of jobs and business development, while also helping meet the burgeoning traffic demand on the region's highways and rail systems. In recent years, a focus has been placed on the Wisconsin Commercial Ports Development Initiative (WCPDI), which is an overarching vision and multifaceted strategic plan for the development of Wisconsin's commercial ports and Inland River system to more fully utilize and develop Wisconsin's port facilities (Chapter 7, *Freight Transportation Trends, Issues, and Forecasts*). WisDOT has supported and advocated for the statewide port planning effort. The development effort will support sustainable market attraction and growth at the ports as well as economic and community development that contributes to the overall well-being and quality of life in the State of Wisconsin. The first phase, completed in December 2014, included an asset inventory and assessment of priorities. The second phase, completed in October 2016, identified goods that could be more efficiently moved by water instead of other modes. WisDOT will continue to support the WCPDI.

Encourage comprehensive harbor and waterfront land use planning

Wisconsin port communities are faced with competing land uses for existing waterfront properties. With increasing demand for waterfront property, local officials must address the challenges of zoning conflicts between

²³ Great Lakes St. Lawrence Seaway System, "The Economic Impacts of the Great Lakes-St. Lawrence Seaway System." (October 18, 2011).

²⁴ Hofstra University, "Comparative Characteristics of the Panama Canal Expansion."

competing interests at the ports, such as recreation/tourism, housing developments, and commercial and industrial needs. Some of these competing interests could impact future freight activities at Wisconsin's ports.

RPCs, MPOs, and local governments typically handle local shoreline planning and development issues. Historically, WisDOT has had limited involvement with local shoreline planning and development issues. WisDOT will provide technical assistance to community planning efforts.

Examine roadway issues at ports

The road network that connects to the state's ports is a critical, but sometimes-overlooked, part of Wisconsin's transportation system. Typically, these are local roads owned and operated by local jurisdictions. Even though they are local roads, many are part of the National Highway System because they provide access to intermodal facilities. In some instances, these roads may be a low priority for improvement because they typically do not serve high volumes of passenger traffic.

In addition, the road network sometimes does not adequately serve OSOW trucks traveling to and from the ports. This can result in trucks traveling farther distances to avoid bridges with weight limits, areas with reduced clearances, or roadways with insufficient turning radii.

Since many of these local roads are part of the National Highway System, the state and local governments typically share responsibility for maintaining them. As part of WisDOT's freight planning and local roads coordination efforts, the department will work with local governments and Wisconsin's ports to identify solutions that address roadway issues for port areas (see Chapter 6, *Transportation System Condition and Performance*, and Chapter 7, *Freight Transportation Trends, Issues, and Forecasts*).

8.6 Air Policies and Strategies

As identified in Chapter 5, *Wisconsin's Transportation System Assets*, Wisconsin businesses use air freight to ensure the availability and freshness of products with short shelf lives, aid in just-in-time manufacturing and expand market reach. In 2013, almost 105,000 tons of air freight cargo was loaded onto planes, with a total value exceeding \$10 billion.²⁵ Wisconsin has six airports offering regular air cargo service:

- Appleton International, Appleton
- Austin Straubel International, Green Bay
- Dane County Regional, Madison
- General Mitchell International, Milwaukee
- Central Wisconsin, Mosinee
- Rhinelander-Oneida County, Rhinelander

Cargo that moves by air tends to be items that are high-value, low weight/bulk, time-sensitive, or highly specialized. The most common commodity types include small packaged freight, transportation equipment, electrical equipment, machinery, instruments, photo equipment, and optical equipment, miscellaneous manufacturing products, and chemicals and allied products.²⁶

²⁵ 2013 IHS Transearch Database.

²⁶ 2013 IHS Transearch Database, 2 digit STCC Codes used.

Airport Facilities and Infrastructure Policies and Strategies

Airports and aviation are integral parts of local, state, and regional economic development. An airport's ability to accommodate the needs of existing and prospective businesses is vital. To help improve the environment for business growth and retention, WisDOT will improve airport facilities and infrastructure by increasing the number of airports able to handle business airplanes. To accomplish this policy, WisDOT will:

- Use the Airport Improvement Program to help Wisconsin airports accommodate business planes
- Support the needed airport system infrastructure, including inclement weather capability, to enable and sustain jet aircraft and related activity

Use the Airport Improvement Program to help Wisconsin airports accommodate business planes

WisDOT will continue to use the Airport Improvement Program to assist with infrastructure improvements at Wisconsin airports. The Airport Improvement Program uses a combination of federal, state, and local funds. Airport infrastructure improvement projects that clearly support an immediate need by an existing business user, or that can be directly linked to job retention, job increases, income, and retaining a company located in the community, are given priority over projects intended solely to attract new business.

