

# Minnesota Department of Transportation District 4 Freight Plan

## Working Paper 2: Existing Document and Process Synthesis

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# Table of Contents

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<b>Table of Figures.....</b>	<b>iv</b>
<b>Acronyms and Abbreviations.....</b>	<b>v</b>
<b>Executive Summary.....</b>	<b>vi</b>
<b>1 Previous Research .....</b>	<b>1</b>
1.1 Introduction .....	1
1.2 Reviewed Materials .....	1
1.3 Transportation: Road Network Findings and Recommendations .....	2
1.4 Transportation: Railroad Network Findings and Recommendations.....	5
1.5 Economic Context .....	6
<b>2 Relevance to Current Work.....</b>	<b>7</b>
2.1 Items to Bring Forth to the District 4 Freight Plan .....	7
2.2 Gaps for Further Research and Analysis .....	9
<b>3 Conclusions and Next Steps .....</b>	<b>11</b>
3.1 Conclusions .....	11
3.2 Next Steps .....	11
<b>Appendix A Previous Plan Review and Summary .....</b>	<b>A-1</b>
Minnesota Statewide Freight System and Investment Plan.....	A-2
Manufacturers’ Perspectives on Minnesota’s Transportation System, District 4 .....	A-4
Western Minnesota Regional Freight Study.....	A-5
West Central Minnesota Regional Transportation Plan .....	A-7
Northern Minnesota/Western Wisconsin and Western Minnesota Regional Freight Plan .....	A-8
Minnesota State Highway Investment Plan (MnSHIP) .....	A-9
Minnesota Weight Enforcement Investment Plan (WEIP) .....	A-10
Minnesota Statewide Truck Parking Study .....	A-11
Improvements to Highway-Rail Grade Crossings and Rail Safety.....	A-12
Minnesota State Rail Plan.....	A-14
Rail Grade Crossing Safety Project Selection .....	A-15
Regional Freight Plan for Fargo-Moorhead Metropolitan Council of Governments .....	A-16
Metro GROW 2045 (Fargo-Moorhead LRTP).....	A-18
Shoulder Widening Prioritization Study .....	A-19
Minnesota US 10 / US 75 Corridor Study Moorhead .....	A-21
Comprehensive Economic Development Strategy for Minnesota Region 4 .....	A-22

Minnesota Annual Performance Report for 2017-2021 Comprehensive Economic Development Strategy for Minnesota Region 4.....	A-23
Comprehensive Economic Development Strategy .....	A-24

# Table of Figures

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Figure 1: Plans and Studies Reviewed	1
Figure 2: “Connecting the Dots” between Statewide Guidance and District 4 Freight Plan	7
Figure 3: Gap Identification Process	9
Figure 4: Categories and Measure for Gap Evaluation	9
Figure 5: District 4 Freight Plan Project Approach	11

# Acronyms and Abbreviations

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Abbreviation	Definition
BNSF	Burlington North Santa Fe
CEDS	Comprehensive Economic Development Strategy
CP	Canadian Pacific
FMRFP	Fargo-Moorhead Regional Freight Plan
HCAADT	Heavy Commercial Annual Average Daily Traffic
IP	Identity Preserved
L RTP	Long-Range Transportation Plan
MnDOT	Minnesota Department of Transportation
MnSHIP	Minnesota State Highway Investment Plan
NTN	National Truck Network
OFCVO	Office of Freight and Commercial Vehicle Operations
OSOW	Oversize-Overweight
RDC	Regional Development Commission
STIP	State Transportation Improvement Program
SWOT	Strengths, Weaknesses, Opportunities, Threats
US	United States

# Executive Summary

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The District 4 Freight Plan will use prior plan and study data and findings to identify and close gaps in understanding through the creation of newer and deeper insights into District 4's freight needs and issues. This Working Paper provides a synthesis of a wide range of plans and studies that were reviewed, including the Minnesota Department of Transportation's (MnDOT) Statewide Freight System and Investment Plan, District 4 Manufacturers' Perspectives Study, West Central Minnesota Economic Development Strategy, and other relevant regional and local economic development and transportation improvement studies. The results of these plans have been synthesized to identify common needs and issues, and topics where further research may be required.

## Common Findings

- The only interstate highway in the District is Interstate 94, which runs from Moorhead in the northwest part of District 4 to Alexandria at the District's eastern boundary. The District's network of national and state highways serves as key truck corridors connecting the businesses with I-94.
- The impacts of growth in oil extraction in North Dakota on the District's transportation system have led to two major concerns: truck driver shortages and increased rail freight activity. The truck driver shortage is a nationwide trend. However, this issue in District 4 has been exacerbated by the aging population and outmigration of the younger population.
- The increased oil train activity has also affected the businesses in the District through increasing demand for railcars and shipping delays. Increased train traffic (and specifically hazmat carrying trains) has also created safety and mobility issues for communities living near rail crossings in District 4.
- In addition to workforce challenges, the recent drop in crop prices (due to successful harvests) and higher land prices have led to an increase in brownfield sites in need of redevelopment. Also, many coal-fired power plants have closed or been retrofitted due to a rise in demand for natural gas-based electricity. This has led to economic challenges for some communities in District 4.
- District 4's economy is heavily reliant on the agricultural and mining industries. Additionally, four industries of education & health services, trade transportation & utilities, manufacturing, and leisure & hospitality employ 75% of the Region's workforce. These industries are expected to experience the challenges of the declining workforce of the District.

## Items to Bring Forward

In addition to the common findings, the District 4 Freight Plan will draw on guidance and specific data from other studies and plans, including:

- Freight plan vision and goal guidance from the Minnesota State Freight Plan.
- Data on highway and grade crossing safety from District safety plans and the Rail Grade Crossing Safety Project Selection.
- A list of programmed projects from county and state investment plans.
- Project concept evaluation and scoring criteria from the State Freight Plan, previous district freight plans, and other MnDOT Office of Freight and Commercial Vehicle Operations (OFCVO) guidance.

As work on the District 4 Freight Plan progresses, additional data sources or previous plans may be used to inform the work.

## Areas for New or Updated Research and Analysis

The review and synthesis of prior documents revealed some topics that may require new or updated research or analysis specific to the District, including:

- Updating the estimates of freight transportation’s importance to the District’s businesses and economy through data from the Bureau of Labor, US Census Bureau, ReferenceUSA (or data provided by MnDOT), and US Department of Commerce’s Cluster Mapping tool.
- Further research into the distribution of agricultural and manufacturing activity in District 4, and the links between these industries and the transportation assets through mapping of data sources like the US Department of Agriculture’s CropScape data and Minnesota Department of Agriculture statistics.
- Qualitative and quantitative assessments of key freight corridors in District 4 to better understand the industrial sectors and types of trips that most utilize them. In this analysis, we will include “secondary corridors” that are not shown in the Minnesota Principal Freight Network.
- Analyzing and mapping traffic volumes, travel time index, and travel time reliability using MnDOT’s subscription to StreetLight Data. This analysis will be supplemented with road performance data from the Federal Highway Administration’s National Performance Management Research Data Set.
- Mapping truck-related and grade-crossing crash locations and the risk associated with specific locations using MnDOT data and the District safety plan.
- Analyzing and mapping road and railroad bridge locations, operational load capacity, condition, and clearances in the District using data from the National Bridge Inventory. This assessment will provide insight into conditions, mobility, and clearance of the District’s bridges.
- Mapping railroad traffic volumes and speed limits using National Transportation Atlas data and crossing data from the Federal Railroad Administration.
- Mapping the locations of pipelines and pipeline terminals using data from the Pipeline and Hazardous Material Safety Administration and the US Energy Information Administration.

This list of topics will undergo further refinement based on feedback from MnDOT, and Freight Plan Advisory Committee and Technical Team.

## Next Steps

This Working Paper synthesis provides a starting point for Task 3 – Data Analysis. These findings will be presented at upcoming Advisory Committee and Technical Team meetings to help guide the focus of research and analysis efforts.

# 1 Previous Research

## Key Findings:

The District 4 Freight Plan will be informed by findings and data from previous plans and studies. The District's transportation system is a foundational asset to its economic vitality. Common findings are mostly focused on the road network and include highway safety and infrastructure condition as key freight-related operational concerns for the District 4 highway system. The most pressing rail-related challenges and needs in District 4 are highway-rail crossing safety and need for truck/rail transload facilities.

## 1.1 Introduction

The District 4 Freight Plan (or Plan) is currently under development to provide a clear understanding of the District's freight system, characteristics of local industry system usage, and freight needs and issues. There are a range of prior studies and plans relevant to District 4's freight system's context, needs, issues, and potential improvements. As it is not the intent of the Plan to repeat this previous research and analysis, we will leverage, validate, and expand on the existing regionally-relevant studies.

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*The District 4 Freight Plan uses the findings from previous plans and studies to identify and close gaps in freight system understanding.*

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This synthesis aims to ensure that information and processes relevant to the District that were documented in previous plans are brought forward into this planning effort. Utilizing existing insights and data (when relevant) from prior plans means that the District 4 Freight Plan's work can be focused on creating new insights.

