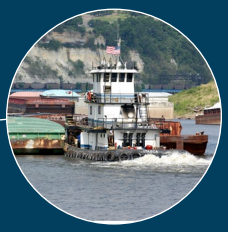
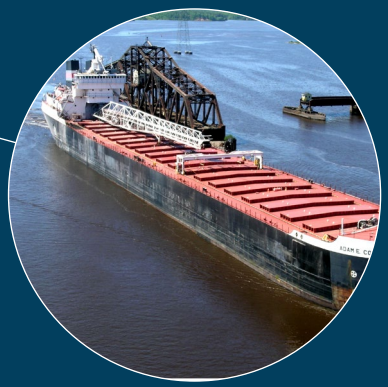
MinnesotaGO

A Collaborative Vision for Transportation

Statewide Freight System Plan





FULL PLAN | MAY 2016

MINNESOTA DEPARTMENT OF TRANSPORTATION

Statewide Freight System Plan

Dear Citizens and Freight Stakeholders of Minnesota,

I am pleased to share with you the 2016 Minnesota Statewide Freight System Plan. The development of this plan was undertaken by the Minnesota Department of Transportation in partnership with public and private sector freight stakeholders throughout the state.

This plan provides a framework to begin working on freight transportation challenges in Minnesota to maintain the state's economic competitiveness in the national and global marketplace. The plan describes Minnesota's freight transportation system and its role in the state's economy, current and emerging industry trends, the performance of the freight transportation system, and current and future issues and needs.

The plan also includes a Freight Action Agenda for MnDOT and its partners to advance strategies that will improve the efficiency, safety and reliability of the freight system.

The growing amount of freight transported on the multimodal transportation system – highway, rail, waterway, air and pipeline – is demanding improved performance. To keep pace with this growth, it is critical that we plan today for tomorrow's well-run, integrated multi-modal transportation system. An efficient and effective freight transportation system is vital to ensuring Minnesota's economic vitality.

I extend my gratitude to the many partners, freight stakeholders, MnDOT staff and others whose dedication and hard work developed this plan.

Sincerely,

Charles A. Zelle
Commissioner

Minnesota Department of Transportation
395 John Ireland Blvd.
Saint Paul, MN 55155

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PURPOSE AND SCOPE

The 2016 Minnesota Statewide Freight System Plan represents an update to Minnesota's first State Freight Plan developed in 2005. The development of this plan was undertaken by the Minnesota Department of Transportation in partnership with public and private sector freight stakeholders throughout the state.

This plan describes Minnesota's freight transportation system and its role in the state's economy, current and emerging industry trends, the performance of the freight transportation system, and current and future issues and needs. This plan also includes Minnesota's Freight Action Agenda for MnDOT and its partners to advance a number of strategies that will improve the efficiency, safety and reliability of the freight system.

This 2016 Minnesota Statewide Freight System Plan aligns with Minnesota GO and the Statewide Multimodal Transportation Plan, which establish Minnesota's overall vision for transportation. In addition, the plan meets the freight planning requirements of the federal Moving Ahead for Progress in the 21st Century, or MAP-21, transportation legislation and aligns with the provisions of the federal Fixing America's Surface Transportation Act, or FAST Act.

The 2016 Minnesota Statewide Freight System Plan includes the following chapters:

- Chapter 1 – The Importance of Freight to Minnesota provides an overview of the importance of freight industries and goods movement to the state of Minnesota, including trends that may affect goods movement in the future.
- Chapter 2 – Minnesota's Freight Assets and Use describes the state's existing multimodal freight system, including designation of Minnesota's Principal Freight Network.
- Chapter 3 – Minnesota's Freight Needs and Issues identifies freight system performance measures and describes the condition and performance of Minnesota's freight system. This chapter also identifies needs and issues to be addressed to achieve the goals of the plan as well as national freight goals.
- Chapter 4 – Strategies to Address Minnesota's Freight Needs and Issues provides an overview of infrastructure projects and other supporting strategies to mitigate and address freight system needs and issues. Project details are included in Appendix A.
- Chapter 5 – Actions and Next Steps outlines the next steps for Minnesota's public and private sector freight stakeholders in Minnesota's Freight Action Agenda.

Additional information supporting the plan is included in several appendices. These appendices are available in a separate document.

- Appendix A – Additional Resources provides an overview of the technical documents developed as part of this plan, as well as resources developed by MnDOT and others that were used for plan development.
- Appendix B – Outreach highlights the committees and public engagement activities employed during the plan development process. This includes formation of an advisory committee and technical team, three working groups focused on special topics, one-on-one interviews with industry, interviews with each of Minnesota's neighboring states and provinces, online surveys, and other outreach activities to public and private freight system stakeholders.
- Appendix C – Environmental Justice provides a general evaluation of how this plan may impact Minnesota's environmental justice populations.

- Appendix D – Key Definitions is a glossary of freight terms and acronyms used in the plan.

Plan Structure

The 2016 Minnesota Statewide Freight System Plan is part of MnDOT's "Family of Plans," a collection of transportation documents that identify mode-specific strategies, establish performance measures and performance-based needs, and identify system priorities. Each plan uses statewide planning guidance that was developed to ensure consistency between each effort and to ensure each plan is contributing to the same overarching vision. Key elements guiding the development of the 2016 Minnesota Statewide Freight System Plan include:

- Minnesota GO Vision. Provides general direction for all modes of transportation including highways, transit, rail, bikes, pedestrians, freight and aviation.
- Freight Policy. This policy, developed as part of the 2005 State Freight Plan, provides a specific policy for the freight transportation system in Minnesota.
- Freight Plan Goals. As part of this plan, freight goals were established to provide Minnesota with a mechanism to gauge if the freight policy is being achieved.
- Freight Plan Objectives. As taken from the Statewide Multimodal Transportation Plan, these objectives provide an organizing mechanism for strategies and actions required to further advance the freight policy.

MINNESOTA GO VISION

In 2011, MnDOT launched the Minnesota GO visioning process. As part of this, MnDOT asked Minnesotans to help shape a vision that answers the question, "What are we trying to achieve for transportation over the next 50 years?" The visioning effort collectively defined a desired future toward that state, regional and local transportation planning could navigate. The result was the first long-range transportation vision adopted for Minnesota, a shared vision that aligns the transportation system with what Minnesotans expect for their quality of life, economy and natural environment.

The Minnesota GO Vision does not answer the question "how will we do it?" This question is

Minnesota Go Vision for Transportation

Minnesota's multimodal transportation system maximizes the health of people, the environment and our economy.

The system:

- Connects Minnesota's primary assets – the people, natural resources, and businesses within the state – to each other and to markets and resources outside the state and country
- Provides safe, convenient, efficient and effective movement of people and goods
- Is flexible and nimble enough to adapt to changes in society, technology, the environment and the economy

To enhance quality of life, the system:

- Recognizes and respects the importance, significance, and context of place – not just as destinations, but also where people live, work, learn, play and access services
- Is accessible regardless of socioeconomic status or individual ability

To support environmental health, the system:

- Is designed in such a way that it enhances the community around it and is compatible with natural systems
- Minimizes resource use and pollution

To promote economic competitiveness, the system:

- Enhances and supports Minnesota's role in a globally competitive economy as well as the international significance and connections of Minnesota's trade centers
- Attracts human and financial capital to the state

addressed in the subsequent statewide, modal and regional planning efforts that constitute the Family of Plans. The 2016 Minnesota Statewide Freight System Plan is one of these plans.

MINNESOTA FREIGHT POLICY

The 2005 Minnesota State Freight Plan clearly articulated the position of MnDOT with respect to freight transportation and introduced the following freight specific policy:

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.

This freight policy was adopted by MnDOT and underscores the importance of all modes for a balanced freight transportation system, the need for connections between modes, and the fact that efficient access to expanding markets is critical to Minnesota businesses operating in a global economy. This freight policy is carried forward to the 2016 Minnesota Statewide Freight System Plan.

FREIGHT PLAN GOALS

The goals of the 2016 Minnesota Statewide Freight System Plan reflect those aspects of the multimodal freight system that are most important to the public and private sector freight stakeholders in the state. The following five goals were established to further articulate the components of the freight policy.

Support Minnesota's Economy

The ability of businesses and industries in Minnesota to compete in the marketplace relies in part on an efficient freight transportation system that effectively moves goods and raw materials. The freight system that these businesses depend on is multimodal, transports products not only within Minnesota but also throughout the U.S., and provides connections to trading partners throughout the world. Minnesota's freight system needs to respond and adjust to changing state, U.S., and world economic conditions.

Improve Minnesota's Mobility

Freight system mobility can be described in several ways. Delay, slow travel speeds, and congestion are ways to measure mobility, and each translates into a freight transportation system that may have limited maneuverability, be unreliable, have chokepoints, and not provide a competitive advantage to industry. A freight system that has limited mobility may be unattractive for industries, especially where "just-in-time" delivery is critical. Minnesota's freight system needs to offer access for all freight users and reliable service with minimal chokepoints.

Preserve Minnesota's Infrastructure

In 2012, one billion tons of freight moved over Minnesota's transportation system, and by 2040 that volume is expected to rise to 1.8 billion tons – an increase of 80 percent overall. In 2012, trucks carried 63 percent of all freight tonnage, while rail (carload and intermodal) carried about 25 percent.[1] This growth in freight transportation will stress

[1] The data source for freight demand for modes other than rail was the Federal Highway Administration's Freight Analysis Framework version 3.5. FAF utilizes a 2007 base year with synthesized 2012 values and a 2040 forecast. For rail, the data source was the STB 2012 Confidential Carload Waybill Sample.

Minnesota's transportation infrastructure. Strategic improvements in multimodal freight system infrastructure to ensure critical segments and connections are both available and in a state of good repair are essential for Minnesota to meet expected demand.

Safeguard Minnesotans

Safety is a high priority for both public and private organizations involved in freight transportation. In Minnesota, a multifaceted approach to enhance safety has resulted in a historic trend of decreasing fatalities for both passenger and commercial vehicles.[2] However, there are increased safety concerns in some Minnesota communities due to increased transport of hazardous materials, in particular crude oil from the Bakken region of North Dakota transported by rail. Minnesota needs to enhance freight system safety and ensure plans are in place to protect areas where freight activity and the public interface.

Protect Minnesota's Environment and Communities

Minnesota's residents and businesses rely on freight transportation to support their economies; however, freight facilities and services sometimes negatively impact communities and the environment. Some of these impacts relate to air quality and noise, the presence of trucks in neighborhoods, and land use conflicts. Freight may affect Minnesota's traditionally underrepresented communities, such as racial and ethnic minorities, households without vehicles, and persons who are low-income. It is necessary to plan, design, develop, and preserve the freight system in a way that respects and complements the natural, cultural, and social context and is consistent with the principles of context sensitive solutions.

FREIGHT PLAN OBJECTIVES

The objectives of the 2016 Minnesota Statewide Freight System Plan are the same as those defined in the 2012 Statewide Multimodal Transportation Plan. These objectives are crosscutting and provide an organizing mechanism for strategies and actions required to further advance the freight policy. The types of strategies and actions in each category are briefly described below.

- Accountability, Transparency, and Communication. Make transportation system decisions through processes that are open and supported by data and analysis; provide for and support coordination, collaboration, and innovation; and ensure efficient and effective use of resources.
- Transportation in Context. Make fiscally responsible decisions that respect and complement the natural, cultural, and social context; and integrate land uses and transportation systems to leverage public and private investments.
- Critical Connections. Identify global, national, statewide, regional and local transportation connections essential for Minnesotans' prosperity and quality of life; preserve and improve these connections by maximizing return on investment given constrained resources; and consider new connections.
- Asset Management. Strategically preserve and operate transportation assets; rely on system data, partners' needs, and public expectations to inform decisions; put technology and innovation to work to improve efficiency and performance; and recognize that the system should change over time.

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[2] Minnesota Toward Zero Deaths, http://www.minnesotatzd.org/

- Traveler Safety and System Security. Safeguard travelers, transportation facilities, and services; apply proven strategies to reduce fatalities and serious injuries for all travel modes; reduce system vulnerability; and ensure system redundancy to meet essential travel needs during emergencies.

Federal Legislation

This Statewide Freight System Plan was developed in compliance with the guidance provided by MAP-21. The FAST Act of 2015 increased the federal focus on freight and provided additional requirements and resources related to state freight planning. This section details how each piece of this plan aligns with the requirements and recommendations of these acts.

FIXING AMERICA'S SURFACE TRANSPORTATION ACT

The FAST Act, a five-year, $300 billion surface transportation bill passed in 2015, provides the most comprehensive and coordinated provisions for freight of any prior national transportation bill. The first transportation bill with dedicated freight funding, the FAST Act includes a $4.5 billion competitive grant program for nationally significant freight and highway projects and $6.3 billion in formula funding to improve the newly designated National Highway Freight Network (NHFN), which expands the Highway Primary Freight Network developed under MAP-21. Additionally, the U.S. Department of Transportation is developing a National Freight Strategic Plan, which assesses the condition and performance of the nation's freight system and provides forecasts and improvement strategies. To guide resources and investment to the most critical pieces of transportation infrastructure for freight, the U.S. DOT is also developing a National Multimodal Freight Network, which expands beyond the NHFN to include key multimodal facilities such as public ports, waterways, and Class I rail systems.[3]

The FAST Act establishes new requirements for state freight plans that build upon MAP-21. To receive formula funds for freight transportation projects, states are required to have FAST Act compliant freight plans by 2017. Many of the components of freight planning required under MAP-21 (described in the next subsection) are carried forward as part of the FAST Act. State freight plans will be required to align with National Highway Freight Program goals and National Multimodal Freight Policy goals.

In addition, FAST Act compliant state freight plans are required to include the following components:

- A fiscally-constrained, prioritized project investment plan
- A bottleneck analysis
- Identification of critical urban and rural freight corridors
- Identification of multimodal freight facilities and corridors

Although this current plan meets the requirements for a MAP-21 compliant plan, the above components must be addressed in order for Minnesota's Statewide Freight Plan to be FAST Act compliant. Minnesota has already taken steps towards the last two components, identifying critical corridors and multimodal freight facilities, through the

[3] Class I is a railroad designation by the Surface Transportation Board (STB) referring to the seven largest U.S. railroads. The four primary Class I rail operators in Minnesota are BNSF, Canadian Pacific (CP), Union Pacific (UP), and Canadian National (CN).

development of the state Principal Freight Network, described later in this document. MnDOT will adopt a FAST Act compliant plan by December 2017.

The U.S. DOT is expected to release specific guidance on updating MAP-21 compliant state freight plans to meet the FAST Act requirements in the first half of 2016.

MOVING AHEAD FOR PROGRESS IN THE 21ST CENTURY ACT

MAP-21 was signed into law in 2012, providing federal transportation funding and guidance to state departments of transportation and Metropolitan Planning Organizations. Under MAP-21, statewide freight plans must describe how the state will improve its ability to meet the National Freight Policy goals. The MAP-21 National Freight Policy goals are:

- Improve the contribution of the freight transportation system to economic efficiency, productivity, and competitiveness
- Reduce congestion on the freight transportation system
- Improve the safety, security, and resilience of the freight transportation system
- Improve the state of good repair of the freight transportation system
- Use advanced technology, performance management, innovation, competition, and accountability in operating and preserving the freight transportation system
- Reduce adverse environmental and community impacts of the freight transportation system

To demonstrate this plan's compliance with MAP-21, Table 0.1 illustrates how these National Freight Policy goals are addressed.

Table 0.1 How MAP-21 National Freight Policy Goals are Addressed in this Freight Plan

MAP-21 NATIONAL FREIGHT POLICY GOAL	HOW ADDRESSED IN FREIGHT PLAN
Improve the contribution of the freight transportation system to **economic efficiency, productivity and competitiveness**	**Freight Plan Goal - Support Minnesota's Economy**
Reduce **congestion** on the freight transportation system	**Freight Plan Goal - Improve Minnesota's Mobility**
Improve the **safety, security and resilience** of the freight transportation system	**Freight Plan Goal - Safeguard Minnesotans**
Improve the **state of good repair** of the freight transportation system	**Freight Plan Goal - Preserve Minnesota's Infrastructure**
Use **advanced technology, performance management, innovation, competition and accountability** in operating and preserving the freight transportation system	The concepts of advanced technology applications, performance management, innovation and accountability cut across all goal areas identified in this plan; these concepts have been incorporated as strategies.
Reduce adverse **environmental and community** impacts of the freight transportation system	**Freight Plan Goal - Protect Minnesota's Environment and Communities**

In addition to the National Freight Policy goals, MAP-21 also identified specific topics that must be addressed in statewide freight plans. U.S. DOT also identified recommended content. Table 0.2 highlights the required MAP-21 content and the U.S. DOT recommended content and where it can be found in this plan or its supporting documents, including technical memos developed as part of the planning process.

Table 0.2 How MAP-21 National Freight Plan Requirements and U.S. DOT Recommendations are Addressed in this Freight Plan

PLAN ELEMENT	MAP-21 REQ.	U.S. DOT REC.	FREIGHT PLAN CONTENT
Describe economic context (industries, supply chains)	-	✓	• Economic Context Technical Memo • One-on-One Freight Industry Interviews
Describe freight trends, needs, and issues	✓	✓	• Freight System Needs, Issues, and Opportunities Technical Memo
Develop freight forecast	-	✓	• Freight System Assets and Use Technical Memo
Identify freight transportation assets	-	✓	• Freight System Assets and Use Technical Memo
Report on conditions and performance	-	✓	• Freight System Performance Measure Technical Memo • Freight System Needs, Issues, and Opportunities Technical Memo
Identify strengths and weaknesses	-	✓	• Freight System Needs, Issues, and Opportunities Technical Memo
Inventory bottlenecks and develop freight improvement strategies. These strategies will: • Consider innovative technologies and operational strategies, including Intelligent Transportation Systems • Describe improvements that reduce or impede the deterioration of roads due to heavy vehicles	✓	✓	• Freight System Needs, Issues, and Opportunities Technical Memo • Strategies and Implementation Technical Memo
Describe freight policies, strategies, and performance measures	✓	✓	• Freight System Performance Measure Technical Memo • Strategies and Implementation Technical Memo
Develop freight investment decision-making process	-	✓	• Strategies and Implementation Technical Memo
Develop implementation plan, including funding and revenue sources	-	✓	• Strategies and Implementation Technical Memo
Describe how Minnesota supports national freight goals	✓	✓	• The 2016 Minnesota Statewide Freight System Plan has developed goals similar to the national freight goals in order to show support.

1.0 THE IMPORTANCE OF FREIGHT TO MINNESOTA

This chapter provides an overview of the importance of freight industries and goods movement to the state's economy and includes a description of trends that may affect goods movement in the future.

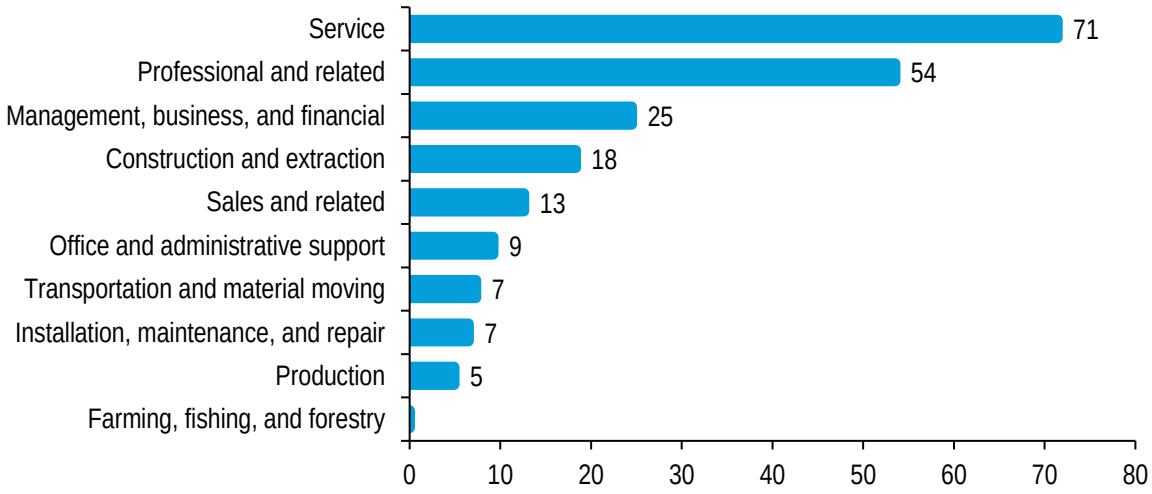
Minnesota's Economy

The structure of Minnesota's economy—population; per capita income; employment; the type, size, and locations of businesses and industries—determines the volume of freight moving in the state.

Minnesota's State Demographics Center reports the population of the state as 5.4 million as of 2014. The population is expected to grow to six million by 2031 and to 6.5 million by 2065, at an annual rate of change of 0.5 percent.[4] Approximately 60 percent of Minnesota's population is centered in the Minneapolis-St. Paul metropolitan area. Hennepin, Ramsey, Dakota, and Anoka counties are the most populous counties in the state. No other county in Minnesota has a population that exceeds 250,000. This concentrated nature of Minnesota's population, coupled with the large geographic size of the state, means that although both rail and highway networks serve wide rural areas, much of the freight and passenger activity is concentrated in key pockets within the state.

Minnesota's employment rate has historically been higher than the nation as a whole; however, Minnesota's employment is expected to grow at a slower rate (7.0 percent) than the nation (10.8 percent) between 2012 and 2022.[5] Much of the job growth in Minnesota will be focused on service, professional, and management jobs, suggesting a continued growth in demand for commuting and business travel (Figure 1.1). This reinforces the importance of connecting the Minneapolis-St. Paul metropolitan economy with other regional centers of commerce, such as Chicago.

Figure 1.1 Job Growth in Minnesota, in Thousands, by Major Occupational Group, 2012–2022



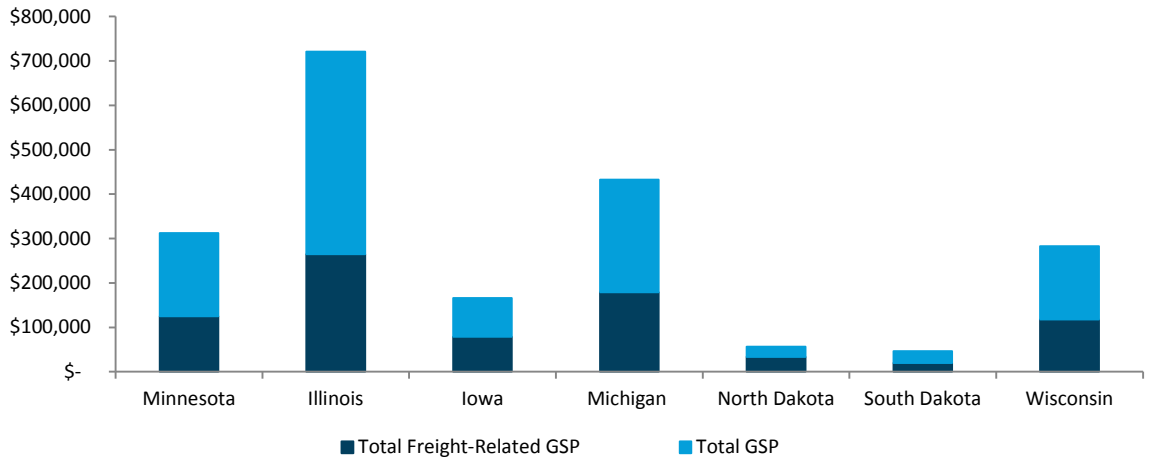
Source: Minnesota Department of Employment and Economic Development, 2014

[4] Minnesota State Demographic Center Population Data, 2014

[5] Minnesota Department of Employment and Economic Development, 2014

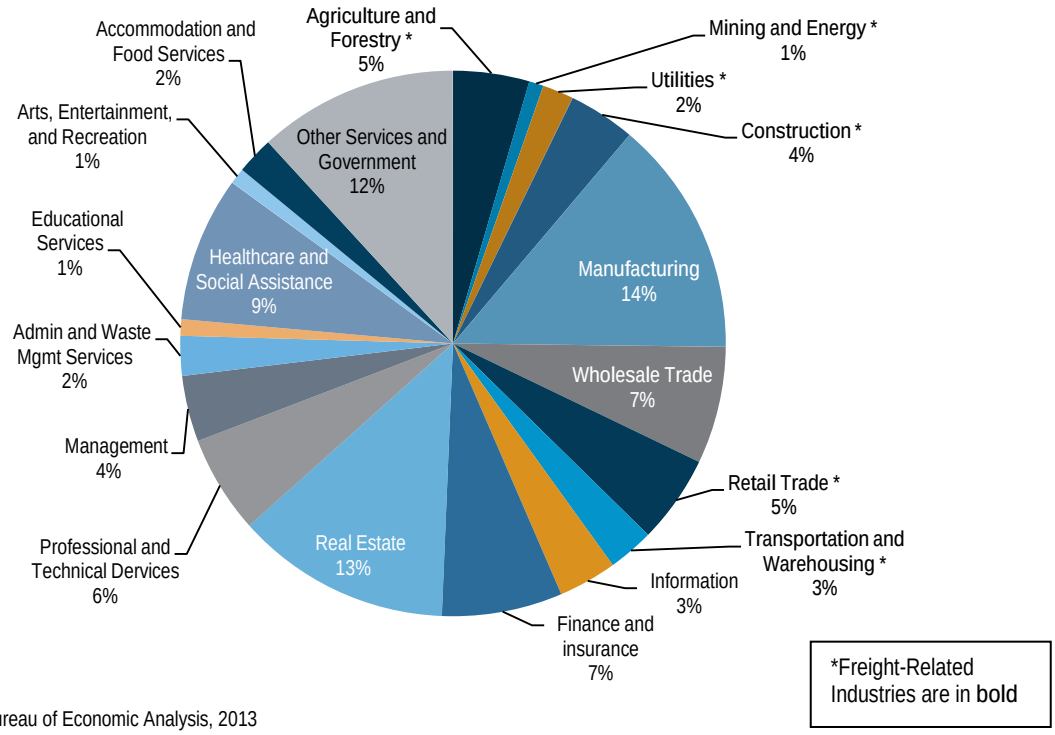
Minnesota's economy is diverse and is driven by business services, finance, and healthcare industries, as well as freight- or trade-related industries such as agriculture, mining, and manufacturing. Trade-related industries are key drivers of the economy. Figure 1.2 shows the contribution of freight-related and other industries to the Gross State Product of Minnesota and neighboring states. Forty percent of Minnesota's GSP is dependent on freight-related industries, a higher percentage than many of its neighboring states. Figure 1.3 details the percentage contribution, by industry sector, to Minnesota's GSP.

Figure 1.2 Gross State Product, Minnesota and Neighboring States (Millions of 2013 $USD)



Source: U.S. Bureau of Economic Analysis, 2013

Figure 1.3 Industry Sectors as Percent of Minnesota GSP (with Freight-Related Industries in Bold Text)



Source: U.S. Bureau of Economic Analysis, 2013

Minnesota's Freight-Related Industries

All industries are dependent on the transportation system, and freight- or trade-related industries depend upon multimodal connections and the option to ship goods via road, rail, water or air. This is particularly true in Minnesota as it is the headquarters for 18 Fortune 500 companies, many of which are freight-related and specialize in a range of areas from medical devices and financial services to retail and food production. The list includes major manufacturers such as 3M, General Mills, Medtronic, Land O'Lakes, Ecolab and Mosaic. Agricultural commodities giant Cargill Inc., the largest privately held company in the country, is headquartered in Wayzata. Minnesota also hosts Best Buy and Target corporate headquarters and distribution centers.

Table 1.1 shows the relative importance of transportation modes to freight-related industries. Trucking is important to all industries, as even goods moving via other modes often use trucks for the first- and last-mile of the trip. Rail and water serve the agriculture, mining, manufacturing, and trade sectors, while air is mostly used for the transport of high-value manufactured goods and consumer products. Pipeline transport is important for moving crude oil and other energy sector goods.

Table 1.1 Importance of Transportation Modes to Minnesota's Freight-Related Industries

INDUSTRY	TRUCK	RAIL	WATER	AIR	PIPELINE
(11) Agriculture, Forestry, Fishing, and Hunting	●	●	●	○	○
(21) Mining	●	●	◑	○	●
(22) Utilities	●	●	◑	○	●
(23) Construction	●	◑	◑	○	○
(31-33) Manufacturing	●	●	○	◑	○
(42) Wholesale Trade	●	●	○	○	○
(44-45) Retail Trade	●	◑	○	◑	○
(48-49) Transportation and Warehousing	●	●	○	◑	○

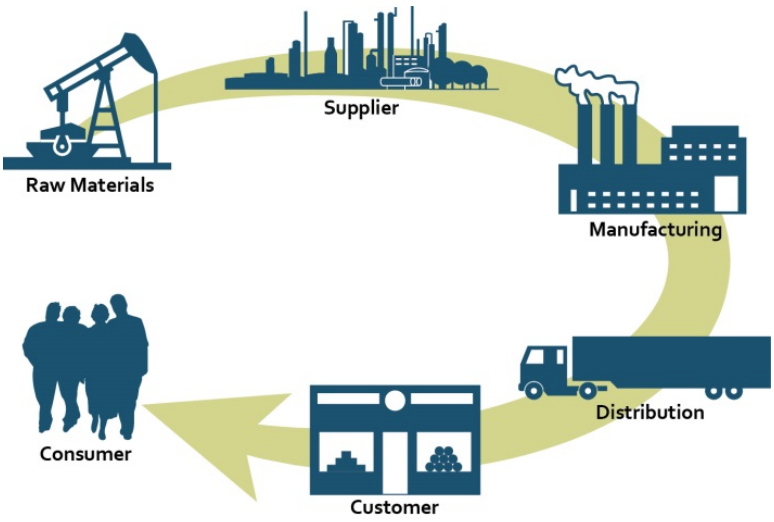
Key: ○ Less important ◑ ● More Important

Note: Industries are defined by NAICS code – North American Industry Classification System

Businesses in Minnesota have unique supply chains customized to their needs. Supply chains are essentially goods moving from producers to intermediate suppliers, manufacturers, distributors and other businesses, and finally to the consumer or end recipient. Supply chains are closely related to the costs a business is able to bear. For this reason, access to reliable and cost-effective transportation networks and services can greatly impact a business's bottom line.

Figure 1.4 illustrates a conceptual supply chain where the connections between points can be made via truck, rail, water, air or pipeline. As an example, an agricultural supply chain might begin with farmers in North Dakota who receive fertilizer via rail, and may then send grain to Minnesota's food processing and food manufacturing industry via truck. The food processing and manufacturing industries may also receive other inputs – manufactured equipment, packaging material and other materials that are either shipped locally or travel via water, rail and truck from international destinations such as Asia or Latin America. A food manufacturer might then truck finished goods (e.g., boxes of cereal) to a regional distribution center that distributes them to retailers within the state or ship their products cross-country for export via rail or ship.

Figure 1.4 Visualization of a Supply Chain



MINNESOTA'S INDUSTRIAL CLUSTERS

Minnesota's industries use the multimodal transportation system in various ways. A recent research effort[6] conducted by the University of Minnesota, sponsored by MnDOT, investigated various competitive industry clusters in the state. For12 industry clusters located in regions around the state, one or more firms were interviewed on various aspects of their business, including their company's history and operations, customer base and suppliers, its use of transportation services, its plans for expansion in the near future, and whether transportation networks will be a necessary consideration in those decisions. The key industrial clusters in Minnesota include:

- Recreational Vehicles (Northwestern Minnesota)
- Hospitality and Tourism (Brainerd)
- Mining and Forest Products (Duluth)
- Production Technology (Alexandria)
- Construction Materials (St. Cloud)
- Water Technology, Medical Devices, and Robotics (Minneapolis-St. Paul-Bloomington)
- Processed Foods (Worthington)
- Heavy Machinery (Fairmont)
- Publishing and Printing (Mankato-North Mankato)
- Automotive/Glass (Owatonna)
- Footwear (Red Wing)

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6 *Transportation Planning to Support Economic Development: An Exploratory Study of Competitive Industry Clusters and Transportation in Minnesota*, Lee W. Munnich, Jr., Principal Investigator, Humphrey School of Public Affairs, University of Minnesota, January 2015

- Local Health Services (Rochester)

A critical, common theme that emerged from the interviews was the importance of the reliability of shipments. Businesses and customers alike need to know that their goods will arrive on time and in the condition expected. This issue quickly becomes complex as many freight movements have an origin or a destination not only outside the immediate region, but also outside the state and nation. While some sources of delay emerge at other locations within a firm's supply chain, many can be addressed and managed locally, such as recurrent delays due to construction projects, inclement weather, and traffic congestion. The respondents cited Minnesota's 511 information system as an important source of information to identify and respond to potential delays.

Other select findings from these interviews pertained to specific clusters or regions, and included:

- Need for airfreight service. Certain industries were more heavily reliant on air transportation for the movement of customers, products, or both. The Mayo Clinic in Rochester relies heavily on regional air services to deliver patients from around the country in addition to large shipments of laboratory test specimens at its test facilities. Likewise, the Medical Devices industry cluster in the Twin Cities region[7] relies heavily on express airfreight shipments to deliver its products in a timely fashion to national and international customers. In both cases, the reliability of air service as well as ground-side access is critical, as delays to either are considered costly.
- Desire for improved intermodal freight facilities. Firms in the Construction Materials (mostly granite) and Forest Products clusters, both of which ship heavy, bulky materials, noted shifting shipments to other modes (mostly trucking) to adapt to a lack of availability of freight rail facilities nearby. Some of these issues correspond to freight rail capacity issues due to an increase in shipments of oil supplies from North Dakota.
- Infrastructure condition. The need for smooth pavement was cited by several firms whose products were either breakable or perishable. Firms with breakable products include those in the Automotive/Glass cluster that move much of their products on flatbed trucks, along with firms in the Medical Device cluster that are highly sensitive to the integrity of their product during shipment and choose freight carriers with this criterion in mind. Firms with perishable products include those in the Processed Food cluster, which features a number of firms that must ship and receive large amounts of livestock on a daily basis, and the laboratory testing activities in the Local Health Services cluster, which has products that are both breakable and perishable and must be handled and shipped especially carefully.

The findings from this research provide industry insight for developing the 2016 Minnesota Statewide Freight System Plan, as well as information for public officials to consider as they plan the transportation systems of the future.

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7 "Twin Cities region," or just "Twin Cities" refers to the portion of the state including and surrounding the cities of Minneapolis and St. Paul. Most commonly, this includes the seven-county area of Anoka, Carver, Dakota, Hennepin, Ramsey, Scott and Washington counties. Other similar, though different, "Twin Cities" boundaries also exist. In this plan multiple terms are used to refer to the Twin Cities, including Twin Cities region, Twin Cities area, Twin Cities metropolitan area, Minneapolis-St. Paul, Minneapolis-St. Paul region, Minneapolis-St. Paul area, and greater Minneapolis-St. Paul. Unless otherwise specified, they all general refer to the seven-county area surrounding the cities of Minneapolis and St. Paul.

Freight Trends: Minnesota and Beyond

Freight movements in Minnesota are increasingly national and global in scope and are sensitive to market forces and the supply chain decisions of businesses within and outside the state. Businesses may make decisions based on these forces, which often result in local impacts on goods movement within the state. Regional or national decisions made by other transportation agencies and operators can also be felt locally. This section identifies trends that affect Minnesota's freight-related industries now and in the future.

ENERGY

The changing nature of energy production and consumption in the U.S. and in Minnesota has been one of the largest factors influencing industrial growth and freight system demand over the past decade. A few of the major trends driving Minnesota's economy and use of the freight system relate to liquefied natural gas (LNG) and compressed natural gas (CNG) use, renewable energy sources and hydraulic fracturing.

LNG/CNG

Liquefied natural gas and compressed natural gas are potential alternative fuel sources for commercial vehicles. National trends such as an increasing supply of natural gas, higher diesel fuel and gasoline prices, environmental regulations, and growing natural gas fueling infrastructure may push the conversion of truck fleets to natural gas in the long-term, but short-term conversions will likely remain limited. Heavier engines (that limit the potential commodity load), higher initial purchase price, lower fuel efficiency, higher maintenance costs, and limited infrastructure are other factors that currently inhibit conversion of the truck fleet to LNG or CNG. The U.S. Energy Information Administration predicts that natural gas will fuel 14 percent of heavy-duty vehicles by 2040, although this information is not available at the state level.

Though growing, current use of LNG and CNG for engine fuel in Minnesota is limited, accounting for less than one-thousandth of a percent of all fuel sold in the state. In addition to the constraints identified above, Minnesota also lags behind states such as Texas and California in offering financial incentives that could induce conversion. Of the 383 laws and incentives to encourage use of LNG and CNG throughout the U.S., Minnesota currently offers three: an alternative fuel tax and two laws that require state agencies to purchase alternative fuel vehicles when feasible.[8]

Renewable Energy

Minnesota ranks twelfth among states (as of 2010) in the amount of electricity produced by renewable energy resources with a net generation of 7.48 gigawatt hours.[9] By far, the largest renewable resource in the state is wind. Minnesota is among the nation's leaders in wind energy production, ranking in the top five by most measures. Over 60 wind farms are currently in operation across Minnesota, with a total wind energy capacity of more than 2,700 MW – enough energy to supply over 600,000 homes. This wind energy requires substantial freight intensive movements to erect farms, including shipments of oversize and overweight loads from Great Lakes ports to western Minnesota. The Port of Duluth is especially critical to these shipments, handling nearly a million freight tons of wind energy cargo between 2005 and 2010. The generating units atop wind towers, called nacelles, require pre-fabrication off site and

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8 Minnesota Department of Transportation, Office of Transportation System Management Research Services and Library. "Future Impact on Minnesota's Transportation Revenue Collection of Commercial Fleet Conversion from Diesel Fuel to Natural Gas." TRS 1415. November 2014.

9 U.S. Energy Information Administration. http://www.eia.gov/renewable/state/. Accessed 10 February 2015.

are typically trucked to their final locations. Blades—reaching up to 150 feet in length—and tower pieces are also manufactured elsewhere and moved via the highway system to their final destinations within Minnesota.

Buffalo Ridge is a glacier-deposited rise that runs diagonally across southwestern Minnesota and is the primary resource for wind capacity in the state. Ten years ago, no production-scale wind farms existed in this area. Most of the land was traditional, typical farmland. Today more than 470 wind generators are producing more than 1,000 MW of power along Buffalo Ridge. Substantial infrastructure is required to facilitate the construction of these wind farms. Many areas have not yet reached capacity for wind generation; however, at this time it is unclear how many additional sites will be developed.

On the renewable fuels side, trucking relies nearly exclusively on diesel fuel. Continuing improvements in the viability of biodiesel fuels directly impacts trucking, and with Minnesota's vast agricultural resources, the biofuels industry remains critically important. The corn-derived ethanol industry is spread throughout the southwestern part of the state and has 21 production facilities that account for more than 300 jobs and $500 million in economic activity.

Hydraulic Fracturing

A new technique in the oil and gas industry that has emerged over the last 10 years is hydraulic fracturing of rock. Induced fracturing, or fracking, allows for the recovery of "captured" gases and petroleum products. The technique is commonly applied to shale gases. The proliferation of shale gas exploration has resulted in substantial increases in associated freight-related movements across the Midwest.

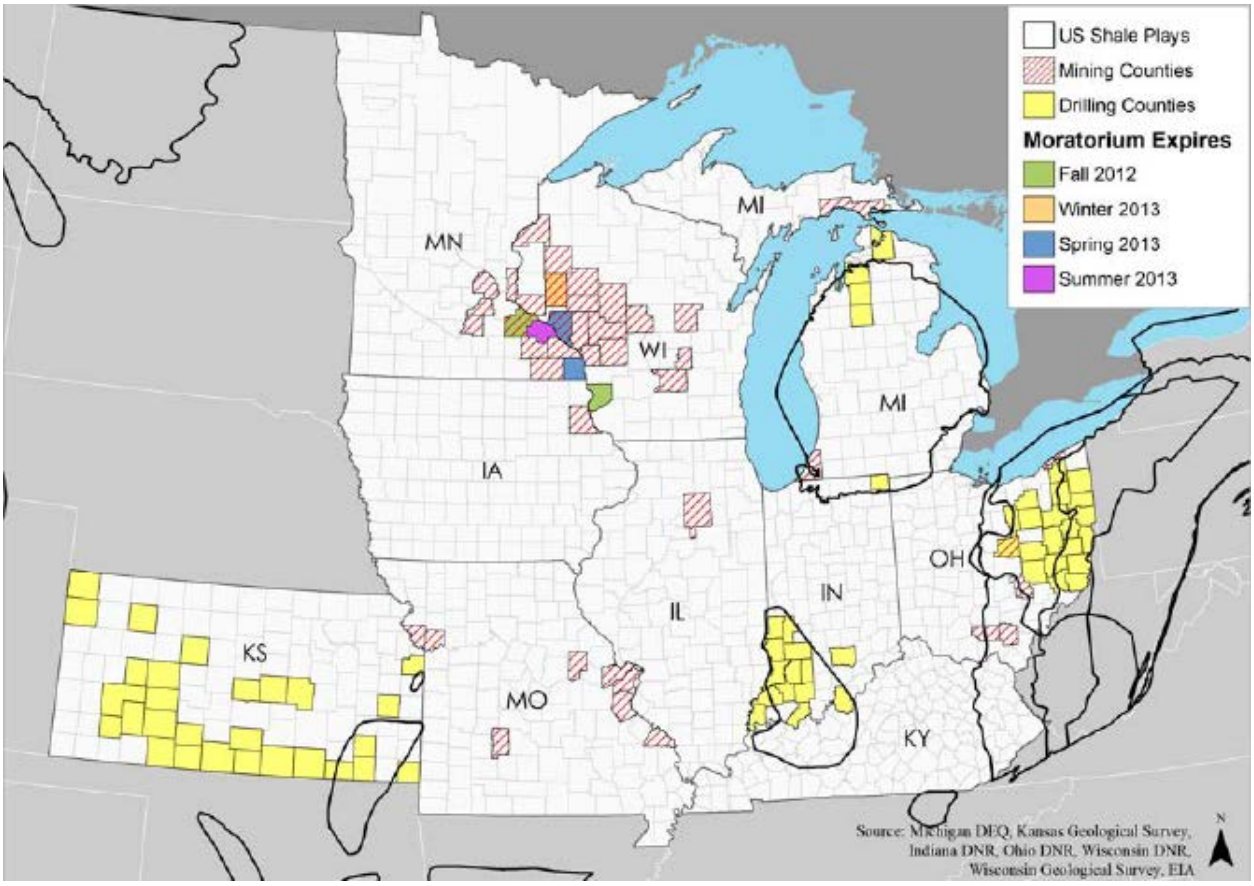
In Minnesota, there have been two primary freight-related impacts of fracking: increased petroleum-related movements and the need for direct inputs to the fracking process, including sand, water and other chemicals. As of 2014, there were more than 10,000 wells[10] used for fracking in the Bakken region. A single horizontal well typically uses between 3,000 and 10,000 tons of sand. A typical railcar, which is the dominant mode for transporting frac sand, can hold around 100 tons. This translates into up to 100 railcars of sand for each well. Figure 1.5 highlights areas where sand mining is currently underway in Minnesota. The southeastern part of the state includes the edges of the premium sand deposits needed for hydraulic fracturing. Nine mines are in production in Minnesota.

Sand processing consists of moving sand through a series of steps to sift it into size groups for market. A single sand mine may produce several products for different markets across the country. Product differentiation requires separate trucks or railcars and different final destinations.

The Mid-America Freight Coalition completed a case study of Chippewa County, Wisc. (east of the Minnesota border) for sand mining related to hydraulic fracturing and the related consequences for the freight transportation network. Heavy usage of the roadway infrastructure by sand and gravel haulers, an increase in loaded train cars, and increases in noise were observed outcomes after the addition of a new sand mine.

[10] North Dakota Department of Mineral Resources, https://www.dmr.nd.gov/

Figure 1.5 Sand Mining and Horizontal Drilling



Source: Mid-America Freight Coalition

GLOBAL SHIPPING TRENDS

Since opening in 1914, the Panama Canal has been a critical element of the global transportation network. A Panama Canal expansion project, projected to be complete in 2016, will allow larger ships to pass through the canal and will increase the canal's annual capacity by more than 75 percent. The effect of the expansion on U.S. ports and trade is a much debated topic and will affect future goods movement throughout the U.S.

Concerns remain about whether larger container ships can use U.S. East Coast ports due to draft and dredging requirements. Some container movements destined for the Eastern U.S. (that would have previously used U.S. West Coast ports and then been transferred to rail) will instead travel through the canal to U.S. East Coast ports, reducing the over-land distance travelled. Research findings suggest that the canal expansion may decrease overall shipping times to Midwest destinations, encourage export of grains and agricultural products to Asia via Gulf Coast ports, promote greater shipment of grain by containers, and increase the total energy costs of transportation. However, Minnesota's direct markets will likely retain their West Coast connections (Figure 1.6).

Figure 1.6 Cost Advantage Regions by Ship Size

Source: Worley Parsons, Richard West

The Suez Canal is the Panama Canal's primary competing route for serving the East Coast of the U.S. A recent Suez Canal expansion allows ships to sail in both directions at the same time over much of the canal length. This has decreased waiting time from 18 to 11 hours for most ships and doubled the capacity of the Suez Canal from 49 to 97 ships a day. Such improvements in efficiency may further drive down costs to serve the Asia-U.S. East Coast market.

Each of these canal expansion efforts has the potential to allow containerized barge movements from the Gulf of Mexico via the Mississippi River system. Minnesota may see specific companies that benefit from the all-water containerized movements. However, increased system maintenance and upgrades to the locks, dams and landside infrastructure along the length of the Mississippi River network are likely necessary before any substantial container-on-barge operations would be available.

The possibility of increased trade through the Northwest Passage may also shift global supply chains. 2008 marked the first passage of a commercial vessel through this corridor. The route, illustrated in Figure 1.7, travels north of Alaska and Canada and reduces the travel time between China and Europe by two weeks or approximately 5,000 miles. It is also 30 percent shorter than the current route between Asia and the East Coast of North America. More analysis is needed to understand the impacts of this route on Minnesota.[11]

[11] MnDOT. Scenario Planning, 18.

Figure 1.7 Popular Northwest Passage Routes

Source: National Aeronautics and Space Administration via Wikimedia Commons

ON-/NEAR-SHORING TRENDS

Although Canada is Minnesota's primary international trading partner, trade between Minnesota (and other states) and Mexico and Central and South America is increasingly important to Minnesota and the overall U.S. economy and is changing supply chain structures. Increasing Inter-American trade and potential new trade agreements[12] between these countries increases the potential for additional import and export trade for Minnesota's businesses.

As manufacturers seek methods to reduce production costs and the total cost of goods, they increasingly have been turning attention to manufacturing closer to market, namely in Mexico, the Caribbean, and Central America (near-shoring) and the U.S. (on-/re-shoring). Mexico appears to have the most to gain from near-shoring activity in the near-term. As reported by industry, the main reasons for near-shoring are lower freight and inventory costs and improved speed to market.

Recently, some Minnesota companies moved production to Mexico. IBM moved a production facility from Rochester to Mexico in 2013. Polaris operates a facility in Monterrey, Mexico with more than 400 employees. Best Buy and Target increased sourcing through Mexico in the last five years. This trend is expected to continue, with a 2014 survey by BNP Market Research observing that, "nearshoring remains a strong part of company strategies with 92 percent of survey respondents saying they will increase or continue nearshoring."[13]

PRODUCTION

3D printing is emerging as a viable option for geographically dispersed manufacturing and allows for new designs of engineered materials. Large-scale 3D printing enables entire houses to be printed in less than 24 hours. Bridges can

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12 *Miami Herald*. "U.S. Considering Deal to Expand Trade in the Americas." December 14, 2013. http://www.miamiherald.com/2013/12/14/3819165/andres-oppenheimer-us-considering.html

13 Perry A. Trunick, Dr. J. Paul Dittman. "Nearshoring on the Rise." World Trade, July 2014. http://digital.bnpmedia.com/article/Nearshoring+On+The+Rise/1745144/0/article.html

be “printed” in place and assembled with minimal disruption to the traveling public. The implications for large manufacturing, roadway construction and general architectural design are increasingly apparent. Cost savings from labor reduction, material recycling and efficiency make this technology operational beyond the laboratory level.

Beyond highway construction, the emergence of 3D printing has substantial impacts for the production of goods. The proliferation of manufacturing sites, with on-site production capability, changes the dynamics of supply chains considerably. The ability of firms to “print” replacement pieces or detailed manufactured devices (including medical equipment and machinery) rather than relying on the movement of freight alters the reliance on shipments of these components. However, the movement of raw material to feed 3D printers and other advanced technology will require a robust transportation system—even if some parts of the system can be automated.

DELIVERY

The Movement of Crude Oil by Rail

With the increase of shale oil drilling in the Bakken Region of North Dakota, the Alberta tar sands and other locations, Minnesota’s rail system saw large increases in crude oil movements. According to the Association of American Railroads, in 2014 U.S. Class I railroads originated more than 490,000 carloads of crude oil, a significant increase over the less than 75,000 carloads originated in 2011.[14] Although transportation costs for shipment by train are higher, rail offers competitive advantages over pipeline transfer. Rail serves major refineries on the coasts, and inland and Gulf markets, allowing companies the flexibility to ship their products to the highest-margin market. In addition, rail allows for uncontaminated shipment of different grades of petroleum, while pipeline shipments may result in mixing grades of oil. Finally, rail adds needed capacity to the system, as pipelines can only handle about a third of the 1.2 million barrels per day that the Bakken fields produce.

Safety and security issues are at the forefront of many minds in the aftermath of recent disasters involving unit trains of oil. Minnesota has responded to these trends and the unknown nature of future shipments by passing laws to increase the safety of crude oil by rail movements in the state. The state is requiring MnDOT to take action by conducting studies on highway crossings that have significant safety risks due to increased crude oil by rail activity and providing $2 million to make the first round of short-term improvements at rail grade crossings. Proposed federal rules regulating the shipment of crude oil may further affect state safety operations.[15]

Throughout 2013 and 2014, the increased crude oil traffic in North Dakota, in conjunction with a record harvest throughout the upper Midwest, drove up demand for rail service and led to significant railway congestion. The rail boom related to extraction of petroleum (rail movements of crude oil itself and the shipping of chemicals, drilling pipe and sand components for hydraulic fracturing) limited the capacity of freight railroads to handle traditional industries in Minnesota. Grain shippers, paper manufacturers, ethanol manufacturers and taconite and forestry industries complained about the availability and access to rail shipping as a result of the capacity consumed by the oil and gas industry. Due to slower travel times and longer turn-arounds leading to a lack of railcars available for grain shipment, grain was stored on the ground at facilities for extended periods of time while waiting for shipments. A study by the

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[14] Association of American Railroads, https://www.aar.org/Pages/Crude-Oil-Rail-Traffic.aspx

[15] Pipeline and Hazardous Materials Safety Administration, U.S. Department of Transportation. Notice of Proposed Rulemaking, Hazardous Materials: Enhanced Tank Car Standards and Operational Control for High-Hazard Flammable Trains. Docket No. PHMSA-2012-0082 (HM-251). July 23, 2014.

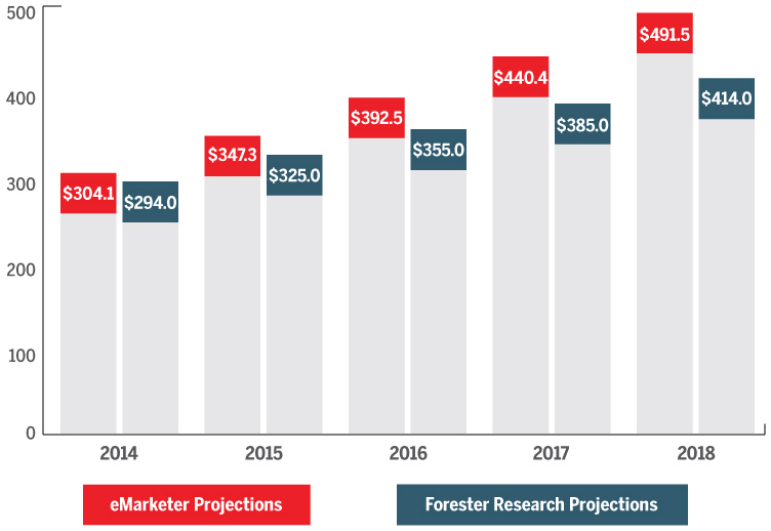
University of Minnesota's Center for Farm Financial Management estimated delays in railroad shipping cost Minnesota's corn, soybean, and wheat farmers nearly $100 million due to lower prices.[16]

It is anticipated that crude oil shipments will continue; however, some recent trends indicate that more of the production from these fields is being slated for export via West Coast ports. Approximately 50 oil trains per week transport Bakken crude oil across Minnesota. In addition, more than 140,000 crude oil tankers were mixed in with other traffic on Canadian Pacific or Canadian National lines in 2013.[17] With the trend to export a higher percentage of Bakken crude oil, shipments through Minnesota for refining elsewhere in the U.S. may be reduced slightly.

E-commerce

Electronic Commerce, commonly called E-commerce, is the purchase of goods or services online instead of at a brick-and-mortar store. E-commerce sales are expected to grow to more than $400 billion in the next several years, with Forrester Research estimating $414 million in sales in 2018 (more than 40 percent growth in four years) and eMarketer estimating $491.5 million in 2018 (more than 60 percent growth in four years), as shown in Figure 1.8. This is expected to result in larger quantities of goods moving through and to residential areas via trucks, increasing congestion and wear on local roads, with fewer personal trips to brick-and-mortar stores.[18]

Figure 1.8 U.S. E-Commerce Sales, 2014-2018



Source: eMarketer, Forrester Research

Autonomous Vehicles

16 *Star Tribune.* "Rail shipping delays cost Minnesota corn, soybeans, wheat farmers nearly $100 million." July 10, 2014.

17 *Star Tribune.* "Canadian crude taking rail through northern Minnesota." August 4, 2014.

18 A transformation in brick-and-mortar stores, http://idahobusinessreview.com/2015/03/03/a-transformation-in-brick-and-mortar-stores/

Delivery mechanisms, including the limited use of autonomous vehicles and airborne, unmanned delivery vehicles, change the long-haul and last mile requirements of standard business to consumer delivery. Amazon has expressed interest in creating same day delivery options on goods that would require use of automated technologies. Due to the small geographic scope of the airborne movements needed, high initial costs, liability concerns and the approval processes required of the Federal Aviation Administration only limited changes to standard package delivery services can be expected in the near term.

With respect to truck freight vehicles themselves, there is an increased likelihood that convoyed road trains may find uses throughout the industry in the next decade. These trucks, currently under testing by equipment manufacturer Volvo, as shown in Figure 1.9, require a lead driver with tractors controlled behind it by electronic automation. Current laws regarding vehicle configurations would need to be reexamined in order to make use of these changes in vehicle technology.

The full automation of trucking could cause massive disruptions in the labor forces associated with the industry--or potentially serve as a solution to the truck driver shortage. More than 150 firms and 13,000 employees are currently associated with the trucking industry in Minnesota. These firms account for more than $2.5 billion in economic activity plus the value of their goods. Associated industries, such as truck stops and truck repair services, would see secondary impacts of automation.

Figure 1.9 Volvo Road Train Premier

Source: Volvocars Global Newsroom

Truck Driver and Workforce Shortages

The American Trucking Association estimated a nationwide shortfall of 35,000 drivers in 2014. That number is projected to rise to 240,000 by 2020 if conditions remain the same.[19] The lack of qualified drivers constrains total truck fleet capacity even as market conditions have rebounded. It is also a contributing factor to higher transportation prices. Without surplus capacity at a trucking company, any increase in shipment volume must be met by hiring through the independent market where rates can be up to 30 percent higher than for a regular, contract lane. Many of the goods made and used in Minnesota are seasonal, which worsens this problem.

Government regulation, in the form of tighter Hours-of-Service regulations, also decreases the capacity of the truck fleet. Stricter reporting requirements combined with rest mandates and reduced total hours may cause some drivers to leave the profession, while limiting the productivity of those who remain.[20]

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19 *Reuters*. "Driver shortage makes capitalizing on low oil hard for truckers." February 6, 2015. http://www.reuters.com/article/2015/02/06/usa-truckers-railways-idUSL1N0VF1ZY20150206

20 *Fleetowner*. "HOS rules kick in, driving up fears of capacity crunch." July 1, 2013. http://fleetowner.com/regulations/hos-rules-kick-driving-fears-capacity-crunch

Reduced trucking capacity could increase pressure on other modes, some of which are facing capacity issues of their own. Airlines, which typically move high-value, low-volume freight, are dealing with labor problems, especially among the smaller regional carriers. While not yet an issue for the larger national carriers that handle the majority of freight service, if enough pilots leave the profession, capacity concerns could increase in the future as current pilots—many of whom are from the baby boomer generation—retire.[21]

ENVIRONMENTAL CONCERNS / AIR QUALITY

Some of the most critical issues surrounding freight movements are related to impacts of freight-related emissions. Emissions along freight corridors can impact the health and safety of local communities, which can experience some of the highest exposure levels to pollution that causes asthma and other respiratory ailments, heart disease and other health problems. Through programs such as the Clean Air Act, states and regions are working to adopt strategies to improve air quality. Minnesota is in compliance with most measures in the U.S. Environmental Protection Agency's National Ambient Air Quality Standards, although some pockets of non-attainment still exist.[22]

Minnesota also ranked 23rd out of the 50 states in terms of carbon dioxide emissions in 2014, according to the U.S. Energy Information Administration. Freight transportation is a key contributor to greenhouse gases such as carbon dioxide. For this reason, states, the EPA and other agencies are to addressing environmental concerns related to heavy truck movements, bunker fuels in maritime trade and vehicle emissions. The EPA and the National Highway Traffic Safety Administration) are working toward passenger and freight-vehicles that are more fuel-efficient and emit less greenhouse gas. The EPA is also developing and implementing regulations to increase the proportion of renewable fuels for transportation.

The need for a reliable and resilient freight system is closely tied to environmental concerns. Minnesota's aging infrastructure combined with the effects of global climate change—volatile weather patterns and an increasing number of severe weather events—highlights the need to develop alternative modes and routes that not only limit the environmental consequences of freight movement but also provide businesses with reliable options. Mode and route choice also reinforce an emerging trend in supply chain management, often referred to as "greening the supply chain." As companies look for ways to decrease costs, save money and reduce waste, the availability of more energy efficient freight modes, such as water or rail, may drive further need for freight system redundancy and thus increase overall system resiliency.[23] Projects that support and develop system redundancy help protect the environment, increase capacity, and buffer the just-in-time supply chain model from disruptions. Finally, near-shoring (discussed on page 18) is partially a response to environmental challenges, as shorter supply chains reduce the risks associated with natural disasters.

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21 *The Atlantic*. "Turbulence ahead: The coming pilot shortage and how it came to be." July 14, 2014. http://www.theatlantic.com/business/archive/2014/07/turbulence-ahead-the-looming-pilot-shortage-and-its-decades-long-history/374171/

22 Minnesota Pollution Control Agency. http://www.pca.state.mn.us/index.php/air/air-quality-and-pollutants/general-air-quality/state-implementation-plan/minnesota-state-implementation-plan-sip.html

23 MnDOT. Scenario Planning, 13.

PUBLIC-PRIVATE PARTNERSHIPS

Because of ongoing constrained fiscal environments at all levels of government, Public-Private Partnerships are an opportunity to leverage public and private sector resources through cooperative agreements to implement freight projects that benefit a variety of stakeholders. Strategies to do so were discussed by stakeholder groups at the Minnesota State Freight and Logistics Summit in 2014. With an aging multimodal infrastructure, repair and expansion work vital for the movement of freight to, from and through the state will require investment from public agencies and the private sector businesses that rely on that infrastructure to move goods. These partnerships can also benefit freight movement through collaboration and sharing of data, as performance measures increasingly become a criteria for funding in the public sector. Collaboration between public and private sector groups may also increase communication with different business sectors. As Minnesota's economy continues to globalize and integrate, freight issues in one industry will likely overlap with others. Working together towards mutually beneficial solutions to these issues will increase the effectiveness of Minnesota's freight movement infrastructure and raise the prospect for obtaining funding.

These partnerships are already occurring in Minnesota. As described in the 2016 Minnesota State Rail Plan, the Willmar Rail Connector and Industrial Access Project is an example of a Public-Private Partnership developed between the state, the railroad and local partners. BNSF and MnDOT partnered with Kandiyohi County, the City of Willmar, and the Kandiyohi/Willmar Economic Development Council and were awarded a $10 million TIGER VII grant in 2015 for rail improvements to BNSF rail lines and highway improvements to Highway 12 and Highway 40 in the City of Willmar. The rail wye, a triangular junction, will connect the Marshall and Morris rail subdivisions and alleviate congestion in the downtown area of Willmar, which is also where BNSF's Willmar Yard is located. The project includes two highway bridges over the proposed rail line.

2.0 MINNESOTA'S FREIGHT ASSETS AND USE

This chapter describes Minnesota's multimodal freight system, how this system is used, and the designation of Minnesota's Principal Freight Network.

Minnesota's Freight System Assets

The following sections briefly describe the modal sections of Minnesota's multimodal freight network – highways, railroads, ports and waterways, airports and pipelines. Maps and data on Minnesota's multimodal freight system can be found in the Minnesota's Principal Freight Network and Freight System Assets and Use technical memos.

HIGHWAY SYSTEM

The trunk highway system (Interstates, U.S. Highways, and Minnesota State Highways) is the only freight modal network under MnDOT's jurisdiction. It is the backbone for goods movement in Minnesota, and provides first- and last-mile connectivity to all industries. Minnesota's trunk highway system totals nearly 12,000 miles of roadway, and many of these highways average more than 5,000 truck trips per day. For long trips, trucks typically use designated highway networks to transport goods from point to point. In addition to these state and federally designated roadways, local roadways also serve as important connectors between freight generating and receiving facilities (farms, processing plants, manufacturing centers and distribution centers) and the primary roadway network.

FREIGHT RAIL SYSTEM

Minnesota's rail network historically has played a major role in supporting freight movements for key commodity groups and industries, particularly for the state's agricultural producers and shippers. In addition, the state's rail network supports regional and national goods movement between major shipping centers in Chicago and points west, including Pacific Northwest Ports. The four primary Class I rail operators in the state are BNSF with about 1,600 miles of track, Canadian Pacific (CP) with 650, Union Pacific (UP) with 500, and Canadian National (CN) with 450. In addition, 17 other short line or other regional railroads operate in Minnesota.

PORTS AND WATERWAY SYSTEM

Minnesota has one of the more unique positions in the country for waterway movements as it is located on both the Mississippi River and the Great Lakes via Lake Superior. The Mississippi River provides access to river ports to the south and the Gulf of Mexico via New Orleans. The Great Lakes-St. Lawrence Seaway provides access to other ports along the Great Lakes to the Atlantic Ocean. Due to this, Minnesota has four public and four private port authorities in operation: four on the Mississippi River system and four along Lake Superior.

AIRPORT SYSTEM

Minnesota is home to 97 airports listed in the Federal Aviation Administration's National Plan of Integrated Airport Systems. This list is updated every two years to identify existing and proposed airports that are considered significant to national air transportation. Of these, seven are identified as primary airports. Seven other airports, all located near the Minneapolis-St. Paul International Airport, are identified as relievers. The seven primary airports are:

- Bemidji Regional Airport
- Brainerd Lakes Regional Airport
- Duluth International Airport
- Falls International Airport, International Falls
- Minneapolis – St. Paul International Airport
- Range Regional Airport, Hibbing
- Rochester International Airport

These seven are considered primary airports due to the volume of passenger boardings (at least 10,000 per year). With the exception of MSP, most would not meet the criteria for primary airport status based only on the air cargo threshold (at least 100 million pounds of total annual landed weight by cargo aircraft).

PIPELINE SYSTEM

The National Pipeline Mapping System, maintained by the Pipeline and Hazardous Materials Safety Administration, shows more than 9,000 miles of pipeline in the state. Due to the sensitive nature of this mode, detailed maps of pipeline infrastructure are not available. The primary pipeline system in Minnesota is the Minnesota Pipe Line system. This pipeline receives crude oil from other pipeline systems (e.g., the Enbridge Pipeline System that carries crude from Alberta, Canada) at a terminal in Clearwater County. The Minnesota Pipe Line system has four lines running from Clearbrook to the Twin Cities and can transport about 465,000 barrels of crude oil per day.[24] Minnesota's pipeline system also includes two refineries and six refined asset terminals.

[24] Minnesota Pipe Line, http://www.minnesotapipeline.com/

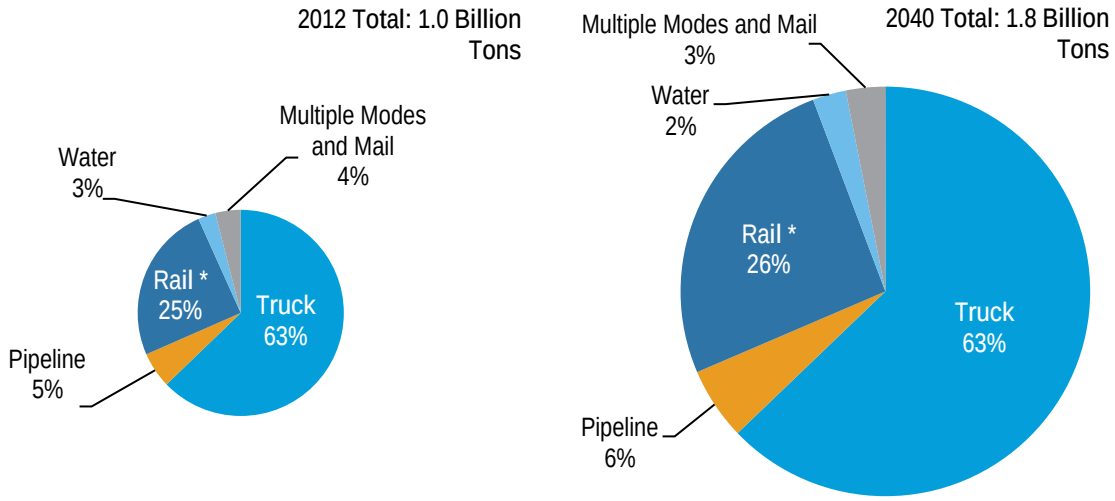
Minnesota Freight System Demand

The needs of Minnesota's freight system are driven by freight demand – what and how much is traveling on the system, where it is coming from, and where it is destined. This section presents existing and potential demand for freight in Minnesota. During the next few decades, there will be unanticipated changes in the economy, freight logistics, technology, public policy, and other factors that will greatly influence the general demand for goods movement and that of the individual modes. While these unanticipated changes are not reflected in this plan, they were considered in developing the plan's recommendations.

FREIGHT MOVEMENTS BY MODE

In 2012, one billion tons of freight moved over Minnesota's transportation system, as shown in Figure 2.1. Trucks carried 63 percent of all freight tonnage to, from, within and through Minnesota, while rail (carload and intermodal) carried about 25 percent. By 2040, the forecast indicates total volume of 1.8 billion tons, an increase of 80 percent overall.

Figure 2.1 Mode Share by Weight, 2012 and 2040

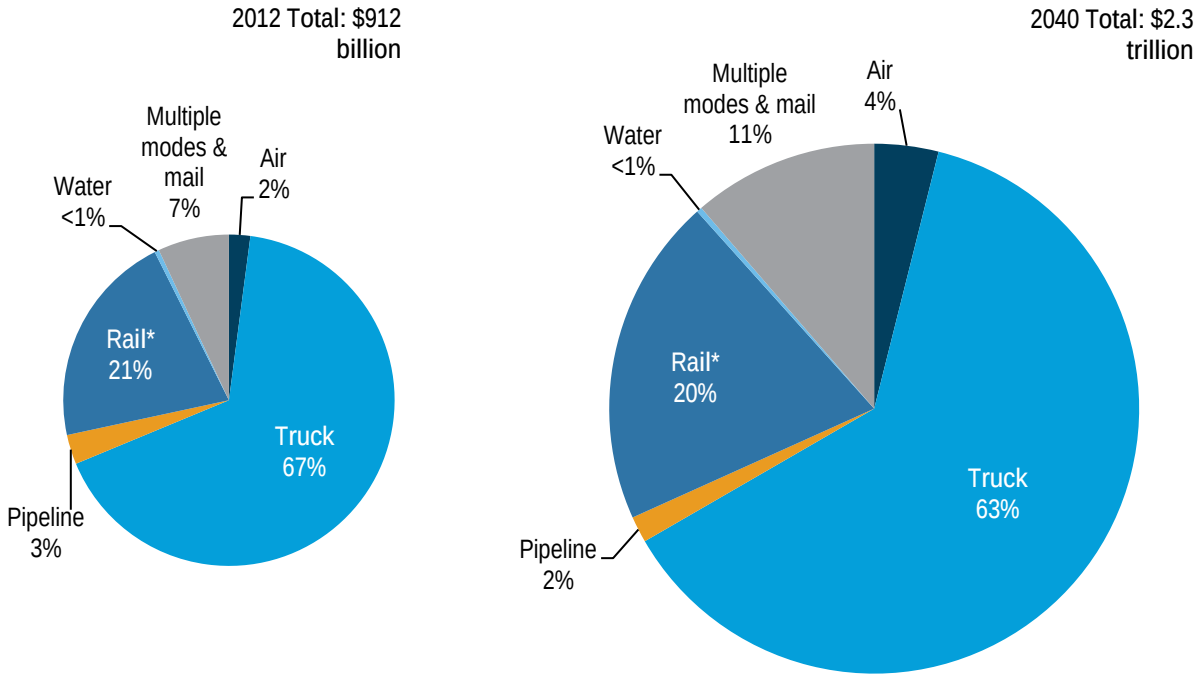


Source: Federal Highway Administration (FHWA) Freight Analysis Framework (FAF3) 2015 Provisional estimates and 2040 Forecast, and through truck traffic estimated by routing these data; and, STB 2012 Confidential Carload Waybill Sample and FHWA FAF 3.5 forecast for 2040 processed by Cambridge Systematics.

Note: *Rail intermodal was excluded from Multiple Modes and Mail and included in Rail. Multiple Modes and Mail includes overnight mail and package delivery services.

Figure 2.2 shows the proportional value carried by each of Minnesota's freight modes. In 2012, $912 billion in freight moved over the state's transportation system, an amount that is expected to grow 161 percent to $2.3 trillion by 2040. Trucks carried 67 percent of the state's freight value, and by 2040 this share is expected to decrease to 63 percent. Rail carried 21 percent of the freight value; this share is expected to remain somewhat constant through the forecast period.

Figure 2.2 Mode Share by Value, 2012 and 2040



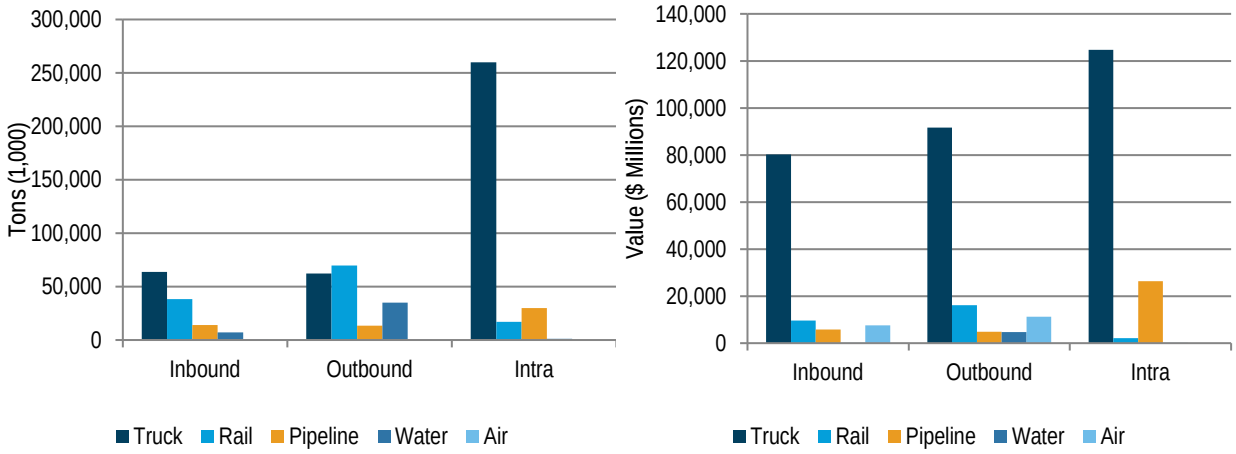
Source: FHWA FAF3 2015 Provisional estimates and 2040 Forecast, and through truck traffic estimated by routing these data; and, STB 2012 Confidential Carload Waybill Sample and FHWA FAF 3.5 forecast for 2040 processed by Cambridge Systematics.

Note: *Rail intermodal was excluded from Multiple Modes and Mail and included in Rail. Multiple Modes and Mail includes overnight mail and package delivery services.

FREIGHT MOVEMENTS BY DIRECTION

The relationship between tonnage and value of goods shipped and how the nature of different transportation modes affect this relationship is well demonstrated in Minnesota. Figure 2.3 displays the tonnage and value of commodities by both mode and direction (inbound, outbound and within Minnesota). As shown in the figure, air has an almost negligible effect on the overall state tonnage; however, for overall value, air represents almost 5 percent. This confirms that air cargo is typically comprised of lower weight and higher value goods. Rail is most economical over longer distances, explaining why it has a large share of outbound and inbound movements at 31 and 39 percent, respectively, and a relatively small share of within-state movements (6 percent).

Figure 2.3 Statewide Tonnage (left) and Value (Right) of Commodities by Mode and Direction, 2012.



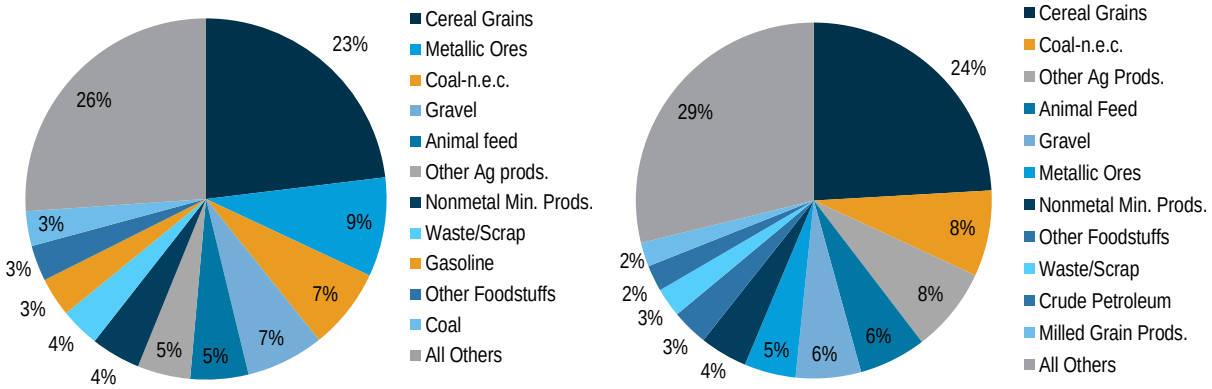
Source: FHWA FAF3 2015 Provisional estimates, Waterborne Commerce Statistics Center, Minneapolis – St. Paul International Airport Year End Operations Reports (2008-2013), Minnesota State Aviation System Plan.

