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# District 2 Freight Plan

WORKING PAPER #3: SWOT ANALYSIS

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# Introduction

The Minnesota Department of Transportation (MnDOT) is currently in the process of updating freight plans for multiple regional districts. This document – Working Paper #3 – details work undertaken to identify District 2’s freight-related strengths, weaknesses, opportunities and threats (SWOT). The results of the SWOT analysis were built upon the key takeaways from past work, including those previous work elements outlined below in Figure 1, including stakeholder outreach and feedback, document synthesis, and data/quantitative analysis (Working Paper #2).

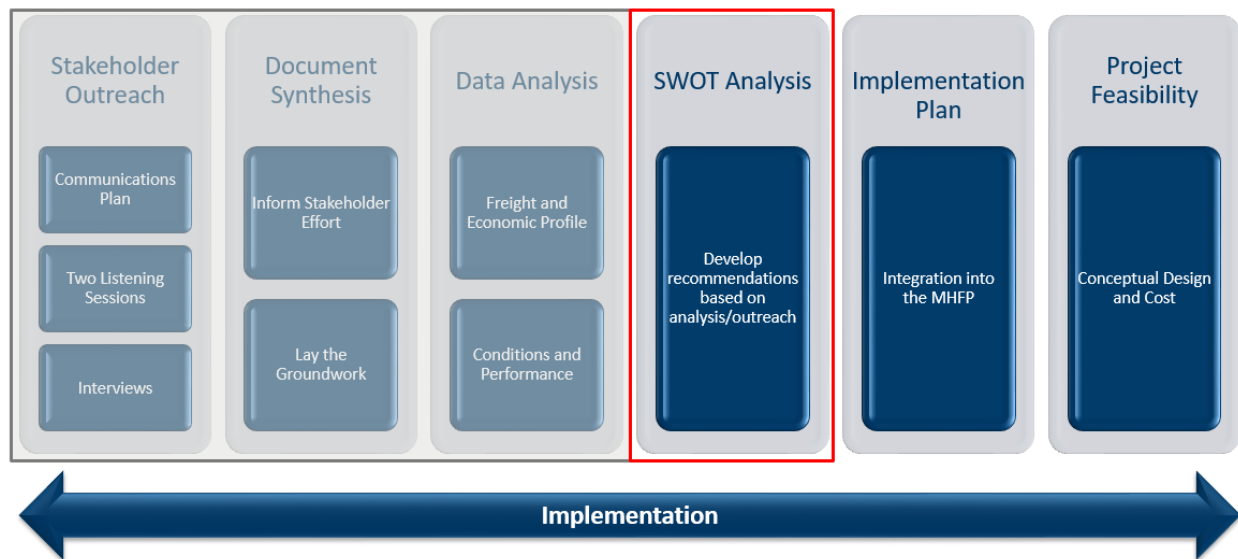


Figure 1: MnDOT District 2 Freight Plan Development Process

## MnDOT Freight Planning

In January 2018, MnDOT completed the Minnesota Statewide Freight System and Investment Plan (SFSP). Among the plan’s key recommendations was for MnDOT to work with each region of the state to create more detailed regional plans that would identify improvements to better connect them to the Minnesota Highway Freight Program.

The MnDOT District 2 Freight Plan outlines how the District, and its public and private sector freight stakeholders could improve freight mobility in Northwest Minnesota. Specifically, the plan will prioritize freight-related projects and develop conceptual design/cost estimates for high priority projects. The intent of the District 2 Freight Plan is to leverage, validate and expand upon existing studies and plans with the most recent and relevant data analysis. This plan will:

- Provide an up-to-date assessment of freight needs and issues specific to District 2;
- Identify a list of strategies to improve freight mobility in the District; and
- Roll up long-term planning and programming into the next Statewide Freight System Plan.

The District 2 Freight Plan also needs to integrate and align with state wide freight planning and the flow chart below depicts the steps to identify needs and ultimately recommendations advancing them to become part of the Minnesota Highway Freight Program.



Figure 2: MnDOT Freight Planning Process

## MnDOT District 2

MnDOT is divided operationally into eight regional districts. Each district plans, designs, constructs, and maintains the state and federal highways within that respective district. Additionally, the districts manage the aid and assistance provided to local governments that qualify for state and federal transportation funding for roadways, bridges, trails, and transit systems.

