



District 4 Freight Plan

March 2022



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Front cover image: Trucks on I-94. Source: MnDOT

Back cover image: Winter snow removal on Highway 10. Source: MnDOT

Chapter 1: Where Are We Going?



Chapter 1: Vision for the Future

About the District 4 Freight Plan

The Minnesota Department of Transportation's (MnDOT) District 4 Freight Plan has been developed to provide a clear understanding of District 4's multimodal freight system, how this system is connected to the District's economy, and the transportation needs and issues of the District's industries. This information will assist MnDOT in making well-informed policy and programming decisions in District 4.

MnDOT District 4 is made up of 12 counties in West-Central Minnesota: Becker, Big Stone, Clay, Douglas, Grant, Mahnomen, Otter Tail, Pope, Stevens, Swift, Traverse, and Wilkin. The District is home to 4.5% of Minnesota's population and makes up 12.4% of its land area.

District 4's freight transportation system includes highways and railroads as well as pipelines and airports. Together, these multimodal elements provide District 4's businesses with the ability to ship and receive goods that are critical to their operations. Figure 1 on the following page illustrates the extent of the District's freight network and connections to neighboring regions.

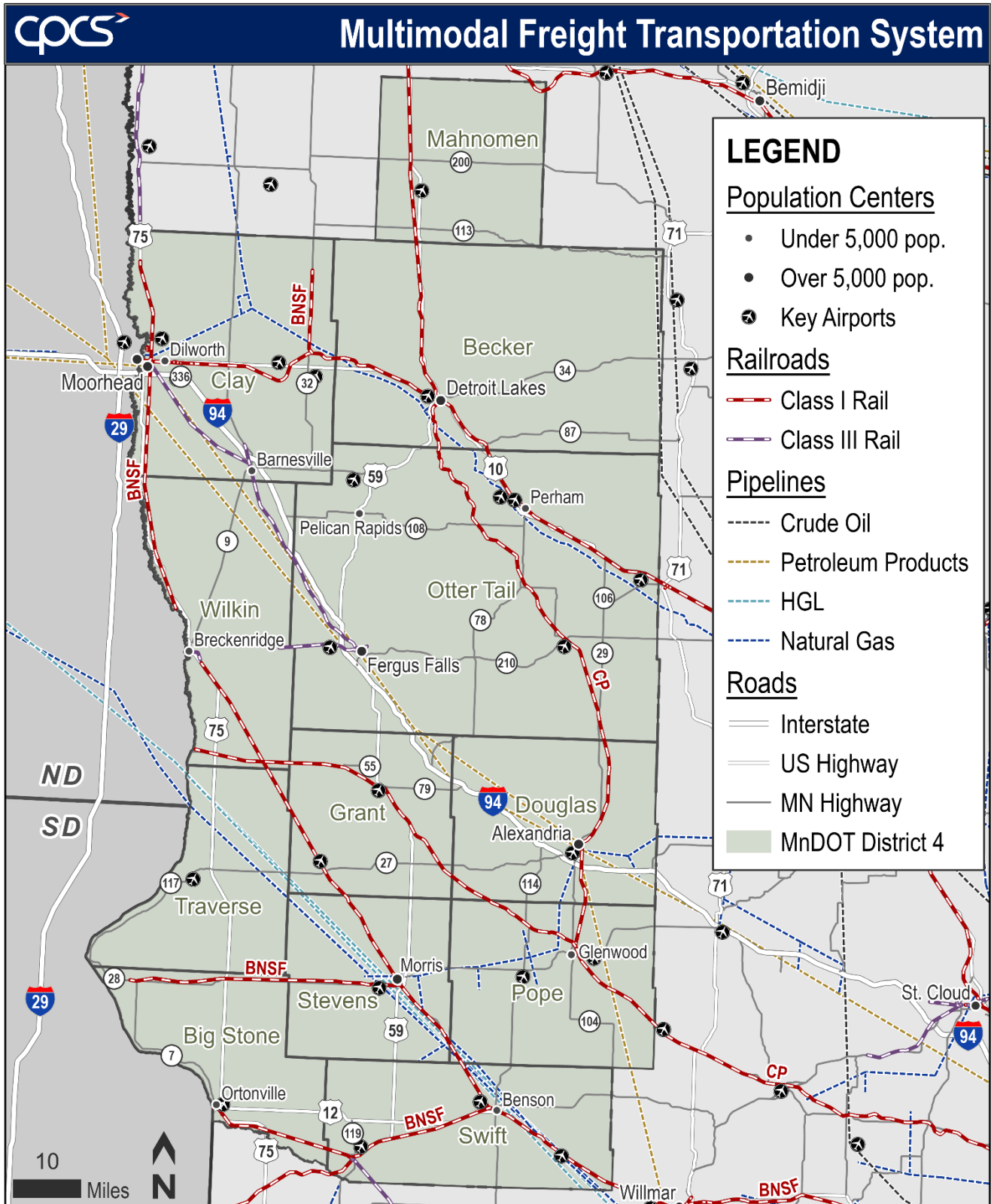
It is essential that MnDOT and its local partners have access to recent, relevant, and easily-updated data and tools that provide insights into the Districts' key industries. This information is needed for MnDOT and its partners to provide a transportation system that attracts new businesses while enabling existing ones to maintain and grow their presence in the region. In addition to informing planning, investment, and operations at the District level, findings from the District 4 Freight Plan will help inform the next Minnesota Statewide Freight System and Investment Plan.

The District 4 Freight Plan provides MnDOT with information on freight transportation needs and issues and will help inform future freight-related policy and programming decisions in District 4.

Relationship to Other State and District Plans

To aid in the management, maintenance, and development of the transportation system, MnDOT creates plans individually for each mode, as well as together for the multimodal system as a whole. In particular, the Minnesota GO plan provides a vision for the Statewide Multimodal Transportation Plan, which is Minnesota's highest-level policy plan for transportation. More specific plans, such as Minnesota Statewide Freight System and Investment Plan (State Freight Plan) or State Rail Plan are oriented toward the vision and goals set forth in Minnesota GO and the Statewide Multimodal Transportation Plan.

Figure 1: District 4's Multimodal Freight System



Source: CPCS analysis of National Transportation Atlas Database, 2022.

Figure 2: “Connecting the Dots” between Statewide Guidance and District 4 Freight Plan Recommendations



Source: CPCS.

The Minnesota Statewide Freight System Plan’s statewide freight vision is to:

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.

The State Freight Plan also identified five goals to reflect those aspects of the multimodal freight system that are most important to the public and private sector freight stakeholders in the state. These goal areas remain the focus for the District 4 Freight Plan:

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

District 4 Freight Plan Development and Data Sources

Five different sources of data and information were used to inform the development of the District 4 Freight Plan. In particular, a comprehensive stakeholder engagement process was conducted to ensure that public input was heard during Freight Plan development. The major sources of data and information included:



Previous Studies and Plans: previous plans and studies were reviewed to collect qualitative and quantitative information specific or relevant to District 4. An in-depth review and synthesis of needs and issues identified in previous plans and studies was conducted and presented in Working Paper 2. Appendix B provides a list of the additional plans that were used to provide input for this plan.



Analysis of Data: Evaluations of safety, mobility, and condition were completed using data provided by MnDOT. Examples of data sources include historic road accident data, road crash risk assessments, railroad grade crossing risk assessments, vehicle counts, and vehicle speed data.



Advisory Committee and Technical Team Meetings: The Advisory Committee was comprised of public and private system stakeholders and was created to provide “big picture” guidance in the development of the District 4 Freight Plan. The Technical Team was smaller, made up of agency and partner organization staff, and provided guidance on how the plan would be used to inform investment decisions. Appendix A lists the membership of these two groups. Five meetings with each group were conducted in March, July, October, and December 2021; and March 2022.



Stakeholder Consultations: 27 phone consultations with private and public freight stakeholders were conducted between July and September 2021. The results of these consultations were synthesized with other findings on needs and issues.



Online Engagement: The project team created and distributed two web pages with accompanying surveys to supplement meetings and consultations. One survey was created using MnDOT’s MetroQuest public outreach platform and provided the general public with an opportunity to comment on freight needs and issues.



Open Houses: Feedback from public and private stakeholders was collected during online open houses in September 2021 and March 2022.

Additional Resources

The development of this final report was supported by the creation of six intermediate Working Papers, which provide a greater level of detail on District 4’s freight assets, needs and issues, project prioritization, project feasibility, and other analyses. These Working Papers include:

- Working Paper 1: Communications Plan
- Working Paper 2: Existing Document and Process Synthesis
- Working Paper 3: Freight System Profile – Economy, Inventory, Demand, and Performance
- Working Paper 4: Freight System Needs, Issues and Opportunities
- Working Paper 5: Investment Priorities
- Working Paper 6: Pre-Feasibility Assessment

These Working Papers can be found on MnDOT’s District 4 Freight Plan website:

<https://www.dot.state.mn.us/ofrw/freight/districtfreightplan/d4.html>

An aerial photograph showing a complex highway intersection and a grade crossing. In the foreground, a multi-lane highway runs diagonally from the bottom left towards the top right. A Canadian Pacific freight train, consisting of several red locomotives and black and blue freight cars, is crossing the highway at a grade crossing. The train is moving from the bottom left towards the top right. To the left of the highway, there is a large parking lot filled with many cars, and a white commercial building. Further back, there are more buildings and a large open field. The background shows a mix of green fields, trees, and some residential or commercial buildings under a clear sky. The overall scene depicts a busy transportation hub in a rural or semi-rural area.

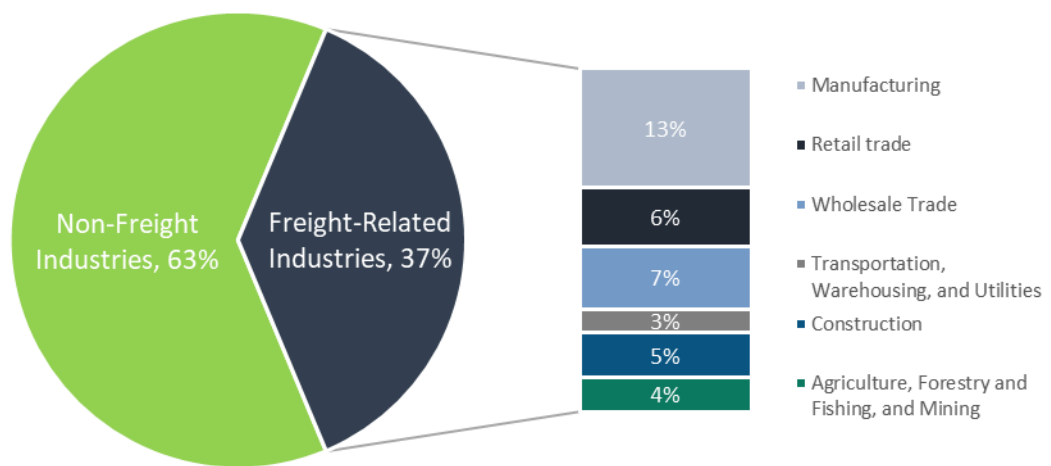
Chapter 2: Where Are We Now?

Chapter 2: Existing System Conditions

The Importance of Freight to District 4

District 4's freight transportation system provides critical transportation services for many types of businesses. In particular, industries that rely on the movement of physical goods to support their core operations (also referred to as "freight-related" businesses) make up about 37 percent of District 4's workforce. Figure 3 illustrates the share of District 4's employment associated with freight-related businesses.

Figure 3: District 4's Freight-Related Industry Employment



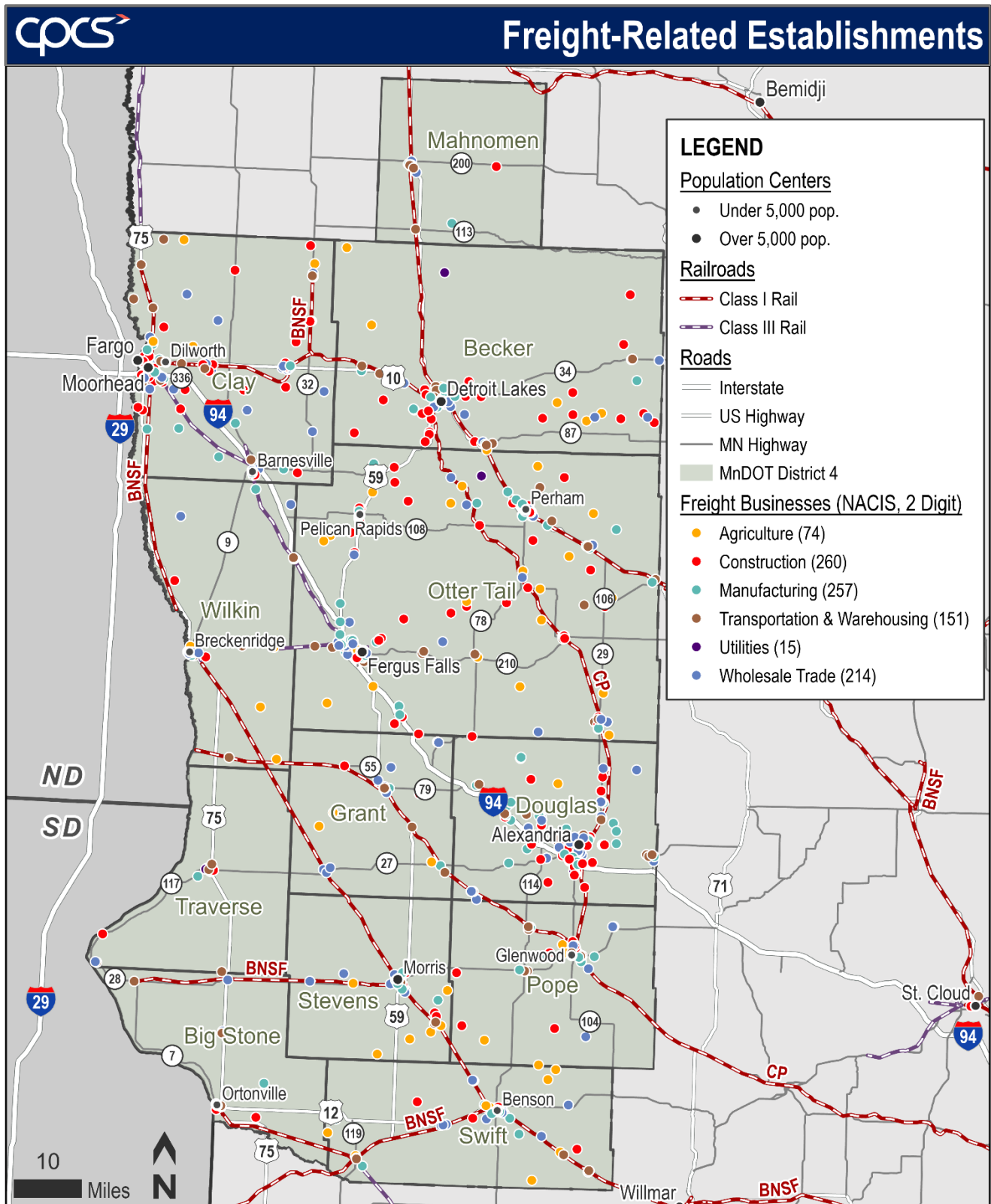
Source: CPCS analysis of Full-Time and Part-Time Employment by NAICS Industry 2017, Bureau of Economic Analysis; 2017 Census of Agriculture.

District 4 Freight-Related Industry Locations

Just as the District 4 freight system is critical to multiple types of businesses, it is critical to communities throughout the District as well. Figure 4 illustrates the locations of freight-related businesses with more than 20 employees in District 4. This map also shows the importance of transportation assets: many businesses are clustered along highway and railroad corridors, especially I-94 between Alexandria and Fergus Falls, US-59 between Fergus Falls and Detroit Lakes, US-12, US-10, SR-9 in Morris, and SR-28 between Morris and Alexandria. Construction businesses have clusters around Alexandria and Detroit Lakes.

District 4's freight transportation system is a critical economic asset for District 4's freight-reliant businesses and is relevant to communities throughout the District.

Figure 4: District 4 Freight-Related Businesses

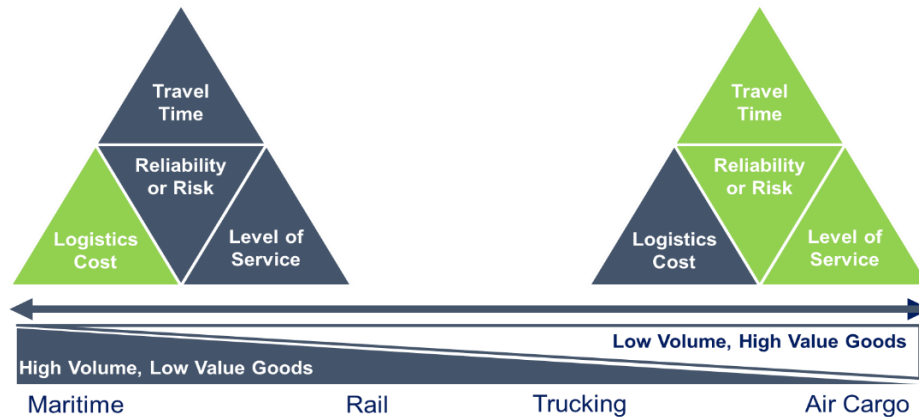


Source: CPCS analysis of Reference USA data, 2022.