Support the needed airport system infrastructure, including inclement weather capability, to enable and sustain jet aircraft and related activity

In addition to helping airports improve runways, the Airport Improvement Program also funds other improvements typically needed by jet airports:

- Instrument approach systems
- Runway lighting
- Visual landing aids
- Expansion of taxiways and aprons
- Fuel storage
- Hanger space
- On-site weather information
- Terminal buildings
- Waiting areas
- Ground transportation
- Security

8.7 Pipeline Policies and Strategies

Wisconsin's pipeline system is used to move pipeline commodities into and through the state. The location of Wisconsin relative to large regional refining hubs, east coast markets, and active gas and oil fields in North Dakota and Alberta results in significant pipeline capacity being allocated to commodities traveling through the state. Additionally, Wisconsin's location results in the state being impacted by national and international crude oil and natural gas trends.

Wisconsin is not a producer of natural gas or crude oil, but the state relies on natural gas and refined petroleum products to fuel economic activity. Wisconsin's privately-owned pipeline system is used primarily for the transmission and distribution of natural gas, petroleum products, and to move crude oil through the state.

Wisconsin's over 74,800 miles of pipelines transported more than 29 million tons of natural gas and petroleum products, valued at almost \$16 billion in 2012 (Chapter 5, *Wisconsin's Transportation System Assets*).²⁷

Pipeline commodities are a key economic input into Wisconsin's economy. Pipelines are the preferred method to transport large volumes of liquids and gases over longer distances, due in part to lower costs relative to rail or trucking. Commodities transported via Wisconsin pipelines (e.g., crude oil, natural gas, propane, gasoline, fuel oil, and petroleum products) are key inputs for transportation, commercial and residential heating, energy production, manufacturing, refining, petroleum-derived products, and agricultural sectors.

Forces Driving Pipeline Strategies

In order to identify pipeline strategies, it is important to recognize key pipeline attributes, constraints, and drivers (see Chapter 5, *Wisconsin's Transportation System Assets*).

Pipelines move a considerable amount of freight: The volume carried by just the Enbridge Mainline in Wisconsin would require roughly 25 freight trains per day in addition to the five per day that already carry crude oil through the state.²⁸

Consumption not production: Wisconsin is not a producer of crude or natural gas products. The vast majority of petroleum products (gasoline, diesel, propane, jet fuel) originate outside of Wisconsin. However, the Calumet Superior refinery, located in Superior, has a capacity of 45,000 petroleum barrels per day, producing gasoline, diesel, asphalt and heavy fuel.²⁹ The refinery receives its crude by pipeline (Enbridge) and rail car. The products from the refinery are delivered via the Magellan pipeline, tank truck, and rail car. Therefore, the state is directly affected by both in-state and out-of-state disruptions in production, refining or transportation.

Significant through traffic: Pipeline siting in Wisconsin, especially crude oil, is driven primarily by out-of-state factors. For example, production in Western Canada and refineries around Chicago and Michigan/Eastern Canada, result in significant pass through flows of crude oil. Wisconsin is also a pass through state for natural gas — the United States Energy Information Administration (EIA) estimates that half of the natural gas entering the state is not consumed in Wisconsin. Some petroleum products pass through the state, but Wisconsin is primarily a consumer of the petroleum products that enter the state.

Limited institutional agility: Pipeline commodities are variable over short periods of time, limiting the ability of WisDOT to respond proactively to emerging trends. The policy or investment options that the department can leverage to effectively address transportation constraints often take much longer to take effect than trends may last. Therefore, many of the department's traditional responses to addressing infrastructure problems cannot be effectively leveraged.