MAJOR FREIGHT COMMODITIES

At the statewide level, Cereal Grains are the prime commodity representing 23 percent of total tonnage, as displayed in Figure 2.4. The next largest commodity by tonnage is Metallic Ores at 9 percent. This is primarily due to taconite mining in the northeast part of the state.

Looking ahead to 2040, tonnage is anticipated to increase at an annual rate of 2 percent, resulting in overall tonnage nearly doubling by 2040 (illustrated in Figure 2.1); however, the distribution of commodities remains steady. Figure 2.4 shows the large role that agricultural products play in the state's economy. Other Agricultural Products, Animal Feed, and Milled Grain Products are all anticipated to at least double in tonnage by 2040. Conversely, Metallic Ores will drop from the second highest commodity in the state to sixth. Some of this may be due to environmental concerns regarding mine operations or the overall capacity of the existing mines.

Figure 2.4 Major Freight Commodities by Tonnage, 2012 (left) and 2040 (right)



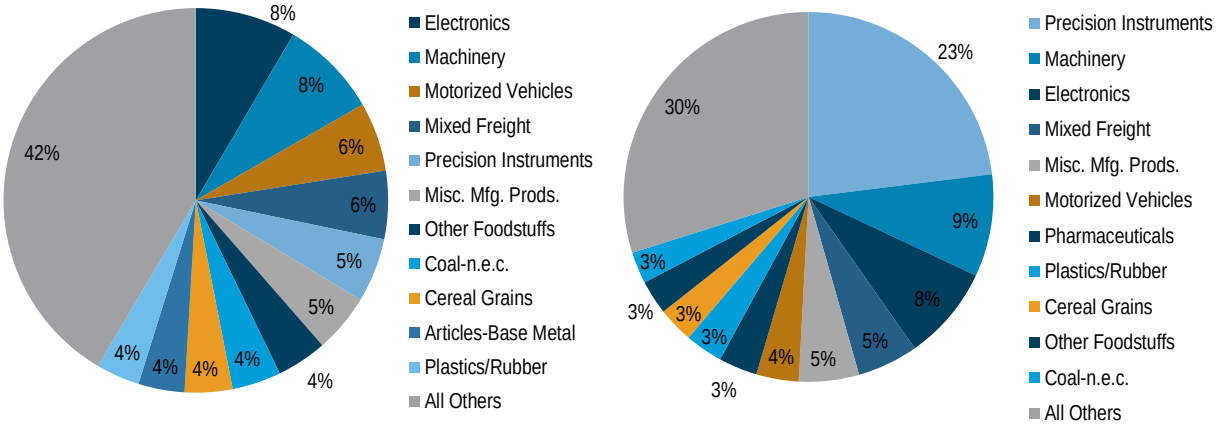
Source: FHWA FAF3 2015 Provisional estimates

Note: Coal-n.e.c. refers to coal and petroleum products not elsewhere classified, including natural gas.

By value, the list of major commodities changes significantly. Cereal Grains represent 23 percent of all tonnage, but only comprises 4 percent of the total value of commodities moved throughout the state. As shown in Figure 2.5, higher value goods such as Electronics and Machinery contribute more to the overall value of goods moved. At 8 percent each, these commodities are not nearly as dominant as Cereal Grains are by tonnage. Each of these top 10 commodities have a roughly equal share of value, ranging from 4 to 8 percent of the total. Some low value goods, such as Cereal Grains and Coal-n.e.c., [25] only appear here due to the sheer volume of goods moved while many of the most valuable commodities do not appear on the list of top 10 commodities by tonnage.

By 2040, Precision Instruments are anticipated to have tremendous growth in Minnesota. With a growth of nearly 1,000 percent (nine percent annually), this commodity will represent 23 percent of the total value of commodities moved to, from, and within Minnesota. The next highest share of commodities will be Machinery and Electronics at 9 percent and 8 percent, respectively, similar to what they are today. As Figure 2.5 shows, most of the other commodities have more moderate growth between 2 and 5 percent annually. The other commodity with significant movement is Pharmaceuticals. Presently, these goods do not appear on the top 10 list by value yet move up to seventh place by 2040 due to an annual growth rate of 5 percent.

Figure 2.5 Major Freight Commodities by Value, 2012 (left) and 2040 (right)



Source: FHWA FAF3 2015 Provisional estimates

Note: Coal-n.e.c. refers to coal and petroleum products not elsewhere classified, including natural gas.

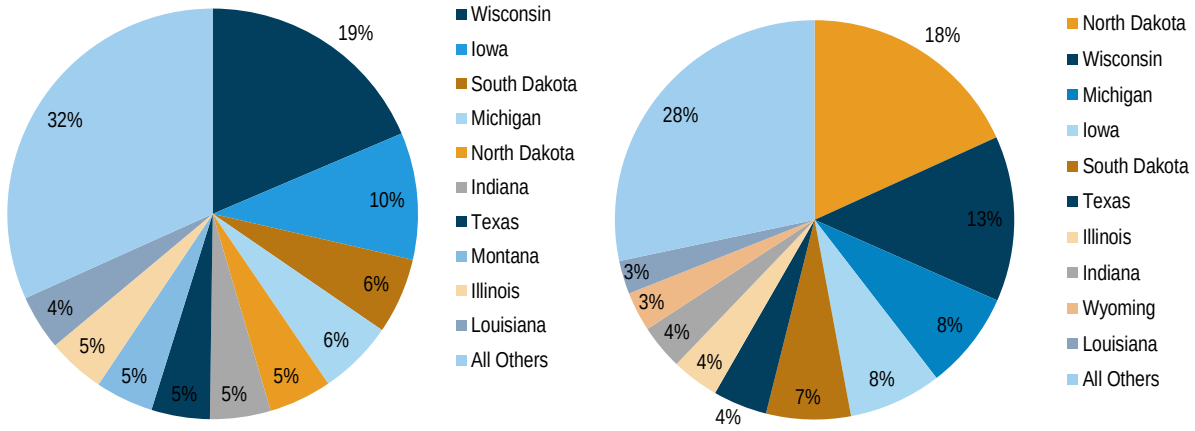
[25] The Coal-n.e.c category represents natural gas, selected coal products, and products of petroleum refining, excluding gasoline, aviation fuel and fuel oil.

MINNESOTA'S TRADING PARTNERS

Minnesota is well positioned to take advantage of a variety of trade partners. The most convenient partners are other states within the U.S. International goods also pass through Minnesota's ports of entry by land, air and water. Minnesota's largest domestic trading partners, today and in the future, are neighboring states, as shown Figure 2.6. Today, those states sharing a border with Minnesota (Wisconsin, Iowa, South Dakota and North Dakota) make up 40 percent of total trade with other states.

Looking ahead to forecasted growth, Wisconsin is expected to lose its number one spot on Minnesota's list of domestic trade partners to North Dakota. North Dakota is anticipated to experience a drastic increase in tonnage moved with the state. This growth is almost singularly related to a significant growth in cereal grains imported into Minnesota from North Dakota. Current volumes for this commodity are estimated at more than 1.7 million tons, and by 2040 this is expected to grow to nearly 59 million, representing an annual growth of 12 percent. While this growth seems large, crop developments are already underway to justify this expected growth. Winter wheat in North Dakota grew by 264 percent between 2013 and 2014 alone. Other types of grains, such as durum wheat, spring wheat and flaxseed, are all anticipating significant growth.[26]

Figure 2.6 Major Domestic Trading Partners by Total Tonnage, 2012 (left) and 2040 (right)

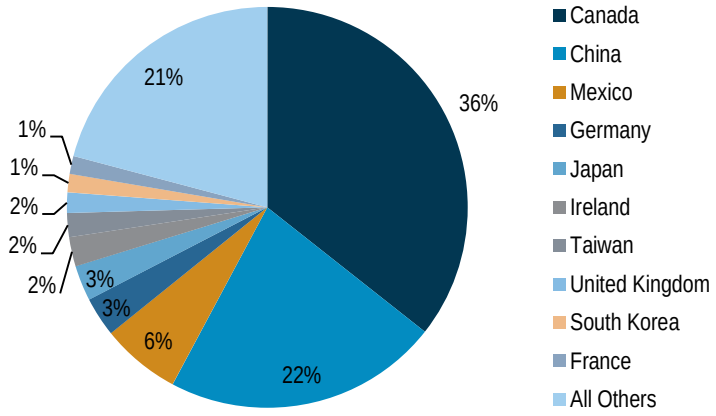


Source: FHWA FAF3 2015 Provisional estimates

Minnesota trades with a variety of foreign nations, particularly Canada; however, international movements are relatively low. Trade with Canada makes up 28 percent of total exports, 41 percent of total imports and 36 percent of overall trade. The proximity of Canada to Minnesota, combined with the numerous ports of entry located on the border between Minnesota and Canada, allow for easy access between markets. Minnesota's top 10 foreign trading partners based on total imports and exports are shown in Figure 2.7. Each of these countries is in the top 25 for both imports and exports. Other countries not listed here, such as Belgium which is ranked sixth by exports, only represent significant movements in one direction.

26 http://www.farmandranchguide.com/news/crop/prospective-plantings-report-yields-no-big-surprises-for-cereal-grains/article_d4b9f6c4-b9e9-11e3-867e-001a4bcf887a.html

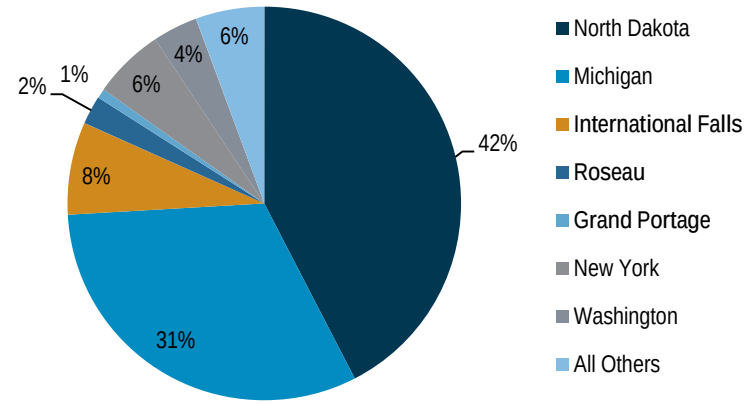
Figure 2.7 Minnesota's Major Foreign Trading Partners by Total Value, 2013



Source: U.S. Census Bureau.

Figure 2.8 details the top locations facilitating trade between Canada and Minnesota based on a combined total value of truck, rail, water, and air movements through gateways both inside and outside of Minnesota. The majority of goods moving between Minnesota and Canada travel through gateways in North Dakota or Michigan. Gateways in the top five states, North Dakota, Michigan, Minnesota, New York and Washington, are conduits for 94 percent of all trade between Canada and Minnesota. Trade through Minnesota's border crossings makes up about a quarter of the total.

Figure 2.8 Top Border Crossings for Minnesota-Canada Trade Value ($1,000), 2013



Source: Bureau of Transportation Statistics.

HIGHWAY DEMAND

Trucks are an important mode for moving all types of goods and account for the highest tonnage of goods in Minnesota and nationally. A wide range of commodities is shipped via the highway mode. Even goods shipped primarily using another mode use trucks for last-mile connections to and from their origins and destinations. Cereal Grains, Gravel and Animal Feed reflect the largest tonnages of goods shipped via truck, consistent with the state's farm culture and raw material production. Looking ahead to 2040, agricultural products are anticipated to require even more use of the state's highway infrastructure. Table 2.1 details the major commodities anticipated to move over Minnesota's highway system in 2040. Cereal Grains maintain its position as the highest tonnage commodity moved via truck but lose some of its market share, decreasing from 27 percent to 25 percent. This is due to higher growth seen in other commodities. Animal Feed moves up from the third largest tonnage to second largest, with total tonnage more than doubling from 27.7 million in 2012 to 56 million in 2040. Other Agricultural Products overtake Gravel to round out the top three commodities, fueled by an annual growth of 3 percent.

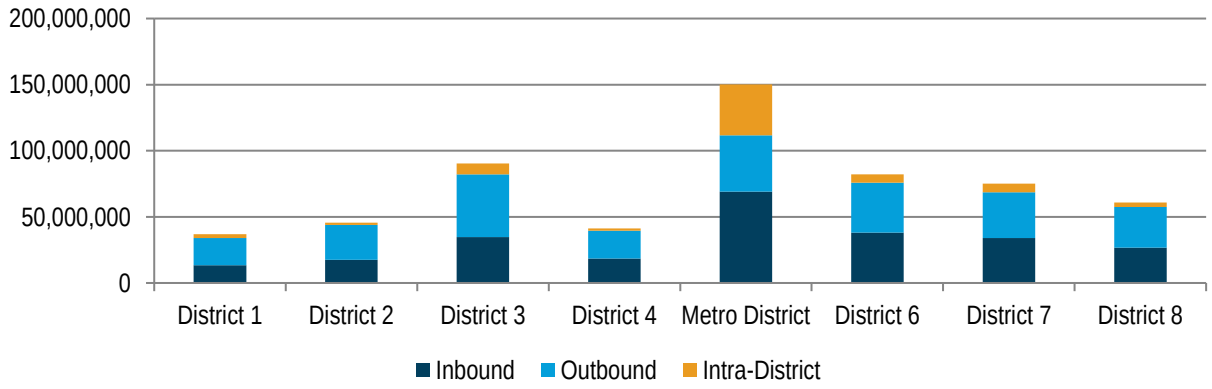
Table 2.1 Major Highway Commodities, Total, 2040

COMMODITY	TONS	PERCENT	RANK CHANGE	TOTAL CHANGE	ANNUAL CHANGE
Cereal Grains	159,337,502	25%	-	56%	2%
Animal Feed	56,369,940	9%	+1	104%	3%
Other Agricultural Products	53,667,516	8%	+3	153%	3%
Gravel	44,214,491	7%	-2	21%	1%
Nonmetal Mineral Products	43,748,163	7%	-1	68%	2%
Waste/Scrap	28,309,040	4%	-1	32%	1%
Other Foodstuffs	26,844,150	4%	-	79%	2%
Milled Grain Products	18,761,563	3%	+6	188%	4%
Live Animals/Fish	14,596,918	2%	+9	173%	4%
Coal-n.e.c.	14,361,904	2%	-2	2%	0%
Mixed Freight	13,835,631	2%	+6	136%	3%
Gasoline	13,174,338	2%	-3	9%	0%
Machinery	10,999,433	2%	+9	168%	4%
Natural Sands	10,898,664	2%	+2	83%	2%
Wood Products	10,563,900	2%	-5	21%	1%
All Others	121,564,450	19%			

Source: FHWA FAF3 2015 Provisional estimates

MnDOT District tonnages for the highway system were also reviewed. Total tonnage movements were divided between inbound, outbound and intra-district tonnages and do not include through movements. This data, shown in Figure 2.9, reflects the volume of commodities moving by truck that are produced and consumed in each district.

Figure 2.9 Truck Freight Flows by Direction, Tons, by District, 2012



Source: FHWA FAF3 2015 Provisional estimates, disaggregated by Cambridge Systematics.

RAIL DEMAND

The railway network in Minnesota is comprised of 21 rail operators serving passenger and freight traffic. Four of the seven Class I railroads maintain operations within the state: BNSF, Union Pacific (UP), Canadian National (CN), and Canadian Pacific (CP). There are also 17 regional, short line, terminal, and switching railroads in the state. Minnesota's rail system has some of the highest volumes in the nation, and these flows are projected to continue to grow through 2040. Table 2.2 presents the tons and units carried by class of railroad in Minnesota. In 2012, traffic originating, terminating, or going through Minnesota's Class I railroads accounted for 251 million tons carried in 3.9 million rail units—99 percent of the state's rail volume. Traffic on the short lines accounted for 1 percent (2.9 million tons carried in 24,000 rail units). By 2040, the Class I traffic is projected to grow faster than the short line traffic, accounting for 99 percent of the tonnage and rail units.

Table 2.2 Rail Freight Volumes by Minnesota Railroad (2012-2040, in Thousands)

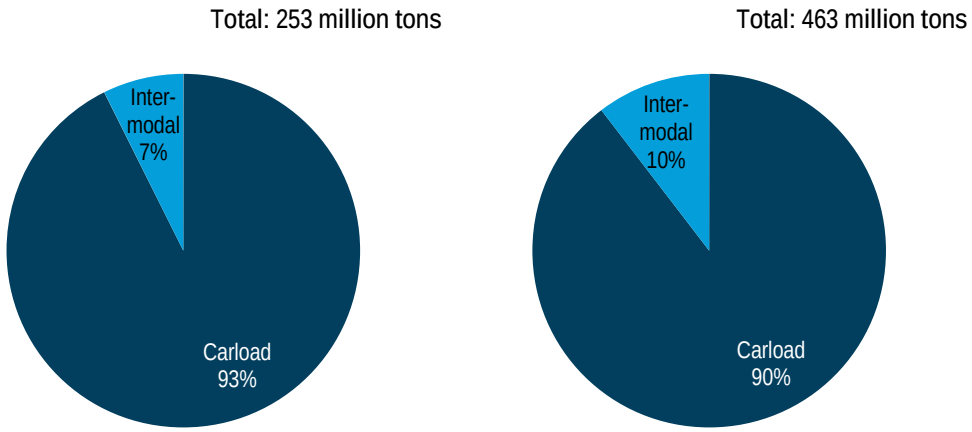
RAILROAD CLASS	TONS 2012	TONS 2040	%CHANGE 2012–2040	UNITS 2012	UNITS 2040	%CHANGE 2012–2040
Class I	251,349	460,613	83%	3,898	8,106	108%
Short Line	2,867	5,051	76%	24	38	56%
TOTAL	252,591	463,426	83%	3,904	8,118	108%

Source: 2015 Minnesota State Rail Plan, STB 2012 Confidential Carload Waybill Sample and FHWA FAF 3.5 forecast for 2040 processed by Cambridge Systematics.

Note: Numbers do no add up to the totals because there is tonnage that can go on both Class I railroads and Short Line railroads.

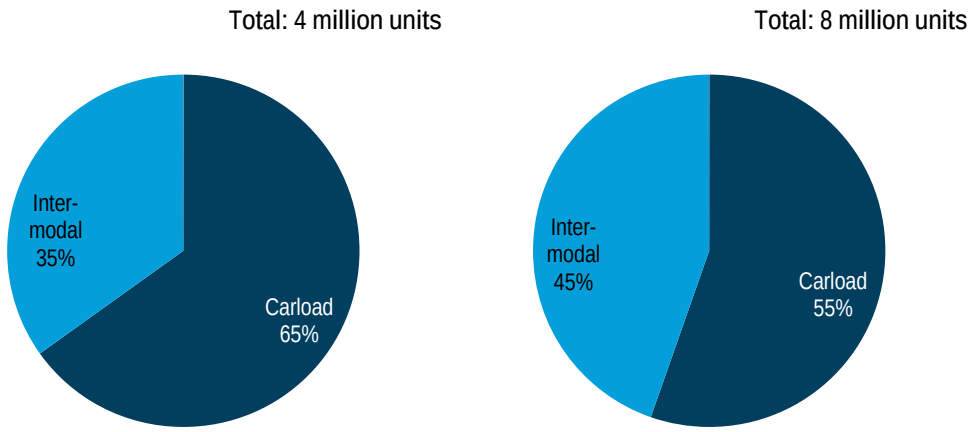
Figure 2.10 and Figure 2.11 show current and future rail system volumes. In 2012, 93 percent of tonnage (234 million tons) was carried in railcars, and 7 percent (19 million tons) was carried in intermodal equipment (containers and trailers). When measured in units of railcars and intermodal equipment, in 2012 65 percent (2.5 million units) were railcars and 35 percent (1.4 million units) were intermodal equipment. Rail intermodal volume growth is expected to continue to outpace rail carload growth through 2040, with intermodal tonnage increasing to 10 percent and units to 45 percent of all traffic.

Figure 2.10 Total Rail Tonnage by Equipment Type, 2012 (left) and 2040 (right)



Source: 2016 Minnesota State Rail Plan, STB 2012 Confidential Carload Waybill Sample and FHWA FAF 3.5 forecast for 2040 processed by Cambridge Systematics.

Figure 2.11 Total Rail Units by Equipment Type, 2012 (left) and 2040 (right)



Source: 2016 Minnesota State Rail Plan, STB 2012 Confidential Carload Waybill Sample and FHWA FAF 3.5 forecast for 2040 processed by Cambridge Systematics.

Fewer products move over the railway network than the highway network, and fewer goods make up a larger percentage of overall tonnage. Table 2.3 details the major commodities moving over this system. Metallic Ores, Cereal Grains, and Coal are the three largest commodities moved via this mode. Representing 62 percent of the total tonnage moved by rail, these commodities are critical for maintaining a competitive rail service in the state. Pass-through rail movements are not included.

These three commodities are not projected to have high growth through 2040. While Cereal Grains are anticipated to grow at a rate of 4 percent annually, volumes for both Metallic Ores and Coal are expected to decrease slightly. Other commodities, such as Basic Chemicals and Nonmetallic Minerals, are anticipated to fill some of the void left by these commodities.

Table 2.3 Major Railroad Commodities, Total, 2040

COMMODITY	TONS	PERCENT	RANK CHANGE (2012-204)	TOTAL CHANGE	ANNUAL CHANGE
Cereal Grains	89,294,595	37%	+1	232%	4%
Metallic Ores	30,782,670	13%	-1	-4%	0%
Coal	17,805,883	7%	-	-6%	0%
Basic Chemicals	15,411,006	6%	+3	355%	6%
Fertilizers	10,167,477	4%	-	84%	2%
Other Agricultural Products	8,303,144	3%	+3	159%	3%
Coal-n.e.c.	7,698,022	3%	+5	159%	3%
Nonmetallic Minerals	6,578,648	3%	+5	255%	5%
Animal Feed	5,963,228	2%	+1	87%	2%
Wood Products	5,918,011	2%	-6	4%	0%
All Others	43,575,765	18%			

Source: FHWA FAF3 2015 Provisional estimates

PORT AND WATERWAY DEMAND

Minnesota has access to the Great Lakes and Mississippi River systems. The state has eight ports: four along the Mississippi River System and four on Lake Superior. Commodities shipped via waterways are usually lower value, bulk materials. This is evident in the types of commodities shipped via Minnesota's waterways, detailed in Table 2.4. The largest commodity by tonnage is Iron Ore, Iron, and Steel Waste and Scrap at 68 percent of overall tonnage, and a majority of this is comprised of taconite shipping on the Great Lakes. Food and Foods Products are also among the top three commodities shipped via this mode, consistent with both highway and railway movements.

Table 2.4 Major Waterway Commodities, Total, 2012

TOTAL	TONS	PERCENT
Iron Ore, Iron, and Steel Waste and Scrap	29,431,604	68%
Unknown and Not Elsewhere Classified	4,912,147	11%
Food and Food Products	4,448,456	10%
Sand, Gravel, Shells, Clay, Salt, and Slag	2,416,665	6%
Chemical Fertilizers	1,633,038	4%
Primary Non-Metal Products	129,223	<1%
Chemicals Excluding Fertilizers	106,413	<1%
Primary Metal Products	86,120	<1%
Lumber, Logs, Wood Chips and Pulp	71,352	<1%
Manufactured Goods	10,854	<1%
Petroleum Products	19	<1%

Source: U.S. Army Corps of Engineers Waterborne Commerce Data, 2012.

AIR CARGO DEMAND

Air movements account for the lowest tonnage volumes in the state among the transportation modes. However, the commodities shipped via air are typically low weight but high value goods. As with waterway movements, the Freight Analysis Framework does not accurately reflect the magnitude of air movements. In this case there are no additional data sources that detail the types of commodities moved via air.

Most air cargo in Minnesota moves through the Minneapolis-St. Paul International Airport, although other airports in the state do ship and receive smaller volumes of air cargo. The percentage of total tonnage of each commodity was derived from FAF and scaled to the appropriate tonnage level as reported by the Minnesota airports. From this, it can be determined that Electronics, Precision Instruments and Machinery are the dominant commodities moved via this mode, accounting for 62 percent of total tonnage.

To produce 2040 forecasts, data was scaled using the same methodology. In examining the results, the three dominant commodities moved via air today will be the largest contributors in 2040 as seen in Table 2.5. Each of these products is anticipated to at least double in tonnage, with Precision Instruments quadrupling, resulting in this commodity overtaking Electronics as the highest tonnage. Other products with significant growth are in the chemical industry with an 11 percent annual growth in Basic Chemicals and a 5 percent annual growth of Chemical Products.

Table 2.5 Major Air Commodities, Total, 2040

TOTAL	TONS	PERCENT	RANK CHANGE (2012-204)	TOTAL CHANGE	ANNUAL CHANGE
Precision Instruments	202,395	31%	+1	697%	8%
Electronics	134,068	21%	-1	125%	3%
Machinery	65,260	10%	-	268%	5%
Chemical Products	37,974	6%	+3	327%	5%
Miscellaneous Manufacturing Products	35,808	5%	-1	224%	4%
Basic Chemicals	31,135	5%	+12	1623%	11%
Articles-Base Metal	19,081	3%	+4	193%	4%
Plastics/Rubber	18,661	3%	+4	190%	4%
Motorized Vehicles	14,749	2%	-1	74%	2%
Mixed Freight	14,105	2%	-1	79%	2%
All Others	79,142	12%			

Source: FHWA FAF3 2015 Provisional estimates, Minneapolis – St. Paul International Airport Year End Operations Reports (2008-2013), Minnesota State Aviation System Plan.

PIPELINE DEMAND

Due to the very nature of the pipeline infrastructure, only limited commodities can be shipped via this mode. The Freight Analysis Framework details four commodities moving via Minnesota's pipeline network, as seen in Table 2.6. At 52 percent, Coal-n.e.c. is the dominant commodity using this mode. The Coal-n.e.c category represents natural gas, selected coal products and products of petroleum refining, excluding gasoline, aviation fuel and fuel oil. Crude Petroleum and Gasoline have a relatively equal share at 22 percent and 18 percent, respectively.

By 2040, the total tonnage moved via this mode is anticipated to roughly double as seen in Table 2.6. Coal – n.e.c. and Crude Petroleum are anticipated to increase at a rate of 3 percent per year, resulting in the tonnages of these commodities to more than double. On the other hand, Gasoline and Fuel Oils are expected to decrease at a rate of 1 percent per year, reducing total tonnage by 20 percent and 17 percent, respectively. Due to the decrease in these commodities, Coal-n.e.c. will increase its share of tonnage via this mode from 52 percent to 63 percent.

Table 2.6 Major Pipeline Commodities, Total, 2040

COMMODITY	TONS	PERCENT	RANK CHANGE (2012-204)	TOTAL CHANGE	ANNUAL CHANGE
Coal-n.e.c.	64,674,269	63%	-	117%	3%
Crude Petroleum	26,447,999	26%	-	109%	3%
Gasoline	8,386,049	8%	-	-20%	-1%
Fuel Oils	3,552,178	3%	-	-17%	-1%

Source: FHWA FAF3 2015 Provisional estimates.

Note: Coal-n.e.c. refers to coal and petroleum products not elsewhere classified, including natural gas.

Minnesota's Designated Principal Freight Network

Minnesota's Principal Freight Network was designated as part of developing this plan for several reasons:

- MAP-21 Transportation Legislation. MAP-21 required the U.S. DOT to designate a highway Primary Freight Network consisting of up to 27,000 miles on existing interstate and other roadways. The U.S. DOT Primary Freight Network helps states strategically direct resources toward improving freight movement; however, the network designated in Minnesota was not a holistic representation of the state's priority system.
- Need to knit together MnDOT "freight" networks. MnDOT has formally and informally designated several networks that have potential overlap with what this plan defines as Minnesota's Principal Freight Network, such as the Twin-Trailer Network, the 10-ton network and an over-dimensional freight network, to name a few. These networks complement one another and their roles as they relate to the Minnesota Principal Freight Network have been clarified.
- Need for a multimodal system. The U.S. DOT's Primary Freight Network is centered on the highway system, the traditional focus of state transportation planning and programming. However, Minnesota's freight system is multimodal. For supply chains to work efficiently, each component is critical. Key modal components, including the highway system, intermodal hubs and connections to ports/airports, must be acknowledged in the Minnesota Principal Freight Network. Additionally, identifying priority networks was identified as a strategy in the Statewide Multimodal Transportation Plan.

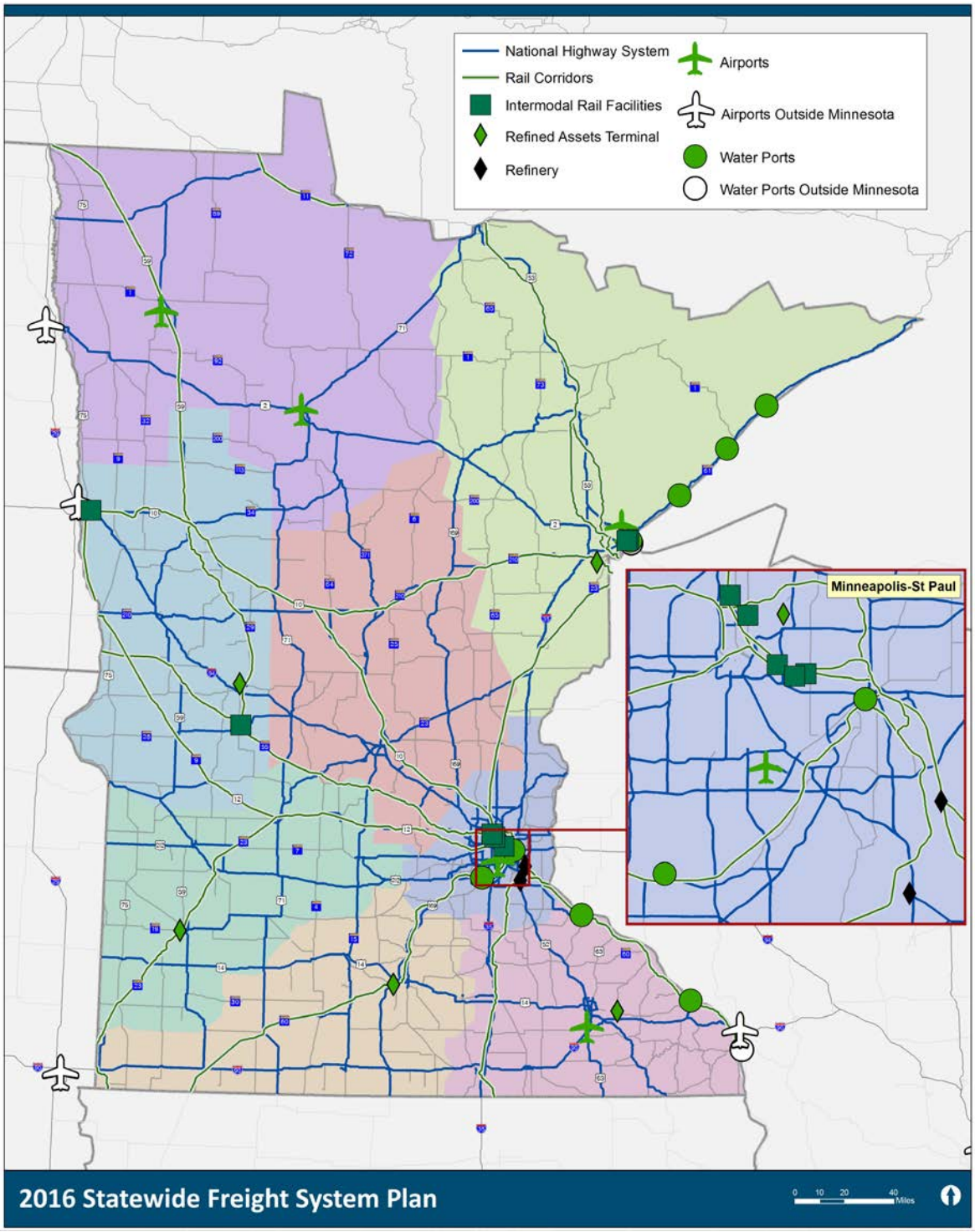
The designation of Minnesota's Principal Freight Network, a data–driven process, was guided by a Freight Network Ad Hoc Working Group with additional input received from other public and private stakeholders and the Minnesota Freight Advisory Committee. The designation process is detailed in a supplemental Technical Memo – Minnesota's Principal Freight Network.

Shown in Figure 2.12, the collaborative approach resulted in designation of Minnesota's Principal Freight Network that includes the following:

- Highway System – more than 5,200 miles
- Rail Corridors – 2,080 miles
- Rail Facilities – seven terminals
- Waterway Corridors – one Great Lakes corridor and two Inland Waterway corridors
- Waterway Ports –four Great Lakes ports and four inland waterway ports
- Airports – five airports
- Pipeline Facilities – two refineries and six refined asset terminals

This multifaceted network highlights the principal components of each modal system and the points of multimodal/intermodal connectivity. This network links to industries and provides access throughout Minnesota, the Upper Midwest, nationally and to key international import/export ports.

Figure 2.12 Minnesota's Principal Freight Network



Note: Map does not reflect changes to the National Highway System (NHS) resulting from the 2014-2015 greater Minnesota functional classification review

3.0 MINNESOTA'S FREIGHT NEEDS AND ISSUES

The current condition and performance of Minnesota's freight system is generally good. However, there are significant needs and issues that should be addressed in the near term and others that will require attention in light of changing economic conditions. Freight system performance measures for system condition and performance will help guide resource investment to respond to these changing conditions.

This chapter describes the condition and performance of Minnesota's freight system and identifies freight system performance measures. This chapter also identifies needs, issues, and opportunities on the freight system and how each of these are linked to the goals of this plan.

Condition and Performance of the Freight System

The condition and performance of Minnesota's freight transportation system was assessed to identify critical needs and issues. Freight system performance measures are critical to accomplishing this task as they allow measurement of key attributes of the system and comparison across geography and time. This plan identifies performance measures and uses them to understand the condition and performance of the highway system for freight. The condition and performance of the highway portion of the freight system was evaluated in three ways:

- Safety-related measures are designed to improve the safety, security, and resilience of the freight transportation system. Safety is at the forefront of planning and investment decision-making. Some specific efforts focus directly on rail safety.
- Infrastructure condition measures of freight system condition provide information about the suitability of physical infrastructure for freight transportation and can help inform system maintenance and preservation programs.
- Mobility measures cover a wide range of aspects of the system, including delay, congestion and overall reliability of the highway system. These measures assess the length and dependability of freight trips.

Knowing where needs and issues (such as chokepoints and bottlenecks) exist on significant freight highway corridors can inform policy and investment decision-making. The success of Minnesota's economic engine relates to the ability of the multimodal freight system to convey goods safely and efficiently.

FREIGHT SYSTEM PERFORMANCE MEASURES AND INDICATORS

As part of this plan, measures and indicators that gauge the condition and performance of Minnesota's freight system were identified. This process was undertaken for several reasons:

- MAP-21 transportation legislation. MAP-21 requires the U.S. DOT to identify national-level performance measures for various performance management areas including Freight Movement and Economic Vitality, Safety, Pavement Condition and Bridge Condition. State DOTs and Metropolitan Planning Organizations will be required to implement these highway-focused performance measures.
- MnDOT is active in performance measurement. MnDOT has a well-developed, established set of performance measures and will be active in meeting the MAP-21 requirements when the Notice of Proposed Rulemaking and the Final Rule are released. This plan provides an opportunity to help prepare MnDOT for upcoming freight performance measure requirements.

- Improved tracking of freight activity. MnDOT has an aggressive performance measures program, but the lens through which freight is examined is not as robust as other areas (e.g., state highway operations) due to historic federal requirements (or lack thereof) and the limited amount of available data with which to track freight system activity. Beyond federal requirements, this plan explores ways existing MnDOT measures could be viewed through a "freight lens."

The process of identifying freight performance measures employed a Performance Measures Ad Hoc Working Group comprised of performance measure experts from MnDOT and other agencies. That group reviewed and recommended highway focused freight performance measures and indicators as shown in Table 3.1. The process is detailed in a supplemental Technical Memo – Freight Performance Measures.

These measures and indicators will move into broader consideration within MnDOT and be incorporated into MnDOT's Annual Transportation Performance Report. As part of this plan, the measures were used to evaluate the condition and performance of the highway portion of the freight system in Minnesota.

Table 3.1 Freight System Performance Measures

OBJECTIVE	PERFORMANCE MEASURES	FREIGHT PLAN GOAL AREA	MODE*	MNDOT MEASURE
Safety	Number of Fatalities	Safety, Environment/Community	T	Yes
Safety	Fatality Rate	Safety, Environment/Community	T	Yes
Safety	Number of Serious Injuries	Safety, Environment/Community	T	Yes
Safety	Serious Injury Rate	Safety, Environment/Community	T	Yes
Safety	Severe Crashes Involving Trucks	Safety, Environment/Community	T	Yes
Safety	Incidents at Highway/Railroad Crossings	Safety, Environment/Community	T, R	Yes
Asset Management	Interstate Pavement in Good and Poor Condition based on MnDOT's Ride Quality Index (RQI)	Infrastructure Condition	T	Yes
Asset Management	Non-Interstate National Highway System (NHS) Pavement in Good and Poor Condition based on MnDOT's Ride Quality Index (RQI)	Infrastructure Condition	T	Yes
Asset Management	Percent of Deck Area on Structurally Deficient Bridges	Infrastructure Condition	T	Yes
Asset Management	NHS Bridges in Good, Fair and Poor Condition based on Deck Area	Infrastructure Condition	T	Yes
State Highway Operations	Annual Hours of Truck Delay (AHTD) (Pending final U.S. DOT rulemaking)	Mobility	T	No
State Highway Operations	Truck Reliability Index (RI_{80})	Mobility	T	No
Freight Indicators	Total domestic shipments to, from or between Minnesota locations	Demand, Economy	T, R, W, A,P	Yes
Freight Indicators	Freight by Mode Minnesota (tons)	Demand, Economy	T, R, W, A,P	Yes
Freight Indicators	Freight by Mode Minnesota (value)	Demand, Economy	T, R, W, A,P	Yes
Freight Indicators	Freight by Mode Minnesota (ton miles)	Demand, Economy	T, R	Yes
Freight Indicators	Heavy Commercial Vehicle Miles Traveled	Demand, Economy	T	Yes
Freight Indicators	Heavy Commercial Average Annual Daily Traffic (HCAADT) by Corridor	Demand, Economy	T	Yes

OBJECTIVE	PERFORMANCE MEASURES	FREIGHT PLAN GOAL AREA	MODE*	MNDOT MEASURE
Freight Indicators	Annual Rail Shipments in Minnesota (tons)	Demand, Economy	R	Yes
Freight Indicators	Annual Container Lifts in Twin Cities (number)	Demand, Economy	R	Yes
Freight Indicators	Annual Port Shipment Tonnage (tons)	Demand, Economy	W	Yes

*Modes – Truck (T), Rail (R), Water (W), Air (A), Pipeline (P)

HIGHWAY SYSTEM CONDITION AND PERFORMANCE FOR FREIGHT

The condition and performance of the highway system and its suitability for use for freight transport was assessed using the measures identified in Table 3.1. Absent established targets/thresholds data were reviewed related to each measure to flag "hot spots" related to safety, asset management, state highway operations and freight indicators. A summary of the findings is shown in Table 3.2. A detailed description of the evaluation is found in a supplemental Technical Memo – Freight System Needs, Issues and Opportunities. Highlights of the evaluation are provided following Table 3.2.

Table 3.2 Overall Assessment of Multimodal Freight System

OBJECTIVE	PERFORMANCE MEASURES AND INDICATORS	EXPECTED TREND	POSSIBLE IMPLICATION
Safety	Number of Truck Fatalities, Injuries	--	It is unknown how this category will trend in the future absent historic data evaluation. Overall traffic fatalities experienced a slight increase in the most recent year but have generally been on a downward trend. MnDOT should take strategic actions to reduce highway and truck-related crashes.
Safety	Accidents/Incidents at Highway/Railroad Crossings	--	Although previously declining, increases in rail traffic between 2012 and 2014 led to increased accidents/incidents at highway/railroad crossings. MnDOT should take strategic actions to reduce these incidents.
Asset Management	Ride Quality Index (RQI)	Decrease	The recent improving trend will cease in the future, and rough pavements will make Minnesota's roads less attractive for trucks to use.
Asset Management	NHS Bridge Decks in Poor Condition	Decrease	Similar to ride quality, the recent improving bridge condition trend will cease in the future, making Minnesota's bridges less attractive for trucks to use (and potentially unsuitable for larger, heavier trucks).
State Highway Operations	Annual Hours of Truck Delay (AHTD) (Pending final U.S. DOT rulemaking)	Increase	Nationally, annual hours of truck delay is increasing, adding cost to businesses and consumers. This delay is greatest in the largest urban areas in the U.S., including the Twin Cities.

OBJECTIVE	PERFORMANCE MEASURES AND INDICATORS	EXPECTED TREND	POSSIBLE IMPLICATION
State Highway Operations	Truck Reliability Index (RI_{80}) and Average Truck Speed (Pending final U.S. DOT rulemaking)	Decrease	Urban areas, including the Twin Cities, will have the most congestion and lowest travel speeds in the future. This will get worse as more passenger vehicles and trucks use these roadways, especially during peak hours, and trip times may become less reliable.
Freight Indicators	Freight by Mode in Minnesota (tons)	Increase	Increasing tons transported equates to the need for a truly multimodal system to serve industry needs. For example, more long haul rail movements will occur in the future and will require handling facilities in the Twin Cities.
Freight Indicators	Freight by Mode in Minnesota (value)	Increase	More trucks traveling on the system, in particular making first- and last-mile deliveries of high valued consumer goods, will require local connections.

Safety

In Minnesota and the nation, safety is at the forefront of planning and investment decision-making. One of Minnesota GO's principles is to "systematically and holistically improve safety for all forms of transportation" through the integration of safety in all that the agency does. Traditionally, passenger vehicles have been the focus of state safety programs, but understanding whether freight movements have different risks is critical.

TRUCK FATALITIES AND INJURIES

The Minnesota Department of Public Safety's Office of Traffic Safety actively maintains a comprehensive crash database from police reports. The database indicates whether a commercial vehicle was involved. Year 2014 data for the trunk highway system is shown in Table 3.3, and the five-year trend is shown in Table 3.4. The number of crashes involving commercial trucks that involve only property damage is more than double crashes that involve personal injury. The number of commercial vehicle crash injuries and fatalities is split fairly evenly among interstates, U.S. highways and state highways in Minnesota.

Table 3.3 Crashes Involving Commercial Trucks on Major Roadways – 2014

ROADWAY TYPE	FATAL CRASH	INJURY CRASH	PROPERTY DAMAGE ONLY CRASH	TOTAL BY HIGHWAY TYPE
Interstate Highways	5	286	1,084	1,375
U.S. Trunk Highways	13	188	488	689
State Trunk Highways	22	213	679	914
Total Crashes	*40*	*687*	*2,251*	*2,978*

Source: Minnesota Department of Public Safety, Office of Traffic Safety[27]

[27] https://dps.mn.gov/divisions/ots/reports-statistics/Pages/crash-facts.aspx

Table 3.4 Trend in Crashes Involving Commercial Trucks on Major Roadways

YEAR	FATAL CRASH	INJURY CRASH	PROPERTY DAMAGE ONLY CRASH	TOTAL CRASHES
2014	40	687	2,251	2,978
2013	42	657	2,109	2,808
2012	34	571	1,604	2,209
2011	37	592	1,736	2,365
2010	47	661	1,779	2,487

Source: Minnesota Department of Public Safety, Office of Traffic Safety. Only inlcudes crashes on Interstates, US Trunk, or State Trunk Highways.

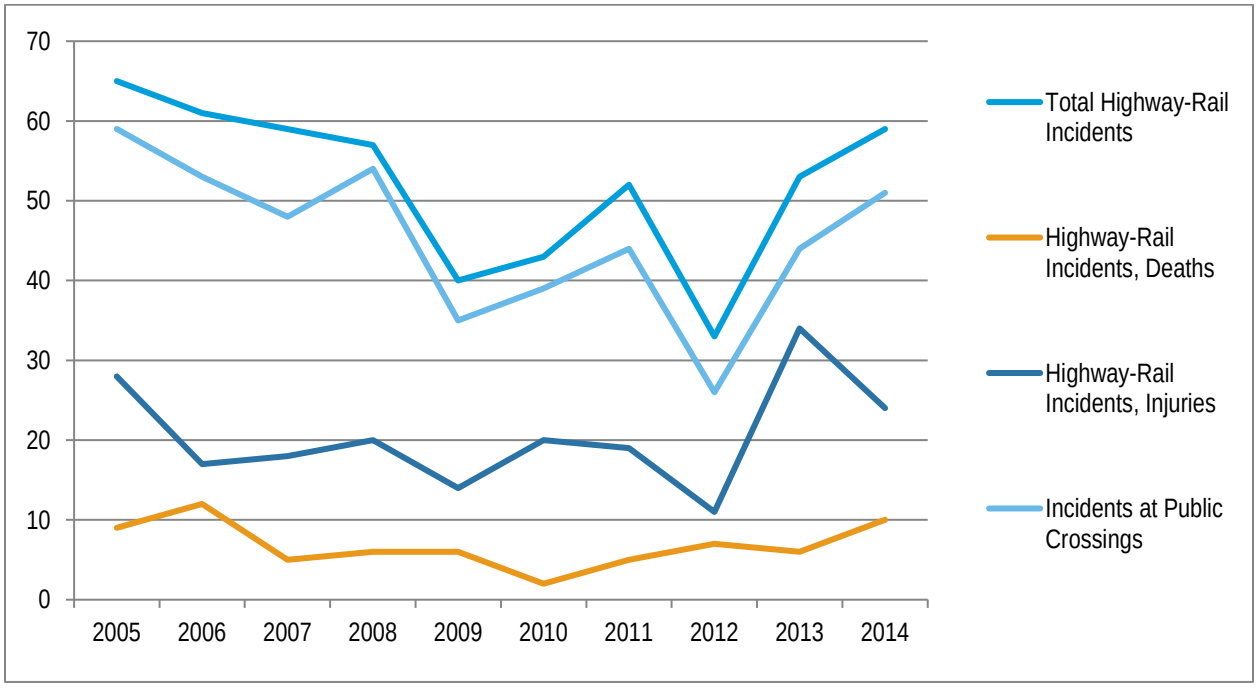
MnDOT's 2015 Annual Transportation Performance Report provides total vehicle fatality information dating back to 2006. According to the report, 2015 had the most fatalities since 2010, showing a sharp reversal of the previous three year trend of decreasing fatalities. While a substantial long-term reduction in fatalities was realized, the stagnant trend over the past five years and the increase in 2015 fatalities are reasons for concern.

RAILROAD CROSSINGS

Rail crossing safety is of increasing concern in large part due to the increase in crude-oil-by-rail movements traveling through the state from North Dakota. Rail crossing safety is addressed in the 2016 Minnesota State Rail Plan and assessed in more detail for crude-oil-by-rail corridors in the 2014 MnDOT report Improvements to Highway-Rail Grade Crossings and Rail Safety.

The Federal Railroad Administration houses at-grade rail crossing statistics for the nation's railroad network by state. Ten years of accident/incident data were extracted to determine whether rail crossing safety is improving or in decline. Figure 3.1 highlights this data.

Figure 3.1 10-Year Accident/Incident Overview by Calendar Year, Minnesota



Source: Federal Railroad Administration

In 2014, there were 59 highway-rail crossing incidents, resulting in 10 fatalities and 24 injuries in Minnesota. Of the 59 incidents, 51 occurred at a public at-grade road crossings of railroads. Minnesota has 4,300 public at-grade crossings throughout the state. The state has approximately an equal number of private grade crossings. The figure shows a downward trend in incidents for several years with a recent increase in overall incidents but a decline in injuries.

Asset Management

Measures of freight system condition provide information about the suitability of physical infrastructure for freight transportation and can inform system maintenance and preservation programs. One of Minnesota GO's principles is to "strategically maintain and upgrade critical existing infrastructure," a key part of which is the highway portion of the designated Principal Freight Network.

PAVEMENT CONDITION

MnDOT actively monitors the Ride Quality Index (RQI) on the Interstate system, the non-Interstate National Highway System (NHS), and on all state highways. RQI is measured on a scale of zero to five based on how pavement smoothness is perceived by a typical driver, with new projects having an index of over four. Indices of two or below are considered "poor."

The RQI for the 5,200 miles on the designated Principal Freight Network was reviewed, and it was found that 72.2 percent of the network rated "very good" (RQI > 3.0), 25.2 percent of the network rated "fair" (3.0 ≥ RQI > 2.0), and 2.6 percent of the system rated "poor" (RQI ≤ 2.0).

Minnesota's most recent Annual Transportation Performance Report provides ride quality information dating back to 2008. In recent years, ride quality has significantly improved on all state highways and has come close to reaching the target set by MnDOT. However, absent no new revenue, ride quality is expected to experience a long-term decline.

BRIDGE CONDITION

MnDOT actively inspects bridge deck and structural conditions for the 3,600 NHS bridges throughout the state. Deck ratings and descriptions of conditions are based on the National Bridge Inventory scale of zero to nine. Bridges with a rating of four or below are considered to be in poor condition, and there are 26 NHS bridges in "poor" condition, with the majority of those in MnDOT's Metro District.

Minnesota's Annual Transportation Performance Report also provides bridge condition information dating back to 2008. The report notes that bridge condition has made great improvement in recent years due to major rehabilitation efforts. MnDOT's own target of having 2 percent or less of its bridges in poor condition is close to being met; however, similar to ride quality discussed above, absent new revenue, the number of bridges in poor condition is expected to approach the federal target of 10 percent. The federal target is a proposed value under the Federal Highway Administration's (FHWA) National Performance Management Measures. Prior to MAP-21, state DOTs were not required to measure condition, establish targets, or assess progress towards targets. MnDOT's target for bridge condition is more stringent than the proposed federal target.

State Highway Operations

Freight system operations can cover a wide range of aspects of the transportation system including delay, congestion and overall reliability of the highway system. It is useful to understand how these issues affect the highway portion of the designated Principal Freight Network, which includes more than 5,200 miles of roadways throughout the state and provides connections between key facilities and modes. Knowing where these issues, especially areas of congestion or bottlenecks, occur on freight-significant corridors can inform policy and investment decision-making.

ANNUAL HOURS OF TRUCK DELAY (AHTD)

In the 2012 Urban Mobility Report, the Texas Transportation Institute calculated that transportation congestion costs U.S. residents about $121 billion in delay and fuel expenses and 5.5 billion hours of extra time spent in transit. Of this congestion cost, 22 percent ($27 billion) was attributed to the effect of congestion on truck operations, which in turn affects business operating expenses, supply chain reliability and ultimately costs to consumers. This measure is based on the total amount of extra travel time (delay) for trucks, a per-truck hour cost of delay, and state-specific fuel costs. Of the regions evaluated, the Minneapolis-St. Paul area ranked 24th in the U.S. in annual truck delay, 17th in truck commodity value and 19th in total annual delay. As demand for goods and services continues to grow, the issue of AHTD will expand as shippers seek out efficiencies in their supply and distribution chains.

TRUCK RELIABILITY INDEX AND AVERAGE TRUCK SPEED

Minnesota's highway system, particularly in the Minneapolis-St. Paul area, is becoming increasingly congested. While congested segments are present throughout the state, all of the truck system bottlenecks based on either speed or reliability are in the Twin Cities metropolitan area. With a high concentration of freight-related businesses and multiple intermodal facilities, the Twin Cities area is a major hub for freight movement in the state. However, the high amounts of traffic through this area can often lead to congestion and safety issues. Many businesses noted to MnDOT that recurring congestion in the metro area leads them to modify their production and shipping timelines to avoid the most congested periods.

Using the National Performance Management Research Data Set (NPMRDS), the Truck Reliability Index and average truck speed on the designated Principal Freight Network were determined for Minnesota. The NPMRDS is a vehicle probe-based travel time data set acquired by the FHWA to support its Freight Performance Measures program. The NPMRDS consists of average travel times reported every five minutes on the National Highway System. A series of analyses were conducted using a sample period of October 2014 during the AM peak (5-10 a.m.), midday peak (10 a.m.-2 p.m.), and PM peak (2-7 p.m.) hours. Findings are included as part of the Freight System Performance Measure Technical Memo described in Appendix A.

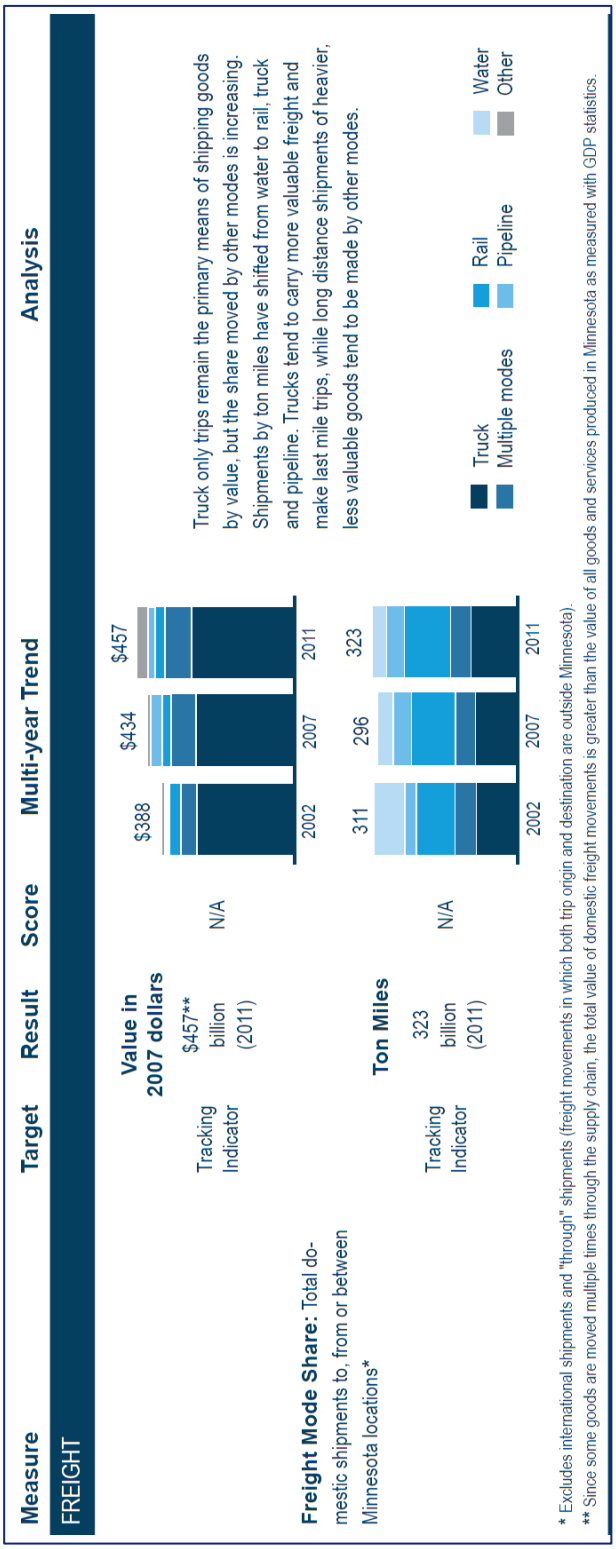
Minnesota's Annual Transportation Performance Report provides similar information dating back to 2008. The report notes that while congested miles decreased slightly during the recession, in recent years the percentage of congested miles has been at historic highs on Twin Cities urban freeways. It is expected that as passenger and truck traffic increases in urban areas, so too will the percentage of congested roadways.

Freight Indicators

The link between transportation and the economy is becoming an increasingly large part of national conversations highlighted by the freight provisions included in MAP-21 and the FAST Act. The success of Minnesota's economic engine is related to the ability of the multimodal freight system to convey goods safely and efficiently. The level of freight activity (or demand) on that system, and whether it is increasing or decreasing, can help inform where investments are needed to ensure the system continues to perform at acceptable levels.

Freight system demand indicators such as tons, ton-miles and value of goods provide a foundation for understanding how the system is used and context for other performance measures, such as safety or asset management measures. Minnesota's Annual Transportation Performance Report provided this type of information since 2002, examining value of freight and ton-miles of freight, by mode. The historic trends shown in Figure 3.2 reflect the forecasts discussed in Figure 2.1 and Figure 2.2, which provide current and projected future freight demand by weight (tons) and value, illustrating the continued use of truck traffic and the growth of rail traffic in the state.

Figure 3.2 Minnesota 2012 Transportation Results Scorecard (Freight)



Source: Annual Transportation Performance Report, MnDOT, 2012

Freight System Needs and Issues

Quantitative and qualitative data were analyzed to determine the needs of and issues with the multimodal freight system in Minnesota. This analysis included the performance assessment previously described, stakeholder feedback and other outreach conducted during plan development, and review of previous freight related plans and studies developed by MnDOT. The needs and issues identified are organized in this section by plan goals:

- Support Minnesota's Economy
- Improve Minnesota's Mobility
- Preserve Minnesota's Infrastructure
- Safeguard Minnesotans
- Protect Minnesota's Environment and Communities

The process used was intended to identify areas where Minnesota may have weaknesses related to the goals of this plan and help generate a prioritized list of existing/future problem areas to be addressed. Additional detailed information is found in a supplemental Technical Memo – Freight System Needs, Issues and Opportunities.

STAKEHOLDER OUTREACH

Some of the most useful information on freight system needs and issues came from stakeholders. Appendix B provides a description of outreach techniques used. Each type of outreach served a distinct purpose and engaged key freight industry stakeholders in the public and private sectors, within and outside Minnesota's borders. Two outreach techniques yielded significant useful information for identifying Minnesota's freight system needs and issues: the 2014 freight summit and an online survey.

Freight Summit

Held Dec. 5, 2014, this one-day event fostered executive-level engagement between government and industry. Through small and large group discussion, attendees identified critical freight system needs and issues and initiated the development of Minnesota's Freight Action Agenda. Small group discussions focused on five topics:

- Public-Private and Public-Public Partnerships
- Minnesota's Strategic Freight Network
- Minnesota Supply Chains
- Chokepoints on Minnesota's Freight System
- Strengthening Minnesota's Economic Competitiveness

Through interactive discussions, each small group provided insight into strengths, weaknesses and opportunities related to each topic.

Online Engagement

The plan outreach included an interactive online survey to gather information on the current state of the multimodal freight system in Minnesota. The survey was distributed to target audiences comprised of government and business freight stakeholders via email. It was also announced at various freight-related meetings and forums and available on MnDOT's website. The survey gave participants the opportunity to comment on issues they believed to be of

importance to the freight industry. Participants were given an interactive map and asked to identify specific locations on the multimodal transportation system where they experienced issues or felt there was a need for improvement.

Approximately 600 individuals participated in the survey, 234 of which were actively involved in the freight industry. Of the 234 freight industry respondents, approximately 63 percent worked in the private sector and the remainder worked in the public sector.

Using the interactive map, participants identified 476 specific locations where the freight system had an issue or needs improvement. In some instances, a location was noted to have multiple issues (e.g., chokepoint and poor pavement condition). The majority of the identified locations were related to the highway system. The rail system had the second most issue locations identified, and the waterway and aviation system had the smallest number of issue locations identified.

SUPPORT MINNESOTA'S ECONOMY

Making freight system investments is important, but it is critical to identify and pursue the most strategic freight system investments that will produce the desired carrier, business and public benefits. Done well, investment in the freight system will contribute to a more competitive economy. In this context, this plan uncovered several needs and issues related to supporting and enhancing Minnesota's economy.

- Need to tell a compelling story. Freight is often a hidden component of the economy, not well understood by the general public unless something goes wrong. Being able to explain why a project is important and what it achieves are critical in obtaining funding and public support. Industries and jobs are reliant on freight movement. Emphasizing individual commodity "stories" may help make freight movement issues more apparent and relevant.
- Need to understand changing economic conditions and new market demands. Changes in the global economy will have an effect on Minnesota's industries and how they use the transportation system as it relates to the type, quantity and destination of many goods. For example, there will be demand for agricultural commodities in distant markets such as China and Brazil, and the transportation system needs to provide connections to do this. Meanwhile, core and traditional markets that have been served by Minnesota's freight system, such as coal on the rail and port systems, are losing share to new commodities such as crude oil, natural gas and petroleum products. As the state grows its advanced manufacturing industries, air cargo and specialized trucking services may play a larger role. Minnesota must be prepared to respond to these and other supply chain shifts and be proactive in understanding future opportunities that the state can use to grow local industries and continue to diversify the state's economy.
- Need to identify freight projects that create a return on investment. The volume and value of freight moving on a corridor are not the only indicators of its significance. Identifying infrastructure that provides, or could provide, a large return on investment is critical in Minnesota. Small improvements that help rural and remote areas, such as infrastructure enhancements at a small airport, may produce employment and economic benefits that justify a project even though the total volume or value of freight moved is small. This may also help develop clusters and strategic locations outside of large urban areas where freight improvements can drive economic activity.
- Need to capture value of through traffic. Minnesota is a "through" state in terms of overall freight flow. Most of the goods moving in Minnesota are arriving from and bound for locations outside of the state; this is particularly true for the freight rail system. This means Minnesota's infrastructure and communities bear the costs of goods movement while the state's economy reaps few of the benefits. Future actions should consider ways to attract

development that help minimize through trips, such as investments in transload or intermodal[28] facilities, so goods can stop and start in Minnesota.

- Need for improved and expanded intermodal services. The Minneapolis-St. Paul region is the only location in Minnesota where rail intermodal service (the haulage of containers and trailers) is available, and Chicago and the Pacific Northwest/Western Canada are the only markets that are served directly. Stakeholders have remarked that oftentimes containers are unavailable for loading in Minnesota, and sometimes it is more cost effective to truck goods for transload into containers in Chicago, rather than be served directly in Minnesota.

  Although efforts to provide service in other parts of the state have not been successful, stakeholder conversations reveal a strong desire for intermodal service in Duluth and the western and southern parts of the state, as well as additional terminal capacity and services in the Twin Cities. Intermodal service is density driven, and given that a broadly used competitive service must typically operate on a daily basis, the volume requirements are substantial. Particular interest has developed around the need for service from Minnesota to the Pacific Northwest gateways. For a terminal served by a Class I railroad, the minimum volume threshold is around 50,000 units, while for a short line railroad it may be less.

- Need to understand how modes are connected – first-/last-mile connectivity. First- and last-mile road, railway and port connections are the front door for Minnesota's industries. Identification of Minnesota's Principal Freight Network determined that the multimodal freight system requires seamless connections between modes to provide efficient access to the network. The process of designating principal rail, port, airport and pipeline facilities highlighted that there are numerous significant freight generators in the state where the modal systems need to be better connected. Review of Minnesota's designated NHS intermodal connectors highlight that the majority of the freight facilities identified meet FHWA's primary or secondary criteria for NHS intermodal connector designation but are not formally designated, or are only designated for passenger travel.

- Need to address systemic and multimodal problems. Freight is multimodal, and systematic issues such as need for regulation, management or education in one mode will affect multiple modes. For example, a lack of qualified truck drivers, caused partially by education and regulation shortfalls, exaggerates the lack of capacity in the trucking industry. These effects are spread across modes – i.e., a trucking shortage impacts the rail industry. These issues need to be viewed at the multimodal system level and solutions may bridge more than a single mode. For example, the lack of consistency between Minnesota and surrounding states on commercial vehicle size and weight regulations hinders efficient truck operations and may be a deterrent for business in Minnesota.

IMPROVE MINNESOTA'S MOBILITY

Minnesota's freight system needs to offer access for all freight users and reliable service with minimal chokepoints. A number of needs and issues related to improving the mobility of Minnesota's freight transportation system were identified as part of this plan and are summarized here.

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[28] "Transload" is a general term for moving goods from one mode to another. Typically, it refers to bulk or other goods moving between truck, rail, and/or barge via trailers, hoppers, or flatbeds. "Intermodal" specifically refers to moving containerized goods (either international or domestic) via truck, rail, and/or ocean carrier (less commonly via barge).

- Need to recognize and adapt to evolving supply chain operations. Changing definitions of "value" have led modern supply chains to operate on a just-in-time schedule. This is true across industries—deliveries direct-to-customers are just as time-sensitive as shipments to industrial plants. In the past, industries held materials at a site as part of a strategic reserve; now, less inventory is stored on site, decreasing the ability of a business to endure a supply chain disruption. This has changed the nature of the freight transportation system, increasing the need for resiliency and redundancy across all transportation modes and along the supply chain.
- Need to address chokepoints within and outside Minnesota that impact the state. Chokepoints within and outside of Minnesota have a negative impact on freight movement within the state. Minnesota's top 10 highway bottlenecks related to delay and average speed are identified in the Freight System Needs, Issues, and Opportunities Technical Memo.

  Although rail trackage covers most regions of Minnesota, there are some significant bottlenecks. The Hoffman Junction east of the Union Depot in St. Paul is used by BNSF, CP and UP and carries 120 trains per day. Bottlenecks in the Minneapolis Junction and corridors to the north cause delays for the Northstar Commuter Rail service and for freight shipments. The East Metro Rail Study,[29] funded jointly by the three Class I railroads and Ramsey County Regional Railroad Authority, identified specific Hoffman Junction-area capacity improvements that are being systematically pursued. Other bottlenecks near La Crescent and Moorhead have worsened statewide system performance. Double tracking segments within the bottlenecks, adding/increasing siding length, improving signal systems and rehabilitating outdated structures will alleviate these problems as freight shipments and passenger rail demand grow.

  Rail congestion, specifically in Chicago, Ill. and at the BNSF La Crosse, Wisc. complex, were cited as problems that create backups through Wisconsin, Minnesota and beyond.
- Need to develop freight system redundancy. Infrastructure across all modes is aging, raising the possibility that a critical link will fail. Temporary closures due to weather (especially high and low water on the inland waterway system) are also a concern. Redundancy, either via alternative routes or alternative modes, should be a consideration in freight system planning. Whenever possible, routes and modes that can allow the flow of goods to continue even when a standard route is not available should be identified. Redundancy also allows for options when a particular mode or route is unsuitable due to safety concerns or competing demands.
- Need to make better use of existing modes. Capacity over the entire multimodal freight network is stressed. Delays along one route or on one mode spread to other networks and affect both passenger and freight travel. For example, increased oil, gas and agriculture rail shipments along BNSF's corridor from North Dakota to Minneapolis negatively impacted the on-time performance of Northstar Commuter Rail and Amtrak service. This has reduced ridership on these routes and led to increased vehicle usage in congested highway corridors. Redundancy across modes and system-wide capacity expansion are needed.

[29] https://www.ramseycounty.us/your-government/projects-initiatives/east-metro-rail-continuity-project

PRESERVE MINNESOTA'S INFRASTRUCTURE

Growth in freight transportation will continue to stress the freight infrastructure in Minnesota. As noted in the performance assessment, pavement ride quality and bridge deck conditions will deteriorate in the future, making Minnesota's roadways less attractive for goods movement. The rail and waterway systems have similar infrastructure condition needs and issues that must be addressed in the future to continue their viability. In this context, the plan uncovered several needs and issues related to preserving the freight transportation infrastructure in Minnesota.

- Need to preserve and improve highway system condition. In an online survey distributed during plan development, the most common highway infrastructure issues identified by freight industry respondents were poor pavement conditions, inefficient interchanges and inadequate roadway capacity. Industry also noted the need for continued high-levels of winter roadway maintenance. The majority of the infrastructure issues identified are in and around the greater Minneapolis-St. Paul area, with additional issues located along major freight corridors throughout the state. In and around greater Minneapolis-St. Paul, infrastructure issues include preservation needs such as inadequate and outdated interchanges. Pavement conditions were an issue highlighted throughout the state. Within greater Minneapolis-St. Paul, road and bridge conditions were identified as an issue by survey respondents.

Winter Roadway Maintenance:
Minnesota's cold and snowy climate can often cause significant delays to the freight system in the winter months. MnDOT plows nearly 12,000 miles of state highways and interstates with a fleet of approximately 800 snowplows. During one-on-one meetings many freight businesses in Minnesota stressed their need to transport goods within a specified timeframe. Any delays directly affect their efficiency and profitability. Most businesses were complimentary of MnDOT's role in snow plowing operations.

- Need to achieve FRA Class 2 track or better on the rail system. One of the goals of the 2016 Minnesota State Rail Plan is to upgrade main line track (all Class I-III railroads[30]) to 25 miles per hour minimum speed (FRA Class 2 track), as warranted. This is needed to ensure commercial viability and safety for rail operators to meet the needs of the current and future shippers that rely on them. This is primarily an issue for short line railroads where infrastructure conditions tend to be inferior to those of the large railroads (for instance, if the track is not well maintained or there is lighter weight rail, inferior tie and ballast conditions and no active signaling system). As a result, mainline train speeds are lower. Although these conditions are usually adequate for existing business, many carriers struggle to maintain track at minimal commercially acceptable levels and are unable to accommodate some modern rolling stock (rail equipment).
- Need to achieve 286,000-pound compliance on the rail system. Another goal of the 2016 Minnesota State Rail Plan is to improve the freight rail network (all Class I-III railroads) to support the use of 286,000-pound railcars throughout. This weight limit has become the industry-wide standard, and the viability of lines and shipper's facilities that do not have this capacity will diminish over time. In Minnesota there are 453 miles of railroad that currently cannot handle 286,000-pound railcars. Most noncompliant lines are restricted from

[30] Class I, II, and III are railroad designations by the Surface Transportation Board (STB). In order to be considered a Class III railroad, the railroad's operating revenues must be between $0 and $20 million. For Class II, it is $20 million or more, and for Class I, it is $250 million or more.

carrying any heavy railcar in excess of 263,000 pounds. With the large railroads having moved from 263,000 to 286,000 pounds as the standard maximum car weight, the ability to handle standard modern rolling stock is becoming a particular concern; without accommodation of these heavier cars, the competitive position of many short line railroads will be substantially compromised.

- Need to maintain adequate navigable depth. The need for periodic dredging – the removal of the built-up underwater sediment – is an ongoing issue for the Mississippi River System and the port and harbor areas on the Great Lakes. The U.S. Army Corps of Engineers (USACE) bears the responsibility for preserving the waterways, including dredging. In 2012, the USACE spent $9.3 million for dredging the Minnesota Mississippi River System; however, a backlog of $12.7 million in needs exists. Similarly, $5 million was spent on dredging in the Great Lakes in Minnesota, but additional needs remain. Disposal of dredging material is also challenging, and finding proper ways to reuse an ever-accumulating amount of waste material will continue to be a challenge.
- Need for lock and dam maintenance. On the Mississippi River System and the Great Lakes there is a backlog of projects to improve the lock and dam network. Located at the head of both the Mississippi River and Great Lakes systems, Minnesota relies on lock and dam infrastructure to connect its industries to suppliers and customers. Most locks on the marine system are more than 50 years old, leading to more frequent (scheduled and unscheduled) closures for repairs on the Mississippi River System as a whole, which impacts Minnesota shippers. Additionally, the Sault Ste. Marie locks in Michigan, which serve as the connector between the Port of Duluth and other destinations, need either repair or replacement. There is no redundancy for the largest lock, which handles 70 percent of the traffic. According to a Congressional estimate, the impact of a 30-day unscheduled outage of the Sault Ste. Marie locks would be $160 million.[31]
- Need for freight-friendly design standards. Stakeholder feedback throughout plan development noted that MnDOT and its transportation partners should ensure that roadways, in particular intermodal connectors, are designed so they are adequate for heavy and frequent truck movements. This means that pavement and geometrics (such as travel lane width, turning radii, and vertical and horizontal bridge clearances) are designed to provide added ease of navigation for large vehicles. This also means that any potential obstacles to goods movement (e.g., roundabouts) are considered in context prior to construction.

  While many design criteria, such as pavement thickness, passing lanes and increased shoulder widths are desirable for roadways that experience high levels of freight activity, the implementation of these features may be costly if additional right of way is required or if other site-specific characteristics make implementation difficult. These standards should be primarily considered on Minnesota's Principal Freight Network facilities.
- Need for enforcement of truck size and weight standards. MnDOT's Commercial Vehicle Office administers oversize-overweight (OSOW) permits for trucks traveling on the trunk highway system in the state. In Minnesota, individual counties are responsible for permitting loads on their county road networks. Generally, loads that exceed a width of 8 feet 6 inches, a height of 13 feet six inches, a length of 75 feet zero inches and a gross vehicle weight of 80,000 pounds require an OSOW permit. A common issue in Minnesota and most other states is that the number of enforcement staff at the state and local level trained in commercial vehicle operations is insufficient to reliably enforce the OSOW permitting program. Permitting requirements are fairly complex and

[31] http://www.mlive.com/business/index.ssf/2015/03/congress_to_army_corps_priorit.html

include a number of exceptions and provisions based on commodity types, truck configurations, and travel plans. One resulting issue is that unpermitted loads can cause significant amounts of damage to state and local roadways.

SAFEGUARD MINNESOTANS

Safety is a high priority for public and private organizations involved in freight transportation. The plan identified several needs and issues related to safeguarding Minnesotans.

- Need for improved safety at highway-rail grade crossings. As shown in the performance assessment, highway crossing safety is a concern due to a history of incidents with crossing vehicles, trucks, bicyclists and pedestrians. Significant improvement has been made with the safety of rail crossings in Minnesota, but many of the currently installed warning devices need to be replaced by 2030.

  As noted in the 2016 Minnesota State Rail Plan, an analysis of grade crossing active warning devices estimated that approximately 270 signals are 20 years old or older (as of 2006), and the normal lifespan for an active warning device is 25 years. Aging active warning devices are increasingly difficult to maintain due to out-of-date technology, often requiring entirely new warning devices to be installed at a cost of $200,000 to $500,000 each. Many signals were installed in the 1980s and 1990s, and MnDOT estimates that within 20 years almost all of the 1,400 warning devices will need upgrading. At current values, it is estimated that $280 million over 20 years will be needed, with the capacity to install 70 major grade crossing devices each year. This does not include new installations for high-speed passenger corridors, quiet zones and the proposed expanded deployment of an additional 170 devices on paved county roads.

- Need to take proactive actions related to crude-oil-by-rail movements. As described in the 2016 Minnesota State Rail Plan, the ongoing North Dakota oil boom resulted in a rapid increase in crude oil and silica sand transported by rail through Minnesota. This increase in traffic has significant impacts on rail and roadway congestion, safety and quality of life. Despite volatility and uncertainty in crude oil prices, crude-oil-by-rail unit train activity is expected to continue.