Freight-Related Industry Transportation Requirements

Shippers have a range of modal options to consider when moving freight, such as trucks, railroads, air freight, and barge or ship service. However, the true range of choices is limited by the availability of each of these modes, characteristics of the cargo being moved, and shippers' access to the available options. In addition to availability, when selecting freight modes and routes, shippers must balance a set of trade-offs between shipping cost, shipping speed, level of service, and reliability. Each mode of transportation has its own set of characteristics, and together, modes make up a "spectrum" of trade-offs, as presented in Figure 5.

Figure 5: The Modal "Spectrum" of Trade-Offs



Source: CPCS.



Maritime transportation (such as barge service) is best suited for the long-distance shipping of bulk lower-value goods. These can include raw materials such as grain, oil, chemicals, and aggregates. For example, barge shipping on the Mississippi River is a common method of moving agricultural products. Maritime can also be suitable for long-distance movement of higher-value manufactured goods when fast service is not required.



Railroad shipping has service characteristics that are similar to maritime shipping: railroads are capable of moving large volumes of lower-value goods effectively. Common loads for rail shipment include grain, aggregates, forest products, and oil. Additionally, higher-speed rail service (such as intermodal container services) for higher-value goods is available in select areas.



Trucking is important because road connections may be the only direct modal connections for many businesses. Therefore, trucking is often a key element in the first- and last-mile movement of goods to and from businesses and other modes of transportation. Trucking costs are higher and trucking capacity is lower relative to rail or maritime. Therefore, trucking can only move lower-value goods short distances for transloading to other modes. For example, trucks are used to connect farm fields to local elevators with access to the railroad network. Truck service is also a viable and common option for moving moderate- and higher-value goods longer distances in shorter periods.



Air freight is the most expensive modal choice on a ton-per-mile basis. Therefore, it is generally only used for high-value, low-volume, and time-sensitive goods, such as pharmaceuticals, electronic components, and some consumer goods.

Freight shippers must balance shipping costs against the need for faster service or more reliable service. The value and weight of cargo play a large role.

Understanding the transportation tradeoffs listed above is important because these tradeoffs inform how different industries approach freight transportation, and what topics they consider to be important freight issues and needs.

Agriculture

Minnesota is the fifth-highest state among all US states in terms of total agricultural production (\$16.7 billion in 2019). About 26 percent of the cash receipts in Minnesota's agricultural market are associated with corn, 19 percent with soybean production, and 16 percent with hog farming. The majority of the corn and soybean farms in the state are located in central, southern, and western Minnesota, and much of this production area overlaps with District 4.

Agriculture is a major industry in District 4, and the District's top crops include corn, soybeans, dry beans, and sugar beets. Figure 6 shows the concentration of farmlands across District 4; corn and soybean production and processing businesses are distributed among the western counties in District 4, with the highest concentration in Wilkin, Traverse, Swift, Big Stone, and Clay Counties. Sugar beet production is mostly concentrated in Wilkin and Clay Counties, while dry beans are mostly produced in Becker, Otter Tail, Stevens, and Pope Counties. Sugar beet growing and beet sugar refining are uniquely important in Minnesota and North Dakota, and the region produces a significant share of the United States' sugar.

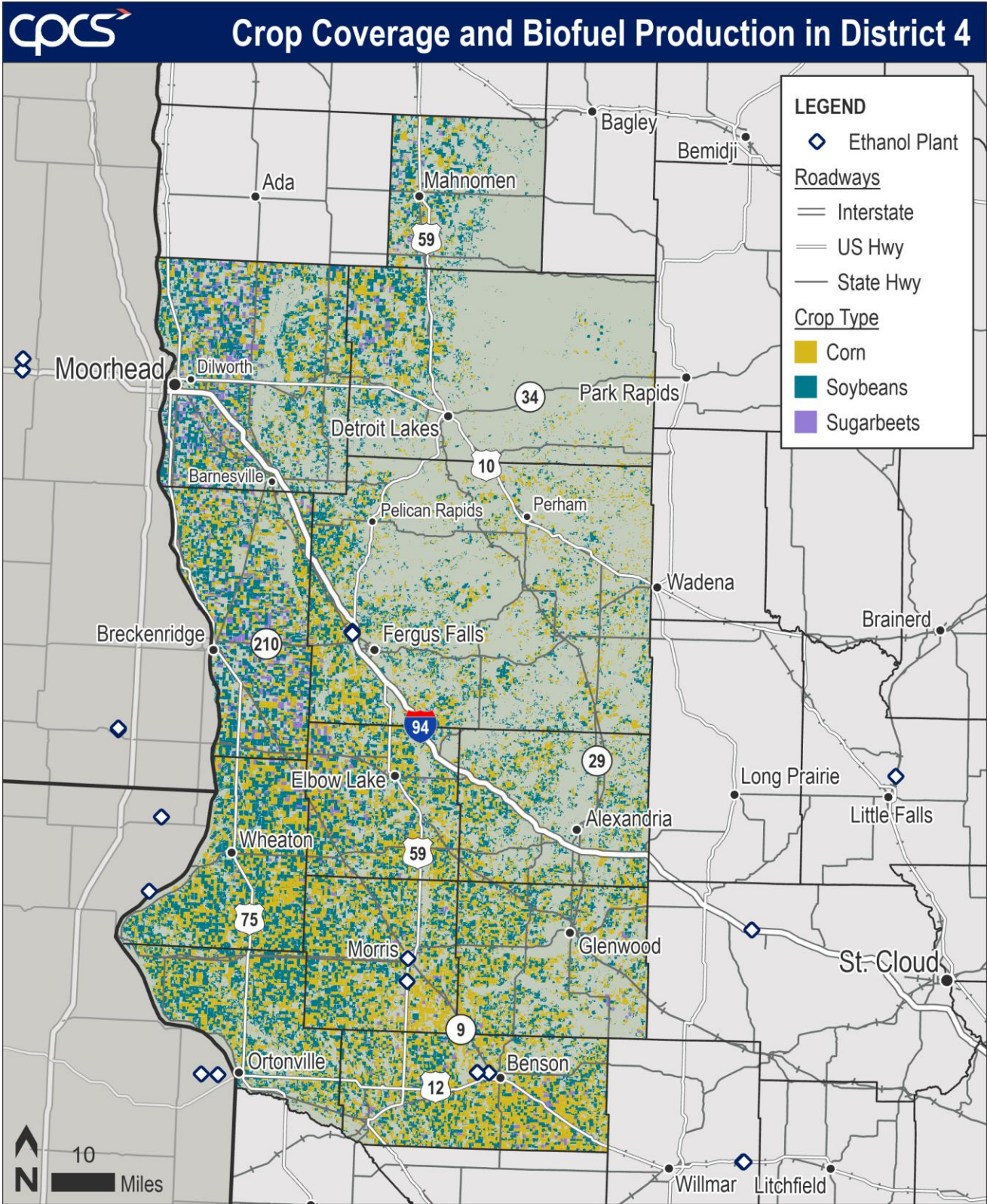
Manufacturing

Manufacturing is an important industry in District 4, accounting for 13 percent of both the region's employment and GDP. Location quotients (LQs), a measure of a region's relative strength in a particular industry, show that manufacturing is a critical industry for District 4. For example, Douglas County has an LQ of 2.2 in manufacturing, the highest among District 4 counties, indicating that the share of employment in manufacturing in Douglas County is more than twice the national average. An analysis of LQs also reveals that some of the most important types of manufacturing in District 4 include food processing, printing and support activities, fabricated metal product manufacturing, and machinery manufacturing. This manufacturing industry remains strong, and manufacturing has maintained its share of District 4's total Gross Domestic Product over the past decade.¹

Figure 6 provides a map of the distribution of manufacturers across District 4 and shows where employment in manufacturing is concentrated. Otter Tail, Swift, Pope, Stevens, Clay, and Becker Counties stand out as particularly important centers for manufacturing employment, with cities such as Morris, Moorhead, Detroit Lakes, Alexandria, and Fergus Fall hosting the greatest concentrations of manufacturing jobs.

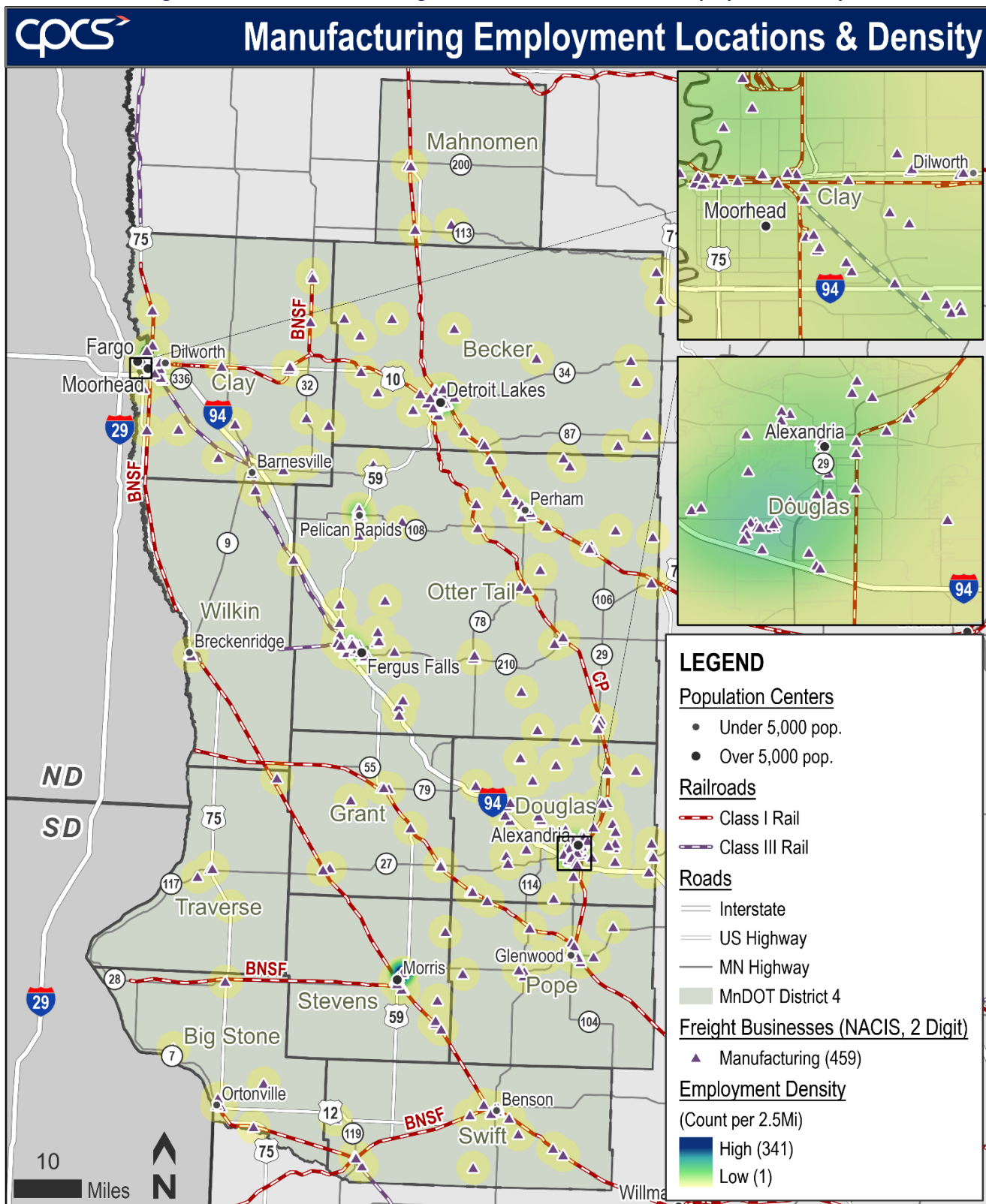
¹ CPCS analysis of 2020 Bureau of Economic Analysis Data. 2021.

Figure 6: District 4 Crop Production Locations and Biofuel Production Plants



Source: CPCS analysis of USDA and Energy Information Administration data, 2021.

Figure 7: District 4 Manufacturing Establishment Locations and Employment Density



Source: CPCS Analysis of Data Axle data, 2021.

District 4's Multimodal Freight System

115	1,557	668	18	646
Miles of Interstate	Miles of US and State Highways	Miles of Rail	Public Airports	Miles of Pipeline

District 4 consists of 12 counties in west-central Minnesota, accounting for 12 percent of Minnesota's land area and 4.5 percent of the state's total population. Major cities in the District include Detroit Lakes, Morris, Alexandria, Fergus Falls, and Moorhead, which is part of the Fargo-Moorhead metropolitan statistical area at the District's border with North Dakota.

In order for District 4 to remain economically prosperous, its freight transportation system needs to operate efficiently and safely.

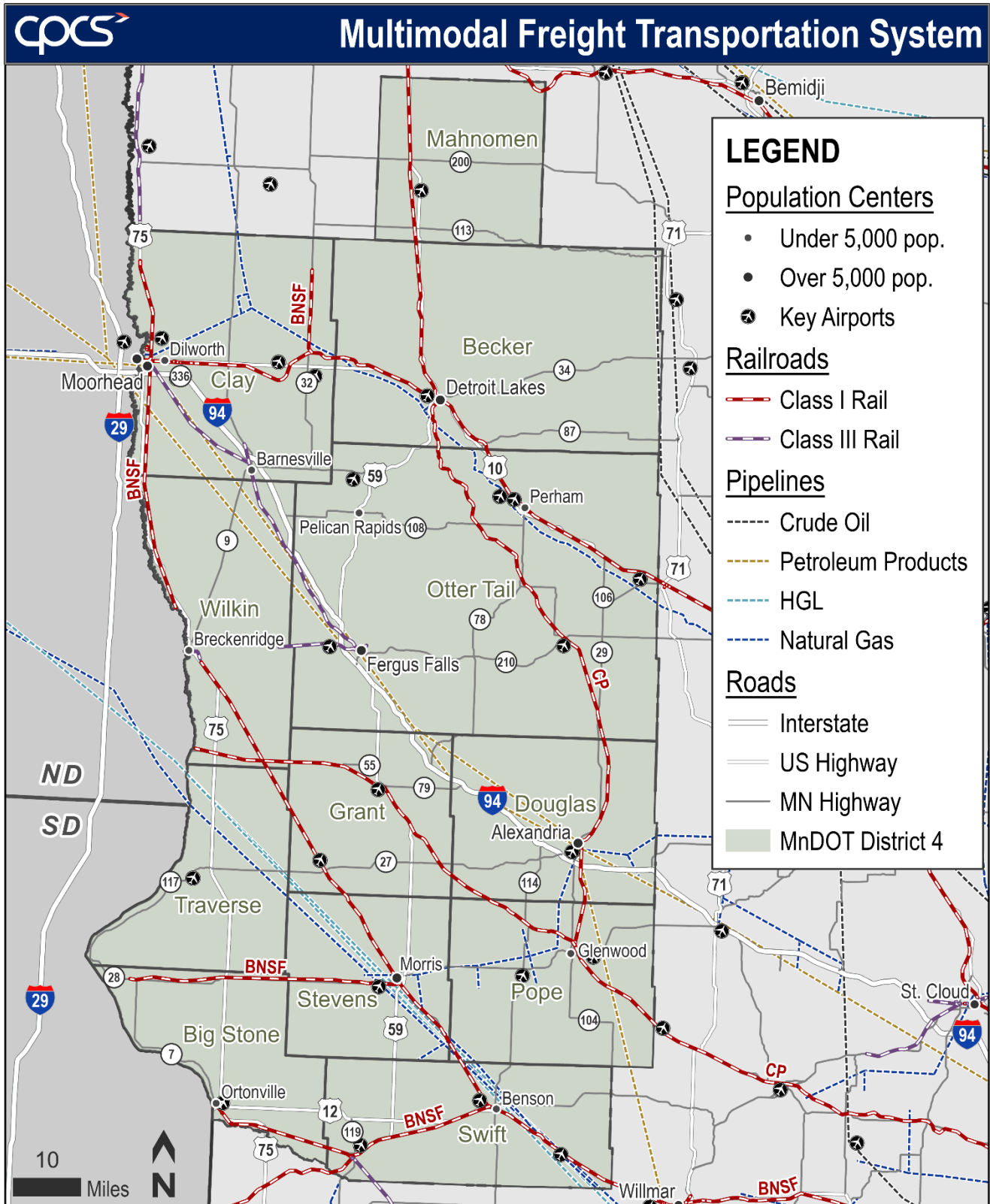
Much of the District is served by I-94, which is supplemented by the District's network of national and state highways such as US-59, US-10, US-75, MN-210, and MN-29. Minnesota Highways 7 and 9 are also integral to supporting freight-related businesses in the District.

