

Minnesota Statewide Freight System Plan

Task 2.1 - Policy, Plan, and Project Synthesis

draft

report

prepared for

Minnesota Department of Transportation

prepared by

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date

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1.0 Policy, Plan, and Project Synthesis

1.1 PREVIOUS PLANS AND STUDIES

The focus of the Minnesota Statewide Freight System Plan is to build on past freight planning efforts and move forward with freight system planning and programming. Significant efforts have already been made by the Minnesota Department of Transportation (MnDOT) and other state partners to evaluate existing freight issues and develop potential solutions and recommendations. These efforts have been documented in a number of statewide and regional plans and studies. These plans and studies were reviewed to compile information on what is already known about current and past trends, needs, and issues related to Minnesota's movement of freight.

The consolidated findings and recommendations from the previous plans and studies highlight the key issues, needs, and opportunities identified in each document, as well as any proposed solutions or recommendations.

A total of 14 previous plans and studies were reviewed as part of this exercise. Each document was placed into one of three categories: statewide planning documents, regional freight plans, and supplemental plans and studies.

Statewide Planning Documents

- Statewide Freight Plan (2005)
- Minnesota Comprehensive Statewide Freight and Passenger Rail Plan (2010)
- Statewide Ports and Waterways Plan DRAFT (2013)
- Integrating Freight in Statewide Planning and Programming (2013)

Regional Freight Plans

- Southwest Minnesota Regional Freight Study (2007)
- Western Minnesota Regional Freight Study (2009)
- Northern Minnesota / Northwestern Wisconsin Regional Freight Plan (2009)
- Central Minnesota Freight Study (2012)
- Southeast Minnesota Regional Freight Study (2013)
- Twin Cities Metro Area Regional Freight Initiative (2012)

Supplemental Plans and Studies

- Supplemental Interregional Corridor (IRC) Study (2011)
- Freight Rail Economic Development (FRED) Study (2013)
- Scenario Planning and the Impacts on Trends and Issues Affecting Freight Transportation in Minnesota DRAFT (2013)
- Manufacturers' Perspectives on Minnesota's Transportation System: A Pilot Study in Southwest and West Central Minnesota (2014)
- Improvements to Highway-Rail Grade Crossings and Rail Safety (2014)
- Understanding District 4 Manufacturers' Perspectives on Transportation: An Industry Cluster Approach (2015) [REVISIT WHEN COMPLETE]

An overview and summary of the scope and purpose of each plan is provided in Appendix A.

1.2 COMMON FREIGHT ISSUES

All of the freight plans and studies were reviewed to identify the issues, needs, and opportunities discussed within each document. These items, as well as the solutions and recommendations proposed in each document are included in Appendix B.

Many of the issues and recommendations in these documents are consistent amongst the multiple plans and studies. A greater emphasis should be placed on issues that are frequently cited as areas of concern. The most common issues shared between the plans and studies have been highlighted on the following pages. While many issues are specific to a single freight mode, several issues are common to all modes.

All Modes

- **Public-Private Partnerships:** Improved communication, coordination, and formalized partnerships between public and private stakeholders are needed.
- **Intermodal Service:** Intermodal container service in Minnesota is limited in geography and capacity. There is increasing demand for improved containerization service, expanded intermodal facilities, and intermodal connections.
- **Capacity:** Continued growth in freight transportation will further contribute to capacity challenges.
- **Land Use Compatibility:** Land considered ideal for freight shipping purposes is increasingly in competition with residential, commercial, and recreational land uses.

- **Changing Economic Conditions and New Markets:** New market opportunities and changes in the global supply chain will affect the types, quantity, and destination for many goods.
- **Technological Solutions:** Many opportunities exist for implementing innovative technological solutions to improve operation efficiency, safety, and mobility. This includes positive train control (PTC), weigh-in-motion systems (WIMs), dynamic message signs (DMS), global positioning systems (GPS), and intelligent truck parking.

Highway

- **Congestion:** Congestion on the highway system creates significant delays for freight and “just in time” deliveries, especially in the Twin Cities Metro Area.
- **Infrastructure Quality:** Pavement condition is important to the safe and efficient movement of goods. Deteriorating roads cause damage to trucks and goods, and impact roadway safety. Improvements are needed to the physical condition of the freight system due to age, wear, and inadequate design. Maintenance of bridges and redundancy in the number of river crossings is also a concern.
- **Size and Weight Restrictions:** The lack of consistency between Minnesota and surrounding states on commercial vehicle size and weight restrictions is frequently cited by businesses a key concern affecting safe and effective operations.

Rail

- **Crude by Rail:** The ongoing North Dakota oil boom has resulted in a rapid increase in crude oil and silica sand transported by rail through Minnesota. The increase in rail traffic has had significant impacts on rail and roadway congestion, safety, and quality of life.
- **Safety:** The need for improved safety at highway-rail grade crossing is a concern.
- **Corridor Reclamation:** Many unused rail corridors have been preserved through interim uses such as trails. Converting these back to active use is often difficult and costly due to encroachment, regulations, and political considerations.

Air

- **International Freight Shipments:** In general, Minnesota has limited connections with international destinations for freight shipments. Air cargo is often trucked to Chicago before being sent by air.
- **Ease of Use:** Increased security procedures, fuel costs, and limited truck access affect the use of airports for cargo shipments.

- **High Value-to-Weight Goods:** The aviation system in Minnesota is the preferred mode for moving high-value or time-sensitive goods over long distances.

Waterway

- **Capital Funding Needs:** Tariffs and fees charged for freight shipments are typically sufficient to address ongoing operations and maintenance costs, but do not provide the revenue necessary for major capital improvements. Expanded public/private partnerships may provide an opportunity to address these needs.

Pipeline

- **New Development Potential:** The increasing amounts of oil extracted from North Dakota and Canada have provided opportunities for additional pipeline development to diversify crude transport across modes.

A summary of the frequency of each issue within the reviewed plans and studies is included in Table 1. Each issue noted above was referenced in at least two of the reviewed plans. The most frequently cited issues include:

- The demand for additional intermodal service;
- The need for public-private partnerships;
- Capacity and congestion issues, particularly on the highway system;
- The need to adapt to changing markets; and
- The importance of highway infrastructure quality.

Table 1: Common Freight Issues Summary

	Public-Private Partnerships	Intermodal Service	Capacity	Land Use Compatibility	Changing Economic Conditions and New Markets	Technological Solutions	Highway: Congestion	Highway: Infrastructure Quality	Highway: Size and Weight Restrictions	Rail: Crude by Rail	Rail: Safety	Rail: Corridor Reclamation	Air: Int'l Freight Shipments	Air: Ease of Use	Air: High Value-to-Weight Goods	Waterway: Capital Funding Needs	Pipeline: New Development Potential
Statewide Planning Documents																	
1. Statewide Freight Plan 2005	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
2. Minnesota Comprehensive Statewide Freight and Passenger Rail Plan	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓					
3. Statewide Ports and Waterways Plan	✓	✓	✓	✓	✓	✓										✓	
4. Integrating Freight in Statewide Planning and Programming	✓	✓	✓			✓	✓	✓									
Regional Freight Plans																	
5. Southwest Minnesota Regional Freight Study	✓	✓	✓		✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓
6. Western Minnesota Regional Freight Study		✓			✓	✓	✓	✓	✓								
7. Northern Minnesota / Northwestern Wisconsin Regional Freight Plan	✓	✓	✓	✓	✓	✓	✓	✓	✓						✓	✓	✓
8. Central Minnesota Freight Study	✓	✓				✓	✓						✓	✓	✓	✓	
9. Southeast Minnesota Regional Freight Study	✓	✓	✓		✓			✓	✓	✓	✓					✓	
10. Twin Cities Metro Area Regional Freight Initiative		✓	✓	✓	✓			✓	✓		✓		✓	✓	✓	✓	
Supplemental Plans and Studies																	
11. Supplemental Interregional Corridor Study		✓					✓	✓	✓								
12. Freight Rail Economic Development Study	✓	✓	✓			✓					✓						✓
13. Scenario Planning	✓	✓	✓			✓	✓	✓		✓						✓	✓
14. Manufacturers' Perspectives on Minnesota's Transportation System		✓				✓	✓	✓	✓	✓							
15. Improvements to Highway-Rail Grade Crossings and Rail Safety			✓		✓					✓	✓						
16. Understanding District 4 Manufacturers' Perspectives on Transportation: An Industry Cluster Approach (2015)																	

1.3 OPPORTUNITIES

As with the issues and needs discussed in the plans and studies, many of the opportunities identified were also consistent amongst the multiple plans and studies. The most common opportunities shared between the plans and studies have been highlighted on the following pages. Many of these items build or expand upon previous and current work by MnDOT to improve the Minnesota's freight network at all levels. These opportunities and recommendations are not finalized and will be vetted throughout the development of the Minnesota Statewide Freight System Plan.

All Modes

- **Improve the Condition, Connectivity, and Capacity of Freight Infrastructure:** MnDOT should support the improvement of freight infrastructure that is currently experiencing capacity issues or is in a deteriorating condition. Efforts should focus on the primary freight arterials and the designated highway freight networks such as the National Freight Network and the Twin Trailer Network.
- **Better Integrate Freight into Planning Processes:** Freight issues should be a key focus of regional and state transportation planning investment decisions. MnDOT should develop freight system performance measures and strengthen the consideration of freight during project planning.
- **Strengthen Partnerships to Address Significant Freight Issues:** MnDOT should focus on strengthening and promoting interagency, multi-state, and public-private partnerships. Regional freight advisory committees are one proposed solution for gaining private-sector input.
- **Expand Intermodal Service:** MnDOT should improve intermodal facilities and connections in areas of high demand throughout the state.
- **Technological Solutions:** MnDOT should explore Intelligent Transportation Systems (ITS) and operation options for improving freight transportation reliability and safety.