Day-to-day regulation is outside WisDOT: Pipelines are regulated primarily by federal and state institutions outside WisDOT. WisDOT may be involved in the approval of pipeline siting in department right of way. Additionally, WisDOT identifies pipelines during the roadway construction process to ensure the proper plans and supporting equipment are available in the event construction equipment hits a pipeline.

²⁷ CPCS, "2015 Wisconsin State Freight Plan - Wisconsin Pipelines: System Assets Condition and Outlook."

²⁸ CPCS, "Wisconsin State Freight Plan - Wisconsin Pipelines: Draft Final Report." (February 2016).

²⁹ Calumet Specialty Products Partners, L.P., "About Us."

Private transportation systems: The pipeline transportation system is privately owned, maintained, and operated. As such, WisDOT does not have a role in capacity, operational choices, and infrastructure investment.

Varied commodity supply chains: North American crude and natural gas generally move by pipeline from the well directly to the refinery. Whereas, petroleum product pipelines generally distribute major products from refineries to highly populated areas.

Constrained pipeline capacity affects other modes: The impact of insufficient pipeline capacity is the use of less efficient modes of transportation for the movement of crude, potentially congesting these modes for other users. The competition and connections between modes ensures that capacity constraints, inefficiencies, or challenges in one mode will impact other modes and, in turn, the economy.

Fast acting markets: Trends or significant events in oil or natural gas technology can significantly affect production levels, along with the flows of petroleum products both domestically and internationally. Additionally, the longevity of a trend or technology is subject to a variety of factors that have the potential to reverse trends or significantly change flows. The volatility of commodity markets and the potential for massive shifts in production and flow patterns make infrastructure planning difficult and subject to extensive uncertainty.

Demand varies by the season and weather: The consumption of petroleum products and natural gas varies seasonally, which is especially true for heating fuels such as propane. Similarly, natural gas varies seasonally as both a heating fuel and one used for energy production. Consumption is therefore dependent on temperature variation, as well as other factors such as precipitation.

Emergency events tax the system: An emergency issue affecting one pipeline inside or outside Wisconsin has the potential to constrain short-term supply. While the connection to natural gas and petroleum products directly impacts the delivery of products to the state, Wisconsin's crude oil pipelines supply refiners with inputs, which in turn supply the market. Similarly, when the pipeline system experiences an emergency event such as a rupture, the break in service may result in the use of other pipelines and/or modes of transportation to supply petroleum products to the market.

Pipeline commodities exhibit price volatility: Crude oil, natural gas, or petroleum products are subject to significant volatility based on commodity fluctuations. The price of crude oil and petroleum products is a function of a variety of factors, the majority of which are outside of the control of government, let alone WisDOT.

Pipeline Strategies

Pipelines are recognized as an important form of transportation. WisDOT has a limited and ancillary role relative to transport via pipeline. As such, no pipeline policies are proposed, but the department has identified the following pipeline strategies:

- Apply the Utility Accommodation Policy to all types of pipelines in Wisconsin
- Monitor trends in crude oil movements and their impact on other transportation users
- Coordinate with natural gas pipeline construction and participate in emergency response
- Enable modal connections, diversity, and provide system resiliency for petroleum product pipelines

Apply the Utility Accommodation Policy to all types of pipelines in Wisconsin

WisDOT has identified general pipeline strategies that are not dependent on a particular type of pipeline. General and commodity specific roles are based off the attributes, trends, and limitations presented above (see also Chapter 7, *Freight Transportation Trends, Issues, and Forecasts*).

The primary way in which WisDOT is currently involved with pipelines is through its Utility Accommodation Policy (UAP). WisDOT allows pipelines on STH right of way (ROW) if the use will not negatively impact the function of the roadway, the use is legal at a local, state, and federal level, and the use will not make future construction more difficult or costly.

WisDOT identifies potential intersections between the locations of pipelines relative to construction projects to ensure construction personnel are aware of their locations. Additionally, WisDOT ensures that the project has access to the equipment needed to respond to a pipeline incident, should it occur during construction.

Utility Accommodation Policy

WisDOT operates the STH to provide a safe and convenient means for the transportation of people and goods, and utility companies provide essential services to the public. Both WisDOT and utility companies provide facilities that consider present as well as future needs. Cooperation between the two entities is essential if the public is to be served at the lowest possible cost consistent with their respective public service needs, obligations, and interests.