Rail service in District 4 is provided by the Burlington Northern Santa Fe and Canadian Pacific Class I railroads, as well as short line railroads, including Red River Valley and Western, Otter Tail Valley, and Twin Cities & Western. Several roads, pipelines, and grain elevator facilities across the District have access to rail transload services. However, stakeholders consulted as part of previous freight studies have expressed concerns regarding the limited number of such facilities in District 4 and how this impacts the competitiveness of many freight-related businesses in the region.

In addition to road and rail, District 4 has 18 public airports. Also, 646 miles of pipeline network in the District provide shipping options for crude oil, natural gas, and other petroleum products.

Figure 8 shows the District's freight transportation assets, and their connections to nearby regions. For District 4 to remain economically prosperous, these transportation systems need to be well-aligned and work in conjunction with one another to continue to provide key freight services to the District.

Figure 8: MnDOT District 4 Multimodal Freight System



Source: CPCS analysis of National Transportation Atlas Database. 2021.

Roadways

The District's road network consists of a variety of road types, including one interstate highway (I-94), four US highways (US-10, US-12, US-59, and US-75), state highways, and numerous county and local roads. Figure 9 lists the mileages of some elements of the District's system and Figure 10 provides a visual overview of all the routes within the system.

Figure 9: District 4 Road System Mileages

	District 4	Minnesota
Interstate	115	913
US Highway	541	3,294
State Highway	1,016	7,080

Source: CPCS analysis of FHWA Data, 2021.

The Minnesota Statewide Freight System Plan provides a district-level breakdown of major truck tonnages and comparing commodity tonnage information between the state and District 4 provides insight into the unique qualities of the District's transportation system. Specific differences between District 4 and statewide commodities include:



Cereal Grains made up 48 percent of District 4's truck tonnage, which is larger than the statewide share of 22.5 percent. This higher percentage is likely due to agriculture being one of District 4's dominant industries.



Animal Feed contributed 13 percent of total truck tonnage in District 4 but only 4.5 percent of total truck tonnage in Minnesota overall. Again, this is likely due to the high concentration of agricultural activities in District 4.



Gravel made up 5 percent of the District's truck tonnage. This is lower than the 14.4 percent of truck tonnage taken up by gravel statewide. This difference can be attributed to the high cost of trucking gravel long distances in combination with well as the District's low population growth and corresponding new building construction.



Non-metal Mineral Products, including sand, gravel, limestone, clay, and marble, made up 7 percent of Minnesota's truck tonnage, but only 4 percent of District 4's truck tonnage. This difference might be explained by the lower levels of construction activity in District 4 as a result of the District's low population growth.



Live Animals and Fish made up 1 percent of District 4's truck tonnage, whereas it contributed less than 1 percent of Minnesota's total truck tonnage.

The Federal Highway Administration estimates that Minnesota will see a continued increase in truck-carried tonnage of cereal grains, animal feeds.² In particular, animal feed tonnages are expected to increase by 94

² Freight Analysis Framework 5. Federal Highway Administration. 2022.

percent between 2017 and 2050, while agricultural products are expected to increase by 12 percent. These goods are among the top commodities moving on District 4's road network, so it is likely that truck tonnages in District 4 will increase in the future.

Truck tonnages in District 4 will likely increase in the future, particularly tonnage related to agricultural products.

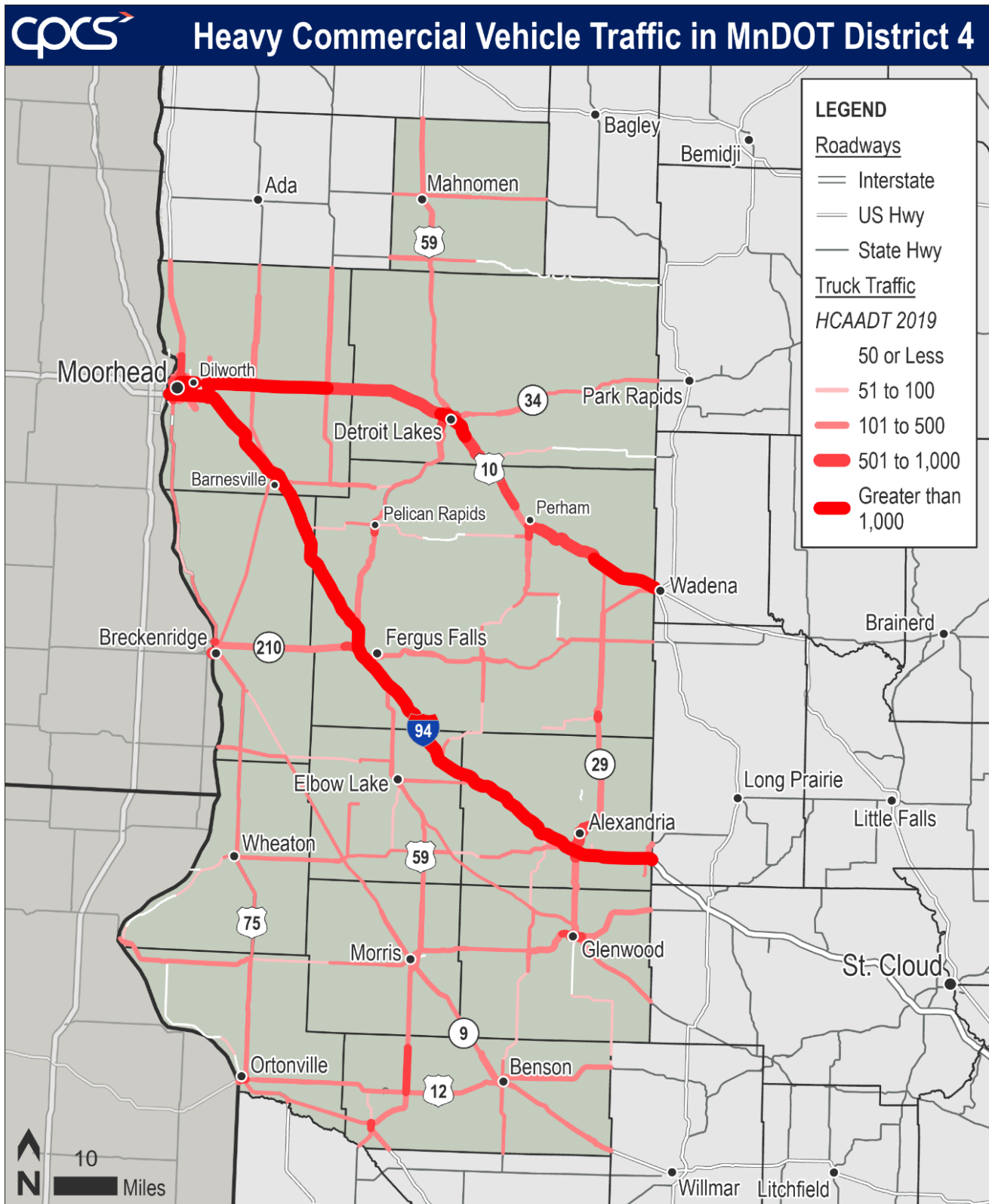
Key Corridors and Facilities

Figure 10 shows which routes are most important to the District as a whole based on truck traffic counts. In particular, truck traffic is concentrated on I-94 between Moorhead in the northwest and Alexandria in the southeast. US-10 is also an important roadway, carrying roughly half as much traffic as I-94. US-59 and US-12 provide links to other portions of the District, but traffic volumes on these highways are relatively lower.

Information on common origins and destinations of truck trips starting in District 4 was derived from vehicle tracking data and is shown in Figure 11 and Figure 12, respectively. Based on analysis of the figures, some key points emerge:

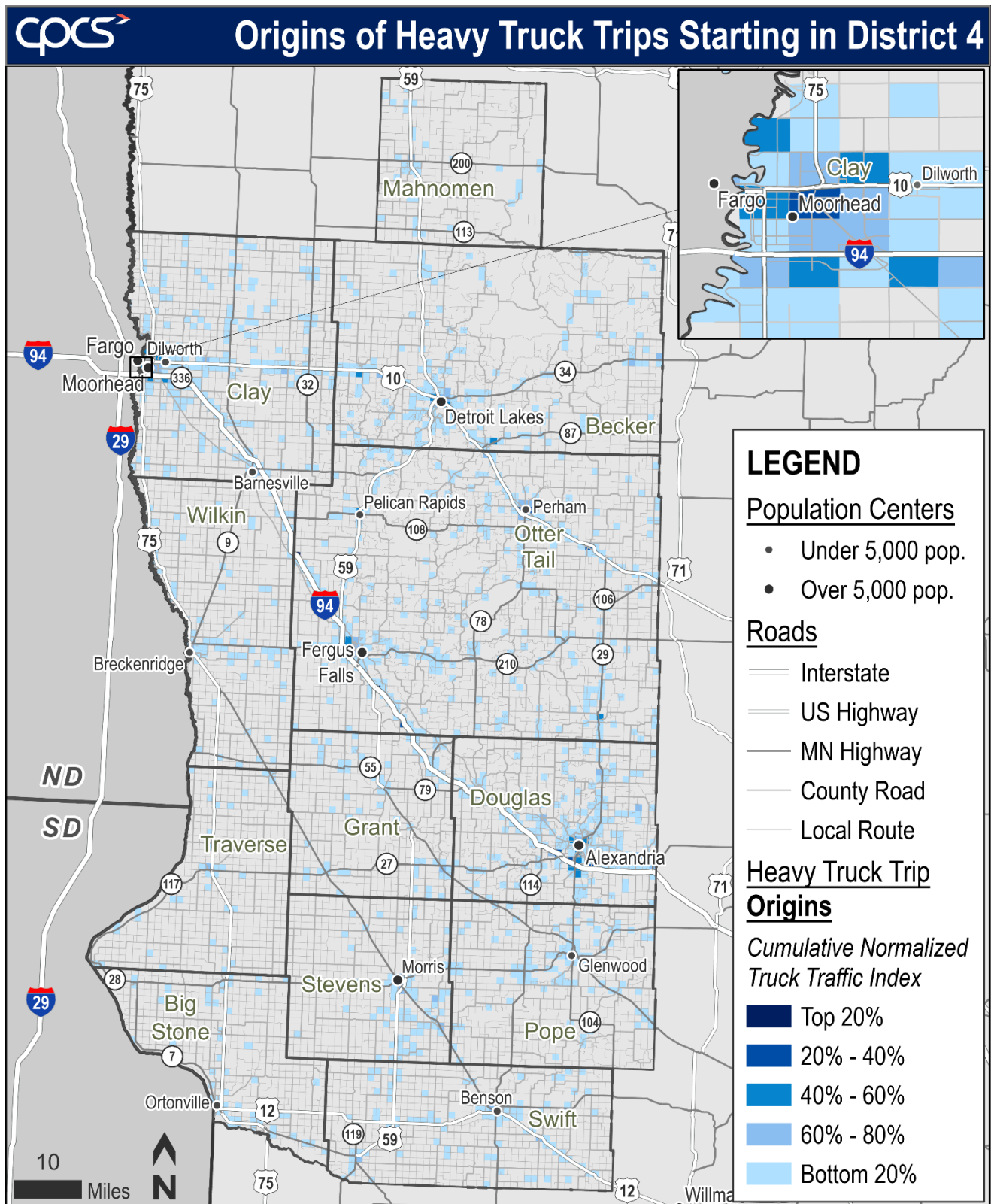
- Over one-quarter of tracked truck trips begin in one of four areas:
 - The I-94/US-59 interchange near Fergus Falls
 - The Rothsay truck stop on I-94
 - US-10 between Perham and Wadena
 - I-94 in western Alexandria
- Trip destinations are mostly in District 4 or the immediate surrounding area. These destinations include the Moorhead area, Fergus Falls, Detroit Lakes, and Alexandria.

Figure 10: District 4 Average Annual Daily Traffic Volumes (Trucks Only)



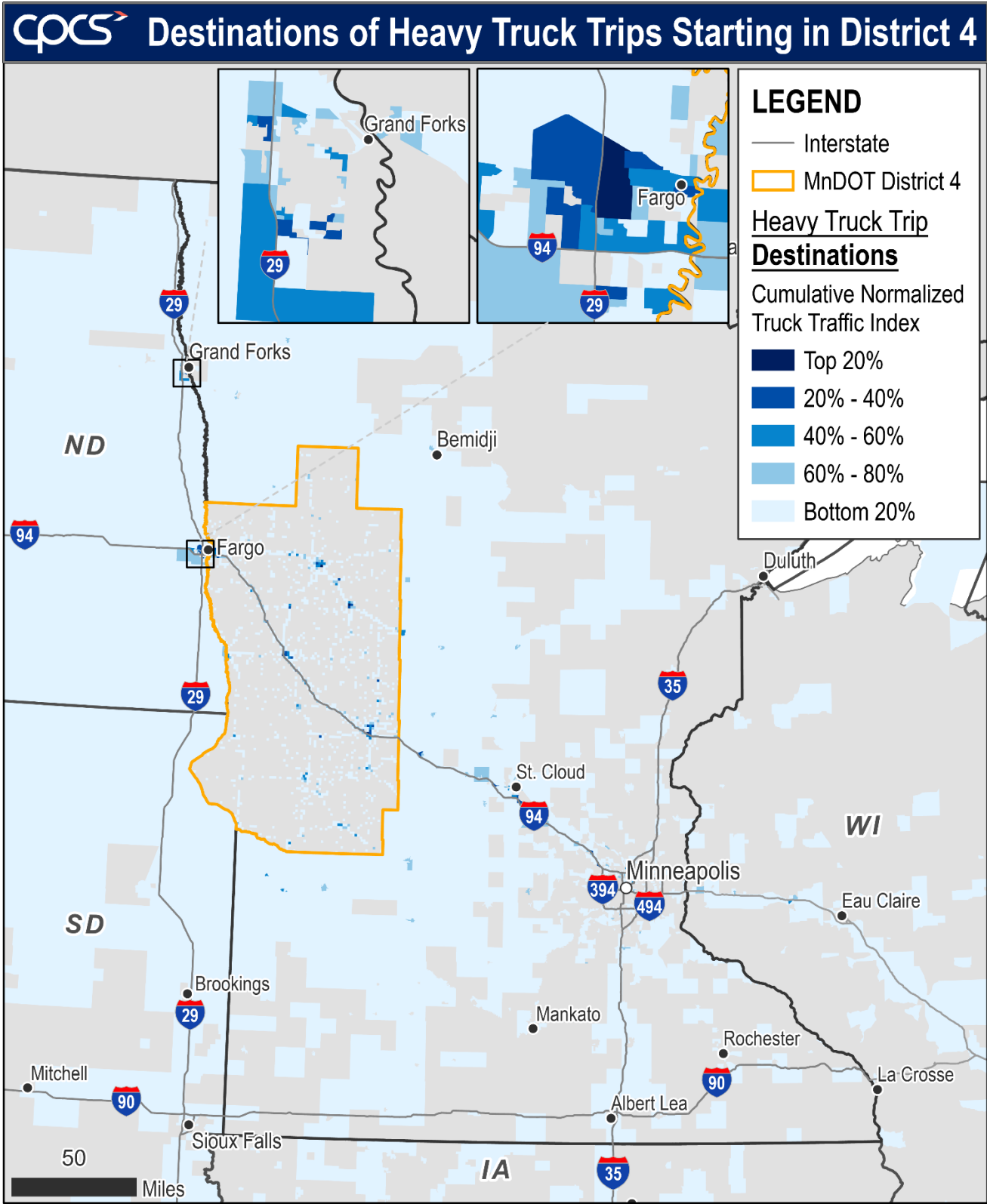
Source: CPCS analysis of MnDOT and National Transportation Atlas data, 2021.

Figure 11: Origins of Heavy-Duty Truck Trips Starting in District 4, 2019



Source: CPCS Analysis of StreetLight Data, 2021.

Figure 12: Destinations of Heavy-Duty Truck Trips Starting in District 4, 2019



Source: CPCS Analysis of StreetLight Data, 2021.

Railroads

668	14.5%	206	413	2	3
Miles of Track	of the State's Total Track Miles	Actively- Protected Public Crossings	Passively- Protected Public Crossings	Class I Freight Rail Operators	Short Line Railroads

Minnesota has the eighth-highest count of railroad track mileage in the US, and freight rail accounts for nearly 25 percent of all freight tonnage moved in Minnesota.³ Railroads' role in shipping agricultural and manufactured goods makes them especially important for the District's agricultural producers, and some manufacturers as well. District 4 has two Class I railroads: Burlington Northern Santa Fe (BNSF) and Canadian Pacific (CP). The District also has three Class III (short line) railroads: Otter Tail Valley Railroad (OTVR), Twin Cities & Western (TCWR), and Red River Valley & Western (RRVW). Short line railroads are rail networks that generally run short distances, carry correspondingly smaller tonnages, and provide local shippers with access to larger freight railroads.

Together, Class I and Class III railroads operate over 668 miles of track in the District. Figure 13 summarizes information on railroad trackage and the number of public at-grade crossings in District 4. Figure 14 shows the locations of rail lines by operator. And Figure 15 displays train volumes and speed limits on each line.