Highway

- **Streamline Size and Weight Restrictions:** MnDOT should investigate the potential for aligning size and weight restrictions with adjacent states and provinces to make it easier for haulers to do business across state lines.
- **Maintain and Review the 10-Ton Network:** MnDOT should review the 10-ton network to identify potential gaps. MnDOT should also review the design criteria to ensure that roadways on this network are not built to a higher-than-needed standard.

Rail

- **Restructure Funding Programs:** Programs should be restructured to more adequately address rail improvement projects. The Minnesota Rail Service Improvement (MSRI) should be restructured to allow for larger projects and potentially allow for performance-based incentives for loan forgiveness. The Rail/Highway Grade Crossing should expand to consider strategies beyond active warning devices.
- **Manage Preserved Rail Corridors:** Preserved rail corridors held in the State Rail Bank should be more actively managed and evaluated for possible future transportation uses.
- **Improve Rail Safety:** MnDOT should strive to implement state-of-the-art traffic control and safety systems throughout the freight system, particularly at high-risk grade crossings.

Air

- **International Air Cargo:** MnDOT should establish an international air cargo regional distribution center to encourage additional international trade.

Waterway

- **Ports Development Assistance Program Funding:** MnDOT should investigate and address barriers to extending funding from the Ports Development Assistance Program to private terminals and ports where demonstrated public benefit exists.

Pipeline

- **Pipeline Developments:** Several new pipeline developments have been proposed or approved to respond to the increased supply of oil from areas such as the North Dakota and Alberta. Many of the pipelines connect crude oil supplies to refineries in Superior, Wisconsin.

A. Summary of Documents Reviewed

A.1 STATEWIDE PLANNING DOCUMENTS

Each of these four documents assesses freight issues and opportunities at a statewide level. Much focus is given to Minnesota's freight-related infrastructure, the freight flows for Minnesota-specific goods, and the role of state and federal agencies in monitoring and improving the freight system.

Statewide Freight Plan (2005)

This plan represents the first-ever statewide transportation plan specifically for freight. It was developed under the impetus of federal legislation, including the Intermodal Surface Transportation Efficiency Act (ISTEA) and The Transportation Equity Act for the 21st Century (TEA-21). The plan summarizes the existing conditions of the statewide freight network in 2005 and identifies six policy recommendations to assist with the overall freight policy, which states:

"Provide an integrated system of freight transportation in Minnesota – highway, rail, water, air cargo, and intermodal terminals – that offers safe, reliable, and competitive access to statewide, national, and international markets."

Minnesota Comprehensive Statewide Freight and Passenger Rail Plan (2010)

The purpose of this plan is to guide the future of the rail systems and services in the state. The plan summarizes the existing conditions of these systems and services, forecasts the demand for freight and passenger rail in 2030, and assesses the investment needs based on these forecasts.

Statewide Ports and Waterways Plan DRAFT (2013)

The purpose of this plan is to help achieve the goals set forth in *Minnesota GO* and the *Statewide Multimodal Transportation Plan* as they apply to the State's ports and waterways. The plan is the result of input from system users and partner organizations as well as a steering committee consisting of members from the Duluth Seaway Port Authority, Duluth-Superior Metropolitan Interstate Council, City of Minneapolis, Saint Paul Port Authority, Metropolitan Council, Red Wing Port Authority, and the Port Authority of Winona. Input was also received from MnDOT's Duluth, Metro, Rochester, and Policy Planning offices, as well as the Office of Freight and Commercial Vehicle Operations (OFCVO).

Appendix A

Integrating Freight in Statewide Planning and Programming (2013)

The purpose of this study was to explore how freight issues and needs are currently being addressed by MnDOT in its highway planning, project scoping, programming, and delivery process. The study was completed to inform the 2015 Statewide Freight Plan update and to review MnDOT's planning efforts in relation to the new federal surface transportation bill, Moving Ahead for Progress in the 21st Century (MAP-21).

A.2 REGIONAL FREIGHT PLANS

The Minnesota regional freight plans were developed to review and highlight issues, opportunities, and recommendations for the freight system that are specific to certain regions within Minnesota. The plans summarized below are the most recently completed plan for each regional area.

Southwest Minnesota Regional Freight Study (2007)

The Southwest Minnesota Regional Freight Study was conceived as a multimodal and industry oriented examination of freight movements specific to District 7.

The study provides a better understanding of current economic and freight transportation trends, issues, and needs at the regional and local level (south/southwestern Minnesota). The study also identifies strategies and initiatives for improving the freight transportation system.

Western Minnesota Regional Freight Study (2009)

The Western Minnesota Freight Study is a multimodal transportation planning effort that includes highway (commercial vehicle operations), rail, air cargo, and intermodal transportation movements.

The purpose of the study is to provide a better understanding of the demands from freight being placed on the regional transportation infrastructure and provide a framework that addresses the following goals.

Northern Minnesota / Northwestern Wisconsin Regional Freight Plan (2009)

The Northern Minnesota and Northwest Wisconsin Freight Plan is a multimodal transportation planning effort that includes highway (commercial vehicle operations), rail, waterway, air cargo, pipeline, and intermodal transportation. The study was sponsored by MnDOT, the Wisconsin Department of Transportation (WisDOT), and the Duluth-Superior Metropolitan Interstate Council (MIC).

Central Minnesota Freight Study (2012)

The Central Minnesota Freight Study is a multimodal transportation planning effort that includes highway (commercial vehicle operations), rail, air cargo, and intermodal transportation movements. The study was sponsored by MnDOT.

This freight planning effort builds upon prior planning activities by MnDOT's OFCVO with assistance from MnDOT District 3. The purpose of the study is to provide a better understanding of the demands from freight being placed on the regional transportation infrastructure and provide a framework that addresses a number of regional goals.

Southeast Minnesota Regional Freight Study (2013)

Southeast Minnesota, in particular the area serviced by MnDOT District 6, consists of 11 counties roughly bounded by I-35 on the west, Iowa on the south, the Mississippi River on the east, and the Metro region on the north.

The purpose of this plan was to build upon prior planning activities by Regional and MnDOT District Office, WisDOT, and MnDOT's OFCVO. The plan will also provide a better understanding of the demands from freight placed on the regional transportation infrastructure.

Twin Cities Metro Area Regional Freight Initiative (2012)

The purpose of this document was to highlight the importance of the region's freight transportation system to businesses and residents, particularly in terms of its contributions to regional economic development and quality of life.

The document includes an overview of the region, a description of the significant role the freight transportation system has played in developing the region over time, and an outline of the trends and challenges—both current and future—that affect the region's freight transportation infrastructure and goods movement. It also highlights projects that demonstrate where agencies and organizations have taken action to improve goods movement.

A.3 SUPPLEMENTAL PLANS AND STUDIES

These are plans and studies that focus on a single mode or a specific issue (i.e., economic development), rather than reviewing the freight system as a whole.

Supplemental Interregional (IRC) Corridor Study (2011)

Since the designation of the interregional corridor (IRC) system over 10 years ago, the system has undergone various refinements along with a variety of policy changes that reflect the changing times. Given the recent changes in the economy and greater emphasis on sustainability and quality of life, officials wanted to revisit the IRC system and its measures and policies. As such, the purpose of the 2010/2011 IRC System Review was to reassess the IRC System and determine its relevance with respect to the following:

Appendix A

- Communicating information to the public and other stakeholders,
- Managing and operating the system, and
- Guiding investment policy.

Freight Rail Economic Development (FRED) Study (2013)

The Freight Rail Economic Development (FRED) Study was mandated by the 2012 Legislature that charged MnDOT and the Minnesota Department of Employment and Economic Development (DEED) to cooperatively investigate ways to expand rail-related business growth in the state.

Scenario Planning and the Impacts on Trends and Issues Affecting Freight Transportation in Minnesota DRAFT (2013)

This report identifies and explores broad trends and issues that may have impacts on the future of freight transportation in Minnesota. These trends and issues were examined from five perspectives (quality of life, economic competitiveness, environmental health, technology, and regulation), that previous research identified as key driving forces that influence transportation. Several of these driving forces also overlap with key drivers identified by *Minnesota GO*, the 50-year transportation vision recently completed by MnDOT.

Manufacturers' Perspectives on Minnesota's Transportation System: A Pilot Study in Southwest and West Central Minnesota (2014)

In 2013, MnDOT initiated a project in District 8 (twelve counties in southwest and west central Minnesota) to better understand freight industries' transportation priorities and challenges, and to incorporate their input into MnDOT's planning and project development.

The project's scope was intentionally focused on soliciting input that would inform low-cost/high-benefit projects, which can be accomplished in the next one to four years, assuming available resources. Discussions with manufacturers and carriers were focused on understanding their concerns, rather than offering potential solutions.

Improvements to Highway-Rail Grade Crossings and Rail Safety (2014)

The 2014 Minnesota Legislature directed MnDOT conduct a study of highway-rail grade crossings improvements for rail corridors carrying unit trains of crude oil and other hazardous materials. The legislature also appropriated \$2 million for implementation of safety improvements at these grade crossings specifically along crude-by-rail corridors. It is estimated that this appropriation will fund the installation of approximately 10 lower-cost grade crossing improvements.

B. Summary of Issues and Recommendations

The following reports were reviewed to identify issues and recommendations.