  Concerned about the large increase in Bakken oil shipments and the associated safety implications, the 2014 Minnesota Legislature directed MnDOT to conduct a study of highway-rail grade crossing improvements for rail corridors carrying unit trains of crude oil and other hazardous materials. MnDOT investigated areas along these corridors where safety could be improved to reduce public exposure to derailments, spills and fires. The study identified needs including grade crossing signal systems and alternative railroad grade crossing improvements. The study noted 683 at-grade rail crossings where Bakken crude oil passes. To find the most at-risk crossings, an aggregate score was calculated using a combination of geographic information system population analysis near crossings, federal crossing safety standards, and frequency of crude oil traffic on the respective rail line. Of the 100 crossings, 40 were researched further. Improvement recommendations for these 40 were made based on the aggregate score and cost-benefit feasibility of each crossing. Depending on the importance and the aggregate score of each crossing, recommended improvements included closing non-essential at-grade crossings, upgrading passive warnings to active signals, improving active signal protection with more effective safety treatments, or constructing new grade separations along the lines.

PROTECT MINNESOTA'S ENVIRONMENT AND COMMUNITIES

While Minnesota residents and businesses rely on freight to provide their day-to-day needs, this activity sometimes leads to unintended impacts that should be mitigated. Some of these issues relate to air quality and noise, the presence of trucks in neighborhoods and incompatible land uses adjacent to each other. Needs and issues related to protecting Minnesota's environment and communities are summarized below.

- Need to provide and preserve land for freight-focused development adjacent to freight infrastructure. In the Minneapolis-St. Paul area and other parts of the state, businesses and shippers have had difficulty obtaining land with rail and port access. In some cases, zoning is becoming restrictive toward industrial and commercial uses, and in other cases, citizens have rallied to prevent expansion in rail traffic and operations due to noise and environmental concerns. Additionally, if land development patterns continue to emphasize dense residential and commercial development where historic freight activities are present, older industrial space will be converted to these higher value uses, pushing many industries that are dependent on goods movement to locations on the periphery of the region or out of the region altogether. For many of these businesses, there will still be a need to access the central core areas (e.g., for intermodal or water port access), and these emerging development patterns will create a need for trucks to travel longer distances from distribution centers and corporation yards that are far from urban centers in order to make deliveries during limited daytime hours.
- Need to plan for truck routes/operations in urban areas. Urban areas are where the most conflicts between trucks and other motor vehicles occur. The conflicts occur on the highway system and on the local roadway network where trucks travel to make pickups and deliveries. Truck route designation can benefit urban areas in several ways including focusing through truck trips, providing direct connections to freight generators, and minimizing neighborhood cut-through traffic.

  Two trends will influence how trucks deliver goods and the routes they use. First, with more new distribution centers being built on large tracts of available land located further from consuming markets, the average trucking distance is likely to increase, often on commuter corridors already operating within congested areas. Second, in large metropolitan areas such as Minneapolis-St. Paul, smaller distribution centers are being sited in central locations to serve same-day and within the hour delivery windows. Each of these trends have trucks competing with passenger cars during peak delivery times. To operate safely and improve efficiency, truckers operate during off-peak hours whenever possible. The designation of truck routes can focus truck movements where they need to go and help minimize conflicts between passenger vehicles and other roadway users.

  The implementation of Complete Streets can also impact truck routes. In some cases, bike lanes and pedestrian pathways are being designated on truck routes, which create safety issues and concerns. Trucks may need to cross bicycle lanes to access on-street loading zones or double-park due to lack of sufficient on-street parking. This can create particular hazards for bicyclists and pedestrians.
- Need to preserve and manage abandoned rail corridors. Many unused rail corridors are preserved as recreational trails. Converting these corridors back to active rail use is often difficult and costly due to encroachment, regulations and public opposition. Preserved rail corridors held in the State Rail Bank are managed and evaluated for possible future transportation uses. These uses could involve trails but could also provide right of way for relocation and elimination of road or rail traffic in other parts of the region.

Freight System Opportunities

With proper investments and policies, Minnesota's residents and businesses can realize greater benefits from the freight system in the future than they do today. Technologies, operational strategies and planning practices are available to ensure a world class freight system while providing residents – even those who live near major goods movement infrastructure – with a high quality of life and economic opportunity. There are several real-world opportunities that were identified as focus areas prior to constructing plan recommendations. These opportunities have a high degree of overlap. A well-crafted plan of investments and policies will be mutually reinforcing for many of these opportunities briefly described below.

- Use the freight system in Minnesota as an economic driver. The freight system is a conduit for economic activity in the state. As transportation system funding is lacking nationwide, it is important to identify investments that preserve and improve those parts of the system that drive the economy. This plan designates Minnesota's Principal Freight Network and makes suggestions for how the network should be used. Several of these recommendations relate to using the freight network to focus new development, prioritizing investments on the network, and providing funding to projects on the freight network.
- Explore use of public-private partnerships. Much of the freight transportation system is owned and operated by the private sector and the goods conveyed on all systems are conveyed by private companies; therefore, public-private partnerships are a natural opportunity for MnDOT. These partnerships may be formal or informal in nature but should focus on communication, collaboration and consensus building on actions to be taken. These actions may include needs identification and project development, as well as funding and implementation.
- Use advanced technology. There are many opportunities to use advanced technologies to improve operational efficiency, safety and mobility. Some of these include positive train control, weigh-in-motion systems, dynamic message signs for traveler information, global positioning systems, and intelligent truck parking.
- Integrate freight considerations in public agency decision-making. From strengthening and promoting interagency, multi-state and public-private partnerships to using that information in planning and funding decisions, Minnesota's public agencies should more fully include "freight" in their ongoing activities. As an example, freight should be more thoroughly considered in the day-to-day activities throughout MnDOT, not just within the Office of Freight and Commercial Vehicle Operations. Freight can be incorporated by annual tracking of the freight system performance measures developed as part of this plan, 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 in partnership with the University of Minnesota.

4.0 STRATEGIES TO ADDRESS MINNESOTA'S FREIGHT NEEDS AND ISSUES

This chapter identifies strategies to address freight system needs and issues and to seize implementation opportunities. These strategies are actions the state and its public and private sector freight partners can take to move forward, including project recommendations, policy guidance and next steps for planning. These freight project types described here will be taken under consideration by MnDOT with its public and private sector freight partners. It is not presumed that MnDOT will provide funding for all of these project types. Additional detail on plan strategies is provided in a supplemental Technical Memo – Strategies and Implementation.

What is a "Freight" Project?

One of the primary challenges in quantifying the impacts and benefits of investments in the freight transportation system is developing an understanding of what defines a "freight project." Currently, MnDOT does not specifically identify projects as freight projects, as it does with other kinds of projects (e.g., bicycle improvement projects), nor does it have a definition or standard for what constitutes a freight project. MAP-21 defines a "freight project" as:

"A surface transportation project that improves the safety and efficiency of freight movements."

Until the passage of the FAST Act in 2015, there was no nationally dedicated funding source for freight projects. However, it can be argued that almost any transportation project has some benefit to freight. Many of the projects on MnDOT's funded surface transportation program have substantial carry-over benefits to the freight system. For example, repaving a segment of a state highway is a general improvement project intended to benefit all vehicles. While this may not primarily be considered a freight project, freight haulers derive a wide range of benefits from this traditional transportation investment, including:

- Lower operating costs since wheels, shocks, brakes, axles and other vehicle parts are subject to less abuse, thus extending their useful life
- Greater fuel efficiency, and in turn, lower operating costs
- Reduced damage to goods in transport and reduced insurance costs
- Improved safety
- More efficient movement/route since freight haulers will not have to reroute to other roadways to avoid poor pavements and the risk to damaging goods or vehicles
- Reduced driver fatigue since drivers will be able to drive more direct routes at higher speeds
- Reduced travel time since drivers will be able to drive more direct routes at higher speeds

Other project types such as bridge replacements, improved signage or guardrail enhancements provide their own set of freight benefits. For example, Intelligent Transportation System projects that improve travel conditions for daily commuters can significantly benefit freight by reducing travel time and related shipping costs.

The location of a highway improvement project also determines its value to freight movements. For instance, road projects on identified routes with heavy truck traffic (e.g., Minnesota's Principal Freight Network) will likely benefit freight movements more so than projects on other routes.

During outreach focused on reviewing the plan's recommendations, stakeholders were asked to prioritize where MnDOT should focus efforts and where "new freight funds" should be allocated in the future. In both cases, private industry respondents overwhelmingly noted that focus should be placed on the highway system. Bridge and Pavement Maintenance projects and Roadway Corridor Improvements are the top two infrastructure investments recommended.

For the purpose of this plan, a "freight project" has been defined as:

"A transportation project that improves the safety and efficiency of freight movements."

This definition is intended to apply to highway projects and other projects on other modal systems, which can include projects on the rail, air, water and pipeline systems that fall within the public and private sector realms of ownership and operation.

Infrastructure Investment Needs

Physical infrastructure investments are needed today on the highway and non-highway freight systems and will be required in the future. This section outlines where MnDOT is currently making freight system investments and identifies the types of freight projects that could provide benefits to Minnesota if pursued in the future. A detailed list of identified freight projects is included as part of Appendix A.

HIGHWAY SYSTEM PROJECT TYPES

Highway project types were evaluated to identify the investments MnDOT is currently making that may benefit freight system operations and to identify which project types MnDOT should continue investing in in the future to improve freight system operations.

The evaluation of freight project types for the highway system was based on the categories defined in the Minnesota 20-year State Highway Investment Plan 2014-2033 (MnSHIP). MnSHIP is one of MnDOT's transportation investment plans and is responsible for directing a large portion of the agency's expenditures (i.e., highway investments).[32] There are currently 10 investment categories identified in MnSHIP. However, not all of these are related to freight. The categories of Pedestrian, Bicycle and Project Support were excluded. The remaining categories have a direct impact on the movement of freight on the highway system. These categories are further described below and include:

- Pavement Condition
- Bridge Condition
- Roadside Infrastructure
- Interregional Corridor Mobility
- Twin Cities Mobility

[32] MnSHIP is currently being updated to reflect the 2018-2037 20-year planning horizon.

- Regional Community Improvement Program
- Traveler Safety

Pavement Condition

MnDOT's largest and most widely used asset is its pavements. On an average day, there are more than 90 million vehicle miles traveled on Minnesota state highways. Most new pavements last approximately 20 years before deteriorating to a level that requires rehabilitation. Improved pavement conditions benefit freight by reducing the number of goods damaged in transit, improving operating and maintenance costs and reducing driver fatigue.

MnDOT preserves the structural integrity and smoothness of its pavements through investment in the Pavement Condition category. It seeks to maximize the share of state highway pavement rated in "Good" condition and minimize the share in "Poor" condition by undertaking a balanced mix of preventive maintenance, rehabilitation and replacement. Once pavements fall into Poor condition, the costs associated with effectively repairing them increase significantly. As a result, larger capital investments are necessary if MnDOT wants to achieve smooth pavement conditions and minimize the costs associated with preserving its pavements. Typical improvements to pavements include overlays, mill and overlays, full-depth reclamation, and reconstruction projects.

Bridge Condition

More than 4,500 of the state's 20,000 bridges are on the state highway system and maintained by MnDOT. If maintained and invested at optimal intervals, bridges typically last 70 to 80 years before needing replacement. Freight movers rely on bridges as critical links in their supply chains. Bridges with reduced load restrictions may require freight movers to take alternate routes which may increase costs.

The inspection, maintenance and construction of MnDOT bridges are the responsibility of MnDOT districts under the general direction of the MnDOT Bridge Office. The districts and the Bridge Office work together to identify near-term and long-range investments that preserve bridges in a safe condition and extend their useful life. By planning its bridge investments in a timely and cost-effective manner, MnDOT is able to preserve the state's vital connections.

MnDOT tracks its performance in preserving bridge infrastructure by rating the structural condition of its bridges and measuring the percentage of bridge deck area in Good, Satisfactory, Fair and Poor condition. Bridge investments are managed through MnDOT's Bridge Replacement and Improvement Management system. Typical improvements include replacement, rehabilitation and painting. The Bridge Condition category does not include surrounding or supporting elements for bridges, such as signs, pavement markings or lighting.

Roadside Infrastructure

Roadside Infrastructure condition includes an array of assets found on the Minnesota state highway system that support the safe, informed, comfortable and efficient movement of people and goods. Roadside infrastructure includes:

- Drainage and culverts that carry water away from or under the road
- Guardrails, including attenuators, cable-median barriers and fencing that protect people and infrastructure
- Traffic signals, lighting and ITS that enhance safety and provide information
- Overhead structures and other structures, such as noise walls, retaining walls, reinforced earth systems and concrete barriers

- Rest areas
- Signage, including traffic and directional signs
- Pavement markings

Roadside infrastructure improves safety and the overall driving experience for freight movers. Improvements are often completed in conjunction with a pavement or bridge project, although MnDOT also conducts stand-alone projects, such as culvert replacement projects along segments of road with poor drainage or failing culvert structures.

Interregional Corridor Mobility

Minnesota's Interregional Corridor (IRC) system is a subset of the National Highway System, connecting the largest regional trade centers in Minnesota with each other and with neighboring states and Canada. This system consists of Greater Minnesota's most heavily traveled roads, accounting for only 2.5 percent (3,000 miles) of the state highway system, yet carrying about 30 percent of all statewide travel.

The IRC system is an essential transportation network for moving freight and supporting businesses. Safe and efficient IRC connections provide access to markets and services and facilitate recreational travel, improving quality of life. Congestion on IRCs negatively impacts travel time, reliability, safety conditions, fuel costs and the state's economic competitiveness. Typical improvements on these corridors include low-cost solutions, such as intersection improvements, and major projects, such as roadway capacity improvements.

Twin Cities Mobility

The Twin Cities area is a major freight hub with multiple origins, destinations, and intermodal facilities related to freight movement. Congestion in the metro area is a major concern of many freight movers and the general public. Managing congestion improves quality of life, safety and air quality. While the focus of MnSHIP is on identifying improvements in highway infrastructure, the Twin Cities area infrastructure accommodates many users, including passenger vehicles, freight carriers, transit providers, bicyclists and pedestrians.

Roughly half of all roadway travel in Minnesota occurs within the Twin Cities metropolitan area, which contains just 9 percent of the total roadway miles in the state. In 2015, the Metropolitan Council completed its 2040 Transportation Policy Plan. Due to constrained funding, this plan marks a shift away from a reliance on major capacity expansion projects toward more cost-effective strategies. MnDOT now pursues the following strategies to address regional mobility issues:

- Active Traffic Management. Operational improvements to help manage the effects of congestion, including variable message signs (traveler information systems), freeway ramp metering, dynamic signing and re-routing, dynamic shoulder lanes, reversible lanes, dynamic speed signs and lane specific signaling.
- Spot mobility improvements. Lower cost, high-benefit projects that improve traffic flow and provide bottleneck relief at spot locations. These projects include freeway and intersection geometric design changes, short auxiliary lane additions and traffic signal modifications to ease merging and exiting traffic.
- Priced managed lanes. Priced managed lane projects that provide a predictable, congestion-free travel option for transit users, those who ride in carpools, or those who are willing to pay. In the Twin Cities, the system is called MnPASS and currently operates on I-394, I-35E and I-35W. During rush hour periods, MnPASS lanes are free for buses, carpools and motorcycles; single-occupant vehicles are charged an electronic fee.

- Strategic capacity enhancements. Projects in the form of new interchanges, non-priced managed lanes and limited general-purpose lanes that may be needed to address corridor congestion and/or provide lane continuity for an existing facility or to complete an unfinished segment of the Metropolitan Highway System. The unfinished connection between existing MN 610 and I-94 in Maple Grove is an example of a high-priority strategic capacity enhancement project.

Regional Community Improvement Priorities

Regional and Community Improvement Priorities (RCIP) are collaborative investments that respond to regional and local concerns beyond system performance needs. The RCIP investment category assists MnDOT in delivering a well-rounded transportation investment program that advances objectives for which MnDOT may not have statewide performance targets, such as improving multimodal connections, community livability, economic competitiveness, environmental health and quality of life in Minnesota.

Typical improvements include intersection improvements that increase traffic flow or facilitate efficient freight movement, projects that support multimodal connectivity, bypass or turning lanes, access management solutions, improvements that support Complete Streets, and regional or spot capacity expansion projects.

Traveler Safety

Vehicle crashes are the leading cause of death for people under the age of 35 and the fifth leading cause of death overall in the nation. Crash-related deaths and serious injuries create significant costs for individuals, families, and society. The Highway Safety Improvement Program (HSIP) is a federal program that was established in 2005 to fund programs that reduce fatalities and serious injuries on all roads. In Minnesota, these funds are distributed among MnDOT districts and local agencies. HSIP and state funds together represent MnDOT's Traveler Safety investments. MnDOT and its partners have made reducing fatalities and serious injuries a top priority through the following:

- The Toward Zero Deaths (TZD) initiative. MnDOT and its partners use a data-driven, multi-disciplinary "four Es" approach – education, engineering, enforcement, and emergency services – to target and reduce fatalities and serious injuries. The TZD approach has contributed to Minnesota's dramatic decline in traffic fatalities over the past decade.
- Proactive lower cost, high-benefit safety features. Lower cost safety improvements may be newly installed as part of a pavement project, including edge treatments (rumble stripes and rumble strips), guardrail and pavement markings, or as stand-alone projects. MnDOT has also developed District Safety Plans (DSPs) for each MnDOT district. The DSPs refer to crash data to prioritize proactive strategies at high-risk locations and identify appropriate treatments that are proven to reduce fatal and serious injury crashes. They also serve as the engineering component to the TZD initiative.
- Improvements at sustained crash locations. These are locations with a consistently high crash rate over a five-year period compared to similar locations across the state. Improvements at these locations tend to be higher-cost intersection improvements and can be targeted for motorized and non-motorized modes. Projects in this category include improvements such as roundabouts and passing lanes.

Typical improvements in the Traveler Safety category include lower cost, high-benefit engineering solutions, such as rumble stripes, lighting, signage, new cable median barriers, and dynamic warning signs. MnDOT uses higher cost treatments, such as four-way stop signs, signals and reduced conflict intersection improvements (for example, roundabouts, median refuges, and J-turns), to address sustained crash locations.

While the investment categories included in MnSHIP do not specifically identify freight, many of the outcomes from investments made in these investment categories provide significant benefit to freight movements. Examples of this include smooth pavements, which provide lower operating costs, greater fuel efficiency, less damage to goods and improved safety; or improvements to critical connections, which will decrease delays and reduce travel times. Traveler safety improvements likewise reduce the frequency and severity of crashes, simultaneously decreasing risk and delay. All of these improvements have significant benefits for freight.

HIGHWAY PROJECTS ON MINNESOTA'S PRINCIPAL FREIGHT NETWORK

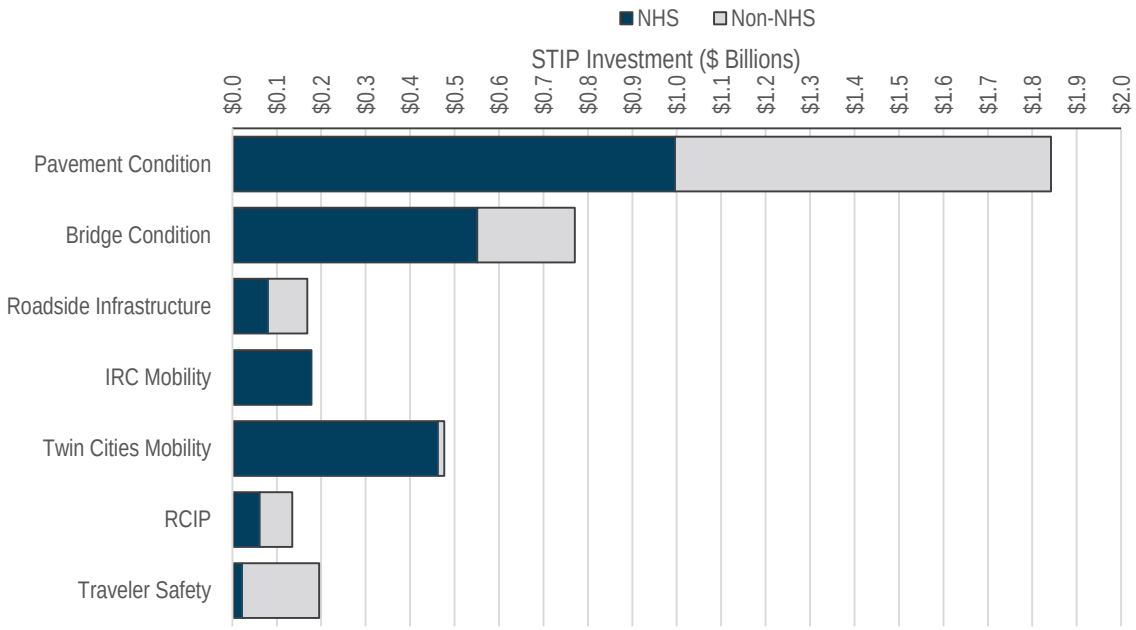
The State Transportation Improvement Program (STIP) is Minnesota's four-year transportation improvement program developed by MnDOT with approval from the FHWA and the Federal Transit Administration. The STIP is the statewide transportation program in which MnDOT, local governments and community and business interest groups work together in eight District Area Transportation Partnerships to discuss regional priorities and reach agreement on priority transportation investments. It incorporates the Transportation Improvement Programs (TIP) developed by the state's metropolitan planning organizations by reference, without modification. Like the STIP, each TIP provides a prioritized list of projects for which federal, state and, in some cases, local funds are anticipated to be used.

The STIP identifies the schedule and funding of transportation projects by state fiscal year (July 1 through June 30). It includes all state and local transportation projects with federal highway and/or federal transit funding along with 100 percent state funded transportation projects. These projects are for state trunk highways, local roads and bridges, rail crossings and transit capital and operating assistance. The STIP is developed/updated on an annual basis.

The STIP for fiscal years 2015-2018 was approved in October 2014 and contains information such as project location/description, agency responsible for project implementation, program categories, funding categories and project cost. This project list was reviewed to better understand the level and type of investments that are programmed for the highway portion of the designated Minnesota Principal Freight Network, defined as the extents of the National Highway System. Of the $3.9 billion allocated to infrastructure improvements, approximately 60 percent is programmed for projects on the NHS system.

The STIP includes two fields that categorize the primary and secondary work types of each project. The work type descriptions were used to guide the determination of the appropriate MnSHIP investment category for each project. The results of this analysis are shown in Figure 4.1, which displays the relative investment within each category toward NHS and non-NHS roadways.

Figure 4.1 STIP Funding by MnSHIP Investment Category



Source: 2015-2018 Minnesota STIP

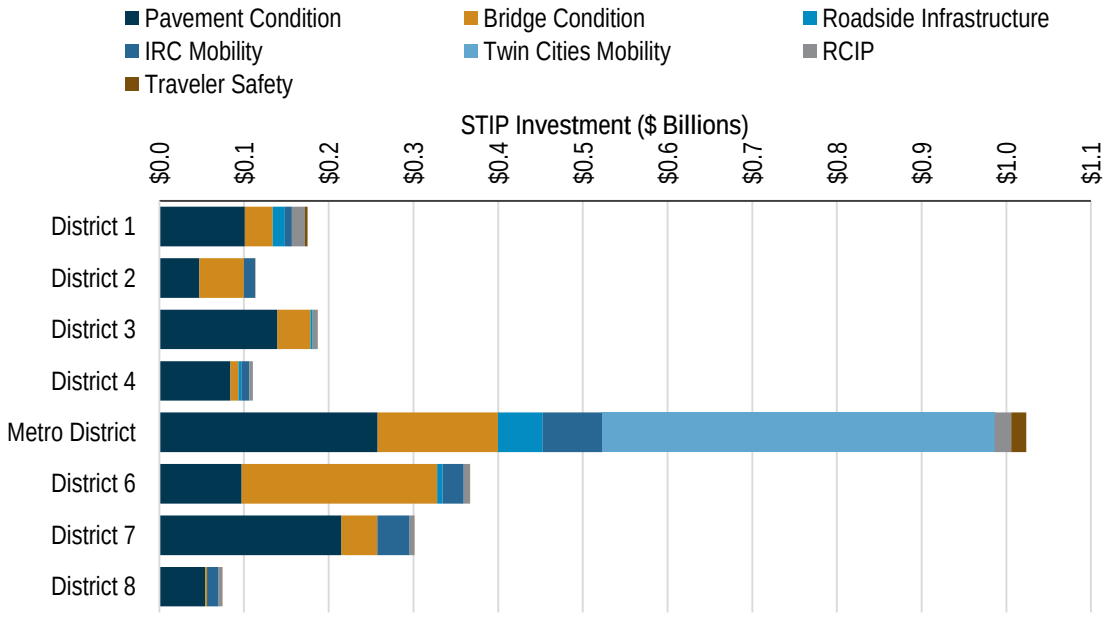
The results show that investment in Pavement Condition greatly exceeds the investment in any other category. Pavement Condition projects account for approximately 47 percent of infrastructure-related STIP funding. More than half of these investments are slated for roadways on the NHS.

Since all IRC roadways are also on the NHS, all investments under the IRC Mobility category are on the NHS. NHS investments also account for the majority of projects under Bridge Condition and Twin Cities Mobility and approximately half of the projects under Roadside Infrastructure and RCIP. Unlike the other categories, investments under the Traveler Safety categories are primarily on non-NHS roadways.

A subset of this list represents the freight projects identified in the STIP. This list is included in Appendix A and in the Strategies and Implementation Technical Memo. A freight project is defined as a project on the NHS network (which is part of the Minnesota Principal Freight Network) with its primary designation as one the project types described in the previous section. A total of 436 projects meet these criteria.

A summary of the freight-related investments on the NHS by District is shown in Figure 4.2 and mapped in Figure 4.3.

Figure 4.2 STIP Freight Project Funding by District

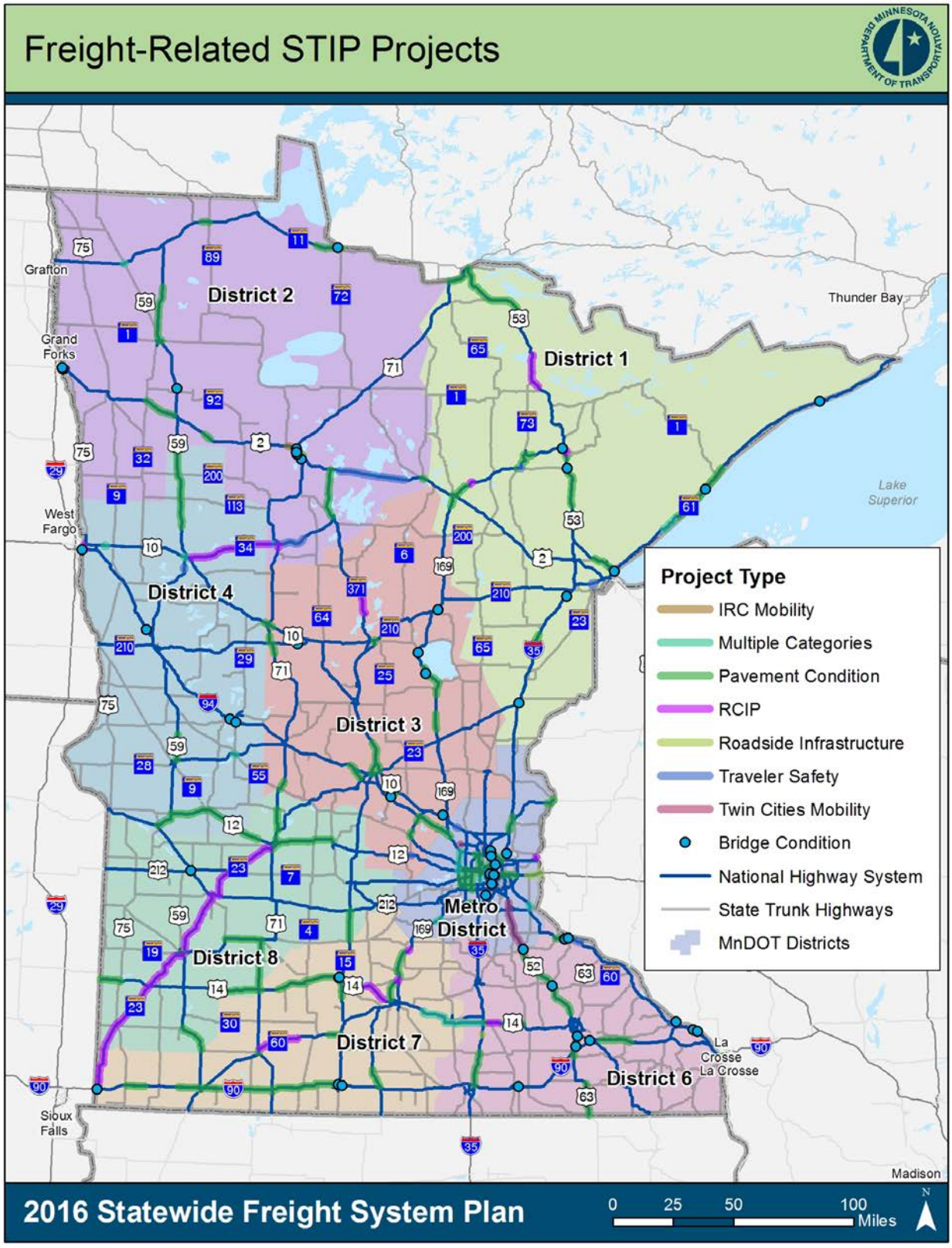


Source: 2015-2018 Minnesota STIP

A review of the funding for freight-related STIP projects on the NHS shows that the greatest amount of investment is planned for the Metro District. This is to be expected as the roadway traffic in the Twin Cities metropolitan area accounts for roughly half of all roadway traffic statewide. The Twin Cities Mobility funding category is also unique to the Metro District and accounts for nearly half of all freight project funding in the district.

Project funding in non-Metro districts is almost entirely dedicated to either Pavement Condition or Bridge Condition. While most of these districts dedicate more funding to Pavement Condition, two exceptions are District 2 and District 6, both of which have a substantially larger share of bridge condition projects relative to their total funding levels.

Figure 4.3 Freight-Related STIP Projects on the NHS Network



NON-HIGHWAY SYSTEM INVESTMENTS

This section provides a summary of the currently proposed investments for the non-highway portions of the freight system. One mode that is not included in this section is pipelines. The pipeline system is privately owned and operated. MnDOT plays only a small role in the development and oversight of the pipeline system.

Rail

The 2016 Minnesota State Rail Plan presented a $6.6 billion, 20-year project list, with $3.5 billion for freight rail-specific projects. In total, there are 62 freight projects (totaling $3.1 billion) and 45 crossing safety projects (totaling $441 million) identified, along with 57 passenger projects (not included here). Recommended freight project types include:

- Track Condition/Capacity. Projects focused on rail line condition and include projects that upgrade track or bridge condition, realign existing track or add new track.
- Efficiency/Chokepoint. Projects where system efficiencies are lacking due to a physical system bottleneck or other capacity constraint. This includes new sidings or interchanges or improvements in and around rail yards.
- Signalization. Projects to upgrade signals on rail lines carrying high volumes of freight traffic. Centralized traffic control is typically found on medium- to high-density rail lines and involves a series of interlockings that are controlled by a single operator that signals trains when they have the right of way to proceed.

  Although not included specifically in the list of freight rail projects, Positive Train Control (PTC) upgrades are also part of the Rail Plan. The Rail Safety Improvement Act of 2008 mandated the widespread installation of PTC systems by December 2015 on all lines handling passenger trains or hazardous materials.
- Grade Crossing Upgrades or Separations. Projects to upgrade grade crossing infrastructure or installing grade separations are necessary at a number of highway-rail crossings in Minnesota to achieve safety goals, including reduced crashes and mitigating challenges of shale oil and hazardous material transport. MnDOT continues to invest in grade crossing upgrades; however, many of the currently installed warning devices will need replacement by 2030 due to age and out-of-date technology.

The list of recommended freight rail projects identified is included in Appendix A and the Strategies and Implementation Technical Memo. Due to the fact that rail serves both freight and passenger travel in Minnesota and that rail infrastructure, while owned and operated by private entities, provides significant benefits to the state and general public, many of these investments presume the need for multiple actors, methodologies and years. Unlike the funded highway projects under MnSHIP, a range of financing tools is needed among the public sector stakeholders—federal, state and regional/local—and the private sector, including railroads and investor/developers, to advance these projects. State general fund and bond proceeds are dedicated to the existing freight and safety programs. Minnesota counties and their Regional Railroad Authorities have committed significant local funding from both general funds and special purpose tax levies to advance these projects and support ongoing rail operations. Exploration of new funding opportunities are necessary to move rail development forward.

Ports and Waterways

The Minnesota State Legislature funds the Port Development Assistance Program to address port needs. From 1996 to 2015, the program was allocated $30 million. Past projects included rehabilitation of roads or railways or improved truck access to ports; dock walls; building roofs; sprinklers and electrical systems; mobile handling equipment; and increased warehouse capacity. The ports have identified close to $45 million of future development needs.

The 2014 Statewide Ports and Waterways Plan identifies several strategies that may result in future investment. One strategy is improving infrastructure conditions and expanding capacity. To do this, MnDOT will work to have a stable Port Development Assistance Program and compile an infrastructure needs assessment. Strategies such as assisting with adapting to new markets, adding capacity for containerization and upgrading outdated systems to reduce maintenance costs support port infrastructure.

Another issue of growing importance is preservation of waterfront land. This is especially true for land that has strategic importance for the marine freight system in existing and new locations. Multimodal connections are also an important factor in creating an efficient freight system.

Over the last five years, the legislature has appropriated the following amounts to the Port Development Assistance Program: 2012, $4 million; 2014: $2 million; 2015: $3 million. Entities that are eligible for the program then compete for those funds. The legislature usually requires that any improvement made must be publicly owned.

The current investments being pursued in the port and waterway system are discussed below.

DULUTH SEAWAY PORT AUTHORITY

The Duluth Seaway Port Authority used MnDOT appropriations, a $10 million TIGER grant from the federal government, and an almost $1 million grant from the Minnesota Department of Employment and Economic Development to redevelop DSPA's Docks C and D. This 28-acre site has been unusable due to its deteriorated state. It will expand the Duluth Seaway Port Authority's capacity.

RED WING PORT AUTHORITY

In recent years, there has been an increase in the number of riverboats that visit Red Wing. The Red Wing Port Authority applied for Port Development funds to construct a dock for improved riverboat passenger embarkation adjacent to Levee Park.

ST. PAUL PORT AUTHORITY

The St. Paul Port Authority received additional Port Development funds to expand upon an existing project to replace 790 feet of dock wall. The new project will expand the replacement to approximately 1,100 feet.

PORT AUTHORITY OF WINONA

The Port Authority of Winona is using Port Development funds to prevent bolt breakage at one of their commercial docks by installing an 8,000 square foot concrete cap and creating a 1,200 square foot "Heavy-lift Zone." This will accommodate the heavy loads using cranes of up to 300 tons.

Airports

Minnesota has 97 airports listed in the FAA's National Plan of Integrated Airport Systems (NPIAS). Currently, eight airports are identified in the NPIAS as primary airports. The 2013 Minnesota State Aviation System Plan estimates the need for $712 million in short-term projects, $326 in mid-term projects, and $1.1 billion in long-term projects for the aviation system. Of the estimated costs, 40 percent are for improvements to the airports and 22 percent are for miscellaneous costs. However, the plan does not currently distinguish projects as significant to freight or passenger travel.

Of the Minnesota airports, five were identified as meeting the criteria for designation as part of Minnesota's Principal Freight Network. The Minnesota State Aviation System Plan also identified upgrades for each of these airports. This information helps guide MnDOT's Capital Improvement Plan (CIP). These CIP projects are outlined below.

MINNEAPOLIS-ST. PAUL INTERNATIONAL AIRPORT

The Minneapolis-St. Paul International Airport is Minnesota's largest airport. Over the next 22 years, the airport has $63.6 million worth of projects listed in the CIP. Of that total, $44.4 million will be from local funds, $13.8 million from the FAA and $5.4 million from the state. Of the 39 projects listed, 37 may have direct positive impacts on freight. Any project that specifically dealt with passenger operations (e.g., passenger terminal expansions, passenger bridge repairs, etc.) was not considered a freight project. Projects include runway pavement improvements, drainage improvements and miscellaneous construction projects.

DULUTH INTERNATIONAL AIRPORT

The Duluth International Airport identified $81 million in projects for the next 20 years. Of that total, $8.9 million will be from local funds, $67 million from the FAA, $1.4 million from other funds and $4 million from the state. Of the 50 projects listed, 48 may have a direct positive impact on freight. Projects range from runway improvements, snow removal equipment, renovations to the Air Traffic Control Tower, land acquisition, hanger maintenance and reconstruction of a runway.

ROCHESTER INTERNATIONAL AIRPORT

The Rochester International Airport identified $38 million in projects for the next 15 years. Of that total, $4 million will be from local funds, $18 million from the FAA, $6.3 million from other funds and $9.7 million from the state. Of the 21 projects listed, 19 may have a direct positive impact on freight. Projects include runway improvements, navigation systems upgrades and equipment replacement.

BEMIDJI REGIONAL AIRPORT

The Bemidji Regional Airport identified $24 million in projects for the next 14 years. Of that total, $1.6 million will be from local funds, $21 million from the FAA and $1.4 million from the state. Of the 63 projects listed, 61 projects may have a direct positive impact on freight. Projects include runway maintenance, snow removal equipment, hanger upgrades and road improvements.

THIEF RIVER FALLS REGIONAL AIRPORT

The Thief River Falls Regional Airport identified $20 million in projects for the next 18 years. Of that total, $2 million will be from local funds, $15 million from the FAA, $1.2 million from other funds and $1.1 million from the state. All of the 42 projects listed may have a direct positive impact on freight. Projects include runway maintenance, hanger construction, runway extension and storm water management.

FREIGHT PROJECT TYPES FOR MNDOT'S FUTURE SUPPORT

The previous sections identified various freight project types that MnDOT is currently investing in or that have been identified as being freight-related or freight benefitting as part of this plan. These freight project types are consolidated here for MnDOT's future consideration of support, partnership and advocacy with its public and private sector freight partners. It is not presumed that MnDOT will provide funding for all of these project types.

These projects are also included here as a step toward preparing MnDOT for eligibility for future freight project funding through the FAST Act. While this plan does not provide a prioritized list of freight projects, it does identify what types of projects MnDOT may consider a freight project. These projects could then be eligible for federal funding.

Projects have been roughly categorized into three groupings that align with Statewide Multimodal Transportation Plan objectives:

- Asset Management. Projects that focus primarily on the maintenance and/or reconstruction of existing infrastructure.
- Critical Connections. Projects that increase the capacity and performance of key freight system connections.
- Traveler Safety. Projects that improve safety for all users of the transportation system.

The following list provides various types of freight projects and freight benefitting projects for each project category described above.

Highway Projects

- Asset Management
  - Pavement condition
  - Bridge condition
  - Roadside infrastructure (signage, guardrails/barriers, rest area upgrades)
- Critical Connections
  - Two to four lane conversions
  - Interchange improvements
  - MnPASS Lanes
  - Metro Congestion Management Program
  - First-/last-mile roadway improvements
  - Interchanges
  - Intersection upgrades
- Safety
  - Safety program projects
  - Intersection upgrades
  - Improved lighting
  - Signage

Ports and Waterway Projects

- Asset Management
  - Dredging
  - Dock wall maintenance
  - Miscellaneous construction
- Critical Connections
  - First-/last-mile roadway improvements
  - Intermodal and multimodal facilities
  - Dock expansion
  - Warehouse expansion and mobile handling equipment investments

Airports

- Asset Management
  - Airfield infrastructure improvements, including runway, taxiway, or apron pavement condition or expansion
  - Air traffic control tower reconstruction
  - Miscellaneous construction
- Critical Connections
  - First-/last-mile roadway improvements
  - Air cargo facilities
- Safety and Security
  - Communication, navigation or surveillance systems

Rail Projects

- Asset Management
  - Rail/bridge condition improvements
  - Capacity enhancements
- Critical Connections
  - First-/last-mile roadway improvements
  - Intermodal and multimodal facilities
  - Improvements in and around rail yards

- Safety and Security
  - Signalization – Centralized traffic control and Positive Train Control
  - Grade crossing infrastructure upgrades or separation

Again, this list is provided to give an indication of the various types of freight projects and freight benefitting projects. It is not presumed that MnDOT will be the sole funder of freight projects nor provide funding for each of these types.

Supporting Strategies and Actions

Since physical infrastructure projects alone will not be sufficient to address the needs and issues identified in this Plan, this section outlines the supporting strategies that were developed to help achieve the goals of this plan. This section describes these strategies and supporting actions, which are organized by the 2012 Statewide Multimodal Transportation Plan objective areas:

- Accountability, Transparency, and Communication
- Transportation in Context
- Critical Connections
- Asset Management
- Traveler Safety
- System Security

The Freight Action Agenda in Chapter 5 provides a summarized list of each action, timeframe for implementation, and leading and supporting agencies. Additional information on how these strategies help meet plan goals is presented in the supplemental Technical Memo – Strategies and Implementation.

The objectives and subsequent strategies/actions identified on the following pages are listed in no particular order. Their order is not meant to indicate priority; all are critical focus areas for the coming years.

ACCOUNTABILITY, TRANSPARENCY, AND COMMUNICATION

The importance of accountability, transparency and communication to the transportation decision-making process is recognized and supported in state and federal legislation. There are also specific requirements for state departments of transportation and Metropolitan Planning Organizations related to public involvement and collaboration. This plan engaged public and private freight stakeholders as an important resource in identifying needs and determining next steps. A key next step, implementing Minnesota's Freight Action Agenda, also relies on the continued communication and coordination of activities with these stakeholders and agencies and making information available to them in a manner that is easy to find and understand.

Strategies

1 - EDUCATION

Freight touches every Minnesota resident on a daily basis. Products purchased in a store or online are available because freight transported them to retail outlets and distribution centers. Unfortunately the public is often most familiar with the negative impacts of freight, and not the improved quality of life and access to goods that come because of freight. MnDOT has started sharing information on the importance of freight as part of developing this plan. The public must continue to be educated on Minnesota's Freight Story: the critical role freight plays in the economy and everyday life of Minnesotans.

- Action. Educate the public on the importance and benefits of freight to Minnesota and Minnesotans

2 - PARTNERSHIPS

As evidenced by the engagement process undertaken during developing this plan, there are numerous stakeholders in Minnesota's freight transportation system. These stakeholders represent the planners, owners, operators, users and funders of the system, in Minnesota and across state borders. Partnerships can be formal (as noted in the Ongoing Freight Forum section below) or informal. The intent of the partnerships is to ensure that a regular dialogue occurs and that MnDOT has the opportunity to listen to and understand freight stakeholder perspectives. When mutual understanding is achieved, opportunities for working together to address common needs and issues arise. These partnerships can lead to collaboration on education (noted above), planning and investing. As projects of regional and national significance begin to receive federal funds, Minnesota's partnerships with its public and private sector freight stakeholders will be critical.

- Action. Partner with public and private sector freight stakeholders in Minnesota and neighboring states. See *Ongoing Freight Forum*.

3 - ONGOING FREIGHT FORUM

Parallel to Plan development, MnDOT, in partnership with the University of Minnesota's Center for Transportation Studies, convened an Ad Hoc Working Group to explore the existing structure and role of the Minnesota Freight Advisory Committee (MFAC). Historically, this group had been convened to facilitate an ongoing dialogue between public and private sector freight stakeholders to keep freight topics "front and center" and to hear private sector perspectives. Through Ad Hoc Working Group discussions it was determined that the MFAC should continue but be given a defined mission, which includes:

- Monitor and report on the implementation of the Statewide Freight System Plan and its Action Agenda, including the development of recommendations for any revisions and updates to the plan
- Create an annual report for the MnDOT Commissioner that includes a "state of freight," an overview of trends and important issues, and reports on the activities of the Freight Advisory Committee from the past year
- Review significant MnDOT initiatives and activities and provide freight impact and benefits comments
- Direct the preparation and distribution of "white papers" on freight transportation issues important to Minnesota's economy
- Advocate for needs of freight transportation to the public, elected officials and other public agencies and organizations
- Suggest research initiatives and tools supporting the economic vitality of the state

Refer to the MFAC Ad Hoc Working Group Recommendations Report for additional information on these recommendations and recommendations for modification of the MFAC structure/membership.

- Action. Partner and collaborate with the MFAC on fulfilling the recommendations of the working group

4 - ADVOCACY

Stakeholder outreach conducted as part of this plan, as well as the findings from MnDOT's previous freight studies, revealed that existing funding mechanisms are inadequate for making the levels of transportation investment needed on the freight system to accommodate current and projected future demand. Advocacy is required to raise awareness of the funding issue and to begin to secure funds for freight projects in the state of Minnesota.

- Action. Use partnerships to raise awareness of financial needs; quantify Minnesota's freight funding needs; secure funding for needed freight projects

5 - TRAVELER INFORMATION

Freight-specific traveler information, such as truck parking availability, expected travel time and roadway conditions can help industry better plan when/where they travel on roadways and where they are able to stop safely for rest periods. See the *Truck Parking* strategy under Traveler Safety and System Security.

- Action. Incorporate freight-targeted traveler information into existing MnDOT traveler information resources; ensure freight is considered in future traveler information installations

6 - WORKFORCE DEVELOPMENT

To sustain the freight-related businesses and industries that operate in Minnesota and that the state relies upon for goods, it is essential that employers have access to a large pool of potential employees that are appropriately trained in the skills required for freight-industry jobs. In particular, the trucking profession has difficulty attracting the next generation of drivers due to many factors including long work days and the amount of time on the road away from home. Programs in cooperation with community colleges and other educational institutions, work training programs through the private sector, or other venues are important to ensure that an appropriate workforce is available for transportation needs.

- Action. Quantify and reach agreement of the issue among partners, further identify what is needed/what are the potential solutions and the appropriate lead entity

TRANSPORTATION IN CONTEXT

Transportation projects do not occur in a vacuum; they are surrounded by context. Context refers to the things people care about—the people, places, and circumstances of their lives. While Minnesota residents and businesses rely on freight to provide their day-to-day needs, freight activity sometimes leads to unintended impacts. Understanding these impacts is an important part of freight project planning and policy development and making sure decisions are made that take land use, energy consumption, the environment, the economy, public health and the needs of traditionally underserved populations into consideration. Considering context when making freight transportation decisions leads to projects that are safer, sustainable in scale and tailored to the specific places in which they exist—projects that respect and complement the economy, environment, and quality of life of a place.

Strategies

7 - CORRIDOR PRESERVATION

Rail corridors held in the State Rail Bank should be actively managed and regularly evaluated for possible future transportation uses. Many unused rail corridors are preserved through uses such as bicycle trails. While converting these corridors back to active rail use is often difficult and costly due to encroachment, regulations and public opposition, they provide opportunities to enable right of way for relocation and elimination of road or rail traffic in other parts of the region. A proactive approach to management includes the identification of potential future opportunities early on, so that changing use (e.g., a bike trail to a roadway) is minimized.

- Action. Proactively manage rail corridors and identify potential future uses

8 - TRUCK ROUTES

Urban areas are often where the most conflicts between trucks and other motoring vehicles occur. This is not only on the highway system but also on the local roadway network, as trucks travel the system making pickups and deliveries. Truck route designation can help focus through truck trips and minimize neighborhood cut-through traffic. With the current emphasis on Complete Streets (see below), there is a growing number of streets that have designated bike lanes and pedestrian pathways. In some cases, these uses are occurring on truck routes, creating safety issues and concerns. Trucks that must cross bike lanes to access on-street loading zones or that double-park due to lack of sufficient on-street parking for trucks can create particular hazards for bikes. To operate safely and improve efficiency, truckers often work during off-peak hours whenever possible; however, it is the responsibility of local planners to consider/designate truck routes/routing in their jurisdictions.

- Action. Consider trucks in planning; designate truck routes to focus truck movements (and separate from conflicting transportation uses) especially in industrial and urban areas with restrictions/enforcement in adjacent residential areas

9 - COMPLETE STREETS

Similar to truck routes, Complete Streets planning principles are frequently used in urban settings where roadways must serve multiple purposes for sometimes conflicting transportation users. Complete Streets projects often focus on accommodating personal automobiles, transit, bicycles and pedestrians, and sometimes do not fully include the needs of trucks. Complete Streets applications in Minnesota should consider truck movements as part of total vehicle traffic and propose treatments to create harmony between trucks and other users such as time-of-day delivery windows to reduce conflicts with other street users, design guidelines for curb pullouts that can be used at different times for bus pullouts and truck parking.

- Action. Consider freight movements in Complete Streets planning activities

10 - LAND USE PLANNING AND POLICIES

Land near freight facilities and port areas is ideal for freight shipping purposes but is increasingly in competition with residential, commercial and recreational land uses. In the Minneapolis-St. Paul area and other parts of the state, businesses and shippers have had difficulty obtaining land with rail and port access. In some cases, zoning has become restrictive toward industrial and commercial uses .In other cases, citizens have rallied to prevent expansion in rail traffic and operations due to noise and environmental concerns. Land use planning and policies must be developed to ensure freight development areas are designated and preserved. Additionally, these areas (and new freight-intensive uses) should be sited adjacent to existing infrastructure whenever possible.

- Action. Support land use policies that ensure freight development areas are designated and preserved, and that development occurs adjacent to existing infrastructure

11 - FREIGHT AS A GOOD NEIGHBOR

Minnesotans enjoy a high quality of life; however, sometimes freight activities can have negative effects on local areas. Programs and projects that support and encourage freight activities and help mitigate local impacts of freight should be pursued. These strategies include encouraging cleaner trucks, "green" locomotives, alternative fuels use, shifting to lower emitting modal uses, idle reduction technology and others. MnDOT has a role in encouraging private businesses/carriers to install these green technologies on their fleets. MnDOT can also serve as a conduit for grant funding to accomplish this.

- Action. Encourage private businesses to implement "green" technologies on fleets; identify grant funding for implementation

12 - ADVANCED TECHNOLOGY

The deployment of advanced technology has the potential to increase freight system efficiency, improving the flow of goods and reducing the cost to move them. FHWA's Office of Freight Management and Operations promotes the deployment of technology and the adoption of best practices by state DOTs. Their Intermodal Freight Technology program conducts operational tests of ITS technologies, supports the development of tools to evaluate infrastructure and operational needs at border crossings, and develops standards for exchanging electronic freight data. While much of their work has been "cutting edge," technology is catching up, and the future holds promise of "real world" applications for state DOTs to consider. As noted in the section above, emissions reduction technology is a proven application that has widespread deployment. Also, MnDOT is conducting a truck parking pilot using advanced technologies in partnership with freight carriers and other Midwestern states.

Looking to the future, MnDOT should monitor development of advanced technologies and their applications for freight. One area of particular promise is that of connected and autonomous vehicles (i.e., in-vehicle, vehicle-to-vehicle, and vehicle-to-infrastructure technologies to reduce human error, avoid collisions and automate vehicle operation). Vehicle technology is mature and widely deployed but is not yet in active use by the public. It is anticipated that some of the first autonomous vehicle "self-driving" applications will be by large trucking companies. Autonomous trucks are being tested in the U.S. and could provide a solution to the workforce shortage in that industry.[33]

- Action. Monitor advanced technology development and applications for freight; consider advanced technology as part of freight planning and project development; explore pilot programs as a way to test implementation of advanced technologies

CRITICAL CONNECTIONS

Freight is unique in that it is multimodal, crosses state and national boundaries, and has a myriad of public and private sector stakeholders with distinct operational and jurisdictional perspectives. While many types of connections are important to freight, there are critical connections that serve as the backbone for movement across and within Minnesota and to points beyond. The Principal Freight Network (designated as part of this plan), connections between modes of transportation, first- and last-mile connections and urban area connections are all essential. Identifying, preserving and enhancing these priority connections are sometimes shared responsibilities.

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[33] http://www.wired.com/2015/05/worlds-first-self-driving-semi-truck-hits-road/

All freight connections, regardless of jurisdiction, location or mode, need to be developed in coordination with one another to ensure a truly connected Minnesota.

Strategies

13 - INTEGRATE FREIGHT INTO ALL PLANNING PROJECTS

Freight is an important part of the entire transportation system. While it is vital to plan specifically for freight, freight should be considered in project planning across modes (highway, rail, water and air). A case study in District 4 was conducted as part of plan development to understand how freight is currently being integrated into planning and programming activities at the district level and to identify additional tools, resources and information that may further help to include freight considerations in their approach to planning.

MnDOT currently uses a number of project scoping worksheets during the project development and planning stages. The purpose of these worksheets is to provide functional groups with a tool to investigate and record potential items that could be included in the scope of the project. The many varieties of worksheets cover topics such as business impacts, state aid scoping, environmental documentation, and maintenance, and provide opportunities for districts to consider "freight" in their day-to-day activities. While the planning section scoping worksheet specifically calls out freight as an item for consideration, additional information is required by the district to fill out the worksheet appropriately. For example, while the question "Is the project occurring near significant freight or truck traffic generators, or near a significant freight route?" is a good question, District 4 staff noted that the identification of "significant freight routes" or "significant freight or truck traffic generators" is not always obvious.

This plan identified Minnesota's Principal Freight Network as the NHS system. While this system may be used to identify significant freight routes at the state level, there are many other non-NHS roadways that play a critical role in freight movement at the local level. District 4 staff also noted that guidance on design criteria can sometimes be contradictory. For example, the worksheet guide encourages the use of traffic calming measures such as narrow travel lanes and curb bump-outs on roadways with mixed users (e.g., pedestrians, bicycles, passenger traffic, freight). While these measures may be especially beneficial to non-motorized users, they often make truck movements more difficult. District planners noted that guidance on which set of design criteria should take priority would be valuable.

The scoping worksheets and worksheet guides are intended to be living documents that are updated and revised periodically. MnDOT will continue to coordinate with district planners to ensure that freight is being integrated into project planning as much as possible. Additionally, as part of project planning, each MnDOT district should conduct outreach to freight stakeholders to consider their perspectives and ensure that project alternatives do not cause detrimental impacts to businesses/goods movement.

- Action. MnDOT Central Office should coordinate with MnDOT district planners to identify the best ways to integrate freight into the planning process, monitor the effectiveness of the project scoping worksheet and guides and revise accordingly, and encourage districts to regularly engage public and private sector stakeholders in project planning

14 - INVESTMENTS ON THE PRINCIPAL FREIGHT NETWORK

This plan undertook a rigorous, data-driven process with oversight from a cross-agency Ad Hoc Working Group to identify Minnesota's Principal Freight Network. This designated network identifies the key infrastructure assets in the state on the highway, rail, waterway and aviation systems and identifies key facilities where modal systems intersect. As this network represents the backbone of industry supply chains, freight-related investments on Minnesota's Principal Freight Network should be given priority over other freight investments. Investments on the

highway system should consider "freight friendly" design principles, including items such as generous turning radii, minimal/improved roundabouts, truck lanes, truck bypasses and other features.

MnDOT is already making significant investments in the freight system. This plan identifies the highway projects on the Principal Freight Network to which MnDOT has committed funding in the 2015-2018 State Transportation Improvement Program. It also identifies the project types that should be considered on the highway system in the future. This plan also notes the projects identified on the freight rail system during development of the 2016 Minnesota State Rail Plan. These and all future freight investments should consider multimodal solutions, ensure a high return on investment, and complement the social, natural and economic features of Minnesota. When appropriate, private sector funds should be sought and used to leverage public dollars, and private sector funds should be given in an amount commensurate with benefits received.

Neither the Statewide Ports and Waterways Plan nor the State Aviation System Plan specifically identify freight projects on those modal systems. In the case of air cargo, the Office of Aeronautics and the Office of Freight and Commercial Vehicle Operations (OFCVO) have both indicated the need for an air cargo assessment study to more fully understand the use of the state aviation system by industry, needs on the system related to freight and future investments.

As business practices and locations change over time, regular review and updates (every five years) should be made to the Principal Freight Network to ensure that projects/investments that move forward are providing freight benefits.

- Action. Regularly update the Principal Freight Network; review design standards for highway projects on the network; conduct project planning and funding selection based on location on the network; conduct an air cargo assessment to determine investment needs

15 - FIRST-/LAST-MILE CONNECTIONS

First- and last-mile road, railway and port connections are the front door for Minnesota's industries. Through designation of Minnesota's Principal Freight Network it was determined that MnDOT can provide benefits and help ensure the multimodal freight system has seamless connections between modes by being proactive about facility and industry connections to the network. The process of designating principal rail, port, airport and pipeline facilities highlighted that there are numerous significant freight generators in the state where the modal systems need to be connected. The majority of these freight facilities identified meet FHWA's primary or secondary criteria for NHS intermodal connector designation but are not formally designated (or are only designated for passenger travel). MnDOT should work with the local agencies that have jurisdiction over these roadways to determine whether intermodal connector designation is something they would like to pursue. In the event connectors are designated, MnDOT can provide assistance to regional and local planning and economic development agencies to ensure that roads are designed and preserved at a level that enables them to best serve freight.

- Action. Determine designation of new intermodal connectors and provide local agencies with design and maintenance guidance

16 - TARGETED FREIGHT SYSTEM INVESTMENTS

Targeted infrastructure investments should be pursued to make the best use of limited transportation dollars. MnDOT has designated a number of corridors, most recently the Principal Freight Network, that are key for freight and commercial connectivity within the state. Focused improvements on these roadway corridors can combine infrastructure (e.g., mainline, auxiliary lanes, truck bypasses and geometric improvements), ITS technology, safety programs and other actions to mitigate congestion and ensure reliable routes for freight. Spot roadway and railroad projects, such as interchange improvements, lane/siding additions, ramp improvements, traffic signal coordination

or other improvements can mitigate chokepoints and reduce congestion at spot locations. For corridor and spot improvements, freight performance measures can be used to identify and target locations most in need of improvement, allowing MnDOT to conduct advanced planning and construct solutions to the state's most critical network bottlenecks.

Two goals of the 2016 Minnesota State Rail Plan are to upgrade main line track (all Class I-III railroads) to 25 mph minimum speed (FRA Class 2 track), as warranted, and to improve the freight rail network (all Class I-III railroads) to support the use of 286,000 pound railcars throughout the state. These improvements are needed to ensure commercial viability and safety for rail operators to meet the needs of the current and future shippers that rely on them. These are primarily issues for short line railroads where infrastructure conditions tend to be inferior to those of the large railroads. MnDOT administers the Minnesota Rail Service Improvement (MRSI) program that can be used to improve line condition. As a condition of funding, MnDOT should require the rail owner to update the rail line to these modern standards.

- Action. Use performance measures to determine locations for spot improvement and implement improvement activities. Consider requiring MRSI funding recipients to upgrade rail on the portion of the line where project funding is given.

17 - INTERMODAL AND MULTIMODAL FACILITIES

Intermodal and multimodal transload facility development allows goods to shift between modes such as truck, rail and water. The Minneapolis-St. Paul region is the only location where rail intermodal service (the haulage of containers and trailers) is available in Minnesota, and Chicago and the Pacific Northwest/Western Canada are the only markets that are directly served. Stakeholders have remarked that containers are often unavailable for loading in Minnesota, limiting service availability. Sometimes it is more cost effective to truck goods to Chicago for loading into containers or rail cars. Although efforts to provide service in other parts of the state have not been successful, stakeholder conversations revealed a strong desire for intermodal service in Duluth and the western and southern parts of the state, and additional terminal capacity and services in the Twin Cities.

- Action. Conduct a feasibility study to determine the need for intermodal/transload facilities and identify potential locations; identify solutions to equipment shortages

18 - URBAN GOODS MOVEMENT PROGRAMS

The assessment of the condition and performance of the freight system noted that the top 10 highway bottlenecks in the state related to travel time and delay are in the Twin Cities. This urban area is the center of passenger activity and goods movement. Highway congestion is also experienced by truck drivers, often at a higher cost due to the need for just-in-time delivery of goods. Projects and programs in urban centers focused on mitigating congestion caused by rush hour traffic, incidents, work zones or other factors should be advanced where high volumes of freight and passenger traffic coexist. Many of these types of projects are already being implemented (e.g., MnPASS lanes, 511 traveler information and other ITS technologies). These projects should also consider the benefits they provide to the freight community. In addition, as noted earlier, planning for truck routes and accounting for trucks in Complete Streets planning should be undertaken in urban areas to benefit goods movement.

- Action. Continue advancing congestion management solutions in urban areas; consider impacts/benefits to freight in congestion management solutions and Complete Streets planning.

19 - TRUCK SIZE AND WEIGHT

The Commercial Vehicle Operations Section of MnDOT's OFCVO administers OSOW permits for trucks traveling on the trunk highway system in the state. In Minnesota, individual counties are responsible for permitting loads on their county road networks. Generally, loads that exceed a width of 8 feet 6 inches, a height of 13 feet 6 inches, a length of 75 feet zero inches, and a gross vehicle weight of 80,000 pounds require a permit. A common issue in Minnesota and most other states is that the number of enforcement staff at the state and local level trained in commercial vehicle operations is insufficient to reliably enforce the OSOW permitting program. Permitting requirements and nuances in the state regulations are complex and include a number of exceptions and provisions based on commodity types, truck configurations and travel plans. One resulting issue is that unpermitted and improperly permitted loads can cause significant amounts of damage to state and local roadways.

There is also a need to streamline truck size and weight restrictions and align them with adjacent states and provinces to make it easier for haulers to do business across state lines. During one-on-one meetings many freight business noted frustration with the discrepancies between size and weight restriction in Minnesota and neighboring states and territories. Minnesota's size and weight regulations are more restrictive than other states, particularly North Dakota and Canada. These disparities make for more challenging freight logistics for interstate travel.

- Action. Work with neighboring states to identify truck size and weight mismatches and develop a plan for harmonization; work with state and local enforcement departments to determine how OSOW movements can be better enforced

20 - MODAL OPTIONS/SYSTEM REDUNDANCY

Some corridors and locations on the multimodal freight network are stressed to or over capacity. Delays along one route or on one mode can spread to other networks and affect both passenger and freight travel. For example, in the recent past increased oil, gas and agriculture rail shipments along BNSF's corridor from North Dakota to Minneapolis negatively impacted the on-time performance of other freight and passenger rail movements.

In addition, infrastructure across all modes is aging, raising the likelihood that a critical link will fail. Temporary closures due to weather (especially high and low water on the inland waterway system) are also a concern. Redundancy, either via alternative routes or alternative modes, should be integrated into freight system planning to ensure the freight system has resiliency. Redundancy will also allow for the flow of goods to continue when a particular mode or route is unsuitable due to safety concerns or competing demands. Redundancy and choice are key to alleviating captive shipper concerns (which is an issue predominantly on the rail system).

- Action. Develop a freight system resiliency plan to identify potential freight system threats, locate key parallel multimodal routes, locate critical gaps in modal/system redundancy, and identify contingency alternatives to ensure freight disruptions are minimized

21 - EVALUATE AND RESTRUCTURE EXISTING FREIGHT FUNDING PROGRAMS

As noted in the 2016 Minnesota State Rail Plan, MnDOT's funding programs should be evaluated and restructured to more adequately address needs. For example, the MRSI program should be restructured to allow for larger projects, and the Rail/Highway Grade Crossing program should expand to consider strategies beyond active warning devices. The existing MRSI program should continue to be built upon, including raising the maximum loan amount beyond the current $200,000 ceiling.

- Action. Evaluate existing funding programs and structure; adjust programs, as needed, to better meet funding needs

ASSET MANAGEMENT

In many cases, the same infrastructure is used for both freight and passenger travel, creating potential synergies in asset management for both forms of transportation. Keeping individual assets viable and managing them for long-term system needs are important. However, there are key differences in terms of performance goals, time horizons and maintenance needs among corridors that are heavily used by freight in contrast to those that serve primarily passenger travel. Routes that serve heavy-haul equipment or see high levels of truck traffic are more vulnerable to pavement deterioration and may need higher levels of maintenance. One of the key applications of the Principal Freight Network is to support improved asset management. This includes identifying and prioritizing system needs on the highway system that are most important for freight.

Strategies

22 - FREIGHT DATA

Planning for the freight system can often be a challenge due to the private sector freight community that owns and operates a large portion of the freight system and maintains proprietary data. To do better planning and align resources to where they can provide the most benefit, improved freight data is required. Although the private sector has historically not shared data and is unlikely to do so in the future, there are steps that MnDOT can take to improve its own data collection efforts (e.g., regularly taking classification counts when traffic counts are required so that the state's repository of truck count information is gradually improved). MnDOT should also continually evaluate innovative data collection technologies and sources to determine cost effect approaches for future freight data collection. For example, the FHWA has recently provided the National Performance Management Research Data Set to state DOTs for understanding truck travel time and delay.

- Action. Expand data collection practices to include truck/classification counts; explore innovative sources for freight data

23 - FREIGHT SYSTEM PERFORMANCE MEASURES

Freight system performance measures and indicators were developed as part of this plan. In conjunction with designating Minnesota's Principal Freight Network, performance measures allow documentation of key attributes of the system and comparison across geography and time. Establishing a baseline and/or goal, tracking progress or managing performance and communicating results are all ways in which performance measures are a valuable part of the project development process. Freight system performance measures should be used to monitor and report system condition and identify investment needs for key transportation infrastructure that is owned and operated within the public and private sectors.

- Action. Regularly collect data and apply freight performance measures and indicators, in particular those that apply to the Principal Freight Network; include freight performance measures as part of annual performance measure reporting

24 - FREIGHT SYSTEM INVESTMENT PLAN

Minnesota has a 20-year investment plan for state highway system assets, called the Minnesota 20-year State Highway Investment Plan (MnSHIP). The most recent plan, which covers the years 2014-2033, supports the Minnesota GO vision and links to the policies and strategies laid out in the 2012 Statewide Multimodal Transportation Plan. MnSHIP guides future capital improvements on Minnesota's state highway system over the next 20 years; it does not guide investments on local or county roads.

While project investments have been identified in this plan, how these investments should be implemented and which should come first have not been identified. The passage of the FAST Act in 2015 requires that states include a prioritized freight investment plan as part of a compliant freight plan. Although detailed guidance from the U.S.

DOT is not yet available, a freight system investment plan in Minnesota could potentially be developed under a similar framework as the MnSHIP. In this case, the freight system investment plan would cover 20 years and be divided into three periods:

- Years 1-4, Freight Transportation Improvement Program: The FTIP identifies projects on the multimodal freight system that MnDOT and partners intend to carry out in the next four years. The investments on the highway side will be included in Minnesota's State Transportation Improvement Program, the four year program of funded projects.
- Years 5-10: A general plan of multimodal freight system improvements and identification of specific projects, though project timing and scope may change.
- Years 11-20: Specific projects are not identified, but broad investment priorities based on direction from the Minnesota Statewide Freight System Plan are identified and associated funding sources and allocations are determined.

The freight system investment plan will be fiscally-constrained as prescribed by the requirements of the FAST Act. Additional projects or aspects of the investment plan may be developed to align with the MnSHIP process or for needs such as to assess the amount of additional and freight-specific funding required to advance Minnesota's freight vision.

- Action. Develop a FAST Act compliant prioritized freight investment plan

25 - PRIORITIZE PRESERVATION OF THE PRINCIPAL FREIGHT NETWORK

The Principal Freight Network routes should be used as a prioritization tool when assessing system-wide needs in other highway/statewide investment plans, especially when considering other types of systems (i.e., super-load corridors, OSOW, etc.). For example, prioritizing bridge/pavement maintenance so that pavements are free of potholes and roadway and railway bridges are able to handle heavy loads.

- Action. Review priority criteria and develop strategies to prioritize maintenance on the Principal Freight Network

TRAVELER SAFETY AND SYSTEM SECURITY

Freight safety and security involves making travel safer for freight vehicles and also for the passenger vehicles that share the roadway, rail, air and waterway systems. This is the case in daily operations and during emergency situations. The "4Es" of safety in Minnesota – education, enforcement, engineering and emergency services – all have a place in the supporting strategies of this plan and align with the idea that the freight system should be resilient, reliable and have alternatives available for critical connections.

Strategies

26 - DESIGN FOR FREIGHT SAFETY

Interstate highways were designed and built to standards that safely accommodate travel by large trucks. State and local roadways in particular may present safety challenges to trucks due to narrower lanes, non-paved shoulders, or intersection design. Especially on the Principal Freight Network and routes heavily used by truck traffic, MnDOT should employ a strategy, where context appropriate, to design and build features that improve vehicle safety, such as rumble strips/stripes, center rumble strips, guardrails, wider shoulders, turn lanes, barrier wall/cable median barrier and other features.

- Action. Develop and implement design guidance to accommodate large trucks on state and local roadways

27 - TRUCK PARKING

Truck parking is an issue nationwide. Trucks need parking availability to comply with federal hours of service regulations and pull off the road to rest or avoid congestion. MnDOT recently conducted a study to demonstrate an automated truck stop management system that can determine the number of occupied parking spaces at MnDOT safety rest areas. The data from the project can be used by MnDOT and private site owners to determine if existing facilities are suitable for demand, and if needed, should be used to plan improvement or expansion projects.

- Action. Conduct comprehensive assessment of truck parking needs and plan for improvement and expansion of truck parking facilities, as warranted

28 - INCIDENT MANAGEMENT AND EMERGENCY RESPONSE PLANS

Emergency response and incident management plans are necessary to ensure the highest level of emergency response and incident management possible during catastrophic events. These plans can help address both day-to-day and long-term connectivity and operational challenges due to extreme weather, incidents or other catastrophic events. Planning should involve identifying the region's critical supply chains and bottlenecks so that actions are effective, such as proactive rerouting of hazardous materials.

- Action. Determine the appropriate scope of statewide and/or local emergency response plans needed; identify critical supply chains and bottlenecks and hazardous materials routes; develop emergency response plans in cooperation with partner agencies

29 - RAIL CROSSINGS

Rail-highway crossing safety is a concern due to a history of accidents with crossing vehicles, trucks, bicyclists and pedestrians. Significant improvement has been made with the safety of rail crossings in Minnesota, but many of the currently installed warning devices will need to be replaced by 2030. Some locations will need improvements beyond active warning devices.

- Action. Continue to assess grade crossing safety and identifying solutions including improving grade crossing protection, highway/rail grade separations, crossing closures and geometric improvements; seek alternative sources of funding to accelerate rail safety implementation

30 - RAIL SYSTEM VULNERABILITIES

Safety and security on the rail system is of paramount concern to Minnesota. A series of recent disasters involving unit trains of oil have occurred across North America. The Minnesota legislature passed laws to increase the safety of rail movements in the state and charged MnDOT with studying the risks of highway grade crossings that have significant crude-oil-by-rail activity and provided funding for improving rail grade crossings and hiring additional rail inspectors. This is a key step in a long-term strategy to develop and implement a comprehensive plan that addresses key safety vulnerabilities across Minnesota's rail network.

- Action. Develop a comprehensive plan that identifies and addresses vulnerabilities on Minnesota's rail network

5.0 ACTIONS AND NEXT STEPS

This chapter outlines the actions and next steps for Minnesota's public and private sector freight stakeholders—the cornerstone of which is the Minnesota Freight Action Agenda. This plan made recommendations based on the analysis conducted and findings presented in this document. These recommendations require much work to be done in the coming years. This plan was not developed as a resource constrained plan, and it will be up to MnDOT and its partners to determine what, of all the necessary actions identified, can be realistically accomplished in the coming years.

Minnesota's Freight Action Agenda

The Freight Action Agenda outlines next steps for MnDOT and the state's public and private sector freight partners, all of whom had a role in developing this plan. From the beginning, the public-private Plan Advisory Committee that guided its development made it clear that the objective was a realistic action plan.

The Freight Action Agenda delivers a set of actions needed to advance freight performance in Minnesota. Each action item listed identifies the lead agency/organization responsible and the timing of each action. It is a guide for implementation that will be regularly updated, and it serves as a tool for monitoring progress and fostering continued collaboration. Table 5.1 describes Minnesota's Freight Action Agenda, including the following components:

- ID. Thirty strategies were identified and are represented with an ID number.
- Strategy Name. Short name of strategy.
- Description. Short description of strategy.
- Action. A variety of actions have been aligned to each strategy. These are described in more detail in Chapter 4 and identified in the table, as follows:
    - (P) Partnerships/outreach. Indicates that partnerships will be required outside of MnDOT to accomplish action.
    - (S) Study required/planning related. Indicates that a follow-up study or further planning-related activities will be required.
    - (D) Design. Indicates that action requires design modification of adjustment of design standards.
    - (O) Operations. Indicates that action relates to operational modifications.
    - (F) Funding. Indicates that action relates to funding whether review, allocation or advocacy for funding by MnDOT.
- Lead Agency. Entity to take the lead in actions identified.
- Partners. Partners with varying levels of involvement in the action.
- Timeframe. Generally the actions should be initiated (not necessarily completed) within the following timeframes:
    - Short-Term. 2016-2017 (0-2 years)

- Mid-Term. 2018-2020 (3-5 years)

The Role of the Minnesota Freight Advisory Committee

Partnerships were key to developing this plan, and they will also be key to implementing and maintaining it. This plan and the Freight Action Agenda are not intended to be static documents, but rather modified as stakeholder needs change. As such, continuous outreach and communication with public and private sector freight stakeholders will be critical to plan implementation.

Leading the charge will be the MFAC, the nation's first state DOT Freight Advisory Committee. MFAC was created in 1998 to provide a forum for the exchange of ideas and addressing of issues between MnDOT and the private sector to develop and promote a safe, reliable, and efficient freight transportation system. MFAC, repurposed in the course of this plan's development, will:

Monitor and report on the implementation of the Statewide Freight System Plan and its Freight Action Agenda, including the development of recommendations for any revisions and updates to the Plan.

As the plan or the Freight Action Agenda are updated (e.g., adjustments to the implementation timeframe), the MFAC will work with MnDOT to ensure that the documents are revisited and modifications are made on a regular and timely basis. Several other recommendations of the MFAC Ad Hoc Working Group are also key to implementation of this plan. These recommendations include:

- Create an annual report for the MnDOT Commissioner that includes a "State of Freight," an overview of trends and important issues, and reports on the activities of the MFAC from the past year
- Review significant MnDOT initiatives and activities and provide freight impact and benefits comments
- Direct the preparation and distribution of white papers on freight transportation issues important to Minnesota's economy
- Advocate for needs of freight transportation to the public, elected officials, and other public agencies and organizations
- Suggest research initiatives and tools supporting the economic vitality of the state

With MFAC's oversight, this plan positions the state to better integrate freight within MnDOT and prepares the agency and its public and private sector freight partners for the future, including opportunities to plan better and capture freight project funding collaboratively.