Figure 13: Freight Railroad System of the District

Railroad	System Miles in District 4	Public At-Grade Crossings
BNSF	359	358
CP	223	216
Otter Tail Valley Railroad	71	93
Twin Cities & Western Railroad	4.8	7
Red River Valley & Western	2.3	4

Source: Minnesota State Rail Plan, 2015; FRA Grade Crossing Safety Data, 2021; National Transportation Atlas Database, 2021.

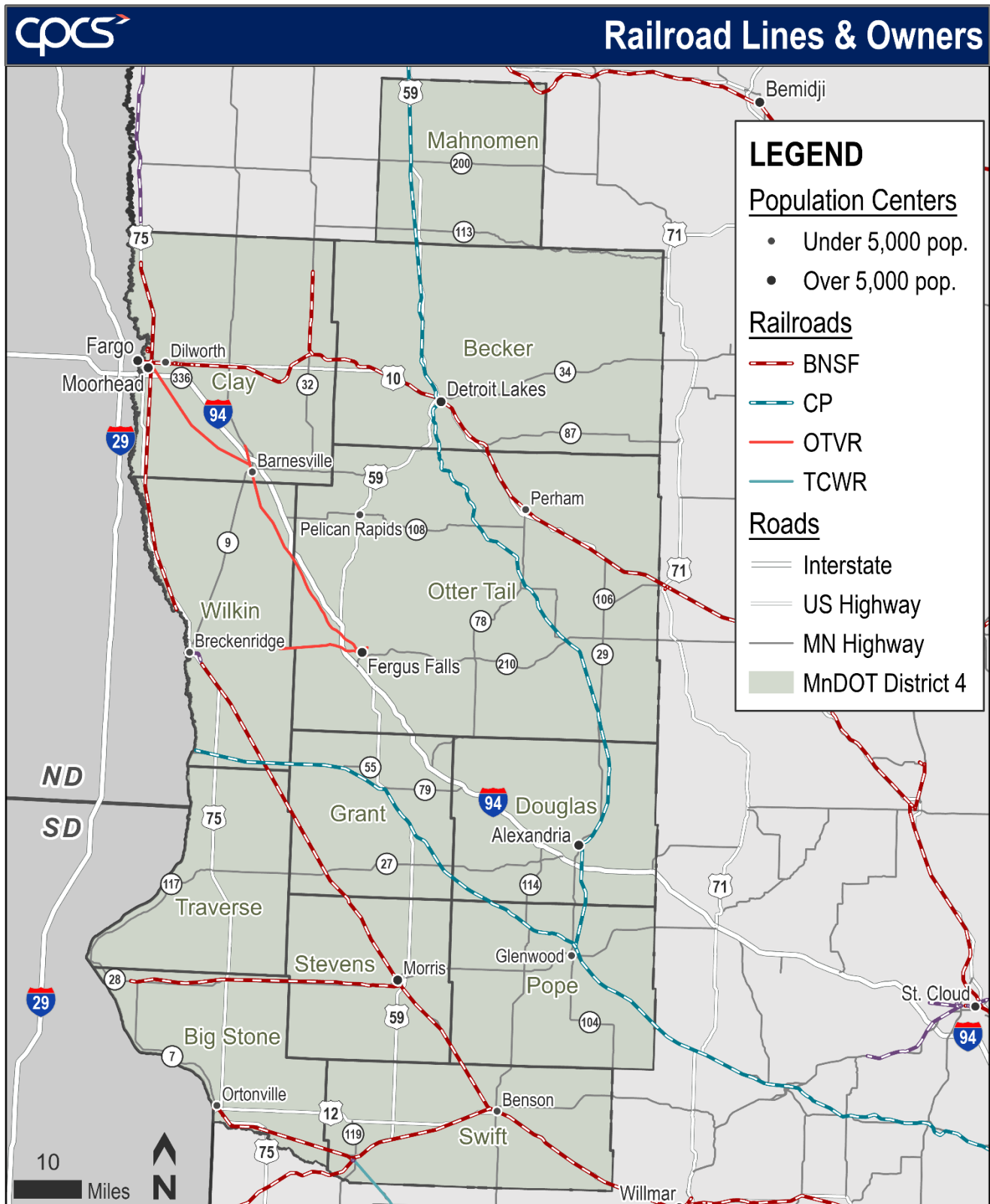
Information on the tonnages of specific rail-borne commodities carried within District 4 is unavailable. However, rail lines in Minnesota carried more than 88.2 million tons of cargo in 2017. The state's rail freight tonnage is anticipated to grow by about 2.6% to more than 90.5 million tons in 2050.⁴

Cereal grains held the highest share of tonnage carried by rail in the state, followed by metallic ores, coal, natural sands, and other agriculture products. Many of these commodities are important to the District 4 economy, suggesting that rail traffic will increase in the district in the future.

³ MnDOT, State Rail Plan, 2015.

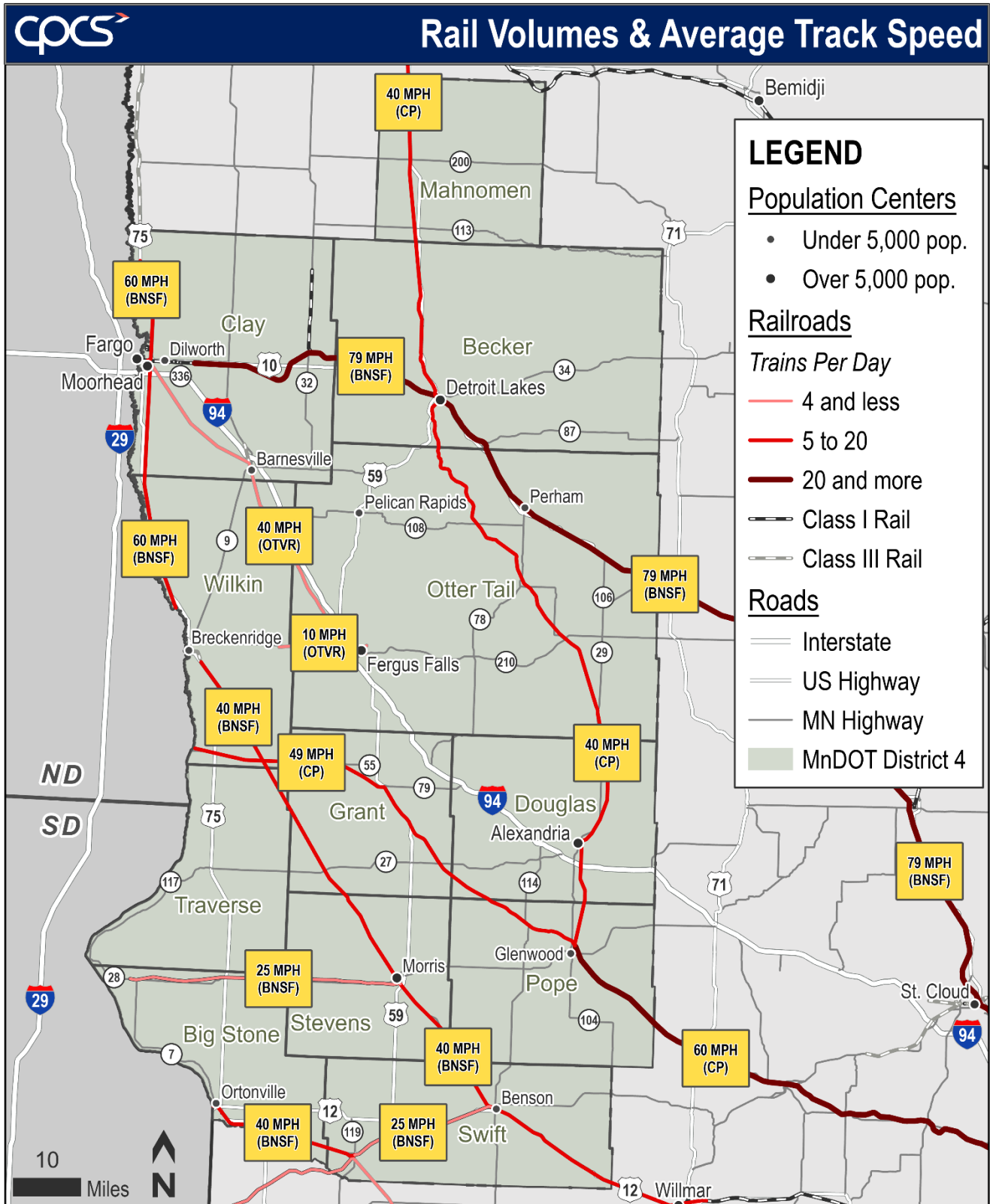
⁴ Freight Analysis Framework 5. Federal Highway Administration. 2022.

Figure 14: District 4 Railroad Lines and Owners



Source: CPCS analysis of National Transportation Atlas Database, 2021.

Figure 15: District 4 Rail Volumes and Average Track Speeds



Source: CPCS analysis of National Transportation Atlas Database and MnDOT Freight Railroad Map, 2021.

Pipelines

Pipelines offer a high-volume, low-cost option for transporting large amounts of liquids and gases, making them key elements of the transportation network for liquid fuels. By far the most common commodity moved by pipeline through Minnesota is natural gas, which accounts for nearly 80 percent of all traffic. Minnesota has no petroleum or natural gas resources and primarily imports crude oil, natural gas, and other petroleum products. Minnesota has two oil refineries that process crude coming from Canada and North Dakota via pipeline and rail. Both of these refineries are located near the Twin Cities metro area.

In District 4 there are 646 miles of active pipeline, most of which are dedicated to carrying crude oil and natural gas, as summarized in Figure 16. Figure 17 displays the pipeline network in District 4.

Figure 16: District 4 Pipeline Coverage

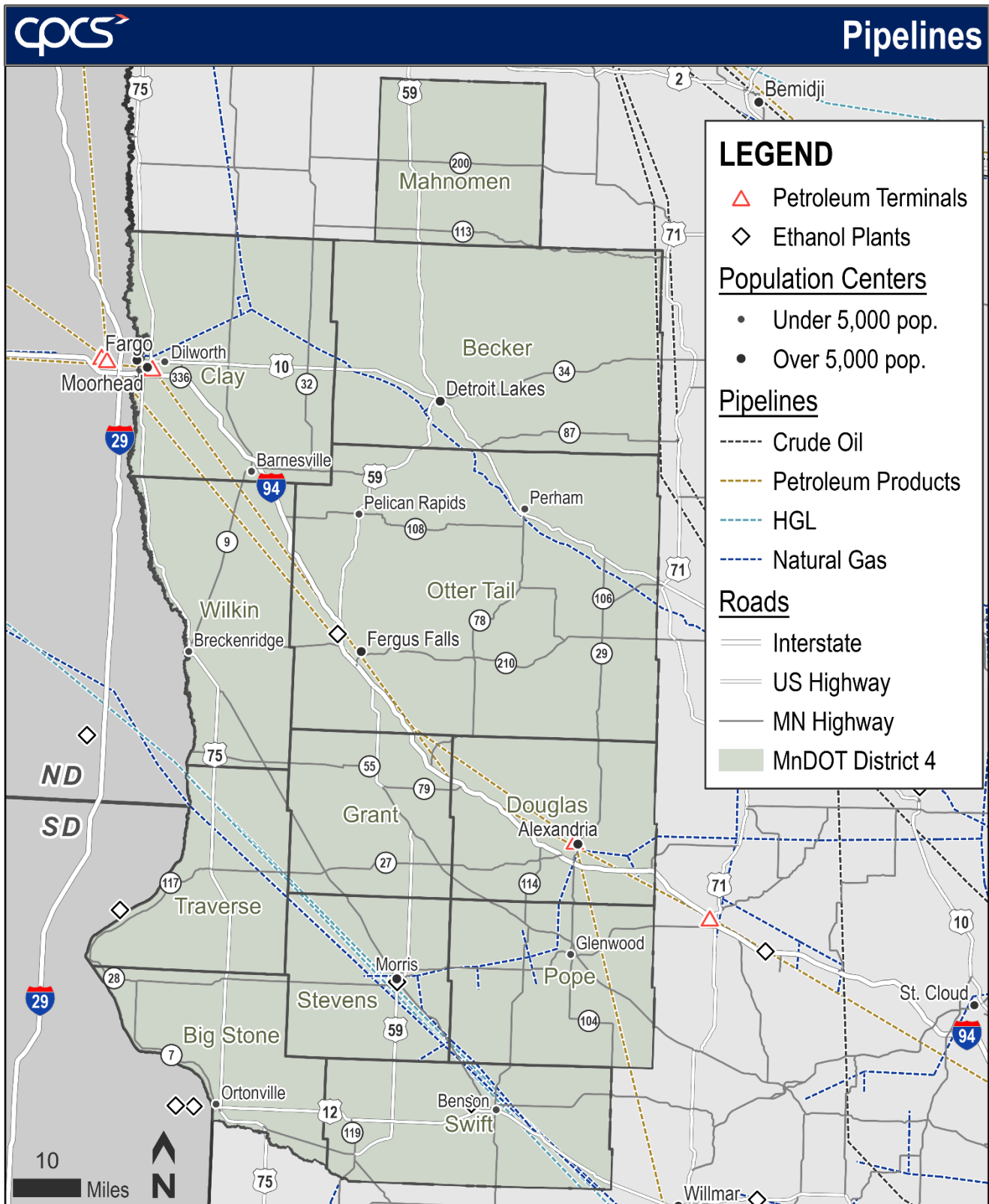
Commodity	Length (Miles)	Percent of Total
Crude Oil	25	3.9%
Hydrocarbon Gas Liquids (HGL)	84	13.0%
Natural Gas	298	46.1%
Petroleum Products	239	36.9%

Source: US Energy Information Administration, 2020.

Aviation

Freight shipping by air accounts for a small portion of the freight carried by other modes. However, air freight is still important to the economy as the cargo carried by air is typically high value and time-sensitive. Precision instruments, plastics/rubber, electronics, and valuable machinery are the main commodities carried by air in Minnesota. There are two key regional airports providing service in District 4: Muni-Einar Mickelson Field in Fergus Falls and Chandler Field in Alexandria. There are also 16 intermediate airports and 4 landing strips located throughout the District. Minneapolis-St. Paul International Airport (MSP) is the major international airport closest to District 4. Finally, Hector International Airport (FAR) is located close by in Fargo, ND. FAR supports a fair amount of air cargo traffic and serves as a hub for FedEx and UPS.

Figure 17: District 4 Pipelines



Source: CPCS analysis of Energy Information Administration data, 2021.

Chapter 3: How is District 4 Changing?



Chapter 3: Key Needs, Issues, and Challenges

District 4 Freight System Needs and Issues

A key goal of the District 4 Freight Plan is the documentation of freight transportation needs and issues so that MnDOT can continue to address these needs and issues through future work. As with many transportation topics, these freight transportation needs and issues are complex, and many needs and issues have shared causes or solutions. This complexity and “overlap” can make the categorization of needs and issues difficult. For example, improving intersection geometries can improve truck mobility as well as traffic safety.

For simplicity, the needs and issues discussed in this Chapter are described on a mode-by-mode basis. Within each mode, needs and issues are placed in three categories that were adapted from the Minnesota State Freight Investment Plan criteria:



Safety: this criterion was evaluated using crash rates for roads as well as railroad grade crossings, and MnDOT’s previous safety risk factor analyses.



Mobility: this criterion relates to the performance of the system and the speed and ease with which freight can move in the region. Mobility was evaluated by evaluation of topics like congestion, weight limits, and bridge clearances.



Condition, which relates to the level of adequate maintenance of roads and bridges.

Identification of needs, issues, and challenges was accomplished using six sources of data, described in Chapter 1 of this report:



Analysis of quantitative data from MnDOT



Advisory Committee and Technical Team feedback



Review of findings from previous plans and studies



Online surveys



Stakeholder consultations



Feedback received at an online open house

The key needs, issues, and challenges in this section reflect findings from all of these data sources. It is important to note that the topics discussed here are only the “top” issues for District 4, and a more detailed analysis for Needs, Issues, and Challenges is available in Working Paper 4: Strengths, Weaknesses, Opportunities, and Threats Analysis.

Roadways

Trucking is the most commonly used mode for freight transportation in Minnesota, and trucks carry over 60 percent of Minnesota's freight tonnage.⁵ Therefore, road and trucking-related needs and issues made up the greatest share of transportation needs and issues identified in this plan. Road-related needs and issues are also more easily addressed relative to other problems, as MnDOT and its local partners have the most control over road investments and most of their funding is available for road investments.

Road improvements are the area where MnDOT can exert the greatest effort to address freight needs and issues.

Safety

Between 2010 and 2019, District 4 had the third-lowest count of truck-involved crashes among all eight MnDOT Districts. However, safety is still considered an important topic: respondents to the online survey most frequently picked safety as the top challenge for freight transportation in the District and provided feedback on topics such as safety at access points, areas with a frequent history of crashes, and intersections that were perceived to be unsafe. Information such as survey and consultation responses were supplemented by analysis of the District 4 safety plan and records of truck-involved crashes. Discussion of road safety is broken down into two elements: intersection safety and corridor safety.