Statewide Planning Documents

- Statewide Freight Plan (2005)
- Minnesota Comprehensive Statewide Freight and Passenger Rail Plan (2010)
- Statewide Ports and Waterways Plan DRAFT (2013)
- Integrating Freight in Statewide Planning and Programming (2013)

Regional Freight Plans

- Southwest Minnesota Regional Freight Study (2007)
- Western Minnesota Regional Freight Study (2009)
- Northern Minnesota / Northwestern Wisconsin Regional Freight Plan (2009)
- Central Minnesota Freight Study (2012)
- Southeast Minnesota Regional Freight Study (2013)
- Twin Cities Metro Area Regional Freight Initiative (2012)

Supplemental Plans and Studies

- Supplemental Interregional Corridor (IRC) Study (2011)
- Freight Rail Economic Development (FRED) Study (2013)
- Scenario Planning and the Impacts on Trends and Issues Affecting Freight Transportation in Minnesota DRAFT (2013)
- Manufacturers' Perspectives on Minnesota's Transportation System: A Pilot Study in Southwest and West Central Minnesota (2014)
- Improvements to Highway-Rail Grade Crossings and Rail Safety
- Understanding District 4 Manufacturers' Perspectives on Transportation: An Industry Cluster Approach (2015)

Each issue and recommendation was grouped into one of three categories:

- **Physical:** Items in this category are related to specific physical needs or conditions, such as a need for improved highway pavement quality.

Appendix B

- **Policy-Related:** Items in this category are related to the policies of MnDOT or other agencies, such as vehicular size and weight restrictions.
- **People (Institutional):** Items in this category are related to coordination and partnerships between MnDOT, other agencies, and private freight transportation industry.

1. Statewide Freight Plan (2005)

Issues and Needs	Opportunities
<p>Physical:</p> <ul style="list-style-type: none"> Improvements are needed to the physical condition of the freight system in Minnesota due to age, wear, and inadequate design. Efficient connections are needed between trade centers, to and from freight generating facilities, and between modes. Sufficient capacity is required to meet current and future demand for shipping goods. Congestion, particularly on the highway system, creates significant delays for freight. Congestion on Twin Cities metropolitan area highways represents a major statewide freight bottleneck. Crashes create delays for freight and can result in significant damage to freight as well as personal injury. <p>Policy-Related:</p> <ul style="list-style-type: none"> The ability of Minnesota's industries to connect to national and international markets served by nationally significant freight corridors is critical to the health of the state's economy. Freight transportation needs should be explicitly considered in transportation investment decisions. The decision-making processes for project selection frequently do not include specific freight criteria. Freight planning is needed at the regional and local level to better capture local needs. Industries in specific geographic regions may have unique freight transportation requirements that should be separately identified and evaluated. 	<p>Physical:</p> <ul style="list-style-type: none"> Improve the Condition, Connectivity, and Capacity of Statewide Freight Infrastructure: Strategies include supporting improvements on roadways and bridges with high truck volumes, improving the efficiencies of intermodal terminals, supporting efforts to develop a statewide 10-ton roadway system, and pursuing National Highway System Intermodal Connector designation for significant connectors. Improve the Condition, Connectivity, and Capacity of National and International Freight Infrastructure: Serving Minnesota: Strategies include eliminating bottlenecks on national trade highways and rail corridors, improving intermodal container service, establishing an international air cargo regional distribution center, and supporting increased capacity for locks as well as a study of the St. Lawrence Seaway and Welland Canal locks for accommodating international ships. Enhance the Operational Performance and Safety of Statewide Freight Systems: Strategies include addressing speed and safety needs on roads with high truck volumes, improving highway-rail grade crossings, implementing a statewide heavy-truck safety program, implementing intelligent transportation systems, and improving the availability of commercial vehicle parking along major corridors. <p>(table cont'd)</p>

Appendix B

1. Statewide Freight Plan (2005)

People (Institutional):

- Improved communication, coordination, and formalized partnerships between public and private stakeholders offer the potential to more successfully address freight issues.
- The coordination of commercial vehicle regulations (such as weight, size, and speed limits) with surrounding states will ensure safer and more effective operations.

Policy-Related:

- **Enhance Integration of Freight into Regional and State Transportation Planning and Investment Decisions:** Strategies include developing key freight system performance measures, strengthening consideration of freight during project and investment planning, providing assistance to transportation planning organizations, continued coordination with FHWA, and maintaining an effective freight research program.
- **Streamline and Improve the Effectiveness of Motor Carrier Regulatory Activities:** Strategies include developing a statewide Strategic Commercial Vehicle Weight Enforcement Program, identifying new practices to improve compliance with vehicle weight laws, examining costs/benefits of proposed changes to truck size and weight regulations, comparing Minnesota truck size and weight regulations to surrounding jurisdictions, promoting initiatives that expedite business transactions and outreach between carriers and regulatory agencies, and structuring safety programs to achieve performance targets, assess cost/benefit, and coordinate between jurisdictions.

People (Institutional):

- **Strengthen Partnerships to Address Significant Freight Issues:** Strategies include strengthening public sector partnerships, promoting regional and local collaboration, continuing to participate in carrier and shipper forums and multistate and U.S. border coalitions, and seeking public-private partnerships for innovative project financing.

2. Minnesota Comprehensive Statewide Freight and Passenger Rail Plan (2010)

Issues and Needs	Opportunities
<p>Physical:</p> <ul style="list-style-type: none">While grade crossing warning devices and other low-cost improvements will remain an important part of the Rail/Highway Grade Crossing Program, other more complex and costly strategies – such as quiet zones, advanced crossing systems and even grade separations – are increasingly being demanded by the public. <p>Policy-Related:</p> <ul style="list-style-type: none">While the 30-year-old Minnesota Railroad Service Improvement program has helped to support a strong rail system in the State, funding limits have become inadequate, and a broader program should go beyond small loans for infrastructure improvements.While interim uses of preserved rail corridors, typically as recreational trails, have seemingly maintained their integrity for future transportation use, the likelihood of their reuse for rail transportation purposes is very modest. Encroachment by abutters, regulations, and political considerations make conversion to an active railroad extremely difficult and costly. <p>People (Institutional):</p> <ul style="list-style-type: none">Ownership of Minnesota's rail system, which is largely private, presents unique challenges and opportunities, requiring strategies and solutions that are unique to the mode.	<p>Physical:</p> <ul style="list-style-type: none">Continue to make improvement to the condition and capacity of Minnesota's primary railroad arterials to accommodate existing and future demand.Address critical network bottlenecksUpgrade main line track (all Class I-III railroads) to 25 mph minimum speed, as warranted.Improve the network (all Class I-III railroads) to support the use of 286,000-pound railcars throughout the State.Implement state-of-the-art traffic control and safety systemsExpand intermodal service access options throughout the State. <p>Policy-Related:</p> <ul style="list-style-type: none">Maintain and ensure broad access to competitive freight rail services for shippers throughout the State.Better integrate rail into the public planning process.State assistance for freight rail projects should build upon the existing Minnesota Rail Service Improvement Program (MRSI).Expand the Rail/Highway Grade Crossing program to consider a broader array of strategies beyond active warning devices. <p>People (Institutional):</p> <ul style="list-style-type: none">Preserved rail corridors held in the State Rail Bank should be more actively managed and evaluated for possible future transportation uses.

3. Statewide Ports and Waterways Plan DRAFT (2013)

Issues and Needs	Opportunities
<p>Physical:</p> <ul style="list-style-type: none">The future success of the ports and waterways system is contingent on having a solid and reliable infrastructure base – docks, slips, locks and dams, shipping channels, etc. – that can respond to changing market conditions.The need for periodic dredging – the removal of built-up underwater sediment – remains a key concern, along with maintaining water levels at an adequate navigable depth.There is currently a backlog of projects maintained by the USACE to improve the lock and dam system. Specified maintenance projects will need to be undertaken to preserve system integrity and to avoid unplanned (emergency) maintenance.Technology-driven advancements such as electronic data interchange between freight carriers, shippers, and receivers have significantly improved how ports operate, and have allowed for greater focus on the important issues of safety and security.Existing intermodal links between the marine system and the road and rail freight systems are, in some cases, in poor condition and in need of repair. In other cases, new links are needed.	<p>Physical:</p> <ul style="list-style-type: none">Port authorities and private terminal operators will continue to improve infrastructure condition and capacity in public port areas and private terminals. MnDOT will assist with the Port Development Assistance Program to support replacements of and upgrades to existing infrastructure, as needed, thereby improving efficiency and providing a foundation for new waterway based business opportunities.U.S. Army Corps of Engineers (USACE) will continue to maintain and improve the marine navigation channels on the river and lake systems.USACE will maintain the federal marine navigation system to an acceptable level of service. MnDOT and transportation partners will pursue funding for lock and dam maintenance on the federal marine navigation system.MnDOT can continue to work with ports and terminal operators to identify opportunities for expanding freight movement and can coordinate investments to support the development of port infrastructure.MnDOT and transportation partners will ensure that intermodal connectors are adequate for rail track condition and road pavement condition, travel lane width, turning radii, and vertical and horizontal bridge clearance.

(table cont'd)

3. Statewide Ports and Waterways Plan DRAFT (2013)

Policy-Related:

- Currently, only public port authorities are eligible for PDAP funding sources (e.g., general fund, bonds).
- Minnesota's ports and waterways need to adapt to new market opportunities since shipping tonnage for traditional commodities (e.g., coal, taconite, and grain) is trending downward.
- A potential high-benefit opportunity for improving the efficiency of marine transportation is to increase two-way traffic on the system, also known as reverse hauling.
- Currently, shipping container services available in Minnesota are limited in both geography and capacity. Port operators on both the Mississippi River system and the Lake Superior system see opportunities for the development of container shipping along the state's waterways.
- Statewide planning efforts concerning the marine system are critical to ensuring that the needs of the system users are recognized and considered at all stages of the planning process.

People (Institutional):

- Broadly communicating the maritime sector's positive contributions to Minnesota's economic competitiveness, natural environment, and quality of life will advance understanding and appreciation of the marine system.
- Land in and near port areas that is considered ideal for freight shipping purposes is increasingly in competition with residential, commercial, and recreational land uses.

Policy-Related:

- MnDOT can investigate and address barriers to extending PDAP funding to private terminals and ports as appropriate, where demonstrated public benefit exists.
- MnDOT will formally integrate port and waterway planning into future iterations of Minnesota's Statewide Freight Plan; will increase the visibility of marine freight planning within future iterations of the Statewide Multimodal Transportation Plan; will coordinate and support applications to TIGER, TED, and other programs to enhance funding for marine freight projects; and will report on marine system performance measures.