Table 5.1 Minnesota Freight Action Agenda

ID	FREIGHT PLAN OBJECTIVE	STRATEGY	DESCRIPTION	ACTION(S)	LEAD	PARTNER	TIMEFRAME
1	Accountability, Transparency and Communication	Education	Educate the public on the critical role freight plays in the economy and every-day-life of Minnesotans	P	MnDOT	Public and private sector freight stakeholders	Short-term
2	Accountability, Transparency and Communication	Partnerships	Engage and partner with Minnesota's public agencies and with producers, shippers/receivers, carriers and other private sector freight stakeholders to address Minnesota's freight issues together. Engage and partner with neighboring states to address regional freight issues together.	P	MnDOT		Short-term
3	Accountability, Transparency and Communication	Ongoing Freight Forum	Convene an ongoing dialogue between public and private sector freight stakeholders to keep freight topics front and center	P, S	MnDOT	CTS and members of the MFAC	Short-term
4	Accountability, Transparency and Communication	Advocacy	Public and private freight stakeholders advocate together for advancing critical freight partnerships, strategies, investments and continued funding for freight investments. The FAST Act established the first dedicated source of funding for freight infrastructure at the national level.	P, S, F	MnDOT	Public and private sector freight stakeholders	Short-term

ID	FREIGHT PLAN OBJECTIVE	STRATEGY	DESCRIPTION	ACTION(S)	LEAD	PARTNER	TIMEFRAME
5	Accountability, Transparency and Communication	Traveler Information	Provide freight-specific traveler information, such as truck parking availability, expected travel time and roadway conditions	P, S, O	MnDOT	Public and private sector freight stakeholders	Short-term
6	Accountability, Transparency and Communication	Workforce Development	Programs in cooperation with community colleges and private sector to ensure workforce is available for industry needs (e.g., truck drivers)	P	DEED, Minnesota Trucking Association	Public and private sector freight stakeholders, community colleges and other educational institutions	Short-term
7	Transportation in Context	Corridor Preservation	Actively manage preserved rail corridors held in the State Rail Bank and evaluate for possible future transportation uses	P, S	MnDOT	State, regional and local planning agencies	Short-term
8	Transportation in Context	Truck Routes	Coordination of truck routes/planning in industrial and urban areas with restrictions and enforcement in adjacent residential areas	P, S, D, O	Various state, regional and local planning agencies	MnDOT	Mid-term
9	Transportation in Context	Complete Streets	Treatments that consider truck movements as part of total vehicle traffic, which can include time-of-day delivery windows to reduce conflicts with other street users, design guidelines for curb pullouts that can be used at different times for bus pullouts, truck parking, and others	P, S, D, O	Various state, regional, and local planning agencies	MnDOT	Mid-term

ID	FREIGHT PLAN OBJECTIVE	STRATEGY	DESCRIPTION	ACTION(S)	LEAD	PARTNER	TIMEFRAME
10	Transportation in Context	Land Use Planning and Policies	Land use planning and policies to ensure freight development areas are designated and preserved and that development occurs adjacent to existing infrastructure	P, S	Various state, regional and local planning agencies	MnDOT, DEED	Mid-term
11	Transportation in Context	Freight As A Good Neighbor	Programs and projects that preserve Minnesota's high quality of life by balancing the local negative impacts of freight transportation with the national benefits provided	P, S, D, O	MnDOT	Various state, regional, and local planning agencies, freight shippers and carriers	Mid-term
12	Transportation in Context	Advanced Technology	Monitor development of advanced technologies and their applications for freight. Apply and fund as appropriate.	P, S, O	MnDOT	FHWA	Mid-term
13	Critical Connections	Integrate Freight into all Planning Projects	Consider freight in overall project planning across modes (highway, rail, water, and air). Regularly engage the private sector and consider their perspectives during freight system planning.	P, S	MnDOT	State, regional and local planning agencies	Short-term
14	Critical Connections	Investments on the Principal Freight Network	Apply multimodal solutions that ensure a high return on investment, given constrained resources, and that complement the unique social, natural, and economic features of Minnesota	P, S, D, O	MnDOT	Public and private sector freight stakeholders	Short-term

ID	FREIGHT PLAN OBJECTIVE	STRATEGY	DESCRIPTION	ACTION(S)	LEAD	PARTNER	TIMEFRAME
15	Critical Connections	First-/Last-mile Connections	Freight connections like highway access and rail spurs to local businesses	P, S	MnDOT	Various state, regional and local planning and economic development agencies	Short-term
16	Critical Connections	Targeted Freight System Investments	Make targeted infrastructure investments (corridor and spot improvements) to support and enhance the multimodal freight system	P, F	MnDOT, public and private sector freight system owners and operators		Short-term
17	Critical Connections	Intermodal and Multimodal Facilities	Intermodal and multimodal facility development to allow goods to shift between modes such as truck, rail and water. Includes making equipment available.	P, S	MnDOT	DEED, railroads in Minnesota, regional and local planning and economic development agencies where a new facility may be cited	Mid-term
18	Critical Connections	Urban Goods Movement Programs	Projects and programs in urban centers focused on mitigating congestion caused by rush hour traffic, incidents, work zones or other factors where high volumes of freight and passenger traffic must coexist	P, S, D, O	MnDOT, various state, regional and local planning agencies		Mid-term

ID	FREIGHT PLAN OBJECTIVE	STRATEGY	DESCRIPTION	ACTION(S)	LEAD	PARTNER	TIMEFRAME
19	Critical Connections	Truck Size and Weight	Improved routing for overdimensional and overweight vehicles. Consistency of regulations between Minnesota and neighboring states.	P, S, O	MnDOT, state and local departments of public safety and enforcement	Local permitting agencies	Mid-term
20	Critical Connections	Modal Options/ System Redundancy	Modal alternatives (e.g., truck, rail and water) in spot locations and modal redundancy within key corridors so companies have access to a variety of cost effective and competitive freight modes to ship their goods. Address captive shipper issue.	P, S	MnDOT	Public and private freight system stakeholders	Mid-term
21	Critical Connections	Evaluate and Restructure Existing Freight Funding Programs	MnDOT's programs should be restructured to more adequately address freight needs	P, S, F	MnDOT	Public and private freight stakeholders that receive funds from MnDOT administered funding programs	Mid-term
22	Asset Management	Freight Data	Improved data collection (e.g., truck counts) and use of innovative sources to help the public sector do better freight planning	P, S	MnDOT		Short-term

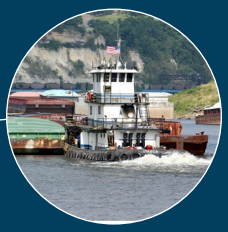
ID	FREIGHT PLAN OBJECTIVE	STRATEGY	DESCRIPTION	ACTION(S)	LEAD	PARTNER	TIMEFRAME
23	Asset Management	Freight System Performance Measures	Utilize freight system performance measures to monitor and report system condition and identify investment needs for key transportation infrastructure	S, O	MnDOT		Short-term
24	Asset Management	Freight System Investment Plan	Develop a detailed FAST Act compliant prioritized investment plan that aligns multimodal freight system projects and available sources of funding so they can be implemented	P, S, F	MnDOT	Public and private freight system stakeholders, system owners and operators	Short-term
25	Asset Management	Prioritize Maintenance on the Principal Freight Network	Prioritize bridge/pavement maintenance on these shared routes to ensure ability to handle freight rail, truck and passenger traffic	O	MnDOT		Short-term
26	Traveler Safety and System Security	Design for Freight Safety	Design and implement geometric features that improve vehicle safety, such as the use of rumble strips/stripes, wider shoulders and other features, where appropriate	D	MnDOT		Short-term
27	Traveler Safety and System Security	Truck Parking	Conduct assessment of truck parking and plan for expansion, as warranted	P, S, O	MnDOT	Public and private sector freight stakeholders, neighboring states	Short-term
28	Traveler Safety and System Security	Incident Management and Emergency Response Plans	Develop emergency plans to ensure critical supply chain connectivity and proactively route hazardous materials	P, S	Minnesota Office of Public Safety	MnDOT, public and private sector freight stakeholders	Short-term

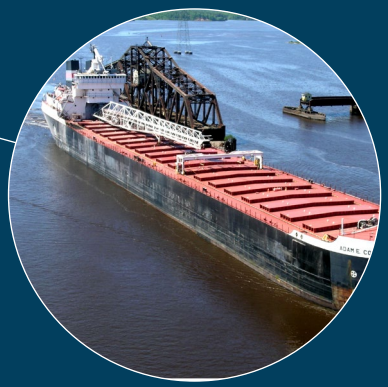
ID	FREIGHT PLAN OBJECTIVE	STRATEGY	DESCRIPTION	ACTION(S)	LEAD	PARTNER	TIMEFRAME
29	Traveler Safety and System Security	Rail Crossings	Assess grade crossing safety and implement policies, programs, and investments related to safety of at-grade crossings and seek funding for implementation	P, S, F	MnDOT	Public and private sector rail stakeholders	Short-term
30	Traveler Safety and System Security	Rail System Vulnerabilities	Develop and implement a comprehensive plan that addresses key safety vulnerabilities across Minnesota's rail network	P, S, O	MnDOT	Public and private sector freight stakeholders, Minnesota Department of Public Safety	Short-term

MinnesotaGO

A Collaborative Vision for Transportation

Statewide Freight System Plan





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MINNESOTA DEPARTMENT OF TRANSPORTATION

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A. APPENDIX A: ADDITIONAL RESOURCES

Supporting Documents

A number of additional resources were developed as part of this plan. Most of these resources are available in the form of technical memos that are available for download on the Minnesota 2016 Freight Plan website.[1] These resources are as follows:

- Economic Context Technical Memo
- Freight System Assets and Use Technical Memo
- Institutional Structure Technical Memo
- Plan Synthesis Technical Memo
- Principal Freight Network Technical Memo
- Freight System Needs, Issues and Opportunities Technical Memo
- Freight Performance Measures Technical Memo
- Strategies and Implementation Plan Technical Memo

This plan was developed under the provisions of the Moving Ahead for Progress in the 21st Century Act (MAP-21). Table A.1 highlights the MAP-21 required and U.S. Department of Transportation recommended content and where it can be found in this plan or the supporting documents described above.

Table A.1 How MAP-21 National Freight Plan Requirements and U.S. DOT Recommendations are Addressed in this Freight Plan

PLAN ELEMENT	MAP-21 REQ.	U.S. DOT REC.	FREIGHT PLAN CONTENT
Describe economic context (industries, supply chains)	-	✓	• Economic Context Technical Memo
Describe freight trends, needs, issues	✓	✓	• Freight System Needs, Issues and Opportunities Technical Memo
Develop freight forecast	-	✓	• Freight System Assets and Use Technical Memo
Identify freight transportation assets	-	✓	• Freight System Assets and Use Technical Memo
Report on conditions and performance	-	✓	• Freight System Performance Measure Technical Memo • Freight System Needs, Issues and Opportunities Technical Memo

[1] http://www.dot.state.mn.us/planning/freightplan/index.html

PLAN ELEMENT	MAP-21 REQ.	U.S. DOT REC.	FREIGHT PLAN CONTENT
Identify strengths and weaknesses	-	✓	• Freight System Needs, Issues and Opportunities Technical Memo
Inventory bottlenecks and develop freight improvement strategies. These strategies will: • Consider innovative technologies and operational strategies, including ITS • Describe improvements that reduce or impede the deterioration of roads due to heavy vehicles	✓	✓	• Freight System Needs, Issues and Opportunities Technical Memo • Implementation Plan Technical Memo
Describe freight policies, strategies, performance measures	✓	✓	• Freight System Performance Measure Technical Memo • Implementation Plan Technical Memo
Develop freight investment decision-making process	-	✓	• Implementation Plan Technical Memo
Develop implementation plan, including funding and revenue sources	-	✓	• Implementation Plan Technical Memo
Describe how Minnesota supports national freight goals	✓	✓	• The 2016 Minnesota Statewide Freight System Plan has developed goals similar to the national freight goals in order to show support

Freight Project Lists

Freight-related highway and rail projects were identified as part of this plan. The lists of identified projects are provided below. Highway projects were sourced from the 2014 Minnesota Statewide Transportation Improvement Program. Rail projects were sourced from the 2016 State Rail Plan. For more details about freight projects, refer to the Strategies and Implementation Technical Memo.

HIGHWAY PROJECTS

Table A.2 Highway System Investment Project List

Project Number	Description	District	Project Category	Year	STIP Total
0980-143	I 35, IN CLOQUET FROM 0.449 MI NORTH OF TH 33 TO 1.25 MI SOUTH OF BOUNDARY AVE IN PROCTOR, CABLE MEDIAN BARRIER INSTALLATION	1	Safety	2015	$1,246,622
0980-148AC	**AC** I 35, 1 MI N JCT TH 27 TO ST LOUIS RIVER, SCANLON, PAINT BR #S 09807, 09808, 09837, 09838, DECK OVERLAY BR #S 09819, 09832 (AC PAYBACK 1 OF 1)	1	Bridge	2015	$1,500,000
6982-290AC4	**AC**I 35, BOUNDARY AVE TO 26TH AVE E, PAVEMENT REPL & REPAIRS, BR REPL BR #S 69831, 69832, 69880 & REPAIRS BR #S 69851, 69852, 69879 + SPOT REPAIRS AT 21ST AVE W INTERCHANGE, REMOVE BR #S 69835 & 69828 NEAR 27TH AVE W, SAFETY IMPROVEMENTS (AC PAYBACK 4 of 4)	1	Bridge	2015	$2,454,611
6982-313	I 35, IN DULUTH, DRAINAGE IMPROVEMENTS/REPAIRS, BRIDGE COLUMN REPAIR & BRIDGE PAINTING	1	Bridge	2015	$680,000
6982-314	I-35, IN DULUTH, URGENT BOX CULVERT REPAIR AT KINGSBURY CREEK BR# 3633	1	Bridge	2015	$500,000
6982-315	I-35, IN DULUTH, URGENT BOX CULVERT REPAIR AT CHESTER CREEK BR#96911	1	Bridge	2015	$150,000
6982-69887F	I-35, IN DULUTH, 0.3MI N. OF GARFIELD AVE & AT JCT 1-535 & I-35, EMERGENCY WORK ON BRIDGE/REPAIR PILE FOR BR. # 69887 & 69881	1	Bridge	2015	$320,000
1602-48	**FMP** MN 61, 5.9 MI SO. GUNFLINT TR CSAH-12 AT CUT FACE CREEK, REPLACE CULVERT WITH SINGLE SPAN BRIDGE# 16005 ($2.0M CHAP 152)	1	Bridge	2015	$2,500,000
6925-135	**PV40M** MN 61, IN DULUTH, FROM 0.04 MILE N OF THE E END BR# 5772 (LESTER RIVER) TO 0.22 MILES N OF SUPERIOR S, MILL AND OVERLAY	1	Pavement	2015	$680,000
3608-48	**PV40M**ADA5M** ADA**US 53, IN I-FALLS , FROM JCT CRESCENT DR TO JCT 4TH ST & MN 11 FR. 3RD AVE W.TO E. SHORE DOVE ISLAND ,MILL & INLAY, ADA, SIGNAL	1	Pavement	2015	$6,720,000
3608-49	**MN239**PV40M** TH 53 FR. 0.40 MI. SO KINMOUNT CREEK TO JCT CRESCENT DR. IN INTERNATIONAL FALLS. MILL & OVERLAY, TURN LANE CONSTRUCTION, REPLACE BOX CULVERT # 8207 WITH BR # 69X16, BRIDGE DECK OVERLAY #36003, SLOPE REPAIR	1	RCIP	2015	$13,400,000
6918-83	**Chap152**US 53, UNITED TACONITE OPERATIONS RELOCATION, DRILLED TEST SHAFTS	1	Pavement	2015	$4,500,000

Project Number	Description	District	Project Category	Year	STIP Total
6922-55	**RI20M** US 53, AT THE ORR WAYSIDE REST, HISTORIC WALL REPAIRS	1	Roadside Infrastructure	2015	$33,555
3115-71	**PV40M** US 16, 9 IN GRAND RAPIDS FROM WOODLAND PARK RD TO 13TH ST. & IN COLERIANE FROM, JCT CURLEY AVE TO ELIZABETH AVE MILL & OVERLAY & REPAIR BR #31003	1	Pavement	2015	$2,800,000
5880-186	I 35, OVER THE BNSF RR, 2 MI SO JCT TH 48, NB REPLACE BR # 9784, SB REPLACE BR #9783	1	Bridge	2016	$6,400,000
6980-59	**PV40M** I 535, IN DULUTH, FROM JCT BLATNIK BRIDGE TO JCT I 35, CPR WORK (TIED TO 6933-92, 6926-52)	1	Pavement	2016	$400,000
1603-48	MN 61, OVER DEVIL TRACK RIVER, 4.0 MI NE OF GUNFLINT TRAIL, REPLACE BR# 8910	1	Bridge	2016	$1,304,000
6926-52	MN 61, NB FROM HOMESTEAD RD TO SOUTH END BR# 9341 AT KNIFE RIVER, CPR WORK . (TIED TO 6933-92 & 6980-59)	1	Pavement	2016	$200,000
3116-142	**COC**AB**MN169, FROM 0.66 MI. SW OF CSAH 15 TO 0.30 MI. EAST OF SCENIC 7, RECONSTRUCTION FROM 2 LANES TO 4 LANES (CHAP 117)	1	IRC	2016	$8,300,000
6933-92	MN 194, IN DULUTH, FROM MESABA AVE CROSSING TO JCT I-35, CPR AND REPAIR BR # 69839 AND BR #69840 (TIED 6980-59, 6926-52)	1	Bridge	2016	$3,000,000
6915-133	**ADA** US 53, IN DULUTH, FROM 0.422 MI N JCT ANDERSON RD TO E JCT TH 194 EB, MILL AND OVERLAY	1	Pavement	2016	$1,260,000
6918-80	**AB**Chap 152**AC** US 53 BETWEEN EVELETH AND VIRGINIA, RELOCATE US 53 AWAY FROM UNITED TACONITE OPERATIONS (AC PROJECT, PAYBACK 2017)	1	Pavement	2016	$28,000,000
6918-81	US 53, IN EVELETH AND VIRGINIA, FROM N JCT TH 37 TO 0.04 MI N JCT VERMILLION DR, PAVEMENT RESURFACING	1	Roadside Infrastructure	2016	$1,600,000
6918-84	**CGMC**Chap 152** US 53 BETWEEN EVELETH AND VIRGINIA, CMGC FOR RELOCATING US 53 AWAY FROM UNITED TACONITE OPERATIONS	1	Bridge	2016	$1,000,000
6922-54	**ELLA**MN239** TH 53 IMPROVEMENTS VARIOUS LOCATIONS. FR. 0.27 MI. S. JCT CR 540 TO JCT CR 517. TURN LANE & BYPASS CONSTRUCTION, CULVERT REPAIR	1	RCIP	2016	$2,000,000
0980-150	I-35, OVER CSAH 61, 3.5 MI S OF JCT TH 210, REPAIR AND RE-DECK BRIDGE # 09824	1	Bridge	2017	$2,000,000
5880-180	**AC** I 35, FROM 0.9 MILES NORTH OF PINE CO CSAH 33 TO 1.8 MILES SOUTH OF CARLTON CO LINE, WHITE TOPPING (AC PROJECT, PAYBACK IN 2018)	1	Roadside Infrastructure	2017	$5,000,000
3806-70	**ELLA** **HB** MN 61, OVER THE BEAVER RIVER, REHABILITATE BR#9395	1	Bridge	2017	$3,000,000

Project Number	Description	District	Project Category	Year	STIP Total
0119-26M	MN 210, OVER SISSABAGAMAH RIVER, REPLACE BR# 6296 (DESIGNED BY DISTRICT 3 SP 0109-26 AND FUNDED BY ATP 1 UNDER 0119-26M)	2	Bridge	2017	$1,000,000
6916-104	US 53, IN DULUTH, S OF HAINES RD TO S OF MIDWAY RD, MILL & OVERLAY	1	Pavement	2017	$3,800,000
6917-141	US 53, SB ONLY, 0.1 MI. S. OF WHITEFACE RIVER TO AUGUSTA LAKE RD (UT RD. 3231) MILL & OVERLAY	1	Pavement	2017	$4,100,000
6917-142	US 53, NB, SOUTH OF JCT TH 37, LYON SPRING AREA, PAVEMENT RESURFACING	1	Pavement	2017	$6,500,000
6918-80AC1	**AB**Chap 152**AC** US 53 BETWEEN EVELETH AND VIRGINIA, RELOCATE US 53 AWAY FROM UNITED TACONITE OPERATIONS (AC PAYBACK 1 OF 1)	1	Pavement	2017	$20,000,000
6934-117L	US 169, IN HIBBING AT TH 37, ROUNDABOUT (TIED TO 6934-116, 6947-50)	1	Safety	2017	$333,333
6934-116	US 169, IN HIBBING, FROM S JCT TH 73 TO N JCT TH 73 AND FROM N JCT 73 TO 0.26 MI E CSAH 5 (TIED TO SP 6934-117, 6947-50)	1	Pavement	2017	$5,000,000
6934-117	US 169, IN HIBBING AT TH 37, ROUNDABOUT (TIED TO 6934-116, 6947-50)	1	Safety	2017	$1,000,000
6935-89	US 169, IN VIRGINIA, FROM .07 MI W CR-109 TO JCT 53 (HOOVER RD), OVERLAY, REPAIR BRIDGE #69034 & #69035	1	Bridge	2017	$3,600,000
5880-180AC1	**AC** I 35, FROM 0.9 MILES NORTH OF PINE CO CSAH 33 TO 1.8 MILES SOUTH OF CARLTON CO LINE. WHITE TOPPING (AC PAYBACK 1 OF 1)	1	Roadside Infrastructure	2018	$8,000,000
3605-41	MN 11, FROM W. JCT TH 71 TO 0.3 MI W. JCT CSAH 332, MILL& OVERLAY	1	Pavement	2018	$2,100,000
3805-79L	MN 61, FROM 5TH ST IN TWO HARBORS TO .7MI N SILVER CRK TUNNEL, MILL & OVERLAY, REBUILD SIGNAL SYSTEMS (ASSOC. 3805-79)	1	Safety	2018	$400,000
3805-79	MN 61, FROM 5TH ST IN TWO HARBORS TO .7MI N SILVER CRK TUNNEL, MILL & OVERLAY, REBUILD SIGNAL SYSTEMS	1	Pavement	2018	$3,000,000
3808-36	MN 61, FROM 0.15 MI S LAFAYETTE BLUFF TUNNEL TO 3.2 MI N TH 1, (VARIOUS LOCATIONS) MILL AND OVERLAY	1	Pavement	2018	$3,300,000
6928-28	MN 73, VARIOUS LOCATION, MILL & OVERLAY	1	Pavement	2018	$8,470,000
6937-(69101A)	US 2, WB OFF RAMP OVER I-35 RAMP AT JCT OF US 2 & I-35 & EB RAMP OVER I-35, AT EAST JCT I-35 & US 2, SUPER STRUCTURE/BEAMS & PIER CAP WORK ON BRIDGE 69101 & 69102	1	Bridge	2018	$479,650
6917-144	US 53, AT TH 37, REPLACE BRIDGE #9530	1	Bridge	2018	$3,000,000

Project Number	Description	District	Project Category	Year	STIP Total
6917-145	US 53, AT THE CN RR BRIDGE, CLEARANCE FOR BR# 9481 & AT TRAIL, CLEARANCE FOR BR# 9482	1	Bridge	2018	$959,299
6803-40	MN 11 AND LAKE ST INTERSECTION AREA IN WARROAD, SIGNAL REPLACEMENT	2	Safety	2015	$270,000
4503-14	**RI20M**AB** MN 32, FROM N LIMITS OF THIEF RIVER FALLS TO MIDDLE RIVER, BITUMINOUS RECLAIM & OVERLAY AND REPLACE 4 BRIDGES & APPROACHES	2	Pavement	2015	$10,400,000
2902-42	**COC** MN 34, FROM DETROIT LAKES TO NEVIS, CONSTRUCT PASSING LANES (CHAP 117) (DESIGNED BY DIST 4, FUNDED BY DIST 2 & DIST 4, DIST 4 $7,662,600 UNDER SP 0303-64, DIST 2 $1,247,400, ASSOCIATED WITH 0303-64)	2	IRC	2015	$1,247,400
1120-55	MN 371, FROM WALKER TO JUST SOUTH OF RAILROAD CROSSING S OF CASS LAKE, MILL & OVERLAY, (DESIGNED BY DIST 2, FUNDED BY ATP 3 UNDER SP 1120-55M, $5,300,000) (TIED TO 1120-55M)	2	Pavement	2015	$0
1102-62	**COC** US 2, BETWEEN CASS LAKE AND DEER RIVER, (FROM PIKE BAY LOOP TO E CASS CO LINE), CONSTRUCT PASSING LANES AND TURN LANES (CHAP 117)	2	IRC	2015	$10,500,000
6004-23	**ELLA** WB LANES – FROM 0.5MI W OF THE WEST ERSKINE CITY LIMITS TO 0.1 MI W OF JCT MN 32, CONCRETE PAVEMENT REHAB, TURN LANES, & REPLACE CULVERTS	2	Pavement	2015	$7,644,216
6005-61	**PV40M** US 2, EBL - FROM 0.4 MI E OF FOSSTON TO 3.4 MI E OF FOSSTON, BITUMINOUS RECLAIM AND OVERLAY	2	Pavement	2015	$2,300,000
6018-02PE	US 2, IN EAST GRAND FORKS, REDECK BR 9090, KENNEDY BR, OVER THE RED RIVER OF THE NORTH, PRE-LETTING CONSULTANT ENGINEERING, (MN LEAD) (CHAP 152)	2	Bridge	2015	$1,980,000
8822-164	US 2, FROM CASS LAKE TO DEER RIVER & ON MN 34 FROM AKELEY TO WALKER, AND FROM PARK RAPIDS TO OSAGE, INSTALL CENTERLINE RUMBLE STRIPS & WET REFLECTIVE STRIPING (FY 2015 HSIP)	2	Safety	2015	$375,000
6303-38	US 59, 5.0 MI S OF PLUMMER, REPLACE OLD BR 5819 WITH BOX CULVERT 63X01 OVER LOST RIVER & APPROACHES	2	Bridge	2015	$1,100,000
3901-41	MN 11, FROM 7.6 MI W OF MN 172, (W OF BAUDETTE), TO E MN 72 IN BAUDETTE, BITUMINOUS MILL AND OVERLAY	2	Pavement	2016	$5,800,000
6802-27	**ELLA** MN 11, FROM ROSEAU CSAH 15 TO E MN 89 IN ROSEAU, BITUMINOUS RECLAIM AND OVERLAY & EXTEND ONE END OF BR 68X06	2	Pavement	2016	$2,600,000
3905-09PE	MN 72, MN/CANADA BORDER IN BAUDETTE, REPLACE OLD BR 9412, BAUDETTE BR, OVER THE RAINY RIVER, PRE-LETTING CONSULTANT ENGINEERING (CHAP 152)	2	Bridge	2016	$3,000,000

Project Number	Description	District	Project Category	Year	STIP Total
0406-59	**ELLA** US 2 & MN 89, W OF BEMIDJI, RECONSRUCT INTERSECTION AND ADD NEW BR 04030	2	Pavement	2016	$5,000,000
6018-02	**AC** US 2, IN EAST GRAND FORKS, REDECK BR 9090, KENNEDY BR, OVER THE RED RIVER OF THE NORTH, (MN LEAD) (CHAP 152) (TOTAL $18.0M, MN SHARE $9.0M, ND SHARE $9.0M) (AC PROJECT, PAYBACK IN FY 2018)	2	Bridge	2016	$10,800,000
6018-02CE	US 2, IN EAST GRAND FORKS, REDECK BR 9090, KENNEDY BR, OVER THE RED RIVER OF THE NORTH, CONSTRUCTION CONSULTANT ENGINEERING, (MN LEAD) (CHAP 152)	2	Bridge	2016	$1,800,000
6015-07PE	US 2B, IN EAST GRAND FORKS, REHAB/REPL BR #4700, SORLIE BR, OVER THE RED RIVER OF THE NORTH, PRE-LETTING CONSULTANT ENGINEERING, (ND LEAD) (CHAP 152)	2	Bridge	2016	$3,125,000
5705-59	US 59, IN THIEF RIVER FALLS, REALIGN GREENWOOD ST FROM HANSON DR TO US 59 & BITUMINOUS MILL & OVERLAYS ON ATLANTIC AVE, DAVIS AVE, & OAKLAND PARK RD (TIED WITH 170-115-017)	2	Pavement	2016	$125,000
5702-44	MN 1, FROM N JCT MN 32 TO CSAH 18/150 AVE NE & ON US 59, FROM 1ST ST TO ATLANTIC AVE IN THIEF RIVER FALLS, RECONSTRUCT URBAN STREET	2	Pavement	2017	$3,600,000
0416-51	MN 197, IN BEMIDJI, NB & SB FROM 7TH ST SW TO 3RD ST NW, MILL AND OVERLAY & PED RAMPS	2	Pavement	2017	$1,800,000
0406-60	US 2, BEMIDJI BYPASS, EB & WB LANES, LOW SLUMP OVERLAYS TO BRIDGES 04005, 04006, 04007, 04008, 04009, 04010 AND LOWER GRADE UNDER BR 04019	2	Bridge	2017	$3,300,000
3102-46	**COCII** US 2, IN DEER RIVER, FROM 2ND ST NW TO E LIMITS OF DEER RIVER, URBAN RECONDITIONING	2	IRC	2017	$1,210,000
3502-19	IN KARLSTAD, MN 11, FROM W LIMITS OF KARLSTAD TO RAILROAD CROSSING & ON US 59, FROM KITTSON CSAH 9 TO HARRISON AVE, MILL & OVERLAY & PED RAMPS	2	Pavement	2018	$1,066,000
3905-09	**AC** MN 72, IN BAUDETTE, REPLACE OLD BR 9412 OVER THE RAINY RIVER AND APPROACHES (CHAP 152) (AC PROJECT, PAYBACK IN FY 2019)	2	Bridge	2018	$6,100,000
3905-09CE	MN 72, IN BAUDETTE, REPLACE OLD BR 9412, OVER THE RAINY RIVER, CONSTRUCTION CONSULTANT ENGINEERING (CHAP 152)	2	Bridge	2018	$1,500,000
6018-02AC	**AC** US 2, IN EAST GRAND FORKS, REDECK BR 9090, KENNEDY BR, OVER THE RED RIVER OF THE NORTH, (MN LEAD) (CHAP 152) AC PAYBACK 1 OF 1	2	Bridge	2018	$7,200,000

Project Number	Description	District	Project Category	Year	STIP Total
6015-07	**AC** US 2B, MN/ND BORDER IN EAST GRAND FORKS, REHAB/REPL BR 4700, SORLIE BR, (CHAP 152) (ND LEAD) (AC PROJECT, PAYBACK IN FY 2019)	2	Bridge	2018	$11,675,000
6008-15M	US 59, THE JCT MN 200 TO 0.7 MI S OF WINGER, MILL & OVERLAY, (DESIGNED BY DIST 4, FUNDED BY ATP 2 & APT 4, ATP 2 $560,000, ATP 4 SP 4404-13, $4,142,547)	2	Pavement	2018	$560,000
2904-15	US 71, FROM S OF HUBBARD CSAH 15 TO 8TH ST IN PARK RAPIDS & ON HUBBARD CSAH 15 FROM 500' W TO 500' E OF US 71, S OF PARK RAPIDS, INTERSECTION RECONSTRUCTION	2	Pavement	2018	$1,600,000
7380-247	SE END OF BRIDGE# 73865 (WB) AND BRIDGE# 73866 (EB) OVER SAUK RIVER TO NW END OF BRIDGE #73853 (WB) AND BRIDGE# 73854 (EB) OVER STEARNS CO CSAH 75, MILL AND OVERLAY	3	Pavement	2015	$2,999,470
8680-160	I 94, REPAIR RAILING, APPROACH PANEL, MILL AND OVERLAY, BRIDGE #86810 UNDER WRIGHT CO CR 111, 7 MI W OF JCT MN 25	3	Bridge	2015	$409,500
8680-167	I 94, FROM WRIGHT COUNTY CSAH 75 AT MONTICELLO TO MN 241, MILL AND OVERLAY EB ONLY, AND US 10, FROM 1.2 MI E OF MN 23 IN ST CLOUD TO 0.2 MI W OF MN 24, MILL AND OVERLAY EB ONLY	3	Pavement	2015	$6,000,000
7302-22	**PV40M** MN 15, FROM KINGSTON RD AT MEEKER/STEARNS CO LINE TO LINDEN AVE E IN KIMBALL, MILL AND OVERLAY	3	Pavement	2015	$838,041
7305-117	RURAL INTERSECTION WARNING SYSTEM AT STEARNS CR 158 COLD SPRING GRANITE	3	RCIP	2015	$145,000
8605-50	**PV40M** MN 25, .5 MI S OF WRIGHT CO CR 106 TO .4 MI S OF SCHOOL BLVD IN MONTICELLO, RECONSTRUCTION, INSTALL TRAFFIC SIGNAL AT WRIGHT CO CR 106 AND FROM .4 MI S OF SCHOOL BLVD TO JCT I 94, MILL AND OVERLAY	3	Pavement	2015	$6,625,000
3006-40	MN 95, LANDSCAPING AT BR# 30001 OVER RUM RIVER IN CAMBRIDGE	3	Roadside Infrastructure	2015	$30,000
1805-78	**SEC164** CONSTRUCT DUAL LEFT TURN LANES AT JCT TH 371 IN BAXTER	3	RCIP	2015	$850,000
4904-43	**ADA** 2015 ADA PROJECT; ON MN 27, FROM 13 ST NW TO BRIDGE #5907 OVER MISSISSIPPI RIVER IN LITTLE FALLS; AND ON MN 6, FROM MN 210 (MAIN ST) TO 4TH ST NW IN CROSBY	3	Roadside Infrastructure	2015	$350,000
1120-55M	WALKER TO JUST S OF THE RR CROSSING S OF CASS LAKE, MILL AND OVERLAY (DESIGNED BY DISTRICT 2, ATP-3 PORTION)	2	Pavement	2015	$4,900,000

Project Number	Description	District	Project Category	Year	STIP Total
0502-103	**PV40M**ELLA** ON TH 10, BENTON CSAH 4 TO 0.2 MI N OF ST. GERMAIN IN ST CLOUD (WBL & EBL), UNBONDED CONCRETE OVERLAY; AND ON TH 15, FROM TH 10 TO 1.0 MI SOUTH/BENTON CSAH 33, RECONSTRUCTION - let date 6/6/14	3	Pavement	2015	$18,978,435
0502-110	US 10, WB ONLY FROM .3 MI N OF 115 ST NW IN RICE TO CSAH 33, AND ON US, EB ONLY FROM .3 MI N OF 115 ST NW IN RICE TO CSAH 4, MILL AND OVERLAY	3	Pavement	2015	$2,300,000
7102-131	**SEC164** MEDIAN CABLE GUARDRAIL FROM CR 43 IN BIG LAKE TO WACO ST NW IN ELK RIVER	3	Roadside Infrastructure	2015	$950,000
8602-50	US 12, INSTALL CONTINUOUS T-SIGNAL SYSTEM AT JCT MN 25 E OF MONTROSE (HSIP PROJECT)	3	RCIP	2015	$1,400,000
4814-52	US 169, .2 MI S OF VINELAND RD IN VINELAND, REPLACE BR# 6657 WITH NEW BR# 48029 OVER RUM RIVER	3	Bridge	2015	$1,860,000
7380-239	**PV40M** I 94, FROM STEARNS CO CSAH 75 W OF ST. JOSEPH TO W END OF BR #73865 AND BR #73866 OVER SAUK RIVER, UNBONDED CONCRETE OVERLAY; AND ON I 94 FROM STEARNS CO CR 159 AT COLLEGEVILLE E TO STEARNS CO CSAH 75, MILL AND OVERLAY	3	Pavement	2016	$16,460,000
7321-51	**PV40M** MN 15, 0.1 MI N OF JCT TH 23 TO S END OF BRIDGE #05011 OVER MISSISSIPPI RIVER, MILL AND OVERLAY, INCLUDE CONSTRUCT DUAL SB LEFT TURN LANES AT 12TH ST N IN ST. CLOUD AND AT STEARNS CO CSAH 1 IN SARTELL	3	RCIP	2016	$2,223,000
7321-51S	**PV40M** MN 15, 0.1 MI N OF JCT TH 23 TO S END OF BRIDGE #05011 OVER MISSISSIPPI RIVER, MILL AND OVERLAY, INCLUDE CONSTRUCT DUAL SB LEFT TURN LANES AT 12TH ST N IN ST. CLOUD AND AT STEARNS CO CSAH 1 IN SARTELL (HSIP PROJECT)	3	RCIP	2016	$794,444
7108-23	**PoDI** **ELLA** **AC** MN 24, AT CLEARWATER, REPLACE BR# 6557 WITH NEW BR #71004 OVER MISSISSIPPI RIVER (AC PROJECT, PAYBACK IN 2017)	3	Bridge	2016	$15,000,000
8605-49	MN 25, 7TH ST TO CATLIN ST IN BUFFALO, RECONSTRUCTION, UPGRADE TRAFFIC SIGNAL	3	Pavement	2016	$5,000,000
4904-44	**ADA** ADA IPROJECT; FROM EAST END OF BR# 5907 TO 10TH STREET NE IN LITTLE FALLS	3	Roadside Infrastructure	2016	$250,000
8607-59	MN 55, AT WRIGHT CO CSAH 14 (EBL), CONSTRUCT LEFT TURN LANE AND DETACHED RIGHT TURN LANE (HSIP PROJECT)	3	RCIP	2016	$450,000

Project Number	Description	District	Project Category	Year	STIP Total
8823-294	US 10, SIGNAGE IMPROVEMENTS FROM RICE TO WADENA	3	Roadside Infrastructure	2016	$420,000
4903-69	BNSF RR, INSTALL GATES, FLASHING LIGHTS, CIRCUITRY AND CANTILEVERS, US 10, 2ND AVE, MOTLEY	3	RCIP	2016	$275,000
7318-38	**PV40M** US 71, FROM E JCT MN 55 IN BELGRADE TO I 94 IN SAUK CENTRE, MILL AND OVERLAY	3	Pavement	2016	$6,214,549
4812-84	US 169, FROM BR# 48033 OVER RUM RIVER TO .2 MI S OF WAGIDAAKI DR IN VINELAND, MILL AND OVERLAY	3	Pavement	2016	$4,117,000
4812-86	**PV40M**ELLA** US 169, FROM MILLE LACS CSAH 11/190TH ST N OF MILACA, TO RUM RIVER REST AREA (NB), RECONSTRUCTION, INCL. TURN LANE EXTENSIONS	3	Pavement	2016	$7,300,000
7106-83	US 169, AT JCT SHERBURNE CO CSAH 4 IN ZIMMERMAN, GEOMETRIC IMPROVEMENTS, CONSTRUCT SB ACCEL LANE, RESURFACING AND SIGNAL REPLACEMENT	3	Roadside Infrastructure	2016	$450,000
7108-23AC	**PoDI** **ELLA** **AC** MN 24, AT CLEARWATER, REPLACE BR# 6557 WITH NEW BR #71004 OVER MISSISSIPPI RIVER (AC PAYBACK 1 OF 1)	3	Bridge	2017	$9,000,000
7704-14	MN 27, FROM N JCT TH 71 TO 9TH ST NE IN LONG PRAIRIE, MILL AND OVERLAY, AND US 71, FROM N OF S LIMITS IN LONG PRAIRIE N TO S END OF LONG PRIARIE RIVER BRIDGE (BRIDGE #6852), MILL AND OVERLAY	3	Pavement	2017	$1,170,000
1810-92	**AC** MN 371, FROM 0.5 MI N OF CROW WING CO CSAH 18 IN NISSWA TO 0.5 MI N OF CROW WING CO CSAH 16 IN JENKINS, CONSTRUCT 4-LANE, INCLUDE CULLEN BROOK BRIDGE REPLACEMENT (AC PROJECT, PAYBACK INTO THE FUTURE)	3	Pavement	2017	$40,000,000
1814-06	MN 371B, FROM MN 210 (WASHINGTON ST) TO JOSEPH ST IN BRAINERD, RECONSTRUCTION, INCLUDING SIDEWALKS, CURB AND GUTTER	3	Pavement	2017	$7,500,000
7102-127	US 10, REPLACE BRIDGE #5955 OVER ELK RIVER (LAKE ORONO) IN ELK RIVER (CHAP 152)	3	Bridge	2017	$10,000,000
7709-16	US 71, FROM BERTHA TO WADENA/TODD CO LINE, MILL AND OVERLAY	3	Pavement	2017	$3,000,000
1804-5265A	US 169, .5 MI S OF JCT MN 18, PRESERVE BRIDGE #5265 OVER DRY STREAM	3	Bridge	2017	$1,000,000
7108-24	MN 24, FROM BR# 86807 OVER I 94 IN CLEARWATER TO US 10 IN CLEAR LAKE, MILL AND OVERLAY	3	Pavement	2018	$2,200,000
7701-39	MN 210, 0.5 MI E OF TODD CO CSAH 9, REPLACE BR# 5802 OVER MORAN BROOK	3	Bridge	2018	$1,800,000

Project Number	Description	District	Project Category	Year	STIP Total
8001-40	US 10, MILL AND OVERLAY, FROM END OF 4-LANE W OF WADENA E TO OINK JOINT ROAD; AND URBAN RECONSTRUCTION, FROM 0.1 MI W OF 3RD ST NW TO 0.1 MI E OF 2ND ST NE IN WADENA INCLUDING RR SIGNAL UPGRADE (DESIGNED BY D3, ATP 4 PORTION OF $825,985)	3	Pavement	2018	$8,800,000
1480-168	I-94 WEIGH STATION MODIFICATION	4	Roadside Infrastructure	2015	$477,885
1480-169	**SECTION 164** I-94, TH 336 TO BARNESVILLE AND 3 MI E OF ALEXANDRIA TO EAST DOUGLAS COUNTY LINE, INSTALL MEDIAN CABLE GUARDRAIL	4	Roadside Infrastructure	2015	$2,300,000
5680-130	DECK REPLACEMENT ON BRIDGE #56813 (WB) AND 56814 (EB) OVER CSAH 10	4	Bridge	2015	$1,357,887
8402-17	ON TH 9 FROM TH 27 IN HERMAN TO SOUTH STREET IN MORRIS, AND FROM TH 75 IN DORAN TO TH 55, ON TH 55 FROM S JCT OF CSAH 11 IN WENDELL TO TH 59, AND ON TH 28 FROM N JCT OF TH 9 IN MORRIS TO 500' W OF TH 59, GRADING , MILL AND OVERLAY INCLUDING CENTER LEFT TURN LANE ON TH 28 FROM 1300' W OF 540TH AVE TO 1300' EAST OF 540TH AVE	4	Pavement	2015	$8,682,997
7605-38M	**AB** KERKHOVEN TO PENNOCK - OVERLAY PROJECT (DESIGNED BY DISTRICT 8, FUNDED BY DIST 4 & DIST 8) DIST 8 SP 3403-66 $1,900,000, DIST 4 SP 7605-38M $1,548,600 (TIED TO 3403-66)	4	Pavement	2015	$1,548,600
2103-35AC	**AC** MCKAY AVE N OF ALEXANDRIA TO TH 210 - MILL AND BITUMINOUS SURFACING (AC PROJECT, PAYBACK 1 OF 1)	4	Pavement	2015	$3,000,000
0303-64	**COC** PASSING LANES ON TH 34 FROM DETROIT LAKES TO NEVIS (CHAP 117) (DESIGNED BY DIST 4, FUNDED BY ATP 4 & ATP 2, ATP 4 $7,662,600; ATP 2 SP 2902-42 $1,247,400)	4	IRC	2015	$7,662,600
1401-173	**CIMS** ADA5M**GEOMETRIC IMPROVEMENTS AT JCT. OF 11th ST. AND MAIN AVE/TH75 AND 11TH ST. FROM CENTER AVE TO MAIN AVE, M/O, RECONSTRUCT, AND SIGNAL WORK, ASSOCIATED S.A.P. 144-121-006 AND S.A.P. 144-136-014 (CIMS GRANT=$3,404,000, **ADA5M**=500,000)	4	RCIP	2015	$3,904,000
1407-25AC	**AC** TH 10 TO N CLAY CO LINE - GRADING, BITUMINOUS MILLING & SURFACING (AC PROJECT, PAYBACK 1 OF 1)	4	Pavement	2015	$2,200,000
1406-66	**AC** I-94/TH 75 INTERCHANGE MODIFICATION (AC PROJECT, PAYBACK IN 2017)	4	Pavement	2016	$5,234,212
8824-119	**ITS**I-94 TRAVEL MESSAGE SYSTEM FROM MORHEAD TO ALEXANDRIA	4	Roadside Infrastructure	2016	$675,000

Project Number	Description	District	Project Category	Year	STIP Total
2102-58	**AB****PoDI**ELLA**ALEXANDRIA 4-LANE EXPANSION FROM I-94 TO CSAH 28, INCLUDING REPLACING BRIDGE OLD BR 21814 WITH NEW BR 21828 & OLD BR 21813 WITH NEW BR 21827 & I-94 WITH INTERCHANGE MODIFICATION (CHAPTER 152 FUNDS)	4	Pavement	2016	$15,788,274
0303-65	**COCII**CONSTRUCT CENTER LEFT TURN LANE IN DETROIT LAKES FROM N JCT 59 TO HIGHLAND DRIVE	4	IRC	2016	$1,900,000
7506-17	JCT. 28 IN MORRIS TO NORTH STEVENS COUNTY LINE, CONCRETE OVERLAY	4	Pavement	2016	$4,582,930
0301-60AC	'**AC** US 10 FROM W. OF AIRPORT RD TO WEST OF US 59, & US 59 FROM US 10 TO 3130 FT. SOUTH OF US 10 - GRADING, UNBONDED CONCRETE OVERLAY, BITUMINOUS SURFACING, ADA IMPROVEMENTS, SIGNALS, LIGHTING & BRIDGE 03001 (TH 59 OVER HOLMES STREET) (TIED TO SP 117-010-006) (AC PROJECT, PAYBACK 1 OF 1)	4	Pavement	2016	$6,300,000
1406-66AC	**AC** I-94/TH 75 INTERCHANGE MODIFICATION (AC PROJECT, PAYBACK 1 OF 1)	4	Pavement	2017	$4,000,000
1481-9066B	BRIDGE PAINTING ON I-94 OVER THE RED RIVER (BRIDGE # 9066, 9067)	4	Bridge	2017	$3,000,000
7608-19	**ADA** IN BENSON ON MN 9, MN 12, AND 29, MILL AND OVERLAY, SIGNAL ENHANCEMENTS, ADA	4	Pavement	2017	$2,670,566
0301-63	REPLACE BRIDGE #03003 OVER CP RAILROAD, EB IN DETROIT LAKES	4	Bridge	2017	$3,103,000
1401-171	0.02 MI W OF FOUNDATION AVENUE TO .10 E OF 110TH STREET, REHABILITATION AND ACCESS MANAGEMENT IN GLYNDON ($2.0M CHAP 152)	4	Pavement	2017	$2,394,912
7605-89	JCT CSAH 25 (E OF BENSON) TO KERKHOVEN, MILL AND OVERLAY	4	Pavement	2017	$4,830,619
0304-34	INTERSECTION IMPROVEMENTS ON TH 59 AT CSAH 22, SOUTH OF DETROIT LAKES (TIED TO SP 003-622-034)	4	Pavement	2017	$2,051,304
0305-34	0.4 MILES S OF BUFFALO RIVER TO JCT TH 200, MILL AND OVERLAY	4	Pavement	2017	$7,356,980
7609-10	TH 119 TO JCT TH 12, MILL AND OVERLAY	4	Pavement	2017	$2,701,628
2180-104	**AC** ON I94, OVER LATOKA LAKE, REPLACE OLD BR#21805 WITH NEW BR#21829 AND REPLACE OLD BR#21806 WITH NEW BR#21830 (AC PROJECT, PAYBACK IN SFY 2019)	4	Bridge	2018	$1,909,942

Project Number	Description	District	Project Category	Year	STIP Total
5605-21M	US 10,MILL AND OVERLAY, FROM END 4-LANE W OF WADENA TO OINK JOINT ROAD: AND URBAN RECONSTRUCTION, FROM 0.1 MI W OF 3RD ST NW TO 0.1 MI E OF 2ND ST NE IN WADENA INCLUDING SIGNAL UPGRADE, DESIGNED BY DISTRICT 3, FUNDED BY ATP 3 AND ATP 4, ATP 3, 8.8M, ATP 4, $825,985	4	Pavement	2018	$825,985
7604-22	JCT. US 59 TO BENSON, MILL AND OVERLAY	4	Pavement	2018	$5,606,790
4404-13	FROM THE JCT MN200 TO 0.7 MI S OF WINGER, MILL & OVERLAY, (DESIGNED BY DIST 4, FUNDED BY ATP 4 & ATP 2, ATP 4 $4,142,547; ATP 2 SP 6008-15M $560,000)	4	Pavement	2018	$4,142,547
2480-104	**PV40M**AC**I 35 SB FROM 0.55 MI. S. CSAH 23 TO 0.53 MI. N. MN 30, UNBONDED CONCRETE OVERLAY (AC PROJECT, PAYBACK IN 2016)	6	Pavement	2015	$13,650,757
6680-112	**ITS** I 35 PHASE III - NORTH SEGMENT FROM RICE COUNTY CSAH 1 INTERCHANGE NORTH TO DAKOTA CR 70	6	Roadside Infrastructure	2015	$925,000
7480-113AC1	**AC** I 35 NB AND SB FROM 0.5 MI N OF S LIMITS OF OWATONNA (40.787) TO 0.25 MI N OF N JCT US 14 (42.856), RECONSTRUCT PAVEMENT AND NB AND SB FROM BRIDGE STREET TO N JCT US 14, OWATONNA, CONSTRUCT AUXILIARY LANE AND REPLACE BRIDGES 74815, 74816, 74817 AND 74818 (AC PAYBACK - 1 OF 2)	6	Pavement	2015	$10,000,000
5580-90	**PV40M** I 90, I 90, WB LANES FROM 1.3 MI W OF TH 42 TO 2.3 MI E OF TH 74, UNBONDED CONCRETE OVERLAY, CULVERT WORK, LIGHTING , RWIS AND BRIDGE 85817	6	Pavement	2015	$13,816,200
8580-149OV2	I 90 DRESBACH BRIDGE (CHAP 152) - 2015 COSTS FOR CONSTRUCTION OVERSIGHT	6	Bridge	2015	$2,221,000
8580-165AC	**AC** I 90 EB FROM 0.8 MI W MN 76 TO O.69 W OF CSAH 12 OVERPASS, UNBONDED CONCRETE OVERLAY (AC PAYBACK 1 OF 1)	6	Pavement	2015	$2,600,000
8580-168	I 90, AT DAKOTA, REPLACE INTERCHANGE LIGHTING SYSTEM	6	Safety	2015	$160,000
8503-46	**CMGC**AC** WORK PACKAGE #4 - REMAINDER OF BRIDGE 85851, GRADING, PAVING, DRAINAGE, RETAINING WALLS, SIGNING, LIGHTING AND STRIPING - WINONA (CHAP 152) (MAX FEDERAL PARTICIPATION OF $30.7M FOR BRIDGE 85851) (AC PROJECT, PAYBACK IN 2016)	6	Bridge	2015	$36,693,392
8503-5900G	**CMGC** WORK PACKAGE #3 - BRIDGE 85851 EARLY FOUNDATIONS FOR RIVER PIERS AND NORTH ABUTMENT AND BRIDGE 5900 SCOUR CONTERMEASURES IN WINONA (CHAP 152) (MAX FEDERAL PARTICIPATION OF $30.7M FOR BRIDGE 85851)	6	Bridge	2015	$16,000,000
8510-11	MN 43, INSTALL WEIGH IN MOTION FOR WINONA BRIDGE	6	Roadside Infrastructure	2015	$250,000

Project Number	Description	District	Project Category	Year	STIP Total
8826-167	**IDIQ** DISTRICT WIDE BRIDGE CRACK SEALING, VARIOUS BRIDGES ON MN 13, US 14, MN 16, I35, US 52, MN 65 and I90 - MINIMUM AMOUNT $300,000; MAXIMUM AMOUNT $700,000; EXPIRATION DATE 11/15/2016	6	Bridge	2015	$300,000
2001-36	US 14 FROM I 35 TO DODGE CENTER, MEDIUM BITUMINOUS MILL AND OVERLAY	6	Pavement	2015	$5,909,000
2001-38	**COCII** PURCHASE RIGHT OF WAY FOR EXPANSION BETWEEN DODGE CENTER AND OWATONNA	6	IRC	2015	$1,500,000
7401-41	**TH14TB** FROM 0.6 MI W OF OWATONNA CITY LIMITS TO W JCT I35 AND FROM E JCT I35 TO SIGNAL ON HOFFMAN STREET (STATE AVENUE), ROADWAY RECONSTRUCTION, CONCRETE PAVEMENT REHAB AND BITUMINOUS SHOULDER REPLACEMENT, TURNBACK OF OLD TH 14	6	Pavement	2015	$2,750,000
7402-30	**COC**ELLA** FROM TH 218 TO CR 180 IN STEELE COUNTY, TWO-LANE TO FOUR-LANE EXPANSION; GRADING, CONCRETE AND BITUMINOUS SURFACING, LIGHTING, SIGNING AND CULVERT IMPROVEMENTS (CHAP 117)	6	IRC	2015	$12,010,983
5508-121	**ITS** US 52 - EXTENSION OF FIBER OPTIC COMMUNICATION LINE NORTH FROM 75TH ST TO ELK RUN INTERCHANGE NORTH OF ORONOCO	6	Roadside Infrastructure	2015	$350,000
5508-122	US 52 AND US 14 IN ROCHESTER, REPLACE LIGHTING LUMINAIRES	6	Safety	2015	$407,000
2513-93	US 61 AT SEVASTOPOL ROAD AND WACOUTA ROAD - SOUTH OF RED WING, ADD LEFT TURN LANES AND REMOVE ACCESSES - TIED WITH SP 2514-120	6	Pavement	2015	$1,193,323
2514-120	**PV40M** US 61 NB AND SB FROM READY MIX ENTRANCE IN RED WING TO POTTER ST AND FROM OLD WEST MAIN ST TO MN 19, MEDIUM BITUMINOUS MILL AND OVERLAY - TIED WITH SP 2513-93	6	Pavement	2015	$4,397,800
2514-122	**CIMS**ADA5M**PV40M** US 61 IN RED WING FROM POTTER STREET TO OLD WEST MAIN STREET, RECONSTRUCTION, MEDIAN CONSTRUCTION AND PEDESTRIAN SAFETY IMPROVEMENT - MUNICIPAL AGREEMENT PROGRAM - F.Y. 2015 - $2.445M CIMS, $630,000 ADA5M AND $20,400 PV40M	6	RCIP	2015	$7,049,912
2313-22	US 63 FROM IOWA/MN SL TO E JCT MN 16, CONCRETE PAVEMENT REHABILITATION, CONCRETE PLANING AND BITUMINOUS SHOULDER REPLACEMENT	6	Pavement	2015	$2,620,740
5509-78	US 63 FROM CSAH 35 TO CR 120 (STEWARTVILLE), SHARED-USE PATH - MUNICIPAL AGREEMENTS PROGRAM	6	Pavement	2015	$50,000

Project Number	Description	District	Project Category	Year	STIP Total
5509-79	**PV40M** US 63 NB & SB FROM 0.1 MI. N. N. JCT. MN 30 TO 28TH ST SE (ROCHESTER), MEDIUM BITUMINOUS MILL AND OVERLAY	6	Pavement	2015	$4,765,088
5509-80	**TED14** TH 63, CSAH 16 & US 63 INTERCHANGE RECONSTRUCTION (BRIDGE 9407) AND AIRPORT ACCESS IMPROVEMENT PROJECT - $2.224 TED14 FUNDS	6	IRC	2015	$11,519,000
5509-82	US 63 NB AND SB FROM ROOT RIVER BRIDGE (STEWARTVILLE) TO 0.1 MI N OF N JCT MN 30, CONCRETE PAVEMENT REHABILITATION, PLANING AND BITUMINOUS SHOULDER REPLACEMENT	6	Pavement	2015	$1,150,000
2404-41	**ADA5M** US 65 NB AND SB FROM 0.5 MI. S. OF I 35 TO NEWTON AVE, MEDIUM BITUMINOUS OVERLAY & MILL & FILL, SIDEWALK REPLACEMENTS AND ADA RAMP WORK; EB AND WB ON TH 13 FROM 0.05 MI E OF EUCLID AVE TO US 65, MEDIUM BITUMINOUS OVERLAY, SIDEWALK REPLACEMENTS AND ADA RAMP WORK	6	Pavement	2015	$4,720,903
2480-104AC	**AC** I 35 SB FROM 0.66 MI. S. CSAH 23 TO 0.5 MI. N. MN 30, UNBONDED CONCRETE OVERLAY (AC PAYBACK 1 OF 1)	6	Pavement	2016	$4,050,000
7480-113AC2	**AC** I 35 NB AND SB FROM 0.5 MI N OF S LIMITS OF OWATONNA (40.787) TO 0.25 MI N OF N JCT US 14 (42.856), RECONSTRUCT PAVEMENT AND NB AND SB FROM BRIDGE STREET TO N JCT US 14, OWATONNA, CONSTRUCT AUXILIARY LANE AND REPLACE BRIDGES 74815, 74816, 74817 AND 74818 (AC PAYBACK - 2 OF 2)	6	Pavement	2016	$3,177,485
7480-124	I 35, STRAIGHT RIVER REST AREA REPLACEMENT	6	Roadside Infrastructure	2016	$4,500,000
5080-161	I 90, UNDER 11TH DRIVE NE, AUSTIN, REPLACE OR REHAB BRIDGE 9177 (NEW BRIDGE 50808) - HISTORIC BRIDGE STUDY	6	Bridge	2016	$1,468,500
8580-149OV3	DRESBACH BRIDGE (CHAP 152) - 2014 COSTS FOR CONSTRUCTION OVERSIGHT	6	Bridge	2016	$1,591,000
8503-46AC	**CMGC**AC** WORK PACKAGE #4 - REMAINDER OF BRIDGE 85851, GRADING, PAVING, DRAINAGE, RETAINING WALLS, SIGNING, LIGHTING AND STRIPING - WINONA (CHAP 152) (MAX FEDERAL PARTICIPATION OF $30.7M FOR BRIDGE 85851) (AC PAYBACK 1 of 1)	6	Bridge	2016	$13,331,608
8503-46C	**CMGC** WORK PACKAGE #5 - COMPLETE ROADWAY APPROACHES FOR BRIDGES 85851 AND 5900, REHABILITATION AND RECONSTRUCTION BRIDGE 5900 AND COMPLETE BRIDGE 85851 IN WINONA (CHAP 152) (AC PROJECT, AC PAYBACK 2017 & MANAGED INTO THE FUTURE)	6	Bridge	2016	$33,968,392
5007-32	**PV40M** MN 105, FROM N END BR 5971 TO JCT W RAMPS I 90, MEDIUM MILL AND OVERLAY	6	Pavement	2016	$1,100,000

Project Number	Description	District	Project Category	Year	STIP Total
2505-53	US 52, SB LANES FROM 0.4 MI. S. CSAH 11 TO 100' S MAIN ST. RAMP (PINE ISLAND) AND FROM S JCT MN 60 (S OF ZUMBROTA) TO 1.2 MI N CSAH 7, MEDIUM BITUMINOUS MILL AND OVERLAY	6	Pavement	2016	$2,500,000
8504-75	US 61 SB OVER TROUT CREEK, REPLACE BRIDGE 9065	6	Bridge	2016	$1,001,952
8505-39	US 61, GILMORE AVENUE, WINONA, RECONSTRUCT INTERSECTION AND INSTALL NEW SIGNAL	6	Pavement	2016	$2,000,000
8503-46CAC	**CMGC** WORK PACKAGE #5 - COMPLETE ROADWAY APPROACHES FOR BRIDGES 85851 AND 5900, REHABILITATION AND RECONSTRUCTION BRIDGE 5900 AND COMPLETE BRIDGE 85851 IN WINONA (CHAP 152) (AC PAYBACK 1 OF 1) - MANAGED INTO THE FUTURE FOR REMAINING PAYBACK	6	Bridge	2017	$14,000,000
2510-50	MN 58, OVER TH 52 IN ZUMBROTA, REPLACE BRIDGE 9661	6	Bridge	2017	$4,000,000
2506-75	US 52, NB LANES, ROCHESTER TO CANNON FALLS WITH EXCEPTIONS FROM R.P. 64.398 TO 66.632 AND R.P. 79.360 TO 82.206, MEDIUM BITUMINOUS OVERLAY	6	Pavement	2017	$10,400,000
5507-63	US 52 OVER US 63, REPLACE DECKS NB BRIDGE 55009 AND SB BRIDGE 55010	6	Bridge	2017	$4,244,173
2514-121	US 61 OVER HAY CREEK AND WITHERS HARBOR DRIVE, REPLACE BRIDGE 6483 AND OVER ABANDONED C&NW RR, PLUG BRIDGE 6482 - IN RED WING	6	Bridge	2017	$7,500,000
5509-81	**ITS** US 63 - EXTENSION OF ROCHESTER TMS FROM TH 52 TO I 90 INTERCHANGE	6	Roadside Infrastructure	2017	$350,000
6680-103	AT I 35/MN 21 INTERCHANGE IN FARIBAULT, IMPROVE RAMP GEOMETRICS	6	Pavement	2018	$550,000
8826-154	DISTRICTWIDE DECK REPAIR ON I 35 NB AT VARIOUS LOCATIONS	6	Bridge	2018	$960,000
7408-47	US 14 OVER UP RAIL REHAB BRIDGES 74001 AND 74002 AND OVER STRAIGHT RIVER REHAB BRIDGES 74003 AND 74004	6	Bridge	2018	$1,540,000
2506-77	US 52, SB LANES FROM 1.2 MI N CSAH 7 TO 2.2 MI S MN 19, MEDIUM BITUMINOUS MILL AND OVERLAY	6	Pavement	2018	$5,675,033
2506-79	**AC** US 52 OVER LITTLE CANNON RIVER, REPLACE BRS 9485 AND 9486 (AC PROJECT, PAYBACK IN 2019)	6	Bridge	2018	$2,937,552
8504-78	US 61, SB OVER CEDAR CREEK, REPLACE BRIDGE 9063	6	Bridge	2018	$1,881,522

Project Number	Description	District	Project Category	Year	STIP Total
2515-21	**AC** US 63, RED WING, REHAB OR REPLACE BRIDGE 9040 OVER MISSISSIPPI RIVER AND CP RAIL PLUS APPROACH WORK AND REHAB OR REPLACE BRIDGE 9103 (CHAP 152) - INCLUDES $14.53M SBPF AND $28.5M TH BONDS (AC PROJECT - PAYBACK IN 2019 AND 2020)	6	Bridge	2018	$87,205,300
3280-126	**PV40M**I 90, DESIGN BUILD, EB LANES FROM 0.74 MI E OF TH 86 TO 0.5 MI E OF TH 4 & WB LANES FROM CSAH 5 TO 0.5 MI E OF TH 4, MILL & CONCRETE OR BITUMINOUS OVERLAY, DRAINAGE REPAIRS, LIGHTING AND ADA	7	Pavement	2015	$36,300,000
0805-112AC	**AC** PV40M** MN 15, FROM BROWN COUNTY LINE TO 1.7 MI SOUTH OF NORTH JCT CSAH 24, MILL & OVERLAY (AC PAYBACK 1 OF 1)	7	Pavement	2015	$2,530,445
0704-88AC	**AC** MN 22, FROM TH 83 TO CSAH 26, SIGNAL REVISIONS AND ADA IMPROVEMENTS AT ALL INTERESECTIONS, CONSTRUCT ROUNDABOUTS AT THE JCT OF TH 22 WITH MADISON AVE/CSAH 17 AND WITH ADAMS ST & CPOR FROM ADAMS ST TO 0.48 MI N IN MANKATO (AC PAYBACK 1 OF 1)	7	Pavement	2015	$564,800
4012-36	MN 22, NEAR ST PETER WEST OF BR#40002, RAISE ROAD ELEVATION AND CONSTRUCT NEW BRIDGE 40005	7	Pavement	2015	$2,500,000
1703-70	**AC**AB** FROM EAST OF MOUNTAIN LAKE TO WEST OF BUTTERFIELD, RECONSTRUCT FROM 2 LANE TO 4 LANE, ALTERNATE BID, (AC PROJECT, PAYBACK IN 2016 AND 2017)	7	Pavement	2015	$6,900,000
8308-44AC2	**AC** MN 60, FROM CSAH 5 IN BUTTERFIELD TO 700TH AVE IN ST JAMES, CONSTRUCT 4 LANE ROADWAY AND NEW BRIDGE #83040 (AC PAYBACK 2 OF 2)	7	IRC	2015	$4,161,472
8827-175	**ELLA**ITS** MN 60, VARIOUS LOCATIONS, INSTALL DYNAMIC MESSAGE SIGNS	7	Safety	2015	$137,034
0702-116AC2	**AC** **LGA** CSAH 12 & TH 14 BRIDGE #07587 & RAMPS (LGA PAYBACK TO COUNTY 2 OF 3) TIED 007-612-011	7	Bridge	2015	$2,100,000
5203-102	US 14, LOOKOUT DRIVE AT TH 14, BRIDGE 52006 AND RAMP WORK (TIED 150-070-001 & 150-116-009)	7	Pavement	2015	$800,000
5203-102S	US 14, LOOKOUT DRIVE AT TH 14, WESTBOUND RAMP ROUNDABOUT (TIED 150-070-001 & 150-116-009)	7	Pavement	2015	$700,000
5203-104	**COC** US 14, FROM NICOLLET TO NORTH MANKATO, CONSTRUCT 4 LANE ROAD AND BYPASS AROUND NICOLLET AND NEW BR 52005 (CHAP 117)	7	IRC	2015	$34,000,000

Project Number	Description	District	Project Category	Year	STIP Total
8103-113	**TH14TB**US 14, FROM CO RD 60 TO W CITY LIMITS OF JANESVILLE, & E CITY LIMITS OF JANESVILLE TO THE W CITY LIMITS OF WASECA & E CITY LIMITS OF WASECA TO 0.6 MI W OF THE OWATONNA CITY LIMITS, UNBONDED CONCRETE OVERLAY, DESIGN BUILD	7	Pavement	2015	$10,900,000
8103-114	US 14, FROM THE W CITY LIMITS OF JANESVILLE TO THE E CITY LIMITS OF JANESVILLE, RECONSTRUCT	7	Pavement	2015	$5,750,000
3205-29	**CIMS** US 71, 0.3 MI S OF SPRINGFIELD PARKWAY TO 0.16 MI S OF INDUSTRIAL PARKWAY IN JACKSON, RECONSTRUCT, MILL & OVERLAY, HAWK SIGNAL, PED/BIKE TRAIL AND REPLACE BR 6741 WITH NEW BR 32011 (CIMS $1,260,000) (TRLF $244,000) (TIED 032-090-005)	7	RCIP	2015	$5,504,000
4013-54	**TED14** US 169, JCT WITH CSAH 28, NORTH OF LE SUEUR, ACCESS IMPROVEMENTS, ($2,072,571 IS TED14 FUNDS), ($405,526 IS STATE FUNDS)	7	Pavement	2015	$3,715,139
5209-66AC	**AC** US 169, ST PETER TO LE SUEUR, 1.8 MILES OF GRADE RAISE FOR FLOOD MITIGATION AND MILL AND OVERLAY SB LANES ONLY (AC PAYBACK 1 of 1)	7	Pavement	2015	$5,046,455
1703-70AC	**AC** MN 60, MOUNTAIN LAKE TO BUTTERFIELD, EXPANSION (AC PAYBACK 1 OF 1)	7	Pavement	2016	$7,600,000
0702-116AC3	**LGA** CSAH 12 & TH 14 BRIDGE #07587 & RAMPS (LGA PAYBACK TO COUNTY 3 OF 3) TIED 007-612-011	7	Bridge	2016	$2,225,962
8103-115	**TH14TB** US 14, FROM THE W CITY LIMITS OF WASECA TO THE E CITY LIMITS OF WASECA, RECONSTRUCT	7	Pavement	2016	$12,750,000
3205-32	**TED12** US 71, AT INDUSTRIAL PARKWAY AND TH 71, CONSTRUCT ROUNDABOUT,($1,800,000 TED), (TRLF $377,400)	7	Pavement	2016	$2,635,575
5211-59	**FMP** US 169, FROM TH 14 TO ST PETER, GRADE, SURFACE AND MEDIAN WORK, $8M ECONOMIC DEVELOPMENT ADMINISTRATION FUNDS (CHAP 152)	7	Pavement	2016	$14,000,000
5211-61	US 169, FROM TH 14 TO ST PETER, MILL AND CONCRETE OVERLAY	7	Pavement	2016	$11,300,000
4680-124	**ELLA** I 90, EAST OF FAIRMONT, BR#46821 & 46822 AND AT THE JCT OF TH 15, BR# 46833 & 46834, REHAB BRIDGES	7	Bridge	2017	$2,190,000
4680-126	I90, SHERBURN TO FAIRMONT WB LANES, MILL & OVERLAY	7	Pavement	2017	$7,400,000
5380-133	**ELLA** I90, RUSHMORE TO WORTHINGTON WB LANES, & FROM WORTHINGTON TO 3.7 MI E OF TH 264 EB LANES, MILL & OVERLAY	7	Pavement	2017	$11,700,000

Project Number	Description	District	Project Category	Year	STIP Total
6780-105	I 90, 0.3 MI E OF SOUTH DAKOTA STATE LINE BR#9685 & 9686, & 2.9 MI E OF JCT TH 23, BR#9689 & 9690, REHAB BRIDGES	7	Bridge	2017	$4,900,000
0805-113	MN 15, FROM 0.2 MI S OF TWP RD 46 TO TH 14/TH 15 (7TH NORTH SIGNAL) IN NEW ULM, MILL & OVERLAY	7	Pavement	2017	$7,180,000
4603-45	MN 15, FROM JOHNSON STREET TO 0.05 MI S OF GOEMANN RD IN FAIRMONT, MILL & OVERLAY AND ADA	7	Pavement	2017	$6,100,000
1703-69	**AC** MN 60, FROM WINDOM TO WEST OF MOUNTAIN LAKE, RECONSTRUCT FROM TWO LANE TO FOUR LANE DIVIDED HIGHWAY (AC PAYBACKS IN 2018, 2019)	7	Pavement	2017	$5,420,000
4008-25	RECONDITION INPLACE BRIDGE #4930 OVER THE MN RIVER IN ST. PETER	7	Bridge	2017	$4,900,000
0804-113	US 14, FROM 7TH AVE NE IN SLEEPY EYE TO THE WEST LIMITS OF NEW ULM, MILL & OVERLAY GRINDING	7	Pavement	2017	$4,300,000
5304-38	US 59, FROM N JCT TH 60 TO I90 IN WORTHINGTON, MILL & OVERLAY	7	Pavement	2017	$2,200,000
6780-107	I90, WB LANES, FROM THE BRIDGE OVER ROCK RIVER (67806) TO THE ROCK/NOBLES COUNTY LINE, MILL & OVERLAY	7	Pavement	2018	$2,500,000
1703-69AC1	**AC** MN 60, FROM WINDOM TO WEST OF MOUNTAIN LAKE, RECONSTRUCT FROM TWO LANE TO FOUR LANE DIVIDED HIGHWAY (AC PAYBACK 1 of 2)	7	Pavement	2018	$18,000,000
1703-73	MN60, FROM TH 62 TO 490TH AVE IN WINDOM, MILL & OVERLAY	7	Pavement	2018	$3,500,000
8309-49	MN 60, FROM CO RD 103 TO S JCT TH 15, WB LANES ONLY, CONCRETE PAVEMENT REHAB AND MILL & OVERLAY	7	Pavement	2018	$2,000,000
0803-38	US 14, FROM CO RD 5 IN SPRINGFIELD TO 7TH AVE NE IN SLEEPY EYE, MILL & OVERLAY, CONCRETE PAVEMENT REHAB & ADA	7	Pavement	2018	$10,530,000
0804-81	**AC** **Chap 152**US 14, DESIGN BUILD, OVER MN RIVER, DM&E RR & MSAS 111, 0.4 MI E OF S JCT OF TH 15, REPLACE BR 9200 & BR 9294 (AC PAYBACK IN 2019)	7	Bridge	2018	$25,960,000
2208-113	US 169, FROM 1 MI NORTH OF I90 NEAR BLUE EARTH TO 0.2 MI NORTH OF CSAH 12 IN WINNEBAGO, MILL & OVERLAY	7	Pavement	2018	$3,800,000
5209-74	US 169, FROM UNION ST IN ST PETER TO TH 93 AT LE SUEUR, NB LANES ONLY, MILL & OVERLAY	7	Pavement	2018	$6,400,000
4303-89	**AC PV40M** WINTHROP TO BROWNTON, MILL & OVERLAY (AC PROJECT, PAYBACK IN FY 2016) ($800,000 FROM PV FUNDS)	8	Pavement	2015	$800,000

Project Number	Description	District	Project Category	Year	STIP Total
4205-32	BRUCE STREET TO JCT MN 23 (MARSHALL), MILL & OVERLAY (TIED TO SP'S 4208-58 & 4209-23)	8	Pavement	2015	$500,000
3408-18PE	**COCII** ENVIRONMENTAL WORK TO PREPARE MN 23 FOR FUTURE EXPANSION FROM NEW LONDON TO PAYNESVILLE AND PAYNESVILLE TO RICHMOND	8	IRC	2015	$1,500,000
4207-55	**CIMS** JCT OF MN 23 & SARATOGA IN MARSHALL, RCI (REDUCED CONFLICT INTERSECTION) & IMPROVED PEDESTRIAN FACILITIES	8	RCIP	2015	$3,500,000
1206-54	**AC** N JCT MN 7 TO W JCT MN 40 (MONTEVIDEO), OVERLAY (AC PROJECT, PAYBACK IN 2016)	8	Pavement	2015	$864,978
3403-5526	E OF CSAH 5 (WILLMAR), SCARIFY & OVERLAY BRIDGE #5526	8	Bridge	2015	$340,000
3403-66	**AB** KERKHOVEN TO PENNOCK - OVERLAY PROJECT (DESIGNED BY DISTRICT 8, FUNDED BY DIST 4 & DIST 8) DIST 8 SP 3403-66 $1,900,000, DIST 4 SP 7605-38M $1,548,600 (TIED TO 7605-38M)	8	Pavement	2015	$1,900,000
4704-47	**PV40M**AB** W MEEKER COUNTY LINE TO MN 22, RECLAMATION OR ALT. BID ($600,000 FROM PV FUNDS), INCLUDES WORK ON MN 4 FROM US 12 TO RR TRACKS	8	Pavement	2015	$6,300,000
8601-60	WEST OF COKATO, FROM 1300' E OF QUIMBY AVE SW TO 3100' W OF QUIMBY AVE SW, INSTALL 3 ROAD SURFACE SENSORS (ATP 3 AREA, BUT DISTRICT 8 IS LEAD FOR PROJECT)	8	Safety	2015	$166,374
4208-58	**ADA**PV40M** MN 19 TO MN 23 (MARSHALL), MILL & OVERLAY PLUS PEDESTRIAN RAMPS (($160,000 FROM PV FUNDS) (TIED TO SP'S 4205-32 & 4209-23)	8	Pavement	2015	$1,200,000
4209-23	N JCT MN 68 (MARSHALL) TO N OF LYON CSAH 33, MILL & OVERLAY PLUS SCARIFY & OVERLAY BRIDGE 42003 (TIED TO SP'S 4205-32 & 4208-58)	8	Pavement	2015	$950,000
6405-64	**PV40M** US 14 TO S OF 11TH STREET (REDWOOD FALLS), MILL & OVERLAY ($480,000 FROM PV FUNDS)	8	Pavement	2015	$3,900,000
6508-67	**RI20M** AT BEAVER CREEK S. OF OLIVIA, STREAM STABILIZATION ($90,000 FROM RI FUNDS)	8	Roadside Infrastructure	2015	$90,000
8712-31	**ADA5M** E END OF BRIDGE #87015 (GRANITE FALLS) TO MN 23, MILL & OVERLAY ($100,000 FROM ADA FUNDS) (TIED TO SP'S 8705-18 & 8706-23)	8	Pavement	2015	$800,000
4303-89AC	**AC PV40M** WINTHROP TO BROWNTON, MILL & OVERLAY (AC PROJECT, PAYBACK 1 OF 1)	8	Pavement	2016	$3,200,000