Intersections

Intersection safety was a commonly-mentioned topic among survey responses, Advisory Committee feedback, and consultations. Much of the stakeholder feedback on intersection safety identified specific busy intersections where trucks would be crossing, entering, or exiting fast-moving trunk highway traffic. These points included:

- Problems with left-turning traffic at I-94 and MN-27, and at 50th Avenue W and MN-29 in Alexandria.
- Problems crossing highways where trucks have limited gaps of time to enter or cross traffic. These problematic intersections include US-75 and Wilkin County Highway CR-3, MN-210 and Wilkin County Highway 15, and US-75 and MN-18.
- Problems with accessing grade-separated highways like US-10 and I-94 where access ramps have tight turns.
- Dense access points on major highways through developed areas like MN-29 in Alexandria.

Corridors

The two most commonly mentioned types of safety improvements needed for roadway corridors were additional passing lanes and improved roadway shoulders. Adequate passing lanes are an important safety investment that can give general traffic sufficient space to overtake slower trucks or for trucks to overtake slower vehicles like farm equipment. Stakeholders identified the need to expand major highways, such as I-94, and to widen certain county and township roads to include wider shoulders and additional lanes.

⁵ Freight Analysis Framework 5. Federal Highway Administration. 2022.

In addition to stakeholder-identified corridor issues, data analysis reveals that truck crashes are concentrated around major highways and other higher-traffic corridors, such as I-94, US-10, and US-59.

Weigh Station and Commercial Vehicle Enforcement

MnDOT administers a Weight Station and Commercial Vehicle Safety and Enforcement program and has allocated funds towards maintaining or improving facilities needed for commercial vehicle enforcement and safety. As part of MnDOT's recent *Weight Enforcement Investment Plan*, two needs for improved enforcement were identified in District 4:

- Rehabilitation of existing facilities and implementation of new vehicle screening equipment at the Red River weigh station.
- Improved utilization of Weigh-In-Motion stations in two locations around Moorhead to screen vehicles traveling on routes off of I-94.

Mobility

Mobility considerations include topics that affect the ease or efficiency with which trucks can move through District 4. These topics include things like traffic congestion, truck routing, bridge clearance, and weight limits. As noted in the safety section, many of the mobility considerations also have strong relevance to safety.

Intersections

The leading intersection mobility issues identified by stakeholders were related to trucks navigating through roundabouts. Depending on their design, roundabouts can pose challenges for trucks due to tight turning clearances, shifting or tipping of loads when trailers mount curbs on roundabouts, and a lack of clearance on inside curbs. In particular, stakeholders encouraged continued consultations with trucking operators when creating roundabouts to ensure that roundabout designs can safely accommodate truck movements.

An important issue for District 4's trucking stakeholders is ensuring roundabouts are properly designed to accommodate safe truck movements.

Regional Connectivity

Stakeholders noted that operations in the District are often affected by traffic outside the region. Businesses located outside of District 4 frequently use the District's roads for their trucking routes, often when avoiding congestion in major metropolitan areas, meaning the district is impacted by external congestion. One stakeholder estimated that routes going around the Twin Cities added up to two or three hours to their truck trips. This strong regional dependency on District 4 infrastructure created some mobility needs and issues that are not always within the control of the District. For example, non-local traffic avoiding congestion on I-94 near Fargo-Moorhead has impeded mobility in downtown Moorhead. Traffic in the District also worsens during the fall harvest and summer vacation periods.

As with other Districts in Minnesota, District 4's freight stakeholders noted that they are often impacted by congestion in the Twin Cities area.

Route Restrictions

In addition to needs and issues that affect the ease or efficiency of truck movements, there are physical constraints that can make it impossible or illegal for trucks to travel through elements of District 4's freight network.

Stakeholders reported noticing significant improvements in Minnesota's physical route restrictions over the past 15-18 years and noted they have considerably fewer issues navigating weight-restricted routes in Minnesota as compared to other states. Some stakeholders suggested continued improvements to physical weight restrictions on county roads and some bridges, as these limits have effects on the movement of agricultural products. Stakeholders also recommended that certain stretches of the road be overlaid to accommodate higher weight loads. A few gaps also remain on the ten-ton route network. Another identified route restriction occurs at a new underpass in Detroit Lakes at Roosevelt Avenue underneath US-10, where low clearance requires re-routing for some trucks with oversize loads.

Truck Weight Restrictions

Another commonly noted issue in District 4 is the asymmetry in weight restrictions between different states. In Minnesota, loads that exceed a weight of 80,000 pounds require an OSOW permit, as compared to 105,500 pounds in North Dakota. This difference in weight limits means that trucks traveling over state borders may be sub-optimally loaded. District 4's shared border with North Dakota made this issue relevant for stakeholders doing business across the two states. Stakeholders noted that raising Minnesota's weight limits to align with neighboring states would help cut down on truck trips, reduce transportation costs, and improve economic competitiveness. However, raising weight limits may also have a negative impact on pavement conditions on heavy truck routes.

Snow Removal

Overall, stakeholders favorably viewed MnDOT's snow removal efforts and appreciated the \$1.5 million snow fence program which will improve winter mobility, especially on the I-94 corridor.

Construction Coordination

Construction projects and their associated congestion or detours can create seasonal barriers to truck mobility, particularly for oversized loads. Many stakeholders were appreciative of MnDOT's efforts and resources to communicate upcoming projects or changes that could affect truck operations. However, stakeholders did note that notices of county and local-level construction projects were less accessible, and some consultees mentioned challenges keeping up with these local projects.

Shortage of Qualified Truck Drivers

A majority of stakeholders indicated truck driver shortages having the greatest impact on their business operations in District 4. While this problem is largely outside of MnDOT's control, it is important to note here because a trucking shortage for private businesses can make it more difficult for MnDOT to hire drivers for its own operations.

Minnesota District 4 is being impacted by the nationwide shortage of truck drivers. This shortage can affect businesses' ability to affordably or reliably move goods and can impact MnDOT's ability to hire drivers as well.

Infrastructure Condition

Infrastructure condition is important because poorly maintained infrastructure can damage vehicles and cargo or force trucks to travel at slower speeds, and structurally-deficient infrastructure may necessitate lower weight limits, which could result in longer routes for trucks. In both cases, these condition problems can impose additional costs on businesses using the freight transportation system. This discussion of infrastructure condition in District 4 is broken down into two parts: pavement condition and bridge condition.

Pavement Condition

Pavement condition is important for freight movement because rough or uneven pavement can damage trucks and trailers and cause shifting or damage of cargo. While pavement conditions on the major trunk and interstate highways are in relatively good condition, county-level roads and highways had several areas of poor condition identified.

Bridge Condition

Bridge condition is important because well-maintained bridges are needed to support heavy truck movements and bridges in poor condition may have low weight limits posted. In turn, these low-limit, or “posted” bridges may force trucks to take long detours. There are 68 bridges designated as deficient in District 4, and the majority of these deficient bridges are located on county and township roadway systems.

Stakeholders did not cite many examples of bridge condition issues in the district, likely because these issues are isolated to less-traveled routes. One bridge condition issue raised by stakeholders regarded the CR-79 bridge crossing the South Branch of the Buffalo River, near the I-94 / MN-336 junction. Due to deteriorating bridge condition, loaded trucks are restricted to a 15-mph speed limit, which causes congestion issues with local traffic.

Railroads

Railroads play an important role in moving freight for District 4’s agriculture and manufacturing sectors. Rail freight accounts for nearly 25 percent of freight tonnage moved in Minnesota, and 14.5 percent of the State’s total track miles are located in District 4.^{6,7} Feedback on railroad needs and issues was limited relative to highway needs and issues.

Rail Safety

District 4 has 618 public grade crossings that are potential points of conflict between road and railroad users. However, stakeholders noted relatively few needed grade crossing improvements. Crossing incidents were concentrated on higher-volume and higher-speed rail lines, particularly BNSF’s Morris subdivision between Wilmar and Moorhead, which aligns with stakeholder feedback. In addition, the BNSF line in Otter Tail County and the Canadian Pacific line in Pope, Douglas, and Grant Counties have increased levels of risk due to higher operational speeds and higher traffic volumes.

⁶ MnDOT District 4 Fact Sheet, 2020.

⁷ MnDOT State Rail Plan, 2015.

Rail Mobility

Most discussions around rail mobility related to the impact of grade crossings on road traffic flow. The area around Moorhead was again identified as an area where rail and road traffic face growing constraints. The Moorhead area has a high density of road-railroad grade crossings on a frequently-used mainline in a relatively highly-developed area, and frequent rail traffic can impede road traffic mobility in the city. Upcoming projects in Moorhead such as proposed underpasses to eliminate additional grade crossings are likely to further improve rail and road mobility in the area. Other mobility needs and issues primarily relate to accessing rail services and the affordability of rail services relative to trucking. Other opportunities for improvement include a transload facility in the Moorhead area and Otter Tail Valley Railroad's track around Fergus Falls. One stakeholder mentioned that the increasing lengths of trains could impact mobility at crossings in the future.

Rail Condition

Specific comments and findings concerning rail condition were limited. However, some local and statewide railroad stakeholders raised concerns about aging tracks and the need for ongoing maintenance. This is especially a concern for short line railroad operators which move relatively small volumes of freight but still must maintain extensive rail infrastructure. These short line rail operators noted that they have limited capacity to make large-scale upgrades such as track and bridge improvements and rely on state and federal funding and tax programs to support their infrastructure upgrades. These improvements are important because they allow the short lines to move heavier cars and faster trains.

Anticipating and Interpreting Future Changes

The freight transportation system is made up of a variety of private sector actors such as shippers, brokers, and carriers. These actors make their operational choices in response to a variety of external factors, including economic or political changes. Therefore, the operation of the freight system itself is fundamentally reactive to a variety of factors that lie well outside of the control of MnDOT and other agencies that build and maintain Minnesota's transportation system. Since freight operations are frequently changing in response to many external factors, it can be difficult to determine exactly how the freight system will change in the future. However, there are several "lenses" through which MnDOT can interpret or anticipate future freight changes including Social, Technological, Environmental, Economic, and Political considerations. Examples of some significant trends for District 4's freight transportation system are profiled below.

Social Factors and Trends



Social factors include demographics, income, consumption patterns, and population location and density. Examples of social trends for District 4 include an **Aging Population and Out-Migration in Rural Areas**. District 4's population is growing older and the population of rural counties like Traverse, Wilkin, and Big Stone is shrinking. These two factors could introduce labor shortages in key industries like agriculture and manufacturing and may worsen the existing truck driver shortage. If population decline accelerates and businesses are forced to relocate, the volume of goods shipped to and from the District might be affected.

Technological Factors and Trends



Technological factors include those advancements that may generate new (alternative) products or services, increase the availability or lower the cost of current products or services, or change the nature of production processes, transportation and distribution activities, and information flows. A good example of technological trends that could affect District 4's freight network is **the growth of e-commerce**. The past decade has seen e-commerce grow rapidly, making up an increasingly large share of retail sales, and the pandemic has accelerated this trend. The construction of a new Amazon processing warehouse just outside the District in Fargo will support further growth in e-commerce. These changes generate new truck traffic and last-mile movements of goods, which may be a challenge for the District's freight network.

Environmental Factors and Trends



Environmental factors may influence the demand for or the production of goods and services, either positively or negatively, and may also impact how and when goods are shipped. A good example of an environmental factor that will affect District 4's freight network is **climate change**. A warmer or more-variable climate in Minnesota may make it more difficult to plan optimal planting times. Additionally, drought and severe rainfall events associated with a warmer climate can also damage crops and infrastructure.⁸ More frequent freeze-thaw events associated with milder winters also add stress to pavement and bridges, meaning more frequent maintenance or replacement is required.

Economic Factors and Trends



Economic factors and trends may affect the location of goods or services production, and the ability of individuals or businesses to invest or purchase goods or services. An emerging economic trend in District 4 has been **the consolidation of farms and agriculture producers**. These larger producers tend to have higher yields and thus rely more frequently on rail transport for bulk loads. Moreover, the consolidation of grain elevators can increase truck traffic on first/final mile connections to these facilities.

Political Factors and Trends



Political factors may influence the production, sourcing, flow or trade of goods, or investments in public infrastructure, such as highways. An example of a political factor relevant to District 4 is **funding for transportation investments**. For example, the adoption of electric vehicles may introduce challenges for funding transportation maintenance and other investments with established revenue mechanisms like the gas tax.

⁸ Minnesota Department of Natural Resources State Climatology Office

An aerial photograph of a highway rest area. A red semi-truck with a white trailer is parked in a designated parking space. To its left is a small white shed and a green dumpster. In the background, there are several other vehicles, including a white pickup truck and a silver SUV. The area is surrounded by grass and trees. A road with a guardrail runs along the right side of the rest area. The text "Chapter 4: How Will We Guide Ourselves Moving Forward?" is overlaid in white, italicized font.

Chapter 4: How Will We Guide Ourselves Moving Forward?

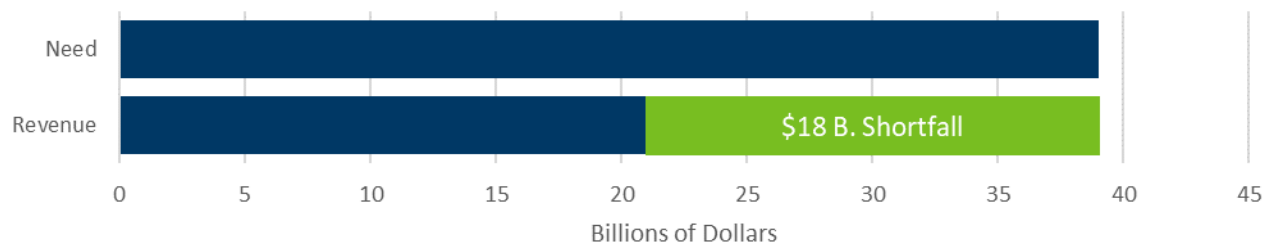
Image: Burgen Lake Rest Area on I-94. MnDOT.

Chapter 4: Project Funding and Prioritization

MnDOT's Funding Context

MnDOT's fiscally-constrained capital investment plan, the 2018-2037 Minnesota State Highway Investment Plan (MnSHIP), estimates that over the next 20 years, \$39 billion of investments are needed to support the state highway system, but only \$21 billion will be available. As a result, there is an estimated \$18 billion funding gap. This lack of funding has two major causes: 1) construction costs are growing more quickly than revenue is growing, and 2) revenue growth is slowing. This revenue gap is important to consider because it requires MnDOT to emphasize stewardship of existing assets over the construction of new ones.

Figure 18: Minnesota Highway Investment Need and Forecasted Revenue, 2017-2037



Source: Adapted from Minnesota State Highway Investment Plan, 2017

MnDOT's highway investments are primarily focused on stewardship of existing system assets.

Freight-Specific Funding

MnDOT has a history of providing grant and loan funding for freight-related projects as shown in Figure 19. These freight-related funding programs have helped the state address critical freight system needs, however a challenge with these programs is that the level of funding is low compared to the need, and not all funding programs are available on regular basis (e.g., yearly), nor guaranteed they will be available in the future.

The Minnesota Highway Freight Program (MHFP) is particularly important for freight investment. As part of the National Highway Freight Program, MnDOT is apportioned approximately \$20 million a year and may determine its own process for selecting projects to receive this funding, as long as it is used for freight-related investments. MnDOT chose to select projects through a competitive process and evaluated applicants on criteria that included truck volume, safety, mobility, facility access, and other factors.

MnDOT selected its 2022-2025 MHFP recipients in 2020, which includes one project in District 4 valued at \$1.5 million for the snow fence installation on I-94 at Moorhead, Downer, and Fergus Falls. In total, 34 applications were received requesting over \$178 million. 16 projects were selected amounting to approximately \$61 million, again indicating that freight transportation system needs far outweighs available funds. In previous rounds of MHFP solicitation, District 4 also received \$200,000 for the 2019 improvement of Randolph Road in Detroit Lakes.

The MHFP solicitation program is not guaranteed to continue in the future, as these funds need to be authorized at the Federal level. Additionally, MnDOT’s Office of Freight and Commercial Vehicle Operations may elect to use a different process to select projects (e.g., through statewide and District freight system planning efforts).

MnDOT’s freight and rail funding programs have helped address freight system needs where traditional highway system funds could not.

Figure 19: Overview of MnDOT Freight-Related funding Programs Relevant to District 4

Source	Funding Available	Eligible Uses
Minnesota Highway Freight Program (MHFP)	\$56.9 million total programmed through 2023-2025	Program funds are broad and include improvements such as climbing lanes, traffic signal optimization, and railway-highway grade separation, among others.
Railroad At-Grade Crossing Safety Program (Section 130)	~\$6 million per year, federal and state match	Closures/consolidations of railroad crossings and railroad crossing safety projects at high-risk locations.
Minnesota Railroad Service Improvement Program (MRSI)	≈\$4 million appropriated in the 2020 bonding bill, funding is not regular	Projects that improve “fixed assets” such as railroad roadbed, tracks, turnouts, bridges, buildings, and fixed loading/unloading equipment.
Weigh Station and Commercial Vehicle Safety/Enforcement Program	\$2 million per year, state funds	Projects that maintain or improve commercial vehicle enforcement and safety.