People (Institutional):

- MnDOT can work with transportation partners to identify opportunities to improve logistics, including origin-destination pairs that allow for reverse hauling and potential lengthening of the shipping season.
- Transportation partners can investigate opportunities to establish and expand use of containers on the marine system.
- MnDOT can encourage and assist with the incorporation of marine freight transportation planning into local land use and transportation plans.
- MnDOT and transportation partners will support the approval and implementation of state and federal legislation for and funding of the marine system by educating legislators as to the importance of a robust freight transportation system.

4. Integrating Freight in Statewide Planning and Programming (2013)

Issues and Needs	Opportunities
<p>Policy-Related:</p> <ul style="list-style-type: none">MnDOT policy is well aligned with MAP-21's policy requirements and guidance, including MAP-21 National Strategic Freight Goals. The three MnDOT plans that address these requirements are Minnesota GO, the Statewide Multimodal Transportation Plan, and the Minnesota State Highway Investment Plan.MAP-21 establishes a Primary Freight Network (PFN) and a network of Critical Rural Freight Corridors. There may be opportunity to include Minnesota routes on these networks.MAP-21 policy recommends development of Statewide Freight Plans, and establishes required and recommended elements for these plans. <p>People (Institutional):</p> <ul style="list-style-type: none">MnDOT has an effective and well-developed performance management system, and many of its current measures capture roadway conditions that are relevant to freight movement. However, freight planning efforts in Minnesota could be reinforced by the development of a new federal freight performance measures and the possibility of new state freight performance measures.	<p>Physical:</p> <ul style="list-style-type: none">Investigate the need for more Automated Traffic Recorders to improve the accuracy of Heavy Commercial Average Daily Traffic (HCADT) data and to gather this data for more highways on the system. <p>Policy-Related:</p> <ul style="list-style-type: none">Ensure that the Statewide Freight Plan clearly describes how it will approach the National Strategic Freight Goals.More explicitly, reference freight or the movement of goods in future updates of Minnesota GO and the Statewide Multimodal Transportation Plan.Encourage USDOT to include as many miles as possible of Minnesota roadway with regional and national significance for freight on the Primary Freight Network and on the Critical Rural Freight Corridor Network.Encourage greater use of freight criteria and freight performance measures as a part of the scoring in the Corridor Investment Management Strategy (CIMS), Transportation Economic Development (TED), Corridors of Commerce, and the Regional Solicitation.Integrate MnDOT's current freight-related performance measures into the update of the Statewide Freight Plan.Work with internal MnDOT staff and external stakeholders to develop urban and rural targets for the federal freight performance measure, once it is released.

(table cont'd)

4. Integrating Freight in Statewide Planning and Programming (2013)

- MnDOT currently does not distinguish freight projects from other types of projects in its highway planning processes. MAP-21's Freight provisions, however, suggest that identification of freight projects will be important for state DOTs to be in a position to receive future federal freight funds.
- Clear understanding of freight projects and their freight-related benefits would help MnDOT more effectively consider them in the project selection process.
- Improved communication of these benefits within MnDOT and with its external stakeholders is also needed to improve the overall understanding of the importance of freight movement to the state's economy.
- Implement the American Association of Highway and Transportation Official's (AASHTO's) recommended freight performance measures related to annual hours of delay and travel time reliability for further consideration as new freight-specific measures at the statewide level.
- Work with MnDOT staff, transportation partners, and other stakeholders to develop new freight-specific measures. Vet these measures to determine data availability, cost, and usefulness.
- Continue to explore the use of private-sector commercial GPS data to aid in measuring performance in a more comprehensive way on a large system.
- Integrate new freight performance measures into the Statewide Freight Plan, the Annual Minnesota Transportation Performance Report, the Minnesota State Highway Investment Plan, the Highway Systems Operations Plan, and other supplemental plans and studies where it is appropriate.
- Consider the following definition of a freight project: "A freight project is a surface transportation project that improves the safety and efficiency of freight movements."
- Consider giving special attention to freight-related project types that are difficult to fund with the normal project prioritization process (i.e., highway-rail grade separations, truck parking facilities/rest areas, and improvements to intermodal connectors).

(table cont'd)

4. Integrating Freight in Statewide Planning and Programming (2013)

People (Institutional):

- Consider the freight data needs expressed by District Planners based on usefulness, feasibility, and cost.
- During the planning phase of the project planning, scoping, and programming cycle, better integrate freight performance measures, a prioritized list of projects that greatly benefit freight by District, a map of freight barriers, and a prioritized list of freight routes by District.
- Update the project scoping worksheets to include freight needs and use other high priority freight data.
- Identify the costs and impacts of quickly implementing smaller freight improvement projects that are more highly sought after by the private sector.
- Encourage the State Legislature to fund CIMS and TED with additional funding sources that could be used for projects beyond those on the trunk highway system.
- Advocate for a dedicated funding source for freight-related highway improvements at the state level.
- Encourage MnDOT Metro District to submit freight-related improvement projects as part of the Regional Solicitation process in the Twin Cities metropolitan area.
- Encourage the local agencies through their respective MnDOT Districts to pursue funding from sources such as the Corridor Investment Management Strategy (CIMS) initiative or the Transportation and Economic Development (TED) grant program.

(table cont'd)

4. Integrating Freight in Statewide Planning and Programming (2013)

- Identify projects with significant freight benefits as part of the annual update to the State Transportation Improvement Program and the Highway Investment Plan.
- Conduct internal and external outreach about the freight benefits that result from many types of highway investments.
- Complete or update regional freight plans, which capture information on freight challenges encountered by businesses and freight operators in Minnesota.
- Communicate early and often with businesses about construction detours and consider discussing work programs and snow plowing procedures with businesses to better meet their needs.
- Develop new communication materials targeted at businesses that rely heavily on the highway system for viability.

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5. Southwest Minnesota Regional Freight Study (2007)

Issues and Needs	Opportunities
<p>Physical:</p> <ul style="list-style-type: none">The following roadways are significant freight corridors in the region: MN 60 from Iowa to Mankato, US 14 from South Dakota to I-35, US 169 from Mankato to the Twin Cities, and I-90 through the region.Larger farm equipment such as tractors, combines, grain carts, and semi-trucks pose a growing problem on public roads, including 'rolling roadblocks' on rural two-lane roads, bridge loadings and clearances, and shoulder damageFreight and agricultural growth, livestock operations, and ethanol plants have created a demand for more coverage and four-season capability on the 10-ton network. An interconnected and functional 10-ton road network helps ensure efficient commercial truck traffic throughout the region and connections to other regions.The rail network helps provide a multimodal freight system in Southwest Minnesota, providing competitive options for shippers. Rail service is particularly critical for ethanol plants, transporting about 60 percent of outbound product with connections to national markets. Ethanol plants require increasingly long sidings to accommodate unit trains and other rail loading requirements.	<p>Physical:</p> <ul style="list-style-type: none">Maintain mobility on the Interregional Corridor System to address growing freight traffic.Confirm current roadway strength and truck use.Develop a prioritization scheme to close gaps in the 10-ton network. Centrally track and coordinate upgrades.Review roadway design requirements for trunk highway, county, and County State-Aid Highway 10-ton roads.Consider revisions to design criteria to ensure adequately designed 10-ton roads and that those not on the conceptual network are not built to a higher-than-needed standard. <p>Policy-Related:</p> <ul style="list-style-type: none">Improve heavy commercial vehicle volume and vehicle classification programs to better identify areas of significant freight traffic growth.Review State laws governing lighting, marking, size, and weight requirements of "implements of husbandry."Evaluate potential safety effects due to new developments so that safety enhancements are provided.Harmonize regulations with adjacent states and provinces to facilitate the movement of freight while protecting infrastructure.Pursue changes for allowable truck weights with more axles under a state permitting arrangement to ensure safety. Such changes would benefit agricultural transportation in particular.

(table cont'd)

5. Southwest Minnesota Regional Freight Study (2007)

- Increases in truck or train traffic at highway/rail grade crossings may require enhancements to grade crossing safety, including active warning devices such as flashers and gates. Rail switching operations near plants, new rail crossings of roadways, and increased train speeds may also increase safety concerns.
- Demand is increasing for localized access to intermodal/ containerized freight. Identity Preserved (IP) food products and the need to trace grain and food through the supply chain to export markets now dictate the use of sealed intermodal containers.

Policy-Related:

- Changes in truck size and weight regulations can increase highway freight system capacity. Regulations also are inconsistent from state to state. Some businesses and haulers in the area, with borders shared with Iowa and South Dakota, are practically limited from doing business in those states due to these differences.
- Federal rules regarding trucker's hours of service and minimum age requirements have limited the labor pool and caused some issues with respect to nighttime truck parking.
- Existing performance measures have been essentially directed at metro area congestion, statewide mobility, system preservation, safety, and operations. While a number of these measures impact freight movements, additional measures or refinements have been suggested to better account for freight movements.

(table cont'd)

- Identify and consider potential impacts of proposed truck size and weight changes on rail service.
- Examine routes via road and rail for compatibility with moves of oversize and overweight loads.
- Review rest area policies for commercial vehicle parking, rest area, idling, and driver services.
- Apply a refined process and methodology to freight planning to enhance local information and observations.
- Continue to develop performance measures applicable to regional and rural freight transportation issues.

People (Institutional):

- Organize a state-level, interdepartmental working group to monitor biofuel trends and resulting impacts.
- Enhance farm/rural safety messages and programs
- Expand the State EQB development review process to provide broader transportation impact review of all developments of regional significance, such as ethanol plants.
- Coordinate across jurisdictions in the region the development of a "conceptual" 10-ton network, including bridges.
- Strategic truck weight enforcement is needed to protect vulnerable links.
- Maintain autonomy for all jurisdictions to manage spring thaw restrictions and load postings.
- More fully evaluate rail infrastructure and service needs in Southwest Minnesota.
- Identify public-private partnership opportunities for addressing rail issues and needs.