Project Number	Description	District	Project Category	Year	STIP Total
3405-42	JCT OF MN 23 & KANDIYOHI CSAH 5, BUILD INTERCHANGE (COUNTY IS THE LEAD)	8	IRC	2016	$1,511,111
3405-42S	JCT OF MN 23 & KANDIYOHI CSAH 5, BUILD INTERCHANGE (COUNTY IS THE LEAD) - HSIP	8	IRC	2016	$488,889
4206-22	**COC** - I-90 TO WILLMAR, CONSTRUCT PASSING LANES (CHAP 117)	8	IRC	2016	$10,300,000
1206-54AC	**AC** N JCT MN 7 TO W JCT MN 40 (MONTEVIDEO), OVERLAY (AC PROJECT, PAYBACK 1 OF 1)	8	Pavement	2016	$615,600
3404-56	E OF US 71 (WILLMAR) TO KANDIYOHI/MEEKER COUNTY LINE, OVERLAY (TIED TO SP'S 3406-17 &3411-89)	8	Pavement	2016	$1,800,000
5104-39	MN 62 (FULDA) TO S JCT MN 30, MILL & OVERLAY	8	Pavement	2016	$4,000,000
3411-89	S JCT MN 23 (WILLMAR BY-PASS) TO MN 971A (BEG 4-LANE) - ALSO INCLUDES WORK ON MN 23 FROM 0.25 MI W CSAH 5 TO 2.6 MI E CSAH 5 R.P 141+00.232 TO 144+00.107, MILL & OVERLAY - WESTBOUND LANES ONLY (TIED TO SP'S 3406-17 & 3404-56)	8	Pavement	2016	$2,600,000
4204-38	LYON CSAH 5 TO LYON CSAH 7 (MARSHALL), OVERLAY	8	Pavement	2017	$610,000
6403-34	W JCT MN 67 TO REDWOOD FALLS, MILL & OVERLAY	8	Pavement	2017	$3,700,000
4308-34	**AC**AB** W JCT MN 7 TO LITCHFIELD, 4" OVERLAY & RECLAIM SHLDS (AC PROJECT, PAYBACK IN 2018)	8	Pavement	2017	$3,338,000
3405-89	CLARA CITY TO KANDIYOHI CSAH 5 (WILLMAR), OVERLAY	8	Pavement	2017	$2,100,000
1206-90	N OF US 212, REPLACE BRIDGE 9111 OVER TC&W RAILROAD	8	Bridge	2017	$1,700,000
5101-14	LAKE WILSON TO US 59 (SLAYTON), OVERLAY	8	Pavement	2017	$2,200,000
3417-18	N. OF JCT MN 23 TO N. OF JCT MN 9, MILL & OVERLAY	8	Pavement	2017	$2,097,889
3417-18S	N. OF JCT MN 23 TO N. OF JCT MN 9, MILL & OVERLAY - HSIP	8	Pavement	2017	$450,000
4705-45	US 12 & CSAH 34 (LITCHFIELD), OFFSET FREE RIGHT AND MEDIAN SEPERATION (2017 HSIP PROJECT)	8	RCIP	2017	$211,111
4101-89	STATE LINE TO LAKE BENTON, MILL & OVERLAY	8	Pavement	2017	$2,800,000
4208-59	US 59 & CSAH 6, LEFT TURN LANE (2017 HSIP PROJECT)	8	RCIP	2017	$450,000
4308-34AC	**AC**AB** W JCT MN 7 TO LITCHFIELD, 4" OVERLAY & RECLAIM SHLDS (AC PROJECT, PAYBACK 1 OF 1)	8	Pavement	2018	$2,662,000

Project Number	Description	District	Project Category	Year	STIP Total
6401-36	0.1 MI W REVERE CL TO BROWN COUNTY LINE, MILL AND OVERLAY	8	Pavement	2018	$2,300,000
5906-40	S. JCT. MN 23 TO N. END OF BR 6572 IN PIPESTONE, MILL & OVERLAY PLUS REPLACE BRIDGE #6572	8	Pavement	2018	$2,500,000
1380-85	ON I35 FROM CHISAGO CSAH 10 IN HARRIS TO CHISAGO CSAH 1 IN RUSH CITY-CABLE MEDIAN BARRIER	M	Roadside Infrastructure	2015	$1,800,000
1982-171	ON I35E FROM THE SOUTH SIDE FROM N OF DEERWOOD DR TO JUST NE OF FAWN WAY IN EAGAN - NOISE WALL	M	Roadside Infrastructure	2015	$495,000
1982-179	SB I35E, FROM KETTLE PARK TO S OF KINGS ROAD IN EAGAN - PRE-CAST CONCRETE PANEL NOISEWALL, GUARDRAIL END TREATMENTS	M	Roadside Infrastructure	2015	$1,428,000
6280-367B	FROM I94 IN ST PAUL TO JUST N OF LITTLE CANADA RD IN LITTLE CANADA - MNPASS OPERATION/INTEGRATION	M	Twin Cities Mobility	2015	$1,200,000
6280-379	**RI20M**FROM LITTLE CANADA RD TO MN 36 IN LITTLE CANADA AND ON I694 FROM RICE ST TO E JUNCTION WITH I35E IN VADNAIS HTS- REPAINT NOISE WALL ($2.35M FROM ROADSIDE INFRASTRUCTURE)	M	Roadside Infrastructure	2015	$4,085,000
6280-384	AT THE INTERSECTION OF RANDOLPH AVE (RAMSEY-CSAH 38) & I35E SB ENTRANCE & EXIT RAMP-ADA IMPROVEMENTS AND APS INSTALLATION	M	Safety	2015	$32,500
6281-20	RAMSEY CSAH 96 OVER I35E IN WHITE BEAR LAKE-REDECK AND WIDEN BRIDGE 62834, REPLACE APPROACH PANELS, CONCRETE OVERLAY ON CSAH 96 BETWEEN CENTERVILLE RD AND WHITE BEAR PARKWAY AND RAMPS FROM I35E TO CSAH 96, DRAINAGE, REPLACE TRAFFIC SIGNALS, ADA PED TRAIL AND FACILITIES, RETAINING WALL, (TIED TO 6281-25)	M	Bridge	2015	$4,390,000
6281-25	FROM 0.2 MILE S OF RAMSEY CR E (CSAH 15) TO 0.5 MILE S OF RAMSEY CSAH 96 IN VADNAIS HEIGHTS-REPLACE BRIDGES 9567 (NEW 62729) AND 9568 (NEW 62730) INCLUDING PROFILE ADJUSTMENTS ON BOTH SIDES OF BRIDGE, MILL AND UNBONDED CONCRETE OVERLAY, ADA, RETAINING WALLS, POND, GUARDRAIL, DRAINAGE, TMS (TIED WITH 6281-20)	M	Bridge	2015	$20,855,000
6281-44	SB I35E FROM RAMSEY CR J IN WHITE BEAR TWP TO RAMSEY CSAH 96 N WHITE BEAR LAKE-SIGNS AND SHOULDERING FOR BUS ONLY SHOULDER	M	Twin Cities Mobility	2015	$10,000
160-020-025	AT I-35W AND CLEVELAND AVE IN ROSEVILLE-RECONSTRUCT RAMP TERMINALS INCLUDING DUAL LEFT TURN LANES ON NB CLEVELAND AVE	M	Pavement	2015	$1,490,730

Project Number	Description	District	Project Category	Year	STIP Total
2782-295	FROM 42ND ST IN MPLS TO 66TH ST IN RICHFIELD - GATEWAYS LANDSCAPING	M	Roadside Infrastructure	2015	$953,304
2782-315	FROM 42ND ST IN MPLS TO 66TH ST IN RICHFIELD - CORRIDOR LANDSCAPING	M	Roadside Infrastructure	2015	$150,000
2782-334	FROM 39TH ST TO JUST N OF LAKE ST IN MPLS-STORMWATER TUNNEL REPAIR (CHAP 388 BONDS)	M	Roadside Infrastructure	2015	$6,250,000
2783-138	I35W, JUST N OF LAKE ST TO 13TH AVE S AND ON I94 FROM WILLOW ST TO PORTLAND AVE S IN MPLS-SEAL AND GROUT STORMWATER TUNNELS ($7M CHAP 152 BONDS)	M	Roadside Infrastructure	2015	$9,260,000
6284-157	AT RAMSEY CSAH 96 (CTY RD G) OVER I35W IN ARDEN HILLS/NEW BRIGHTON-REPLACE BRIDGE 9577 WITH 62911, APPROACH PANEL AND RAMP WORK	M	Bridge	2015	$2,500,000
6284-170	FROM MN36 IN ROSEVILLE TO LEXINGTON AVE IN BLAINE-INSTALL ITS, INCLUDING VEHICLE DETECTION, FIBER, REPLACE SHELTERS & ELIMINATE COPPER ($75K IS FROM OPERATING FUNDS)	M	Safety	2015	$1,170,000
6284-171	AT RAMSEY CSAH 12 (CR F) IN ARDEN HILLS/NEW BRIGHTON - REPLACE BRIDGE 9599 WITH BRIDGE 62890 AND APPROACHES, GUARDRAIL, PED/BIKE TRAIL	M	Bridge	2015	$3,215,000
2780-66	**COC**ELLA**AUXILLIARY LANE CONSTRUCTION EB FROM TH241 IN ST. MICHAEL TO TH101 IN ROGERS-INCLUDING WB EXIT RAMP EXTENSION AT TH 101 AND WB THIRD LANE FROM TH101 TO TH241 (CHAP 117)	M	IRC	2015	$28,327,500
2780-90	**RI20M**AT I94/I494 INTERCHANGE IN MAPLE GROVE -REPLACE TOWERS AND LIGHTING SYSTEMS	M	Safety	2015	$1,100,000
2781-462	**TED14** WB I94, EXIT RAMP TO 5TH ST SOUTH IN MPLS (REORIENT 5TH ST S TO 7TH ST S)- CONSTRUCT NEW BRIDGE #27W27	M	Pavement	2015	$6,790,000
6283-245	ON I-94, FROM W OF MOUNDS BLVD TO EAST OF MCKNIGHT ROAD IN ST PAUL-INSTALL DETECTION; AT I494 & PORTLAND AVE IN BLOOMINGTON/RICHFIELD AND AT MN5 & POST RD IN MSP AIRPORT- DYNAMIC MESSAGE SIGNS ($535K IS FROM OPERATING FUNDS)	M	Safety	2015	$535,000
8282-116	MANNING AVE IN WOODBURY TO ST. CROIX RIVER IN LAKELAND TWP- REPAIR, REPLACE & LINE LARGE PIPES	M	Roadside Infrastructure	2015	$4,100,000
8282-123	I94, ST. CROIX WEIGH STATION IN LAKELAND - REPLACE WEIGH-IN-MOTION SORTER SYSTEM	M	Roadside Infrastructure	2015	$1,996,726

Project Number	Description	District	Project Category	Year	STIP Total
2789-136	JUST E OF MN100 IN GOLDEN VALLEY TO W END OF BRIDGE #27770D AND ON I94 NEAR JCT I94 AND I394 IN MPLS- MILL AND OVERLAY INCLUDING N AND S FRONTAGE ROADS, MINOR CPR, DIAMOND GRINDING, DRAINAGE, ADA UPGRADES, GUARDRAIL, SIGNAL LOOPS AND RE-DECK BRIDGE 27799L	M	Pavement	2015	$6,640,000
2789-142	**ELLA**FROM I494 IN MINNETONKA TO WASHINGTON AVE N IN MPLS (I394 MNPASS) - PARTIAL ITS REFURBISHMENT, INCLUDING COMMUNICATIONS, FIBER, POWER, NON-INTRUSIVE DETECTION AND CABINETS (IN "OTHER" $1.35M IS MNPASS REVENUE, $200K IS ABC GARAGE FUNDS)	M	Twin Cities Mobility	2015	$1,888,741
2785-330	**PV40M**ADA5M**AC**FROM I394 TO I94/I694 -ADD GENERAL PURPOSE LANE BETWEEN TH 55 AND I-94//I-694, ADD AUXILIARY LANE BETWEEN TH 55 AND CR 6, ADD NB AUXILIARY LANE FROM I394 TO CARLSON PARKWAY, PAVEMENT RESURFACING & RECONSTRUCTION, PONDS, NOISEWALLS, SIGNAL REVISIONS, LIGHTING, TMS, REPLACE BRIDGES 27973 (27W21), 27974 (27W22), 27975 (27W23), 27976 (27W24), 27977 (27W25), 27978 (27W26), AND MISC REPAIRS ON 11 BRIDGES (AC PROJECT, PAYBACK 1 IN 2016; REMAINDER OF AC MANAGED INTO THE FUTURE)	M	Twin Cities Mobility	2015	$39,030,000
2785-338	FROM FLYING CLOUD DR TO W OF BUSH LAKE RD IN BLOOMINGTON - LANDSCAPING	M	Roadside Infrastructure	2015	$500,000
2785-403	**ELLA**FROM I394 TO I94/694 - TEMPORARY BYPASS WORK INCLUDING PAVEMENT, WIDENING OF BRIDGES 27974, 27976, 27978 AND LIGHTING	M	Pavement	2015	$5,739,143
6285-148	US10 SB TO EB LEFT ENTRANCE TO I694 AND MERGE TO SNELLING AND SB HAMLINE TO EB I694 IN ARDEN HILLS - LANDSCAPING	M	Roadside Infrastructure	2015	$200,000
2732-104	**SEC164**I494 IN BLOOMINGTON TO MN55 IN MPLS-CABLE MEDIAN BARRIER (TIED TO SP 2773-12 AND 2775-24)	M	Roadside Infrastructure	2015	$320,000
6201-86	FROM MN55 IN MPLS TO DAVERN AVE ST IN ST PAUL - REDECK BRIDGE 9300, PAINT BRIDGES 9300 AND 9491, MINOR REPAIRS TO BRIDGES 9489, 9490 AND 9491, MINOR CONCRETE PAVEMENT REPAIR	M	Bridge	2015	$10,544,665
6211-102	FROM EDGERTON ST IN MAPLEWOOD TO MN120 IN N ST PAUL-INSTALL TMS	M	Safety	2015	$800,000
8204-62	FROM I-694 IN PINE SPRINGS TO JUST EAST OF HIGHLANDS TRAIL N IN GRANT-LANDSCAPING	M	Roadside Infrastructure	2015	$80,000
8214-114MIT15	OVER ST CROIX RIVER NEAR STILLWATER-MITIGATION/CONSULTANT ITEMS INCLUDING ENDOWMENT FUND FOR REPLACEMENT OF RIVER BRIDGE 4654	M	Bridge	2015	$11,845,000

Project Number	Description	District	Project Category	Year	STIP Total
8214-164	FROM W OF GREELEY AVE/CSAH 66 (W LIMIT OF ST. CROIX CROSSING PROJECT) TO E OF OSGOOD AVE - LANDSCAPING	M	Roadside Infrastructure	2015	$460,000
8214-165	BETWEEN OSGOOD AVE AND MN95 IN OAK PARK HEIGHTS - TYPE I STATE ENTRY AND EXIT SIGN	M	Roadside Infrastructure	2015	$965,000
8214-174C	FROM WI ST HWY35 TO CR-E AND OVERPASS-GRADING FOR LOOP TRAIL AS PART OF THE ST. CROIX RIVER CROSSING PROJECT-WISCONSIN LET	M	Pavement	2015	$65,000
8214-175	NORTHWEST RAMP AT MN5 – CONSTRUCT OVER-WEIGHT ENFORCEMENT PULL OFF PAD, INCLUDING WEIGH-IN-MOTION SYSTEM AT MN36 AND OSGOOD AVE N, AS PART OF ST CROIX RIVER CROSSING PROJECT	M	Roadside Infrastructure	2015	$1,000,000
8221-01AC1	**AC**OVER ST CROIX RIVER NEAR STILLWATER & OAK PARK HEIGHTS-NEW BRIDGE 82045 OVER ST. CROIX RIVER, INCLUDING RAMPS ON & OFF TH 95 (AC PAYBACK 1 OF 2)	M	Bridge	2015	$8,368,663
6215-99	**ADA5M**ADA**FROM JUST S OF DAYTON TO PIERCE BUTLER AVE IN ST PAUL-MILL AND OVERLAY, BRIDGE 9377 DECK REPLACEMENT, CHANNELIZATION, ADA, BUS STOP BUMPOUTS FOR RAPID BUS SERVICE, LIGHTING, STREETSCAPING, SIGNAL REVISION/REPLACEMENTS AND REPAIRS ON BRIDGE 62847 AT I94 OVER FAIRVIEW (CHAP 152 TRANSIT ADVANTAGE BONDS)	M	Pavement	2015	$9,595,000
1910-44	UP RR, COURTHOUSE BLVD IN HASTINGS-INSTALL CANTS, UPGRADE TO GATES AND FLASHING LIGHTS	M	RCIP	2015	$275,000
195-010-011AC	**AC**FROM JUST W OF N JCT MN149 TO JUST E OF S JCT MN149 IN EAGAN-WIDEN FROM 4 TO 6-LANE EXPANSION, TRAIL, ADA, SIGNALS (AC PAYBACK 1 OF 1)	M	Pavement	2015	$2,640,000
2722-82	AT HENNEPIN CSAH 101/SIOUX TRAIL IN MEDINA - REPLACE TEMPORARY WOOD POLE SIGNAL SYSTEM WITH PERMANENT SIGNAL SYSTEM	M	Safety	2015	$300,000
2723-123	WB MN55 FROM I494 SB EXIT RAMP TO PLYMOUTH BLVD IN PLYMOUTH-CONSTRUCT A WB THIRD LANE, SIGNALS, DRAINAGE, ADA AND CONSTRUCT RIGHT/LEFT TURN LANES AT FERNBROOK LANE	M	RCIP	2015	$1,160,000
2723-127	**ADA**AT WINNETKA AVE IN GOLDEN VALLEY-RAISED MEDIAN, SB THROUGH LANE, MODIFY SIGNAL, PED CROSSING AT W LEG OF INTERSECTION	M	Safety	2015	$638,500
2773-12	**SEC164**I494 TO US169 IN MINNETONKA/EDEN PRAIRIE-CABLE MEDIAN BARRIER (TIED TO SP 2732-104 AND 2775-24)	M	Roadside Infrastructure	2015	$280,000

Project Number	Description	District	Project Category	Year	STIP Total
2775-24	**SEC164**MN77 TO 34TH AVE S IN MPLS-CABLE MEDIAN BARRIER (TIED TO 2732-104 AND 2773-12)	M	Roadside Infrastructure	2015	$300,000
0208-142	FROM 133RD AVE IN BLAINE TO BUNKER LAKE BLVD IN HAM LAKE-FRONTAGE ROAD AND CLOSE ACCESSES	M	Pavement	2015	$350,000
0208-153	AT ANOKA-CSAH 12 (109TH AVE NE) IN BLAINE-RIGHT TURN LANE AND UPGRADE SIGNALS	M	RCIP	2015	$299,160
1925-52	OVER MN RIVER IN BLOOMINGTON AND EAGAN-PAINT NB BRIDGE 9600N, SB 9600S AND PED BRIDGE 9600F AND REPLACE GUARDRAIL, JOINTS AND REHAB BEARINGS	M	Bridge	2015	$3,540,000
2734-33AC	**AC**FROM 36TH ST TO 26TH ST IN ST. LOUIS PARK - REPLACE BRIDGES 5308(27303), 5309(NEW PED BRIDGE 27304), 5462(27305), 5598(27306), OVERLAY AND JOINT REPLACEMENT BRIDGE 27109, RECONSTRUCT MAIN LINE PAVEMENT AND INTERCHANGES INCLUDING CONSTRUCTING AUXILLIARY LANES AND NOISE WALLS (AC PAYBACK 1 OF 1)	M	Pavement	2015	$3,800,000
238-010-003AC	**AC**AT HENNEPIN CSAH 144 IN ROGERS-RECONSTRUCT INTERCHANGE, MULTI-USE TRAIL AND SIDEWALK, SIGNALS AND LIGHTING (AC PAYBACK 1 OF 1)	M	Pavement	2015	$5,368,066
7008-100	**PV40M**FROM 0.2 MI S OF MN 282 TO 0.9 MI N OF MN 21 IN JORDAN - RECONSTRUCT/OVERLAY MAINLINE INCLUDING MEDIAN J-BARRIER AND REPLACE MEDIAN DRAINAGE STRUCTURES AND PIPES; REPLACE JOINTS, MILL AND OVERLAY BRIDGES 6802, 6803, 6804 ON US169 AND 6859 ON MN282; MINOR REPAIRS ON BRIDGES 9123 AND 9124 ON MN21	M	Roadside Infrastructure	2015	$8,200,000
2771-37	**COC**AB**HENNEPIN CR81 TO I94 IN MAPLE GROVE- 4-LANE FREEWAY COMPLETION AND CONSTRUCT 105TH AVE FROM MAPLE GROVE PARKWAY TO APPROXIMATELY 0.5 MILES W OF I94 INCLUDING NEW BRS 27228, 27230, 27245, 27246, 27251, 27R10, 27R11, 27W15, 27W16 (CHAP 117)	M	Twin Cities Mobility	2015	$95,475,316
2771-37E	**MN266** HENNEPIN CR81 TO I94 IN MAPLE GROVE- 4-LANE FREEWAY COMPLETION AND CONSTRUCT 105TH AVE FROM MAPLE GROVE PARKWAY TO APPROXIMATELY 0.5 MILES W OF I94 INCLUDING NEW BRS 27228, 27230, 27245, 27246, 27251, 27R10, 27R11, 27W15, 27W16 (BEING USED AS PART OF SP 2771-37 CONSTRUCTION)	M	Twin Cities Mobility	2015	$399,932
2771-37F	**MN249** HENNEPIN CR81 TO I94 IN MAPLE GROVE- 4-LANE FREEWAY COMPLETION AND CONSTRUCT 105TH AVE FROM MAPLE GROVE PARKWAY TO APPROXIMATELY 0.5 MILES W OF I94 INCLUDING NEW BRS 27228, 27230, 27245, 27246, 27251, 27R10, 27R11, 27W15, 27W16 (BEING USED AS PART OF SP 2771-37 CONSTRUCTION)	M	Twin Cities Mobility	2015	$490,000

Project Number	Description	District	Project Category	Year	STIP Total
2771-37G	**MN119** HENNEPIN CR81 TO I94 IN MAPLE GROVE- 4-LANE FREEWAY COMPLETION AND CONSTRUCT 105TH AVE FROM MAPLE GROVE PARKWAY TO APPROXIMATELY 0.5 MILES W OF I94 INCLUDING NEW BRS 27228, 27230, 27245, 27246, 27251, 27R10, 27R11, 27W15, 27W16 (BEING USED AS PART OF SP 2771-37 CONSTRUCTION)	M	Twin Cities Mobility	2015	$116,233
2771-37H	**MN235** HENNEPIN CR81 TO I94 IN MAPLE GROVE- 4-LANE FREEWAY COMPLETION AND CONSTRUCT 105TH AVE FROM MAPLE GROVE PARKWAY TO APPROXIMATELY 0.5 MILES W OF I94 INCLUDING NEW BRS 27228, 27230, 27245, 27246, 27251, 27R10, 27R11, 27W15, 27W16 (BEING USED AS PART OF SP 2771-37 CONSTRUCTION)	M	Twin Cities Mobility	2015	$4,204,068
2771-37J	**COC**HENNEPIN CR81 TO I94 IN MAPLE GROVE-DESIGN AND CONSTRUCTION OVERSIGHT (CHAP 117)	M	Twin Cities Mobility	2015	$4,935,000
2771-37K	**COC**HENNEPIN CR81 TO I94 IN MAPLE GROVE-UTILITY AGREEMENTS WITH AT&T, TDS METROCOM, AND MCES (CHAP 117)	M	Twin Cities Mobility	2015	$775,000
2771-37L	**COC**HENNEPIN CR81 TO I94 IN MAPLE GROVE-RR AGREEMENT (CHAP 117)	M	Twin Cities Mobility	2015	$485,324
2771-37M	**COC**HENNEPIN CR81 TO I94 IN MAPLE GROVE-STIPENDS FOR UNSUCCESSFUL BIDDERS (CHAP 117)	M	Twin Cities Mobility	2015	$675,000
2771-37N	**COC**HENNEPIN CR81 TO I94 IN MAPLE GROVE-MISCELLANEOUS CONSULTANT AGREEMENTS (CHAP 117)	M	Twin Cities Mobility	2015	$505,000
2771-37RW1	**MN211**HENNEPIN CR81 TO I94 IN MAPLE GROVE-RIGHT OF WAY (SAFETEA-LU) (REMAINING R/W AMOUNT INCLUDED IN R/W SETASIDE)	M	Twin Cities Mobility	2015	$2,107,164
2771-37RW2	**MN226**HENNEPIN CR81 TO I94 IN MAPLE GROVE-RIGHT OF WAY (SAFETEA-LU) (REMAINING R/W AMOUNT INCLUDED IN R/W SETASIDE)	M	Twin Cities Mobility	2015	$1,873,034
2771-37RW3	**MN119**HENNEPIN CR81 TO I94 IN MAPLE GROVE-RIGHT OF WAY (SAFETEA-LU) (REMAINING R/W AMOUNT INCLUDED IN R/W SETASIDE)	M	Twin Cities Mobility	2015	$936,518
8825-503	METROWIDE (I-35, I-35E, I-494, I-694, MN212 AND MN41)-INSTALL GROUND IN WET REFLECTIVE EDGE MARKING	M	Safety	2015	$900,000
0202-95	**CIMS**AT ANOKA-CSAH 83 IN RAMSEY-CONSTRUCT INTERCHANGE, INCLUDING CSAH 83 BRIDGE 02007 OVER US10 & CSAH 83 BRIDGE 02586 OVER BNSF RR, PED/BIKE IMPROVEMENTS, DRAINAGE, BARRIERS, LIGHTING, STRIPING, SIGNAL, SIGNING	M	RCIP	2015	$10,000,000

Project Number	Description	District	Project Category	Year	STIP Total
0214-44	**SEC164**FROM I35W IN MOUNDS VIEW TO MN 610 IN BLAINE-CABLE MEDIAN BARRIER (TIED TO 2762-98)	M	Roadside Infrastructure	2015	$718,000
2714-142	EB US12, FROM E JCT HENNEPIN CSAH 101 IN WAYZATA TO I494 CD RD EXIT IN MINNETONKA-CONSTRUCT AUXILIARY LANE, DRAINAGE, GUARDRAIL AND OVERHEAD SIGN STRUCTURES ("OTHER" AMT IS MNPASS REVENUE)	M	Pavement	2015	$1,445,000
1905-39	AT DAKOTA-CSAH86 IN RANDOLPH TOWNSHIP-GRADE SEPARATED CROSSING ($702K IS CO-OP, $1M IS SAFETY CAPACITY, $356K WRE)	M	Pavement	2015	$3,356,000
1907-107	FROM DAKOTA CSAH 46 IN COATES TO N JCT OF MN 55 IN INVER GROVE HTS-CABLE MEDIAN BARRIER	M	Roadside Infrastructure	2015	$1,620,000
1928-60	FROM SOUTHVIEW BLVD IN SOUTH ST PAUL TO PLATO BLVD IN ST PAUL - REPLACE LIGHTING SYSTEMS	M	Safety	2015	$1,665,000
1913-64B	**MN261**HASTINGS BRIDGE 19004 (2010 APPROPRIATIONS ACT-STP)	M	Bridge	2015	$134,618
1913-64E	**MN261**HASTINGS BRIDGE 19004 - NATIONAL PARK SERVICE MITIGATION, BIRD STUDY PHASE I (2010 APPROPRIATIONS ACT-STP)	M	Roadside Infrastructure	2015	$65,000
1913-64G	**MN261**HASTINGS BRIDGE 19004-POST CONSTRUCTION SURVEY OF HISTORICAL BLDGS (2010 APPROPRIATIONS ACT-STP)	M	Roadside Infrastructure	2015	$60,000
1913-74	**MN261**HASTINGS BRIDGE 19004-STAGING AREA FOR HASTINGS BRIDGE REPLACEMENT - PRAIRIE RESTORATION (2010 APPROPRIATIONS ACT-STP)	M	Roadside Infrastructure	2015	$50,000
2772-114	FROM I394 IN GOLDEN VALLEY TO BROOKLYN BLVD IN MAPLE GROVE AND BROOKLYN PARK-SIGN REPLACEMENT	M	Safety	2015	$500,000
2772-99	ON EAST SIDE US169 FROM 16TH ST W TO JUST N OF WAYZATA BLVD IN ST LOUIS PARK - NOISE WALL	M	Roadside Infrastructure	2015	$495,000
2762-98	**SEC164**POWERS BLVD IN CHANHASSEN TO I494 IN EDEN PRAIRIE-CABLE MEDIAN BARRIER (TIED TO 0214-44)	M	Roadside Infrastructure	2015	$1,368,000
1982-172	AT DIFFLEY RD (DAKOTA CSAH30) EAST AND WEST RAMPS IN EAGAN-REPLACE TRAFFIC SIGNAL AND ADA UPGRADES	M	Safety	2016	$500,000
6280-369	FROM ST. CLAIR AVE TO RAMSEY ST/GRAND AVE IN ST. PAUL - MISC REPAIRS TO BRIDGES 9519, 62802 AND 62803	M	Bridge	2016	$1,370,000

Project Number	Description	District	Project Category	Year	STIP Total
6280-370	FROM SHEPARD ROAD TO KELLOGG BLVD IN ST. PAUL - REPLACE LIGHTING SYSTEMS	M	Safety	2016	$1,800,000
0280-70	SB ENTRANCE RAMP FROM LAKE DR (ANOKA CSAH 23) IN BLAINE TO S OF 85TH AVE IN SHOREVIEW - CONSTUCT SB PARALLEL ACCELERATION LANE, DRAINAGE, CURB & GUTTER	M	Pavement	2016	$355,000
2782-316	FROM 42ND ST IN MINNEAPOLIS TO 66TH ST IN RICHFIELD - CORRIDOR LANDSCAPING	M	Roadside Infrastructure	2016	$150,000
2783-137	FROM HENNEPIN AVE TO JOHNSON ST IN MPLS - OVERLAY AND DECK REPAIR ON BRIDGES 27885, 27886, 27989, 27994, MILL AND PATCH DECK ON BRIDGE 27985, GUARDRAIL	M	Bridge	2016	$1,965,000
6284-162	AT RAMSEY COUNTY RD H (T.C. ARSENAL ENTRANCE) IN ARDEN HILLS - REPLACE BRIDGE #9582 (NEW BRIDGE 62732) AND RAMP RECONSTRUCTION	M	Bridge	2016	$6,800,000
6284-163	FROM S I694 TO S OF RAMSEY CR E2 IN ARDEN HILLS/NEW BRIGHTON - REPLACE BRIDGE 9570 (NEW BRIDGE 62873)AND APPROACHES, GUARDRAIL, PONDING AND AUXILLIARY LANES IN BOTH DIRECTIONS (TIED TO 6284-166)	M	Bridge	2016	$12,355,000
6284-166	**PV40M**FROM RAMSEY CR C IN ROSEVILLE TO I694 IN ARDEN HILLS/NEW BRIGHTON- MILL AND OVERLAY, DRAINAGE, GUARDRAIL, SIGNING, STRIPING (TIED TO 6284-163)	M	Pavement	2016	$7,645,000
2780-91	**ELLA**I94 EB EXIT RAMP TO WEAVER LAKE ROAD IN MAPLE GROVE- REPLACE RAMP SETTLEMENT AREA-LIGHT WEIGHT GEOFOAM FILL, BITUMINOUS PAVING, DRAINAGE, TMS AND LIGHTING	M	Safety	2016	$490,000
6282-204	FROM JUST E OF DALE ST TO JUST W OF PELHAM BLVD IN ST PAUL - REPAIR SUBSTRUCTURE UNITS ON BRIDGES 9379, 9381, 9452, 9457, 9663 AND 62813, REDECK AND OVERLAY BRIDGES 9383, 62845, 9387, ADA PED RAMPS, GUARDRAIL UPGRADE, DRAINAGE	M	Bridge	2016	$4,465,000
6283-175	EB I94 FROM E 7TH ST EXIT TO PED BRIDGE 62868 IN ST PAUL-ADD AUXILLIARY LANE, NOISEWALL, DRAINAGE, POND, TMS, SIGNING, LIGHTING, GUARDRAIL (TIED TO 6283-234 AND 6283-233)	M	Pavement	2016	$4,045,000
6283-233	AT MCKNIGHT RD (NORTH, SOUTH AND BURNS AVE RAMPS) IN MAPLEWOOD-REPLACE SIGNALS (TIED TO 6283-234 AND 6283-175)	M	Safety	2016	$500,000

Project Number	Description	District	Project Category	Year	STIP Total
6283-234	**PV40M**FROM JUST E MOUNDS BLVD IN ST PAUL TO JUST E OF MN120 IN WOODBURY AND ON US61 FROM JUST S OF BURNS AVE TO W JCT MN5 IN ST PAUL-UNBONDED CONCRETE OVERLAY, BITUMINOUS M&O, CONCRETE WHITE TOPPING, REPAIR BRIDGES 9143, 9144, 9145, 9146, 62706, 62861, 62862, 62838, 62870, AND PIER STRUT WORK ON BRIDGES 9147, 9148, 62861, 62868 AND 62869, DRAINAGE, SIGNALS, LIGHTING, SIGNING, GUARDRAIL, TMS, ADA AND CONSTRUCT TRAIL ALONG NB MN120 FROM BROOKVIEW DR TO 4TH ST & ALONG MCKNIGHT RD FROM BURNS AVE TO HUDSON RD (TIED TO 6283-175 AND 6283-233)	M	Pavement	2016	$32,725,000
2789-143	FROM I494 IN MINNETONKA TO WASHINGTON AVE N IN MPLS (I394 MNPASS) - PARTIAL ITS REFURBISHMENT, INCLUDING DMS, TOLLING EQUIPMENT AND TOLL SIGNING (OTHER $$ ARE MNPASS REVENUES)	M	Twin Cities Mobility	2016	$1,500,000
2785-330AC	**AC**FROM I394 TO I94/I694 -ADD GENERAL PURPOSE LANE BETWEEN TH 55 AND I-94//I-694, ADD AUXILIARY LANE NB BETWEEN TH 55 AND CR 6, ADD NB AUXILIARY LANE FROM I394 TO CARLSON PARKWAY, PAVEMENT RESURFACING & RECONSTRUCTION, PONDS, NOISEWALLS, SIGNAL REVISIONS, LIGHTING, TMS, REPLACE BRIDGES 27973 (27W21), 27974 (27W22), 27975 (27W23), 27976 (27W24), 27977 (27W25), 27978 (27W26), AND MISC REPAIRS ON 11 BRIDGES (AC PAYBACK 1 OF 1)	M	Twin Cities Mobility	2016	$32,000,000
6285-143	**COC** FROM EAST OF RICE ST IN LITTLE CANADA TO W OF LEXINGTON AVE IN ARDEN HILLS - CONSTRUCT A 3RD LANE AND RECONSTRUCT EXISTING LANES, PONDING, MILL AND LOW SLUMP OVERLAY ON BRIDGES 62723 AND 62724, PIER STRUTS ON BRIDGES 62823, 62582, 6582, 6581, 6580, NOISEWALL AND MEDIAN BARRIER (CHAP 117)	M	IRC	2016	$42,200,000
6201-87	FROM HENNEPIN/RAMSEY CO LINE TO W 6TH ST IN ST PAUL-BUS STOP BUMPOUTS FOR RAPID BUS SERVICE (CHAP 152 TRANSIT ADVANTAGE BONDS)	M	Twin Cities Mobility	2016	$5,000,000
2706-230	AT US169 EAST AND WEST RAMP IN HOPKINS-REPLACE EXISTING SIGNAL	M	Safety	2016	$500,000
2706-231	FROM MN41 IN SHOREWOOD TO MN100 IN ST LOUIS PARK- SIGN REPLACEMENT	M	Safety	2016	$500,000
1901-171	AT CSAH 5 IN BURNSVILLE- LANDSCAPING	M	Roadside Infrastructure	2016	$50,000
6212-148	OVER LEXINGTON AVENUE IN ROSEVILLE-REPLACE BRIDGE 5723 (NEW WB BRIDGE 62731 & EB 62734) AND RECONSTRUCT APPROACHES, BITUMINOUS MILL AND PAVING, SIGNALS, TMS, ADA, GUARDRAIL, STORM SEWER, PONDS AND CONCRETE PAVEMENT REHABILITATION ON HAMLINE AVE RAMPS ($10.7M CHAP 152 Bonds)	M	Bridge	2016	$13,460,000

Project Number	Description	District	Project Category	Year	STIP Total
8204-64	AT MN120 IN N ST PAUL & OAKDALE - REPLACE TRAFFIC SIGNAL & ADA UPGRADES	M	Safety	2016	$300,000
8214-114AK	FROM N SUNNYSIDE DR TO CHESTNUT ST IN STILLWATER - MULTI-USE LOOP TRAIL AS PART OF ST CROIX MITIGATION PACKAGE	M	Pavement	2016	$2,400,000
8214-114MIT16	OVER ST CROIX RIVER NEAR STILLWATER-MITIGATION/CONSULTANT ITEMS FOR REPLACEMENT OF RIVER BRIDGE 4654	M	Bridge	2016	$5,000,000
8214-160	FROM OSGOOD AVE TO WESTSIDE OF MN95 IN OAK PARK HEIGHTS- LANDSCAPING	M	Roadside Infrastructure	2016	$550,000
8214-173	CONSTRUCTION OF BERM AT KRIESEL FARMSTEAD IN WI AS PART OF ST. CROIX MITIGATION PACKAGE- WISCONSIN LET	M	Pavement	2016	$30,000
8214-174A	WI ST HWY64 FROM CR-E TO 150TH AVE-GRADING FOR LOOP TRAIL AS PART OF THE ST. CROIX RIVER CROSSING PROJECT-WISCONSIN LET	M	Pavement	2016	$175,000
8221-01AC2	**AC**OVER ST CROIX RIVER NEAR STILLWATER & OAK PARK HEIGHTS-NEW BRIDGE 82045 OVER ST. CROIX RIVER, INCLUDING RAMPS ON & OFF TH 95 (AC PAYBACK 2 OF 2, PARTIAL CONVERSION OF MANAGED INTO THE FUTURE AC)	M	Bridge	2016	$9,040,000
1008-81	HISTORIC CHASKA ATHLETIC PARK IN CHASKA-LANDSCAPING	M	Roadside Infrastructure	2016	$50,000
7010-100	**ELLA**FROM RR X-ING #7002025 IN LOUISVILLE TOWNSHIP TO JUST SOUTH OF MN RIVER BRIDGE #10012 IN JACKSONVILLE TWP - MILL & OVERLAY, SLOPE ARMORING	M	Pavement	2016	$810,000
2733-89	**ELLA**FROM JCT I494 IN BLOOMINGTON TO JUST N OF W 36TH ST IN ST LOUIS PARK-BITUMINOUS OVERLAY, DRAINAGE, GUARDRAIL IMPROVEMENTS, OVERLAY OF BRIDGES 9431, 9500, 27103, 27104 AND MISC REPAIR OF BRIDGES 27210, 9432, 27029, 27102	M	Pavement	2016	$16,040,000
2735-193	SB ENTRANCE RAMP FROM DULUTH ST TO MN100 IN GOLDEN VALLEY- CONSTRUCT HOV BYPASS, DRAINAGE, TMS	M	Pavement	2016	$260,000
2748-62	FROM MN610 IN BROOKLYN PARK TO I694 IN BROOKLYN CENTER-SIGNAL COORDINATION, DEPLOY CC CAMERAS, AND DYNAMIC MESSAGE SIGNS	M	Safety	2016	$839,039
6241-102	**PV40M**FROM JUST S COMO IN ST PAUL TO I35W IN ROSEVILLE-MILL AND OVERLAY, RECONSTRUCT RAMP AT NB MN280 TO I35W, ADA RAMP IMPROVEMENTS, DRAINAGE, AND GUARDRAIL	M	Pavement	2016	$2,800,000

Project Number	Description	District	Project Category	Year	STIP Total
1301-110	**AB** FROM JUST W OF JCT MN95 (TERN AVE) IN FRANCONIA/SHAFER TO MIDDLE OF BRIDGE 6566 IN TAYLORS FALLS-RECONSTRUCT ROADWAY AND CORRECT SUBGRADE AND SLOPE FAILURE, GUARDRAIL AND CONSTRUCT ROUNDABOUT AT US8 & MN95	M	Pavement	2016	$8,900,000
0202-93	**ELLA**AT FELDSPAR AVE NW IN RAMSEY-RECONSTRUCT INTERSECTION	M	Pavement	2016	$260,000
2713-107	AT HENNEPIN CSAH 90 IN INDEPENDENCE - CONSTRUCT LEFT TURN LANES	M	RCIP	2016	$760,000
6244-101	FROM PLATO BLVD TO I94 IN ST. PAUL - LANDSCAPING	M	Roadside Infrastructure	2016	$300,000
1913-64F	**MN261**HASTINGS BRIDGE 19004 - NATIONAL PARK SERVICE MITIGATION, BIRD STUDY PHASE 2 (2010 APPROPRIATIONS ACT-STP)	M	Roadside Infrastructure	2016	$35,000
8205-137	FROM MAYCREST AVE TO US10 INTERSECTION IN DENMARK TOWNSHIP-CONSTRUCT TURN LANES, MAYCREST AVE CONNECTION, MILL AND OVERLAY, STORM SEWER, PONDS, GUARDRAIL, ADA CURB RAMPS	M	RCIP	2016	$3,290,000
8205-141	WASHINGTON CSAH19 OVER US 61 IN COTTAGE GROVE - CLEAN BEARINGS, REPLACE JOINTS & MINOR SUBSTRUCTURE REPAIRS ON BRIDGE #9071	M	Bridge	2016	$120,000
2750-82	FROM MN610 IN BROOKLYN PARK TO US10 IN ANOKA-SIGNAL COORDINATION, DEPLOY CC CAMERAS, AND DYNAMIC MESSAGE SIGNS	M	Safety	2016	$1,152,197
2750-84	AT 93RD AVE IN BROOKLYN PARK/OSSEO-LANDSCAPING	M	Roadside Infrastructure	2016	$50,000
2772-103	ON EAST SIDE FROM 42ND AVE N TO 49TH ST N IN NEW HOPE - NOISE WALL	M	Roadside Infrastructure	2016	$1,305,000
7005-105	FROM SCOTT CSAH 14 IN LOUISVILLE TOWNSHIP TO OLD SHAKOPEE RD IN BLOOMINGTON-SIGN REPLACEMENT	M	Safety	2016	$400,000
7005-106	FROM CANTERBURY RD(SCOTT CSAH 83) TO CSAH 18 IN SHAKOPEE-RECONSTRUCT AND WIDEN RIGHT SHOULDER TO BUS SHOULDER AND ADD SIGNAGE, GUARDRAIL	M	Pavement	2016	$965,000
7005-114	AT CR 69 IN JACKSON TWP-LANDSCAPING	M	Roadside Infrastructure	2016	$50,000
7005-88	FROM SOUTH OF HENNEPIN/SCOTT CO LINE IN SHAKOPEE TO EAST OF US169 IN SAVAGE - TMS INSTALLATION	M	Safety	2016	$500,000
6280-381	S OF UNIVERSITY AVE TO JUST N OF MARYLAND AVE IN ST PAUL-LANDSCAPING	M	Roadside Infrastructure	2017	$300,000
6280-382	FROM I94 IN ST PAUL TO JUST N LITTLE CANADA RD IN LITTLE CANADA-LANDSCAPING	M	Roadside Infrastructure	2017	$300,000

Project Number	Description	District	Project Category	Year	STIP Total
2782-327	**AC**FROM 43RD ST TO I94 IN MPLS - MANAGED LANE COMPLETION, PAVEMENT RECONSTRUCTION AND REPAIR, NOISEWALLS, TMS, LIGHTING, REPLACE BRIDGES 9731 (27822, 27777), 9733 (27844, 27841), 27842, 27843, 27867 (27V47, 27V48), 27868, 27869 (27W02), 27870 (27W03), 27871, 27872 (27W06), CONSTRUCT NEW BRIDGES 27448 AND 27W01, REMOVE BRIDGE 27648 AND MISC REPAIRS ON 27851 (CHAP 152) (AC PROJECT-AC PAYBACK IN FY 2018)	M	Twin Cities Mobility	2017	$233,165,000
2783-148	AT 5TH ST SE OVER I35W IN MPLS - REPAIR PED BRIDGE 27987, APPROACHES, FENCING, ADA PED CURB RAMP	M	Bridge	2017	$1,305,000
2781-432	FROM NICOLLET AVE IN MPLS TO W SHINGLE CREEK BRIDGE 27909 IN BROOKLYN CENTER-MAJOR CPR AND DIAMOND GRINDING, SIGNING, GUARDRAIL, TMS, DRAINAGE AND MISC REPAIR ON 51 BRIDGES (TIED TO 2781-452 & 2781-453)	M	Pavement	2017	$33,895,000
2781-452	OVER GLENWOOD AVE IN MPLS-REPAIR BRIDGES 27726, 27726A, 27726B, 27727, 27727A, 27727B, 27728 (TIED TO 2781-432 & 2781-453)	M	Bridge	2017	$1,635,000
2781-453	AT HENNEPIN/LYNDALE TUNNEL (BRIDGE 27832) AND EB I94 UNDER I35W TUNNEL (BRIDGE 27834) IN MPLS-TILE REPAIR (TIED TO 2781-432 & 2781-452)	M	Bridge	2017	$2,500,000
6282-203	ON S SIDE OF I-94, FROM SNELLING AVE N TO PASCAL ST N IN ST PAUL-NOISE WALL	M	Roadside Infrastructure	2017	$565,000
1985-143	AT SE QUADRANT OF I494 & BLAINE AVE E IN INVER GROVE HEIGHTS - REPAIR & IMPROVE DRAINAGE TO POND T-23	M	Roadside Infrastructure	2017	$62,000
0285-66	FROM BNSF RR TO WEST OF I35W IN FRIDLEY - PAINT BRIDGES 02807, 9860, 62828, 9390 AND 9389	M	Bridge	2017	$1,625,000
7001-112	FROM E OF US 169 IN SAVAGE TO JUST E OF WASHBURN AVE IN BURNSVILLE-MILL AND OVERLAY, BUS SHOULDER, DRAINAGE, GUARDRAIL, ADA, SIGNAL REPLACMENT	M	Pavement	2017	$5,535,000
8214-114MIT17	OVER ST CROIX RIVER NEAR STILLWATER-MITIGATION/CONSULTANT ITEMS FOR REPLACEMENT OF RIVER BRIDGE 4654	M	Bridge	2017	$3,005,000
8214-161	S JCT MN95 TO E CHESTNUT ST IN STILLWATER AND ON MN95 FROM S JCT MN36 TO 10TH AVE N IN BAYPORT- LANDSCAPING AS PART OF THE ST CROIX RIVER CROSSING PROJECT	M	Roadside Infrastructure	2017	$200,000
8214-174B	WI ST HWY64 FROM NEW RIVER BRIDGE 82045 TO 150TH AVE-INSTALL PAVEMENT FOR LOOP TRAIL AS PART OF THE ST. CROIX RIVER CROSSING PROJECT-WISCONSIN LET	M	Pavement	2017	$37,500

Project Number	Description	District	Project Category	Year	STIP Total
8217-4654D	**ELLA** OVER ST CROIX RIVER - LIFT BRIDGE MGMT PLAN AND REPAIR CONVERSION PROJECT FOR BRIDGE # 4654 AS PART OF ST CROIX MITIGATION PACKAGE	M	Bridge	2017	$11,610,000
1008-76	AT HUNDERTMARK RD IN CHASKA - CONSTRUCT SB THRU LANE FROM WB HUNDERTMARK RD TO SB MN41, AND EXTEND LEFT TURN LANE FROM NB MN41 TO WB HUNDERTMARK RD	M	RCIP	2017	$390,000
0208-149	FROM 85TH AVE NE IN BLAINE TO SIMS RD IN EAST BETHEL - EXTEND 16 LEFT TURN LANES, CULVERT REPAIRS	M	RCIP	2017	$685,000
2734-50	FROM 36TH ST TO CEDAR LAKE RD IN ST LOUIS PARK-LANDSCAPING	M	Roadside Infrastructure	2017	$250,000
1918-110	**AB**FROM MN55/MN13 IN MENDOTA HTS TO I494 IN INVER GROVE HTS-RECLAMATION/WHITE TOPPING, ACCESS CLOSURES, TURN LANE EXTENSIONS, DRAINAGE REPAIRS, SIGN REPLACEMENT AND ADA IMPROVEMENTS	M	Pavement	2017	$7,435,000
2771-43	FROM US169 IN BROOKLYN PARK TO MN47 IN COON RAPIDS - INSTALL TRAFFIC MANAGEMENT SYSTEM	M	Safety	2017	$425,000
1906-65	FROM JCT MN19 IN CANNON FALLS TO 117TH ST IN ROSEMOUNT-CLOSE MEDIAN CROSSOVERS, CONSTRUCT 3/4 INTERSECTIONS WITH U-TURNS AND LEFT TURN LANES	M	RCIP	2017	$2,760,000
2772-104	SB US169 AT 16TH ST W IN ST LOUIS PARK - ACCESS CLOSURE, CONSTRUCT VISUAL BARRIER	M	Safety	2017	$875,000
2772-105	JUST NORTH OF MN62 IN EDINA TO MN55 IN GOLDEN VALLEY -CPR WITH DIAMOND GRINDING AND MILL AND OVERLAY, DRAINAGE, NOISEWALL REMOVAL AND RECONSTRUCT (INCLUDING REMOVAL FROM BRIDGE 27586)	M	Pavement	2017	$12,310,000
2772-110	AT CEDAR LAKE ROAD IN MINNETONKA/ST LOUIS PARK - LENGTHEN ACCELERATION & DECELERATION LANES, STORM SEWER, LIGHTING, TMS	M	Safety	2017	$760,000
2772-111	FROM 23RD AVE TO MEDICINE LAKE RD IN PLYMOUTH - CONSTRUCT NEW LOW POINT DRAINAGE SYSTEM	M	Roadside Infrastructure	2017	$450,000
2772-112	FROM I394 IN GOLDEN VALLEY TO I94 IN BROOKLYN PARK-INCIDENT MGMT, ITS REFURBISHMENT AND ENHANCEMENT	M	Safety	2017	$500,000

Project Number	Description	District	Project Category	Year	STIP Total
8280-47	FROM 80TH ST E TO JCT I35/I35W/I35E AND ON I35W FROM N OF MAIN ST TO JCT I35/I35W/I35E AND ON I35 FROM JCT I35/I35W/I35E TO N OF US 8- BITUMINOUS MILL AND UNBONDED CONCRETE OVERLAY, REPLACE BRIDGES 82815, 02804, 02806	M	Pavement	2018	$39,175,000
2782-327AC	**AC**FROM 43RD ST TO I94 IN MPLS - MANAGED LANE COMPLETION, PAVEMENT RECONSTRUCTION AND REPAIR, NOISEWALLS, TMS, LIGHTING, REPLACE BRIDGES 9731 (27822, 27777), 9733 (27844, 27841), 27842, 27843, 27867 (27V47, 27V48), 27868, 27869 (27W02), 27870 (27W03), 27871, 27872 (27W06), CONSTRUCT NEW BRIDGES 27448 AND 27W01, REMOVE BRIDGE 27648 AND MISC REPAIRS ON 27851 (AC PAYBACK 1 OF 1)	M	Twin Cities Mobility	2018	$36,000,000
2732-102	I494 TO TOWER ROAD-REPAIR/REPLACE DRAINAGE INFRASTRUCTURE	M	Roadside Infrastructure	2018	$1,110,000
2706-237	FROM JUST E OF I494 TO JUST W OF LOUISANA AVE- BITUMINOUS MILL AND OVERLAY, ADA, INTERSECTION REVISIONS	M	Pavement	2018	$5,680,000
8214-114AH	ST CROIX MIT ITEM - KOLLINER PARK: REMOVAL OF NON-HISTORIC ELEMENTS TO ALLOW REVERSION TO "NATURAL"-WISCONSIN LET	M	Pavement	2018	$46,000
8214-114MIT18	OVER ST CROIX RIVER NEAR STILLWATER-MITIGATION/CONSULTANT ITEMS FOR REPLACEMENT OF RIVER BRIDGE 4654	M	Bridge	2018	$120,000
8214-114Z	ST CROIX MIT ITEM - BLUFFLAND RESTORATION - REMOVAL OF BUCKHORN SIGN, PARTIAL RESTORATION OF WISCONSIN APPROACH (REMOVAL OF PAVEMENT FROM EAST END OF BRIDGE TO STH 35 AND PORTIONS OF CTH E) - WISCONSIN LET	M	Pavement	2018	$25,000
8214-169	FROM SUNNYSIDE DR TO 0.2 MI N OF SUNNYSIDE DR IN STILLWATER - MULTI-USE LOOP TRAIL, DRAINAGE, RETAINING WALLS AS PART OF ST CROIX MITIGATION PACKAGE	M	Pavement	2018	$307,000
8214-174	WISCONSIN LOOP TRAIL IN ST. CROIX COUNTY WI AS PART OF THE ST. CROIX RIVER CROSSING PROJECT-WISCONSIN LET	M	Pavement	2018	$637,500
8214-176	FROM SUNNYSIDE DR TO 0.2 MI N OF SUNNYSIDE DR - LANDSCAPING AS PART OF THE ST CROIX RIVER CROSSING PROJECT	M	Roadside Infrastructure	2018	$75,000
2726-74	FROM 27TH AVE NE IN MPLS TO 40TH AVE NE IN COLUMBIA HEIGHTS - MILL AND OVERLAY, ADA	M	Pavement	2018	$2,780,000
2773-10	FROM BEACH RD TO UNDER TRACY AVE BRIDGE AND ON US212 FROM 0.1 MI S OF MN62 TO E JCT WITH MN62-CONCRETE REHAB WITH DIAMOND GRINDING, MILL AND OVERLAY, SIDEWALK	M	Pavement	2018	$7,350,000

Project Number	Description	District	Project Category	Year	STIP Total
7007-33	FROM GERMAN RD AND STOPPEMAN BLVD NEAR BELLE PLAINE-CULVERT, STORM SEWER, EROSION CONTROL	M	Roadside Infrastructure	2018	$115,000
7008-111	FROM MN25 TO MN282 - UNBONDED CONCRETE OVERLAY, MILL BITUMINOUS PAVEMENT, MEDIAN CLOSURES, ADD U-TURNS, ENSION CABLE GUARDRAIL	M	Pavement	2018	$17,995,000

RAIL PROJECTS

Table A.3 Rail System Investment Projects – Twin Cities Core

RAILROAD	LOCATION	PROJECT DESCRIPTION	COST ($ MILLIONS)	FUNDING SOURCE
FREIGHT PROJECTS				
BNSF	Hinckley Subdivision	Coon Creek Junction/Third Main	$100.0	TBD
BNSF	Midway Subdivision	Add track and passing sidings	$ 5.3	TBD
BNSF	Minneapolis Junction	Improvements to the west leg of the wye to increase track speed on the curve and facilitate NLX routing	$33.0	TBD
BNSF	Moorhead Junction	Improvements to turnouts to increase track speed on the KO Subdivision	$5.0	TBD
BNSF	East Metro	New Siding	TBD	TBD
BNSF	Saint Anthony Junction	Improvements in and around Minnesota Commercial's A Yard to facilitate higher speeds and volumes on the Saint Paul Subdivision	$ 27.0	TBD
BNSF	Twin Cities Core	Adding 0.26 miles of additional track to the existing double main track between Seventh Street and Hoffman Junction	$ 0.4	TBD
BNSF	Twin Cities Core	Rehab/Replace Double Track Lift Bridge St. Croix Junction to Prescott, WI	$50	TBD
BNSF/CP	East Metro	Third Main/Yard leads, Cottage Grove	$65.6	TBD
BNSF/CP	East Metro	Third Main/mainline & connectors, Hoffman-Newport	$61.9	TBD
BNSF/CP	East Metro	St. Croix Flyover and connectors	$429.6	TBD
BNSF/CP	East Metro	Mississippi River Bridge/Hastings	$ 853.4	TBD
BNSF/CP/UP	East Metro	Hoffman-Westminster Trench/UP underpass	$84.1	TBD
BNSF/CP/UP	East Metro	Hoffman Junction & Wye/Flyover	$122.0	TBD
CP	CP Corridor	Prior Ave Bridge	$3.0	TBD
CP	CP Corridor	Snelling Ave Bridge	$10.0	TBD
CP	CP Corridor	Prior Ave Junction Easement/Merriam Park Junction	$20.0	TBD
CP	East Metro	Lower Afton Station (Red Rock Corridor)	TBD	TBD
CP	East Metro	Cottage Grove Station (Red Rock Corridor)	TBD	TBD
CP	East Metro	Hastings Station (Red Rock Corridor)	TBD	TBD
CP	East Saint Paul	CP Saint Paul Yard capacity expansion	$60.0	CP

RAILROAD	LOCATION	PROJECT DESCRIPTION	COST ($ MILLIONS)	FUNDING SOURCE
CP	Hastings bridge	Proposed replacement bridge would be a 324-foot-long double track vertical lift span	$90.0	TBD
BNSF/CP	East Metro	Access Road	TBD	TBD
TBD	TBD	Intermodal Facility – New Twin Cities Area Facility	$150.0	TBD
TCW	Savage	Rehabilitate currently out-of-service bridge over Minnesota River. A proposed replacement bridge would be a single track 160-foot-long through truss vertical lift span.	$34.0	TBD
UP	Albert Lea Subdivision	Dan Patch Interchange	$10.0	TBD
UP	Albert Lea Subdivision	Pigs Eye Bridge (UP) over Mississippi River. A proposed replacement bridge would be a 240-foot-long single track vertical lift span.	$ 76.0	TBD
UP	Hudson bridge	Improve/replace bridge. A proposed replacement bridge would be a 160-foot-long single track vertical lift span.	$87.0	TBD
UP	Mankato Subdivision - Shakopee	Realign main line to increase speed in and around Shakopee	$163.0	TBD
UP	Mendota Heights	Mendota Heights (UP) (Omaha Road Bridge Number 15) over Mississippi River. A proposed replacement bridge would be a 200-foot-long single track vertical lift span.	$44.0	TBD
UP	Saint Paul	Robert Street Vertical Lift Bridge (UP) over Mississippi River	$51.0	TBD
CROSSING SAFETY PROJECTS				
BNSF	Como Avenue, Saint Paul	Grade Separation	$25.0	TBD

Table A.4 Rail System Investment Projects – Twin Cities to Albert Lea/Des Moines (I-35 Corridor)

RAILROAD	LOCATION	PROJECT DESCRIPTION	COST ($ MILLIONS)	FUNDING SOURCE
FREIGHT PROJECTS				
UP	Albert Lea Subdivision	Install CTC between St Paul Yard across St Paul UP Bridge	$1.6	TBD

Table A.5 Rail System Investment Projects – Twin Cities to Chicago (River Route)

RAILROAD	LOCATION	PROJECT DESCRIPTION	COST ($ MILLIONS)	FUNDING SOURCE
FREIGHT PROJECTS				
CP	La Crescent	Replace span with single, fixed, double track bridge on CP's Tomah Subdivision	$117.0	TBD
CROSSING SAFETY PROJECTS				
CP	Sioux Street, Winona	Active Warning Devices Upgrades-4 Quad Gates	$0.6	TBD
CP	W Lyon Avenue (US-63), Lake City	Active Warning Devices Upgrades-4 Quad Gates	$0.6	TBD
CP	Louisa Street, Winona	Grade Separation	$12	TBD
CP	Sturgeon Lake Road (at Prairie Island), Red Wing	Grade Separation	$14.2	TBD

Table A.6 Rail System Investment Projects – Twin Cities to Duluth

RAILROAD	LOCATION	PROJECT DESCRIPTION	COST ($ MILLIONS)	FUNDING SOURCE
CROSSING SAFETY PROJECTS				
BNSF	Multiple	Grade crossing improvements on Twin Cities to Cambridge Corridor	$1.2	TBD
BNSF	NLX	Grade Crossing improvements on NLX Corridor	$60.8	TBD

Table A.7 Rail System Investment Projects – Twin Cities to Fargo/Moorhead

RAILROAD	LOCATION	PROJECT DESCRIPTION	COST ($ MILLIONS)	FUNDING SOURCE
FREIGHT PROJECTS				
BNSF	Capital costs	Add 82.69 miles of new signals	$62.6	TBD
BNSF	KO Subdivision	Add passing sidings (1.16 miles) on the KO Subdivision for Twin Cities to Fargo/Moorhead Corridor	$2.0	TBD
BNSF	KO Subdivision	Additional passing sidings and new track beyond existing double main track on KO Subdivision	$2.9	TBD
CROSSING SAFETY PROJECTS				
BNSF	US-71, Wadena	Active Warning Devices Upgrades-Interconnect with Adjacent Roadway Traffic Signals	$0.3	TBD
BNSF	1st Avenue N, Perham	Active Warning Devices Upgrades-4 Quad Gates	$0.6	TBD
BNSF	4th Street, Audubon	Active Warning Devices Upgrades-Medians	$0.1	TBD
BNSF	5th Street W, Frazee	Active Warning Devices Upgrades-Medians	$0.1	TBD
BNSF	Ferry Street (MN-47), Anoka	Grade Separation	$20.0	TBD
BNSF	Foley Blvd NW (CSAH-11), Coon Rapids	Grade Separation	$30.0	TBD
BNSF	Hanson Blvd NW (CSAH 78), Coon Rapids	Grade Separation	$23.2	TBD
BNSF	Proctor Avenue NW, Elk River	Grade Separation	$20.0	TBD
BNSF	Farwell Street, Verndale	Active Warning Devices Upgrades-Medians	$0.1	TBD
BNSF	Jefferson Street S, Wadena	Active Warning Devices Upgrades-Interconnect with Adjacent Roadway Traffic Signals	$0.3	TBD
BNSF	Parke Avenue S, Glyndon	Active Warning Devices Upgrades-Medians	$0.1	TBD
BNSF	6th Avenue NW, Perham	Grade Separation	$10.0	TBD
BNSF	Ramsey Blvd NW (CSAH 56), Ramsey	Grade Separation	$11.5	TBD

RAILROAD	LOCATION	PROJECT DESCRIPTION	COST ($ MILLIONS)	FUNDING SOURCE
BNSF	Sunfish Lake Road NW (CSAH 57), Ramsey	Grade Separation	$10.0	TBD
BNSF	S Main Avenue, New York Mills	Active Warning Devices Upgrades-4 Quad Gates	$0.6	TBD
BNSF	SW Brown Street, Verndale	Active Warning Devices Upgrades-Medians	$0.1	TBD
BNSF	Broadway W (MN-27), Little Falls	Active Warning Devices Upgrades-4 Quad Gates	$0.6	TBD
BNSF	Main Avenue, 20th Street, 21st Street, Moorhead	Grade Separation, Moorhead Subdivision	$43.0	Partially funded

Table A.8 Rail System Investment Projects – Twin Cities to Saint Cloud

RAILROAD	LOCATION	PROJECT DESCRIPTION	COST ($ MILLIONS)	FUNDING SOURCE
FREIGHT PROJECTS				
BNSF	Staples Subdivision	Double track, Randall to Lincoln	$20.0	BNSF
BNSF	Hinckley Subdivision	Passing sidings (23.54 miles)	$10.0	TBD
BNSF	Midway Subdivision	Add passing sidings (0.624 miles) for Twin Cities to Saint Cloud Corridor	$1.1	TBD
BNSF	Staples Subdivision	Sidings and Track (4.2 miles)	$7.3	TBD
BNSF	Staples Subdivision	24 miles new track	$86.6	TBD
BNSF	Staples Subdivision	Big Lake to Becker, and Little Falls to Darling second main track	TBD	BNSF
CROSSING SAFETY PROJECTS				
BNSF	Staples Subdivision	Grade Crossing Improvements	$3.5	TBD

Table A.9 Rail System Investment Projects – Twin Cities to Sioux Falls, South Dakota

RAILROAD	LOCATION	PROJECT DESCRIPTION	COST ($ MILLIONS)	FUNDING SOURCE
FREIGHT PROJECTS				
BNSF	Marshall Subdivision	Installation of CTC on 122.6 miles from Willmar to South Dakota border	$67.4	TBD
CROSSING SAFETY PROJECTS				
BNSF	Prosper Subdivision	Grade Crossing Improvements	$3.6	TBD

Table A.10 Rail System Investment Projects – Additional Freight and Crossing Safety Improvements

RAILROAD	LOCATION	PROJECT DESCRIPTION	COST ($ MILLIONS)	FUNDING SOURCE	CORRIDOR
FREIGHT PROJECTS					
CN	Duluth	Steelton Hill (Duluth) Double Track	$40.0	CN	Duluth
MVRRA	Minnesota Prairie Line	Track upgrades from Class 1 to Class 2, 60 miles	$58.0	TBD	Hanley Falls to Norwood
CN	Ranier	Ranier Yard Expansion	$15.0	CN	Ranier
CN	Rainy/Superior Subdivisions	Signal upgrades from Ranier to Duluth	$10.0	CN	Ranier to Duluth
CROSSING SAFETY PROJECTS					
BNSF	11th Street, Moorhead	Grade Separation, Moorhead Subdivision (north) and KO Subdivision (south)	$40.0	TBD	Twin Cities to Fargo-Moorhead, Moorhead to Willmar
BNSF	US-12 & MN-40, Willmar	Grade Separation, (result of Willmar Wye Bypass construction)	$49.8	Multiple, Partially funded	Moorhead to Sioux Falls
BNSF	Willmar	Willmar Wye Bypass	$20.0	BNSF	Moorhead to Willmar
BNSF	County Road 22 (CSAH 22), Morris	Active Warning Devices Upgrades-Medians, Morris Subdivision	$0.1	TBD	Moorhead to Willmar
BNSF	W 5th Street, Morris	Active Warning Devices Upgrades-4 Quad Gates, Morris Subdivision	$0.6	TBD	Moorhead to Willmar

RAILROAD	LOCATION	PROJECT DESCRIPTION	COST ($ MILLIONS)	FUNDING SOURCE	CORRIDOR
BNSF	W 7th Street, Morris	Active Warning Devices Upgrades-4 Quad Gates, Morris Subdivision	$0.6	TBD	Moorhead to Willmar
BNSF	14th Street S (MN-29), Benson	Grade Separation, Morris Subdivision	$10.0	TBD	Twin Cities to Bismarck
CP	Broadway Avenue, Crystal	Active Warning Devices Upgrades-4 Quad Gates, Paynesville Subdivision	$0.6	TBD	Twin Cities to Bismarck
CP	Central Avenue, Watkins	Active Warning Devices Upgrades-4 Quad Gates, Paynesville Subdivision	$0.6	TBD	Twin Cities to Bismarck
CP	Douglas Drive, Crystal	Active Warning Devices Upgrades-4 Quad Gates, Paynesville Subdivision	$0.6	TBD	Twin Cities to Bismarck
CP	MN-29, Glenwood	Grade Separation, Elbow Lake Subdivision	$10.0	TBD	Twin Cities to Bismarck
CP	Main Street, Kimball	Active Warning Devices Upgrades-Medians, Paynesville Subdivision	$0.1	TBD	Twin Cities to Bismarck
CP	Oak Avenue, Maple Lake	Active Warning Devices Upgrades-Medians, Paynesville Subdivision	$0.1	TBD	Twin Cities to Bismarck
CP	State Street, Eden Valley	Active Warning Devices Upgrades-Medians, Paynesville Subdivision	$0.1	TBD	Twin Cities to Bismarck
CP	Winnetka Avenue, New Hope	Active Warning Devices Upgrades-4 Quad Gates, Paynesville Subdivision	$0.6	TBD	Twin Cities to Bismarck
BNSF	6th Avenue NE, Pipestone	Active Warning Devices Upgrades-Medians, Marshall Subdivision	$0.1	TBD	Willmar to Sioux Falls
BNSF	East Main Street, Pipestone	Active Warning Devices Upgrades-4 Quad Gates, Marshall Subdivision	$0.6	TBD	Willmar to Sioux Falls

B. APPENDIX B: OUTREACH

This appendix includes the following documents and summaries related to public involvement in the State Freight Plan.

- Communications Plan
- Open House Summary
- Metro Quest Round 1 and 2 Results

Minnesota Statewide Freight Plan

Communications Plan

September 2015 (updated)

REVISION HISTORY

Revision Number	Date	Description
0	7/23/14	Original Draft
1	10/13/14	Revision based on Freight Office comments; coordination with Rail Plan
2	4/10/15	Revision based on Freight Office coordination
3	9/1/15	Revision / update for Project Team Meetings

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Communications Plan

BACKGROUND AND PURPOSE

In 2005 Minnesota developed its first-ever Statewide Freight Plan. The plan introduced a freight policy that recognized the importance of freight to the state's economy and also identified distinct sub-regions within Minnesota based on the similarities of commodities produced and consumed, the modes used and the inbound and outbound trading partners. These sub-regional analyses led to conducting regional freight studies (2008–2013) throughout the state.

In September 2012 the MinnesotaGO 50-Year Vision for Transportation was adopted. This long-range transportation vision is complemented by the 20-year Statewide Multimodal Transportation Plan. Together, these two documents provide direction for each of the state's modal system plans, which includes a Statewide Freight System Plan.

With the passage of the Moving Ahead for Progress in the 21st Century Act (MAP-21) in 2012, states are encouraged to develop comprehensive State Freight Plans to outline immediate and long-range plans for freight-related transportation investments. MAP-21 also encourages states to build performance-based and multimodal programs to address the many challenges facing the nation's transportation system. These challenges include improving safety, maintaining infrastructure condition, reducing traffic congestion and improving efficiency of the system and of freight movement.

The purpose of the communications plan is to provide an overview of the proposed public involvement strategy to develop a Freight Action Agenda, which will be part of the overall Statewide Freight Plan. The communications plan includes roles and responsibilities, goal and objectives, activities and outcomes and should be considered a "living" document. As the planning process proceeds, changes to the engagement strategy may be made in response to changing needs, views or priorities. In addition, results from the public involvement activities will be added to the document. At the end of the planning process, the communications plan will serve as a full record of stakeholder and public involvement in the development of the final plan report.

GOALS, OBJECTIVES, AND INTENDED OUTCOMES

The overall goals and objectives of the engagement process are to:

- Create opportunities for involvement, focusing on specific stakeholder groups including but not limited to private industry, public agencies, advocacy organizations and local and regional officials
- Provide education and information about the state's freight system to members of the general public and solicit feedback on items of general interest
- Use the input to identify opportunities within the state and to guide the development of MnDOT's vision for the statewide freight system
- Integrate and coordinate stakeholder involvement with technical tasks and timelines in a meaningful way
- Build understanding and partnership between the policy and technical levels, and state and regional/local levels, to facilitate successful implementation

The intended outcome is that stakeholders have actively participated in the project process and assisted MnDOT in creating an overall plan that is implementable.

PROJECT DEVELOPMENT PROCESS

Project Management Team

The Project Management Team will guide development of the Minnesota Statewide Freight Plan. The purpose of the PMT is to provide guidance on and review of draft and final policies, strategies, and performance metrics associated to the development of the plan and to facilitate coordination and partnership in implementing future freight projects. The PMT would meet at minimum monthly throughout the planning process and members are expected to facilitate communication back to the groups they represent.

Members of the PMT represent functional and modal groups within MnDOT, as listed in Table B.4.

Advisory Committee

The advisory committee, a multidisciplinary committee, will meet three times throughout the plan development process: early in the study to introduce the committee to the team and scope and confirm the plan goals and approach and throughout plan development to provide high-level policy guidance on issues and strategies and feedback on major findings and documents.

Advisory Committee Role: "big picture thinkers"

- Setting a long-term vision for freight – what would you do if there were no constraints?
- Identifying what's out there that needs to be considered
- Fitting this plan into context of other planning (MnDOT's 50-year vision, other statewide, district and regional plans)
- Building partnerships, identifying future collaboration opportunities

Advisory Committee members represent policy leaders and directors at the federal, state, regional and local levels. Advisory Committee members are listed in Table B.2.

Technical Team

The purpose of the technical team is to provide guidance on and review of draft and final policies, strategies, and performance metrics associated to the development of the plan and to facilitate coordination and partnership in implementing future freight projects. The technical team will meet four times throughout the planning process.

Technical Team Role: "implementers"

- Working out details of the vision, achieving grass-roots buy-in
- Providing input into how the elements of the plan can be followed through/what is needed to be successful
- Serving as representatives to ad hoc committees
- Building partnerships and links between policy-makers and "doers"

Members of the technical team have specific technical expertise related to freight and are listed in Table B.3.

AUDIENCES

MnDOT has a long-standing commitment to public and stakeholder participation through the *Hear Every Voice* program. In accordance with *Hear Every Voice* guidance, MnDOT strives to reach underserved populations such as ethnic or racial minority groups, low wage earners, non-English speakers, elderly, youth and persons with disabilities within any potential group audience. For purposes of this planning process, there are three main stakeholder groups.

Freight Stakeholders: A freight stakeholder is generally defined as a person, group or organization with a specific interest in a particular freight mode or planning element (i.e., financial, economic, etc.). These entities can provide information that will be useful and important in plan development. A comprehensive list of freight stakeholders will be developed by MnDOT project staff, leadership and committee members early in the planning process. Subsets of these broader stakeholder groups may be convened to discuss common issues, or in one-on-one meetings to discuss specifics or potentially sensitive information. Additional stakeholders will be identified as the project evolves, and as needs for specific input are recognized.