## 1.2 Reviewed Materials

Figure 1 lists the studies and plans reviewed during the creation of this synthesis. This list was created with input from MnDOT District 4 and Central Office staff. An overview of these documents, their findings, and relevance to the District 4 Freight Plan can be found in Appendix A. In the future, additional studies and plans may also be incorporated in the District 4 Freight Plan based on feedback from MnDOT, the Advisory Committee, Technical Team, and other stakeholders.

**Figure 1: Plans and Studies Reviewed**

Plan	Agency	Year
Minnesota Statewide Freight System and Investment Plan	MnDOT	2018
Manufacturers' Perspectives on Minnesota's Transportation System – District 4	MnDOT	2015
Western Minnesota Regional Freight Study	MnDOT	2009
West Central Initiative Regional Transportation Plan	WCI	2013



Plan	Agency	Year
Northern Minnesota/Western Wisconsin and Western Minnesota Regional Freight Plan	MnDOT	2009
Minnesota State Highway Investment Plan (MnSHIP)	MnDOT	2017
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
Fargo-Moorhead Regional Freight Plan	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 Annual Report	UMVRDC	2020
Upper Minnesota Valley RDC Comprehensive Economic Development Strategy	UMVRDC	2019
West Central Initiative Comprehensive Economic Development Strategy	WCI	2017

The reviewed plans and studies have some common findings and recommendations which can be grouped into two primary categories or “lenses” through which freight needs and issues can be examined. Common findings will be incorporated into District 4 Freight Plan activities, particularly as part of Task 3 – Data Analysis, and Task 4 – Strengths, Weaknesses, Opportunities, and Threats Analysis. The two categories or subject “lenses” are:

- **Transportation.** The characteristics of the transportation system (such as the assets themselves, their condition, and their level of performance), which are important because the safe, reliable, and cost-effective movement of freight supports the day-to-day activities of the businesses that produce, distribute, or sell goods.
- **Economy.** The economic characteristics of a region (including demographics, natural resources, and industrial specializations) will influence what types of businesses are likely to operate in a region. In turn, the characteristics of these businesses and their cargo will influence what types of transportation services they prefer.

### 1.3 Transportation: Road Network Findings and Recommendations

The reviewed documents acknowledge the significant role of District 4’s road network for freight mobility, particularly for moving manufacturing and agricultural goods. The only interstate highway in the District is Interstate 94 (I-94), which runs from Moorhead in the northwest part of District 4 to Alexandria at the District’s eastern boundary. The District’s network of national and state highways serves as key truck corridors connecting the businesses with I-94. Highways 7, 9, 10, 29, 59, and 210 are all integral to supporting freight-related businesses in the District. More than 500 businesses in the manufacturing sector and 400 trucking companies are located in District 4 and heavily rely on the safe and efficient road freight infrastructure.

The impacts of North Dakota’s growing oil production on District 4’s transportation system have led to two major concerns: truck driver shortages and increased rail freight activity. The truck driver shortage is a nationwide trend. However, this issue in District 4 has been exacerbated by the outmigration of the younger

population. As a result, the businesses in the District have previously mentioned difficulty in finding affordable trucking services to ship their goods. Rail system impacts of North Dakota's prior surge in oil production are discussed in section 1.5.

## Operations

**Finding:** The Fargo-Moorhead Metropolitan Council of Governments (Metro COG) in the Greater Fargo-Moorhead Metropolitan Area is the only Metropolitan Planning Organization (MPO) serving portions of District 4. More than 88% of the goods movement from, to, and through the Metro COG area is carried by trucks. The majority of the road networks in the District and the Fargo-Moorhead Metro Area are uncongested or experience relatively short durations of recurring congestion. However, severe weather conditions during winter can lead to delays and negatively impact highway commerce.

**Finding:** Truck volumes are the highest along I-94 in Moorhead near the State's border and between Fergus Falls and Alexandria. Additionally, segments of US Highway 10 (US 10) between US 59 and US 71 near Detroit Lakes and west of Moorhead experience relatively high truck volumes.

**Finding:** Road freight safety and efficiency in District 4 are affected by the lack of signage for truck routes, access points, and intersections. The stakeholder responses to the District's Manufacturers' Perspective survey revealed that truckers have issues in finding direction and access to specific businesses located in Morris (particularly along Highway 9, Highway 59, and County Road 22), Perham, and Benson areas as well as the industrial park on Highway 10 in Detroit Lakes. Additionally, the existing signage and advanced intersection warnings are not installed with truck driver needs in mind, and often fall in the drivers' blind spot.

The most common concern about intersection safety and efficiency in District 4 was long delays for trucks, especially in congested urban areas where drivers' frustration with red light duration and frequency can increase the likelihood of crashes.

**Finding:** Snow and ice removal operations are timely on major highways. Particular routes such as Highway 210 between Fergus Falls and Breckenridge are prone to closures and hazardous conditions during the winter. Some businesses in the western portions of the District are located along secondary routes, which are not cleared of snow/ice as promptly as primary arterials. These businesses experience difficulties due to frequent snowstorms and windy conditions.

**Recommendation:** I-94 carries the majority of District 4's east-west freight flows. The Regional Freight Plan for Fargo-Moorhead Metropolitan Council of Governments (FMRFP) recommends the following strategies to improve freight mobility along I-94:

- Reducing truck crashes and mitigating truck-involved fatalities.
- Monitoring truck route infrastructure condition scores to aid in maintaining bridge and pavement condition in a "State of Good Repair," especially on designated truck routes
- Reducing truck bottlenecks due to low bridge clearances and poor truck network connectivity<sup>1</sup>

**Recommendation:** Installing snow fences at bridges and specific highway segments (Highway 210 between Fergus Falls and Breckenridge) can help MnDOT improve safety and mobility during the winter. Early snow removal along Highway 228 (between Frazee and Perham) and Highway 9 (between Breckenridge and Barnesville and from Morris to Benson) can help the area's businesses with their operations.

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<sup>1</sup> According to FMRFP, the geometric design of several streets in Moorhead including 25th Street and 45th Street cannot accommodate trucks. Additionally, 7<sup>th</sup> Avenue which is designed as a truck route has sight distance, turn radii, and intersection control issues that affect trucking activities.

**Recommendation:** Improved coordination with local transportation entities and enhanced access to rail and air cargo resources can help the region maintain and improve freight mobility.

## System Condition

**Finding:** Due to successful harvests in recent years, crop prices have dropped in Minnesota. This issue and the recent increase in land prices have led to an increase in abandoned farms and brownfields. Such economic factors may negatively impact the funding allocation for highway system maintenance and congestion mitigation in District 4.

**Finding:** Many respondents to the Manufacturers' Perspective Survey pointed out the need for widened and paved shoulders, acceleration lanes, and passing lanes at intersections and access routes for better trucking operations. Specifically, Highway 12 from Benson to Ortonville, Highway 55, segments of Highway 34, and Highway 9 from Breckenridge and Barnesville need shoulder widening. These types of comments have been commonly observed across Greater Minnesota.

**Finding:** Bridge clearance is an issue for certain routes because low clearance or low weight limits may force trucks to take longer, less-efficient routes. Many businesses manage their shipping routes according to bridge load allowance and clearance, but the restrictions present challenges for some businesses, particularly businesses shipping or receiving Oversize/Overweight (OSOW) loads.

**Finding:** Rough pavement conditions on some highways in the District have caused product damages while in shipment. Sections of Highway 75 and Highway 12 in the southwest portion of the District and segments of Highway 210 between Fergus Falls and Foxhome are examples of roads with poor pavement conditions.

**Recommendation:** Improved coordination between MnDOT District 4 and freight-related businesses through email blasts regarding road projects, snow removals, closures, etc., was generally recommended.

## Policy

**Finding:** Across the District, many businesses ship OSOW cargo along Highways 94, 10, 29, 59, and 75. Highways 12, 27, 55, and 28 are also used for OSOW shipments by some businesses. Minnesota's limitations for OSOW permitting on some routes have increased the transport cost for some companies and negatively impacted their competitiveness.

**Finding:** The OSOW permitting process has created difficulties for some businesses. Relative to other Midwestern and Great Plains states, Minnesota can take relatively longer to issue an OSOW permit. As a result of a slow permit process, and due to incompatibilities in size and weight regulation between Minnesota and neighbor states, some drivers had to stay in hotels at Minnesota's borders to wait for their OSOW permit.

**Recommendation:** Linking the OSOW permitting website with 511 can help the drivers to track their permit status and access information on road closures and snow/ice removals.

**Recommendation:** Permitting system automation and harmonization with neighbor states are recommended strategies that can improve OSOW operations in the District. Similar comments were noted in District 8, which borders District 4.

**Recommendation:** In Western Minnesota, several National Truck Network (NTN) routes allow OSOW trucks to travel without the need for a Minnesota permit. There is an opportunity to expand this designation to particular non-NTN routes that play a significant role in the regional freight movements.

### Linking Prior Findings to the District 4 Freight Plan: Road Network

Review of the previous studies and plans revealed that the key challenges for District 4's road freight operations are infrastructure conditions, safety, and truck accessibility. These factors will be further investigated in the upcoming tasks of this present study.