District 2 is located in Northern and Northwest Minnesota and consists of the counties of: Kittson, Roseau, Lake of the Woods, Marshall, Beltrami, Polk, Pennington, Red Lake, Clearwater, Norman, Hubbard, parts of Cass, Itasca, Mahnomen (maintenance only) and Koochiching. Outside of being a mostly rural district, it has several unique attributes, including:

- No interstate highways
- 185 roadway miles in tribal areas
- 35 percent of the District’s highway have substandard shoulders
- 5 US/Canada border crossings
- Non-National Highway System (NHS) routes make up 62 percent of the District’s responsibility

In alignment with the Minnesota Highway Investment Plan priorities and the Minnesota GO Vision, the District’s top highway priorities are to preserve the existing road and bridge systems and to make cost-effective safety improvements. The District’s construction program emphasizes pavement and bridge repair and replacement, in addition to identification and implementation of low-cost safety improvements.

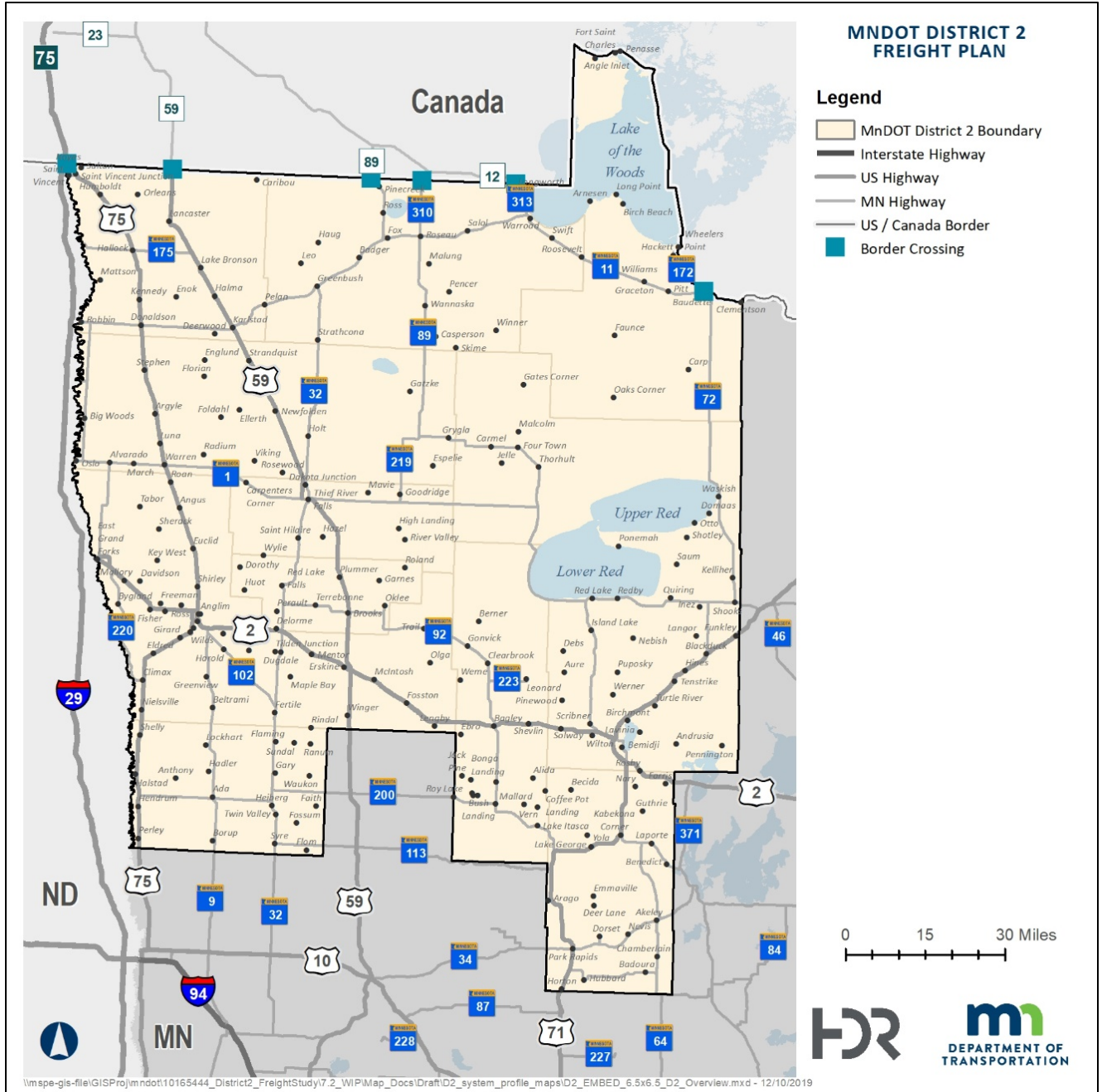


Figure 3: Mndot District 2

# Strengths, Weaknesses, Threats & Opportunities

Based on the results of the quantitative economic and freight system profile analysis (Working Paper #2) and stakeholder feedback, a Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis was conducted to frame the development of the project’s prioritization efforts. The table below provides a summary of internal (Strengths and Weaknesses) and external (Opportunities or Threats) issues that should be considered when planning for District 2’s economic future.