Tribal Governments: It is important that input into freight planning and communications be a two-way street between MnDOT and tribal governments. Both state and tribal governments should be aware of and have understanding of each other's current, ongoing, and future plans, needs and developments.

General Public: The interest of a member of the general public may be less specific than that of a defined stakeholder. An average citizen with any level of interest will have the opportunity to learn about freight and why it is important and provide input into the planning process.

It is understood that not every stakeholder or member of the general public shares the same amount of interest and commitment to the planning process, and as a result there will be varying levels of involvement. A number of outreach techniques will be used throughout plan development and are identified in the following sections.

OUTREACH TECHNIQUES

The core public outreach techniques used for the Minnesota Statewide Freight Plan are described below. Each activity, along with target audience, purpose, tools, timing and logistics is summarized in Table B.1.

Dynamic Work Groups

Target Audience: MnDOT Staff, Technical Team Members, Freight Stakeholders
Up to four specific work groups will be assembled to address topics of performance measures, freight network, institutionalization and governance/structure. Each work group will review current research and reports relevant to the topic, identify data or policy gaps/deficiencies, and develop recommendations to the PMT for how to use the data moving forward. Each work group will meet up to two times (eight meetings total). These meetings will be conducted in partnership with MnDOT.

MnDOT District Meetings

Target Audience: MnDOT District Planners and Engineers
An important group of stakeholders in this process includes those internal to MnDOT. The planners and engineers in each of the MnDOT districts will likely be responsible for implementing the Freight Action Agenda and should be involved in its development. MnDOT Freight Office staff will either travel to each of the MnDOT districts or hold a videoconference with key staff to inform about the project, identify projects and help build the partnership between Central Office and the districts that will be important for plan implementation (specific method to be determined by districts' leadership).

MPO Meetings

Target Audience: MPO Directors and Planners
Another important group of stakeholders in this process includes the directors and planners at all eight Municipal Planning Organizations. To gather valuable input from MPOs, MnDOT Freight Office staff will travel to each of the MPO offices to inform about the project, identify projects and help build the partnership between MnDOT and the MPOs.

Tribal Government Outreach

Target Audience: Tribal Transportation Leaders
MnDOT's Freight Office will solicit input and provide opportunities for engagement and updates to members of Minnesota's Advocacy Council for Tribal Transportation. This will include a Freight Office presentation on development of the plan given during the summer ACTT meeting held on tribal property in northern Minnesota. Subsequent follow-up efforts for tribal input and updates will be initiated by the Freight Office through MnDOT's tribal liaison, as well as directly with the ACTT members.

Public Open House Meetings

Target Audience: Freight Stakeholders, General Public
MnDOT Freight Office will coordinate with rail plan efforts to provide freight plan information at statewide open houses initiated by the rail plan. Presence of the freight office at these meetings will be primarily to educate the public about the role of freight in Minnesota and the efforts to develop a freight plan and to solicit initial input on freight needs and projects. Display boards will be provided and the flyer developed for the outreach packages (described later in this section) will also be used. The freight office will host its own open house at MnDOT's Central Office in St. Paul following the completion of the draft plan and action agenda. The purpose of this open house will be to share and receive feedback on the plan findings and recommendations.

Industry Interviews

Target Audience: Freight Stakeholders
Eight or more interviews/meetings will be facilitated with individual high-level industry leaders throughout the state to discuss general industry needs and issues important to plan development. It is anticipated that one-on-one discussion with freight stakeholders will produce the most informative results.

Meeting Notices and Project Updates

Target Audience: Freight Stakeholders, General Public
Multiple means will be used to distribute information about the plan and provide notice for upcoming meetings and other opportunities for input.

- *Freight Stakeholder List.* Freight stakeholders, particularly those with specific interests and stakes in Minnesota's economic future, will be critical partners in this planning process. The freight office, in coordination with MnDOT Communications, will build a comprehensive freight stakeholder list. The extensive interview work done as part of the District 8 and District 4 Manufacturers Studies will also serve as a source of contact information. The contacts will be added to an email listserv used to provide updates and invite engagement in meetings and online activities.
- *Email Lists.* Notices about the planning process and opportunities for engagement will be distributed primarily to the freight office's master stakeholder lists, but some will also be distributed via MnDOT's Gov Delivey email list designated for "Minnesota freight, rail and waterways updates."
- *Social Media*. Social media will be used to notice meetings, present freight facts and provide updates on the planning process. The project will rely on existing MnDOT social media outlets, with primary focus on the MinnesotaGO Facebook page. Other outlets may include the MnDOT YouTube channel and the agency's general Facebook and Twitter accounts. LinkedIn may also be used to target a more freight-specific audience. MnDOT staff will be responsible for posting content with content support from the consultant.
- *Press Release*. A standard press release will be drafted and distributed by MnDOT media contacts prior to each open house and to communicate key milestones in plan development (including location of the final plan).
- *Existing Publications*. When possible, notices will be sent to other freight-related publications, such as CTS's Freight Logistics E-News.

- *Freight Plan website.* MnDOT will host freight plan information on its planning web page (http://www.dot.state.mn.us/planning/freightplan/index.html). The consultant will provide content about the stakeholder engagement process for inclusion on the web page.

Outreach Toolkit

Target Audience: General Public
Outreach packages will be developed at key points throughout plan development for PMT members to provide information and share progress with interested parties. The package will consist of a short video and an educational handout.

- *Prezi Video.* A short educational video about the importance of freight and the planning of its future will be created using Prezi software, which will then be converted to video and edited to include new freight-related video footage. This will be used as an informational tool that also includes details about the plan and its action agenda for use beyond the planning process. It will be posted on MnDOT's Freight Office and Freight Plan web pages and on the Minnesota Freight Advisory Committee's home web page.
- *Minnesota Freight Facts Flyer (prepared October 2014).* What is a freight plan? Why is it important in general, and to Minnesota? These are all questions that will be answered in a "freight facts flyer" intended to inform and educate the general public on the plan. MnDOT will prepare a flyer for hard copy print and posting on the web during the planning process. MnDOT will also be provided with a print-quality PDF and original design files for use beyond the planning process.
- *Talking Points.* A set of talking points will be created for MnDOT staff to use as they engage with groups internal to MnDOT as well as outside of MnDOT and around the state as the plan is marketed and executed. Points will cover similar content as the freight facts flyer, but in greater detail.

Online Engagement – MetroQuest Survey

Target Audience: Freight Stakeholders
A MetroQuest survey, an interactive public involvement tool that can be integrated into MnDOT's freight web site or sent as a separate online link, will also be created to engage stakeholders. MetroQuest will facilitate the receipt of feedback from a larger audience than is typically achieved using traditional public involvement methods. Two rounds of MetroQuest survey will be used. Round #1 (October 2014) will focus on educating stakeholders and the general public on the role of the freight system in Minnesota and obtaining input to be used in the planning process (i.e., identifying freight system issues and needs). Round #2 (August 2015) will focus on review of recommendations and establishment of priorities (short-, mid-, or long-term priorities). Use of MetroQuest in the second round is anticipated to be targeted to specific freight stakeholders and freight groups.

Survey to Bordering States and Provinces (Completed Early 2015)

Target Audience: Freight Stakeholders
SurveyMonkey will be used to create a survey that can be distributed to neighboring states and Canadian provinces, modeled after the survey created for the North Dakota Freight Plan. This effort will facilitate a better understanding of inter-state freight needs and issues that cross state borders.

Freight and Logistics Summit (Held December 2014)

Target Audience: Freight Stakeholders
MnDOT and the University of Minnesota's Center for Transportation Studies will hold a Freight and Logistics Summit in December 2014. Topics important to the development of the freight plan will be incorporated into the agenda. The summit will also coincide with advisory committee and technical team meetings.

Table B.1 Summary of Engagement Techniques

Activity	Target Audience/Participants	Purpose	Anticipated Tools	Frequency/Timing	Logistics
Dynamic Work Groups	Freight industry leaders and policy-makers, technical team members, advisory team members	• Address performance measures, freight network, institutionalization, and governance/ structure • Review current research and reports relevant to the topic • Identify data or policy gaps/ deficiencies • Develop recommendations for the PMT on how to use the data moving forward	• Facilitated discussions	Each group will meet two times	Work groups will be facilitated either by the consultant team or MnDOT staff
MnDOT District Meetings	MnDOT District planners and engineers (internal stakeholders)	• Inform about the project • Identify projects • Build partnerships for plan implementation	• PowerPoint presentation • Discussion	One meeting with each District, October 2015	Led by MnDOT staff in and held in-person or via videoconference
MPO Meetings	External stakeholders	• Inform about the project • Identify projects • Build partnerships for plan implementation	• PowerPoint presentation • Discussion	One meeting with each MPO, September - October 2015	Led by MnDOT staff in and held in-person at each MPO's office

Activity	Target Audience/Participants	Purpose	Anticipated Tools	Frequency/Timing	Logistics
Tribal Government Outreach	External Tribal Transportation Leaders	• Inform about the project • Identify projects • Build partnerships for plan implementation	• PowerPoint presentation • Discussion	Provide plan presentation at ACTT meeting in July 2015. Follow-up communications via direct contact and MnDOT Tribal Liaison	Led by MnDOT staff in and held in-person at outstate ACTT meeting
Public Open Houses – Round 1 (in conjunction with rail plan meetings)	General public and stakeholders	• Educate about freight/the freight plan	• Presentation boards with simple text, maps and graphics • Freight plan info flyer	10/16/14 Northfield/Albert Lea 11/5/14 St. Cloud 11/10/14 Twin Cities 11/6/14 Eau Claire 11/12/14 Red Wing 11/13/14 Mankato 11/17/14 Duluth 11/24/14 Fargo 11/25/14 Winona 12/8/14 Willmar	Freight station available as part of the overall rail plan meetings

Activity	Target Audience/Participants	Purpose	Anticipated Tools	Frequency/Timing	Logistics
Public Open House – Round 2	General public, freight stakeholders, and tribal government representatives	• Educate about freight • Opportunity to comment on plan and action agenda	• Presentation boards with simple text, maps, and graphics	October 2015	An open house will be announced via news release and held at MnDOT Central Office in St. Paul
Industry Interviews	Specific companies	• Discuss general industry needs, specific business needs	• Interview guide or talking points	Summer 2015	Companies to interview identified in coordination with freight office; attention given to broadening the reach of the online survey/ensuring good geographic representation
Notices/Project Updates	Those with specific interests and stakes in the future of Minnesota's freight	• Education • Invitation to participate • Links to surveys	• Freight Stakeholder List • MnDOT Email List • Social media • MnDOT website • Press release	Leading up to events, project milestones	Comprehensive list will be built by Freight Office Social media will be managed by MnDOT
Outreach Toolkit – Prezi Video	Stakeholders	• Education – what is freight planning and why is it important	• Simple graphics • Voiceover audio	September 2015 (for web posting and for October 2015 Open House)	Short video (2-3 mins) to include video testimonial clips

Activity	Target Audience/Participants	Purpose	Anticipated Tools	Frequency/Timing	Logistics
Outreach Toolkit – Freight Facts Flyer	General public, stakeholders	• Inform and educate the general public on freight and the plan	• Concise, informative text • Appealing graphics	Used in conjunction with rail plan meetings, October – December 2014; also available for general use at any time	.pdf format suitable for printing and online posting
Online Engagement (MetroQuest) – Round 1	Freight stakeholders, general public	• Education • Input on freight priorities, areas where improvements are needed	• Dynamic questions and screens • Interesting and informative graphics and text	Online engagement opportunity available September 23 to December 19, 2014	Survey link posted on MnDOT's freight website and sent to stakeholders as a separate online link
Online Engagement (MetroQuest) – Round 2	Freight stakeholders, tribal transportation leaders	• Education • Feedback on draft plan strategies	• Dynamic questions and screens • Interesting and informative graphics and text	Online engagement opportunity available August 12 - September 4, 2015	Send to stakeholders and tribal government transportation leaders as a separate online link
MnDOT online resources	Stakeholders, general public	• General information and notification of upcoming events	• Freight plan info on freight office web page • Minnesota GO Facebook page • General MnDOT Facebook/Twitter accounts • MnDOT YouTube channel • Govs blog	Leading up to events, project milestones	Social media/online resources will be managed by MnDOT Consultant team to provide information on the stakeholder engagement process for MnDOT to use on the website

Activity	Target Audience/Participants	Purpose	Anticipated Tools	Frequency/Timing	Logistics
Survey to Bordering State and Provinces	Bordering states and Canadian provinces	• Needs identification and engagement	• Survey Monkey or Constant Contact	Early 2015	Survey sent to bordering states and Canadian provinces
Freight and Logistics Summit	Freight policy makers, industry leaders and operators	• Facilitated information gathering • Discussed plan priorities	• Presentations • Discussion groups • Coordinating advisory committee and technical team meetings	December 2014	Coordinated with CTS

Evaluation of Efforts

Specific techniques will be evaluated by staff periodically. Evaluation of techniques will be based on the following (example) criteria:

Quantitative:

- How many people attended events?
- What was the MetroQuest survey response rate?
- What was the geographic representation of attendees/responses?
- What types of freight system users were represented by attendees/responses?
- What was the Gov Delivery message readership?
- What was the number of Prezi views?

Qualitative:

- What kind of feedback was received on the stakeholder forums/public open houses?
- Were voluntary comments provided on the MetroQuest surveys?
- Have stakeholders expressed any particular challenges regarding their participation?
- Have multiple modes/geographic areas/industries been represented?

Brief meeting summaries will be drafted following each stakeholder forum, online survey, and open house and submitted to MnDOT staff for review. Discussion of measures will occur at the first team meeting after the open houses or other stakeholder meetings.

PUBLIC INVOLVEMENT SCHEDULE

The general schedule for implementing the techniques listed is presented on the following page.

Figure B.1 Communications Outreach Schedule

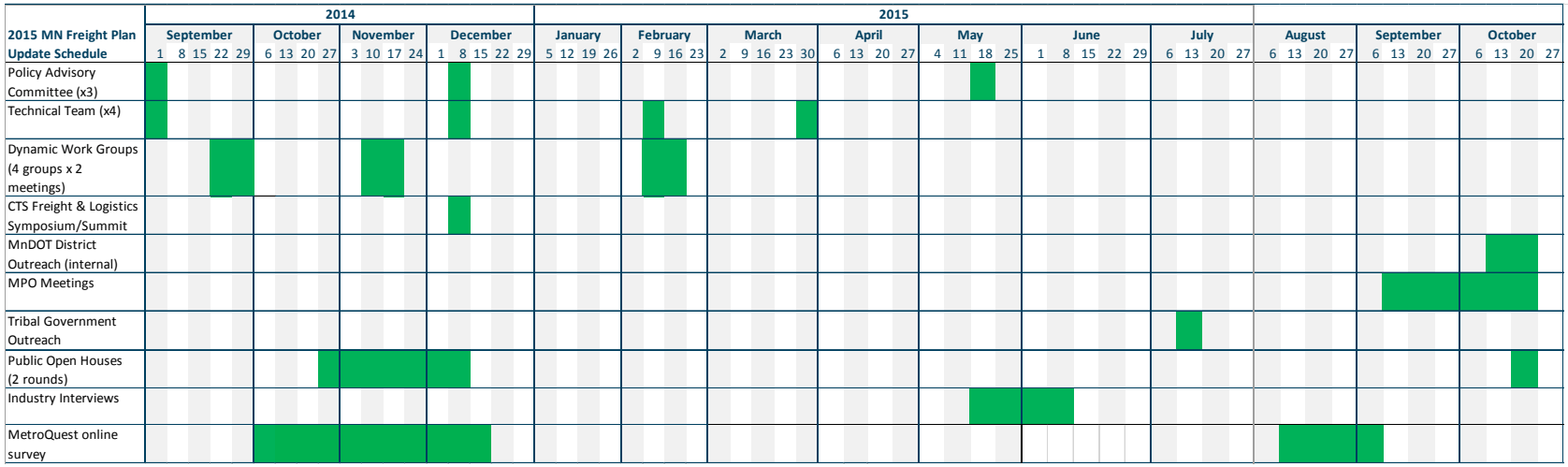


Table B.2 Statewide Freight System Plan Advisory Committee

Members	Responsibility	Area	Contact
Tim Henkel, Co- Chair	MnDOT Modal Division Director	Division Resources	tim.henkel@state.mn.us 651-366-4829
Bill Goins, Co-Chair	MFAC Chair	Statewide Freight Advisory	wegoins@fedex.com 612-865-3716
Bill Gardner	MnDOT OFCVO Director	Freight and Commercial Vehicle Operations	william.gardner@state.mn.us 651-366-3665
Lon Aune	Marshall County	County Engineer	lon.aune@co.marshall.mn.us 218-745-4381
Craig Collison	MnDOT District	District Resources	craig.collison@state.mn.us 218-755-6549
Alene Tchourumoff	Hennepin County	County Engineer	Alene.Tchourumoff@hennepin.us 612-348-0624
Steve Voss	MnDOT PMG Chair	Planner Group	steve.voss@state.mn.us 218-828-5779
Ron Chicka	MPO Chair	Metropolitan Planning	rchicka@ardc.org 218- 529-7506
Connie Kozlak	Met Council	Planning & Programming	connie.kozlak@metc.state.mn.us 651-602-1720
Kris Riesenberg	FHWA	Federal Planning & Programming	kris.riesenberg@dot.gov 651-291-6114
Neil Young	DEED	Economic Development & Programming	neal.young@state.mn.us 651-259-7196
Chip Smith	Bay & Bay Transportation	Intermodal Perspective	csmith@bayandbay.com 612-836-4520
John Hausladen	Minnesota Trucking Association	Trucking Perspective	john@mntruck.org 651-646-7351
Louie Jambois	St. Paul Port Authority	River-ports & Waterways	lfj@sppa.com 651-204-6233
Vanta Coda	Port of Duluth	Lake Ports & Waterways	vcoda@duluthport.com 218-727-8525
John Apitz	Regional Rail Authority	Railroad	JApitz@MesserliKramer.com 651-556-9211
Colleen Weatherford	BNSF	Railroad	colleen.weatherford@bnsf.com 817-625-6233
Lee Nelson	Upper River Services	Waterways Carrier	lee@ursi.net 651-292-9293
Bruce Abbe	Minnesota Shipping Association	Shippers	bruce@mnshippers.com 952-253-6231
Bob Zelenka	Minnesota Grain & Feed Association	Grain Shipper	mgfa@usinternet.com 651-454-8212
Barbara Mattson	Minnesota Office of Trade	U.S. and Regional Trade/NAFTA	Barbara.Mattson@state.mn.us 651- 259-7490
Lt. Bruce Verdoes	State Patrol	Motor Carrier Safety	bruce.verdoes@state.mn.us 507-273-3195

Members	Responsibility	Area	Contact
Ernie Perry	Mid-America Freight Coalition	Multi-State Freight Planning	ebperry@wisc.edu 608-890-2310
Jim Barton	Retired MFAC	Freight Advocate	jebart1@comcast.net 651-222-2786
Annette Bair	RDC	Rural Perspective	phydev@swrdc.org 507-836-8547
Margaret Donahoe	Minnesota Transportation Alliance	MN Highway, Transit, Rail, Waterway and Air	margaret@transportationalliance.com 651-659-0804

Table B.3 Statewide Freight System Plan Technical Team

Members	Responsibility	Area	Contact
Mark Schoenfelder Co-Chair	MnDOT District 6 Planning	Transportation Planning, Project Development	mark.schoenfelder@state.mn.us 507-286-7552
Matt Pahs Co-Chair	MnDOT Freight Planning	Freight mulitmodal planning	matthew.pahs@state.mn.us 651-366-3649
Philip Schaffner	OTSM Statewide Multimodal Planning	Minnesota Go, Multimodal Plan, 10 year Plan, Corridor of Commerce, Statewide Multimodal, Transportation Plan	philip.schaffner@state.mn.us 651-366-3743
Deanna Belden	OTSM Performance Management	Agency Performance Measures	deanna.belden@state.mn.us 651-366-3734
Brad Estochen	Highway Safety	Safety Planning, Funding, Data and Research	Bradley.Estochen@state.mn.us 651-234-7011
Lynne Bly	Metro Planning	Freight Planning, Project Development & Scoping advising Area Mgr.	lynne.bly@state.mn.us 651-234-7796
Steve Elmer	Met Council Planning	Freight Planning	Steven.Elmer@metc.state.mn.us 651-602-1756
Ted Coulianos	OFCVO Permitting	OS/OW Freight Movement	Ted.Coulianos@state.mn.us 651-355-0250
Darwin Yasis	Geometrics	RCI's (J,R Turns), Roundabouts	darwin.yasis@state.mn.us 651-366-4623
Bruce Holdhusen	OTSM Research Development	Research	bruce.holdhusen@state.mn.us 651-366-3760
Ben Zietlow	MAFC	Multi-State Perspective	bzietlow@wisc.edu 608-262-7246
Ronda Allis	MnDOT District 7	Rural District	ronda.allis@state.mn.us 507-304-6196
Andy McDonald	ARDC Planning	Greater MPO or RDC	amcdonald@ardc.org 218-529-7514

Technical Team will also include members from the Project Management Team

Table B.4 Statewide Freight System Plan Management Team

Member	Responsibility	Area	Contact
John Tompkins	Project Manager, OFCVO	Freight Planning	john.tompkins@state.mn.us 651-366-3724
Tim Spencer	OFCVO Freight and Rail Planning and Programming, Manager	Freight & Rail Planning, Programming & Development	timothy.spencer@state.mn.us 651-366-3702
Dave Christianson	OFCVO Freight & Rail Planning	Freight & Rail Planning	dave.christianson@state.mn.us 651-366-3710
Peter Dahlberg	OFCVO Freight & Rail Planning	Freight & Rail Planning	peter.dahlberg@state.mn.us 651-366-3693
Patrick Phenow	OFCVO Ports and Waterways	Ports & Waterways	patrick.phenow@state.mn.us 651-366-3672
David Tomporowski	OFCVO Freight Multimodal Planning	Freight Multimodal Planning	david.tomporowski@state.mn.us 651-366-3694
Bobbi Retzlaff	OTSM Statewide Multimodal Planning	Statewide Planning	bobbi.retzlaff@state.mn.us 651-366-3793
Laurie Ryan	Strategic Freight Partner Relations	Freight Planning	laurie.ryan@state.mn.us 651-366-3658
Donna Koren	Customer Relations	Marketing Research	donna.koren@state.mn.us 651-366-4840
Gina Baas	U of M Center for Transportation Studies	MFAC Leadership Integration	baasx001@umn.edu 612-626-7331

See project work plan for consultant team staff led by Cambridge Systematics

Minnesota Statewide Freight Plan Open House Outreach Summary

MINNESOTA STATEWIDE RAIL PLAN OPEN HOUSES

Information regarding the Statewide Freight Plan was available as part of the Minnesota Statewide Rail Plan public participation process. This included 10 open houses were held throughout the state from Octocber to December 2014.

OPEN HOUSE LOCATIONS

DATE	LOCATION
Oct. 16, 2014	Northfield, MN
Nov. 5, 2014	Saint Cloud, MN
Nov. 6, 2014	Eau Claire, WI
Nov. 10, 2014	Saint Paul, MN
Nov. 12, 2014	Red Wing, MN
Nov. 13, 2014	Mankato, MN
Nov. 17, 2014	Duluth, MN
Nov. 24, 2014	Moorhead, MN
Nov. 25, 2014	Winona, MN
Dec. 8, 2014	Willmar, MN

MINNESOTA STATEWIDE FREIGHT PLAN MATERIALS AVAILABLE

The materials available at the open houses included display boards on the following topics:

- Minnesota GO Vision and MnDOT Family of Plans
- Minnesota's existing freight system
- Freight and Minnesota's economy

A *What is a Freight Plan?* handout was also available to attendees.

FREIGHT PLAN PUBLIC OPEN HOUSE AND COMMENT PERIOD RESULTS

A public open house was held on May 25, 2016, from 10 a.m. to 1 p.m., in Room G13-14 at the Minnesota Department of Transportation's Central Office, 395 John Ireland Boulevard, St. Paul, MN 55155. This open house kicked off a 30-day comment period for the public to comment on the draft release of the 2016 Statewide Freight System Plan. Below are the comments from both the open house and throughout the comment period. There were 13 responses received; they were grouped in the following categories: Rail Plan Safety, Planning and Programming, Truck Harmonization and Permitting, and Transportation and Supply Chain.

Table B.5 Comments from Open House and 30 Day Comment Period

Note: Formatting and spelling reflects the crowd sourced data received

CATEGORY
RAIL PLAN SAFETY
The state needs to focus on the impact of hazardous freight trains moving through high-density areas -- not just in terms of reactivity via emergency preparedness but proactively: moratoriums, rerouting, requiring two- and four-person crews, a faster phase-out of the substandard DOT 11 and improving the suspect 1232 rail cars, and railyard storage.
PLANNING AND PROGRAMMING
This plan doesn't help MnDOT districts with programming decisions. Should we spend an extra $5M reconstructing this bridge on an OSOW route to gain 6" of clearance? Reconstruct this road to get to 10 tons, instead of just a mill and overlay? Really looking for more specific guidance instead of vague objectives about complete streets
I don't see any statements about addressing preventative maintenance and repair of existing infrastructure. I took multi-modal to incorporate the need of pedestrian/bike crossings. No mention of commuter rail being part of freight network in the Metro. Did we forget about Northstar?
Focus on planning and investments that maintain and improve access to non-truck modes (rail, water) and educate the public about their importance.
We need to see system safety engineering and management principles put into place and independently verified at the state and federal level for freight transport.
Consider freight as if we were as important as the bike and ped. since the economy depends on us. If we cannot turn in towns on Trunk Highways, how are we to get around? When prioritizing the network, the trunk highway should be the system that we can count on to provide the turning movements and width we need to deliver our goods.
TRUCK HARMONIZATION AND PERMITTING
Truck weights need to increase to match our surrounding states.
Truck weight bill and transportation legislation needs to be passed for critical efficiencies as well as long term job opportunities.
Improve coordination between MNDOT and Districts and Local Governments for purpose of harmonizing critical Oversize/Overweight Permit moves throughout state, particularly through corridors and enhanced local government automated permitting.
River port or ports that can be accessed with trucks hauling oversize/overweight loads. there is nothing available to OSOW trucks and the MN manufacturers need a port to be able to ship south on the river. there is much work available coming north that could use a port also.
Minnesota is way behind when it comes to the ability of all trucks 6 and 7 axels bearing able to haul increased gross weight. Because of this a here are more trucks on the road than would otherwise be necessary. MNDOT

CATEGORY
readily admits that 6 and 7 axels with increased gross weight are safer and create less damage to the roads. WHAT ARE WE WAITING FOR
Trucking, it is a monster. I am here from an agriculture stand point, we have freight situation dealing with two states, one allows multi trailer systems which does work very well. From less drivers and units on the road, fuel savings, less road issues due to spreading load and most of all public safety which person on street cannot understand.
TRANSPORTATION AND SUPPLY CHAIN
Need to consider the supply chain requirements for freight movements & strategy. Is the business model [1] warehouse and distribution centers.[2] manufacturing plants ship/receive materials, [3] small package shipping, [4] intermodal/container handling, [5] break-bulk centers, all have different footprints & requirements

During the Minnesota Statewide Freight System Plan open house, each participant was given the opportunity to prioritize five freight plan action items in the categories listed below. This opportunity to prioritize action items was also available in an online survey available throughout the 30-day comment period. Below are the results of the exercise, divided by freight plan objective area.

Table B.6 Accountability, Transparency, and Communication Action Item Prioritization

ACTION ITEM	ONLINE RESPONSES	IN-PERSON RESPONSES	COMBINED RESPONSES	RESPONSE RATIO
Education	12	9	21	18%
Partnerships	22	10	32	27%
Ongoing Freight Forum	8	6	14	12%
Advocacy	18	8	26	22%
Traveler Information	9	3	12	10%
Workforce Development	11	3	14	12%
Total	27	39	119	100%

Table B.7 Transportation in Context Action Item Prioritization

ACTION ITEM	ONLINE RESPONSES	IN-PERSON RESPONSES	COMBINED RESPONSES	RESPONSE RATIO
Corridor Preservation	11	7	18	16%
Truck Routes	19	8	27	23%

ACTION ITEM	ONLINE RESPONSES	IN-PERSON RESPONSES	COMBINED RESPONSES	RESPONSE RATIO
Complete Streets	15	4	19	16%
Land Use Planning and Policies	14	8	22	19%
Freight as a Good Neighbor	9	7	16	14%
Advanced Technology	9	5	14	12%
Total	27	39	116	100%

Table B.8 Critical Connections Action Item Prioritization

ACTION ITEM	ONLINE RESPONSES	IN-PERSON RESPONSES	COMBINED RESPONSES	RESPONSE RATIO
Integrate Freight into All Planning Projects	11	5	16	13%
Investments on the Principal Freight Network	9	4	13	11%
First-/Last-Mile Connections	8	12	20	17%
Targeted Freight System Investments	4	3	7	6%
Intermodal and Multimodal Facilities	5	8	13	11%
Urban Goods Movement Programs	5	0	5	4%
Truck Size and Weight	17	5	22	18%
Modal Options/ System Redundancy	7	2	9	8%
Evaluate and Restructure Existing Freight Funding Programs	12	2	14	12%

ACTION ITEM	ONLINE RESPONSES	IN-PERSON RESPONSES	COMBINED RESPONSES	RESPONSE RATIO
Total	27	41	119	100%

Table B.9 Asset Management Action Item Prioritization

ACTION ITEM	ONLINE RESPONSES	IN-PERSON RESPONSES	COMBINED RESPONSES	RESPONSE RATIO
Freight Data	15	7	22	20%
Freight System Performance Measures	19	9	28	26%
Freight System Investment Plan	15	12	27	25%
Prioritize Maintenance on the Principal Freight Network	22	9	31	29%
Total	26	37	108	100%

Table B.10 Traveler Safety and System Security Action Item Prioritization

ACTION ITEM	ONLINE RESPONSES	IN-PERSON RESPONSES	COMBINED RESPONSES	RESPONSE RATIO
Design for Freight Safety	21	9	30	26%
Truck Parking	12	5	17	15%
Incident Management and Emergency Response Plans	14	5	19	17%
Rail Crossings	15	10	25	22%
Rail System Vulnerabilities	14	9	23	20%
Total	27	38	114	100%

MINNESOTA STATEWIDE FREIGHT PLAN MATERIALS AVAILABLE

At the May 2016 Minnesota Statewide Freight System Plan Open House, the following activities occurred:

- A 15-minute Freight System Plan presentation with video at the beginning of the hour
- Display boards for prioritizing Freight System Plan Action Items

The materials available at the open house included display boards on the following topics:

- Minnesota Freight System
- Minnesota Principal Freight Network
- Minnesota's Economy, Key Industries and Expected Future Challenges
- Minnesota GO Vision and MnDOT Family of Plans
- Key Action Agenda Items and their Implementation
- The Freight System – Today vs. the Future
- Outreach
- Minnesota Top Freight-Related Industries, by District
- Freight System Plan Performance Measures
- State Freight System Plan Action Item Categories

Statewide Freight System Plan

METROQUEST RESULTS

MetroQuest Round 1 Overview

In order to gain greater insight on the freight priorities and needs in Minnesota and broaden the geographic extent of outreach for the Minnesota Statewide Freight System Plan, an interactive online survey was available from Sept. 23, 2014 to Dec. 19, 2014. The online survey was developed as a supplemental method for gaining information in conjunction with open houses, industry meetings and the Freight and Logistics Summit.

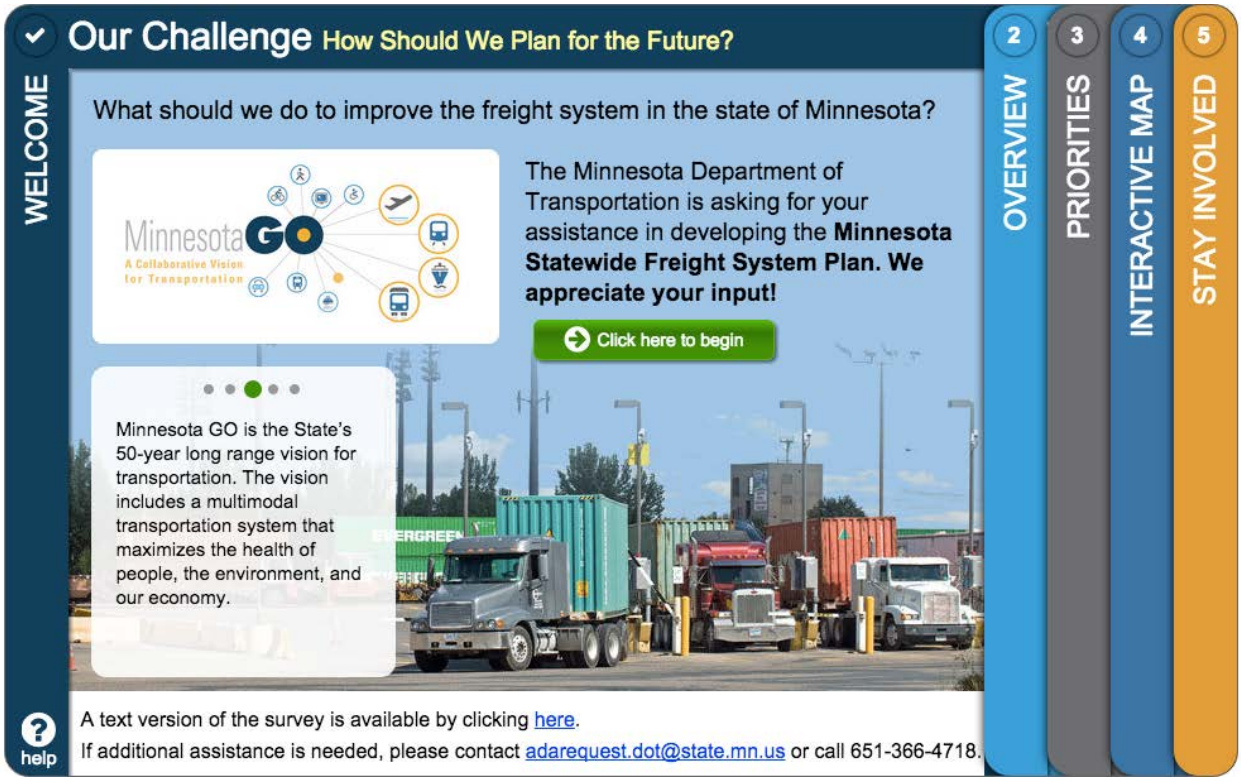
The survey included project information and opportunities to provide feedback on the various freight modes and current freight priorities and identify where freight needs are located throughout the state. The survey also gave respondents the opportunity to provide comments about freight and passenger rail so that the comments can be included in the State Rail Plan, which is also currently in development.

A total of 600 people took the survey, of which 208 specifically responded that they are involved in freight movement. This subset was cross-checked with specific email addresses that reflected agencies or companies with freight involvement, which resulted in an additional 26 responses that were relevant, for a total of 234 respondents whose answers were of specific interest to the freight plan team. This subset of 234 is the focus of the results to follow. Approximately 63 percent of respondents work in the private sector.

234 participants

476 places highlighted for improvement

Highest priorities were System Reliability, Safety, Congestion, and Bridge/Pavement Condition



METROQUEST ROUND 1 SURVEY RESULTS

The System

Survey respondents were given an overview of Minnesota's freight system and each of the modes utilized for freight shipment. They were then able to rank the importance of each mode to them or their organization. The scale used was: 1 to 5 (1 - not important/don't use, 3 - average importance/use with other modes, 5 - very important/use exclusively). Respondents could also provide any comments they had on each specific mode. The average ranking for each system is listed in Table B.6, and the comments provided for each system can be found in Table B.7.

Table B.11 Freight Mode Rankings

SYSTEM	AVERAGE RANKING	TIMES RANKED
Highway	4.35	230
Railroad	2.98	225
Aviation	2.54	221
Pipeline	2.63	219
Waterway	2.29	222

Table B.12 Freight System Comments

SYSTEM	COMMENT
HIGHWAY	
	Traffic impacts such as general congestion can slow movement of people and goods. I support expansion of highway systems in Minnesota.
RAILROAD	
	Rail is a growing piece of transportation for people to jobs, events, etc. However, as we have seen growth in 2014 for freight shipment of goods, how can we balance the impacts on both freight and people movement?
WATERWAY	
	Waterways are extremely efficient for bulk commodities. I suggest pressuring federal legislators to improve the waterway system to be modernized and more efficient.

Priorities

The survey also asked respondents to rank the top five freight items listed below based on priority to them or their organization. Table B.8 lists the ranks of the freight items surveyed (found by a multiplier of how many people chose it as a priority and how many times it was ranked) and the number of times that each item was ranked.

Table B.13 Freight Priority Rankings

RANK	PRIORITIES	TIMES RANKED
1	System Reliability	162
2	Safety	150
3	Congestion	134
4	Bridge/Pavement Condition	146
5	Economic Development	103
6	System Resiliency	82
7	Intermodal/Multimodal Connections	68
8	Environment/Community Impacts	61
9	Modal Options	61
10	Urban Goods Movement	48
11	Advanced Technology	37

Additional priorities were also provided by some survey respondents. These included:

- MnDOT needs to help the rail companies be better stewards of their land. Instead of spraying the land along the tracks, it should be replanted with bee and butterfly friendly plants.
- Cost
- Increase truck weights to reflect parity with surrounding states

Some survey respondents also provided comments on these priorities. These comments can be found in Table B.10.

Freight Needs

Survey respondents were also asked to locate freight needs throughout the state of Minnesota. Respondents highlighted 476 needs. Table B.9 provides a breakdown of the number of needs provided by category. The detailed comments from the freight needs section of the survey can be found in Table B.11. (Note that many needs did not list a comment with them and, therefore, are not listed in Table B.11). General locations of projects identified are shown in Figure B.2. A clickable map showing the location and a description of improvements can also be found at http://www.kimley-horn.com/MNfreightplan-survey1results.

Table B.14 Number of Freight Needs by Category

CATEGORY	NUMBER OF NEEDS PROVIDED
Highway	248
Railroad	108

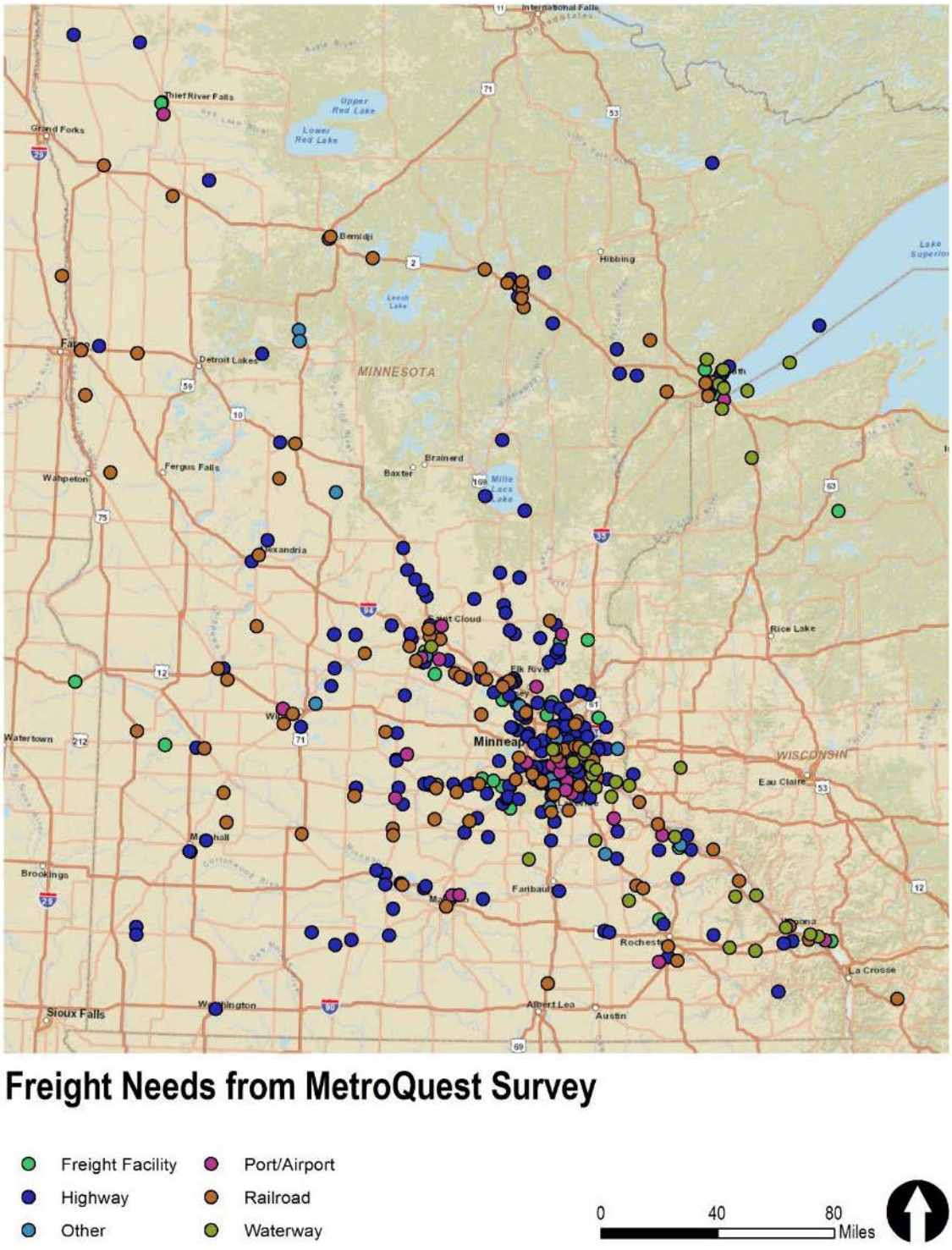
CATEGORY	NUMBER OF NEEDS PROVIDED
Port/Airport	31
Waterway	37
Freight Facility	37
Other	15

Themes from the Freight Needs Survey:

- Need to expand or finish expanding highways to four lanes
- Places are needed to transfer freight between trucks and trains
- Affordable truck facilities are needed within the Twin Cities
- Improved truck parking
- Congestion on highways in the Twin Cities is an issue
- Roads and bridges (both vehicle and train) need repair
- Regional airports are important to local economies around the state
- Late and unreliable train service has been affecting farmers and businesses throughout the state
- Passenger rail service is desired to Chicago, Duluth, Rochester and St. Cloud
- Additional rail capacity is needed throughout the state
- People are concerned about rail safety
- Additional intermodal access is needed
- Waterways are still needed for industry and shipping but are desirable for reclamation leading to residential and commercial development and recreational areas

Figure B.2 Freight Needs from MetroQuest Survey*

*See also http://www.kimley-horn.com/MNfreightplan-survey1results for a clickable map.



Additional Information

Additional information was also collected from survey respondents at the end of the survey. Some respondents provided their location, whether or not they transport freight and their employment sector. Of those who answered the question, most of the survey respondents answered that they ship freight (88 percent). There was, however, a difference between public and private sector respondents, with 63 percent of the response from the private sector and 37 percent of the response from the public sector. Survey respondents were represented across the state, as seen in Figure B.3. The private sector was primarily representative of the Twin Cities area (see Figure B.4).

Figure B.3 Zip Codes Provided by MetroQuest Survey Respondents

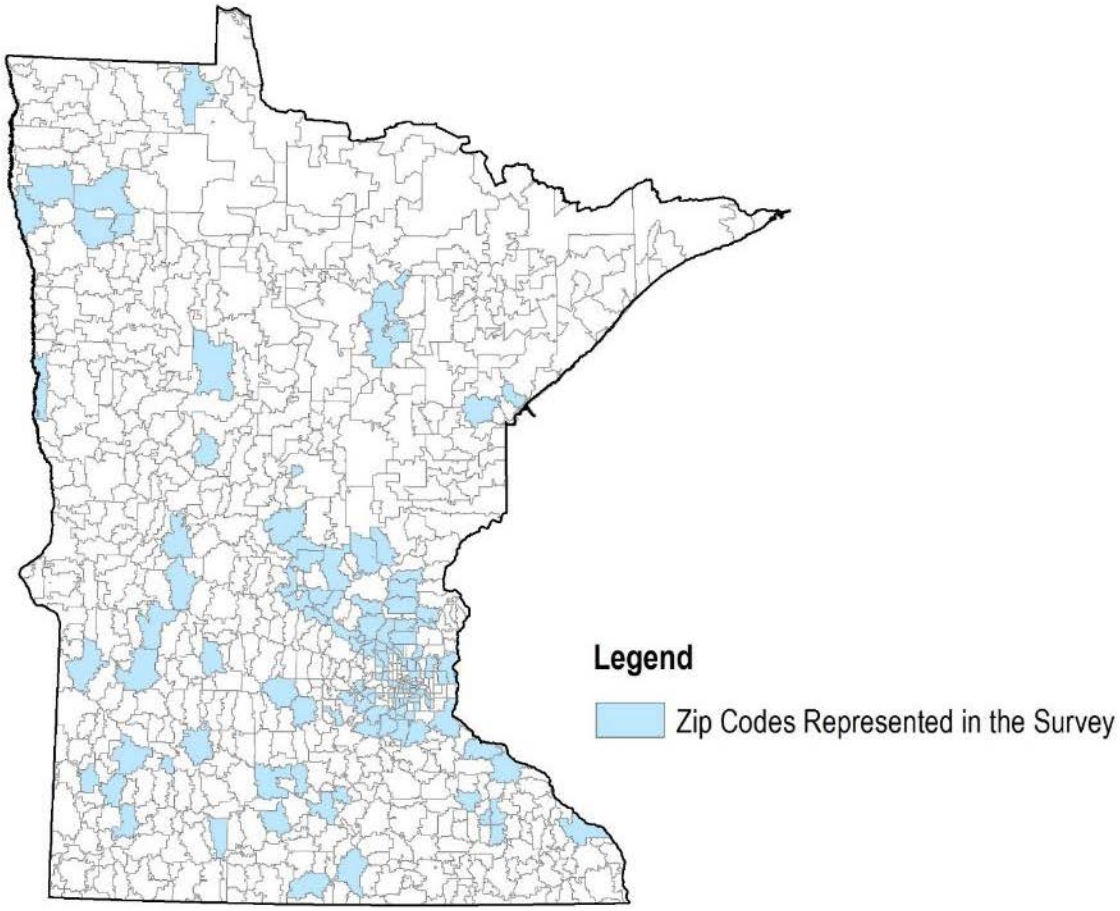
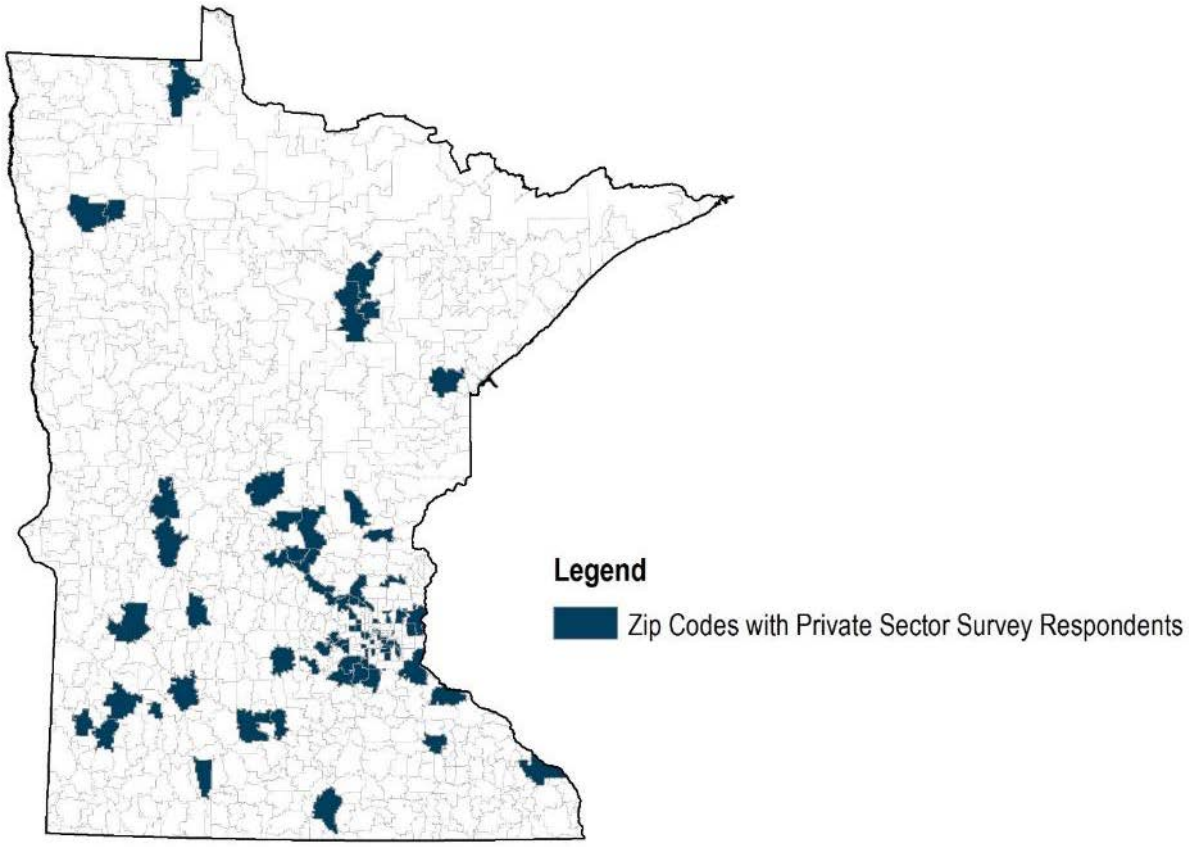


Figure B.4 Zip Codes Provided by Private Sector MetroQuest Survey Respondents



There was space at the end of the survey for survey respondents to provide additional comments. These comments can be found in Table B.12.

COMMENTS

Table B.15 Freight Priority Comments

Note: Formatting and spelling reflects the crowd sourced data received

PRIORITY
ADVANCED TECHNOLOGY
Making sure that people who still want to continue their way of life and job are not adversely affected by "progress". Those people have worked long and hard at their careers and skills, and we don't want to take their land away from them, as it adversely affects their bottom line.
Availability of truck parking is important now that the rules have changed and it's impossible to find a place to park for 10 hours!
BRIDGE/PAVEMENT CONDITION
Pavement degradation is increasing vehicle maintenance costs and congestion costs.
MnDOT should focus on needs of out-state regional centers such as Hutchinson to facilitate the movement of goods and improve roadway conditions/safety of TH's within urban boundaries.
MN needs to identify dedicated funding that will ensure our existing roads and bridges can be maintained to a level that prevents them from falling into a state of repair that requires complete rebuilds.
Minnesota's falling bridge is not easily forgotten. Hwy 56 south of Dodge Center is better, Hwy 19 RW to Nfld too. Catching up after so much lack of maintenance and repair, but long ways to go.
Need to get them fix Befor more people are. Hurt or killed
CONGESTION
As we continue to increase population, especially in the Metro area, we seem to be forgetting about increasing highway capacity. There should be a balance between highway capacity (much greater usage) and mass transit (lower usage and longer transit times).
ECONOMIC DEVELOPMENT
I support expanding freight and transit options across multiple modes as this is a strong benefit to a solid economy.
ENVIRONMENT/COMMUNITY IMPACTS
Degasify crude, whether transported by rail or pipeline.
Pavement upkeep and replacement is not sustainable. Rail upkeep and replacemtn is econcomicly feasible. A shift is in order to move away from highways that are paved to railroads that are connected to community delivery services.
INTERMODAL/MULTIMODAL CONNECTIONS
Water connections are essential links to the national and global transportation system and can't be ignored, even if the volume or dollar value seems small relative to highways.
SAFETY
Moving freight trains from the Bass Lake to the MN&S has been deemed unsafe or unlivable by the Met Council and the City of St. Louis Park. MnDOT needs to make it clear that no plans to re-route freight from either the CP's Bass Lake Spur or the BNSF will ever be considered again.
Degasify Bakken BOOM rail crude and also crude shipped by pipeline.

PRIORITY
SYSTEM RELIABILITY
when I sue the online system there's bugs some times were i try to log the certain roads like 43 to Winona the system doesn't allow me to evaluate.
all systems must operate with the least amount of impact to communities and travelers
Amtrak is important here and delays aren't acceptable. Moving schedule back is addressing symptom and not the problem.
Agree with the shipping time component. I tie this to traffic congestion causing increased travel time for consumers, employees, and goods. The same is true on the rail system.
SYSTEM RESILIENCY
Our roads and bridges need constant upgrades to increase safety and relieve congestion
URBAN GOODS MOVEMENT
Round abouts have one of the most negative impacts on our business transportation

Table B.16 Freight Needs Comments

Note: Formatting and spelling reflects the crowd sourced data received

CATEGORY
HIGHWAY
100% of our products are shipped in bulk trucks within a 200 mile radius of South St. Paul
169 as it turn into jordan is not safe going north or south. Realignment and ramp so there are no stops until St Peter?
169/41 interchange access mnanagement
35W around downtown is rarely clear. I actively avoid every using this route going downtown. I live in the South suburbs and take 35E up to university any time I am going downtown just to avoid the area between 62 and downtown.
35W is often backed up and slow
35w n needs to separate the through traffic starting at cty E through cty 10
35w/494 Interchange needs to be improved and recostructed
4 lane for 61
4 lanes would help
4 lanes would help.
494 in the Richfield/Bloomington area is quite bad every morning and evening specifically between Cedar and Highway 100
494 is especially congested in both directions
494 is slowing here. The ramps are not safe during rush hour. They also have capcity issues at the same time.
494/35W interchange is greatly under capacity and outdated.
4-Lane Upgrade from 2-Lane
7 needs to be expanded to handle the traffic. There are few ways to get west. I have been at lights for 4 rotations on a nice day.
A flyover or other option is needed here for traffic from 494 West to 212 West. The right lane on 494 is stopped back to flying cloud or further
Add a north south oriented, 4 lane crossover at Monticello to highway 10.

CATEGORY
add lane to csah14
add lanes to this old HMA area
Add third lane from 35e through 35w both directions
Add third lane from St Michael to St Cloud
Already congestion is back on 494 after adding lanes a few years ago. Need to look at other options or understand why there is congestion outside of rush hour times
At Red Wing with TH 63 south coming off the WI bridge, reroute the trunck highway ointo SR 58 to Zumbrita and TH 52, by-passing Lake City. Make TH 61 & TH 63 south to Lake /city as a scenic byway only.
Back ups during off hours are a negative to our operations as well as employees commute
Backs up a long way especially at rush hour
Bypass avoiding city traffic and congestion.
Capacity issues cause delays, decrease safety, and increase polution
Capacity needs to be added in the Lowery Tunnel section of I-94.
complete 4 land from Worthington to Mankato
complete 4 lane between New Ulm and Mankato
Complete 4-lane TH23
complete Highway 212 to four-lane facility from Chaska to Norwood Young America
Complete Highway 23 bypass (2 miles) around Willmar which will allow interchanges to be put in place when constructing the new bridge on Kandiyohi County #5 and Highway 23
Complete this stretch of 610
congested early morning 6-8
congested evening 3-6
congested evening 3-6
Congestion both ways on 94
congestion here as well. There is lightrail which would help if there was a parking location near the lightrail stations in Saint Paul. Mass transit is basically only convenient for those who live in Minneapolis and Saint Paul because there are no convenient places to park which doesn't add an hour and a half to a commute.
Construct aux./ramp access lane from 494 to Lone Oak Road to accommodate traffic weave/merge congestion traffic near the Lone Oak/35E interchange
Continue making improvements on Highway 61 between Two Harbors and Grand Marais.
Daily congestion at the CR 3 Lane Drop
Due to amount of usage this road gets, should be turned into an Interstate
Expand MN 23 to 4 lanes from Foley to Interstate 35
Fill the gaps of 4 lane highway on highway 23 between New London and Paynesville and from Paynesville to Richmond
For all of 13 in Dakota County... Get rid of the stop lights. This is a long term solution to 494 being crowded at a fraction of the cost to expand 494.
For the love of God - add a second lane / rebuild the flyover ramp from NB 35W to WB 94 !!!
Freeway condition
freight congestion
get rid of the lights. Either ramps or cut offs. There is too much traffic now to have them.
Having the load carrying capacity of the roadways.
Heavly traveld road that need on off improvments. To many deaths from Jordan to Shakopee
High speed area, being improved with elevated crossing, but still dangerous speed area.

CATEGORY
Highway 10 needs an interchange at Main St (and beyond) as well as a free flowing interchange with Highway 10.
Highway 14 expanded to four lanes between New Ulm and Nicollet
Highway 14 upgraded to four lanes between Owatonna and Dodge Center
Highway 14/15 intersection improvements needed for safety and economic development.
Highway 2 from Bemidji to Duluth is mostly 2 lane. Improvement would be to make this into a 4 lane highway.
Highway 212 needs to be four laned between Chaska and Cologne and between Cologne and Norwood Young America
Highway 55 and I-494 should have an interchange that removes the stoplights and creates a free flow for all directions.
Highway 61 needs to be moved and reconstructed as a limited access freeway out of Duluth. It's hard to get freight and cars through this corridor to all points beyond Duluth, including Canada.
Highway 81 is very often clogged with freight and commuter traffic. Recontruction with a new lane, plus better turn lanes seems necessary.
Highway across to North Dakota
Highways between Grand Rapids and Hibbing, Bemidji, Duluth, or the Twin Cities should be multilane, single lane highways cause shipping delays.
Hwy 55 is congested and needs expansion to a freeway
Hwy 65 improvements to eliminate congestion and improve access to developable propoerty
I believe there is a need to expand nearly ALL highways around the 494/694 loop. This will lead to greater movement of people and goods, creating stronger economics for Minnesota.
I need a double lane highway coming into New Ulm zip 56073 from Mankato to get more trucking firms to come to our destination
I work in elk river and so spend quite a bit of time here. Due to Hwy 10 and Hwy 169 there a choke point for both at certain times.
Improve condition of TH15 through downtown Hutchinson.
Improve TH22 route to US212 through Glencoe and address actual intersection of these roadways.
Improve US212 to upgrade from 2 to 4 lanes each side of Cologne.
insufficient capacity, and the need for reconfiguration cause congestion increasing travel delays, decreases safety, and increases polution
Interstate 94 should be 6 lanes all the way to St.Cloud.
Interstate load limits don't match State load limits
It has taken way too long to get 169 finished near Eagles Nest
jam at rush hour... dont know how to fix but its a situation.
Keeping roads in decent shape
Large scale mining operation location. Heavy truck traffic trying to enter onto Highway 46. Recommend accelartion and turn lanes.
Large scale truck garage, combined with the dealership nearby, a lot of traffic heading to 494
Less access & more Hwy from Hwy 10 north to Cambridge
less congestion metro wide
less congestion, more long term planning
light needs reset people are taking 212 instead of 169. 41 and 169 needs a reset backs up into chaska. I know there is going to be a bridge in the futre but there needs to be a ramp here in the future regardless.
make 212 4 lane at least to Olivia and plan for future extension of 4 lane to the SD border.

CATEGORY
Make the ramps longer. There is not enough time to merge. Safety and use restirctions.
Many metro roads and bridges are very old and in need of more frequent preservation construction project. This infrastructure needs to be replaced and expanded to decrease congestion and increase the life cycle time between repair projects that also have major traffic impacts.
Many of the roads in the NW part of the state are not wide enough and do not have sufficient shoulders to support the loads we carry. We haul equipment all over the state and these restricted roads force us drive further for deliveries and/or route us onto county/city roads when state roads are easier to use and travel on.
More effort needed to eliminate congestion
more lanes
more lanes
more lanes
more lanes
more lanes
More lanes
Need 3rd Lane on 35 through Lakeville
need 4 lane
Need 4 lanes from Mankato to new ulm. this will help in safety, and help New Ulm grow as we have better access from business and employees that will live in Mankato and travel to New Ulm for work.
Need 4-land on Hwy 212 to Western MN
Need a better connection for TH 22 to US 212 through Glencoe. TH 22 is on the IRC system and needs good connectivity for freight and manufacturers.
Need a new 35W bridge over 35W, know this is in the works. Will have 4 lanes in each direction and a trail.
Need continued reliablility on I-94 to and from Western Wisconsin
Need faster access to southern mn.
Need improved 494/35W Interchange. this is the most used interchange in the state, is a 1960's design, causes backups every day and isn't in MnDOT's 20 year plan for improvement which is unacceptable.
need more money to keep up with degradation
Need reliable connection to Rochester and La Crosse
Need reliable road connections to St. Cloud
Need to fix it right
Need to transport highway construction material from Elk River and Rogers
Need to transport highway construction materials from St. Cloud
No access from 94 to 35E need to be fixed. 35E North to 94W and 94E to 35E South.
Not allowing trucks on 35E between 7th and 94 is just St Paul being selfish. Fix this!
on the system and some other roads the system wont let me evaluate the trip and won't tell me why or why not.
Planning should occur to improive 169 to three lanes, both directions between Crosstown highway 62 and interstate 694 - including a redesign of the accesses to 169 from 394, Betty Croker Drive and highway 55
Poor visibility
Ready mix plant and aggregate yard, significant number of large trucks
Ready-mix plant location. Heavy truck traffic trying to enter onto Highway 169.
Reconsider the 45MPH Speed Limit
Remove multiple roundabouts from bypass. This type of interchange has no use in a major trucking route!
Remove Roundabout interchange. This type of intersection had no business being used in a major trucking route!
Resurface

CATEGORY
Resurfacing needed soon.
Road Carrying capacity
Road is congested, even on off-peak times
Road is very rough. needs resurfacing
Roads are in need of repair. Stop putting in stop lights all over the place. Use ramping or diverging diamonds. Get rid of lights on highway 15 through St Cloud, and on 23 too, where possible. Too much stop and go congestion!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
Roads suck and too much congestion
safe interchanges
Separate through traffic from transitioning traffic on 494/694
SERVICE ROADS
Should consider 4 lanes on USTH 169 between Onamia and Garrison. The traffic count drops at Garrison with a lot of traffic turning west on MNTH 18
Southbound old 76 needs to connect to Highway 10 North bound, 1 mile south of little falls.
TH 15 between Hutchinson and I-94 needs good pavement condition for haulers and it needs passing opportunities to have timely delivery. Currently the road is narrow and there are limited passing opportunities.
TH 15 between Hutchinson and I-94 needs good pavement condition for haulers and it needs passing opportunities to have timely delivery. Currently the road is narrow and there are limited passing opportunities.
TH 15 flows through downtown Hutchinson, there are several signals and movement of heavy commercial vehicles can be slow, especially in summer with recreational traffic.
TH 169 bridge over the Mn. River needs 4th lane to accommodate increased traffic.
TH 169 needs third lane in the corridor to accommodate increased raffoc
TH 61 in Lake City is a speedway and a detriment to tourism. Our city wants to expand tourism and reducing lanes to 2 or 3 will slow people down to get them to stop
TH 77 bridge over MN. River needs to be widened to minimize congestion in the TH 77 corridor.
The amount of traffic on Hwy 95 becomes congested
The crash rate at this intersection MAY be increasing
The crash rate at this intersection MAY be increasing
The round about that was installed here was a terrible idea that should be removed.
The state, and of course some county roads in our region are in very poor condition due to increased commercial and agricultural heavy/overloaded truck traffic. In fact it seems that rural Minnesota's roads are in rough shape compared to more populous and tourist areas of the state.
There are two choke points in the 60 mile stretch of TH23 from Willmar to St. Cloud. They restrict goods movement and also introduce safety issues from impatient drivers.
There have been 2 rear-end accidents involving trucks from the ready-mix plant and excavation company.
There is a lot of congestion from MPLS to ST Cloud. Need more lanes and roads.
This intersection has been identified as having a high crash rate
This is a congested area with a lot of construction that slows things way down!
Too congested too often
Traffic is always congested (during peak hours) on SB 35W
Traffic is always congested (during the peak hours) on NB 35W at 694
Traffic light or cloverleaf. Crossing both directions of 23 during rush is dangerous. Not enough space in median for a truck-trailer to cross one direction at a time.
Traffic on 169 South from 494 backs up well into 494.
Unsafe County Road. County Rd 16 between County Rds 18 & 83.

CATEGORY
Upgrade to 10 ton spring load rating. This one is crucial as there aren't good routes to TH 169 river crossing (TH 93 is only 7 ton) and the next 10 ton river crossing to the north is Belle Plaine. This has an impact on local sand and aggregate producers between Henderson and Blakely.
WB auxiliary lane needs to be constructed to accommodate TH 77 improvements.
WE NEED 4 LANE FREE WAY FROM GLENCOE TO EDEN PRAIRIE. FINISH 212 ALL THE WAY AS A 4 LANE HIGH WAY (2 LANES EACH DIRECTION)
We need a 4 lane trunk to Duluth and Minneapolis for trucks to make deliveries efficiently and safely.
We need a good four lane highway system from the South Dakota Border along either the Hwy 212 or Hwy 7 corridor into the Twin Cities and continuing on to connect with other four lane highways
We need expanded, improved road service to the two Twin Cities intermodal rail yards -- CP in Shoreham Heights, and BNSF's yard in St. Paul. Ideally bridge into and out of CP's yard over the rail tracks in Mpls. More lanes, maneuverability for trucks entering and leaving BNSF's yard in St. Paul. (This is both a highway & rail related recommendation for this area.)
We need roads that the Freight Trucks can drive on that the pot holes and surface condition limit damage to the freight they are hauling-
We need to complete HWY 14 to New Ulm ASAP. This issue has been ignored in St. Paul for the last 50 years while there has been a lot of infrastructure investment in the metro area. Get it done.
We reley on highways throughout MN to transport
Widen Highway 10 to four lanes; divert Hwy 29 so it no longer ends at HWY 71 but parallels Hwy 75 to access HWY 10 to reduce truck traffic going through the downtown business district. Re-route truck traffic traveling through town on Hwy 71 so that it no longer passes through the downtown business district.
RAILROAD
A rail yard needs to be built near Glencoe so that switching performed in the sw suburbs can be relocated to a rural area
Another rail line and Consistant RR times especiaslly for passenger trains
BNSF currently has to go into Willmar and turn their train around to go southerly toward Marshall. BNSF/MnDOT/City/County are proposing a RR bypass to reduce this congestion, improve safety, improve access to the industrial park for economic expansion.
Concerned about rail safety at or near critical junction of highway and power infrastructure.
connections for Pass!
Degasify, safety training and equipment, and second rail line in addition to pull offs
Degasify, safety training and equipment, and second rail line in addition to pull offs
Develop intercity passenger rail service
Develop intercity passenger rail service between Rochester and Twin Cities
Due to the increased shipments by rail we continue to have increased stoppage of trains on all of the rail crossings in our town, affecting schools, economics, emergency vehicles, etc.
Eliminate congestion of line from Saint Cloud to Minneapolis.
Faster rail speeds
Freight Capacity and Safety Issues at Hoffman Yard and Others identified in the East Metro Freight Railroad Capacity Study
Grain Shipments in this area have been hampered by access to grain cars for transportation. It appears that priority for shipping has gone to tanker cars for crude oil instead
hi-speed rail between Rochester and Twin Cities

CATEGORY
I have a rail spur on my property for unloading rail cars of lumber. When MNDOT made an upgrade on the right of way next to my building, they tore out the tracks servicing my building. Now that I want to bring in rail cars I cannot because of the break in the rail line.
Improve rail service especially in winter. Need to receive rail cars on time and get switched when needed. Most rail cars are obsolete designs with difficult to operate doors and valves. Need improved ergonomics for loading and unloading of cars. Need new designs for cars which require less manual labor to operate. Need general improvements to railroad operation. It's 2014, GPS can tell exactly where we are while driving or walking, but rail cars are spotted by hand, identified by reading numbers instead of scanning tags, switches are operated manually. It's time to embrace new technology the 1800's are over. Please improve safety, ergonomics, reliability and provide service options for cost control. The railroad is a monopoly with truck as the only alternative they strangle manufacturing.
intermodal access
intermodal access
Intermodal Access
Intermodal access
intermodal is backed up and very time consuming for drivers to retrieve containers - need infrastructure improvements to ramps
Intermodal rail service needed to give MN & Twin Cities access to LA/Long Beach container shipping ports. UP container rail service on the Spine Line through K.C. to southern California. A much needed development that would strengthen Minnesota's global trade capability and our international trade economy.
Less Congestion
make the Wye connection west of Willmar to direct rail traffic out of the main rail yard in willmar.
Minnesota Valley Regional Rail Authority owns 94.7 miles of track from Norwood Young America west to Hanley Falls, MN. This infratructure impacts 16 communities and the businesses including all the ag businesses and ag producers who feed the world and provide commodities for ethanol, biofuels, salt, tallow and other products used all over the country. We contract with Minnesota Prairie Line who is our contract operator. MVRRA is a publicly owned railroad statutorily authorized by the State of Minnesota. We have complete approximately 34 miles of rehab from Norwood Young America to just west of Winthrop with 115 lb continous welded rail, and these improvements are benefiting the communities with new business development occuring along those 34 miles of track. We have 60 miles yet to go and some major developments that can happen when the rest of the track is rehabbed along with the bridges that cross the Minnesota River. Every carload we ship replace 3 semis not tearing of our MN Highways!
More light rail in this area to mpls may loosen up congested roadway systems
more rail capacity for delivery of coal
more Rail lines to increase capacity
Need additional rail access from Red Rock River Terminal
Need increased rail access to Southport River Terminal
Need safe rail line for TCW Railroad to continue to transport goods through the twin cities
need second railroad line and carrier
Need to get the products to market
Northtown rail yard too congested last 12+ months
Passenger connection to Chicago
Passenger connection to Duluth
Passenger connection to twin cities.

CATEGORY
Preserve capacity on UP for future intercity passenger rail. Without increase in capacity, additional frac sand traffic will preclude passenger rail option. Make improvements in Shakopee and St. Paul to support interchange efforts and preserve potential passenger routes to downtown stations.
Rail access that avoids Chicago can get goods to LA faster for export.
Rail bridge should be upgraded and capacity increased
rail car shortage
rail car shortage, congestion
Rail congestion has created problems for Northstar, as well as delays at crossings.
Rail expansion is necessary to move goods and people on mainline routes.
Rail freight and passenger/transit traffic on the same tracks hinder both applications. Freight development and trackside TOD are both hindered.
Rail needs to be rerouted out of cental shakoppe downtown. Not only does it significantly slow down the train. I have seen pedestrians cross even if signals are on.
Rail runs through the heart of Grand Rapids which causes traffic congestion and emergency response delays while trains are moving through town. Also, we have issues getting reliable rail service due to rail congestion.
Rail service has been delayed in this area, costing farmers and ag businesses money and marketing opportunities, specifically grain for exports. The Northwest area has been hit hard.
Raw materials delivery
Reliable rail service can bring in goods otherwise trucked from Chicago and can then backload with agricultural produce for export.
safe crossings, switch yard capacity, passenger rail to mpls with freight
See nearby Highway recommendation -- re improved road access for trucks entering and leaving the two Twin Cities intermodal rail yards.
Somewhere along HWY 52 there is an at grade crossing that should be eliminated if possible
Stopped trains routinely block access in and out of Benson.
The existing Rail is only LQP Regional Rail. Pavement upkeep and replacement is not feasible. More rail is needed to move the existing farm commodities and the soon to be increased production yeids of corn and soybeans.
The Rail Line from Hanley Falls to Winthrop needs to have its 100 year old rails replaced and bridges upgraded so that the pent up demand for economic development in this area can be achieved
The railroad bisects our town; frequent congestion backs up traffic and cuts the southern half of the town from access to the hospital in the northern half of town during emergencies. Create an overpass so that the increasing train traffic does not increase road congestion or safety of residents.
The railroad system through St Cloud and across the rickety old bridge in downtown St Cloud don't always feel safe to me and my family!!! They need replacing or improvements!!
This rail line needs to have a program to replace its jointed rails with continuously welded rails, and also needs to construct rail passing sidings
three rails all the way to duluth for goods movement
three rails all the way to duluth port
three Rails all the way to duluth Ports for grains and farm products
Too many oil trains coming from North Dakota into MN...causing safety issues,.
Train delays impact coal delivery to Sherco power plant!