## 1.4 Transportation: Railroad Network Findings and Recommendations

A common rail-related topic in prior planning documents was the rapid growth in crude oil-by-rail shipments from North Dakota in the 2010s. This growth in rail traffic and railroads' shift in focus to serving oil unit trains had affected the businesses in the District through increasing demand for railcars and rail shipping delays. Increased train traffic (and specifically hazmat carrying trains) had also created safety and mobility issues for communities living near rail crossings in District 4. In the intervening years, rail shipment of crude patterns may have changed, and these needs and issues will be re-evaluated as part of the new District 4 Freight Plan.

### Operations

**Finding:** The BNSF mainlines from Fargo to the Twin Cities and Willmar, as well as Canadian Pacific (CP) lines in Minnesota carry large volumes of oil trains. Communities along these rail lines have expressed concerns regarding the safety of crude-by-rail shipments and emergency response accessibility.

**Finding:** Access to intermodal rail services in District 4 is limited, and many businesses in District 4 could benefit from having easier access to transload facilities.

**Recommendation:** Providing access to intermodal rail (transload facilities) can support businesses in District 4 by reducing their shipping costs, and enhance the regional competitiveness by expanding the domain of consumers and input providers.

**Recommendation:** Systematic inspection of hazmat commodity movements. Minnesota relies on FRA safety inspectors to monitor the transportation and handling of hazmat by rail. Interorganizational cooperation between federal inspectors and the railroad companies has significant impacts on improving spill prevention and response to incidents.

### Condition

**Finding:** Train collisions at rail grade crossings are relatively rare in Minnesota. Over the 10-year timeframe examined in the *Improvements to Highway-Rail Grade Crossings and Rail Safety*, Minnesota's more than 4,000 public rail grade crossings had an annual average of approximately 45 crashes and five fatal crashes annually. 91% of the crossings had no crashes, and % of the crossings had no crashes resulting in injuries, and 99% of the crossings had no fatal crashes.

**Finding:** the 2016 Rail Grade Crossing Safety Project Selection Study identified 16 high-crash grade crossings in District 4. The majority of these crossings were located in Otter Tail and Swift Counties along the BNSF and CP lines.

**Findings:** Infrastructure constraints, a lack of intermodal service, positive train control implementation, and hazmat transport were the top issues for the District's and the State's rail network.

**Recommendation:** Grade separation projects are recommended at various locations along rail lines in District 4, including proposed grade separation projects in Moorhead's downtown, where 11<sup>th</sup> Street intersects two of the state's three oil train routes. In addition to safety improvements, these projects can mitigate delays and improve air quality for the communities living near rail crossings.

**Recommendation:** Integration of freight rail in coordinated transportation studies. Since freight rail activities often utilize multi-state and multi-county infrastructure, proper coordination between freight rail and other modes will improve efficiency and safety.

**Linking Prior Findings to the District 4 Freight Plan: Rail Network**

The prior studies have identified rail crossing safety as one of the most pressing freight-related issues in District 4. This issue, along with other rail-related concerns such as the need for transload facilities and monitoring rail hazmat movements will be further evaluated in the next steps of the District 4 Freight Plan development.

## 1.5 Economic Context

District 4's economy is heavily reliant on the agricultural and non-metal mining industries. Additionally, four industries of education & health services, trade transportation & utilities, manufacturing, and leisure & hospitality employ 75% of the Region's workforce. In terms of industry concentration, farm equipment mechanic and service technician jobs in the Fargo-Moorhead Region are more than nine times the national average, suggesting a competitive agricultural industry compared to the national trends.

A review of several studies showed that the District's population is continuing to age. The impacts of age and retirement on workforce issues are exacerbated by the outmigration of the younger population (18-24 years old), which has been a continuous trend since the 1990s. Between 2000 and 2017, some of the counties in District 4 have experienced the fastest population declines compared to the statewide and national trends.

In addition to workforce challenges, the recent drop in crop prices (due to successful harvests) and higher land prices have led to an increase in brownfield sites in need of redevelopment. Also, many coal-fired power plants have closed or been retrofitted due to a rise in demand for natural gas-based electricity. This has led to economic challenges for some communities in District 4.

Improving the regional economy through the expansion of trade clusters has been recommended as a high-level solution to improve these pressing economic needs of the District. Additionally, District 4 is a major producer of "identity-preserved" (IP) crops. Due to their specific shipping and handling requirements, these crops are ideal candidates for containerized shipments. The expected rise in demand for IP crops can be supported by the expansion of transload operation in the District to support the regional economy.

**Linking Prior Findings to the District 4 Freight Plan: Economic Context**

District 4's working population is diminishing due to retirement (aging population) and outmigration of the younger workforce. The impacts of this issue on the most important freight-related industries of the District will be evaluated in the upcoming tasks of this project. Additionally, we will study the supply chain of IP crop production in western Minnesota and investigate the potential economic benefits of expanding this market through improved access to rail transload facilities.

## 2 Relevance to Current Work

### Key Findings:

The District 4 Freight Plan will be developed in line with statewide guidance from the State Freight Plan, and MnDOT’s Office of Freight and Commercial Vehicle Operations. In addition to this guidance, data from previous plans and studies will be used to aid in the identification and evaluation of potential freight-relevant investments for District 4.

### 2.1 Items to Bring Forth to the District 4 Freight Plan

In addition to the general insights highlighted in Chapter 1, specific data from prior plans and studies will be used in developing the District 4 Freight Plan. Most important is MnDOT planning guidance, which influences the scope and process of plan work.

#### Guidance from the Minnesota Statewide Freight System Plan

The Minnesota Statewide Freight System and Investment Plan provides a guiding framework for the District 4 Freight Plan. The statewide freight vision (policy) and goals will be applied at the District level to ensure that the District assessment is in sync with statewide guidance. The process that is being used to conduct the District Freight Plan, shown in Figure 2, ensures that District 4 freight investments and recommendations are linked to this overarching statewide guidance.

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



Source: CPCS.

*Minnesota’s statewide freight vision (or policy) 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.”<sup>2</sup>*

<sup>2</sup> MnDOT, Minnesota Statewide Freight System and Investment Plan, 2018.

This vision will also guide District freight planning activities. The statewide plan 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 statewide goal areas will remain the area of 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

The statewide plan has also identified the following three key areas for monitoring the condition and performance of the freight system and supporting the achievement of the abovementioned goals:

1. **Safety.** These measures are aimed at improving the safety, security, and resilience of the freight system.
2. **Infrastructure Condition.** These measures are aimed at assessing the suitability of the transportation system for handling freight.
3. **Mobility.** These measures are aimed at assessing transportation system delay, congestion, and reliability for freight users.

These performance areas will be used as the starting point for Task 3 of this project, which focuses on data analysis. While the District 4 Freight Plan analysis will be linked to Federal- and MnDOT-required performance areas, based on stakeholder feedback received during plan development there may be cause to warrant examining the District's freight system through a "lens" not previously identified due to unique system needs.

In addition to the guidelines provided in the Minnesota Statewide Freight System and Investment Plan, the District 4 Freight Plan will also provide a high-level assessment of freight system needs, issues, and opportunities that will be brought forward and considered in Task 4 – Strengths, Weaknesses, Opportunities, and Threats. The investments identified in the State Freight Plan will also be considered in Task 5 – Implementation Plan activities in the District 4 Freight Plan.

## Project Concept Identification, Scoring, and Ranking

A key outcome of the District 4 Freight Plan will be a list of ranked project concepts that can be studied in greater detail and advanced for future funding through state, local, and potentially Federal opportunities. The creation of this list of project concepts will follow a uniform process developed by OFCVO for all of the District Freight Plans. The first step in this process is the identification of project "gaps" – where identified safety, condition, and mobility needs and issues do not align with programmed projects in the district. Figure 3 provides a visualization of the process from the District 8 Freight Plan.

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 each District) 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 3: Gap Identification Process**

Once gaps in District 4 are identified, they will be screened against a standard set of measures established for all District Freight Plans, using data sets identified as part of previous District planning efforts. Figure 4 lists the categories and measures for each District plan's gap evaluation. Sub-set evaluations have also been included to highlight needs in safety, condition, and performance categories.

**Figure 4: Categories and Measure for Gap Evaluation**

Category	Ranking Score Measure/Performance Indicator	Safety	First/Last Mile (Condition)	Mobility
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

Based on this standardized ranking exercise, further work will be done in Task 5 – Implementation Plan to identify specific types of infrastructure need and issue “gaps” to be advanced to Task 6 – Project Feasibility.

## 2.2 Gaps for Further Research and Analysis

The existing and relevant studies and plans do not provide a full, up-to-date assessment of District 4's freight context, needs, and issues. Some of the gaps in understanding that the District 4 Freight Plan is expected to address are listed below. Much of this work will be conducted in Task 3 – Data Analysis.



## Economy

- Updating the estimates of freight transportation’s importance to the District’s businesses and economy through data from the Bureau of Labor, US Census Bureau, ReferenceUSA (or data provided by MnDOT), and US Department of Commerce’s Cluster Mapping tool.
- Further research into the distribution of agricultural and manufacturing activity in District 4, and the links between these industries and the transportation assets through mapping of data sources like the US Department of Agriculture’s CropScape data and Minnesota Department of Agriculture statistics.
- Qualitative and quantitative assessments of key freight corridors in District 4 to better understand the industrial sectors and types of trips that most utilize them. In this analysis, we will include “secondary corridors” that are not shown in the Minnesota Principal Freight Network.