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>• Strong, diverse economy</li> <li>• Export market</li> <li>• Outbound air cargo</li> <li>• Many multimodal connectivity points</li> <li>• GF/EGF Bi-State Cooperation</li> <li>• Air cargo service at two airports (including parcel service from UPS and FedEx)</li> <li>• Overall Trunk Highway pavement quality</li> <li>• Trunk Highway 10-ton roads</li> <li>• Winter weather response on the Trunk Highway system</li> <li>• Relatively low fatal CMV crash frequency</li> <li>• Strong local communities</li> <li>• Freight-related industries support the local economy</li> <li>• Large segments of designated wilderness and State Forest areas</li> </ul>	<ul style="list-style-type: none"> <li>• High reliance on freight from Twin Cities</li> <li>• Less than truckload carrier availability</li> <li>• Lack of four-lane highways on key corridors</li> <li>• Limited north/south roadway connectivity</li> <li>• Additional Red River crossings</li> <li>• Short line rail state of good repair</li> <li>• Air cargo ramp maintenance</li> <li>• Weight restricted county facilities</li> <li>• Winter weather response on county facilities</li> <li>• Winter response at airports</li> <li>• Deicing availability at Bemidji airport</li> <li>• Left turn related crashes during harvest</li> <li>• Narrow roads with limited shoulders</li> <li>• Crash rate highest in western half of District 2</li> <li>• Increased rail grade crossing incidents / incident rate</li> <li>• Downtown truck movements can impact nearby residents and businesses</li> </ul>
Opportunities	Threats
<ul style="list-style-type: none"> <li>• Improved future passenger aircraft service</li> <li>• Outbound cargo levels support larger aircraft which presents opportunities for new high-tech investment in the area because of inbound availability and workforce</li> <li>• Multi-state Oversized/Overweight Harmonization (including Canada)</li> <li>• Investment in longer runways and larger hangers at Thief River Falls and Bemidji airports.</li> <li>• Directional signage and dynamic messaging systems</li> <li>• Grade crossing closure/consolidation</li> <li>• Safety improvements that benefit freight (passing lanes, acceleration/deceleration lanes, etc.)</li> <li>• Partnerships with local delivery companies to address delivery issues</li> <li>• Address first/last mile issues</li> <li>• Future “main street” redesign projects could integrate freight</li> </ul>	<ul style="list-style-type: none"> <li>• U.S. Customs and Border Protection border crossing hours of operation and equipment placement decisions</li> <li>• Global Trends</li> <li>• Consolidation by larger firms not in the region make it harder to expand locally</li> <li>• Limited funding opportunities for expanded facilities to support air cargo growth</li> <li>• Limited funding opportunities for multimodal projects</li> <li>• Potential impacts of increased train volumes, particularly transportation of hazardous materials such as Bakken crude oil</li> <li>• Increased e-commerce related deliveries</li> <li>• More trucks from manufacturing and agriculture.</li> <li>• Trucks crossing through communities to reach air cargo facilities</li> <li>• Increased movement of hazardous materials</li> </ul>

## Developing the SWOT Analysis

The 2018 Statewide Freight System and Investment Plan (SFSP) identified five specific goals designed to guide MnDOT's efforts to support freight mobility.

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

To ensure these goals are integrated into the District 2 Freight Plan's project identification and prioritization effort, the SWOT analysis is structured around each of these goals.

Furthermore, the contents of the SWOT analysis were gathered from the key takeaways from Working Paper #2 (Economic and Freight System Profile) and the project's stakeholder outreach efforts.

The SWOT analysis looks at internal and external factors that could affect District 2's freight system and community. As shown in Figure 4, internal factors are considered strengths and weaknesses, and external factors, threats and opportunities.