CATEGORY
Unreliable service
we depend on timely delivery
We have 2 tracks running through Elk River and with the amount of trains that are currently being used there can be back ups of traffic at rush hours
we have a spur but the train blocking traffic on Hwy 95 when it stops is unsafe and causes congestion
We need a reliable Amtrak schedule with 2 trains a day each way between the Twin Cities and Chicago.
We need a reliable and competitive rail system. If we can't get our raw materials in a timely and cost effective manner. We go out of business.
We..essentially...need the BNSF served 'High Line' northern corridor to be double tracked (or as near to double-tracked as possible) from Chicago to the PWN ports. But short of that, we need it to be as fast moving as possible through our state.
Wisconsin too: Degasify, safety training and equipment, and second rail line in addition to pull offs
Wisconsin too: Degasify, safety training and equipment, and second rail line in addition to pull offs
Would like commuter option from downtown to Maple Gove area
PORT/AIRPORT
Commercial service
consistent service levels
continue to support the upkeep and traffic in and out
Develop RST as the third terminal to MSP with passenger rail connection
Expand air capability at Red Wing regional airport
important to industry so access is needed
Improve TSA-clearing methods.
Maintain access.
More air transport could be utilized more. We have a airport in St Cloud and it is a central location. It may be more cost effective to have a hub in central minnesota
Move people and freight from central mn to relieve metro congestion
Need safe, reliable access with an airport commission that supports its tenants and is competitive with other metro areas
Passenger service. Runway expansion to 7,000 ft
Services and resources at the St Cloud Airport most definitely need to be expanded. We are becoming a regional service area in MN/Upper Midwest, and the airport needs to grow and provide services accordingly!!!
The airport is essential to Thief River Falls and the region. The airport ranks of 3rd in the state for air cargo. It also has important passenger service utilized by local business' and personal travel. It's important that federal and sate funding continue to fund air service.
The Willmar airport is designed to accommodate a longer runway (land purchased, etc.). Airport expansion would allow FedEx, UPS and other air carriers to utilize this new airport(opened in 2006).
This is a viable economic development opportunity and more should be done to exploit this location as a transportation resource.
Trucks and trains routinely have a hard time getting into and out of the river port.
We utilize airports throughout the state daily to transport
WATERWAY
90% of our product comes via barge from St. Louis to South St. Paul
Bank stabilization on Minnesota River

CATEGORY
Continuous Dredging
Interstate and regional planning is important on the waterways, which share state borders.
Interstate and regional planning is important, especially on the waterways that cross state boundaries
Locks and dams need to be updated to today's longer tows.
locks improvement to New ORLEANS
More grant funding is needed to reconstruct retaining/dock walls and other public infrastructure in the Stat's Harbors (4 Ports). This mode is a key transportation system that moves frieght cost-effectively (which helps farmers)/in an environmentally friendly way/and in concert with the other 2 modes. Most of the retaining/dock walls in the Saint Paul Harbor were constructed in the 1930's and 1960's; both timelines are well beyond asset life and dependability for river Shipping, which is fundamentally important to the economy of the State, Region, and City. There are 4 water-based public Port Authorities in the State, & STP, Duluth, Winona, Red Wing comprise the 22 year old MN Ports Association. This group has key data on needs and were instrumental in the development of MnDOT's Ports and Waterways Plan, 2013.
Need a better port facility
Need infrastructure funding
Other high level options beyond the Port of Duluth
Protect Duluth harbor and tributaries to this vital port .
Road salt supply for de-icing
Routes need to be maintain
shutdown of the locks at Minneapolis, lack of alternative dock facilities west of St. Paul
Support for continued and improved maintenance of MN's barge shipping capability. Dredging where needed to keep it flowing.
Support for modernizing and improving Port of Duluth's break bulk, ro-ro, and maybe expanded bulk grain loading capability for more shippers to utilize. Support for Port of Duluth's improvement plans (re WRDA).
This service doesn't really apply in St Cloud. However, maybe there is a use for it. I don't think it's really been explored...
Waterway access is critical for ag exports.
Waterway Port land use eroded by residential and commercial development
Waterways shippers will need assistance finding new modes after closure of the lock in the next year.
We need to update river shipping so that it no longer causes an enormous amount of damage to the Mississippi River.
FREIGHT FACILITY
A freigt hub
A place to transfer freight from rail cars to trucks should be constructed near the rail line and the four laned highway 212 to combine the efficiencies of rail with the flexibility of trucks
Arctic Cat is a world wide leader in the production of atv's and snowmobiles. The company employs over 2000 people and primarily uses highways to distribute its product.
De-stuffing facility, ability to pick small number of units for transit to another location
Digikey is a worldwide distributor of electronic components and provides over 3000 jobs for workers located from 7 different counties. Digikey utilizes both air cargo and highways to distribute its product. Continued funding of the Thief River Falls airport is essential.
Improve freight congestion in the Twin Cities - with railroads paying their fair share
It seems like it would be easier if more of these facilities were located near major roadways vs. in the middle of St Cloud (i.e. MTW)

CATEGORY
metro markets pushed the terminals outside of the loop, need to provide trucking companies access to put facilities where it does not cost more for them to operate
Need another intermodal facility in metro area
need assistance in developing an agriculture bulk terminal transloading truck-rail facility
need containers delivered in S/W minnesota
need freight analysis - study for the metro area - congestion is contributing factor to congestion / safety
Need intermodal facilities near the twin cities and on rail line
Product shipments and materials receiving.
Shipping 4'x8' sheet goods at a reasonable cost. Mostly from Rogers, MN
We have 6 different Semis that stop daily and meet each other coming and going- set up a system that only one truck needs to stop here and they separate freight at a substation or depot- way to many miles running after the same customers freight- wasted fuel and destroys roads prematurely
WE NEED 4 LANE HIGHWAYS FROM GLENCOE TO EDEN PRAIRIE. NEED TO FINISH 212 AS A 4 LANE ALL THEY WAY INTO THE METRO
OTHER
As part of passenger rail capacity, build a transit hub park n ride station as a feeder bus system to Red Wing or Winona Amtrak stops
Entire state of MN: an important part of maintain our roads is road repair and upgrades. The construction zones are overly restrictive when hauling wide loads through. This forces the load to travel further on alternate roads. Also, the construction planning often chokes off complete access to areas we need to deliver or travel through. Better planning and less restrictions are needed.
Intermodal facility. With Walmart distribution center making 100 trips/day, plus UPS, FedEx and True Value distribution centers, think we can support 100,000 lifts/year to warrant a class 1-served facility. Could backhaul containerized grains and DDG's to long beach ports via UP or RCP&E/BNSF to provide an alternative to oil-congested routes to pacific northwest.
Make sure national freight planning does not ignore Great Lakes shipping
Pipeline expansion to handle Bakken oil shipping, to ease the capacity crunch on railroads. Also a safety issue to reduce the volumes of oil carried by the rails.
pipeline to transport oil
St Cloud should think about redoing it's roadways and use the changes that Duluth and Rochester have made as they grew. Traffic moves more freely on freeways and roadways than it did a short time ago!!! St Cloud is what I would call a "growing bottleneck" when it comes to transportation!!!!
Trail connection is to be constructed across the Mn. River at 35W.
Truck parking
Truck parking
Truck Parking
Truck parking
We need something other than the MOA for access into downtown for Lightrail. The reason we are so congested is because it is just not convenient to take mass transit outside of the two down town areas. There should be more transit stations in the surrounding areas and more routes going to and from these stations.
We need to continue improving the mass transit systems in the metro area.

Table B.17 Additional Comments

Note: Formatting and spelling reflects the crowd sourced data received

COMMENTS
I work in the Harbors and Waterways Program at WisDOT. Very impressed with this survey. Good model for other states.
I think this information needs to be shared more with the public. I think a lot of people, myself included, do not think about these options unless it's part of our jobs!!
This was the MOST Confusing Survey I have ever done!! #1 - Get the Pipelines Done! That will open up the Rail system in the upper midwest! The Grain can be moved All Other Alternative ways other than a Pipeline! Food costs will remain better! Instead of having to Wait to get to their destination! Pipelines! Keep the Oil that is Liquid Moving its Most Economical Way!! PIPELINES!!!! Open up the Other Freight Ways to Non Liquid Products!! Where was that in your Survey?? PIPELINES!!
State-wide two-lane rural highways generally in poor shape...lack of long-term maintenance...MN needs to improve/maintain rural roads.
STOP WASTING MONEY ON LRT
More and better 'heavy rail' connections are badly needed to various cities: Duluth and etc
I am responding as the Mille Lacs County Engineer
Thanks for the opportunity to provide feedback. While I don't ship a lot, I do have an interest in smoother traffic flow since I live in the south metro and work in the north metro. Right now, mass transit isn't even an option without adding 2 hours to my commute and an expensive cab ride from the nearest transit stop.
Everyone is involved or effected by freight movement.
The exporting of goods in the Global Marketplace has been proven to be highly important to the State's economy; ALL modes of an intermodal system of Barge-Rail-Truck must be considered equally, and there is improvement in Harbor infrastructure funding needed for the Saint Paul Harbor and the other 3 ports in the Ports Development Association. Bottom Line: River and Seaway Shippers cannot ship goods to local and global markets without sound local infrastructure; dock wall funding for Barge transport must be increased (80% grant with a 20% local match) in order for the State to stay competitive and grow shipping jobs.
Keep up the good work MNDOT. Your accomplishments often go unheralded.
25 years of rail related economic development, ROW sales/acquisitions and product marketing.
MnDOT has heard these requests from me in the past
I like the survey methods, much better than traditional surveys.
Great survey tool! The best I have ever seen.
please reconstruct the 35W/I-94 interchange ASAP
it's time to build an outer loop around the metro
Substation Consolidation or Depot Dropping would sure cut down on how may semis have to run over here in a days time
Thanks for involving us this survey.
Located in the Twin Cities. Trade Association that is multi-state, with MN being the leading state for members.
Funding needs to be explored to help develop a transportation system that will get our products to and from market.
Please review bordering states transportation requirements before enacting new freight laws and requirements for Minnesota. Our competitiveness with companies based in bordering states is affected.
TH15 in downtown Hutchinson - please work with the City to get this addressed
Rail traffic has continued to increase over the past few years, causing many problems particularly with Northstar.

COMMENTS
I believe that passenger rail connections between major national hubs such as Chicago, the Twin Cities and St Louis are going to become increasingly important as a method of moving people in an efficient, sustainable manner as we move through the 21st century.
consistency in signage would be productive for safety.
This area is heavy truck usage. The metro needs to embrace an area for the trucks to function and operate safely. This area of the metro is a perfect setting to start/create a gateway to the metro. like a staging area for the metro freight/ construction and mfg. on the south side.
There have been a number of Round A Bout interchanges added to major trucking routes. thery are not built large enough for tractor/trailers and causes close calls and quick turns increasing possible load shifting. They are unsafe to use in truck routes.
We need a over pass On county road 1 On hwy 60 at Mt Lake Mn
I plan to attend the meeting in Willmar!
This is one topic that is near and dear to all crop producing areas of the state.
live within your means...doesn't mean tax more. it means - spend wisely
We pick up cement power in the Twin Cities every day an it seems like the congestion is always a problem
Excellent survey...well done. I am going to ask others in FedEx to take this!
I could not get the map slide to work.

MetroQuest Round 2 Overview

In order to gain greater insight on the freight priorities and needs in Minnesota and broaden the geographic extent of outreach for the Minnesota Statewide Freight System Plan, an interactive online survey was available from Aug. 5, 2015 to Sept. 4, 2015. The online survey was developed as a supplemental method for gaining information in conjunction with open houses, industry meetings and the Freight and Logistics Summit.

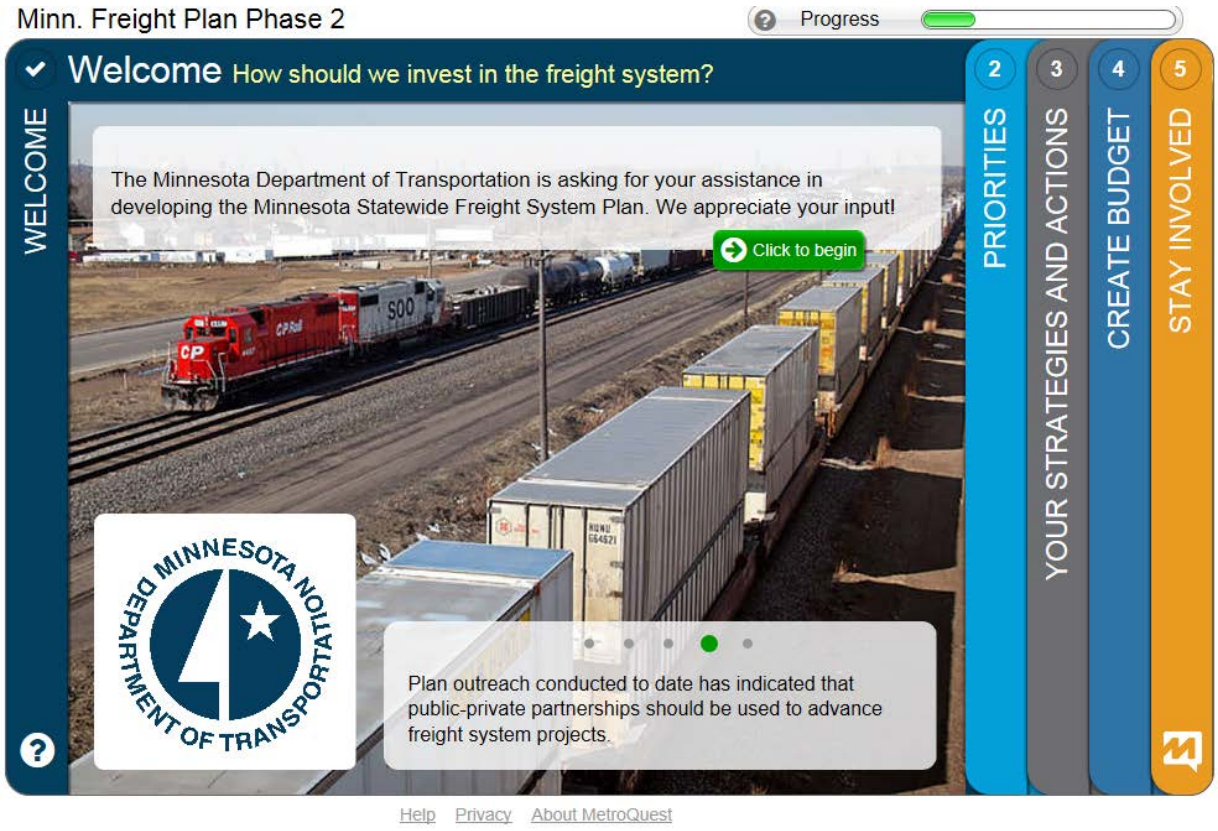
The survey included project information and opportunities to provide feedback on the various freight modes and current freight priorities and identify where freight needs are located throughout the state. The survey also gave respondents the opportunity to provide comments about freight and passenger rail so that the comments can be included in the State Rail Plan, which is also currently in development.

A total of 251 people took the survey, of which 184 provided additional information about themselves. Nearly three-quarters of those responding to the survey are involved in freight movement, and just over half of respondents work in the private sector.

251 participants

198 transportation budgets created

Highest priorities were INFRASTRUCTURE, SAFETY, AND ECONOMY

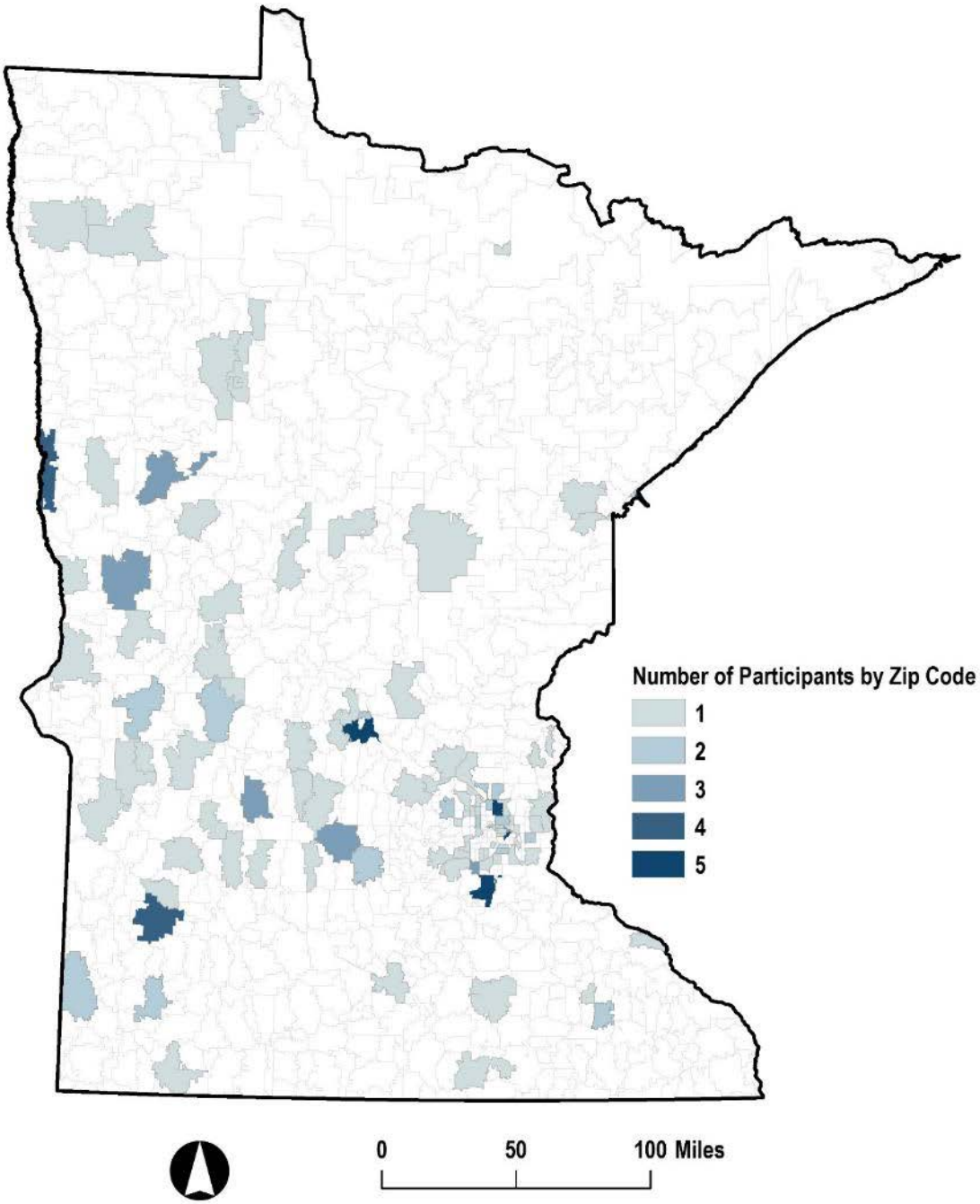


Participants came from all over the state with the following zip codes having five or more participants:

- 55044
- 55102
- 55112
- 55802
- 56301

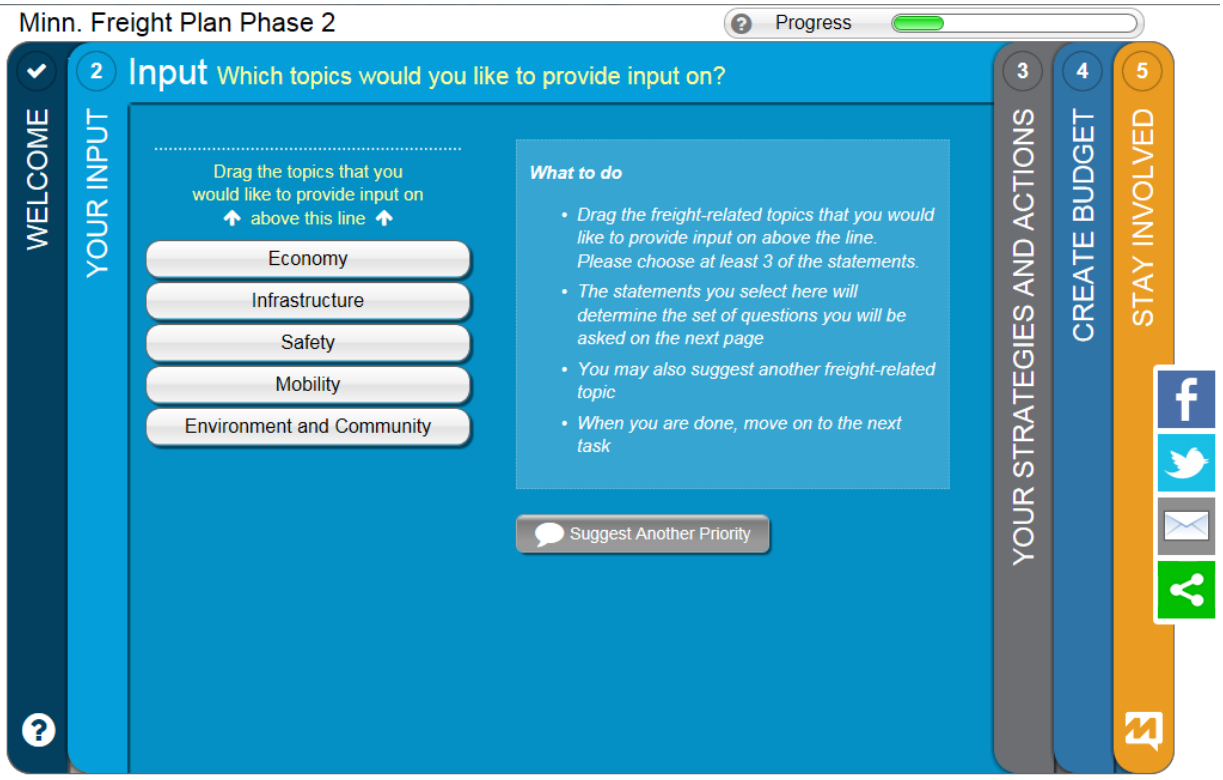
Home zip codes provided by respondents are shown in Figure B.5.

Figure B.5 Participants of Second Minnesota Statewide Freight Plan Metro Quest Survey by Zip Code



Your Input: Transportation Topics

Figure B.6 Transportation Topic Input Screen



Survey respondents were first asked to rank five transportation-related topics on a scale of 1 to 5, with 1 being the top priority and 5 being the lowest priority. Five pre-set options were available that included follow-up questions: Mobility, Infrastructure, Safety, Environment and Community, and Economy. Of these topics, Infrastructure received the most votes and ranked the highest overall. The overall and average ranking for each system is listed in Table B.13.

Table B.18 Transportation Topic Rankings

Item	Overall Rank	Average Ranking	Total Votes
Infrastructure	1st	2.15	210
Safety	2nd	2.34	175
Economy	3rd	2.41	170
Mobility	4th	2.44	162
Environment and Community	5th	2.82	126

In addition to ranking these five general categories, participants were able to provide their own priorities. Five additional priorities were suggested:

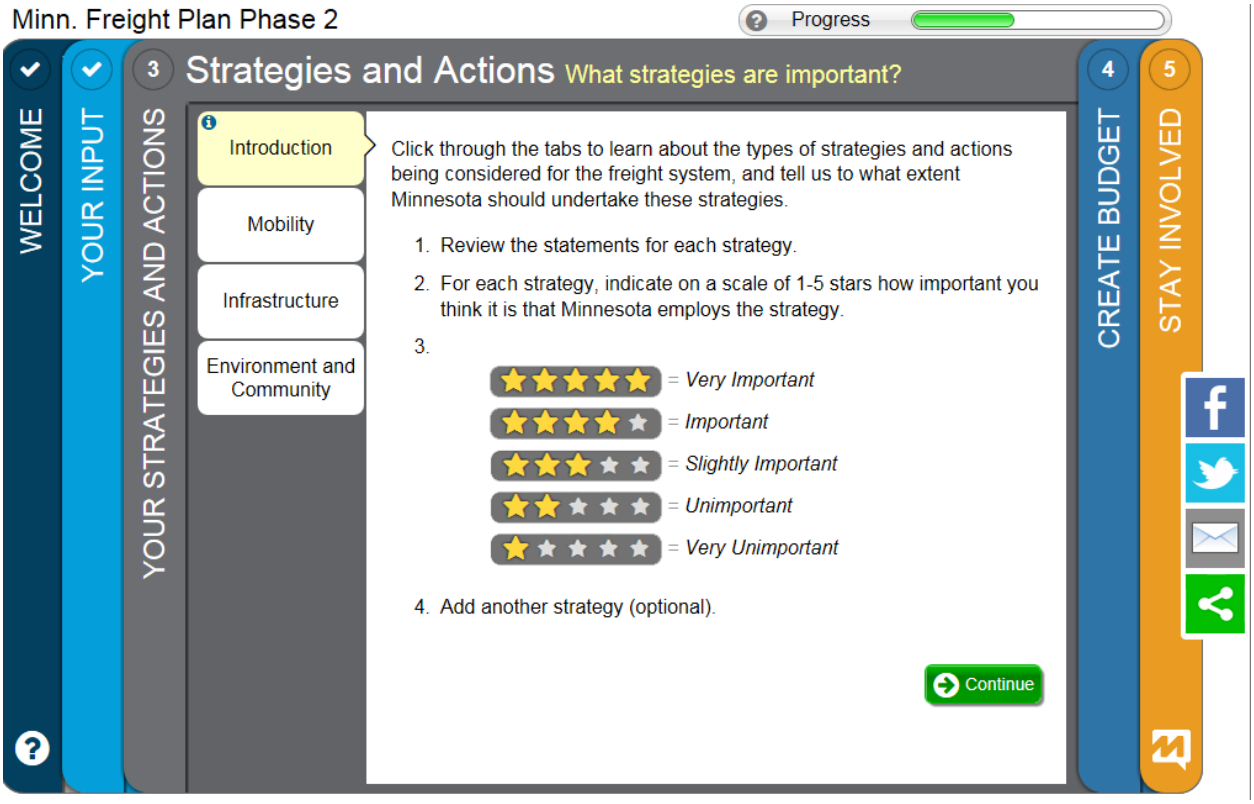
- Construction Funding
- Global Competitiveness

- LRT cannot overshadow and/or push rail freight out of the way in the TC area. It would be very detrimental to our business.
- Oil Pipelines
- Privatize the Light Rail. It's been implemented for roughly 20 years and it is only slowly growing. Privatize it and you will see an increase in growth!

Strategies and Actions: What Strategies are Important?

On the next page, survey respondents provided input on strategies and actions being considered in the freight system for each of their top three topics.

Figure B.7 Strategies and Actions Instruction Screen



INFRASTRUCTURE

With 188 total ratings, infrastructure strategies and actions had the most feedback. At 4.01 out of 5 stars, infrastructure strategies and actions also have the highest overall rating. The top rated individual strategy was bridge and pavement maintenance, with roadway corridor improvements following close behind.

Table B.19 Rankings of Infrastructure Strategies and Actions

Strategy or Action	Average Score	Total Number of Ratings
Bridge & Pavement Maintenance "Maintenance so that pavements are free of potholes, and that roadway and railway bridges are able to handle heavy loads."	4.4	188
Roadway Corridor Improvements "Roadway projects that improve traffic movement and reduce congestion (passing lanes, acceleration/deceleration lanes, etc.)."	4.3	183
Freight Friendly Design "Infrastructure designed for ease of truck movements (generous turning radii, truck lanes and bypasses, etc.)."	4.0	178
Spot Improvements "Roadway and railroad projects that mitigate chokepoints and reduce congestion at spot locations."	3.9	174
Railroad Corridor Improvements "Projects that improve operations or velocity and reduce congestion (track improvements, rail relocation, etc.)."	3.4	179

Participants provided the following comments on the infrastructure strategies and actions:

- Bridge/Pavement: This questions should be broken in three statements a) Pavement; b) Roadway; and c) railway bridges. Responding to the question as it is, could give you the wrong answer as you may not be able to ascertain what item I may be talking about.
- Coming from the East Coast it is my professional opinion that roadways in MN are over-engineered and unsustainably so (frontage roads?). Who is going to maintain all that extra asphalt in the future? Less can be more. Also, intersections with low traffic volumes are often widened in the pursuit of marginal LOS gains and faster turning movements which are at the direct expense of bicyclist and pedestrian safety, particularly when these ""improvements"" are in urban areas."
- Developing more opportunities to move goods by waterway would improve the life span of road and rail ways.
- Freight-friendly design in appropriate places - what's friendly for trucks is sometimes unfriendly for other modes like bicycles and pedestrians.
- Oil Pipelines
- Oil Pipelines - safest way to transport oil.

SAFETY

With 152 total ratings, safety strategies and actions had the second most feedback. The safety strategy and actions received 3.83 out of 5 stars overall. The top rated individual strategy was design for truck safety.

Table B.20 Rankings of Safety Strategies and Actions

Strategy or Action	Average Score	Total Number of Ratings
Design for Truck Safety "Design features that improve vehicle safety (rumble strips, guardrails, wider shoulders, etc.)."	4.11	152
Emergency Response "If a catastrophic event occurs, plans and actions to ensure the highest level of emergency response possible."	4.07	150
Rail Crossings "Projects and programs related to safety of at-grade crossings, grade crossing protection, and highway/rail grade separations."	3.81	151
Positive Train Control "State-of-the-art traffic control and safety systems that are capable of preventing train accidents."	3.61	148
Truck Parking "Parking available for trucks so they can comply with Federal Hours of Service regulations, and pull off the road to rest or avoid congestion."	3.56	151

Participants provided the following comments on the safety strategies and actions:

- Expand the highway system
- Extended merge lanes and passing lanes along key highway sections
- "Rail crossings need to consider the needs of bicyclists and pedestrians particularly in rural communities. Design features for truck safety also need to consider the needs of non-motorized roadway users. Poorly placed / design rumble strips can make roadways completely unusable for bicyclists. Fortunately MnDOT has been better than most state DOTs with the placement and design of rumble strips / stripes so that they minimally impact the ability of cyclists wanting to use the public roadway."
- This questionnaire seems very focused on truck transportation - shipping freight by water is better for the public safety, in that it is removes trucks and rail cars from possible interaction with passenger vehicles.

ECONOMY

With 140 total ratings, economy strategies and actions had the third most feedback. The economy strategy and actions received 3.83 out of 5 stars overall. The top rated individual strategy was economic development.

Table B.21 Rankings of Economy Strategies and Actions

Strategy or Action	Average Score	Total Number of Ratings
Economic Development "Actions that enhance existing and encourage new freight focused development."	4.0	139
Workforce Development "Programs in cooperation with community colleges and private sector to ensure workforce is available for industry needs (e.g., truck drivers)."	3.9	139
First- / Last-mile Connections "Freight connections like highway access and rail spurs to local businesses"	3.8	137
Intermodal and Multimodal Facilities "Intermodal and multimodal facility development to allow goods to shift between modes such as truck, rail, and water."	3.7	140
Corridor Preservation "Preserve active rail lines and commercially navigable waterways."	3.7	135

Participants provided the following comments on the economy strategies and actions:

- Added Capacity to Interstate Truck Routes
- Expand highway system
- Expanded/Increased Funding for the Corridors of Commerce Program
- Water: Strategies that maximize the protection of waterways. Most recently, a lot of freight is being moved over barges and salters; however, preparedness in case of disasters appears to be unknown. Please consider strategies that will bring the matter to front attention. On the issue of location of terminals, actions and strategies that help preserve urban form as required. Heavy trucking terminals should be located away from the suburbs and neighborhoods.

ENVIRONMENT AND COMMUNITY

With 103 total ratings, environment and community strategies and actions had fewest ratings. However, environment and community received the fourth highest overall rating with 3.57 out of 5 stars. The top rated individual strategy was complete streets.

Table B.22 Rankings of Environment and Community Strategies and Actions

Strategy or Action	Average Score	Total Number of Ratings
Complete Streets "Treatments that consider truck movements as part of total vehicle traffic."	3.9	102
Land Use Planning Controls "Land use controls to ensure freight development areas are designated and preserved."	3.7	102
Truck Routes "Coordination of truck routes/planning in industrial and urban areas with restrictions and enforcement in adjacent residential areas."	3.6	103
Rail Crossings "Projects and programs related to improving safety and mitigating noise at at-grade crossings."	3.5	103
Emissions Reduction Strategies "Programs and projects that reduce emissions such as encouraging cleaner technology, alternative fuels use, etc.	3.1	103

Participants provided the following comments on the environment and community strategies and actions:

- Expand the highway system
- Preserving logical freight routes is wise, however trucks should be discouraged from core "Main Street" locations, school zones and residential areas particularly when alternative routes exist. Truck traffic is a leading cause of fatal crashes with pedestrians and bicyclists in urban areas.
- Provisions for connections and signage for bicycle riders and walkers.
- This questionnaire seems very focused on truck transportation - shipping freight by water is better for the environment, in that it is the most efficient way to ship.

MOBILITY

With 138 total ratings, mobility strategies and actions had the fourth most ratings. However, the strategies and actions presented for mobility received the lowest overall rating with 3.54 out of 5 stars. The top rated individual strategy was corridor improvement programs.

Table B.23 Rankings of Mobility Strategies and Actions

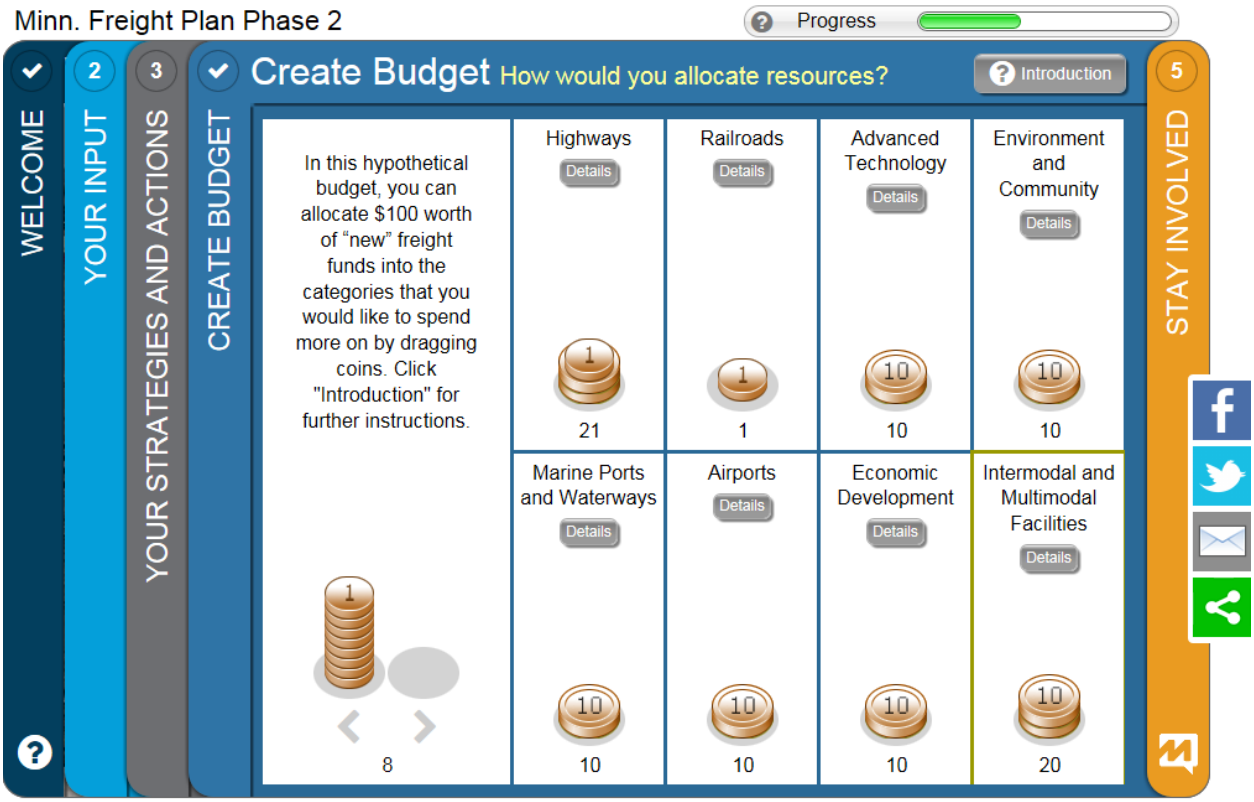
Strategy or Action	Average Score	Total Number of Ratings
Corridor Improvement Programs "Roadway corridor-focused improvement that migrate congestion (traffic management, ITS technology, etc.)."	4.01	138
Urban Goods Movement Programs "Projects and programs in urban centers where high volumes of freight and passenger traffic must coexist."	3.66	136
Modal Options System Redundancy "Modal alternatives (truck, rail, water) in spot locations and modal redundancy within key corridors."	3.43	137
Oversize Overweight Routes "More options available, and improved routing for overdimensional and overweight vehicles."	3.39	138
Traveler Information "Freight-specific traveler information (truck parking availability, variable message signs, etc.)."	3.22	137

Participants provided the following comments on the mobility strategies and actions:

- Adding Capacity (i.e. Adding Lanes to the Interstate along National Truck Routes like I-94)
- Expand the highway system

Transportation Budget: How Would You Allocate Resources?

Figure B.8 Create Budget Input Screen



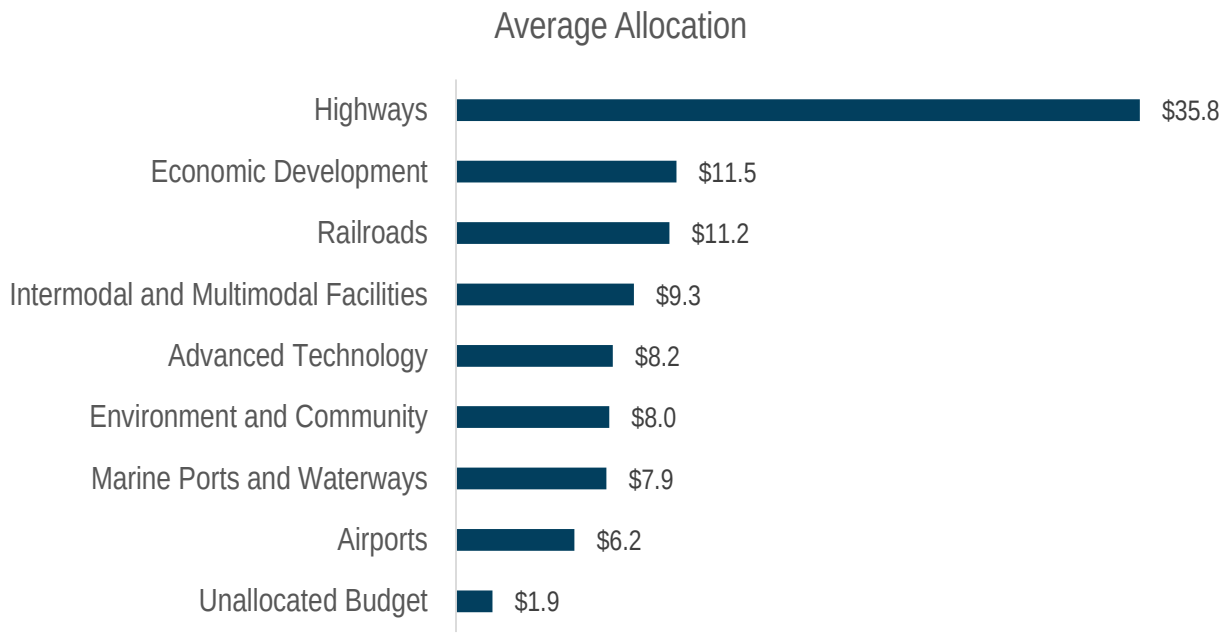
Participants were next asked to allocate $100 worth of "new" freight funds into eight categories. The eight categories they could budget between and the descriptions provided for those categories were:

- Highways: Investments in highway system safety means that there is reduced risk for freight-related incidents. Investments in highway system state-of-good-repair means that roads and bridges are able to handle heavy loads and that pavements are free of potholes.
- Railroads: Investments in railroad system state-of-good-repair means that track and bridges are able to handle heavy loads and that there is a lower risk of derailment. Investments in railroad system safety mean that there is reduced risk for freight-related incidents.
- Advanced Technology: Investments in advanced technology that provide freight-specific traveler information to operators, such as truck parking availability and travel time information.
- Environment and Community: Investments to educate about freight's importance and to address freight-related impacts to the environment and community.
- Marine Ports and Waterways: Investments in Great Lakes and inland waterway port infrastructure, shipping channel maintenance, and lock and dam infrastructure.
- Airports: Investments that lead to new and enhanced air cargo services throughout the state.

- Economic Development: Investments that generate economic activity may include increasing local and regional freight handling capacity and capabilities, developing and promoting local freight connections and generally linking freight investments to actions that support economic development.
- Intermodal and Multimodal Facilities: Investments in intermodal facilities and multimodal connections allow goods to shift between modes such as truck, rail and water. Using intermodal containers for shipping increases the efficiency of international import and export of goods.

198 people created budgets in this exercise. Highways received the largest share of the budgets with an average allocation of more than $35 (Figure B.9). Economic Development and Railroads essentially tied for the second largest share of the budget with average allocations of just over $11 each. Average allocations for each category can be found in Figure B.9.

Figure B.9 Average Budget Allocation by Category



The minimum and maximum single allocations by category generally follow the same trend as the average budget allocation. Highways was the only category to receive all 100 percent of a single participant's budget. With the exception of budget left unallocated, Intermodal and Multimodal Facilities received the next highest single allocation with one participant allocating 71 percent of their budget. All of the categories had multiple participants allocate zero and 1 percent of their budgets.

Table B.24 Average, Maximum, and Minimum Budget Allocations

Category	Average Allocation	Maximum Single Allocation	Minimum Single Allocation*
Highways	$35.8	$100	$1
Economic Development	$11.5	$50	$1
Railroads	$11.2	$70	$1
Intermodal and Multimodal Facilities	$9.3	$71	$1
Advanced Technology	$8.2	$30	$1
Environment and Community	$8.0	$33	$1
Marine Ports and Waterways	$7.9	$51	$1
Airports	$6.2	$50	$1
Unallocated Budget	$1.9	$90	$10

Other Comments

Participants left the following comments on the final page of the survey:

- Economic development is key to job growth.
- GET INPUT FROM PRIVATE SECTOR IN ALL ASPECTS OF PLANNING, FROM FUNDING TO DESIGN
- Greater Minnesota has a lot of potential for economic development. We need a north-south central corridor that connects Interstates I-90-I94 and Greater MN and bypasses the Twin Cities. Mankato to Bemidji Expressway.
- High priority to ease and clarify truck routes in and out of BNSF Intermodal Yard in Midway, St. Paul, to reduce trucks turning onto and off of University Avenue and cutting through neighborhoods.
- Highway with consistent and dependable travel times are the most important. Second is ensuring that haulers can access destinations efficiently and safely.
- I believe Added Capacity (i.e. additional freeway lanes, etc) and the Corridors of Commerce Program for Freight Routes should have been included as a category option for your mobility, economy, and infrastructure options. I was surprised and disappointed not to see either specific option in any of those categories.
- I think the burden of cost has to be taken on by the railroads since they are privately run. I also feel like tolls would be effective for funding the maintenance of our over extended state infrastructure.
- I work for Canadian Pacific Railway
- maintaining infrastructure and harmonization is critical to movement of oversize/overweight loads
- no thank you

- pedestrians and bicyclists are not freight transportation and should be separated from transportation corridors
- Please add additional email of rmoerke@usspecial.com
- Support for ports/waterways reduces rail and highway congestion and maintenance. Our waterways are a little understood competitive advantage - connecting what could be a landlocked region to key suppliers and markets.
- Survey too crammed! I would have liked assessing items in a more precise manner. Better survey design gives you better responses. Thank you
- Thank you for the opportunity to participate in this program.
- The movement of goods also entails pipelines, so if you are going to invest public funds in railroads and airports than pipelines should be included in that.
- The State should not be involved in freight railroads. Railroads are follow FRA regulations and do not need state involvement. Just another layer of Government that wastes tax dollars. Property taxes on railroads should not be increased.
- Very narrow and leading poll.
- We insure hundreds of trucking company and freight brokers around the state.
- We unload grain from rail and truck and lo9ad grain on rail, truck and barge
- Where is the bullrt

C. APPENDIX C: ENVIRONMENTAL JUSTICE

This appendix provides a systems-level analysis of the potential beneficial or adverse environmental justice impacts of the strategies identified in the 2016 Minnesota Statewide Freight Plan. A buffer-analysis was also conducted to determine the extent to which environmental justice populations may be impacted by activities on Minnesota's Principal Freight Network. The state's identified environmental justice populations are: racial and ethnic minorities, households without vehicles, and persons who are low-income, are age 65 or older, are age 16 or younger, or who have limited English proficiency. Since this analysis occurs at the statewide system-level, the analysis is general and qualitative in nature and intended to inform policymakers and planners of the potential extent of impacts to environmental justice populations, not to identify specific impacts or affected populations. MnDOT will complete additional environmental justice analyses for individual capital investment projects. Those individual project analyses identify specific impacts on communities and neighborhoods and work to avoid or mitigate adverse impacts through the project planning process and related project design decisions.

Introduction

Presidential Executive Order 12898, issued in 1994, directed each federal agency to "make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations." The order builds on Title VI of the Civil Rights Act of 1964, which prohibits discrimination on the basis of race, color or national origin. The Executive Order also provides protection to low-income populations. There are three fundamental principles of environmental justice:

- To avoid, minimize or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority and low-income populations
- To ensure the full and fair participation by all potentially affected communities in the transportation decision-making process
- To prevent the denial of, reduction in or significant delay in the receipt of benefits by minority and low-income populations

Executive Order 12898 and subsequent orders by the U.S. DOT define minority and low-income populations as:

- Minority:
    - Black or African American – a person having origins in any of the black racial groups of Africa
    - American Indian and Alaskan Native – a person having origins in any original people of North America and who maintains cultural identification through tribal affiliation or community recognition
    - Asian – a person having origins in any of the original peoples of the Far East, Southeast Asia or the Indian subcontinent
    - Native Hawaiian or Other Pacific Islander – a person having origins in any of the original peoples of Hawaii, Guam, Samoa and other Pacific Islands
    - Hispanic – a person of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish culture or origin, regardless of race
- Low-income – a person whose household income (or in the case of a community or group, whose median household income) is at or below the U.S. Department of Health and Human Services poverty guidelines

While not specifically identified by Title VI or the Executive Order, MnDOT chooses to expand its environmental justice analyses to include persons age 65 and older, persons age 17 and younger, persons with limited English

proficiency and households with zero vehicles because these additional population groups have unique transportation needs.

Demographic Overview of Minnesota's Population

MINORITY

For the purposes of this environmental justice analysis, minority refers to any individual who self-identifies as one of the above-listed racial or ethnic categories. The remaining racial category, White, is defined as a person having origins in any of the original peoples of Europe, the Middle East or North Africa. It is important to note that the category of Hispanic or Latino functions independently of the other racial categories and may include individuals from all of the other racial categories. For example, a person may self-identify as both White and Hispanic or Latino.

A summary of Minnesota's population by race and ethnicity within each MnDOT district is provided in Table C.1. Figure C.1 highlights census block groups where the proportion of non-white population exceeds the average for each MnDOT district. Figure C.2 highlights census block groups where the proportion of Hispanic or Latino population exceeds the average for each district. The purpose of highlighting these areas is to identify—at a statewide level—those areas that may experience disproportionately high and adverse effects as a result of programs, policies, or activities in these areas. Further investigation of potential impacts on these population groups will be undertaken for individual projects or programs.

Table C.1 Race and Ethnicity by MnDOT District

MnDOT District	Total Population	Hispanic or Latino	Non-Hispanic or Latino	White	Black or African American	American Indian or Alaska Native	Asian	Native Hawaiian and Other Pacific Islander	Some Other Race	Two or More Races
1	338,718	4,769	333,949	314,008	4,566	8,722	2,572	107	853	7,890
		1.4%	98.6%	92.7%	1.3%	2.6%	0.8%	0.0%	0.3%	2.3%
2	179,395	4,998	174,397	155,753	1,407	14,715	1,469	177	1,091	4,783
		2.8%	97.2%	86.8%	0.8%	8.2%	0.8%	0.1%	0.6%	2.7%
3	645,278	15,081	630,197	608,260	10,834	4,760	6,942	105	4,460	9,917
		2.3%	97.7%	94.3%	1.7%	0.7%	1.1%	0.0%	0.7%	1.5%
4	246,326	6,342	239,984	229,926	2,245	6,238	1,527	68	1,295	5,027
		2.6%	97.4%	93.3%	0.9%	2.5%	0.6%	0.0%	0.5%	2.0%
Metro	2,978,705	177,069	2,801,636	2,354,794	250,421	17,565	199,085	1,299	59,153	96,388
		5.9%	94.1%	79.1%	8.4%	0.6%	6.7%	0.0%	2.0%	3.2%
6	501,254	25,261	475,993	459,852	13,523	1,532	12,822	154	4,731	8,640
		5.0%	95.0%	91.7%	2.7%	0.3%	2.6%	0.0%	0.9%	1.7%
7	279,518	18,339	261,179	262,134	4,744	937	4,126	86	3,718	3,773
		6.6%	93.4%	93.8%	1.7%	0.3%	1.5%	0.0%	1.3%	1.3%
8	214,467	12,406	202,061	201,054	2,805	2,021	2,255	170	3,562	2,600
		5.8%	94.2%	93.7%	1.3%	0.9%	1.1%	0.1%	1.7%	1.2%
State-wide	**5,383,661**	**264,265**	**5,119,396**	**4,585,781**	**290,545**	**56,490**	**230,798**	**2,166**	**78,863**	**139,018**
		4.9%	**95.1%**	**85.2%**	**5.4%**	**1.0%**	**4.3%**	**0.0%**	**1.5%**	**2.6%**

Source: U.S. Census Bureau, 2010 – 2014 American Community Survey 5-year Estimates

Figure C.1 Non-White Population in Minnesota

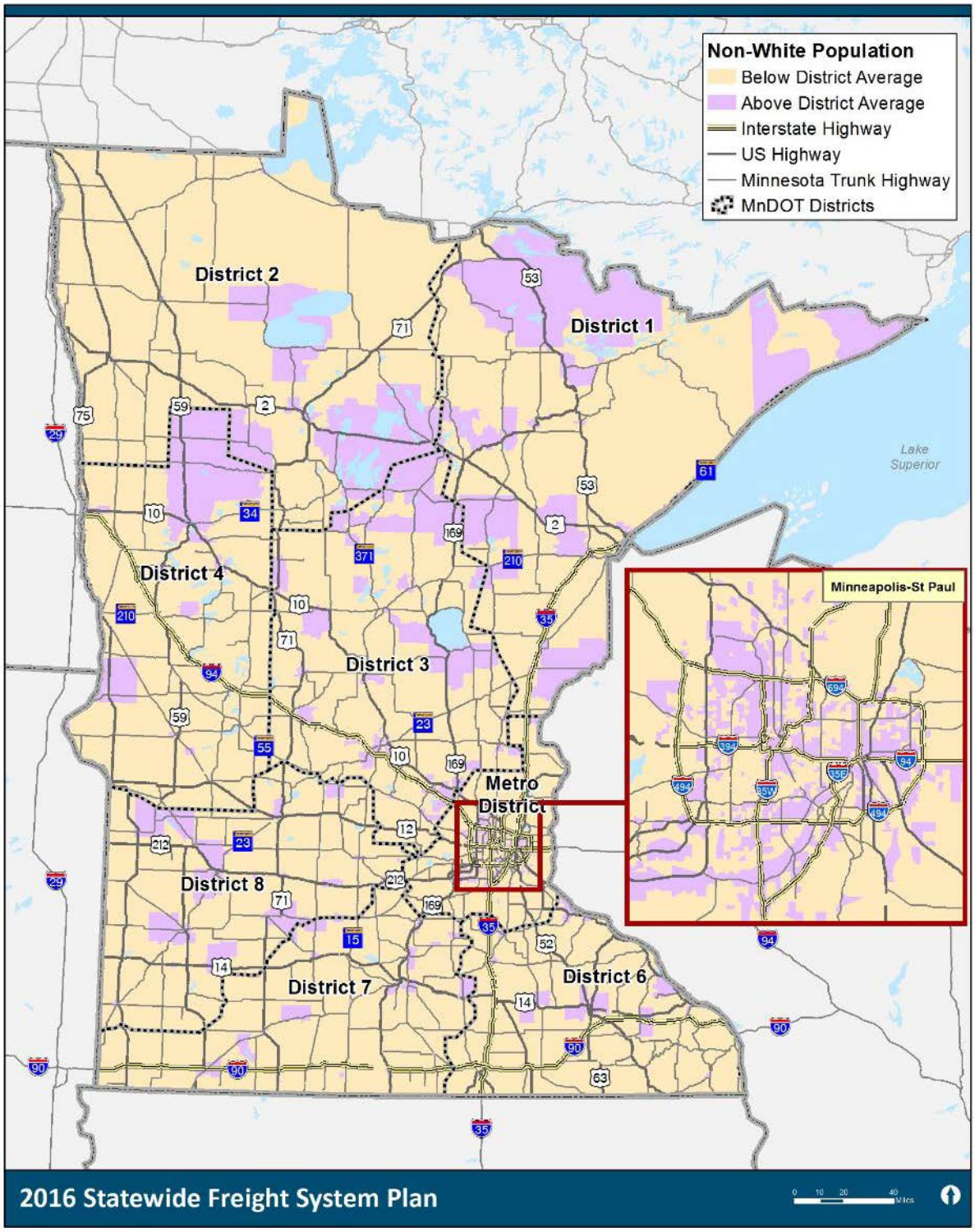
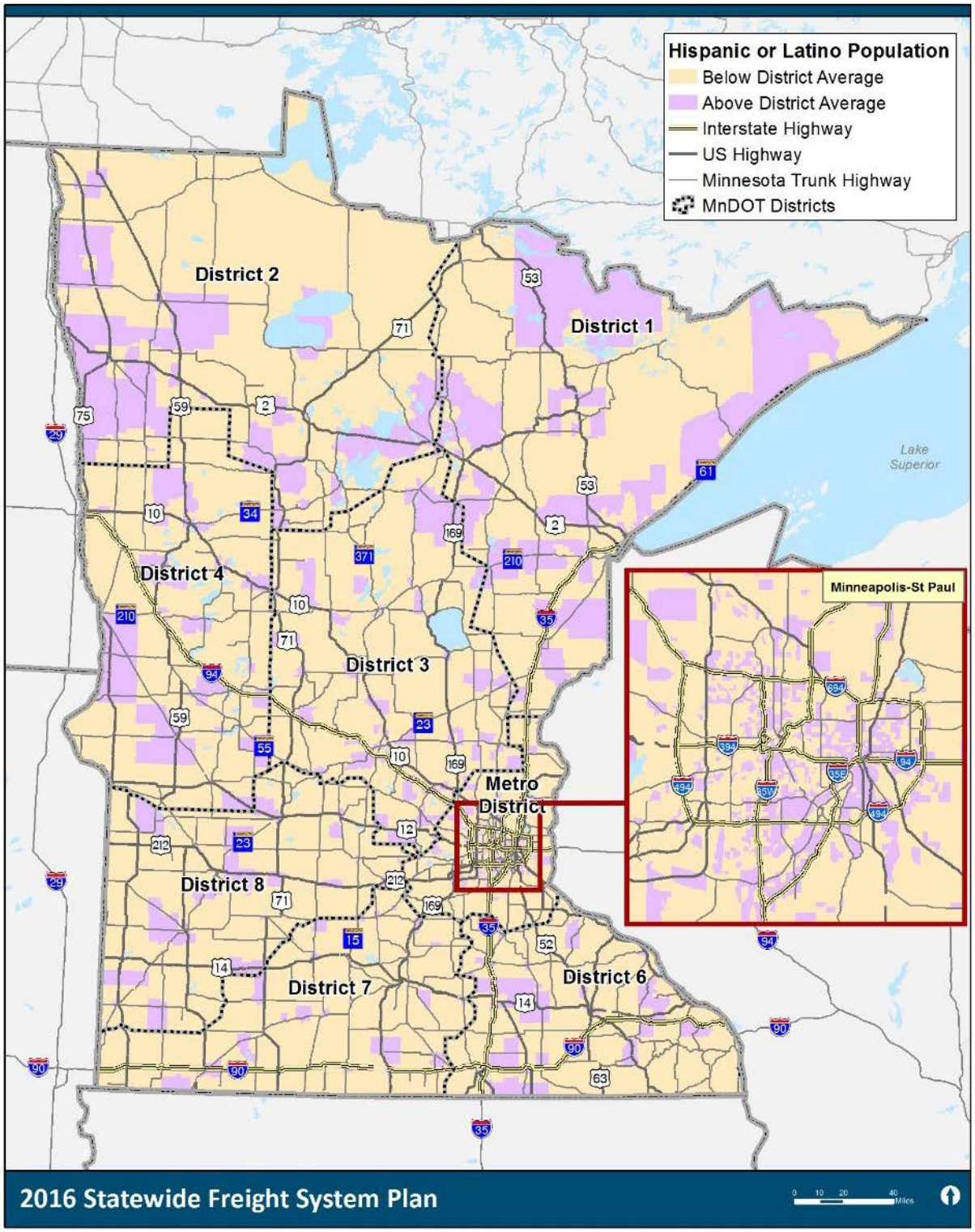


Figure C.2 Hispanic or Latino Population in Minnesota



LOW-INCOME

Low-income persons include all persons whose median household income is at or below the guidelines set by the U.S. Department of Health and Human Services. The HHS poverty guidelines are based on household size and the number of related children less than 18 years of age. The guidelines are updated annually and are summarized separately for the 48 contiguous states, Alaska and Hawaii. The 2014 poverty thresholds used in this evaluation are summarized in Table C.2. A summary of Minnesota's low-income population within each MnDOT District is provided in Table C.3. It should be noted that the Census Bureau is unable to define poverty status for certain populations such as people living in college dormitories or in institutional group quarters. These populations are excluded from the tabulations, resulting in slightly lower populations totals than in other categories. Figure C.3 highlights census block groups where the proportion of low-income population exceeds the average proportion for each MnDOT District.

Table C.2 2014 HHS Poverty Guidelines (48 Contiguous States)

Persons in Family/Household	Poverty Guideline
1	$11,670
2	$15,730
3	$19,790
4	$23,850
5	$27,910
6	$31,970
7	$36,030
8	$40,090
For each additional person, add	$4,060

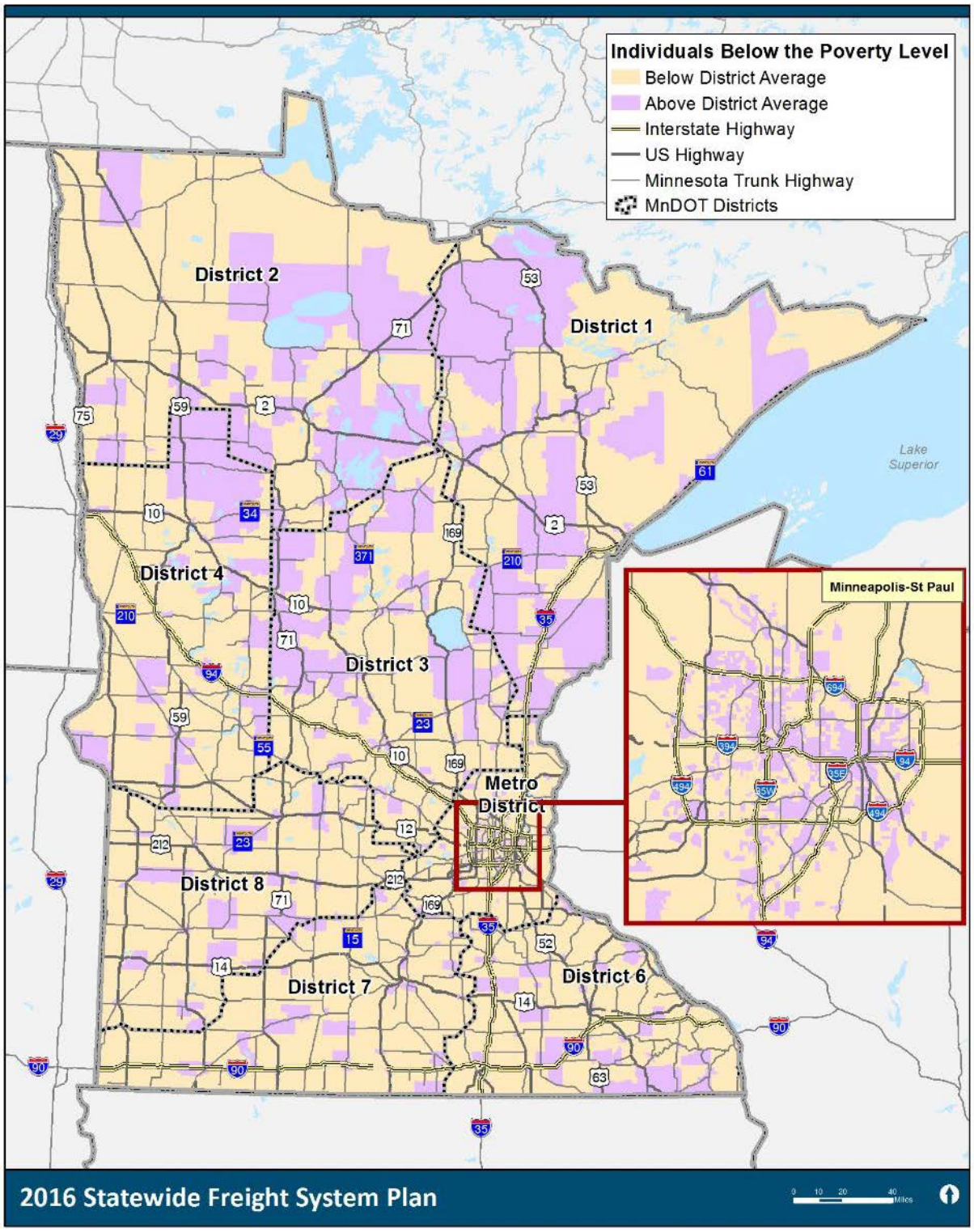
Source: U.S. Department of Health and Human Services, 2014

Table C.3 Low-Income Population by MnDOT District

MnDOT District	Population	Low-Income Population	Percent Low-Income
1	326,255	51,367	15.7%
2	174,390	25,682	14.7%
3	630,347	68,586	10.9%
4	238,347	28,912	12.1%
Metro	2,929,646	320,834	11.0%
6	482,581	51,528	10.7%
7	268,946	35,300	13.1%
8	209,839	23,552	11.2%
Statewide	**5,260,351**	**605,761**	**11.5%**

Source: U.S. Census Bureau, 2010 – 2014 American Community Survey 5-year Estimates

Figure C.3 Low-Income Populations in Minnesota



LIMITED ENGLISH PROFICIENCY

Public involvement is an important component of fulfilling environmental justice requirements. A key aspect of this involvement is outreach to populations with Limited English Proficiency. LEP populations are defined as those individuals (age 5 years and older) who speak a language other than English in the home and identify their ability to speak English as anything less than "very well". A summary of Minnesota's LEP populations within each MnDOT district is provided in Table C.4.

Table C.4 Limited English Proficiency (LEP) Population by MnDOT District

MnDOT District	Population	LEP Population	Percent LEP
1	320,671	2,655	0.83%
2	167,713	1,749	1.04%
3	602,269	9,015	1.50%
4	231,119	2,935	1.27%
Metro	2,779,376	172,040	6.19%
6	469,266	15,276	3.26%
7	262,548	8,673	3.30%
8	200,790	5,394	2.69%
Statewide	**5,033,752**	**217,737**	**4.33%**

Source: U.S. Census Bureau, 2010 – 2014 American Community Survey 5-year Estimates

A detailed breakdown of the top 10 languages spoken at home and ability to speak English is summarized in Table C.5. The top three non-English languages spoken at home are Spanish, African Languages (this category includes Amharic, Ibo, Twi, Yoruba, Bantu, Swahili and Somali), and Hmong. Just over 6 percent of the population in Minnesota speaks one of these languages in the home. In each of these language groups, approximately 43 percent of the population speaks English less than "very well". The remaining language groups each comprise less than one percent of Minnesota's population.

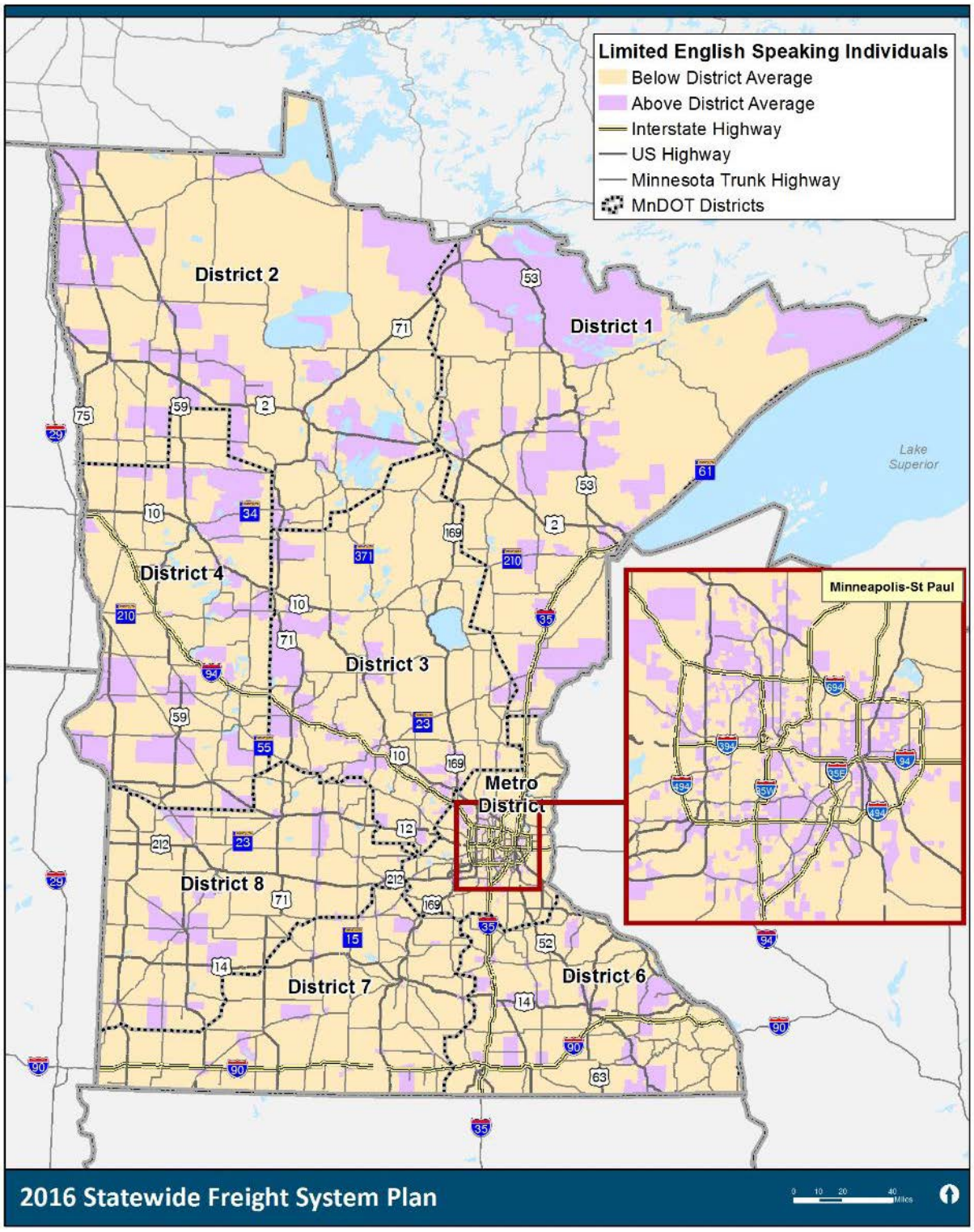
Figure C.4 highlights census block groups where the proportion of LEP population exceeds the average for each MnDOT District.

Table C.5 Languages Spoken at Home and Ability to Speak English Statewide

Language Spoken at Home	Population	Percent of Population	Population that Speaks English Less than "Very Well"	Percent that Speaks English less than "Very Well"
Speak only English	4,485,551	89.11%	-	-
Spanish or Spanish Creole	193,111	3.84%	83,799	43.4%
African languages	69,415	1.38%	29,487	42.5%
Hmong	57,513	1.14%	24,584	42.7%
German	23,258	0.46%	4,032	17.3%
Chinese	22,266	0.44%	9,922	44.6%
Vietnamese	21,915	0.44%	13,241	60.4%
Other Asian languages	20476	0.41%	9426	46.0%
French (incl. Patois, Cajun)	15,072	0.30%	3,187	21.1%
Russian	14,106	0.28%	6,463	45.8%
Arabic	10,703	0.21%	3,251	30.4%
Other Languages	100,366	1.99%	30,345	30.2%
Total Population	**5,033,752**		**217,737**	**4.3%**

Source: U.S. Census Bureau, 2010 – 2014 American Community Survey 5-year Estimates

Figure C.4 Limited English Proficiency Populations in Minnesota



ADDITIONAL DEMOGRAPHICS

While environmental justice protections pertain strictly to minority and low-income populations, other demographic groups may also be at risk of disproportionately high and adverse effects. These groups include senior and youth populations (summarized in Table C.6) and households without access to a motor vehicle (summarized in Table C.7). Figure C.5 highlights census block groups where the proportion of the senior population exceeds the average for each MnDOT District. Figure C.6 highlights census block groups where the proportion of the youth population exceeds the average for each MnDOT District. Figure C.7 highlights census block groups where the proportion of zero-vehicle households exceeds the average for each MnDOT District.

Table C.6 Senior and Youth Population by MnDOT District

MnDOT District	Total District Population	Age 65 and Older		Age 17 and Under	
		Population	Percent of Population	Population	Percent of Population
1	338,718	59,437	17.5%	68,218	20.1%
2	179,395	31,339	17.5%	42,552	23.7%
3	645,278	90,061	14.0%	161,462	25.0%
4	246,326	45,485	18.5%	55,481	22.5%
Metro	2,978,705	342,971	11.5%	719,959	24.2%
6	501,254	76,394	15.2%	118,774	23.7%
7	279,518	45,934	16.4%	62,470	22.3%
8	214,467	38,761	18.1%	51,106	23.8%
Statewide	**5,383,661**	**730,382**	**13.6%**	**1,280,022**	**23.8%**

Source: U.S. Census Bureau, 2010 – 2014 American Community Survey 5-year Estimates

Table C.7 Zero-Vehicle Households by MnDOT District

MnDOT District	Households	Zero-Vehicle Households	Percent Zero-Vehicle Households
1	142,686	11,899	8.3%
2	72,658	4,656	6.4%
3	245,073	12,864	5.2%
4	100,773	6,174	6.1%
Metro	1,160,577	94,215	8.1%
6	194,716	12,601	6.5%
7	111,402	6,305	5.7%
8	87,452	4,652	5.3%
Statewide	**2,115,337**	**153,366**	**7.3%**

Source: U.S. Census Bureau, 2010 – 2014 American Community Survey 5-year Estimates

Figure C.5 Senior Population (Age 65 and Over) in Minnesota

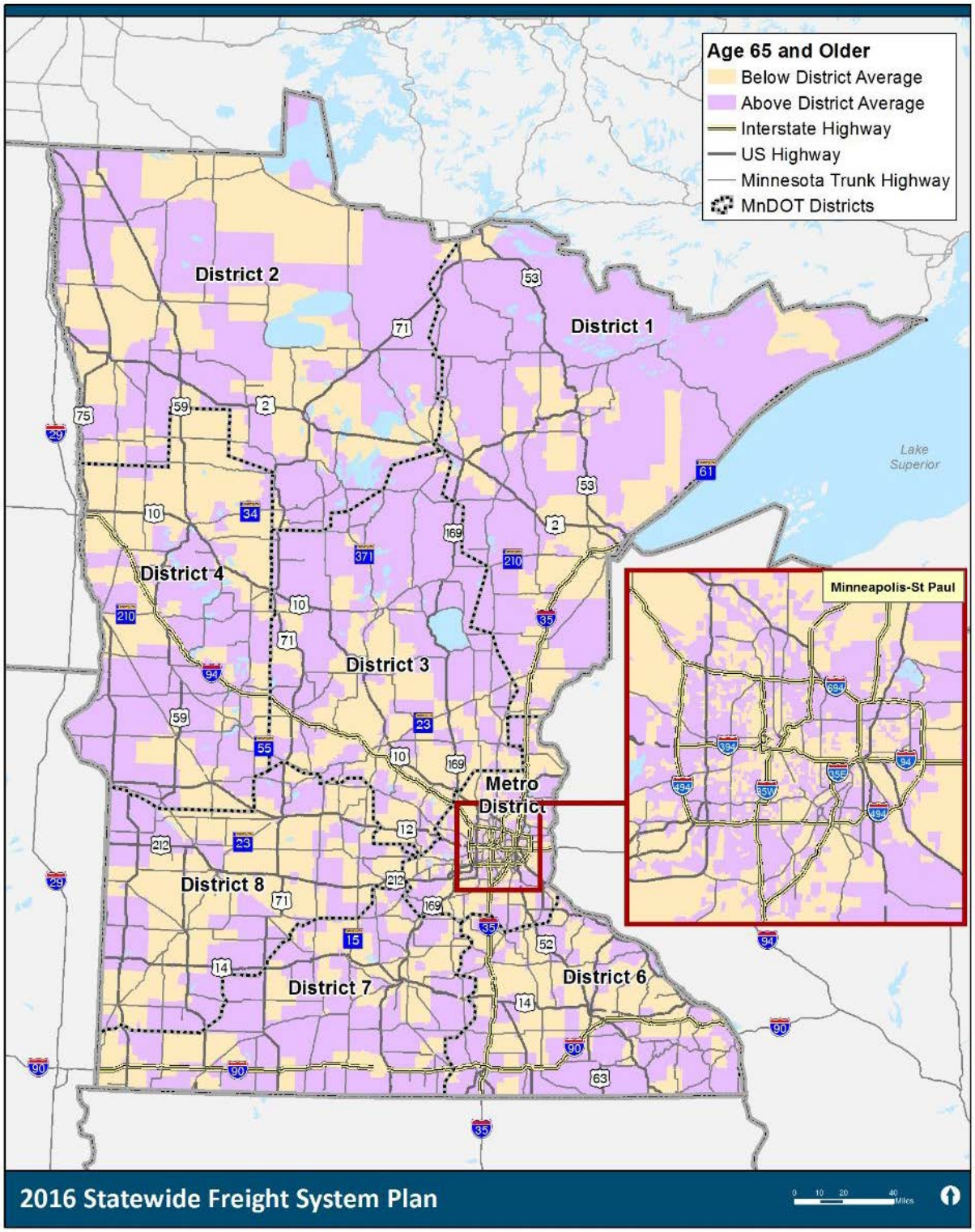


Figure C.6 Youth Population (Age 17 and Younger) in Minnesota

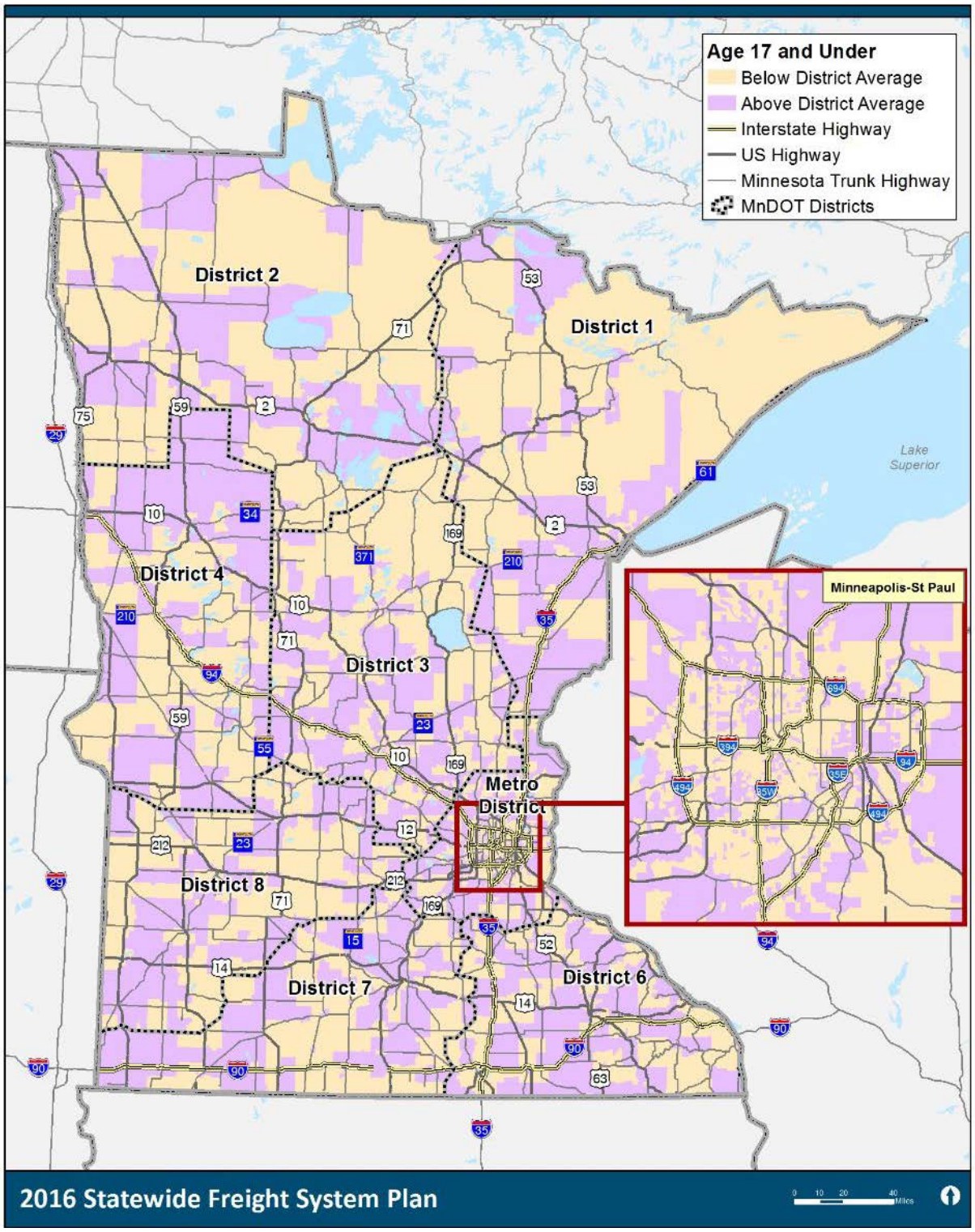
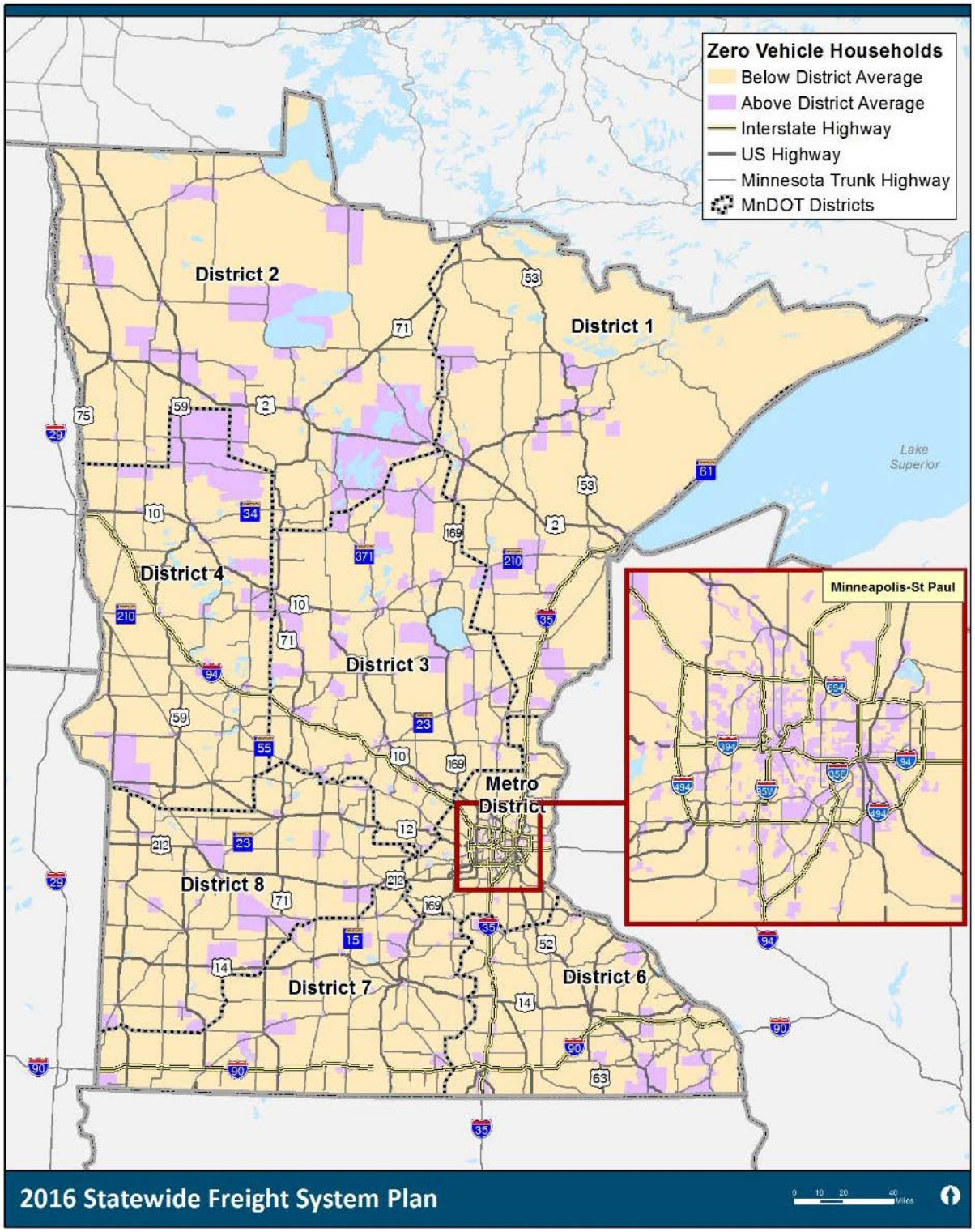


Figure C.7 Zero-Vehicle Households in Minnesota



Public Outreach Activities

MnDOT conducted a number of outreach activities throughout the development of this plan in which individuals and industry representatives were invited to provide input and give feedback to MnDOT on the plan. In each of these activities, participants were given the opportunity to provide information on a number of topics, including potential impacts of freight on communities and residents; however, outreach to specific environmental justice populations was not undertaken. Public outreach undertaken as part of the 2016 Minnesota Statewide Freight Plan are described in further detail in Appendix B.