## Freight System Inventory, Demand, and Performance

- Analyzing and mapping traffic volumes, travel time index, and travel time reliability using MnDOT’s subscription to StreetLight Data. This analysis will be supplemented with road performance data from the Federal Highway Administration’s National Performance Management Research Data Set.
- Mapping truck-related and grade-crossing crash locations and the risk associated with specific locations using MnDOT data and the District safety plan.
- Analyzing and mapping road and railroad bridge locations, operational load capacity, condition, and clearances in the District using data from the National Bridge Inventory. This assessment will provide insight into conditions, mobility, and clearance of the District’s bridges.
- Mapping railroad traffic volumes and speed limits using National Transportation Atlas data and crossing data from the Federal Railroad Administration.
- Mapping the locations of pipelines and pipeline terminals using data from the Pipeline and Hazardous Material Safety Administration and the US Energy Information Administration.

This list of ongoing work may be expanded to reflect feedback and questions provided by MnDOT, the Advisory Committee, and the Technical Team.

## 3 Conclusions and Next Steps

### 3.1 Conclusions

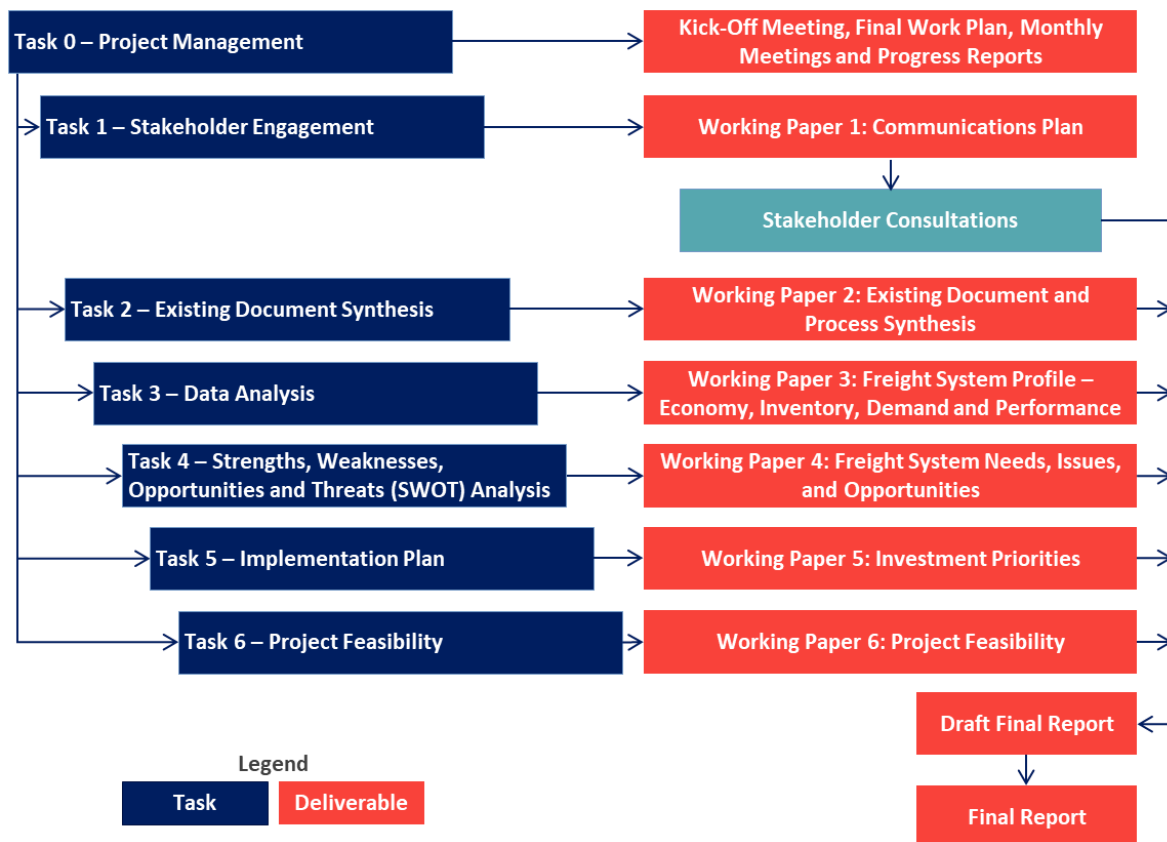
This synthesis of previous plans and studies relevant to District 4 suggests that safety, infrastructure condition, access to alternative modes, and seamless cross-border freight operations are the most pressing freight-related needs and issues in the District. In addition to these concerns, there are areas where freight movements may be impeded by low-clearance bridges, a need for increases in lanes and shoulder widening, and size and weight restrictions.

Upcoming District 4 Freight Plan activities will focus on creating new insights on the performance of the District's multimodal transportation network, including assessments of safety, infrastructure condition, and mobility impediments such as weight limits and bridge clearances.

### 3.2 Next Steps

As shown in the figure, this Working Paper represents the output of Task 2 and provides a starting point for Task 3 – Data Analysis. Findings from this synthesis will be discussed at upcoming Advisory Committee and Technical Team meetings, and this discussion will help guide the focus of Task 3's research and analysis efforts.

**Figure 5: District 4 Freight Plan Project Approach**



Source: CPCS.

# Appendix A Previous Plan Review and Summary

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This appendix provides the profiles of previous studies and reports that were identified as relevant to District 4, and reviews as part of the creation of this working paper. Additional materials not profiled here may also be reviewed as necessary during plan development.

## Minnesota Statewide Freight System and Investment Plan

**Author:** Minnesota Department of Transportation

**Date:** January 2018

**URL:** <https://www.dot.state.mn.us/planning/freightplan/index.html>

### Overview

The Minnesota Statewide Freight System and Investment Plan was released in 2018. This plan provides an inventory of freight assets, and identification of freight needs and issues, and a set of strategies, actions, and next steps to help the state address identified needs and issues. The Freight Investment Plan element of the document lays out a strategy for investing in freight-related infrastructure and identifies specific freight investments, which would be partially funded through freight programs established in the FAST Act.

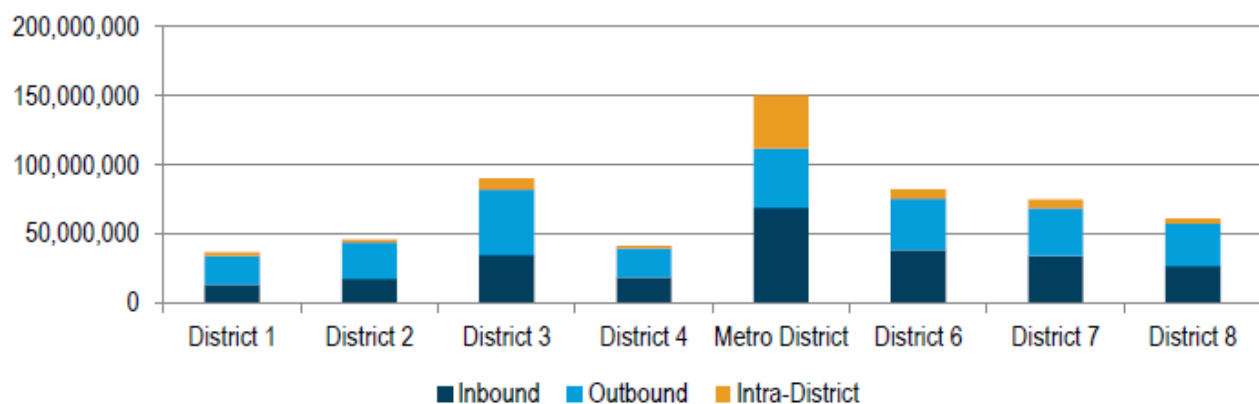
### Findings

The 2018 State Freight Plan found that the safety of freight movements was increasing, while freight-relevant highway conditions were remaining consistent from year-to-year. Mobility was a concern, as freight mobility was declining. This decline was attributed to increased congestion, particularly in the Twin Cities. The plan's general strategies to improve freight performance include the potential to use the freight system as an economic growth driver, the use of public-private partnerships to provide freight-related infrastructure and services, the use of advanced technology to improve understanding of freight movements, and the integration of freight considerations into agency decision-making.

### Elements Relevant to the District 4 Freight Plan

Analysis of FHWA's FAF3 data disaggregated at the county level showed that District 4 ranks 7<sup>th</sup> in terms of annual inbound, outbound, and intra-district truck tonnages. Consequently, the funding for the freight-related State Transportation Improvement Program (STIP) in District 4 was a little over \$0.1 billion between 2015 and 2018, which was less than all the other districts, except for District 8.

**Truck Freight Flows by Direction, Tons, by District, 2012**



Source: Minnesota Statewide Freight System and Investment Plan 2018.