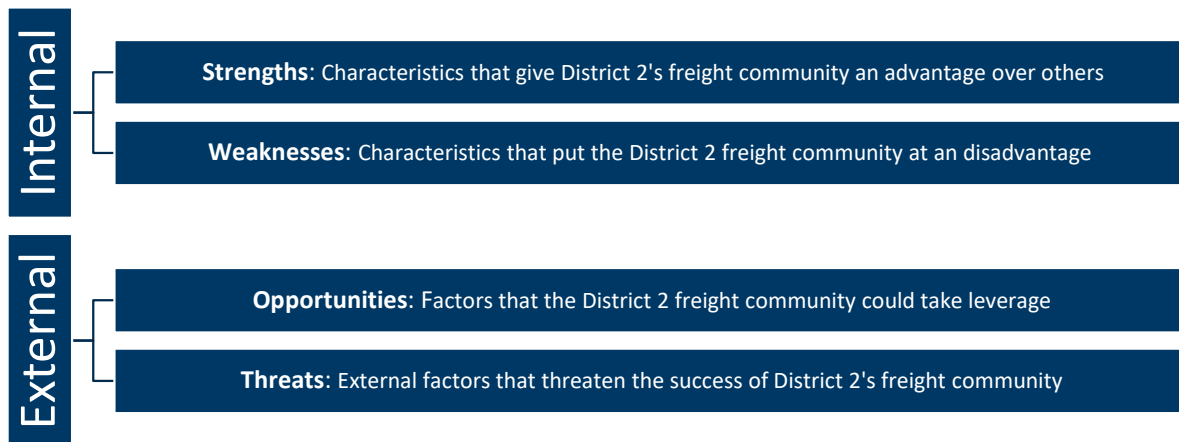


Figure 4: SWOT Analysis Technique

## SWOT Analysis Results

### SFSP Goal 1: 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.*

#### Common Themes – Analysis and Stakeholder Feedback

- The District’s economy is freight-dependent. The agricultural, timber, technology and advantage manufacturing industries that are within the District have been successful, but have the potential to be impacted by global trends, mergers and acquisitions, and decisions made outside of the District.
- Area manufacturers export a significant amount of products to Europe and Canada. The latter impacted by decisions at U.S. Customs and Border Protection (CBP) to focus freight crossings at Pembina, ND, creating a circuitous truck route to the Winnipeg market.
- Local community colleges and training programs are critical to developing the future workforce that the aviation, technology and advanced manufacturing industries require.
- The air cargo service provided at Thief River Falls and Bemidji airports connects local businesses to the national and global economies, but future service growth may be stalled by limited airport capacity.
- Unreliable passenger service to Bemidji Airport has limited economic development opportunities.
- The volume of outbound air cargo presents an opportunity for local businesses and residents to receive inbound air cargo shipments at a volume otherwise not possible.
- While subjective, the District has a higher reliance on freight movement for day-to-day materials because of the distance to the Twin Cities. Similarly, the additional cost of receiving goods over the same distance is felt by local businesses. Stakeholders indicated that this has resulted in a decrease of less-than-truckload (LTL) carriers serving the area.

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>• Strong, diverse economy</li> <li>• Export market</li> <li>• Outbound air cargo</li> </ul>	<ul style="list-style-type: none"> <li>• High reliance on movement from Twin Cities</li> <li>• LTL carrier availability</li> </ul>
Opportunities	Threats
<ul style="list-style-type: none"> <li>• Improved future passenger aircraft service</li> <li>• Outbound cargo levels support larger aircraft which presents opportunities for new high-tech investment in the area because of inbound availability and workforce</li> </ul>	<ul style="list-style-type: none"> <li>• CBP border crossing hours of operation and equipment placement decisions</li> <li>• Global Trends</li> <li>• Consolidation by larger firms not in the region make it harder to expand locally</li> </ul>

Figure 5: Economic SWOT Analysis

### SFSP Goal 2: 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.*

**Common Themes – Analysis and Stakeholder Feedback**

- The District’s economy is reliant on the multimodal freight system – especially rail and air cargo.
- Stakeholders identified the lack of four lane highways to the Twin Cities and Fargo as a major impediment to freight movement. While there are limited funding opportunities for new freeways, stakeholders mentioned that three-lane corridors eliminate delays posed by left hand turns and agricultural equipment.
- There are limited roadway options to travel north/south through the District.
- Larger hangers and extended runways at the Thief River Falls airport are needed to meet the changing needs of the technology and advanced manufacturing industries, and to meet future capacity.
- Past work and freight stakeholders identified the need for additional Red River crossings.
- There is an opportunity to address bi-state freight needs, including Grand Forks rail crossing delays that extend into Minnesota.