Appendix B

5. Southwest Minnesota Regional Freight Study (2007)

People (Institutional):

- Renewable fuel production in Southwest Minnesota, particularly ethanol, has grown significantly in recent years. The 186 million gallons of ethanol produced in 2005 in this region is expected to more than double in the next two years, and consume up to 40 percent of local crop production.
- Freight traffic growth in the region is substantially outpacing that of Minnesota and the US. If current agricultural trends continue, freight traffic in Southwest Minnesota will potentially grow 200 percent by 2030.
- Current Information on local freight generators in the District is limited and is relatively basic. Freight data and information can and should be significantly enhanced.
- Improved integration of freight planning activities into MnDOT planning, operations, and policies is needed to benefit responses to significant freight issues.

- Encourage greater coordination between transportation and economic development planners to encourage shipper use of rail, thereby reducing truck demand on roadways.
- Evaluate more fully the demand for and potential use of local intermodal container service.
- Evaluate the feasibility of implementing improved intermodal service with involvement by railroads, ocean shipping companies, third party providers, and state and local officials.
- Participate in regional and national discussions about truck size and weight issues.
- Maintain relationships with key industries and local agencies.
- Follow developments and trends through key trade publications and websites for freight and industries.
- Integrate freight information into State and District planning, programming, and design.
- Enhance District feedback on Statewide Transportation Planning and policy development.
- Improve cooperation with interdepartmental contacts in project planning regarding freight data and issues at the local level.

6. Western Minnesota Regional Freight Study (2009)

Issues and Needs	Opportunities
<p>Physical:</p> <ul style="list-style-type: none"> Local shippers have expressed concerns about the lack of a container pool at the BNSF Dilworth, MN intermodal terminal facility, the cost of repositioning empty containers to Dilworth, and the generally constrained footprint of the facility. Specific routes from significant freight generators to transload facilities, production destinations, or border crossings onto higher capacity freight routes in neighboring jurisdictions would directly benefit the competitiveness and market viability of specific Minnesota businesses and employment sites There are a number of ITS strategies available that can address freight safety and information needs. Other state DOT's and MPO's have suggested that "quick start" type projects can be invaluable to gaining and holding the interest and input of private sector carriers and shippers. <p>Policy-Related:</p> <ul style="list-style-type: none"> A three-tiered roadway network was developed for this study. MnDOT may wish to adopt the tiered network metrics as a means to identify, consider, and/or integrate freight improvements into the prioritization process. MnDOT provides permitting of oversized, over-weight loads on Trunk Highways throughout the state. Providing ability to move these loads through the state encourages continued economic activity of the port of Duluth. 	<p>Physical:</p> <ul style="list-style-type: none"> Explore opportunities to expand intermodal service in Dilworth, MN Identify commercial commodity corridors to allow for special permitting to increase efficiency and competitiveness. Freight safety and information strategies including truck priority at traffic signals, alternate route planning and wildlife collision avoidance. Undertake a number of quick start projects (less than \$50,000) to gain and hold the interest of private sector carriers and shippers. <p>Policy-Related:</p> <ul style="list-style-type: none"> Designate a tiered truck network highlighting roadways that are most important to truck traffic. Designate super-haul corridors to ensure that future roadway improvements do not prevent the movement of oversize/overweight loads. Consider policies to improve regional truck size and weight regulation uniformity between Minnesota and surrounding jurisdictions. <p>People (Institutional):</p> <ul style="list-style-type: none"> Establish a regional freight advisory committee for gaining private sector input to planning process in MnDOT District 8.

(table cont'd)

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6. Western Minnesota Regional Freight Study (2009)

- One of the key issues that businesses brought forward was the lack consistency between truck size and weight regulations in states/provinces that border Minnesota.

People (Institutional):

- MnDOT District 8 has expressed an interest in forming a regional freight advisory group for the purpose of gaining private sector input to the District's planning process.

7. Northern Minnesota / Northwestern Wisconsin Regional Freight Plan (2009)

Issues and Needs	Opportunities
<p>Physical:</p> <ul style="list-style-type: none"> The largest commodity group exported out of the region is <i>Metallic Ores</i>, which accounts for 65 percent of all outbound tonnage or 66.8 million tons. The second largest commodity group exported out of the region is <i>Lumber or Wood Products</i> with 11 percent or 9.8 million tons of all outbound tonnage. The Mesabi Iron Range is the chief deposit of iron ore in the United States, providing more than 80% of all iron ore mined in the US today. Taconite is transported by rail to Lake Superior ports, where taconite pellets are produced. At these locations, it is shipped by lake freighters to steelmaking plants on the Great Lakes. Plans to construct an integrated steel plant on the western edge of the Mesabi iron range in northeast Minnesota include a taconite-to-steel facility with an annual capacity of 1.5 million tons in annual slab steel-making capacity. The large-scale mining of non-ferrous metals may be on the horizon for the region, including platinum, palladium, and nickel, as well as gold, silver, and copper. It is currently estimated that more than 4 billion tons of crude, non-ferrous ore are deposited in the region, perhaps the largest deposits of these base and precious metals in the United States. The use of taconite tailings, or waste rock, as an alternative aggregate source presents the region with a new opportunity, due to abundance and low cost. Transporting taconite tailings to other locations in the region and to more distant locations remains a challenge. 	<p>Physical:</p> <ul style="list-style-type: none"> Develop an implementation plan for a new Truck/Rail/Water container terminal at the port. Expand Port Capacity by developing Garfield C & D docks. New berths, dock space, and backlands are needed for existing and new commodities such as slab steel, wind energy generation equipment, oil sands equipment, and pulp. Undertake a Number of Quick Start Projects (Less than \$500,000). Examples of potential projects that can be completed in a short time frame and/or at low cost include regional transportation information, promotion, bridge and intersection geometrics, signage, and pavement markings. <p>Policy-Related:</p> <ul style="list-style-type: none"> MnDOT should refine the identified Tiered Truck Network of roadways using established road design parameters, truck volumes, and strategic importance. Projects could be prioritized into the ATP/STIP process as elements of highway investment that directly affect the competitiveness and access for local businesses. MnDOT should refine the identified Super-Haul Truck Corridors and designate the system with the goal to handle an increasing number of over-dimension and overweight loads. The designation will preserve existing routes for wind and oil sands equipment and protect other routes from further degradation.

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7. Northern Minnesota / Northwestern Wisconsin Regional Freight Plan (2009)

- The Athabasca Oil Sands are large deposits of extremely heavy crude oil, located in northeastern Alberta. Currently, over 80% of oil used in Minnesota originates in this deposit and new production will necessitate mining equipment transport, pipelines, and refinery expansion.
 - As wind farms are developed in western Minnesota and the Dakotas, shipment of oversize/ overweight wind turbine components on the roadways, railways, and waterways has been steadily increasing.
 - Lumber, wood, and paper products are key industries in the region. Raw pulpwood is generally brought by truck from surrounding forests, and combined with long fiber pulp from Canada for paper production. Access to a network of heavy-haul routes is critical for the industry.
 - Bituminous coal mined in the Powder River Basin of Wyoming is transported by rail to Superior, where it is transloaded into Great Lakes bulk cargo ships and distributed to utility plants located all along the St. Lawrence Seaway. This is the most abundant commodity moved in the Duluth-Superior ports.
 - Currently, there are no intermodal container terminals in the region, although demand exists. Therefore, access to national, international markets via intermodal containers is inefficient. In addition, constraints exist at the Duluth-Superior ports for existing and new commodities (e.g., slab steel, wind equipment, pulp) and new berths, dock space, and backlands are needed. Oversize/overweight constraints exist for truck and rail around the port as well.
 - MnDOT and WisDOT should examine legislation to create reciprocity across state lines for certain commodity exemptions or variations in truck size and weight laws. In addition, initiatives of cooperation and coordination in WINNDOT should be continued and expanded.
- People (Institutional):**
- Improve service conditions at the BNSF Dilworth Intermodal Ramp by coordinating activities with the North Dakota Department of Transportation and regional entities such as the Greater Fargo/Moorhead Economic Development Corporation and the Fargo-Moorhead Council of Governments.
 - Explore opportunities to improve coordinated planning efforts in Duluth-Superior regarding planning, port facilities, and access. Create a working agreement between the Duluth Seaway Port Authority and the Superior Harbor Commission, and encourage continued participation in HTAC planning activities by port stakeholders.
 - MnDOT should continue to map commodity-specific origin to destination routes that could serve as information for investment decision-making as well as benefit from routinely permitted loads for greater productivity without any liability to the overall highway network condition or any change in wear factors.