As part of the Plan development, a case study of District 4's freight activities was conducted to understand the process for and the benefits of integrating freight into planning and programming activities at the district level. MnDOT's project scoping worksheets were used by the District4 staff during the project development and planning stages. These worksheets only touch on freight, for instance, asking whether a specific project is occurring near significant freight or truck traffic generators or near a significant freight route. The District's staff

notified MnDOT of the results and noted that the identification of freight routes or freight generators, as well as the guidance on design criteria, could be confusing for some projects.

The significant decisions in the Plan related to District 4 included:

- I-94 Bridge anti-icing replacement project
- Critical Urban Freight Corridor designation for a 2-mile segment of MN 336 from I-94 near Moorhead to US 10
- Critical Rural Freight Corridor designation for a 40-mile segment of US 10 between MN 336 and Randolph Road in Detroit Lakes
- Detroit Lakes Randolph Road Improvements scheduled for 2019 through 2022

## Manufacturers' Perspectives on Minnesota's Transportation System, District 4

**Author:** Minnesota Department of Transportation

**Date:** 2015

**URL:** <https://www.dot.state.mn.us/mps/>

### Overview

The Manufacturers' Perspectives study provides an assessment of freight transportation needs and issues in District 4. Since this study was exclusively focused on District 4, all of its information is relevant to this current freight plan. The study was conducted to better understand freight system users' perspectives and priorities, build better relationships with freight shippers, and support continuous improvement at MnDOT. Feedback was collected through consultations with 103 businesses in the District.

### Findings

The study found that the primary areas of concern related to the transportation system were lack of signage to identify truck routes, intersections, businesses, and exits, need for adding acceleration, turn and passing lanes to improve truck mobility and overall road safety, poor pavement surface quality, need for timely information sharing regarding road construction projects, revisiting size/weight permitting methods and regulations.

The study also found that food processing and manufacturing, production technology and heavy machinery, livestock processing, metal manufacturing, and transportation and logistics are top concentrated industry clusters in District 4.

### Elements Relevant to the District 4 Freight Plan

While all parts of the study are relevant to District 4, specific elements are particularly relevant to this freight plan. In particular, the study identified freight system needs and issues that will be compared against the results of quantitative analysis to identify highway segments where stakeholder comments and data are in alignment. The District's relationship with the stakeholders established during this study forms the basis for future collaboration to receive ongoing inputs regarding improvements in the transportation system and economic development activities.

## Western Minnesota Regional Freight Study

**Author:** Minnesota Department of Transportation

**Date:** September 2009

**URL:** <https://www.dot.state.mn.us/ofrw/PDF/westernmnfreightstudy.pdf>

### Overview

The Western Minnesota Freight Study is a multimodal transportation planning effort that focuses on goods movement conditions along the highway, rail, air cargo, and intermodal transportation networks of Western Minnesota.

### Findings

The key findings of this study provide insights on the opportunities for expanding intermodal rail services, the need for establishing a Regional Technical Advisory Committee, and truck size and weight harmonization. A major outcome of the study was the establishment of the three-tiered truck network that categorizes the routes based on their importance for freight mobility, with tier 1 having the highest importance. This system informs investment prioritization enables the Districts to focus their resources on developing and maintaining an integrated and commercially-advantageous freight system.

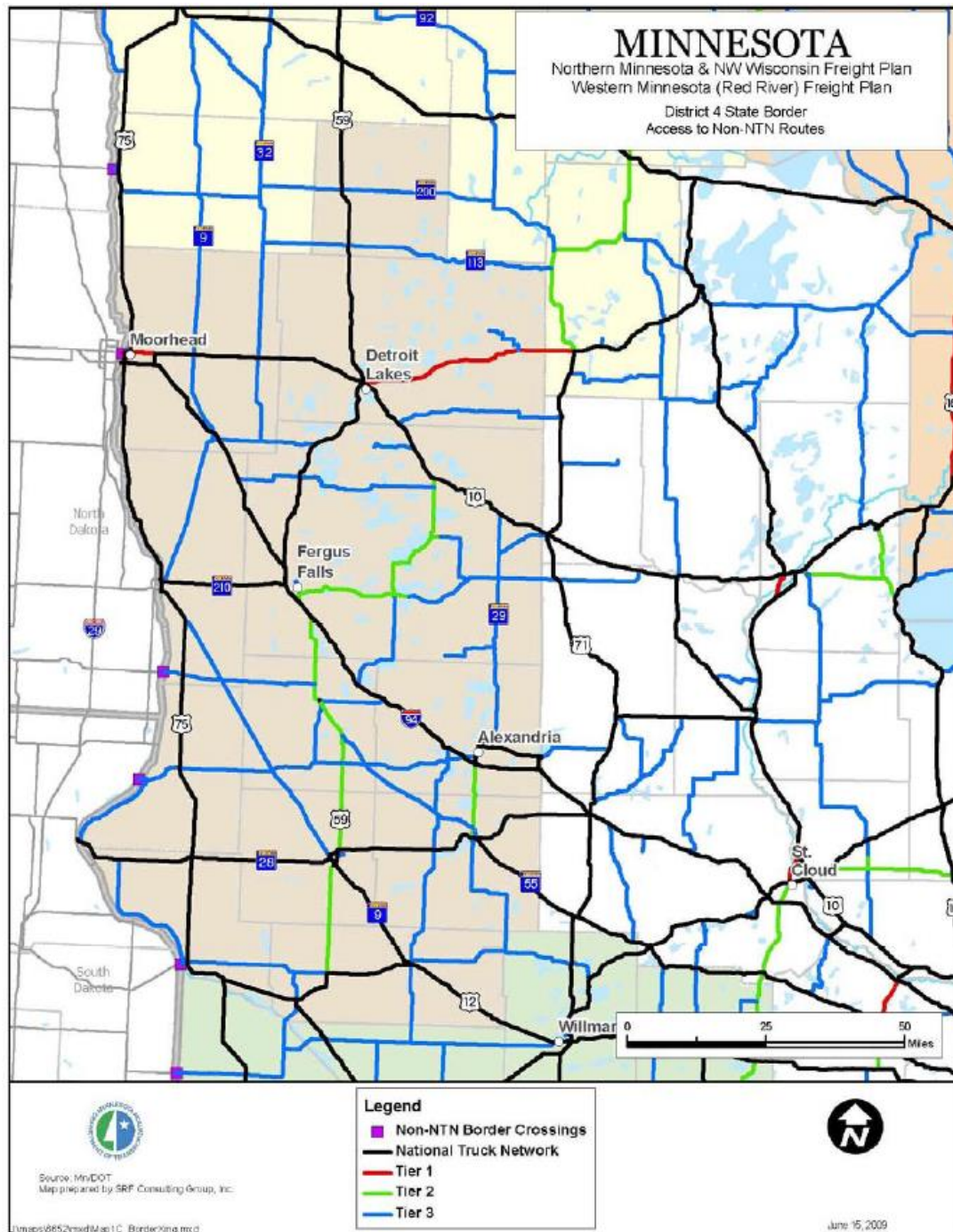
### Elements Relevant to the District 4 Freight Plan

The three-tiered truck network is designed based on roadway design characteristics and the heavy commercial annual average daily traffic (HCAADT) and consists of:

- Tier 1: routes on the network with HCAADT greater than 650
- Tier 2: routes on the network with HCAADT between 301 and 650
- Tier 3: routes on the network with HCAADT less than 300

The following is a map of the three-tiered truck network in District 4. Segments of US 10 east of Detroit Lakes and West of Moorhead are designated as Tier 1, while the majority of non-NTN routes in the District are in Tier 2 or 3.

### District 4 Tiered Truck Network



Source: Western Minnesota Regional Freight Study, 2009.



## West Central Minnesota Regional Transportation Plan

**Author:** West Central Initiative

**Date:** 2013

**URL:** <http://www.coordinatemntransit.org/regional/rtdcs/westcentral/index.html>

### Overview

The 2013 update to West Central Minnesota Regional Plan builds upon the previous regional studies and aims to expand the knowledge on the region's freight network profile and performance.

### Findings

The Region is served by an extensive highway network. Air cargo also plays an important role in moving people and freight. The rail lines active in the region are BNSF, CP, Red River Valley & Western Railroad, and Ottertail Valley Railroad.

### Elements Relevant to the District 4 Freight Plan

The rural areas and most of the smallest communities in the region continue to rapidly lose population, with the highest population losses happening in Traverse, Stevens, and Wilkin Counties. The overall population of the Region has, however, increased by 5.5% between 2000 and 2010. However, this growth has been slower than the average statewide growth in population.

The demand for manufacturing jobs decreased due to the recession and is expected to continue to decline by about 2.1 percent between 2009 and 2019. Despite these projections, manufacturing is an essential industry in the Region, employing a sizable portion of the population. The agricultural industry is also a big employer in the Region.

## Northern Minnesota/Western Wisconsin and Western Minnesota Regional Freight Plan

**Author:** Minnesota Department of Transportation

**Date:** 2009

**URL:** <http://www.dot.state.mn.us/ofrw/PDF/northernregionalfreightplan.pdf>

### Overview

The two concurrent projects on Northern Minnesota and Northwest Wisconsin Freight Study and the Western Minnesota Freight Study focused on highway, rail, maritime, air cargo, and intermodal freight transportation, building upon prior planning activities by the state and regional agencies. These parallel studies aimed to develop a harmonized Plan for freight mobility improvements specific to the regions through a combination of coordinated strategies and policies, infrastructure upgrade and investment projects, public/private initiatives, innovative funding, and regulatory initiatives.