WisDOT's utility accommodation policy (UAP) prescribes the policies and procedures that shall be met by any utility whose facility currently occupies, or will occupy in the future, any highway or bridge over which WisDOT has maintenance jurisdiction.

The UAP applies to all public and private utilities. It also applies to all existing utility facilities retained, relocated, replaced, or altered, and to new utility facilities installed on state ROW. Highway facilities (e.g., lighting, traffic signals, changeable message boards, etc.) operated by WisDOT for the purposes of motorist safety are not bound by the UAP.

Monitor trends in crude oil movements and their impact on other transportation users

Translating this approach to actions is limited by the minimal authority that WisDOT can exercise with respect to pipelines. As such, the actions focus on the impact of pipelines on other modes and the impacts on other businesses within the state. The following strategies are proposed:

WisDOT will monitor crude by rail frequency in the context of its multimodal planning strategy. The most efficient way to obtain data is to pursue a partnership with Wisconsin Emergency Management (WEM); less detailed data are also available from the United States Energy Information Administration. WisDOT is also using input from the FAC to serve as a barometer of rail performance. WisDOT can use this information to monitor crude by rail trends. In addition, in an effort to build partnerships with pipeline companies, WisDOT is working to encourage pipeline companies to participate in events, such as the Governor's Freight Industry Summits and FAC meetings.

WisDOT is assessing the impact of crude by rail flows in the SFP (see Chapter 6, *Transportation System Condition and Performance*). This assessment identifies users affected by crude by rail flows.

Coordinate with natural gas pipeline construction and participate in emergency response

Translating this approach to actions is limited by the minimal authority that WisDOT can exercise with respect to pipelines. As such, the actions focus on providing emergency support as required and identifying the issues faced in exercising the UAP. The following strategies are underway:

WisDOT is engaged in a support capacity in the event of an energy emergency. This role is primarily focused on coordinating and supporting the movement of needed energy inputs. WisDOT has a role in ensuring vehicles with weight or hours of service waivers are able to travel throughout the state.

WisDOT in coordination with the Public Service Commission (PSC) is exploring the implementation of the UAP to ensure it is enabling natural gas pipeline development without compromising the underlying need for the policy. Additionally, WisDOT will support the state's Energy Assurance Plan. WisDOT may identify additional justification for projects that are both needed and would positively benefit the ability of the state to respond to an energy emergency.

Enable modal connections, diversity and provide system resiliency for petroleum product pipelines

Much of WisDOT's approach to petroleum products is the same as natural gas, with the addition that product terminals should be included in freight planning activities.

The petroleum pipeline network is much less dense and integrated than the natural gas pipeline network, increasing the likelihood that a pipeline disruption affects a large portion of the state. In terms of vulnerability, closure of the West Shore Pipeline into Green Bay leaves Waupun and Milwaukee as the next closest terminals, and has resulted in petroleum products having to be shipped into Green Bay by truck and water.

WisDOT is considering a very similar role for emergency response with petroleum product pipelines as is suggested in natural gas. Namely, coordinating and supporting the movement of needed energy inputs. WisDOT also aids in ensuring vehicles with weight or hours to service waivers are able to travel throughout the state.

Generally, WisDOT's role in petroleum product pipelines is directly related to the PSC for pipeline citing and WEM as the lead coordinating agency in case of an energy emergency. As with natural gas pipelines, WisDOT in coordination with the PSC is exploring the implementation of the UAP.

Within the context of the SFP, Wisconsin is ensuring it includes petroleum terminals as part of their freight generators and freight modeling approaches (see Chapter 7, *Freight Transportation Trends, Issues, and Forecasts*). Inclusion of these assets not only reflects key locations of the freight transportation system, but also raises their visibility when planning future investments.

8.8 Factors Influencing and Supporting Freight Policies and Strategies

Support of freight transportation needs has a direct connection with overall transportation decision-making. The department's focus remains on the safe and efficient movement of people and goods. The SFP's policies for freight operations, facilities, planning, and overall functionality are based on several inputs and factors:

- Previously adopted long-range plans
- MPOs' and RPCs' long-range transportation plans
- Federal policy

Previously Adopted Long-Range Multimodal State Plans

WisDOT has a long history of established policies and best practices that guide agency actions and investment decisions. These have been developed over time based on industry standards, best practices identified and defined from experiences statewide, regionally, and nationally, comprehensive and quality data collection and analysis, and documentation via long-range plans.