8. Central Minnesota Freight Study (2012)

Issues and Needs	Opportunities
<p>Physical:</p> <ul style="list-style-type: none"> District 3 has led all MnDOT Districts in the state in terms of VMT growth since 1999. By 2030, the weight of freight moving into, out of and within Central Minnesota is projected to grow by 41 percent to over 43 million tons. A significant portion of this increase is expected to come from originating freight shipments, although terminating and local freight shipments are also expected to experience increased weights. Trucking has the largest share of total originating and terminating tonnage in Central Minnesota. Trucks handled 60 percent of freight tonnage and 90 percent of freight value in the region in 2007. Farm Products are the top commodity group totaling just less than 900 thousand tons in 2007; however, growth in this commodity group is projected to remain flat through 2030. The next largest commodity groups moving from the study area to the Twin Cities are Non Metallic Minerals and Food or Kindred Products both groups are projected to show moderate growth over the forecast period. Although the largest airport in the region, the St. Cloud Regional Airport does not serve as a major freight airport. At present, the St. Cloud Regional Airport does not have scheduled commercial air service. 	<p>Physical:</p> <ul style="list-style-type: none"> Explore Intelligent Transportation Systems (ITS) and operation options for improving commercial vehicle travel reliability and safety. Construct new TH 24 connection between TH 10 Clear Lake to I-94 Clearwater. Address urban freight mobility on significant freight corridors, particularly on the Interregional Corridor system. Increase truck parking at Fuller Lake Rest Area. <p>Policy-Related:</p> <ul style="list-style-type: none"> Designated Super Haul Corridors can accommodate a loaded vehicle with a 14-foot height limit, a 10-foot width limit, a 110-foot length limit, and an 80,000-pound weight limit. When planning improvements and/or changes along these routes, District staff should try to preserve the ability to accommodate these characteristics or improve upon them if feasible. Designate a tiered roadway network to highlight the roads that are most important to truck traffic. <p>People (Institutional):</p> <ul style="list-style-type: none"> MnDOT should address freight rail access in the region by assisting with the provision of rail service to industrial parks when warranted, supporting rail improvement projects, and promoting rail inclusion in economic development planning

(table cont'd)

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8. Central Minnesota Freight Study (2012)

- District 3 is faced with significant preservation needs along the I-94 corridor between St. Cloud and the Twin Cities. Because of the importance of this corridor in supporting goods movement and trade, consideration should be given to developing technology driven projects that address the need to preserve truck speed performance, truck operator efficiency, and other operational deficiencies along the corridor.
- The need for an improved interregional connection between I-94 and TH 10 was initially established in a comprehensive transportation study completed by MnDOT in 1996. Since then, additional transportation policies, studies, and forecasting have reconfirmed and strengthened the need for improvements to the transportation system connection between I-94 and TH 10.
- In the study area, the commercial vehicle volume is expected to increase significantly, and on some counties in excess 2 percent per year. The impact of this growth mainly affects urban freight mobility and truck volumes on the Interregional Corridor system.
- MnDOT District 3 should spearhead the formation of a Regional Freight Advisory Committee. The purpose of a Regional FAC would be to facilitate strategic information exchange and coordination among regional business leaders and other diverse freight stakeholders regarding freight needs and potential solutions to help build a better transportation system and quality of life in the region.
- Demonstrate advanced technologies for increasing truck productivity such as IntelliDrive and other similar Intelligent Transportation Systems (ITS) technologies.

9. Southeast Minnesota Regional Freight Study (2013)

Issues and Needs	Opportunities
<p>Physical:</p> <ul style="list-style-type: none"> A consistent theme shared particularly among equipment fabricators was a concern for pavement condition. Shipments of final assemblies, including wind turbine parts, industrial HVAC units, and electronic assemblies are prone to damage in transit from road-related impacts, stresses, and vibration. Shippers noted that truck routes and local connections to businesses were adequate for today's needs. Concerns were shared about recognizing the size of semi-tractor-trailer rigs now in common use and designing safety features and turn geometry recognizing WB65 or WB67. The trucking community has been generally very receptive of innovative intersection designs such as roundabouts and J-turns, with the caveat that design should be monitored and given public review in order to easily handle long, heavy commercial vehicles safely Industry in and near the Mississippi River Valley shared a common concern that good access to Wisconsin should be maintained and improved as a priority for MnDOT and WisDOT. South East Minnesota has direct access to two of the five river ports in the state, Red Wing and Winona. Both Minnesota ports have good commercial access via State Trunk Highways, local arterials, and Class 1 railroads. 	<p>Physical:</p> <ul style="list-style-type: none"> Railroad Intermodal Access; OFCVO and the District have been and will continue to work with client agencies such as the Albert Lea Development Agency, private shippers and transporters, developers, and the railroads to determine the business potential of several different terminal business models that may result in establishing rail intermodal service from South East Minnesota to a southern California gateway, and other domestic markets. <p>Policy-Related:</p> <ul style="list-style-type: none"> Over-Size/Over-Weight Transport; OFCVO Permit Group, District planners and engineers, and several OS/OW carriers have cooperated in a preferred route mapping exercise, to institutionalize some of the operational knowledge in this subject area and to inform others in and beyond MnDOT who are effected by OS/OW considerations. The map will be posted as information to the MnDOT website in conjunction with this study. <p>People (Institutional):</p> <ul style="list-style-type: none"> Road Conditions; OFCVO and District 6 are actively engaging in public outreach, information sharing, and design review with internal agency and local road and intersection project designers. Ports and Waterways Access; MnDOT along with the Port Authorities may support a revised Ports Assistance Program, based on policy directions developed in the state's first Ports and Waterways Plan to be finished by June 30, 2013, and integrated into the State Transportation Plan. The Plan initiative was begun because of input provided in large part during the research phase of the freight study.

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9. Southeast Minnesota Regional Freight Study (2013)

- Port facilities in the two ports, as well as Minnesota's other public port facilities, collect regular freight tariffs on goods handled across their docks. These are sufficient to pay for operating costs, but do not provide the revenue necessary for major capital improvements.
- Many businesses in the region, in particular food processing and wholesale distribution, utilize containerized transport, but have to truck the container cargo to Chicago or Kansas City to access supplies or markets coming through the Ports of Long Beach/Los Angeles or the East Coast ports.
- A private intermodal terminal in Winona has been built to address demand for containerized transport, but continues to face challenges of attracting major customers and having only limited support from the servicing railroad. Other proposals by business development agencies in areas such as Albert Lea face the same challenges.
- With the expansion of the Panama Canal to be completed no later than 2014, one of the major impacts is a potential for Pacific Rim trade to increase through Gulf Coast ports instead of California. Containers for import or export may be trans-loaded between vessels in New Orleans and river barges, then moving throughout the Mississippi and Ohio River systems in the Midwest.
- Emerging Commodity Trends; MnDOT will continue to actively monitor developments in the containerized traffic corridors as the Panama Canal improvements come on stream, in order to respond to new distribution patterns that may emerge. The District and OFCVO will also remain in close touch with the agriculture sector and shipping associations to evaluate the ongoing trends in produce markets and modal selections of the shippers, locally, nationally, and internationally.

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9. Southeast Minnesota Regional Freight Study (2013)

- The southeast region has enjoyed a steady increase in agricultural production from year to year, and produces a third of all Minnesota produce as well as being the state leader in dairy production.
- Pure silica sand in Wisconsin and Minnesota proved to have ideal properties for use as “frac” sand for oil production. Beginning in 2010, the acceleration in shale drilling outstripped the frac sand supply, driving up prices, and created a boom in Wisconsin and Minnesota sand production that extended until the summer of 2012.

Policy-Related:

- South East Minnesota terminates a large number of over-size/over-weight (OS/OW) truck loads that require special permits for routes and curfews, and often require special services including escorts and heavy equipment such as cranes to accomplish their moves.

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10. Twin Cities Metro Area Regional Freight Initiative: The Story of Freight in the Twin Cities (2012)

Issues and Needs	Opportunities
<p>Physical:</p> <ul style="list-style-type: none">The freight transportation system plays a critical role in supporting the region's economic status, competitiveness, and quality of life, allowing it to stand out as an important business and transportation hub.Highway congestion and traffic bottlenecks produce costly delays for trucks and threaten timely deliveries.Aging rail infrastructure and a growing shortage of capacity in the face of historic levels of rail traffic could limit the growth of rail freight and, in turn, cost competitive commodity movement in the region.Redevelopment of the riverfront that excludes industrial uses, such as barge terminal operations, may lead to increases in local and regional truck traffic, exacerbating highway congestion and system effectiveness.Security concerns, fuel costs, and limits to easy truck access will affect use of the Minneapolis-Saint Paul (MSP) Airport for cargo shipments, which along with other airports nationwide has experienced a decline in air cargo traffic.In 2007, about 282 million tons of freight valued at approximately \$280 billion was moved annually in the region. In 2008, the region was ranked 14th in the country for the value of its exports (about \$19 billion in total) with machinery being the region's single most valuable export.	<p>Physical:</p> <ul style="list-style-type: none">State-of-the-art interchanges provide increased safety: MnDOT is now completing interchanges at two locations within the region, both of which will support freight movements: US 169 & I-494 interchange and TH 101 & TH 13 interchange.MnDOT is implementing projects from its Congestion Management and Safety Plan (CMSP). The CMSP identified a variety of techniques to select lower-cost/high-benefit projects that support cost-efficient, innovative, infrastructure improvements, and help to mitigate safety and mobility issues on the region's highway system.MnDOT has invested in high-occupancy toll (HOT) lanes that permit single-occupant drivers to pay a user fee to access these lanes. Speeds and capacity of the HOT lanes are maintained by dynamically changing the toll according to demand and use. These HOT lanes are designed to facilitate traffic movement on general purpose lanes and therefore benefit all users, including truckers. <p>People (Institutional):</p> <ul style="list-style-type: none">The Transportation Economic Development (TED) program is a collaborative effort between MnDOT and DEED. Through TED, funding is available to communities for highway improvement and infrastructure projects that create jobs and support economic development. Several potential TED projects will benefit goods movement.

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10. Twin Cities Metro Area Regional Freight Initiative: The Story of Freight in the Twin Cities (2012)

- With continuing uncertainties in transportation funding at the national level, it will become necessary implement lower-cost/high-benefit projects in the region.
- Volatile fuel costs could affect national and regional distribution patterns as freight shippers seek alternative shipping routes that require less fuel, shorter supply chains, or modes that are comparatively more fuel efficient, such as rail.
- Increasing population is likely to result in more vehicles on the roads and increased congestion for travelers and freight providers. An influx of new consumers will also heighten the demand for goods.
- Experts anticipate continued growth in freight transportation that will further contribute to capacity challenges and overwhelmed facilities.
- Many transportation facilities in the region, as others throughout the state and the U.S., are aging and in need of repair or replacement. Aging infrastructure can damage freight and increase wear on vehicles.
- As in other areas of the country, congestion is an issue in this region.
- Freight transportation safety is improving nationally and in Minnesota. In recent years there have been fewer accidents involving trains and fewer fatalities involving large trucks across the nation.
- MnDOT and Met Council could target outreach to existing or new partners to encourage a more consistent and effective dialogue on freight. Whether this outreach is conducted through informal or formal venues, resulting conversations could help to better surface freight issues and needs that might exist but are not necessarily reflected in the public sector's freight planning process or in associated planning documents, such as local comprehensive plans.