### Findings

The Plan identifies several opportunities for freight investments, including truck size and weight harmonization on freight-intensive highways and standardizing the permitting systems.

### Elements Relevant to the District 4 Freight Plan

Key findings of the study relevant to the District 4 include:

- Some freight generators are not served well by the Tier 1 network. Districts may want to consider investments in expanding the Tier 1 network and maintaining the existing routes.
- Truck volumes are highest in Moorhead near the State's border, south of Swift, and between Fergus Falls and Alexandria.
- There has been a recent growth in the "identity-preserved" (IP) grain market. This type of grain is typically shipped in smaller lot sizes and cannot be mixed with other types of crops. Therefore, containers offer a secure and convenient method of shipment for the farmers.
- One of the key issues brought forward by the stakeholders was the lack of consistency and uniformity between truck size and weight regulations in regions that border Minnesota. In Western Minnesota, several National Truck Network (NTN) routes allow OSOW trucks to travel without the need for a Minnesota permit. There is an opportunity to expand this practice to particular non-NTN routes that play a significant role in the regional freight movements.
- Tier 1 routes (which have relatively higher truck volumes compared to other tiers) in District 4 with shoulder widths of less than six-feet pose safety concerns along US 10, between US 59 and US 71 near Detroit Lakes, and west of Moorhead. Shoulder widening projects along these routes should be considered as a top priority.

## Minnesota State Highway Investment Plan (MnSHIP)

**Author:** Minnesota Department of Transportation

**Date:** January 2017

**URL:**

[https://minnesotago.org/application/files/4815/5076/5789/MnSHIP\\_Final\\_Jan2017\\_With\\_Appendices\\_and\\_Update.pdf](https://minnesotago.org/application/files/4815/5076/5789/MnSHIP_Final_Jan2017_With_Appendices_and_Update.pdf)

### Overview

The 2017 MnSHIP directs capital investment for Minnesota's state highway system over the next twenty years. This fiscally constrained plan identifies investment priorities given current and expected funding. MnSHIP describes how MnDOT will use capital investments to repair, replace and improve the 12,000-mile state highway system. The plan also includes an estimate of the investment needs for the highway system based on the costs required to meet performance-based targets and other key system goals.

### Findings

The MnSHIP highlighted that Minnesota's conditions of roads, bridges, and roadside infrastructure on National Highway System (HSM) and non-HSM routes are poor in some areas. Additionally, the existing funding stream does not allow for increased mobility in the Twin Cities area and other growing areas in the state. Due to lack of adequate funding, MnSHIP predicts that pavement and bridge conditions will worsen between 2018 and 2037 even though these remain their top two priorities for capital highway investments.

### Elements Relevant to the District 4 Freight Plan

MnSHIP does not expand upon freight needs and refers to the Minnesota Statewide Freight System and Investment Plan. Rather, MnSHIP reflects the funding provided in the U.S. Department of Transportation National Highway Freight Improvement Program (NHFP).

However, MnSHIP reflects engagement activities in which MnDOT worked with District 4 staff and stakeholders to determine the best approach to statewide transportation investment. Participants had their choice of three approaches, and District 4 representatives in Detroit Lakes mostly preferred either Approach A or B – with a higher interest in A. Approach A was to focus on investments on repairing and maintaining existing state highway pavements, bridges, and roadside infrastructure; and Approach B was to balance investment in repairing and maintaining existing state highway infrastructure with strategic investment in improving travel time reliability.

## Minnesota Weight Enforcement Investment Plan (WEIP)

**Author:** Minnesota Department of Transportation and Minnesota State Patrol

**Date:** November 2018

**URL:** <http://www.dot.state.mn.us/ofrw/weightplan/pdf/WEIP.pdf>

### Overview

The Draft Minnesota Weight Enforcement Investment Plan is a 10-year plan to address weigh station improvements and maintenance to ensure future compliance with federal requirements and maximize public safety related to commercial vehicle operations.

### Findings

The draft study identified eight categories of needs, which include investment in existing facilities, additions of inspection buildings, coordination of enforcement pull-off areas, improved weigh-in-motion use, portable scale replacement planning, increased Minnesota State Patrol Staffing, further education, and outreach, and additional weight enforcement facilities. Specific to freight, the plan indicates that the rise of e-commerce and the shift of consumer spending away from brick-and-mortar retailers have increased the amount of truck traffic to distribution centers and residential/commercial end-users. Consequently, additional investment is needed to address the outcomes of these changes.

### Elements Relevant to the District 4 Freight Plan

- Two weigh stations on Highway 10 and I-94 near Moorhead need investment for improved weigh in motion (WIM) utilization through the installation of new scales, overheight detection, automated screening system, and camera system and lighting replacement.
- The WIM site on Highway 10 in Clay County provides an opportunity as a bypass screening location to support the Red River weigh station. Over the long term, the WIM site on Highway 10 may be transferred to the west of Highway 336 to enable the screening of additional bypass vehicles.
- Analysis of StreetLight data for I-94 EB has indicated that about 33% of trucks at the Red River weigh station in Moorhead would also be screened on I-94 near Sauk Centre.

## Minnesota Statewide Truck Parking Study

**Author:** Minnesota Department of Transportation

**Date:** October 2019

**URL:** <https://www.dot.state.mn.us/ofrw/freight/PDF/truckparking/final-report.pdf>

### Overview

The Minnesota Statewide Truck Parking Study was designed to build a better understanding of how truck parking issues impact Minnesota and MnDOT can address them. It provided a 10-year vision for truck parking through data and stakeholder-driven analysis.

### Findings

The study comprised numerous opportunities, including integrating truck parking in all MnDOT planning efforts (where applicable), leveraging public and private sector truck parking investment, creating innovative planning and zoning initiatives, and enhancing the state's truck parking and management system involvement. Also, the study provided 9 recommendations that addressed funding, policy engagement, new physical and data infrastructure, and collaboration with local/national partners.

### Elements Relevant to the District 4 Freight Plan

- There are 10 public parking and 4 private parking facilities in District 4. The majority of these facilities are located along I-94 near Alexandria and Moorhead, and US 10 near Detroit Lakes.
- The demand for truck parking in District 4 is concentrated in Moorhead, Alexandria, and North of Detroit Lakes. The highest demand for parking during early afternoon hours is at the Hansel Lake facility on I-94, which exceeds the available capacity and results in undesignated parking. Demand for overnight truck parking is relatively high in all public facilities along I-94.
- The Hansel Lake rest area in Otter Tail County currently has spots for both trucks and passenger vehicles. However, the majority of the rest area users are trucks, making this facility a good candidate for expansion and transformation into a truck haven.
- In addition to space availability, snow-covered parking lots are a concern for truck drivers in western Minnesota.
- Highway 210 in Breckenridge is identified as a candidate for OSOW truck route designation.

## Improvements to Highway-Rail Grade Crossings and Rail Safety

**Author:** Minnesota Department of Transportation

**Date:** 2014

**URL:** <https://www.dot.state.mn.us/govrel/reports/2014/CBRCrossingStudy-December2014/ReportonHwy-RailXingsandRailSafety-2014.pdf>

### Overview

This study was prepared by MnDOT under direction from the State Legislature to assess safety conditions at highway-rail grade crossings along rail corridors carrying crude oil.

### Findings

The study identified 683 at-grade crossings along 700 miles of rail tracks carrying Bakken crude oil across Minnesota to the Gulf Coast or the US East Coast. A prioritized list of crossing safety improvement projects was developed as a result of this study. The strategies provided include:

- Closing at-grade crossings
- Upgrading passive warnings to active signals
- Improving active protection with more effective safety treatments
- Constructing grade separations
- Improving the condition and signage of passive crossings
- Signal interconnects at adjacent traffic signals to reduce backups across grade crossings
- Programmed education and enforcement

The study also estimates the future risks associated with hazmat movements by rail through Minnesota due to continued growth in demand for Bakken oil, Alberta heavy oil production growth, and potential capacity improvements in pipeline and rail transport systems.

### Elements Relevant to the District 4 Freight Plan

The study scope includes an assessment of at-grade crossings along the BNSF mainline stretched from the Twin Cities to Fargo/Moorhead via St Cloud, Staples, and Detroit Lakes, Canadian Pacific's mainline from La Crescent to the Twin Cities, and then to North Dakota via Glenwood, and BNSF corridor from Fargo/Moorhead to Willmar to the South Dakota border via Marshal and Pipestone. All of these rail corridors across District 4.

The grade separation projects recommended in this study did not meet the threshold for considering a grade separation as covered by Minnesota Rule 8830.2740. However, the projects were identified as high priority due to community concerns regarding safety and emergency response accessibility. One of the proposed grade separation projects is located in the Moorhead downtown area, intersecting two of the state's three oil train routes. Approximately six loaded oil trains and about 80 other trains pass this location daily, posing up to 90 minutes of blockages per day. The proposed project would cost \$40 million to construct two 4-lane overpasses over the rail tracks. A list of priority projects located in District 4 is provided below.