How the Freight Plan Relates to Environmental Justice Populations

FREIGHT NETWORK BUFFER ANALYSIS

A buffer analysis was completed to identify environmental justice populations that reside in close proximity to various components of Minnesota's Principal Freight Network (PFN) at a higher or lower rate than the statewide average. This analysis was completed by creating a quarter-mile buffer around the PFN, including the designated portions of the highway, rail, water port and airport systems. Buffers for the highway and rail corridors are based on the centerlines of corridor alignments. Buffers for facilities are based on an outline of the footprint of each site. All census block groups that intersected this buffer were considered to be within the quarter-mile distance. It should be noted that given the large size of some block groups (particularly in rural areas), much of the population in an intersecting block group may reside outside of the strict quarter-mile buffer.

Table C.8 provides a summary of this information for the PFN as a whole. The column for Percent of Population indicates the percent of each statewide population group that resides within a quarter-mile of the PFN. The cells in this column are shaded to highlight population groups with the highest percentages. The analysis shows that 70 percent of Minnesota's population resides in a block group within ¼-mile of the PFN. The groups with the highest percentages are those identifying as Some Other Race and Zero-Vehicle Households with 76 percent and 77 percent of their populations within a quarter-mile of the PFN, respectively.

Table C.8 Population within ¼-Mile of Minnesota Principal Freight Network

Population Category	Statewide Population	Within ¼-Mile of Complete PFN	Percent of Population
Total Population	5,383,661	3,778,329	70%
White	4,585,781	3,214,085	70%
Black or African American	290,545	205,541	71%
American Indian and Alaska Native	56,490	38,397	68%
Asian	230,798	161,315	70%
Native Hawaiian or Other Pacific Island	2,166	1,457	67%
Some Other Race	78,863	59,833	76%
Two or More Races	139,018	97,701	70%
Hispanic or Latino	264,265	192,885	73%
Age 65 and Older	730,382	524,522	72%
Age 17 and Under	1,280,022	889,447	69%
Low-Income	605,761	445,761	74%
Limited English Speaking Individuals	217,737	159,598	73%
Zero-Vehicle Households	153,366	118,747	77%

Table C.9 provides a summary of this information specifically for the highway portion of the PFN (the National Highway System), the designated rail corridors, and designated rail facilities. Designated rail infrastructure includes 2,080 miles of rail system and seven major rail facilities. For a list of facilities, see supplemental the Technical Memo – Minnesota's Principal Freight Network. The table highlights the prevalence of the NHS system within populated areas with nearly two-thirds of Minnesota's population residing near NHS roadways. Other findings from this table include:

- Populations in zero-vehicle households reside near all three of these PFN components at a higher rate than the statewide average
- Low-income populations also reside near all three of these PFN components at a higher rate than the statewide average
- Many minority population groups reside near rail facilities at a higher rate than the statewide average. These include Black or African American, American Indian and Alaska Native, Some Other Race, Two or More Races and Hispanic or Latino.

Table C.9 Population within ¼-Mile of NHS, Rail Corridors, and Rail Facilities on Minnesota Principal Freight Network

Population Category	Statewide Population	Within ¼-Mile of NHS		Within ¼-Mile of Rail Corridors		Within ¼-Mile of Rail Facilities	
		Total	%	Total	%	Total	%
Total Population	5,383,661	3,456,101	64%	1,309,874	24%	51,525	1.0%
White	4,585,781	2,946,368	64%	1,127,401	25%	40,161	0.9%
Black or African American	290,545	186,207	64%	64,001	22%	4,941	1.7%
American Indian and Alaska Native	56,490	36,366	64%	13,121	23%	787	1.4%
Asian	230,798	143,691	62%	52,104	23%	2,326	1.0%
Native Hawaiian or Other Pacific Island	2,166	1,412	65%	491	23%	20	0.9%
Some Other Race	78,863	53,198	67%	19,501	25%	1,079	1.4%
Two or More Races	139,018	88,859	64%	33,255	24%	2,211	1.6%
Hispanic or Latino	264,265	173,885	66%	65,804	25%	3,070	1.2%
Age 65 and Older	730,382	484,302	66%	180,907	25%	5,072	0.7%
Age 17 and Under	1,280,022	812,530	63%	306,731	24%	10,658	0.8%
Low-Income	605,761	408,440	67%	167,726	28%	9,681	1.6%
Limited English Speaking Individuals	217,737	142,351	65%	50,910	23%	2,563	1.2%
Zero-Vehicle Households	153,366	109,084	71%	40,872	27%	2,319	1.5%

Table C.10 provides a summary of this information specifically for the Water Port, Airport, and Pipeline Facility components of the PFN. The findings of this table show:

- American Indian and Alaska Native population groups reside near PFN airports at a higher rate than the statewide average

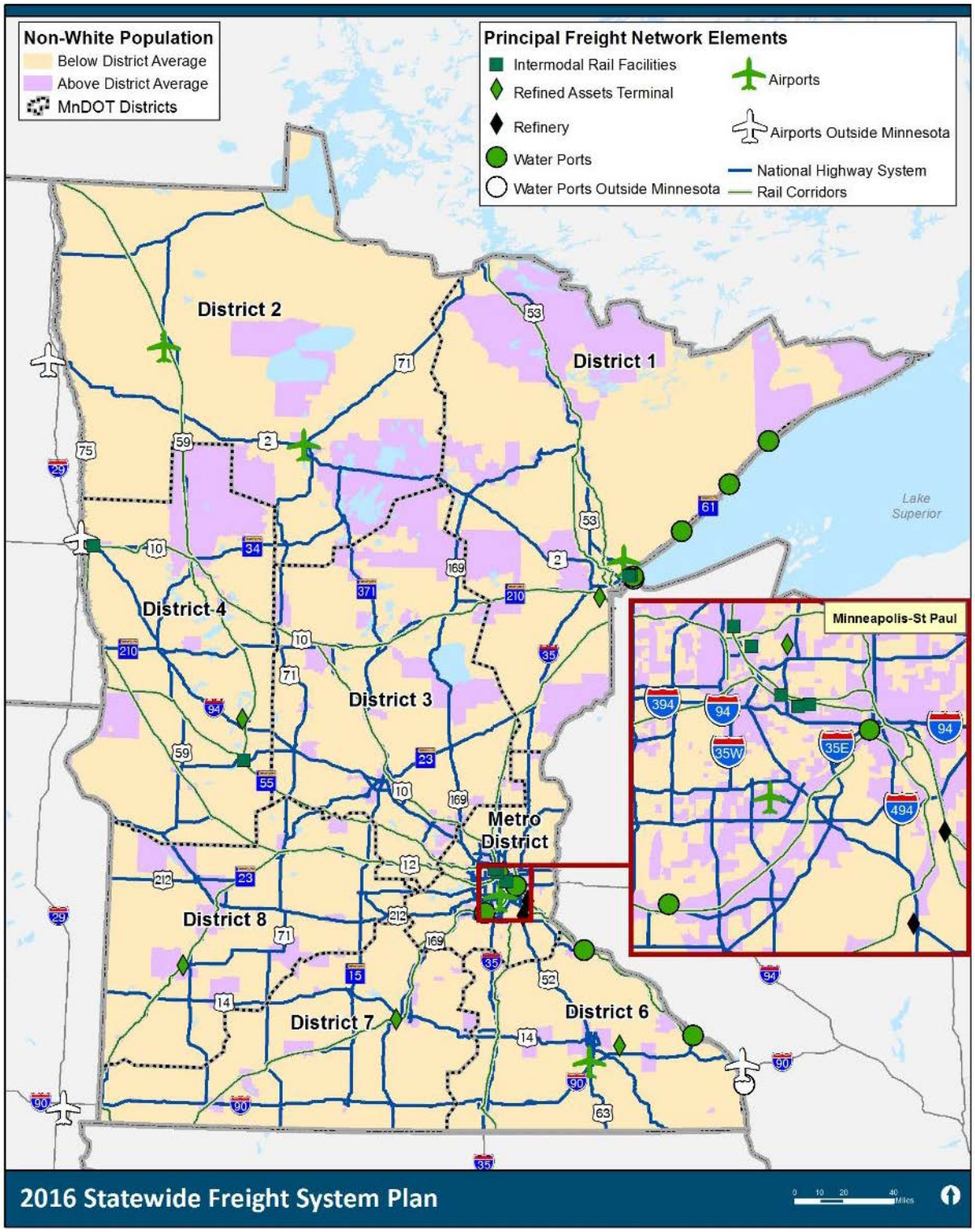
- The population groups residing near pipeline facilities are fairly representative of the statewide population as a whole. Only the category of Some Other Race resides near these facilities at a higher rate than the statewide average.
- Zero-vehicle household populations reside near water ports at a higher rate than the statewide average

Table C.10 Population within ¼-Mile of Water Ports, Airports, and Pipeline Facilities on Minnesota Principal Freight Network

Population Category	Statewide Population	Within ¼-Mile of Water Ports		Within ¼-Mile of Airports		Within ¼-Mile of Pipeline Facilities	
		Total	Percent	Total	Percent	Total	Percent
Total Population	5,383,661	41,054	0.8%	32,516	0.6%	35,089	0.7%
White	4,585,781	33,853	0.7%	24,778	0.5%	31,922	0.7%
Black or African American	290,545	2,854	1.0%	2,868	1.0%	538	0.2%
American Indian and Alaska Native	56,490	343	0.6%	1,209	2.1%	131	0.2%
Asian	230,798	1,588	0.7%	682	0.3%	945	0.4%
Native Hawaiian or Other Pacific Island	2,166	15	0.7%	35	1.6%	-	0.0%
Some Other Race	78,863	652	0.8%	1,510	1.9%	683	0.9%
Two or More Races	139,018	1,749	1.3%	1,434	1.0%	870	0.6%
Hispanic or Latino	264,265	2,256	0.9%	3,873	1.5%	1,395	0.5%
Age 65 and Older	730,382	6,930	0.9%	3,835	0.5%	5,186	0.7%
Age 17 and Under	1,280,022	7,960	0.6%	7,634	0.6%	8,199	0.6%
Low-Income	605,761	7,611	1.3%	5,166	0.9%	3,058	0.5%
Limited English Speaking Individuals	217,737	1,567	0.7%	2,419	1.1%	786	0.4%
Zero-Vehicle Households	153,366	2,710	1.8%	1,165	0.8%	499	0.3%

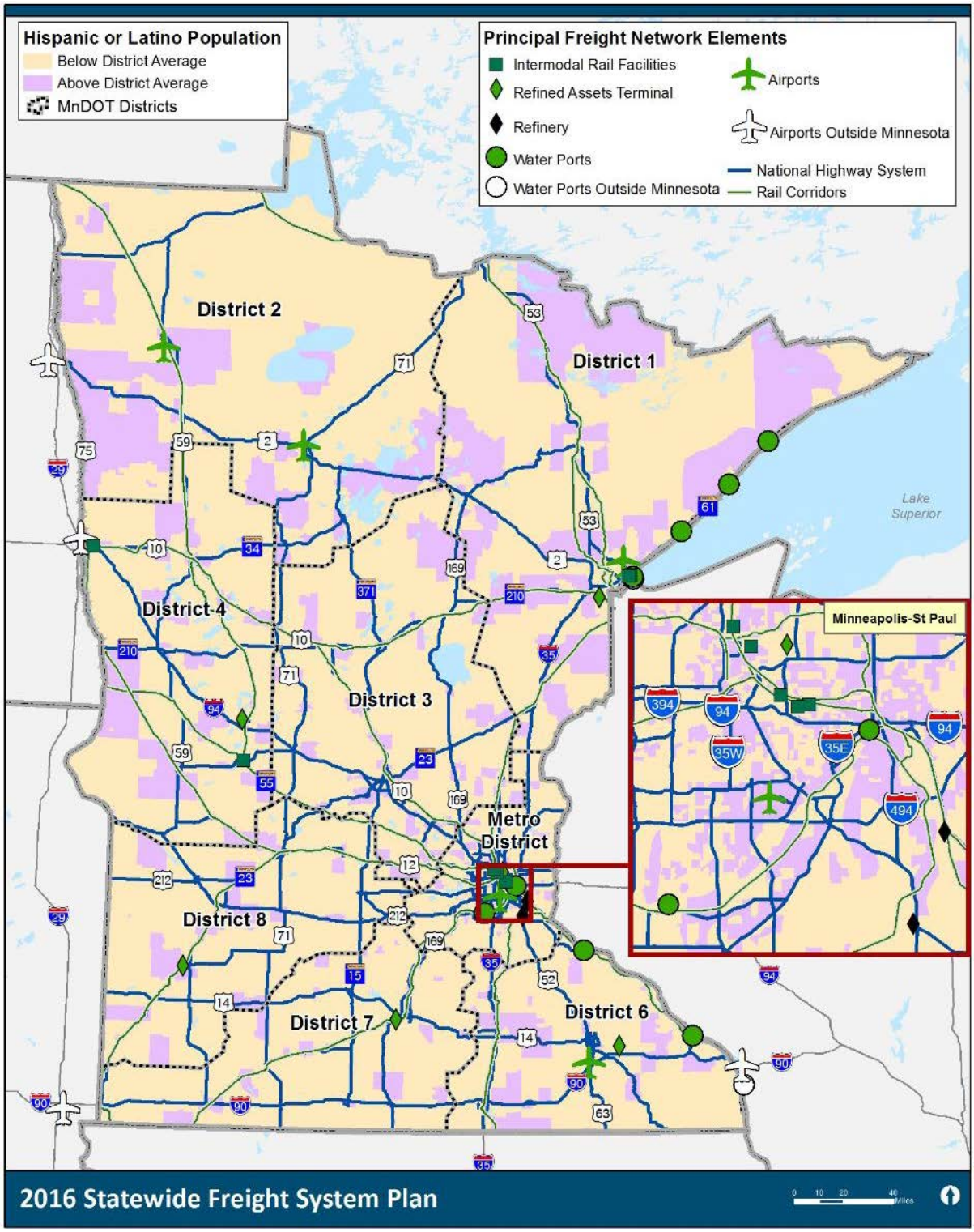
Figure C.8 through Figure C.14 display the locations of the PFN components relative to various demographic groups. In each map, block groups are highlighted if the proportions of the individual demographic groups are higher than the district average.

Figure C.8 Minnesota PFN Overlaid on Non-White Populations



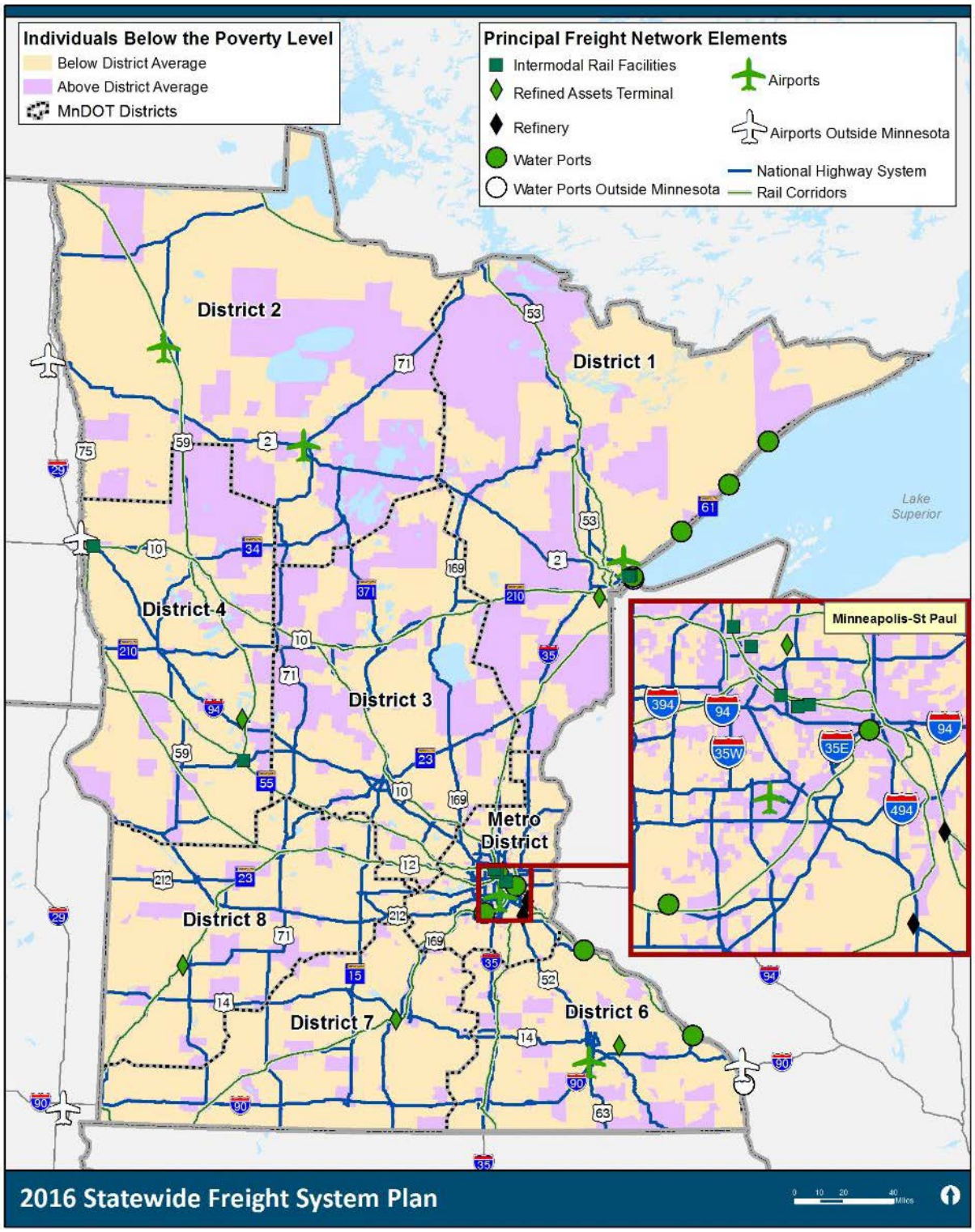
Note: Map does not reflect changes to the NHS resulting from the 2014-2015 greater Minnesota functional classification review

Figure C.9 Minnesota PFN Overlaid on Hispanic or Latino Populations



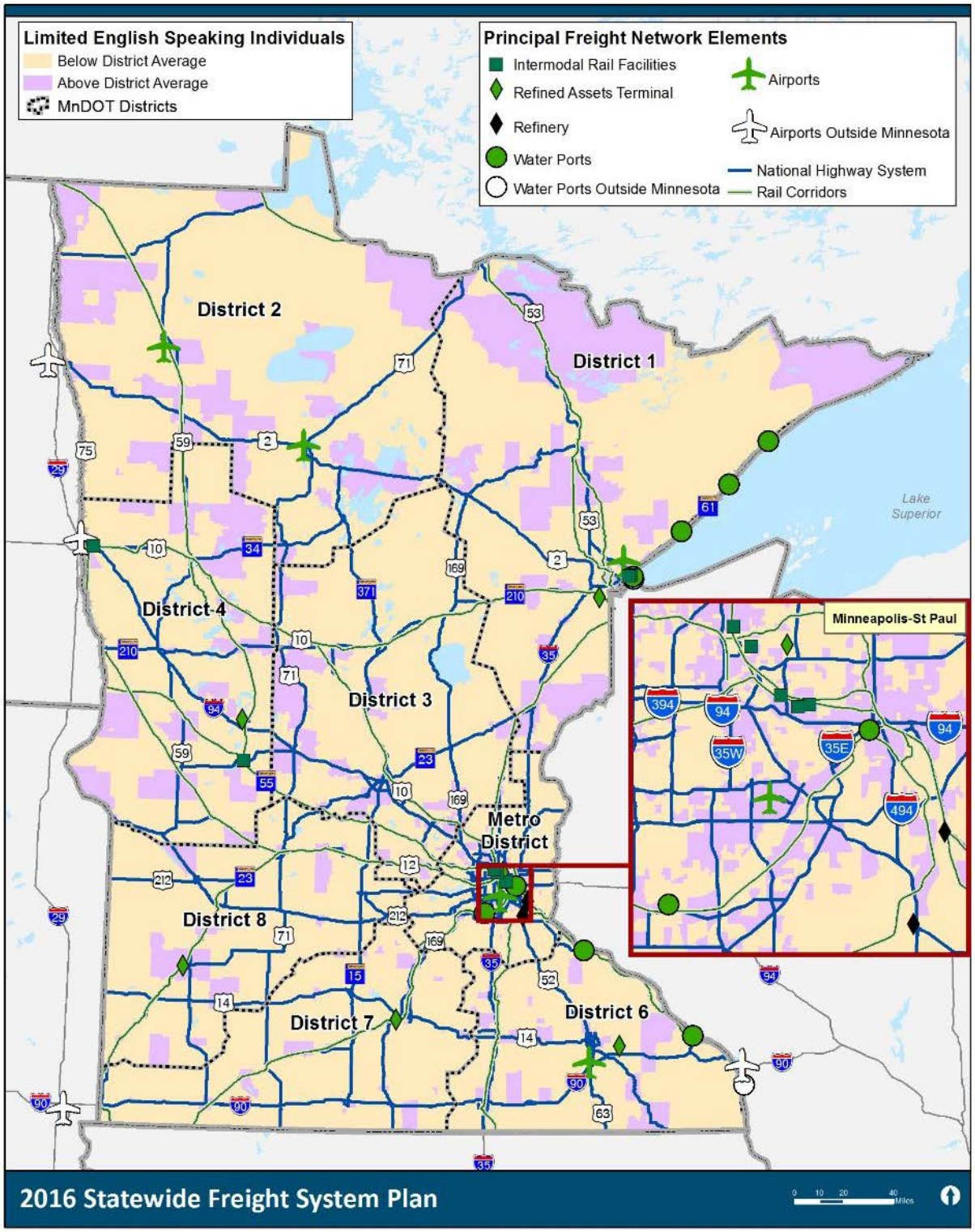
Note: Map does not reflect changes to the NHS resulting from the 2014-2015 greater Minnesota functional classification review

Figure C.10 Minnesota PFN Overlaid on Low-Income Populations



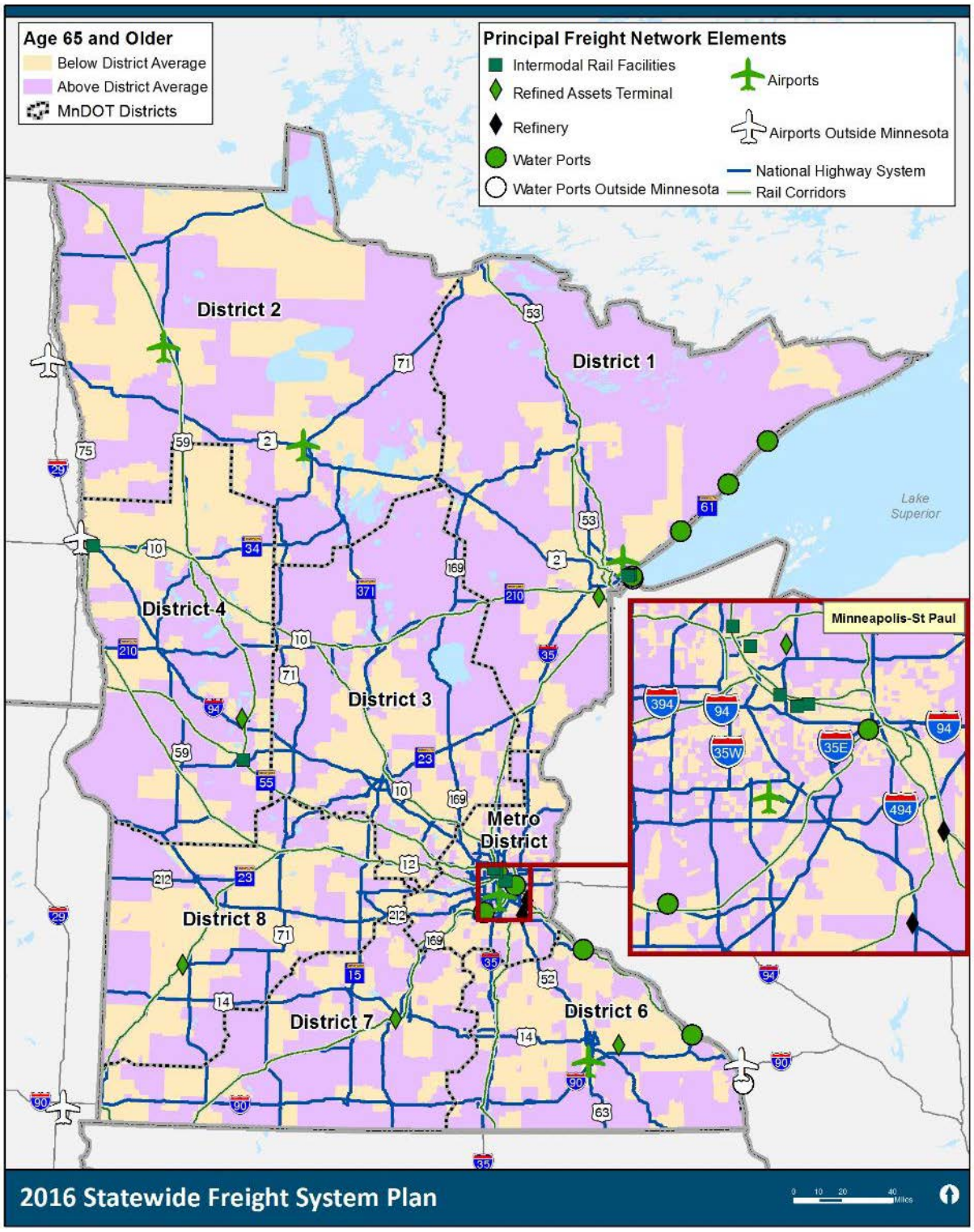
Note: Map does not reflect changes to the NHS resulting from the 2014-2015 greater Minnesota functional classification review

Figure C.11 Minnesota PFN Overlaid on Limited English Proficiency Populations



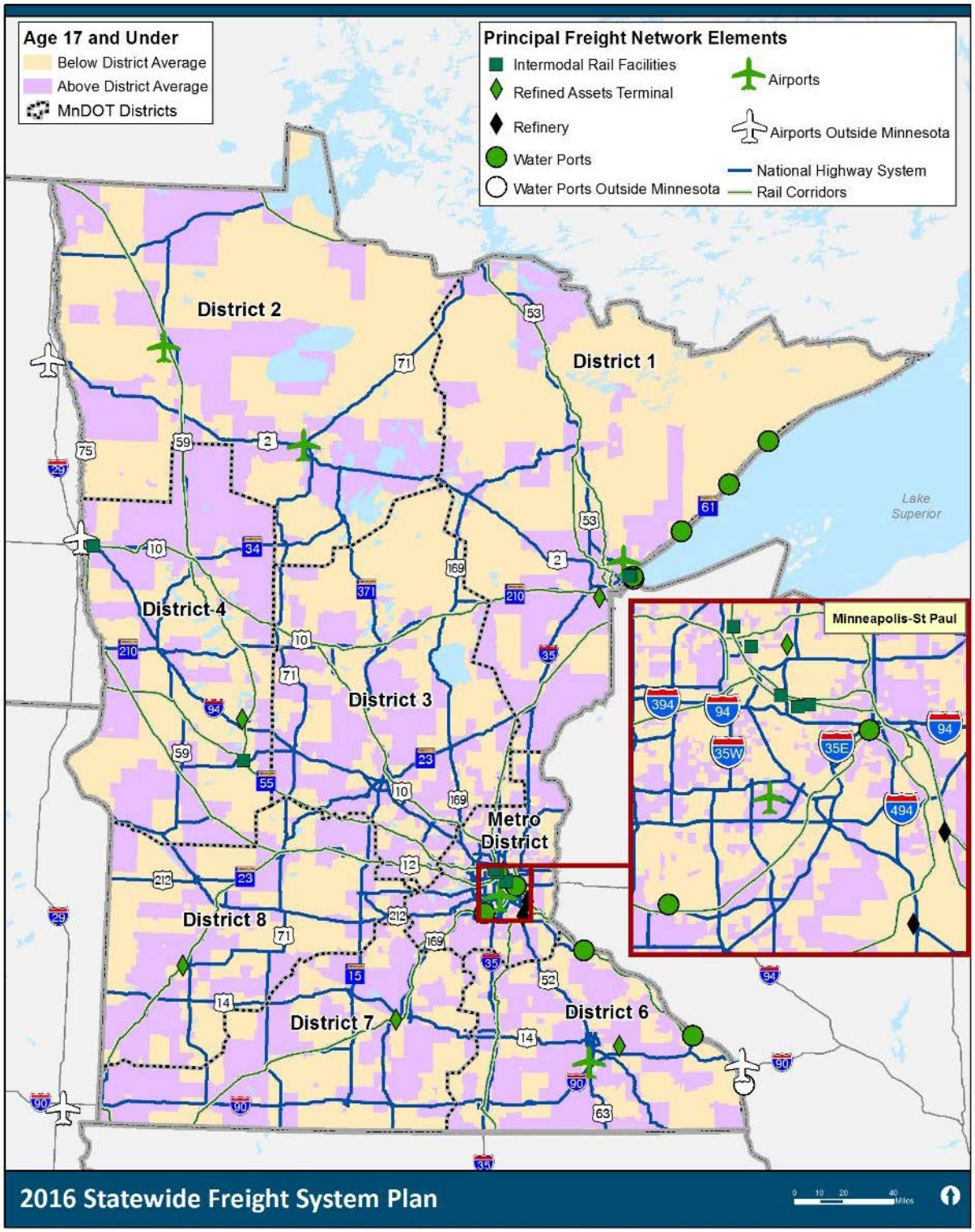
Note: Map does not reflect changes to the NHS resulting from the 2014-2015 greater Minnesota functional classification review

Figure C.12 Minnesota PFN Overlaid on Senior Populations (Age 65 and Over)



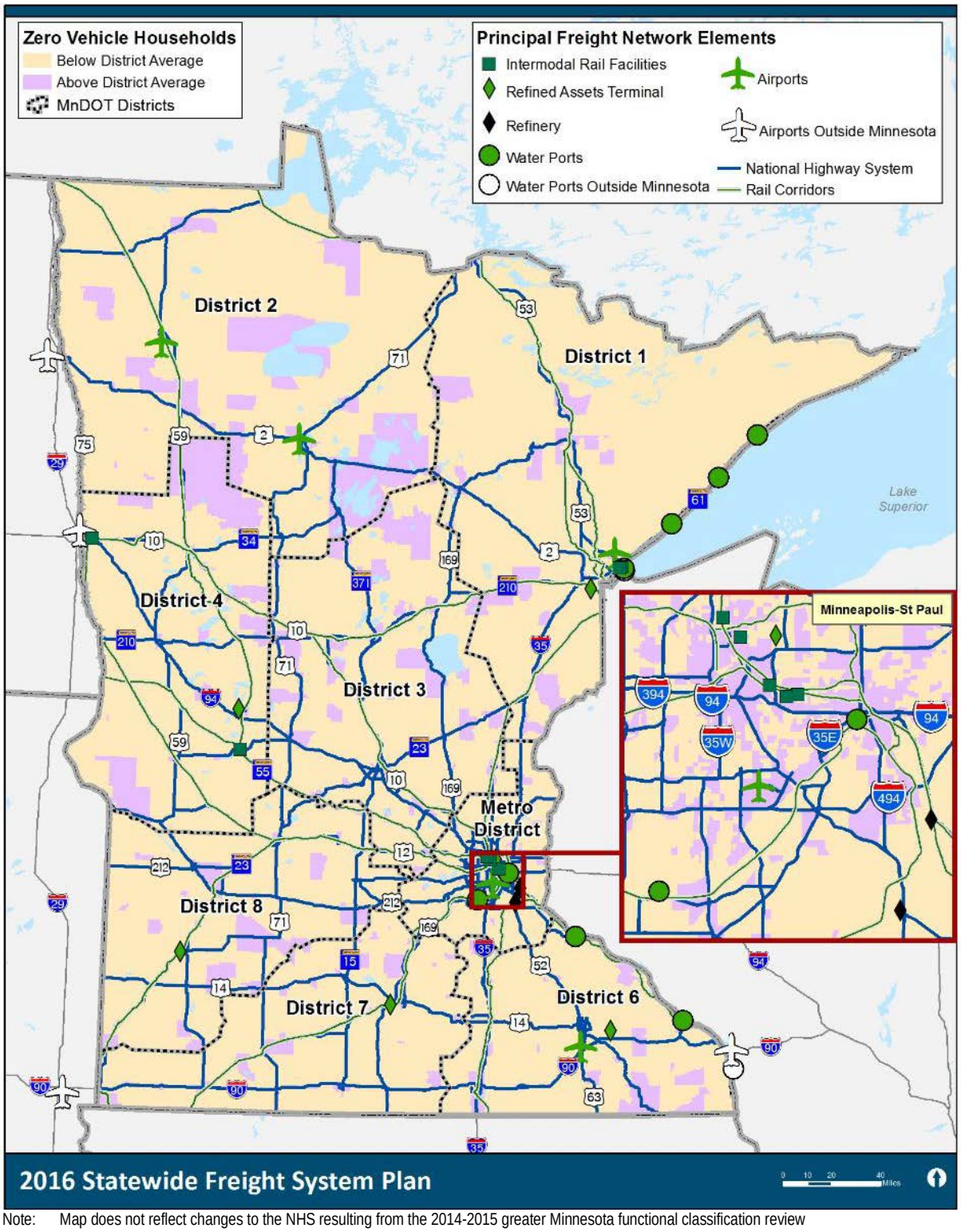
Note: Map does not reflect changes to the NHS resulting from the 2014-2015 greater Minnesota functional classification review

Figure C.13 Minnesota PFN Overlaid on Youth Populations (Age 17 and Younger)



Note: Map does not reflect changes to the NHS resulting from the 2014-2015 greater Minnesota functional classification review

Figure C.14 Minnesota PFN Overlaid on Zero-Vehicle Households



Note: Map does not reflect changes to the NHS resulting from the 2014-2015 greater Minnesota functional classification review

FREIGHT PLAN RELATION TO ENVIRONMENTAL JUSTICE POPULATIONS

MnDOT is committed to delivering a freight system that accounts for and addresses statewide transportation needs. MnDOT uses an extensive performance-based planning process to establish investment priorities for available resources, integrating federal and state laws, policy goals and objectives, technical information on system conditions, performance management, revenue projections, and input from the public, MnDOT districts, specialty offices and other transportation partners.

A set of 30 supporting strategies and corresponding actions were developed to help guide the state and achieve the goals of this plan. The Freight Action Agenda in Chapter 5 of the plan provides a summarized list of each action, timeframe for implementation and leading and supporting agencies. Additional information on how these strategies help meet plan goals is presented in the supplemental Technical Memo – Implementation Plan.

To assess the impacts of this plan on environmental justice populations, it is necessary to identify the potential impacts of these strategies on minority, age 65 and older, age 16 and younger, limited English proficiency, low-income or zero-vehicle household populations. The following sections describe the strategies included in Minnesota's Freight Action Agenda and how these policies might result in disproportionately high and adverse human health or environmental effects, if at all. The strategies are organized by Minnesota Statewide Multimodal Transportation Plan objective areas:

- Accountability, Transparency and Communication
- Transportation in Context
- Critical Connections
- Asset Management
- Traveler Safety
- System Security

As in the Statewide Multimodal Transportation Plan, the objectives and subsequent strategies/actions on the following pages are listed in no particular order. Their order is not meant to indicate priority; all are critical focus areas for the coming years. The high-level analysis presented in this appendix is at the system-level and is only one step in MnDOT's commitment to ensuring that its planning efforts and project-specific decisions do not result in disproportionately high and adverse human health or environmental effects, particularly on environmental justice populations. Additional environmental justice analyses will occur at the project level to analyze whether proposed activities may result in disproportionate impacts.

Accountability, Transparency, and Communication

The importance of accountability, transparency and communication to the transportation decision-making process is recognized and supported in state and federal legislation. There are specific requirements for state departments of transportation and Metropolitan Planning Organizations related to public involvement and collaboration. This plan engaged public and private freight stakeholders as an important resource in identifying needs and determining next steps. A key next step, implementing Minnesota's Freight Action Agenda, also relies on the continued communication and coordination of activities with these stakeholders and agencies, making information available to them in a manner that is easy to find and understand.

Impacts of this objective defined as part of the Statewide Multimodal Transportation Plan include:

- Public engagement activities that provide opportunities for all transportation users
- Improved coordination and collaboration among transportation partners to improve efficiencies and identify cost savings

- Education activities to better inform stakeholders and the general public on how the transportation decision making process works
- Regular reporting of performance measures and targets to improve accountability of public resources

The impacts of specific strategies on environmental justice populations may include the following.

1. EDUCATION

Educating the public on the critical role freight plays in the economy and everyday life of Minnesotans will benefit the public in understanding the actions taken by MnDOT. Outreach to targeted environmental justice populations should be included if it is determined that a project or policy will have specific implications for a population.

2. PARTNERSHIPS

This strategy involves engaging and partnering with Minnesota's public agencies and with producers, shippers/receivers, carriers, and other private sector freight stakeholders to address Minnesota's freight issues together. No environmental justice impacts are anticipated as part of this strategy.

3. ONGOING FREIGHT FORUM

This strategy includes convening an ongoing dialog between public and private sector freight stakeholders to keep freight topics front and center. Environmental justice communities or advocates could be engaged to discuss potential impacts of freight topics on communities.

4. ADVOCACY

Public and private freight stakeholders advocating together for advancing critical freight partnerships, strategies, investments, and continued funding for freight investments is the fourth strategy in the Freight Action Agenda. Environmental justice communities or advocates could be considered as partners on recommendations that might improve the freight impact on communities (e.g., grade separations, noise walls, job access).

5. TRAVELER INFORMATION

This strategy includes providing freight-specific traveler information, such as truck parking availability, expected travel time and roadway conditions. These improvements benefit all system users, including environmental justice populations. Information can be targeted to areas where benefits to specific populations might be accrued.

6. WORKFORCE DEVELOPMENT

The sixth strategy in the Freight Action Agenda is building programs in cooperation with community colleges and the private sector to ensure workforce is available for industry needs. This strategy will benefit all Minnesotans. Environmental justice populations can be a target for workforce development, in which case benefits will accrue to specific populations.

Transportation in Context

Transportation projects do not occur in a vacuum; they are surrounded by context. Context refers to the things people care about—the people, places and circumstances of their lives. While Minnesota residents and businesses rely on freight to provide their day-to-day needs, freight activity sometimes leads to unintended impacts. Understanding these impacts is an important part of freight project planning and policy development and making sure decisions are made taking into consideration land use, energy consumption, the environment, the economy, public health and the needs of traditionally underserved populations. Considering context when making freight transportation decisions leads to projects that are safer, sustainable in scale and tailored to the specific places in which they exist—projects that respect and complement the economy, environment and quality of life of a place.

Impacts of this objective defined as part of the Statewide Multimodal Transportation Plan include:

- Continued implementation of Context Sensitive Solutions to better balance the needs of all transportation stakeholders
- Increased coordination between land use and transportation decisions to identify cost efficiencies and encourage walking and bicycling
- Coordination among transportation partners to identify ways to avoid, minimize and mitigate adverse impacts of transportation decisions
- Collaboration with transportation partners to create and maintain jobs through transportation investments

The impacts of specific strategies on environmental justice populations may include the following.

7. CORRIDOR PRESERVATION

This strategy includes actively managing preserved rail corridors held in the State Rail Bank and evaluating them for possible future transportation uses. Benefits of preserving rail corridors include future multimodal options for relieving congestion on highways, which can have a benefit to both highway users and residents, including environmental justice communities, but may negatively impact nearby communities if the rails are put back into service. Conversion of rail corridors to other transportation uses such as bike lanes can also impact environmental justice populations that rely on non-motorized transportation.

8. TRUCK ROUTES

The eighth strategy is coordination of truck routes/planning in industrial and urban areas with restrictions and enforcement in adjacent residential areas. This strategy is a benefit for Minnesotans in these areas. Environmental justice populations will be impacted more than the average population as heavily used freight corridors and truck routes are generally more likely to travel near or through communities identified as environmental justice populations, leading to increased noise, safety and air quality impacts. Analysis for this study indicates there are higher-than-average shares of population living within a quarter-mile buffer of the Principal Freight Network.

9. COMPLETE STREETS

This strategy includes treatments that consider truck movements as part of total vehicle traffic, which can include time-of-day delivery windows to reduce conflicts with other street users, design guidelines for curb pullouts that can be used at different times for bus pullouts, truck parking and others. This is a benefit for environmental justice populations, particularly low-income and zero-vehicle households that may rely on walking and biking as primary modes of transportation.

10. LAND USE PLANNING AND POLICIES

Land use planning and policies to ensure freight development areas are designated and preserved and that development occurs adjacent to existing infrastructure is the tenth strategy in the Freight Action Agenda. Land use planning can have impacts on environmental justice populations if the needs of these communities are included as part of the planning process. To support the safe mobility of environmental justice populations, land use policies to promote freight could consider the impact on transit mobility, street connectivity, safe crossing and other features that enable walking, biking and transit as transportation options. Impacts of land use planning could have a positive impact on environmental justice populations that are adjacent to freight land uses as planning may mitigate air quality and noise impacts.

11. FREIGHT AS A GOOD NEIGHBOR

This strategy includes programs and projects that preserve Minnesota's high quality of life by balancing the local negative impacts of freight transportation with the national benefits provided. This policy will benefit Minnesota

residents, including environmental justice populations, by considering the distribution of benefits to and burden upon local populations.

12. ADVANCED TECHNOLOGY

Monitoring development of advanced technologies and their applications for freight is a strategy that can lead to reduced freight impacts in terms of emissions and safety in Minnesota. Advanced technologies that reduce emissions may have a greater positive impact upon environmental justice communities, as environmental justice populations tend to carry a higher burden when it comes to air quality impacts of transportation nationwide. Advanced technologies such as automated vehicles and connected vehicles/infrastructure may improve safety for those communities that interact most with freight vehicles. Analysis for this study indicates there are higher than average shares of population living within a quarter-mile buffer of the Principal Freight Network.

Critical Connections

Freight is unique in that it is multimodal, crosses state and national boundaries and has a myriad of public and private sector stakeholders with distinct operational and jurisdictional perspectives. While many types of connections are important to freight, there are critical connections that serve as the backbone for movement across and within Minnesota and to points beyond. The Principal Freight Network (designated as part of this plan), connections between modes of transportation, first- and last-mile connections and urban area connections are all essential. Identifying, preserving and enhancing these priority connections are sometimes shared responsibilities. All freight connections, regardless of jurisdiction, location or mode, need to be developed in coordination with one another to ensure a truly connected Minnesota.

Impacts of this objective defined as part of the Statewide Multimodal Transportation Plan include:

- Increased transportation options such as transit, bicycle, pedestrian, intercity bus and intercity passenger rail
- Improved multimodal connections to key resources and amenities throughout communities
- Enhanced communication between transportation partners to identify and remove barriers, increase collaboration and share resources
- Improved accessibility to the transportation system regardless of income or ability

The impacts of specific strategies on environmental justice populations may include the following.

13. INTEGRATE FREIGHT PLANNING INTO ALL PLANNING PROJECTS

Considering freight in overall project planning across modes and regularly engaging the private sector and considering their perspectives during freight system planning may benefit the planning process by making sure all important considerations are included. Planning for interactions between freight and other vehicles or pedestrians can be challenging. Many environmental justice populations are located in proximity to freight facilities and corridors, and so integrated planning in these communities is particularly important to mitigate challenges such as safety and air quality.

14. INVESTMENTS ON THE PRINCIPAL FREIGHT NETWORK

Applying multimodal solutions that ensure a high return on investment, given constrained resources, and that complement the unique social, natural and economic features of Minnesota is the 14th strategy in the Freight Action Agenda. The investments coming out of this strategy may have impacts on environmental justice populations, as they make up a higher than average proportion of the population living within a quarter-mile buffer of the Principal Freight Network. Additional environmental review, including environmental justice analysis, will be completed as projects progress.

15. FIRST-/LAST-MILE CONNECTIONS

Freight connections such as highway access and rail spurs to local businesses may have an impact on environmental justice populations, since these populations live in higher than average concentrations near rail facilities. As the scope and extent of these projects have not yet been determined, additional environmental review, including environmental justice analysis, will be completed as projects progress.

16. TARGETED SYSTEM INVESTMENTS

Making targeted infrastructure investments to support and enhance the multimodal freight system may have an impact on environmental justice populations, since these populations live in higher than average concentrations near rail corridors and the Principal Freight Network. As the scope and extent of these projects have not yet been determined, additional environmental review, including environmental justice analysis, will be completed as projects progress.

17. INTERMODAL AND MULTIMODAL FACILITIES

Intermodal and multimodal facility development to allow goods to shift between modes such as truck, rail and water is the 17th strategy in the Freight Action Agenda. This strategy may have an impact on environmental justice populations since these populations live in higher than average concentrations near rail facilities and water ports. As the scope and extent of these projects have not yet been determined, additional environmental review, including environmental justice analysis, will be completed as projects progress.

18. URBAN GOODS MOVEMENT PROGRAMS

Projects and programs in urban centers focused on mitigating congestion caused by rush hour traffic, incidents, work zones or other factors where high volumes of freight and passenger traffic must coexist will create benefits for the traveling public and nearby residents, including environmental justice populations located in urban areas.

19. TRUCK SIZE AND WEIGHT

Improved routing for overdimensional and overweight vehicles and consistency of regulations between Minnesota and neighboring states may have impacts to environmental justice populations as these routes are generally more likely to travel near or through communities identified as environmental justice populations. Analysis for this study indicates that environmental justice populations make up a higher than average proportion of the population living within a quarter-mile buffer of the Principal Freight Network, although a specific analysis of oversize and overweight corridors was not included.

20. MODAL OPTIONS/SYSTEM REDUNDANCY

Modal alternatives (e.g., truck, rail, and water) in spot locations and modal redundancy within key corridors (so companies have access to a variety of cost effective and competitive freight modes to ship their goods) may affect environmental justice populations as these populations live in higher than average concentrations near rail facilities and water ports. At the same time, modal options may alleviate congestion on the roadway network, which will have positive impacts to communities near roadway facilities.

21. EVALUATE AND RESTRUCTURE EXISTING FREIGHT FUNDING PROGRAMS

Restructuring MnDOT's programs to more adequately address freight needs is not anticipated to have any direct environmental justice impacts. As projects and investments are determined, additional environmental review, including environmental justice analysis, should be completed.

Asset Management

In many cases, the same infrastructure is used for both freight and passenger travel, creating potential synergies in asset management for both forms of transportation. Keeping individual assets viable and managing for long-term

system needs are important for both systems. However, there are key differences in terms of performance goals, time horizons and maintenance needs for corridors that are heavily used by freight in contrast to those that serve primarily passenger travel. Routes that serve heavy-haul equipment or see high levels of truck traffic are more vulnerable to pavement degradation, for example, and may need higher levels of maintenance. One of the key applications of the Principal Freight Network, designated as part of this plan, is to support improved asset management. This includes identifying and prioritizing system needs on the highway system that are most important for freight.

Impacts of this objective defined as part of the Statewide Multimodal Transportation Plan include:

- Investment decisions that give priority to maintaining and operating key transportation assets
- Consideration of safety, operations and maintenance needs during planning and programming to better reflect the full cost of decisions
- Transportation systems that are operated and maintained based on identified priorities
- A decision-making process that considers the potential impacts investment decisions may have to the state's economy, environment, and quality of life

The impacts of specific strategies on environmental justice populations may include the following.

22. FREIGHT DATA

Improved data collection (e.g., truck counts) and use of innovative sources will help the public sector do better freight planning. Freight data will allow Minnesota to develop performance measures and invest in the freight system. However, since no investments are made with this strategy, no environmental justice impacts are anticipated.

23. FREIGHT SYSTEM PERFORMANCE MEASURES

Using freight system performance measures to monitor and report system condition and identify investment needs for key transportation infrastructure will allow Minnesota to more effectively and efficiently invest in the freight system; however, performance measures alone are not expected to have any environmental justice impacts.

24. FREIGHT SYSTEM INVESTMENT PLAN

Development of a detailed FAST Act compliant prioritized investment plan that aligns multimodal freight system projects and available sources of funding so they can be implemented is a key strategy in the Freight Action Agenda. This plan could recommend projects that have impacts on environmental justice populations, but as the scope and extent of these projects have not yet been determined, additional environmental review, including environmental justice analysis, will be completed as projects progress.

25. PRIORITIZE MAINTENANCE ON THE PRINCIPAL FREIGHT NETWORK

Prioritizing bridge/pavement maintenance on routes that are shared by freight rail or truck and passenger traffic will ensure the ability of these routes to handle higher levels of freight and passenger traffic effectively and thus will benefit the traveling public, including environmental justice populations. The investments coming out of this strategy may have impacts on environmental justice populations as they make up a higher than average proportion of the population living within a quarter-mile buffer of the Principal Freight Network. Additional environmental review, including environmental justice analysis, will be completed as projects progress.

Traveler Safety and System Security

Freight safety and security involves making travel safer for freight vehicles and also for the passenger vehicles that share the roadway, rail, air, and waterway systems. This is the case in daily operations as well as during emergency situations. The "4Es" of safety in Minnesota – education, enforcement, engineering, and emergency services – all

have a place in the supporting strategies of this plan and align with the idea that the freight system should be resilient, reliable and have alternatives available for critical connections.

Impacts of this objective defined as part of the Statewide Multimodal Transportation Plan include:

- Coordinated response plans that ensure mitigation, response and recovery activities are timely and effective
- A statewide communication system for public safety providers that allows emergency responders from different organizations to communicate with each other
- Applying an integrated safety approach such as Toward Zero Deaths to all transportation modes
- Continued collaboration and coordination on safety campaigns
- Planning, designing, operating and maintaining transportation systems in a manner that considers the safety of all users regardless of income or ability
- Implementing a statewide trauma system to reduce emergency response time and increase survival rates

The impacts of specific strategies on environmental justice populations may include the following.

26. DESIGN FOR FREIGHT SAFETY

Design and implement geometric features that improve vehicle safety, such as the use of rumble strips/stripes, wider shoulders and other features where appropriate, is a strategy that will create improvements for the traveling public, including environmental justice populations.

27. TRUCK PARKING

Conducting assessments of truck parking and planning for expansion could have negative impacts on environmental justice populations given their higher than average proximity to the NHS. As the scope and extent of these projects have not yet been determined, additional environmental review, including environmental justice analysis, will be completed as projects progress.

28. INCIDENT MANAGEMENT AND EMERGENCY RESPONSE PLANS

Developing emergency plans to ensure critical supply chain connectivity and proactively route hazardous materials will have benefits to environmental justice populations living in proximity to the corridors where these materials travel. Analysis for this study indicates that environmental justice populations make up a higher than average proportion of the population living within a quarter-mile buffer of the Principal Freight Network, though a specific analysis of corridors that carry hazardous materials was not included.

29. RAIL CROSSINGS

Assessing grade crossing safety, implementing policies, programs and investments related to safety of at-grade crossings, and seeking funding for implementation will have safety benefits to the traveling public, including environmental justice populations. The investments coming out of this strategy may have impacts on environmental justice populations as they make up a higher than average proportion of the population living within a quarter-mile buffer of the Principal Freight Network. Additional environmental review, including environmental justice analysis, will be completed as projects progress.

30. RAIL SYSTEM VULNERABILITIES

Development and implementation of a comprehensive plan that addresses key safety vulnerabilities across Minnesota's rail network can have impacts on all populations living near rail lines that may be affected by an incident on a rail line or at a rail crossing. As higher than average concentrations of environmental justice populations live

within the quarter-mile buffer of the rail portion of the Principal Freight Network, the benefits of this strategy will correspondingly have higher impacts for these communities.

Conclusions

The environmental justice analysis presented in this appendix is a qualitative evaluation of the Minnesota Statewide Freight System Plan's effect on minority, youth, senior, limited English proficiency, low-income or zero-vehicle household populations. As summarized in the previous sections, no disproportionately high and adverse human health or environmental effects are directly expected due to the plan, although projects related to some recommended strategies could result in negative impacts to these populations. However, it is noted that a higher than average concentration of environmental justice populations are found within the quarter-mile buffer of the Principal Freight Network. Thus, impacts from freight projects – both positive and negative – are likely to have proportionally higher impacts on environmental justice communities. When negative impacts cannot be avoided, steps should be taken to minimize or mitigate negative impacts.

No analysis of specific projects or investments was conducted as part of this plan. As projects progress into project development phases, MnDOT or other lead agencies will be responsible for evaluating the potential environmental and environmental justice impacts of transportation projects on the freight system to all users and residents, including environmental justice communities.

D. APPENDIX D: ACRONYMS AND KEY DEFINITIONS

Acronyms

AAR	Association of American Railroads
ACTT	Advocacy Council for Tribal Transportation
AHTD	Annual Hours of Truck Delay
ATA	American Trucking Association
ATM	Active Traffic Management
ATPs	District Area Transportation Partnerships
BJI	Bemidji Regional Airport
BRD	Brainerd Lakes Regional Airport
BRIM	Bridge Replacement and Improvement Management
CIP	Capital Improvement Plan
CN	Canadian National
CNG	Compressed Natural Gas
CP	Canadian Pacific
CTC	Centralized Traffic Control
CTS	The University of Minnesota's Center for Transportation Studies
DEED	Department of Employment and Economic Development
DLH	Duluth International Airport
DMS	Dynamic Message Signs
DOT	Department of Transportation
DSPA	Duluth Seaway Port Authority
DSPs	District Safety Plans
EJ	Environmental Justice
EPA	United States Environmental Protection Agency
FAA	Federal Aviation Administration

FAF	Freight Analysis Framework
FAST Act	Fixing America's Surface Transportation Act
FHWA	Federal Highway Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
FTIP	Freight Transportation Improvement Program
GIS	Geographic Information System
GPS	Global Positioning Systems
GSP	Gross State Product
HCAADT	Heavy Commercial Average Annual Daily Traffic
HHS	U.S. Department of Health and Human Services
HIB	Range Regional Airport
HOS	Hours of Service
HSIP	Highway Safety Improvement Program
INL	Falls International Airport
IRC	Interregional Corridor
IRI	International Roughness Index
ITS	Intelligent Transportation Systems
LEP	Limited English Proficiency
LNG	Liquefied Natural Gas
MAFC	Mid-America Freight Coalition
MAP-21	Moving Ahead for Progress in the 21st Century Act
MFAC	Minnesota Freight Advisory Committee
MnDOT	Minnesota Department of Transportation
MnSHIP	Minnesota State Highway Investment Plan
MPH	Miles Per Hour

MPO	Metropolitan Planning Organization
MRS	Mississippi River System
MRSI	Minnesota Rail Service Improvement
MSP	Minneapolis – St. Paul International Airport
NAAQS	National Ambient Air Quality Standards
NBI	National Bridge Inventory
NFSP	National Freight Strategic Plan
NHFN	National Highway Freight Network
NHFP	National Highway Freight Program
NHS	National Highway System
NHTSA	National Highway Traffic Safety Administration
NMFN	National Multimodal Freight Network
NPIAS	National Plan of Integrated Airport Systems
NPMRDS	National Performance Management Research Data Set
NPMS	National Pipeline Mapping System
OFCVO	Office of Freight and Commercial Vehicle Operations
OSOW	Oversize-Overweight
OTSM	Office of Transportation System Management
PFN	Principal Freight Network
PPPs	Public-Private Partnerships
PTC	Positive Train Control
RCIP	Regional Community Investment Program
RCIPs	Regional Community Investment Priorities
RI_{80}	Truck Reliability Index
RQI	Ride Quality Index
RST	Rochester International Airport

STIP	State Transportation Investment Program
TEU	Twenty-Foot Equivalent Unit
TIGER	Transportation Investment Generating Economic Recovery
TIP	Transportation Improvement Program
TZD	Toward Zero Deaths
UP	Union Pacific
USACE	United States Army Corps of Engineers
U.S. DOT	United States Department of Transportation
WIM	Weigh-in-Motion Systems

Key Definitions

Average Annual Daily Traffic (AADT) - The total volume of truck traffic on a highway segment for one year, divided by the number of days in the year.

Average Annual Daily Truck Traffic (AADTT) - The total volume of truck traffic on a highway segment for one year, divided by the number of days in the year.

Backhaul - The process of a transportation vehicle (typically a truck) returning from the original destination point to the point of origin. A backhaul can be with a full or partially loaded trailer.

Barge - The cargo-carrying vehicle that inland water carriers primarily use. Basic barges have open tops, but there are covered barges for both dry and liquid cargoes.

Belly Cargo - Air freight carried in the belly of passenger aircraft.

Bill of Lading - A transportation document that is the contract of carriage containing the terms and condition between shipper and carrier.

Bottleneck - A section of a highway or rail network that experiences operational problems such as congestion. Bottlenecks may result from factors such as reduced roadway width or steep freeway grades that can slow trucks.

Boxcar - An enclosed railcar, typically 40 or more feet long, used for packaged freight and some bulk commodities.

Breakbulk Cargo - Cargo of non-uniform sizes, often transported on pallets, sacks, drums, or bags. These cargoes require labor-intensive loading and unloading processes. Examples of breakbulk cargo include coffee beans, logs, or pulp.

Broker - A person whose business it is to prepare shipping and customs documents for international shipments. Brokers often have offices at major freight gateways, including border crossings, seaports, and airports.

Bulk Cargo - Cargo that is unbound as loaded; it is without count in a loose unpackaged form. Examples of bulk cargo include coal, grain, and petroleum products.

Capacity - The physical facilities, personnel and process available to meet the product of service needs of the customers. Capacity generally refers to the maximum output or producing ability of a machine, a person, a process, a factory, a product, or a service.

Cargo Ramp - A dedicated load/unload facility for cargo aircraft .

Carload - Quantity of freight (in tons) required to fill a railcar; amount normally required to qualify for a carload rate.

Carrier - A firm which transports goods or people via land, sea or air.

Centralized Dispatching - The organization of the dispatching function into one central location.

Chassis - A trailer-type device with wheels constructed to accommodate containers, which are lifted on and off.

Class I Railroad - Class I Railroads are line haul freight railroads with 2013 operating revenue of $467.0 million or more. The AAR expects this threshold to increase to around $475.8 for 2014.

Class II Railroad - Class II Railroads are carriers with annual carrier operating revenues of less than $467.0 million but more than $37.4 million.

Class III Railroad - Class III Railroads are carriers with annual carrier operating revenues of $37.4 million or less, and all switching and terminal companies regardless of operating revenues

Classification Yard - A railroad terminal area where railcars are grouped together to form train units.

Coastal Shipping - Also known as short-sea or coastwise shipping, describes marine shipping operations between ports along a single coast or involving a short sea crossing.

Contract Carrier - A carrier that does not serve the general public, but provides transportation for hire for one or a limited number of shippers under a specific contract.

Commodity - An Item that is traded in commerce. The term usually implies an undifferentiated product competing primarily on price and availability.

Commodity Flows - Data that describes the movement of goods. This information is used for transportation planning and decision-making.

Common Carrier - Any carrier engaged in the interstate transportation of persons/property on a regular schedule at published rates, whose services are for hire to the general public.

Consignee - The receiver of a freight shipment, usually the buyer.

Consignor - The sender of a freight shipment, usually the seller.

Container - A "box"' typically ten to forty feet long, which is used primarily for ocean freight shipment. For travel to and from ports, containers are loaded onto truck chassis' or on railroad flatcars.

Container on Flatcar (COFC) - Containers resting on railway flatcars without a chassis underneath.

Containerization - A shipment method in which commodities are placed in containers, and after initial loading, the commodities per se are not re-handled in shipment until they are unloaded at destination.

Containerized Cargo - Cargo that is transported in containers that can be transferred easily from one transportation mode to another.

CVISN - Commercial Vehicle Information Systems and Networks (CVISN), a national program administered by the Federal Motor Carrier Safety Administration designed to improve motor carrier safety and to enhance the efficiency of administrative processes for industry and government.

Deadhead - The return of an empty transportation container back to a transportation facility. Commonly-used description of an empty backhaul.

Demurrage - The carrier charges and fees applied when rail freight cars and ships are retained beyond a specific loading or unloading time.

Dispatcher - An individual tasked to assign available transportation loads to available carriers.

Distribution Center (DC) - The warehouse facility which holds inventory from manufacturing pending distribution to the appropriate stores.

Dock - A space used or receiving merchandise at a freight terminal.

Double-stack - Railcar movement of containers stacked two high.

Drayage - Transporting of rail or ocean freight by truck to an intermediate or final destination; typically a charge for pickup/delivery of goods moving short distances (e.g., from marine terminal to warehouse).

Drop - A situation in which an equipment operator deposits a trailer or boxcar at a facility at which it is to be loaded or unloaded.

Durable Goods - Generally, any goods whose continuous serviceability is likely to exceed three years.

Flatbed - A trailer without sides used for hauling machinery or other bulky items.

For-hire Carrier - Carrier that provides transportation service to the public on a fee basis.

Forty-foot Equivalent Unit (FEU) - The 8.5-foot by 8-foot by 40-foot intermodal container is used as a basic measure in many statistics and is the standard measure used for containerized cargo. Equal to two TEUs.

Freight All Kinds (FAK) - Goods classified FAK are usually charged higher rates than those marked with a specific classification and are frequently in a container that includes various classes of cargo.

Freight Forwarder - A person whose business is to act as an agent on behalf of a shipper. A freight forwarder frequently consolidates shipments from several shippers and coordinates booking reservations.

Free Trade Zone (FTZ) - An area or zone set aside at or near a port or airport, under the control of the U.S. Customs Service, for holding goods duty-free pending customs clearance.

Gross Vehicle Weight (GVW) - The combined total weight of a vehicle and its freight.

Hazardous Material - A substance or material which the Department of Transportation has determined to be capable of posing a risk to health, safety, and property when stored or transported in commerce.

Hours of Service (HOS) - Ruling that stipulates the amount of time a driver is allotted to work.

Hub - A common connection point for devices in a network. Referenced for a transportation network as in "hub and spoke" which is common in the airline and trucking industry.

Intelligent Transportation System (ITS) - A generic term for advanced technology applications that provide real-time monitoring and information to enable the more efficient and safer use of transportation systems. Examples include Changeable Message Signs (CMS) or Weigh in Motion (WIM).

Intermodal - The transfer of freight between and among the modes involved in general cargo transportation (ship, rail, truck).

Intermodal Terminal - A location where links between different transportation modes and networks connect. Using more than one mode of transportation in moving persons and goods. For example, a shipment moved over 1000 miles could travel by truck for one portion of the trip, and then transfer to rail at a designated terminal.

Inventory - The number of units and/or value of the stock of good a company holds.

Just-in-Time (JIT) - Growing practice of minimizing warehousing costs by delivery goods for manufacturing, assembly or wholesale/retail replenishment. Refers to the growing premium places on reliability, transit time and efficiency by the shipping industry.

Less·Than-Containerload/Less· Than·Truckload (LCULTL) - A container or trailer loaded with cargo from more than one shipper; loads that do not by themselves meet the container load or truckload requirements.

Level of Service (LOS) - A measure of the quality of operation of a transportation facility, with Level of Service "A" being very good operation with few traffic delays, and Level of Service "F" being severely congested operation with significant traffic delays.

Lift-on/Lift-off (lo/lo) Cargo - Containerized cargo that must be lifted on and off vessels and other vehicles using handling equipment.

Line Haul - The movement of freight over the road/rail from origin terminal to destination terminal, usually over long distances.

Lock - A channel where the water rises and falls to allow boats to travel a dammed river.

Logistics - All activities involved in the management of product movement; delivering the right product from the right origin to the right destination, with the right quality and quantity, at the right schedule and price.

Moving Ahead for Progress in the 21st Century Act (MAP-21) - Federal highway authorization legislation signed into law in 2012.

Multimodal - Using more than one transportation mode to move a load of goods.

Node - A fixed point in a firm's logistics system where goods come to rest; includes plants, warehouses, supply sources, and markets.

On-dock Rail - Direct shipside rail service. Includes the ability to load and unload containers/breakbulk directly from rail car to vessel.

Operating Ratio - A measure of operation efficiency defined as: (Operating Expenses/Operation Revenues) x 100.

Oversize/Overweight (OS/OW) - Also called Oversize/Overdimension (OS/OD). This refers to cargo that exceeds a state's legal limits for vehicle size and vehicle weight. These shipments typically require a permit to move within a state. Legal limits can vary from state to state.

Owner-operator - Trucking operation in which the owner of the truck is also the driver.

Placard - A label that identifies a hazardous material shipment and the hazards present.

Piggyback - A rail/truck service. A shipper loads a highway trailer, and a carrier drives it to a rail terminal and loads it on a flatcar; the railroad moves the trailer-on-flatcar combination to the destination terminal, where the carrier offloads the trailer and delivers it to the consignee.

Pool/Drop Trailers - Trailer that are staged at a facilities for preloading purposes.

Port Authority - State or local government that owns, operates, or otherwise provides wharf, dock, and other terminal investments at ports.

Port of Entry (POE) - A location where people or goods can legally enter a country. Also a border inspection station (typically on a highway or other major route) where vehicle weight, credentials, registration, or safety may be checked.

Positive Train Control (PTC) - system of functional requirements for monitoring and controlling train movements. Mandated by Congress in the Rail Safety Improvement Act of 2008.

Private Carrier ·A carrier that provides transportation service to the firm that owns or leases the vehicles and does not charge a fee.

Pull Logistics System - "Just in time" logistics system driven by customer demand and enabled by telecommunications and information systems rather than by manufacturing process and inventory stockpiling .

Push Logistics System - Inventory-based logistics system characterized by regularly scheduled flows of products and high inventory levels.

Rail Siding - A very short branch off a main railway line with only one point leading onto it. Sidings are used to allow faster trains to pass slower ones or to conduct maintenance.

Reefer Trailer - A refrigerated trailer that is commonly used for perishable goods.

Regional Railroad - Railroad defined as line-haul railroad operating at least 350 miles of track and/or earning revenue between $40 million and the Class I revenue threshold ($467.0 million). Generally, Class II carriers are referred to as regional railroads.

Reliability - Refers to the degree of certainty and predictability in travel times on the transportation system. Reliable transportation systems offer some assurance of attaining a given destination within a reasonable range of an expected time. An unreliable transportation system is subject to unexpected delays, increasing costs for system users.

Radio Frequency (RFID) - A form of wireless communication that lets users relay information via electronic energy waves from a terminal to a base station, which is linked in turn to a host computer. The terminals can be placed at a fixed station, mounted on a forklift truck, or carried in the worker's hand. The base station contains a transmitter and receiver for communication with the terminals. When combined with a bar-code system for identifying inventory items, a radio-frequency system can relay data instantly, thus updating inventory records in so-called "real time".

Roll-on/Roll-off (ro/ro) Cargo - Wheeled cargo, such as automobiles, or cargo carried on chassis that can be rolled on or off vehicles without using cargo handling equipment.

Seasonality - Repetitive pattern of demand from year to year (or other repeating time interval) with some periods considerably higher than others. Seasonality explains the fluctuation in demand for various recreational products, which are used during different seasons.

Shipper - Party that tenders goods for transportation.

Shipping Manifest - A document that lists the pieces in a shipment.

Short Line Railroad - Freight railroads which are not Class I or Regional Railroads that operate less than 350 miles of track and earn less than $40 million. Generally, Class 111 carriers are referred to as short lines.

Short-sea Shipping - Also known as coastal or coastwise shipping, describes marine shipping operations between ports along a single coast or involving a short sea crossing.

Strategic Highway Network (STRAHNET) - A network of highways which are important to the United States' strategic defense policy and which provide defense access, continuity, and emergency capabilities for defense purposes.

Strategic Rail Corridor Network (STRACNET) - An interconnected and continuous rail line network consisting of over 38,000 miles of track serving over 170 defense installations.

Switching and Terminal Railroad - Railroad that provides pick-up and delivery services to line-haul carriers.

Supply Chain - Starting with unprocessed raw materials and ending with final customer using the finished goods.

Third-party Logistics (3PL) Provider - A specialist in logistics who may provide a variety of transportation, warehousing, and logistics-related services to buyers or sellers. These tasks were previously performed in-house by the customer.

Throughput - Total amount of freight imported or exported through a seaport measured in tons or TEUs.

Ton-mile - A measure of output for freight transportation; reflects weight of shipment and the distance it is hauled; a multiplication of tons hauled by the distance traveled.

Trailer on Flatcar (TOFC) - Transport of trailers with their loads on specially designed rail cars.

Transit time - The total time that elapses between a shipment's delivery and pickup.

Transloading - Transferring bulk shipments from the vehicle/container of one mode to that of another at a terminal interchange point.

Truckload (TL) - Quantity of freight required to fill a truck, or at a minimum, the amount required to qualify for a truckload rate.

Twenty-foot Equivalent Unit (TEU) - The 8-foot by 8-foot by 20-foot intermodal container is used as a basic measure in many statistics and is the standard measure used for containerized cargo.

Unit Train - A train of a specified number of railcars handling a single commodity type which remain as a unit for a designated destination or until a change in routing is made.

Vehicle Miles of Travel (VMT) - A unit to measure vehicle travel made by a private vehicle, such as an automobile, van, pickup truck, or motorcycle.

Warehouse - Storage place for products. Principal warehouse activities include receipt of product, storage, shipment and order picking.

Weigh in Motion (WIM) - Method used to weigh vehicles while they are in motion. These systems are typically used for weight enforcement and are used to screen vehicles for further inspection. Systems can be installed on the mainline where weights are determined at high speed, or on entrance ramps to facilities.