(table cont'd)

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10. Twin Cities Metro Area Regional Freight Initiative: The Story of Freight in the Twin Cities (2012)

Policy-Related:

- Many policies already exist to help mitigate noise and other environmental impacts, but heightened environmental concerns may lead to increased regulations that will limit the expansion of the freight system and affect regional freight operations, project implementation, planning, and other activities.
- The increasing value and attractiveness of urban lands create a major impediment to expansion of freight facilities, because land is desired for uses (e.g., residences and commercial centers) that are incompatible with significant freight operations and industrial uses.

People (Institutional):

- Demand for intermodal (e.g., rail-to-truck movement) transportation is the fastest growing segment in rail transportation over the past 25 years. Intermodal traffic has grown from 3 million trailers and containers in 1980 to 11.7 million in 2005.

11. Supplemental IRC Study (2011)

Issues and Needs	Opportunities
<p>Physical:</p> <ul style="list-style-type: none"> • The IRC System was established in 2000 and is the backbone of the truck highway system. The 2,900+ mile system connects all major trade centers (level two and higher) in Minnesota, carries 30 percent of all vehicle miles traveled in the state and moves the majority of freight and freight value in the state. • The current IRC system designations have good support and provided sufficient connectivity to trade centers and to different regions of the state. • There are questions with respect to providing sufficient system connectivity in northwest Minnesota and providing sufficient north-south truck routes in west/central Minnesota. • While there tend to be adequate freight routes for east-west freight movement in the state, those in the trucking industry have expressed a need for improved north-south movements as well as better coverage in northwestern Minnesota. • Identification of intermodal freight facilities and their connections to the IRC system will help to ensure that good routes exist and that if inadequacies are found that they can be identified and prioritized in local transportation plans. • The ability to safely and efficiently move over-sized, over-weight (OSOW) loads from ports and other intermodal facilities is important for overall economic vitality. MnDOT provides permitting of OSOW loads on Trunk Highways throughout the state. 	<p>Physical:</p> <ul style="list-style-type: none"> • Maintain the current IRC system (i.e. keep the system on the same routes). • Shift to a single nomenclature: "Interregional Corridor Backbone" system • Add a handful of supplemental freight routes; the IRC and supplement freight routes that would replace freight tiers • Designate Oversize, Overweight (OSOW) routes; routes to be preserved to the extent possible for movement of OSOW loads. • Identification of modal connectors will help visualize connectivity of the system; Through update of next MPO and Highway Investment plans, work with Districts and MPOs to further define intermodal connectors <p>Policy-Related:</p> • Incorporate freight policies into management of IRCs, supplemental freight routes and OSOW routes where feasible. These include the following: <ul style="list-style-type: none"> - Provide 10 ton routes - Maintain pavements to meet principal arterial targets - Seek opportunities to limit travel flow interruptions through traffic control and/or intersection modifications - Limit use of roundabouts on OSOW • Address existing IRC corridor management plans and other approved studies and how they fit with overall statewide resources

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11. Supplemental IRC Study (2011)

Policy-Related:

- The original development of the IRC system provided for two separate classifications or categories: High-Priority and Medium-Priority. This naming convention implied a priority when there really was none. This has caused some confusion with stakeholders and requires explanation to the stakeholders about differences that are not immediately apparent.
- The IRC system, supplemental freight routes, and OSOW routes are important to the movement of goods throughout Minnesota. These routes should be managed accordingly to preserve/enhance freight movements where feasible.
- The IRC Corridor Management Plans developed in 2002 will likely need to be revisited to reflect changes to the economic environment and to identify investment strategies for the next 10-20 years.

People (Institutional):

- Key intermodal connections should be shown in MPO plans and coordinated with MnDOT to confirm/identify connectors from the IRC system to major freight and intermodal facilities.
- To-date preferences and/or priorities have been determined based more on usage than policy. For example, a route gets better snow and ice treatments because it has greater volumes not because it is on the IRC system.
- Currently, mobility is the only element that is measured at the IRC corridor level. Other elements are reported at the statewide level. A more comprehensive approach to corridor management and performance should be considered.

- Continue to use access management guidelines to manage corridor access; some clarification or confirmation of access categories is needed to make sure that these are aligned with corridor investment strategies.

People (Institutional):

- MnDOT should continue its performance-based approach to planning and design
- Move to broaden IRC corridor-based management and measures beyond mobility to include other elements including but not limited to pavement, bridge, drainage and safety.
- Keep same corridor mobility targets (speed), but modify mobility measure by removing stub connectors from mainline performance calculations.
- Consider incorporation of passenger car equivalents (PCEs) in place of AADT in performance calculations to better account for freight movements.
- Consider giving some preference to IRCs in greater Minnesota as funding is limited; no preference to IRCs would be given in the Twin Cities metro area due to large number of metropolitan highways of similar stature.

12. Freight Rail Economic Development (FRED) Study (2013)

Issues and Needs	Opportunities
<p>Physical:</p> <ul style="list-style-type: none"> Railroads are a preferred mode of transportation for large volume shippers of agriculture, industrial manufacturing, mining, and consumer products and help achieve transportation efficiencies especially for bulk cargo. Freight rail is important to the economic competitiveness of Minnesota and plays a vital role in the logistics of key Minnesota industries. Class I railroads expect to spend \$13 billion nationally in capital improvements to upgrade track and facilities in 2013--2014. <p>Policy-Related:</p> <ul style="list-style-type: none"> Freight rail infrastructure and rail service is growing in importance because of increased motor carrier regulations, increased fuel costs, and a current and growing truck driver shortage. Intermodal freight transportation policy represents the next important area of progress for policymakers and industry professionals. Programs that help expand rail access will help reduce pavement damage, congestion, and highway costs and improve Minnesota's economic competitiveness. <p>People (Institutional):</p> <ul style="list-style-type: none"> The partnership between Class I and short line railroads is valuable and essential for the economic growth of Greater Minnesota. Enhancing Minnesota freight rail development programs will help short lines connect rural Minnesota with Class Is, so all shippers and economic clusters within Minnesota can benefit from Class I railroad investments. 	<p>Policy-Related:</p> <ul style="list-style-type: none"> Rail access often involves large capital-intensive investments. Turnouts may run from \$75-250K, and constructing new track is \$1 million per mile. Programs such as MnDOT's Rail Service Improvement (MRSI) and DEED's business development efforts should recognize and be structured to facilitate significant infrastructure improvements if appropriate. In Minnesota, four Class I railroads will invest nearly \$200 million in capital improvements in 2013. Business and industry is increasing rail transportation spending. Minnesota should invest in projects that leverage and complement this private sector investment. The MRSI program, a revolving loan program with a \$200,000 project cap, can be restructured to allow larger projects and legislatively could be allowed to incentivize users with performance-based loan forgiveness or loan guarantees. Public money invested in privately owned rail facilities has created public benefits for rail users and reduces transportation maintenance costs for public roadways in other states. Any public investment should be subject to a cost benefit calculation to document public benefits. <p>People (Institutional):</p> <ul style="list-style-type: none"> Improve collaboration with and education of economic development agencies (EDAs) and regional development commissions (RDCs). The majority of EDAs and RDCs around the state have little or no knowledge of rail transportation and the importance of access to this mode.

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12. Freight Rail Economic Development (FRED) Study (2013)

- Minnesota's rail network is regional and international in scope and essential to support exports. Two of the top three international trading partners with Minnesota include Canada and Mexico, our NAFTA neighbors, which are well connected to Minnesota by rail. Neighboring states compete for short line and Class I rail investments that benefit regional shippers. Freight rail development programs need to be flexible and eligibility for freight rail development funds should include economic development agencies (EDAs), regional development commissions (RDCs), ports and other public planning agencies.
- Public perception of freight rail's value generally lags behind its actual importance to the economy and communities that it serves. Outreach and public forums on freight rail development would help increase awareness.
- MNProspector, a statewide commercial property directory, can be reconfigured to show rail-related or accessible properties and interact with rail marketing efforts similar to its present interaction with commercial real estate developers.
- The interagency cooperation and economic development characteristics of the Transportation Economic Development (TED) program would be a natural and appropriate means of expanding rail-related economic development efforts.
- Establish a freight rail development forum. Similar to the Intercity Passenger Rail Transportation Forum, a semiannual forum should be held to recommend and coordinate projects. This forum should engage Class I railroads, short lines and rail shippers to share capital planning projects, freight transportation needs and development opportunities.
- Host annual executive planning meetings with Class Is and Transportation Commissioner. Minnesota is a desirable location for economic development and job creation based on site selection feedback. Minnesota transportation and economic development executives should engage each of the four Class I railroads separately in capital planning discussions and meetings to leverage multimodal transportation planning and investments. Short line meetings should also be considered.