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>• Many multimodal connectivity points</li> <li>• GF/EGF Bi-State Cooperation</li> <li>• Air cargo service at two airports (including parcel service from UPS and FedEx)</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of four-lane highways on key corridors</li> <li>• Limited north/south roadway connectivity</li> <li>• Additional Red River crossings</li> </ul>
Opportunities	Threats
<ul style="list-style-type: none"> <li>• Multi-state Oversized/Overweight Harmonization (including Canada)</li> <li>• Investment in longer runways and larger hangers at Thief River Falls and Bemidji airports.</li> </ul>	<ul style="list-style-type: none"> <li>• Limited funding opportunities for expanded facilities to support air cargo growth</li> </ul>

Figure 6: Mobility SWOT Analysis

### SFSP Goal 3: 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. This growth in freight transportation will stress 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.*

#### Common Themes – Analysis and Stakeholder Feedback

- Seasonal weight restrictions on key agricultural county road corridors limit the efficiency of moving products.
- Short line railroad shuttles are key to moving agricultural products in the District. However, these key rail corridors are in need of significant repair and rehabilitation.
- Air cargo ramps must be maintained to ensure aircraft and truck movement and transfers between these modes happens safely.
- Increased signage – both directional and dynamic messaging signs – would be beneficial to truck drivers. These signs would ensure that drivers take appropriate routes and are properly warned of winter weather impacts.
- Limited funding opportunities exist for freight-specific projects, even less for air cargo projects. Sponsors often have to approach the State Legislature for project funding.

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>• Overall Trunk Highway pavement quality</li> <li>• Trunk Highway 10-ton roads</li> </ul>	<ul style="list-style-type: none"> <li>• Short line rail state of good repair</li> <li>• Air cargo ramp maintenance</li> <li>• Weight restricted county facilities</li> </ul>
Opportunities	Threats
<ul style="list-style-type: none"> <li>• Directional signage and dynamic messaging systems</li> </ul>	<ul style="list-style-type: none"> <li>• Limited funding opportunities for multimodal projects</li> </ul>

Figure 7: Infrastructure Preservation SWOT Analysis

## SFSP Goal 4: 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. 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.*

### Common Themes – Analysis and Stakeholder Feedback

- The combination of narrow roads with limited shoulders and topography leave truck drivers with little room for error. Drivers identified that they often chose a more circuitous route to avoid roadways with these safety concerns.
- Winter weather response is key. Stakeholders identified needs on the county roadway network and on airport runways in the District.
- Left turn crashes occur during heavy agricultural activity periods. Stakeholders suggested new signage near past crash locations, left hand turn lanes, bypass lanes, or two-way left turn lanes (three lane roads) which may help eliminate these risks.

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>• Winter weather response on the Trunk Highway system</li> <li>• Relatively low fatal CMV crash frequency</li> </ul>	<ul style="list-style-type: none"> <li>• Winter weather response on county facilities</li> <li>• Winter response at airports</li> <li>• Deicing availability at Bemidji airport</li> <li>• Left turn related crashes during harvest</li> <li>• Narrow roads with limited shoulders</li> <li>• Crash rate highest in western half of District 2</li> <li>• Increased rail grade crossing incidents / incident rate</li> </ul>
Opportunities	Threats
<ul style="list-style-type: none"> <li>• Grade crossing closure/consolidation</li> <li>• Safety improvements that benefit freight (passing lanes, acceleration/deceleration lanes, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>• Potential impacts of increased train volumes, particularly transportation of hazardous materials such as Bakken crude oil</li> </ul>

Figure 8: Safety SWOT Analysis

## SFSP Goal 5: 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.*

### Common Themes – Analysis and Stakeholder Feedback

- Urban delivery issues in Bemidji
- The evaluation of hazardous materials movement - via rail or pipeline - should assess the potential impact to District 2’s environment and local communities.

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>• Strong local communities</li> <li>• Freight-related industries support the local economy</li> <li>• Large segments of designated wilderness and State Forest areas</li> </ul>	<ul style="list-style-type: none"> <li>• Downtown truck movements can impact nearby residents and businesses</li> </ul>
Opportunities	Threats
<ul style="list-style-type: none"> <li>• Partnerships with local delivery companies to address delivery issues</li> <li>• Address first/last mile issues</li> <li>• Future “main street” redesign projects could integrate freight</li> </ul>	<ul style="list-style-type: none"> <li>• Increased e-commerce related deliveries</li> <li>• More trucks from manufacturing and agriculture.</li> <li>• Trucks crossing through communities to reach air cargo facilities</li> <li>• Increased movement of hazardous materials</li> </ul>

Figure 9: Environment and Communities SWOT Analysis