## Priority Project Recommendations

Railroad	Location	Cost	Project Detail	Status
BNSF	Moorhead – Main Avenue: 20th and 21st Streets	\$43 M	Project will allow a high volume of auto, pedestrian, transit and bicycle traffic to safely and efficiently move from one side of the tracks to the other, improve freight mobility and efficiency by the use of Wye tracks; remove at-grade crossings on three streets in Moorhead; eliminate school route and evacuation route blockages.	Environmental approvals and right of way acquisition complete. Ready for final design.
BNSF	Moorhead - Downtown, 11th Street	\$40 M	Eliminate blockages due to switch moves in the train yards; allow emergency responders access any time and clears the route in case of an evacuation	Grade separation study completed
CP	Glenwood - TH 29, TH 55	\$10 M	Increases safety	The conceptual layout is done but the project is not programmed
BNSF	Perham - 6th Avenue NW	\$10 M	Increases safety	No planning study has been completed
BNSF	Benson - TH 29, 14 <sup>th</sup> Street S	\$10 M	Increases safety	No planning study has been completed
BNSF	1st Street, Perham	\$150 K	Active Warning Device upgrade interconnecting and coordinating rail signals with traffic lights to avoid backups on tracks	-
BNSF	2nd Street, Wadena	\$150 K	Active Warning Device upgrade interconnecting and coordinating rail signals with traffic lights to avoid backups on tracks	-
All	Statewide	\$75 K	Rail Safety Education Initiative-develop to educate the public about the dangers at railroad crossings	-

Source: MnDOT, Improvements to Highway-Rail Grade Crossings and Rail Safety, 2014.

## Minnesota State Rail Plan

**Author:** Minnesota Department of Transportation

**Date:** 2015

**URL:** <https://www.dot.state.mn.us/planning/railplan/>

### Overview

The 2015 draft of the Minnesota Statewide Rail Plan is intended to guide the future of both passenger and freight rail systems in Minnesota. The plan includes an inventory of rail assets and commodity shipments, a discussion of issues affecting performance, and an action plan to achieve the vision laid out in the Minnesota GO family of plans.

### Findings

The Rail Plan found that infrastructure constraints, a lack of intermodal service, positive train control implementation, and hazmat transport were the top issues for Minnesota's rail network. The plan also laid out four-year and 20-year action plans for freight rail, which included investments in additional plans and grade crossing improvements for safety, investments to improve rail service for businesses, and upgrade of service levels to support higher speeds and weights.

### Elements Relevant to the District 4 Freight Plan

The State Rail Plan doesn't provide data or forecasts specific to District 4. However, the plan offers general rail improvement recommendations for corridors across the state, including corridors that pass through the District.



## Rail Grade Crossing Safety Project Selection

**Author:** Minnesota Department of Transportation

**Date:** 2016

**URL:** <https://www.dot.state.mn.us/research/TS/2016/201625.pdf>

### Overview

This study analyses the safety conditions at Minnesota's public rail grade crossings to identify potential risk factors that appear at the grade crossings with fatal/injury crashes, provides a prioritized list of active- and passive-controlled crossings, and compares the list to the crash prediction models.

### Findings

The study finds that train collisions at rail grade crossings are relatively rare in Minnesota. Over the 10-year of the study, more than 4,000 public rail grade crossings in Minnesota had an average of approximately 45 crashes and five fatal crashes annually, with 91% of the crossings having no crashes, 96% having no crashes resulting in injuries, and 99% having no fatal crashes.

The current crash prediction models use the occurrence of a prior crash at a grade crossing as a predicting risk factor for that location. This is while more than 50% of crossings with an injury crash had no prior crashes. Review and analysis of several crash prediction models and grade crossing crash and design characteristics databases, a set of volume, speed, design, and surrounding area features demonstrated the highest impact on crash risk at high-crash locations. These characteristics were adopted as the risk factors to be used in the systemic risk analysis of public rail grade crossings in Minnesota.

### Elements Relevant to the District 4 Freight Plan

The high-crash grade crossings located in District 4 and assessed in this study are shown in the following table. A risk rating between 0 and 10 is assigned to the crossings, with 10 representing the highest risk level.

**Risk Factors at District 4 Grade Crossings**

City	County	Crossing	Control Device	Risk Rating (of 10)
Detroit Lakes	Becker	Washington Avenue	Gates	8
Hawley	Clay	230 Street S	Gates	8
Danvers	Swift	Front Street	None	8
Holloway	Swift	150 Avenue SW	None	8
Morris	Stevens	Northridge Drive	None	8
Alexandria	Douglas	Birch Avenue	Stop Sign	8
Tintah	Traverse	Oak Street	None	8
Benson	Swift	20 Avenue SE	None	8
Henning	Otter Tail	Marshall Avenue	Stop Sign	8
Appleton	Swift	N Hering Street	Stop Sign	8
-	Otter Tail	MN 106	Gates	7
Glyndon	Clay	100 Street S	Gates	7
-	Otter Tail	CSAH 60	Gates	7
New York Mills	Otter Tail	S Boardman Avenue	Gates	7
-	Otter Tail	MN 78	Gates	7

Source: MnDOT, Rail Grade Crossing Safety Project Selection, 2016.

## Regional Freight Plan for Fargo-Moorhead Metropolitan Council of Governments

**Author:** MnDOT District 4, Metro COG

**Date:** 2017

**URL:** [http://fmmetrocog.org/application/files/3915/3497/0764/Fargo-Moorhead\\_Reg\\_Freight\\_Plan\\_Exec\\_Summary\\_082017\\_finalv3.pdf](http://fmmetrocog.org/application/files/3915/3497/0764/Fargo-Moorhead_Reg_Freight_Plan_Exec_Summary_082017_finalv3.pdf)

### Overview

The Fargo-Moorhead Regional Freight Plan (FMRFP) aims to provide access to formula funds provided by the National Highway Freight Program by complementing the Minnesota State Freight Plan and specifically focusing on the freight needs and objectives of the region. The findings of the FMRFP also inform Metro COG's other long- and short-range transportation planning efforts. Goods movement elements included in the FMRFP include:

- The first and last mile truck movements and challenges
- Characteristics of the long-haul freight entering and exiting the region
- The regional supply chain and its importance in determining future investment needs
- The local infrastructure condition and performance in supporting goods movement

### Findings

The key findings of the Plan are:

- The key industries in the Fargo-Moorhead Region in terms of employment include trade, transportation, and utilities with one-quarter of all employment in the MSA, followed by education and health services with 18%, professional and business services with 13%, and leisure and hospitality with 12%. In terms of industry concentration, farm equipment mechanic and service technician jobs in the Fargo-Moorhead Region are more than nine times the national average, suggesting a competitive agricultural industry compared to the national trends.
- More than 88% of the cargo tonnage flowing in, out, and through the MSA is carried by trucks, followed by rail with 11% and multimodal/mail with 1%.
- The MSA's economy is heavily reliant on the agricultural sector, and there has been a recent rise in demand for "identity-preserved" (IP) crops (e.g., non-GMO). These crops are ideal candidates for bulk cargo shipping by rail.
- In terms of truck mobility, a great strength of the MSA is an uncongested road network with relatively short durations of recurring congestion. However, severe weather conditions can lead to delays and negatively impact highway commerce.
- The MSA's access to the intermodal rail services is limited. On the other hand, there are many grade crossings in the MSA, and with the growing volume of rail through traffic, safety concerns are becoming a regional threat.

### Elements Relevant to the District 4 Freight Plan

The findings and recommendations of the FMRFP apply to Clay County, which is located in District 4 and thus impacts the District's goods movement. In particular, the Fargo-Moorhead MSA is located along I-94, which

carries the majority of the District's east-west freight flows. Recommendations of the FMRFP that directly impact District 4 include:

- Reducing truck crashes in Clay county and mitigating truck-involved fatalities
- Maintaining the bridges and pavement condition in a "State of Good Repair," especially on designated truck routes, by monitoring the truck route infrastructure condition score
- Reducing truck bottlenecks due to low bridge clearances and poor truck network connectivity
- Improving the regional economy through the expansion of trade clusters
- Providing access to intermodal rail (transload facilities) to businesses in the region
- Reducing train idling at grade crossings can lead to safety and environmental issues

## Metro GROW 2045 (Fargo-Moorhead LRTP)

**Author:** Fargo-Moorhead Metropolitan Council of Governments

**Date:** 2019

**URL:**

[http://www.fmmetrocog.org/application/files/8415/7264/4951/MetroCOG\\_MTP\\_LowRes\\_201901101.pdf](http://www.fmmetrocog.org/application/files/8415/7264/4951/MetroCOG_MTP_LowRes_201901101.pdf)

### Overview

The Metro Grow 2045 plan focuses on the performance assessments of the multimodal transportation system in the Fargo-Moorhead Metropolitan Area and evaluates the economic, environmental, system management, and resiliency of the system over a 20-year planning horizon.