Source: Adapted from MnDOT Office of Freight and Commercial Vehicle Operations.

Approach to Freight Project Selection and Prioritization

The District 4 Prioritization Process (Needs)

MnDOT has developed a uniform statewide method for scoring and ranking needs and issues for District Freight Plans. Lessons learned from the 2017 statewide MHFP solicitation were used to help guide the development of this methodology. Two primary lessons from the MHFP process were (1) that it prioritized highest-traffic routes including Interstates and Trunk Highways compared to local routes, and (2) that it relied on the availability of data (e.g., truck counts) that may not be available the local level. These were considered in conducting the District 4 evaluation, and emphasis here was placed on making sure that needs and issues were evaluated in the “District,” not statewide context. Figure 20 provides a visual overview of the gap identification process, with the evaluation process described below.

The evaluation approach is intended to:

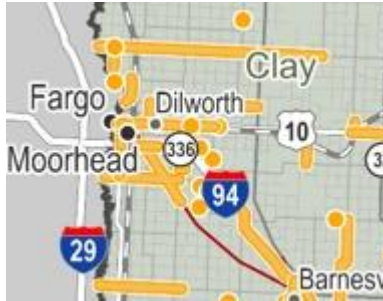
- Evaluate/screen “gaps” (potential project concepts), not concrete, defined projects.
- Focus on regional issues (i.e., known to be important to District 4) vs. those that may be more important to the Metro District or more urban areas.
- Use as much data as available at the local level, as possible.

Figure 20: Gap Identification Process

1. Map needs and issues



2. Map planned projects



3. Identify “gaps”: issues not overlapped by planned projects.



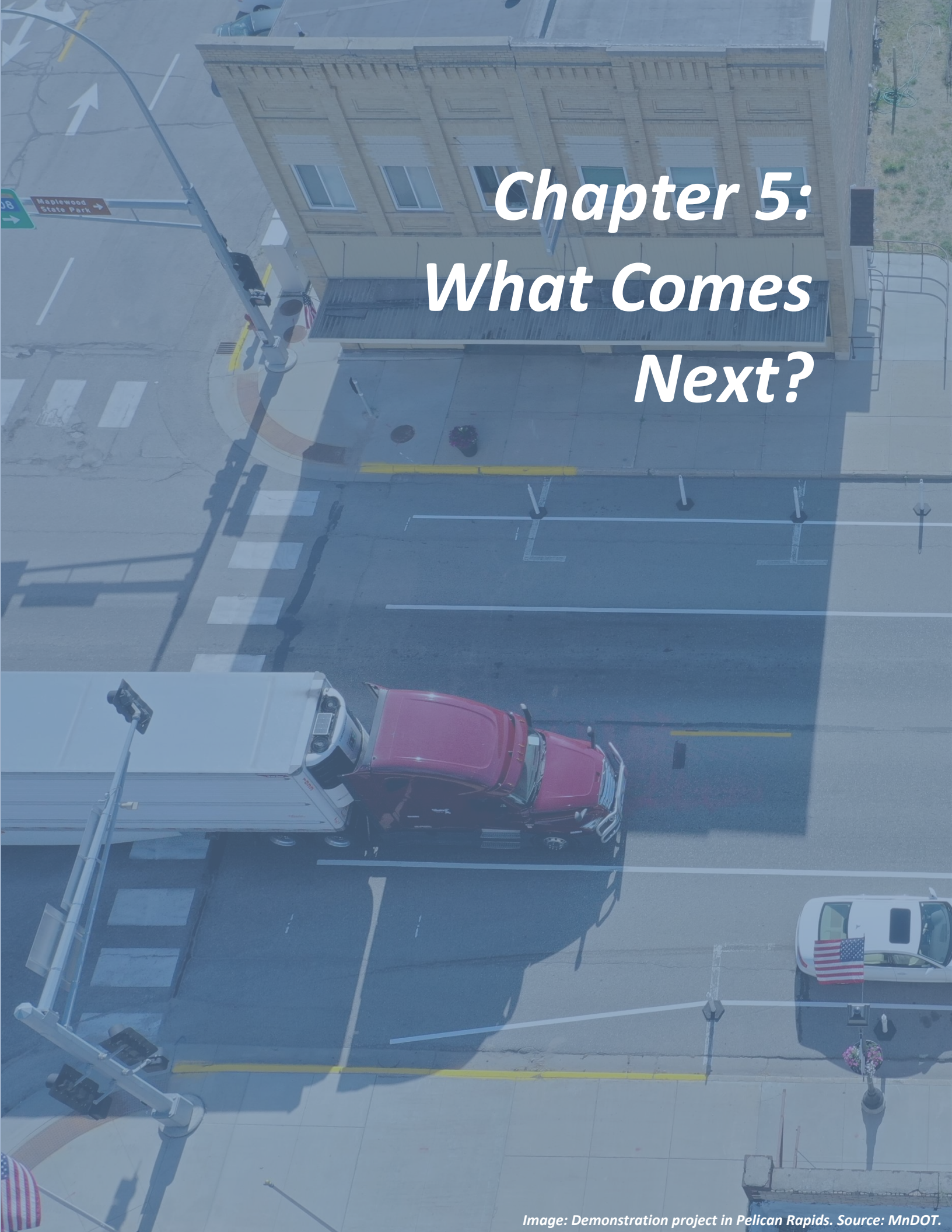
Figure 21 lists the categories and measures for District 4’s freight “gap” evaluation. In this evaluation process, all measures are weighted equally, and a high overall score is intended to identify what “gaps” (potential project concepts) have the greatest potential to provide freight benefits (referred to in this report as “pure ranking”). A sub-set evaluation was included to highlight needs in safety, condition, and performance categories.

Figure 21: Categories and Measures for Gap Evaluation

Category	Ranking Score Measure/Performance Indicator	Safety	Mobility	Condition
Truck Activity	HCAADT	X	X	X
	Truck percent (%) of total vehicles	X	X	X
Safety	Addresses a sustained crash location	X		
	A safety issue identified in a district or county safety plan (provide risk rating)	X		
	Addresses at-grade crossing safety risk	X		
Freight Mobility	Truck Travel Time Reliability		X	
	Addresses a vertical clearance restriction		X	X
	Addresses a weight limited bridge		X	X
Condition	Bridge condition rating			X
Stakeholder Need	Y/N if this issue overlaps with a stakeholder identified need	X	X	X

Evaluation Results

The evaluation resulted in a rank order of priority needs for the District to address, as well as sub-rankings of projects deemed to provide the greatest benefits to freight system safety, condition, and mobility. Appendix C provides a list of all scored gaps in order of “pure rank”, as well as safety, condition, and mobility rankings. A subset of ranked projects was selected for advancement to pre-feasibility assessment, this subset is described in Chapter 5.

An aerial photograph of a city street intersection. A large, multi-story brick building with many windows is on the left. A red semi-truck with a white trailer is stopped at the intersection. A white car is also stopped. The street has white and yellow lane markings. A traffic light pole is visible on the left. The text "Chapter 5: What Comes Next?" is overlaid in white, italicized font on the right side of the image.

Chapter 5: What Comes Next?

Image: Demonstration project in Pelican Rapids. Source: MnDOT.

Chapter 5: Recommended Actions

District 4's freight system has many needs and issues, but it also has many potential advantages and opportunities. This chapter provides information on four types of potential opportunities: projects, programs, policies, and partnerships. Particular attention is paid to project opportunities, which were identified by comparing the location of needs and issues against planned investments on the road network. Key project opportunities identified include safety improvements on higher-volume routes in the District and improvements to some intersections that restrict the mobility or safety of freight movement.

Recent Progress

Before considering plans for improvement in the District, it is important to recognize recent and ongoing projects or policy changes that have addressed needs and issues identified in previous plans, such as the 2014 Manufacturer's Perspectives study. The following provides a "showcase" of some of the freight-benefitting projects that have been implemented or are underway in District 4. Many of these projects were originally identified as needs and issues during the development of the District 4 Manufacturer's Perspectives Study. This study sought to improve MnDOT's understanding of freight customers' transportation priorities and challenges, with the ultimate goal of incorporating industry input into planning and project development. The project included meetings with 103 businesses in District 4 and was completed in 2015. The projects and plans noted here provide some examples of the value of the Manufacturers' Perspectives study, and MnDOT's commitment to continued engagement to improve freight mobility and safety in the District.

District 4 has enhanced freight movement using freight stakeholder feedback to make changes to planning and project delivery.

Infrastructure Projects

Snow Fence Program

District 4's highways can be affected by drifting and blowing snow, which poses a mobility and safety threat. In response to mobility concerns and feedback from the Manufacturers' Perspective Study, District 4 has partnered with farmers and private landowners to improve windbreaks and protect state highways. This work has also included the construction of snow fences, and District 4 has been awarded \$1.5 million in MHFP funds for the creation of snow fences on I-94 around Moorhead, Downer, and Fergus Falls.

Randolph Road First-Last Mile Improvements

In 2019, the City of Detroit Lakes received a \$1.5 million MHFP grant to improve first-last mile connections between businesses on and around Randolph Road and US-10. Specific improvements included the removal of some traffic signals and creation of reduced-conflict intersections and grade crossings, and the addition of signals at intersections that were previously non-signalized. The overall goal of the project was reconfiguring traffic flow to reduce conflicts with traffic on US-10 and grade crossings next to US-10 and Randolph Road.

Moorhead Railroad Projects

Moorhead has extensive railroad infrastructure, and the high volume and speed of trains in Moorhead mean that rail and grade crossing safety, congestion, and quality of life issues are important freight-related topics for the area. Concerns like these are being addressed with ongoing projects, including the creation of two new underpasses of US-10 and US-75 at 11th Street, and the removal of grade crossings with the BNSF rail line on Main Avenue, 20th Street, and 21st Street. Grade separation projects like these improve mobility and safety by separating rail operations from road users, pedestrians, and bicyclists.

TH-29 Grade Separation

MnDOT and Pope County are currently working on the construction of an overpass to eliminate MN-29's grade crossing with a Canadian Pacific railroad line. This project will also improve highway safety by eliminating MN-29's skewed intersection with MN-55 and replacing this skewed intersection with a new route using two roundabouts.

Programs, Plans, and Operational Changes

In addition to the freight-related infrastructure noted, MnDOT has made operational changes and begun planning work in response to industry stakeholder feedback, including studies in Pelican Rapids and Alexandria.

Complete Streets Demonstration in Pelican Rapids

Highways 59 and 108 in Pelican Rapids are expected to be resurfaced and reconstructed in 2024. Since much of the project area impacts the developed area of downtown Pelican Rapids, MnDOT and the City of Pelican Rapids cooperated to conduct a demonstration of Complete Streets concepts that will be implemented in the 2024 project. A topic particularly important for freight was the potential design of “mini” roundabouts, which are proposed for intersections of 59 and 108. In District 4, as well as other Districts, trucking stakeholders have expressed concern about the design of roundabouts, as certain roundabout shapes or sizes may be more difficult for trucks to safely drive through. As part of this demonstration work, District 4 conducted a mini roundabout demonstration (shown in Figure 22) that examined the ease of movement for various commercial vehicles, including semi tractor-trailers, and long-load trailers.

Figure 22: Mini Roundabout Demonstration in Pelican Rapids



Source: MnDOT. 2021.

I-94 Lake Burgen Interchange Study

District 4 is currently conducting an interchange planning study on I-94 on the east side of Alexandria, which would create a third I-94 interchange in the Alexandria area. One of the key project goals is to help handle

elevated traffic volumes on Highway 29 around Alexandria and provide additional access for freight traffic to county highways 45 and 46. This study is expected to be complete in February 2022. In addition to this work, the Burgen Lake Rest Area is being reconstructed and additional truck parking is being created.

Recommendations

Opportunities to improve District 4's freight system have been cast as recommendations and have been categorized into four groups:

- **Projects** that improve and expand infrastructure.
- **Policies** to govern the development, operation, and maintenance of the freight system.
- **Programs** designed to broadly improve and enhance the freight transportation system.
- **Partnerships** with local stakeholders to better understand each other's needs and issues, and to collaboratively advance strategies to improve the system.

Projects

Projects make up the area where MnDOT has an opportunity to make impactful physical system changes. An assessment of gaps between freight needs and issues and planned transportation improvement projects is shown in Figure 23. Generally, there was a high level of overlap between identified freight needs and issues and planned transportation projects (although these projects are not explicitly intended to address the identified freight needs and issues). Currently, there are over 206 identified freight needs and issue points on District 4's system that are likely not addressed by programmed projects. Notable gaps between programmed projects and needs and issues include:

- **Safety gaps** were the most common gap and made up over half of the identified gaps. Safety gaps were focused on higher-volume routes in the District and in urban areas.
- **Mobility-related gaps** were the second most common type of gap. These needs and issues were primarily identified by stakeholder comments. Commonly identified mobility challenges included steering trucks through roundabouts, difficult interchanges and intersections, and poor routing and signage.
- **Condition gaps** made up the remaining share of identified gaps and were all identified from stakeholder comments. Almost all of these gaps relate to pavement condition.

Many types of already-programmed highway projects provide benefits for freight transportation.

Pre-Feasibility Assessment

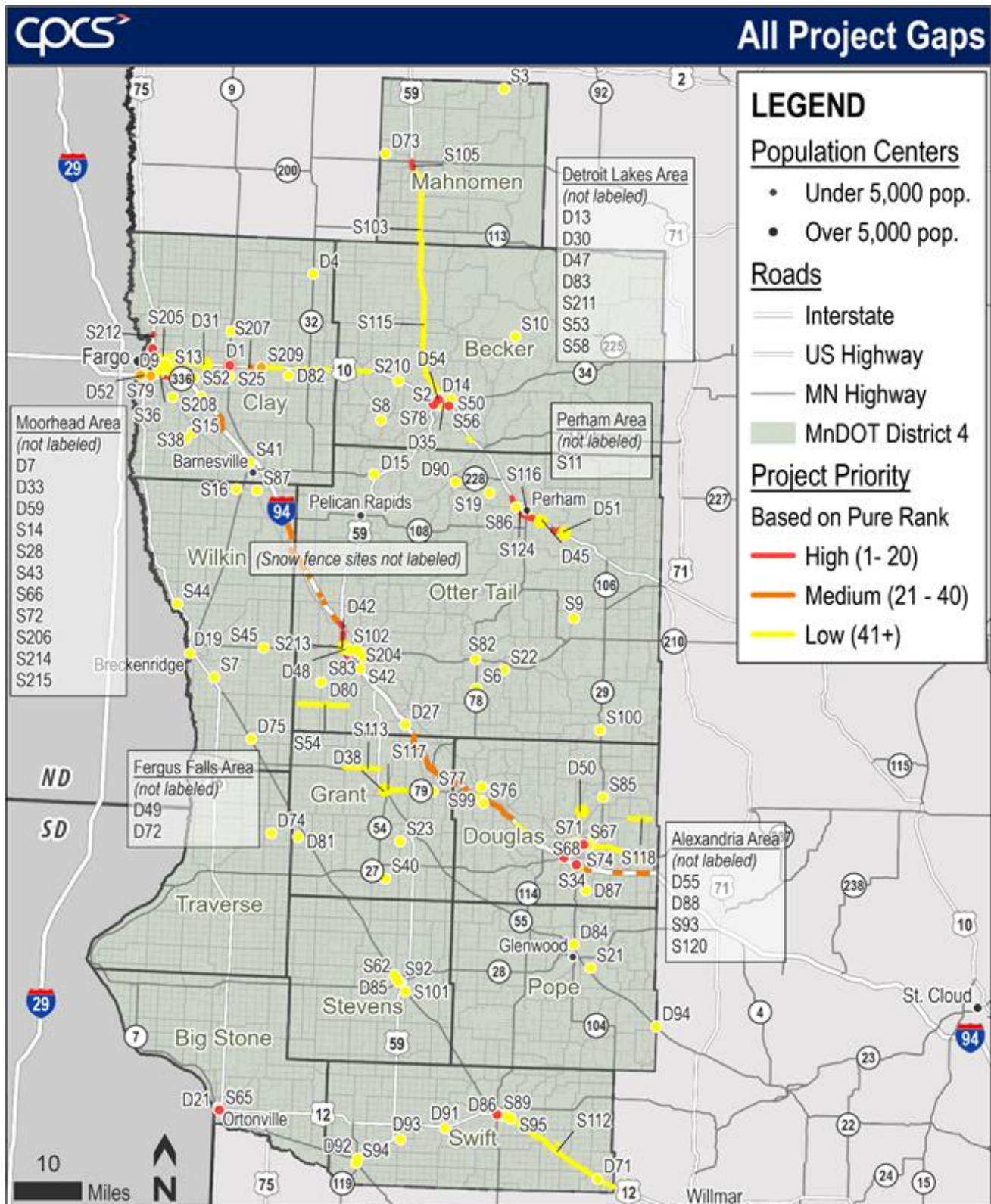
One of the aims of the District 4 Freight Plan is to ensure that the critical needs in the region have the potential to be addressed by future rounds of funding (including dedicated freight, safety, mobility, condition, or other appropriate sources). One way to do this is to take steps to prepare data and information to support the full slate of criteria used in evaluating/scoring projects in the MHFP process. This includes further developing unaddressed "gaps"/project concepts into clear projects/solutions so that they can be scored and considered when future investment decisions are made.