13. Scenario Planning and the Impacts on Trends and Issues Affecting Freight Transportation in Minnesota DRAFT (2013)

Issues and Needs	Opportunities
<p>Physical:</p> <ul style="list-style-type: none"> Minnesota's population is projected to grow to nearly 6.5 million by 2035. Minnesota's population is projected to grow to 5,709,700 by 2015 and 6,446,300 by 2035. The Twin Cities suburbs and the Rochester and St. Cloud regions are all expected to see substantial growth over the next 30 years. The continued aging of the baby boomers will produce an explosion in the number of people aged 55 to 69 during the coming decade. Silica sand found along the Mississippi River Valley in Western Wisconsin and Southeastern Minnesota is considered perfect for hydraulic fracturing for oil production. To date, most of the frack sand mining has taken place in Wisconsin, but Southeastern Minnesota also holds significant silica sand reserves. The manufacturing and transportation of oversized wind energy components presents unique challenges to the transportation network. Turbine rotor blades are relatively lightweight, but can be 150 feet long and require ample turning radius for highway transport. 	<p>Physical:</p> <ul style="list-style-type: none"> The ability to employ a variety of modes in moving goods is essential to efficiency and minimizing environmental impacts. Stakeholders discussed the need for continued investment and support for highway and non-highway modes, even though in some futures the business models of non-highway modes will see significant changes from the current way of doing business. While participants acknowledged that all modes are important for improving the efficiency of goods movement, and lessening impacts on the environment, there was equal acknowledgement that highways and streets will continue to carry goods to their final destinations, be they retail outlets or residential dwellings; truck traffic particularly in urbanized environments is likely to grow. <p>Policy-Related:</p> <ul style="list-style-type: none"> The need to be cognizant of freight impacts on environmental health was a prevalent issue. In some scenarios, regulations to protect the environment were forced, however even in those scenarios where regulations over environmental issues were lax, participants viewed future policies and practices that minimize environmental impacts as a competitive lever. Existing funding mechanisms are inadequate for making the levels of transportation investment needed in the future. While stakeholders discussed the need for new funding approaches that were more equitable, transparent, and applicable across the modes, none were able to offer definitive solutions.

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13. Scenario Planning and the Impacts on Trends and Issues Affecting Freight Transportation in Minnesota DRAFT (2013)

- Coming out of the recession that started in 2008, Minnesota's global exports are rising again, reaching \$20.5 in 2012, following a recent low of \$15.5 billion in 2009. Canada is consistently Minnesota's largest trading partner with more than \$6 billion in trade during 2012. China comes in a distant second as Minnesota's next largest trading partner at \$2 billion. Exports to Mexico while doubling since 2008 fell just short of \$1.3 billion in 2012.
- As globalization continues to transform world trade, American companies are seeking emerging markets to accelerate the growth, while expanding the reach of American exports. The 'BRIC' countries—Brazil, Russia, India, and China—have been the cornerstone markets of increased global trade.
- South Africa and Russia are among the fastest growing locations for Minnesotan exports, with 60% and 16% growth from 2011 to 2012.
- When the expanded Panama Canal opens in 2014, a new set of locks on both the Pacific and Atlantic sides of the canal will essentially double existing capacity. Minnesota farmers could favor using of the Canal route due to its increased capacity, but there are concerns about the Midwest's ability to handle the potential increased traffic through the Mississippi system.

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13. Scenario Planning and the Impacts on Trends and Issues Affecting Freight Transportation in Minnesota DRAFT (2013)

- The Northwest Passage connects the Pacific and Atlantic oceans along the northern coast of North America through the Arctic Ocean. Using the passage save nearly two weeks of travel time compared to using the Panama or Suez canals. One UCLA climate model suggests the rate of melting Arctic ice could open the passage for the entirety of the peak shipping season by 2050, likely making the passage the most desirable shipping route for cargo originating in eastern North America.
- As freight volumes have dramatically increased across the U.S. during the past several decades, concepts for dedicated freight infrastructure, such as dedicated truck lanes has increasingly entered the transportation lexicon.

Policy-Related:

- In 2009, MnDOT estimated that the needed investment in state owned roads and bridges over the next 20 years to be approximately \$62 billion, while anticipated revenues during the same period would total just \$15 billion.
- Since the 1980's numerous studies have examined the impact of economic deregulation in the various freight modes. Most studies concur that deregulation had significant impacts on freight industries, especially the U.S. railroad industry.
- The growing shortage of truck drivers is often cited as a looming capacity issue in the future as freight volumes continue to grow. Higher wages, better working conditions, and autonomous driving trucks are all cited as potential resolutions to this issue.

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13. Scenario Planning and the Impacts on Trends and Issues Affecting Freight Transportation in Minnesota DRAFT (2013)

- The Duluth Seaway Port Authority cites a lack of competitiveness among U.S. shipyards with foreign shipbuilders as one of the problems created for the Port by the Jones Act, which requires that all goods transported by water between U.S. ports be carried in U.S. ships constructed, owned, and crewed by U.S. citizens.

People (Institutional):

- The rapid increase of E-Commerce and related increase to direct home delivery has affected the freight network. E-commerce has increased the penetration of parcel delivery vehicles into neighborhoods as they deliver the physical products ordered online.
- As companies look for opportunities to increase the sustainability of their supply chains, a natural segment to examine is the environmental factors associated with the transportation and shipping of their goods and products. This may increase emphasis on the more energy efficient freight modes – water and rail, and away from air or less efficient trucking.
- A contentious effect resulting from the globalization trade economy over the past several decades has been the migration of U.S. manufacturing jobs to overseas markets, most notably China
- Minnesota's manufacturing jobs accounted for 16% of all wages paid in 2010, and manufacturing wages tend to be about 20% higher than for all industries in the state.ⁱ Yet the gap in labor skills continues to be a challenge in Minnesota.
- An analysis of the medical device

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13. Scenario Planning and the Impacts on Trends and Issues Affecting Freight Transportation in Minnesota DRAFT (2013)

cluster conducted by the University of Minnesota in 2010 found that the Minnesota's medical device cluster has become complacent in recent years compared to other states, and a "business as usual" attitude may be the biggest threat to future growth.

- Transportation agencies are increasingly turning to Intelligent Transportation Systems and innovative traffic operations to increase mobility, particularly through metropolitan areas.

14. Manufacturers' Perspectives on Minnesota's Transportation System: A Pilot Study in Southwest and West Central Minnesota (February 2014)

Issues, Needs, Opportunities	Solutions, Recommendations
<p>Physical:</p> <ul style="list-style-type: none">Regarding one of the region's most used highways (Highway 23); respondents reported a need for smoother roads in some areas, better snow and ice removal along some segments, and attention to intersections perceived as dangerous. Some interviewees also cited problems with bridge clearance; emphasized the importance of wide shoulders; and expressed concerns about roundabouts, particularly for oversized loads.Smooth pavement was seen as very important to the movement of certain goods. Rough roads were cited as a perceived risk to driver safety, and damaging to trucks, materials, products, and live cargo. These damages have resulted in increased costs <p>Policy-Related:</p> <ul style="list-style-type: none">Many respondents identified size and weight restrictions as a concern. Several respondents expressed concern with federal changes to hours of service, suggesting that they would decrease business efficiency; crowd limited parking at MnDOT's rest areas; and exacerbate the impacts of construction and weather delays. <p>People (Institutional):</p> <ul style="list-style-type: none">Over 80 percent of interviewed manufacturers collectively sell their products in all 48 contiguous states, and about half of the firms ship their products to international customers.	<p>People (Institutional):</p> <ul style="list-style-type: none">Continue to analyze manufacturers' and carriers' recommendations for potential implementation, including:<ul style="list-style-type: none">- Coordinating road construction planning across state, county, and city levels.- Maintaining a focus on safety and roadway quality by reviewing infrastructure for safety features such as wide shoulders, turn lanes, and intersection warning signals.- Increasing signage to identify route changes.- Analyzing snow and ice removal schedules to improve conditions along high priority routes.- Improving communication with manufacturers and carriers through email, on-site problem solving meetings, and other means.Review District 8 data to identify recommendations to incorporate into statewide planning, development, and best practices. Potential improvements include:<ul style="list-style-type: none">- Expanding 511 functionality- Adapting specific roundabouts to accommodate freight- Exploring the possibility of "Super Fragile" and Super Load" route designations to accommodate key corridors throughout the state.- Enhancing coordination with counties regarding construction and alternative route detours and snow and ice removal.- Continuing focus on low-cost/high-benefit projects.

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14. Manufacturers' Perspectives on Minnesota's Transportation System: A Pilot Study in Southwest and West Central Minnesota (February 2014)

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| <ul style="list-style-type: none">• Respondents requested enhancements to 511mn.org, a commonly used source of information for road conditions and closures among these interviewees. Businesses recommended that MnDOT provide earlier communication about construction projects so that businesses could plan well ahead of time to avoid costly delays. Manufacturers and carriers preferred email for these types of communication. | <ul style="list-style-type: none">• Develop an action plan for building upon District 8 relationships among manufacturers and carriers, MnDOT, regional city and county engineers, and economic development professionals.• Build upon the work of the District 8 pilot and adapt and refine it for use in another MnDOT district. Specific elements include:<ul style="list-style-type: none">- Reaching out to regional manufacturers with face-to-face interviews- Using interview teams of economic development professionals and MnDOT project staff to foster relationships among businesses, MnDOT, and economic development activities.- Employing a systematic approach to recruiting and interviewing key businesses. |
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15. Improvements to Highway-Rail Grade Crossings and rail Safety (December 2014)

Issues, Needs, Opportunities	Solutions, Recommendations
<p>Physical:</p> <ul style="list-style-type: none">• Over 700 miles of train routes in Minnesota carry Bakken crude oil.• These train routes cross a total of 683 at-grade crossings.• The volatility of the Bakken crude oil makes it highly prone to catching fire in the presence of an ignition source such as sparks occurring during derailment.• Crossing improvements should be prioritized based on the estimated risk to the most high-risk populations, including nearby residents, workers, and emergency responders.	<p>Physical:</p> <ul style="list-style-type: none">• \$2 million was allocated by the 2014 Minnesota Legislature for grade crossing improvement projects. Improvements will be prioritized based on this study's risk assessment. The initial round of improvements includes 13 projects such as active warning device upgrades, crossing closures, and grade separations.• The study provides a comprehensive list of high-priority crude by rail crossings and a proposed short-, medium-, or long-term crossing improvement recommendation.

16. Understanding District 4 Manufacturers' Perspectives on Transportation: An Industry Cluster Approach (2015)

Issues, Needs, Opportunities	Solutions, Recommendations
Physical: <ul style="list-style-type: none">•	Physical: <ul style="list-style-type: none">•