### Findings

- The Fargo-Moorhead metropolitan region is one of the fastest-growing MPOs in the country with recent population growth rates more than twice the average nationwide trends.
- Severe highway crashes (fatality, injury) are less frequent in the region however, the majority of the users involved in the crashes are heavy vehicles.
- The majority of the high-crash hotspots in the region are located along 13<sup>th</sup> Avenue, Main Street, 32<sup>nd</sup> Street, and 17<sup>th</sup> Street.
- The majority of the region's bridges with poor condition are on minor roads.
- In terms of travel time reliability, the least reliable corridors in the region are 45th St through Fargo, 32nd Avenue west of I-29 in Fargo, US 75 south of I-94 in Moorhead, US 75 north of US 10 in Moorhead, and Main Avenue / US 10 through Fargo, Moorhead, and Dilworth.

### Elements Relevant to the District 4 Freight Plan

- The regional freight flow tonnages are primarily carried by trucks (88%) and rail (10%). The region's truck flows are slightly above the national average, but this is expected as the majority of rail and air cargo centers that service the region are located in the Twin Cities.
- Intersection signal installation and geometric design are the high priority needs for trucking activities in the region. These needs are particularly dire along 7<sup>th</sup> Avenue in Fargo, 9<sup>th</sup> Street in West Fargo, and 11<sup>th</sup> Street in Moorhead.

Intermodal freight access is a concern in the region since the nearest intermodal rail yard and barge access points are located in Minneapolis (over 200 miles away).

## Shoulder Widening Prioritization Study

**Author:** MnDOT District 4 – Detroit Lakes

**Date:** May 2018

### Overview

The study informs the District’s evaluation of the road network segments for which existing shoulders are less than six feet wide. The identified segments are prioritized using a quantitative and qualitative performance-based tool. The evaluation criteria for selecting the segments include safety, mobility, multimodal accommodation, system preservation, environmental impacts, constructability, and functionality.

### Findings

District 4 staff identified safety improvement for non-motorized users as a top priority of shoulder widening projects. A list of 20 top priority segments was identified and recommended for shoulder widening.

### Elements Relevant to the District 4 Freight Plan

Since this study focuses on District 4’s road network, all of its elements are relevant to the District’s freight activities. In particular, top priority shoulder widening projects that accommodate trucks are identified as listed in the following table.

**Shoulder Widening Projects Scored Top for Trucking Activity**

Route Name	From	To	Length
TH9	W of 6th St NW in Barnesville	N of CSAH 16	24.91
TH9	S of CSAH16	N of E JCT TH 9 and 210	1.06
TH9	SW of 2nd Ave SW W of Barnesville	NE of CR51	0.55
TH75	NE of 165th Ave S	E of 6th St SW	0.38
TH7	SE of CR 155	N of TH 210	2.67
TH7	E of CSAH 3	NW of CSAH9	6.57
TH59	S of CSAH 82	N of JCT TH 59 and TH55	11.49
TH55	SE of N JCT TH 55 and CSAH 28 (Lowry)	NW of TH29	6.73
TH29	E of CSAH 75	W of TH 29	1.01
TH29	SW of CSAH 50/Main Ave in Deer Creek	N of TH210	4.30
TH28	.07 NE of TH10 change	S W of TH 27	0.41
TH28	E of TH 114 in Starbuck	W of 5th ST NW in Glenwood	6.68
TH28	E of CSAH 24 in Long Beach	W of 65th t NW (W of Glenwood)	1.37
TH27	NE of TH 117	SW of 635th Ave	2.13
TH27	E of CSAH 11 Herman	W of 75th Ave	7.47
TH27	W of CSAH 7	E of 635 Ave	2.29
TH27	E of TH 54 and CR 35	W of TH 59	5.00
TH27	NE of CSAH7	SW of 16th St in Wheaton	1.29
TH210	E of CSAH 75	W of 640th Ave	1.49
TH210	E of TH29	W of CSAH75	6.48

Route Name	From	To	Length
TH200	E of CSAH 3	W of CSAH 7	12.00
TH200	E of TH 59 N of Mahnomen	W of CSAH 3	7.55
TH12	.25 E of TH 75	W of 75th Ave	1.24
TH114	N of W JCT TH55 and TH114	S of Co Road 26 SW	5.19
TH114	S of TH 27	N of Co Rd 26SW	5.25
TH114	S of CWSAH24	N of W 7th St in Starbuck	2.85
TH114	S of S JCT CSAH28 (S of Lowry)	N of CSAH 24	3.20
TH108	E of Buchanan Rd/Ottertail	W of CR 61	1.46
TH108	E of JCT Buchanan Rd/TH78 & CSAH14	W of Buchanan Rd in Ottertail	1.25
TH108	E of JCT CR49 and 420th Ave	W of TH 78	2.00
TH108	S of West mill Ave in Pelican Rapids	N of CR67	8.12
TH108	E of CR61 in Henning	W of TH108 and CSAH 52	2.34
TH108	E of CR67	W of CSAH 41	3.99
TH108	E of E JCT CSAH41	W of CSAH85	2.35
TH108	E of CSAH 16	W of Balmoral Ave and TH108	0.58
TH108	E of CSAH 85	W of Beaver Dam Rd	1.27
TH108	E of Engstrom Beach Road/Beaver Dam Rd	W of CR 49	7.85
TH106	S of TH 10	N of Soule Ave E in Deer Creek	6.69

Source: Shoulder Widening Prioritization Study, 2018.

## Minnesota US 10 / US 75 Corridor Study Moorhead

**Author:** MnDOT District 4, Metro COG

**Date:** 2020

**URL:** <http://fmmetrocog.org/US1075>

### Overview

The purpose of the US 10/US 75 study was to develop locally-preferred visions for enhancing the US 10 and US 75 corridor environment, guiding future studies, and setting a framework for MnDOT's 2025 and 2026 reconstruction projects while maintaining a balance between the recommended projects and the stakeholder/user needs.

### Findings

The findings of the corridor plan will inform pavement maintenance, and walkability and bikeability need investments, and the recommended projects will be implemented over a two-year construction period.

### Elements Relevant to the District 4 Freight Plan

The focus of this study are segments of US 10 and US 75 in Downtown Moorhead, the residential and institutional areas south of Downtown, and the industrial areas east of Downtown. These improvements will benefit urban freight mobility by enhancing first/last-mile delivery and reducing truck route circuitry.

Additionally, a commercial vehicle inspection site currently exists along the US 10 corridor that is currently under consideration for relocation. Some of the options under consideration offer to transfer the facility to locations that require trucks to exit and re-enter US 10, which can affect safety for all road users and impact the geographic coverage of the inspection facility.

## Comprehensive Economic Development Strategy for Minnesota Region 4

**Author:** West Central Initiative

**Date:** 2016

**URL:** <https://www.rndc.org/what-we-do/community-economic-development/ceds/>

### Overview

This five-year Comprehensive Economic Development Strategy (CEDS) was developed through a collaborative effort among the Minnesota Association of Development Organizations to identify cross-region commonalities and opportunities and to inform Economic Development Districts future studies.

### Findings

The following summarizes the findings of the CEDS:

- Agriculture and mining are the most important sectors for Region 4's economy. These industries are supported by food manufacturing, machinery production, and other supporting industries.
- Recent decreases in crop prices (due to successful harvests) and higher land prices have led to an increase in brownfield sites in need of redevelopment.
- Closed or retrofitted coal-fired power plants pose economic challenges to some communities

### Elements Relevant to the District 4 Freight Plan

Due to the economic factors listed above, Region 4 is expected to see a significant shortfall in funding for highway system maintenance and congestion mitigation. Improved coordination with local transportation entities and enhanced access to rail and air cargo resources can help the region maintain and improve freight mobility.



## Minnesota Annual Performance Report for 2017-2021 Comprehensive Economic Development Strategy for Minnesota Region 4

**Author:** West Central Initiative

**Date:** 2017

**URL:** [https://www.wcif.org/file\\_download/9cde9d4c-554e-4ca6-936a-72fd8b6de84e](https://www.wcif.org/file_download/9cde9d4c-554e-4ca6-936a-72fd8b6de84e)

### Overview

This report is intended to act as an update and an evaluation document on the status of activities and progress in achieving the goals and objectives of the 2017-2021 Comprehensive Economic Development Strategy (CEDS) for West Central Minnesota.

### Findings

The Region's population is continuing to age. The impacts of this on workforce issues are exacerbated by retirements and the outmigration of the younger population (18-24 years old), which has been a continuous trend since the 1990s. Farming and other agricultural industry businesses are significant to the Region's economy. Additionally, four industries of education & health services, trade transportation & utilities, manufacturing, and leisure & hospitality employ 75% of the Region's workforce. These industries are expected to see the most pressing need for workforce in the next few years.

## Comprehensive Economic Development Strategy

**Author:** Upper Minnesota Valley Regional Development Commission

**Date:** 2019

**URL:** <https://umvrdc.org/program/economic-development/>

### Overview

This report presents the economic development activities in the Upper Minnesota Valley as a result of a continuous regional planning process in the five-county region.

### Findings

Swift County of MnDOT District 4 is located within the Upper Minnesota Valley region. The County has had a population loss of 21.3% between 2000 and 2017, which was the fastest population decline of all the counties in the State. No other elements of relevance to the Freight Plan were identified.