The full set of 206 unaddressed needs is shown in Figure 23. A subset of these unaddressed needs was advanced to pre-feasibility to determine 1) what the project might entail, 2) one or more conceptual design options that may address the need, and 3) planning level cost estimates for each option. These selected items are listed

below and were selected to represent a range of different need/issue types and to provide a broad geographic representation across District 4. Appendix C has a full list of all gaps shown in Figure 23.

- **S66 and S43, US-75 and County Highway 18 north of Moorhead.** These sites were identified as potential safety concerns, as there is a large volume of truck traffic entering, existing, and crossing US-75 at this intersection. This site had a high ranking overall and was in the top ten pure-ranked projects.
- **S34, MN-29 and 50th Avenue in Alexandria.** This site was identified as a potential conflict area between free-flowing and turning traffic.
- **S65 and D21, US-12 and MN-7 in Ortonville.** This area had congestion mentioned by stakeholders, as well as more than two truck crashes between 2018 and 2018.
- **D47, Highland Drive and MN-34 in Detroit Lakes.** This area had a history of a relatively high rate of truck-involved crashes and is in the process of being upgraded. Therefore, MnDOT selected this location to understand how truck access to the local industrial park can be improved during these upgrades.
- **S89, MN-29 and US-12 in Benson.** This location refers to the railroad grade crossings in Benson, which can be blocked for long periods, and MnDOT chose to examine potential grade crossing replacements to reduce traffic mobility impacts of grade crossing blockages.
- **S105, US-59 from I-94 north through Mahanomen County.** This site was identified in the Manufacturers' perspectives study, where a second lane was needed to improve truck mobility and reduce accidents related to speed differences between traffic. MnDOT has previously completed some passing lane studies for these areas but needs to update cost estimates for these sites.
- **S94, US-59, MN-7, and MN-119 in Appleton.** MnDOT would like to update prior cost estimates from the Appleton Planning and Design Study, which would improve traffic mobility and safety through Appleton.
- **S45, MN-210 East of Breckenridge.** This site was identified as a potential safety concern, as it is the location of a beet piling station that generates large volumes of seasonal agricultural traffic.
- **S44, US-75 and County Highway 3 in Wilkin County.** This intersection is important for southbound agricultural traffic to enter US-75 on the way to Breckenridge and Wahpeton. The sharp skew of this intersection makes it difficult for trucks turning left onto US-75 to see southbound traffic, and this concern was identified by a stakeholder.
- **S73, County Highway 45 and 34th Avenue in Alexandria.** This intersection is adjacent to an I-94 interchange as well as a truck stop, and the District has received comments about multiple truckers having difficulty navigating the area to reach the truck stop. This area is also planned for further upgrades in the future, so studying truck improvements now may yield design elements that should be included in future projects.
- **US-10 in Audubon.** This site was added by the District after the scoring and ranking process was complete, based on feedback the District had received comments about difficult turns for traffic entering and exiting US-10 from 4th Street in Audubon.
- **US-10 and Clay County Road 23.** This intersection was added by the District after the scoring and ranking process was complete, as the District has received feedback that it may be difficult for trucks to turn on and off of US-10.

Figure 23: District 4 Project Gaps



Source: CPCS analysis, 2022.

- **MN-29 from Glenwood to US-10.** MnDOT would like to update cost estimates from a prior passing lane study. The addition of passing lanes here would improve truck traffic mobility to and from Glenwood, Alexandria, and Wadena.
- **McHugh Road and North Shore Drive intersections with US-10 in Detroit Lakes.** As noted in Chapter 1, MnDOT has utilized Minnesota Highway Freight Program funds to close or redesign intersections in Detroit Lakes, which improved truck mobility and safety. The McHugh Road and North Shore Drive intersections with US-10 are similar sites, with high intersection density close to US-10, and limited room for trucks to safely turn onto frontage roads.

Policies, Programs, and Partnerships

To support the advancement of project recommendations, other actions were identified and categorized as policies, programs, and partnerships. Generally, policies are established to inform project and program investments, and partnerships are required for effective implementation. Since MnDOT only has control over a limited portion of the freight network and has limited resources to support maintenance and improvement, partnership with other public agencies and private stakeholders will be an important element of future work on the freight system. Recommended actions are organized by State Freight Plan goal areas to link actions to broader statewide aspirations for the multimodal freight transportation system.

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. The freight system that these businesses depend on is multimodal, transports products not only within Minnesota but also throughout the US, and provides connections to trading partners throughout the world. Minnesota's freight system needs to respond and adjust to changing state, US, and world economic conditions. Recommended actions to support this goal in District 4 are shown in the following figure.

Figure 24: Recommendations to Support Minnesota's Economy

Type	Description
Policies	<ul style="list-style-type: none"> • Use this plan's information to incorporate freight considerations into existing planning processes. This plan provides MnDOT with detailed information on the specific location and nature of freight needs and issues in District 4. Including these freight considerations in existing planning or project work may help District 4 address freight transportation needs and issues with the aid of existing funding streams. • Continue participation in ongoing corridor-wide research on electric, autonomous, and connected vehicles. The North/West Passage Coalition makes up a group of states collaborating on research related to transportation challenges like truck parking, connected vehicle operations, and electric charging infrastructure. MnDOT's Connected and Automated Vehicle Office is the coordinating entity for technology engagement, policy, testing, and partnerships like this.
Partnerships	<ul style="list-style-type: none"> • Explore additional opportunities to support the utilization of short line railroads. Consider approaches to improve railroad access for local businesses to provide alternatives to trucking. • Continue to partner educational institutions to support truck driver training programs. Reduce the negative impacts of a driver shortage on transportation costs and reliability. • Continue outreach to freight stakeholders. Gathering industry input and information is key to addressing their identified needs and issues. This outreach can include attendance and industry and economic development meetings, as well as solicitations for feedback on specific projects. The district could also consider creation of a regional freight advisory committee, which could provide regular updates and information on freight needs and issues.

Improve Minnesota's Mobility

Minnesota's freight system needs to offer access for all freight users and reliable service with minimal chokepoints. Recommended actions to support this goal in District 4 are shown in the following figure.

Figure 25: Recommendations to Improve Minnesota's Mobility

Type	Description
Policies	<ul style="list-style-type: none">• Balance freight needs in complete streets projects. Continue to consider freight needs in future complete streets projects and main street projects in a way that balances the needs of all users, including freight.• Document truck size and weight issues and impacts. Information about truck size and weight impacts on business operations and modal choices will be important information for future legislative discussions about changes to truck weight limits. Potential weight limit impacts on the condition of pavements and bridges should also be documented.
Partnerships	<ul style="list-style-type: none">• Continue engagement with North Dakota DOT, South Dakota DOT, and Fargo-Moorhead MPO. Potential topics for collaboration include cross-border highway maintenance, weight limit harmonization, the creation of OS/OW truck corridors, and the replacement or rehabilitation of the I-94 Red River Bridge.• Offer freight information resources or freight planning assistance to county or local governments. Collaboration with local governments may be necessary to resolve first- and last-mile freight movement needs and issues, as many freight issues occur off MnDOT's highway network.

Preserve Minnesota's Infrastructure

The expected growth in goods movement on all modal networks 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. Recommended actions to support this goal in District 4 are shown in the following figure.

Figure 26: Recommendations to Preserve Minnesota's Infrastructure

Type	Description
Policies	<ul style="list-style-type: none">• Prioritize the maintenance of existing assets over the construction of new assets. Funding shortfalls are expected in the future and limiting additional maintenance costs for additional infrastructure is in the state's best interest.• Emphasize long-term durability and resilience in infrastructure investments. When repairing or replacing aging infrastructure, investment should be focused on long-term solutions.
Programs	<ul style="list-style-type: none">• Continue support for short line rail investments. State grant support such as the Minnesota Rail Service Improvement program are important tools for short lines to make capital improvements and maintain service.
Partnerships	<ul style="list-style-type: none">• Outreach and information sharing for state and federal legislators. State and federal funding for transportation programs is critical to preserve and improve the District's infrastructure. MnDOT should provide legislators with information about freight needs and issues in each District. This information can be used to help generate support for continued or additional freight funding in the future.

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. Minnesota needs to enhance freight system safety and ensure

plans are in place to protect areas where freight activity and the public interface. Recommended actions to support this goal in District 4 are shown in the following figure.

Figure 27: Recommendations to Safeguard Minnesotans

Type	Description
Policies	<ul style="list-style-type: none"> • Create safety education outreach materials specific to freight. Explore ways to weave freight-specific safety outreach into existing outreach work, particularly through the Toward Zero Deaths program.
Programs	<ul style="list-style-type: none"> • Continue to address freight safety needs. District 4 should continue to study potential solutions to this plan’s identified freight safety issues. When possible, the District and its partners should seek freight funding to implement these solutions. • Make Targeted, Low-Cost Safety Investments, which could include improved lighting or warning devices at high-risk rural intersections • Advance District Recommendations of MnDOT’s Weight Enforcement Investment Plan including the improvement of facilities at the Red River Weigh Station, and further development of weigh-in-motion facilities on parallel routes.
Partnerships	<ul style="list-style-type: none"> • Create safety education partnerships. Continue existing safety work with partners such as school districts. • Continue annual coordination meetings with the Department of Public Safety to discuss freight-related safety topics.

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 with low incomes. 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. Recommended actions to support this goal in District 4 are shown in the following figure.

Figure 28: Recommendations to Protect Minnesota’s Environment and Communities

Type	Description
Programs	<ul style="list-style-type: none"> • Reduce Use of Salt and Deicers. Continue to examine opportunities to reduce the use of salt and other deicing solutions that may contribute to the contamination of the local water supply used for agriculture.
Partnerships	<ul style="list-style-type: none"> • Offer freight information resources or freight planning assistance to county or local governments. Collaboration with local governments may be necessary to resolve local community impacts of freight transportation operations.

Appendices



Appendix A. Advisory Committee and Technical Team Membership

Advisory Committee

- Cindy Gray, Adam Altenburg, Fargo-Moorhead Metro COG
- Alexander Fiorini, BNSF
- Brian McCoy, Ryan Zemek HRDC
- Casey McGarry, D&M Industries
- Cheryl Kuhn, Stevens County Economic Improvement Commission
- Clint Larby, BM Transport
- Dan Zink, Red River Valley & Western Railroad
- Dawn Hegland, Naomi Carlson, UMVRDC
- Gregg Pekas, Foltz Trucking
- Harrison Weber, Red River Valley Sugarbeet Growers Association
- Jim Krieger, Canadian Pacific Railroad
- Mark Wolter, Midnite Express
- NeTia Bauman, Greater Fergus Falls
- Roberta Retzlaff, Federal Highway Administration
- Rod Wiseman, Genesee & Wyoming
- Tim Erickson, Douglas County
- Vernon Pooch
- Wayne Hurley, West Central Initiative
- Mary Safgren, Tom Lundberg, Bryan Christensen, Jane Butzer, Nathan Gannon, Trudy Kordosky, MnDOT District 4

Technical Team

- Andrew Andrusko, Robert Clarksen, MnDOT Office of Freight
- Mary Safgren, Tom Lundberg, MnDOT District 4
- Brian Yavarow, City of Fergus Falls
- Todd Larson, Stevens County
- David Overbo, Justin Sorum, Clay County
- Cindy Gray, Adam Altenburg, Fargo-Moorhead Metro COG
- Wayne Hurley, West Central Initiative
- Kory Andersen, MnDOT Office of Transportation System Management

Appendix B. Previous Plans

Document	Agency	Year
Minnesota Statewide Freight System and Investment Plan	MnDOT	2018
Greater Minnesota Mobility Study	MnDOT	2018
Comprehensive Development Strategy for Greater Minnesota	MADO	2016
Manufacturers' Perspectives on Minnesota's Transportation System – District 4	MnDOT	2015
Freight Rail Economic Development Study	MnDOT	2013
Western Minnesota Regional Freight Study	MnDOT	2009
West Central Minnesota Regional Transportation Plan	WCI	2013
Northern Minnesota/Western Wisconsin and Western Minnesota Regional Freight Plan	MnDOT	2009
Minnesota State Highway Investment Plan (MnSHIP)	MnDOT	2017
Connected and Automated Vehicle Strategic Plan	MnDOT	2019
Minnesota Weight Enforcement Investment Plan	MnDOT	2018
Minnesota Statewide Truck Parking Study	MnDOT	2019
Improvements to Highway-Rail Grade Crossings and Rail Safety	MnDOT	2014
Minnesota State Rail Plan	MnDOT	2015
Rail Grade Crossing Safety Project Selection	MnDOT	2016
Regional Freight Plan for Fargo-Moorhead Metropolitan Council of Governments	Metro COG	2017
Metro GROW 2045 (Fargo-Moorhead LRTP)	Metro COG	2019
Shoulder Widening Prioritization Study	MnDOT	2018
Minnesota US 10 / US 75 Corridor Study Moorhead	MnDOT	2020
Comprehensive Economic Development Strategy for Minnesota Region 4	WCI	2016
Upper Minnesota Valley RDC Comprehensive Economic Development Strategy	UMVRDC	2019
West Central Minnesota Comprehensive Economic Development Strategy	WCI	2017
Highway 29 and Highway 59 Passing Lane Assessment	MnDOT	2017

Appendix C. Pure Project Ranks

The following figure lists ranks for each project “gap” identified in District 4. Truck percent was used as a tiebreaker to help determine which projects may be more relevant to freight operations in District 4. The fields in the table are:

- **ID:** This code refers to the need/issue ID printed on maps. IDs beginning with “S” denote needs or issues identified by stakeholders, while IDs beginning with “D” denote needs or issues identified by analysis of data.
- **Highway Name** or Number (as available)
- **Pure:** The “pure ranking” is simply the total of all scores, for each measure, for each project concept. Not all project concepts will have scores for each of the measure categories, e.g., a weight-limited bridge may not have a safety issue and will not receive a score in the safety category. However, there may be cases where project concepts do receive scores in multiple categories, and as a result, will receive a higher score and ultimately will be ranked higher in the evaluation. Truck percent has been used to break ties in ranks, as available.
- **Safety:** The safety sub-ranking.
- **Mobility:** The mobility sub-ranking.
- **Condition:** The condition sub-ranking

ID	Source	Highway	Pure Rank	Issue Type
S67	Manufacturer's Survey	3rd Ave E	1	Mobility
S186	Snow Fence Shapefile	US Hwy 10	2	Mobility
S187	Snow Fence Shapefile	US Hwy 10	2	Mobility
S58	Manufacturer's Survey	US Hwy 59	3	Mobility
S78	Manufacturer's Survey	US Hwy 59	3	Mobility
S154	Snow Fence Shapefile	IS Hwy 94	4	Mobility
S212	Committee Meetings	US Hwy 75	5	Safety
S43	Other Consultation	US Hwy 75	5	Safety
S66	Manufacturer's Survey	US Hwy 75	5	Safety
S157	Snow Fence Shapefile	IS Hwy 94	6	Mobility
S89	Manufacturer's Survey	Church St S	7	Mobility
S93	Manufacturer's Survey	CSAH 45	8	Condition
D14	CMV Data	US 59TH; US Hwy 10	9	Safety
S133	Snow Fence Shapefile	IS Hwy 94	10	Mobility

ID	Source	Highway	Pure Rank	Issue Type
S168	Snow Fence Shapefile	IS Hwy 94	10	Mobility
S34	MetroQuest Survey	50th Ave	11	Safety
S56	Manufacturer's Survey	US Hwy 10	12	Mobility
S200	Snow Fence Shapefile	US Hwy 10	13	Mobility
S124	Manufacturer's Survey	US Hwy 10	14	Mobility
S65	Manufacturer's Survey	Ingersoll Ave	15	Condition
D30	CMV Crash Data	Washington Ave	16	Safety
D35	CMV Crash Data	Washington Ave	16	Safety
S138	Snow Fence Shapefile	IS Hwy 94	17	Mobility
S139	Snow Fence Shapefile	IS Hwy 94	17	Mobility
S140	Snow Fence Shapefile	IS Hwy 94	17	Mobility
S141	Snow Fence Shapefile	IS Hwy 94	17	Mobility
S142	Snow Fence Shapefile	IS Hwy 94	17	Mobility
S125	Snow Fence Shapefile	IS Hwy 94	18	Mobility
S127	Snow Fence Shapefile	IS Hwy 94	18	Mobility
S128	Snow Fence Shapefile	IS Hwy 94	18	Mobility
S129	Snow Fence Shapefile	IS Hwy 94	18	Mobility
S130	Snow Fence Shapefile	IS Hwy 94	18	Mobility
S131	Snow Fence Shapefile	IS Hwy 94	18	Mobility
S132	Snow Fence Shapefile	IS Hwy 94	18	Mobility
S134	Snow Fence Shapefile	IS Hwy 94	18	Mobility
S135	Snow Fence Shapefile	IS Hwy 94	18	Mobility
S136	Snow Fence Shapefile	IS Hwy 94	18	Mobility
S137	Snow Fence Shapefile	IS Hwy 94	18	Mobility
S158	Snow Fence Shapefile	IS Hwy 94	19	Mobility
S147	Snow Fence Shapefile	IS Hwy 94	20	Mobility
S148	Snow Fence Shapefile	IS Hwy 94	20	Mobility
S149	Snow Fence Shapefile	IS Hwy 94	20	Mobility
S165	Snow Fence Shapefile	IS Hwy 94	20	Mobility