Connections 2030 Freight Recommendations

Connections 2030 forms the platform for freight policies identified within the SFP. Those most supportive of freight transportation can be grouped into three categories – system preservation and maintenance, system performance and efficiency, and economic development – include:³⁰

- System Preservation and Maintenance
 - Implement cost-effective maintenance activities on Wisconsin's STH infrastructure
 - Preserve Wisconsin's STH infrastructure
 - Preserve Wisconsin's airport system infrastructure
 - Maintain and improve waterways critical to Wisconsin's transportation system
 - Preserve the local road and bridge system
- System Performance and Efficiency
 - Improve standards for infrastructure
 - Continue and improve the performance of the Major Highway Development Program
 - Improve the reliability and efficiency of STH operations
 - Actively manage the daily operation of the STH via the STOC and other technology systems
 - Optimize traffic movement on the STH by utilizing tools to improve existing capacity and, where necessary, adding capacity
 - Manage access on Wisconsin's STH
 - Enhance the security of the transportation system by reducing vulnerability
 - Improve emergency response to make the transportation system more resilient
- Economic Development
 - Partner with stakeholders to ensure that freight movements are safe, reliable, and provide positive environmental and community impacts
 - Ensure that freight rail remains a viable transportation mode for Wisconsin shippers
 - Partner with consumers and businesses to increase transportation sustainability
 - Support individuals and businesses related to transportation by providing load assistance to Wisconsin businesses and communities

³⁰ *Connections 2030*, Chapters 5-11.

In addition to the statewide long-range plan, Wisconsin's fourteen MPOs and nine RPCs develop long-range plans which address/discuss freight transportation needs for urban and rural areas in Wisconsin. In order to have a comprehensive transportation system that enables the movement of freight, it is imperative that state, rural and urban plans align and support each other. Many of the policies in these plans share common themes, concerns, and recommendations. Local plan policies for freight are summarized in this section. Specifically, WisDOT will coordinate with MPOs, RPCs and local partners in the implementation and execution of their freight policy.

Metropolitan Planning Organizations and Regional Planning Commissions Long-Range Transportation Plans

The themes and topics below are summarized extracts from long-range transportation plans currently in place for MPOs and RPCs in Wisconsin.

Overall themes

- Support freight movement that is safe, multimodal, efficient, reliable, accessible, and economical.
- Maintain and/or increase investment in freight facilities and operations.
- Reduce congestion and travel delays in ways that benefit both freight and personal mobility.

Local Connectivity

- Establish policies or strategies for identifying the truck freight corridors of highest use, and ensuring these corridors have adequate infrastructure, receive proper signage, and are directed away from residential areas or areas otherwise not designed to accommodate them.
- Identify, design, and preserve corridors able to handle OSOW freight loads, especially near ports and/or along state borders.
- Identify the importance of improving freight connections and integration between modes, modernizing and improving coordination while reducing conflicts.
- Establish or re-establish intermodal terminals in their areas, along with the equipment needed to support those operations. Public-private partnerships are generally encouraged.

Safety and Security

- Establish goals of improving the safety of freight movements and ensuring the security of transportation facilities.
- Minimize or eliminate conflicts between freight operations, such as using grade separations to remove at-grade highway-rail crossings.
- Seek to reduce truck crashes through evaluation of crash data.
- Identify opportunities for system redundancy and resiliency to address security considerations.

Modal Improvements

- Efforts to showcase, maintain, and/or improve aviation facilities to meet the needs for air freight.
- Advocate for preservation of rail corridors and freight rail service, including data collection to support rail service levels and to help identify rail-served locations available for development or redevelopment. Track improvements are also recommended.
- Port goals include increasing the tonnage of goods shipments, improved connections with other modes (including potential containerized shipping on the Great Lakes), and deeper and wider dredging permits.

System Operations and Management

- Recommendations under this theme include greater use of technology to track and weigh commercial vehicles.
- The use of ITS technology is also identified as a means to improve congestion management.
- Integration of transportation technologies across different modes is also recommended.