ID	Source	Highway	Pure Rank	Issue Type
S166	Snow Fence Shapefile	IS Hwy 94	20	Mobility
S152	Snow Fence Shapefile	IS Hwy 94	21	Mobility
S163	Snow Fence Shapefile	IS Hwy 94	21	Mobility
S164	Snow Fence Shapefile	IS Hwy 94	21	Mobility
S170	Snow Fence Shapefile	IS Hwy 94	21	Mobility
S145	Snow Fence Shapefile	IS Hwy 94	22	Mobility
S146	Snow Fence Shapefile	IS Hwy 94	22	Mobility
S153	Snow Fence Shapefile	IS Hwy 94	22	Mobility
S162	Snow Fence Shapefile	IS Hwy 94	22	Mobility
S150	Snow Fence Shapefile	IS Hwy 94	23	Mobility
S161	Snow Fence Shapefile	IS Hwy 94	23	Mobility
S155	Snow Fence Shapefile	IS Hwy 94	24	Mobility
S160	Snow Fence Shapefile	IS Hwy 94	25	Mobility
S159	Snow Fence Shapefile	IS Hwy 94	26	Mobility
S74	Manufacturer's Survey	Broadway St	27	Condition
S207	Committee Meetings	US Hwy 10	28	Safety
S209	Committee Meetings	US Hwy 10	28	Safety
D1	CMV Data	US Hwy 10; IS Hwy 9	29	Safety
D33	CMV Crash Data	IS Hwy 9	29	Safety
S105	Manufacturer's Survey	3rd St	30	Safety
S79	Manufacturer's Survey	IS Hwy 94	31	Safety
S214	Committee Meetings	S 20th St	32	Mobility
S126	Snow Fence Shapefile	IS Hwy 94	33	Mobility
S156	Snow Fence Shapefile	IS Hwy 94	34	Mobility
S198	Snow Fence Shapefile	US Hwy 10	35	Mobility
S183	Snow Fence Shapefile	US Hwy 10	36	Mobility
S103	Manufacturer's Survey	US Hwy 59	37	Safety
S213	Committee Meetings	IS Hwy 94	38	Safety
D21	CMV Data	US Hwy 12; IS Hwy 7	39	Safety

ID	Source	Highway	Pure Rank	Issue Type
S185	Snow Fence Shapefile	US Hwy 10	40	Mobility
S210	Committee Meetings	US Hwy 10	41	Mobility
S112	Manufacturer's Survey	160th Ave SE	42	Condition
D31	CMV Crash Data	Parke Ave	43	Safety
D19	CMV Data	US Hwy 75; Minnesota Ave	44	Safety
S94	Manufacturer's Survey	Minnesota St	45	Mobility
S167	Snow Fence Shapefile	IS Hwy 94	46	Mobility
S192	Snow Fence Shapefile	US Hwy 10	47	Mobility
S193	Snow Fence Shapefile	US Hwy 10	47	Mobility
S171	Snow Fence Shapefile	US Hwy 10	48	Mobility
S199	Snow Fence Shapefile	US Hwy 10	48	Mobility
S203	Snow Fence Shapefile	US Hwy 10	48	Mobility
S172	Snow Fence Shapefile	US Hwy 10	49	Mobility
S202	Snow Fence Shapefile	US Hwy 10	50	Mobility
S211	Committee Meetings	IS Hwy 34	51	Mobility
S42	MetroQuest Survey	IS Hwy 94	52	Condition
S101	Manufacturer's Survey	IS Hwy 9	53	Condition
S113	Manufacturer's Survey	CR-46	54	Condition
S117	Manufacturer's Survey	CSAH 21	55	Condition
S77	Manufacturer's Survey	CSAH 10	56	Safety
S115	Manufacturer's Survey	Larson Ave	57	Safety
D4	CMV Data	160th Ave N; 1st St SW	58	Safety
S53	Other Consultation	Roosevelt Ave	59	Mobility
S169	Snow Fence Shapefile	IS Hwy 94	60	Mobility
S151	Snow Fence Shapefile	IS Hwy 94	61	Mobility
S62	Manufacturer's Survey	IS Hwy 28	62	Mobility
S92	Manufacturer's Survey	Atlantic Ave	63	Mobility
S181	Snow Fence Shapefile	US Hwy 10	64	Mobility
S194	Snow Fence Shapefile	US Hwy 10	65	Mobility

ID	Source	Highway	Pure Rank	Issue Type
S196	Snow Fence Shapefile	US Hwy 10	65	Mobility
S197	Snow Fence Shapefile	US Hwy 10	65	Mobility
S82	Manufacturer's Survey	S Lake Ave	66	Safety
S50	Other Consultation	US Hwy 10	67	Safety
D13	CMV Data	US 59TH; IS Hwy 34	68	Safety
D47	CMV Crash Data	IS Hwy 34	68	Safety
D54	CMV Crash Data	US Hwy 59	68	Safety
S28	MetroQuest Survey	24th Ave S	69	Safety
S68	Manufacturer's Survey	CSAH 82	69	Safety
D83	Rail Crossing Risk Data	Washington Ave	70	Safety
S143	Snow Fence Shapefile	IS Hwy 94	71	Mobility
S144	Snow Fence Shapefile	IS Hwy 94	71	Mobility
S72	Manufacturer's Survey	100th St S	72	Mobility
S195	Snow Fence Shapefile	US Hwy 10	73	Mobility
S174	Snow Fence Shapefile	US Hwy 10	74	Mobility
S177	Snow Fence Shapefile	US Hwy 10	74	Mobility
S191	Snow Fence Shapefile	US Hwy 10	74	Mobility
S25	MetroQuest Survey	17th Ave S	75	Condition
S36	MetroQuest Survey	IS Hwy 94	76	Condition
S86	Manufacturer's Survey	CSAH 34	77	Condition
D27	CMV Data	I94 W; Hansel Lake Rest Area	78	Safety
S45	Other Consultation	IS Hwy 210	79	Safety
S44	Other Consultation	US Hwy 75	80	Safety
S83	Manufacturer's Survey	IS Hwy 210	81	Safety
S173	Snow Fence Shapefile	US Hwy 10	82	Mobility
S175	Snow Fence Shapefile	US Hwy 10	82	Mobility
S176	Snow Fence Shapefile	US Hwy 10	82	Mobility
S178	Snow Fence Shapefile	US Hwy 10	82	Mobility
S179	Snow Fence Shapefile	US Hwy 10	82	Mobility

ID	Source	Highway	Pure Rank	Issue Type
S180	Snow Fence Shapefile	US Hwy 10	82	Mobility
S182	Snow Fence Shapefile	US Hwy 10	82	Mobility
S184	Snow Fence Shapefile	US Hwy 10	82	Mobility
S189	Snow Fence Shapefile	US Hwy 10	82	Mobility
S190	Snow Fence Shapefile	US Hwy 10	82	Mobility
S201	Snow Fence Shapefile	US Hwy 10	83	Mobility
S215	Other Consultation	IS Hwy 9	84	Safety
D51	CMV Crash Data	T-1679	85	Safety
S85	Manufacturer's Survey	IS Hwy 29	86	Safety
D84	Rail Crossing Risk Data	IS Hwy 29	87	Safety
S71	Manufacturer's Survey	CSAH 82	88	Safety
S206	Committee Meetings	S Main St	88	Safety
S188	Snow Fence Shapefile	US Hwy 10	89	Mobility
D7	CMV Data	34th St S; S 12th Ave	90	Safety
S204	Committee Meetings	N Union Ave	91	Mobility
S102	Manufacturer's Survey	S Tower Rd	92	Mobility
D45	CMV Crash Data	T-228	93	Safety
S120	Manufacturer's Survey	CR-81	94	Safety
D15	CMV Data	US Hwy 34; 215th Ave	95	Safety
S208	Committee Meetings	CSAH 52	96	Safety
S95	Manufacturer's Survey	US Hwy 12	97	Condition
S14	MetroQuest Survey	34th St S	97	Mobility
D9	CMV Data	US Hwy 75, I94W	98	Safety
D38	CMV Crash Data	Central Ave	99	Safety
D42	CMV Crash Data	Western Ave	100	Safety
D48	CMV Crash Data	Western Ave	100	Safety
S21	MetroQuest Survey	195th Ave	100	Safety
S6	MetroQuest Survey	IS Hwy 78	101	Mobility
S100	Manufacturer's Survey	IS Hwy 29	102	Mobility

ID	Source	Highway	Pure Rank	Issue Type
D59	CMV Crash Data	Parke Ave S	103	Safety
D85	Rail Crossing Risk Data	Northridge Dr	104	Safety
S2	MetroQuest Survey	Rossman Ave	105	Mobility
S13	MetroQuest Survey	Marion St	106	Safety
S73	Manufacturer's Survey	Evergreen La	107	Mobility
S205	Committee Meetings	15th Ave N	108	Mobility
D82	Rail Crossing Risk Data	230th St S	108	Safety
S40	MetroQuest Survey	130th St	109	Condition
S7	MetroQuest Survey	220th Ave	109	Condition
S8	MetroQuest Survey	E Big Cormorant Rd	109	Mobility
S11	MetroQuest Survey	385th Ave	109	Safety
S19	MetroQuest Survey	460th St	109	Safety
S38	MetroQuest Survey	90th St S	109	Safety
S22	MetroQuest Survey	CSAH 5	110	Condition
D90	Rail Crossing Risk Data	South Town Line Rd	111	Safety
D91	Rail Crossing Risk Data	Front St	111	Safety
D92	Rail Crossing Risk Data	Hering St	111	Safety
D93	Rail Crossing Risk Data	E Corp Lmts	111	Safety
S52	Other Consultation	28th Ave S	112	Condition
S87	Manufacturer's Survey	CSAH 52	113	Condition
S9	MetroQuest Survey	CSAH 67	113	Mobility
D49	CMV Crash Data	S Peck St	113	Safety
S54	Other Consultation	150th Ave	114	Mobility
D72	Bridge Condition Data	'MSAS 116(Mill St)'	115	Condition
S10	MetroQuest Survey	T-800	116	Condition
S15	MetroQuest Survey	80th St S	116	Condition
S23	MetroQuest Survey	CSAH 2	116	Condition
S76	Manufacturer's Survey	CR-55	116	Condition
S3	MetroQuest Survey	110th St	116	Mobility

ID	Source	Highway	Pure Rank	Issue Type
S118	Manufacturer's Survey	Fadden Rd	116	Safety
S16	MetroQuest Survey	250th Ave	116	Safety
S41	MetroQuest Survey	CR-55	116	Safety
D86	Rail Crossing Risk Data	20th Ave SE	117	Safety
D88	Rail Crossing Risk Data	Birch Ave	117	Safety
D94	Rail Crossing Risk Data	493rd Ave	117	Safety
D80	Bridge Condition Data	'CSAH 15'	118	Condition
S99	Manufacturer's Survey	Gran St	119	Condition
S116	Manufacturer's Survey	CSAH 80	119	Safety
D73	Bridge Condition Data	'TWP 76'	120	Condition
D74	Bridge Condition Data	'TWP 104'	120	Condition
D81	Bridge Condition Data	'TWP 98'	120	Condition
D87	Rail Crossing Risk Data	4th St SE	121	Safety
D50	CMV Crash Data	CSAH 11	122	Safety
D71	Bridge Condition Data	'TWP 312'	123	Condition
D75	Bridge Condition Data	'TWP 95'	124	Condition
D52	CMV Crash Data	24th Ave S	125	Safety
D55	CMV Crash Data	CR-90	125	Safety

Appendix D. Public Outreach Summary

Issues and Needs Engagement Summary

Introduction

Between July and September 2021, MnDOT District 4 collected community feedback on issues and needs for the freight transportation system in west central Minnesota. Feedback was incorporated in findings and recommendations in the District 4 Freight Plan.

Engagement Activities

Opportunities for the community to learn about the transportation system and provide feedback included:

ONLINE SURVEY:



Survey participants: 47

A MetroQuest survey to collect feedback on issues and needs in the transportation system.

STAKEHOLDER INTERVIEWS:



Total interviews: 28

Interviews held over the phone with freight stakeholders in west central Minnesota, including private trucking firms and local and regional government agencies.

WEBSITE MEETING:



A visual and interactive website for people to review information on the west central Minnesota transportation system at their own pace.

GOOGLE VOICE LINE:



Voicemail box for people without internet access to provide feedback on the transportation system.

Promotions

Engagement activities were promoted the following ways:

- GovDelivery email blasts
- Press release to local media outlets
- Social media posts on MnDOT District 4's Facebook group and Twitter account, and a Facebook ad



AD RESULTS (Aug. 13 – Sept. 3, 2021):

Reach (number of people who saw the ad):



Impressions (number of times an ad was posted):

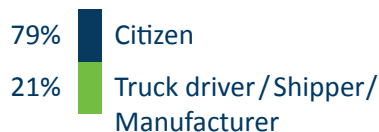


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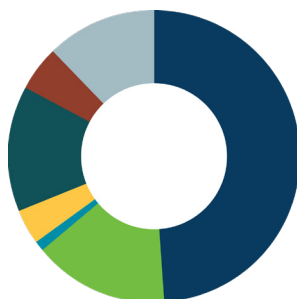
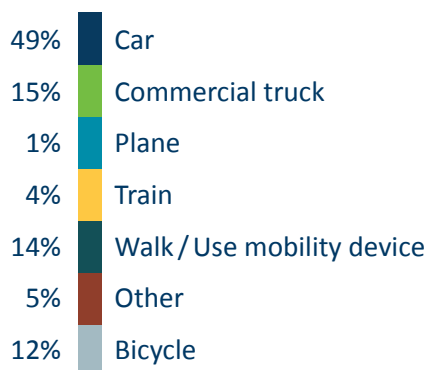


Participant Overview

Which of the following best describes you?



How do you travel in the district?



TOP PARTICIPANT ZIP CODES:

56308 – Alexandria, MN



56560 – Moorhead, MN

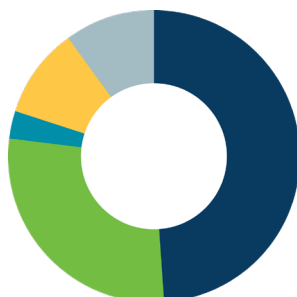
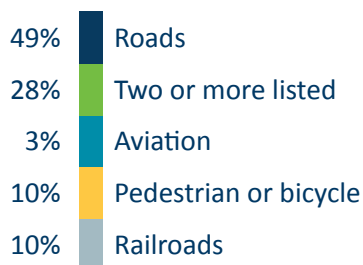


56537 – Fergus Falls, MN



Needs and Issues

What needs the most improvements in the district's transportation system?



Top challenges for the transportation system:

- 1 Safety
- 2 System condition
- 3 System connections
- 4 Impediments to mobility
- 5 Cost of transportation
- 6 Impact on the environment

Needs and Issues Comments

System needs and challenges

“

Many roads that I travel have tracks worn down into the pavement from constant truck traffic. This causes water to collect on the roadway during and after rainfall leading to hydroplaning.

Railroad infrastructure needs to be robust to best serve. Saving wear and tear on roads from heavy freight would be a good payback. Freight should travel between cities by rail, and be delivered locally by truck.

I am most concerned about non-local trucks moving through downtown Moorhead to avoid the I-94 eastbound scale. Fast, poor drivers, who often turn wide, disregard signs and signals, create traffic problems and tie-ups at rail crossings, etc.

We have bike and walking paths however they need to be maintained just like roads and bridges do.

”

Location-specific issues

Participants' comments about location-specific issues in the transportation network were most commonly about safety, poor condition, or a mobility impediment.

“

Safety:

The signage for I-94 westbound from Highway 336 in Moorhead is confusing, leading many drivers to try and turn on to the frontage road instead of the ramp.

Poor condition:

Interstate 94 through from south of Fergus Falls up to the Highway 59 exit is riddled with potholes. The toll it takes on tires is evident by the remnants of tires along the roadside.

Mobility impediment:

South part of Broadway Street in Alexandria is very wide. Making it hard for pedestrians/bicycles to cross the street at anywhere besides signals.

Parking:

In Detroit Lakes, trucks cannot park or access fast food or restaurants off Hwy 10.

”

Contacts:

Mary Safgren, MnDOT District 4

mary.safgren@state.mn.us | 218-846-7987

Andrew Andrusko, MnDOT Office of Freight

andrew.andrusko@state.mn.us | 651-366-3644

For more information:

mndot.gov/ofrw/freight/districtfreightplan/d4.html