Economic Development

- The plans that connect economic development and freight seek to reduce the overall impediments of the transportation system to shipping, trucking, manufacturing, and agricultural operations. Opportunities to enhance goods movement are promoted.
- One plan recommends directing transportation investment towards improving the sustainability of growing industrial sectors.
- Recommendations also include analysis of the connections and changes to the economy, and how to improve and redirect transportation networks as information is received.

Partnerships and Performance Measurement

- Plans call for better communication between the MPOs and the freight community, up to and including freight forums with shippers, federal and state agencies, and others.
- One plan calls for support of efforts in areas outside the region that improve freight movement to and from the region.
- Recommended performance measures include ATRI truck counts, use of WisDOT's Travel Demand Model, and other measurements of congestion and commodity flows.
- One goal expressed is to learn about and apply best practices on freight data analysis.

Federal Policy

The current Fixing America's Surface Transportation Act of 2015 (FAST Act) represents the strongest federal commitment to date for freight transportation by having a sharp focus on freight transportation and dedicating funding to states explicitly for freight projects and planning efforts, while requiring specific actions to qualify for that funding.

The FAST Act requires the United States DOT to create a National Freight Strategic Plan (NFSP), due in December 2017 (49 U.S.C. 70102). A draft version was prepared and released for comment in late 2015. The NFSP content includes:

- Assessment of the condition of the National Multimodal Freight Network (NMFN)
- Assessment of barriers to improved freight transportation performance (and opportunities to overcome those barriers)
- Forecasts of freight volumes at 5-, 10, and 20-year intervals
- Identification of major trade gateways and national freight corridors
- Identification of bottlenecks that create significant freight congestion
- Corridors that support the energy sector, manufacturing, agriculture, or natural resources
- Best practices for improving NMFN performance, including rural and urban corridors critical to access the NMFN
- Best practices to mitigate the impacts of freight movement on communities
- A process for addressing multistate projects that encourages collaboration
- Strategies to improve freight intermodal connectivity

The FAST Act also requires the United States DOT to designate a NMFN by December of 2017 (49 U.S.C. 70103). The intent of the NMFN is to help states direct resources towards improving performance of freight movement on that network, inform freight transportation planning, and assist in the prioritization of federal investment. A National Multimodal Freight Policy is required to be established that is anchored through maintenance and improvement to the NMFN (49 U.S.C. 70101). The Fast Act specifies goals associated with this policy related to condition, safety, security, efficiency, productivity, resiliency, and reliability of the NMFN, while also reducing adverse environmental impacts.

The United States DOT is also required to improve and begin development of transportation investment and planning tools to support an outcome-oriented, performance-based approach to the evaluation of proposed freight-related and other transportation projects (49 U.S.C. 70202 [e]). One example of new investment tools is the Fostering Advancements in Shipping and Transportation for the Long-term Achievement of National Efficiencies (FASTLANE) competitive grant program offers federal funding for freight-specific projects. WisDOT was awarded a grant for the I-39/90 Corridor project in Rock and Dane counties.

The FAST Act established several new requirements for freight planning by state and local governments. The requirements that have shaped Wisconsin's SFP include:

Encouraging states to establish a state FAC, representing private and public freight stakeholders (49 U.S.C. 70201). The role of the FAC is to:

- Advise the state on freight-related priorities, issues, projects, and funding needs
- Serve as a forum for discussion for state transportation decisions affecting freight mobility
- Communicate and coordinate regional priorities with other organizations
- Promote the sharing of information between the private and public sectors on freight issues
- Participate in the development of their state's Freight Plan

Wisconsin's FAC was established by Governor Scott Walker in August of 2014. Through May 2017, the FAC has met five times.

Requiring states to develop a SFP to be eligible for funding under the National Highway Freight Program (23 U.S.C. 167), the SFP must comprehensively address freight planning activities and investments, both immediate and long-range. The plan must:

- Cover a five-year period
- Be fiscally-constrained
- Include a "freight investment plan" with a list of priority projects
- Describe how the state will invest and match its National Highway Freight Program funds
- Be updated at least every five years, and allow its freight investment plan to be updated more frequently

The Wisconsin SFP meets all of these federal requirements. As with the policies being carried forward from *Connections 2030*, WisDOT is incorporating the federal rules and initiatives.

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