



District 8 Freight Plan

Working Paper 2: Existing Document and Process Synthesis

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District 8 Freight Plan

The objective of the District 8 Freight Plan (Freight Plan or Plan) is to provide a clear understanding of the multimodal freight system, how local industries use the system and their needs and issues, so MnDOT's policy and programming decisions can be better informed in the District.

Working Paper

This Working Paper is the second in a series of six that together inform the Plan. This second Working Paper provides a synthesis of previous plans and studies that are relevant to the District 8 Freight Plan. The aim of this synthesis activity is to ensure that information and processes relevant to the District provided in documents such as the Statewide Freight System and Investment Plan, District 8 Manufacturers' Perspectives Study, and local freight-related plans are brought forward into this planning effort.

Acknowledgements

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Opinions

Unless otherwise indicated, the opinions herein are those of the authors and do not necessarily reflect the views of MnDOT.

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Acronyms/Abbreviations

AADT	Annual Average Daily Traffic
ATIP	Area Transportation Improvement Program
ATP	Area Transportation Partnership
BNSF	Burlington Northern Santa Fe Railway
CEDS	Comprehensive Economic Development Strategy
CHIP	Capital Highway Investment Plan
DOT	Department of Transportation
FAST	Fixing America’s Surface Transportation Act
FRA	Federal Railroad Administration
MMDC	Mid-Minnesota Development Commission
MnDOT	Minnesota Department of Transportation
OFCVO	Office of Freight and Commercial Vehicle Operations
OSOW	Oversize-Overweight
PACE	Property-Assessed Clean Energy
RCIP	Regional and Community Improvement Priorities
RFP	Request for Proposal
STIP	State Transportation Improvement Program
SRDC	Southwest Regional Development Commission
SWOT	Strengths, Weaknesses, Opportunities, Threats
UMVRDC	Upper Minnesota Valley Regional Development Commission
URL	Uniform Resource Locator

Executive Summary

The District 8 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 8's freight needs and issues. Documented in this Working Paper are the wide range of plans and studies that were reviewed, including the Minnesota Department of Transportation's (MnDOT) Statewide Freight System and Investment Plan (State Freight Plan), District 8 Manufacturers' Perspectives Study, and local comprehensive economic development strategies. The results of these plans have been synthesized to identify common needs and issues, and of topics where further research may be required.

Common Findings

Many plans and studies noted that District 8's multimodal transportation network is critical to the regional economy. The most common mode-specific findings are listed below.

Road Findings: Two key challenges for District 8's road network are 1) adequately maintaining the system and 2) a need for safety improvements. These challenges are complicated by the fact that funding for system maintenance and capital investments is limited. In-depth evaluation of these issues, as well as other freight impediments such as low bridges and the need for four-lane highways will be required.

Railroad Findings: Two key challenges for District 8's rail network are 1) grade crossing safety and 2) highways blocked by longer trains. These challenges had been exacerbated by the freight rail activity associated with Bakken crude oil shipments and will be further studied.

Regional Economy Findings: A greater understanding of the agricultural sector's transportation needs and issues is required because the cost of transportation is key to the competitiveness of agricultural producers. Further analysis of the industry's overall condition and trends, as well as its transportation needs and issues in the District will be conducted.

Items to Bring Forward

In addition to the common findings, the District 8 Freight Plan will draw on guidance and specific data from other studies and plans. Items to be carried forward include:

- 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 8 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. These topics include:

- Agricultural activity distribution and relationship to transportation assets, which have a major influence on freight traffic, and which were not studied in previous plans or Manufacturers' Perspectives studies.
- Traffic volumes, travel time index, and travel time reliability, as statewide evaluations of these metrics are not useful at the District level.
- Highway and grade crossing crash locations, and associated risk evaluations, which will help identify areas in the District where further freight-relevant safety investments are needed.
- Road and railroad bridge locations, load capacities, conditions, and clearances, which will help identify areas where potential barriers to truck freight movement exist.
- Railroad traffic volumes and speed limits, to provide context on the performance of the District's rail network.
- Locations and importance of pipelines and pipeline terminals, to provide context on pipeline-carried commodities in the District and their interface with road or rail modes.

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 8 Freight Plan will be informed by findings and data from previous plans and studies. In general, the transportation system was recognized as a foundational asset to the District’s economy. Common findings are mostly focused on the road network and include highway safety and mobility as key freight-related operational concerns for the District 8 highway system. In particular, poor condition of pavement and bridges was considered as a significant threat to the safe and efficient movement of freight in District 8.

1.1 Introduction

The District 8 Freight Plan (Freight Plan or Plan) is being created to provide a clear understanding of District 8’s freight system, how local industries use the system, and their needs and issues. This Plan is not being developed in isolation; there are a range of prior studies and plans relevant to the District freight system’s context, needs, issues, and potential improvements. It is not the intent of the Plan to repeat this previous research and analysis. Instead, the Plan will leverage, validate, and expand on existing regionally-relevant studies.

The District 8 Freight Plan uses prior plan and study data and findings to identify and close gaps in freight system understanding.

This Working Paper provides a synthesis of prior documents that are relevant to the District 8 Freight Plan. The aim of this synthesis is to ensure that information and processes relevant to the District provided in statewide local, and mode-relevant plans are brought forward into this planning effort. Utilizing existing insights and data (when relevant) from prior plans means that the District 8 Freight Plan 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 8 and Central Office staff. An overview of these documents, their findings, and relevance to the District 8 Freight Plan can be found in **Appendix A**.

Figure 1: Plans and Studies Reviewed

Document	Agency	Year
Minnesota Statewide Freight System and Investment Plan	MnDOT	2018
Manufacturers’ Perspectives on Minnesota’s Transportation System: District 8	MnDOT	2014
Western Minnesota Regional Freight Study	MnDOT	2009
Minnesota State Highway Investment Plan 2018-20137	MnDOT	2017

Document	Agency	Year
District Safety Plan Update	MnDOT	2016
Rail Grade Crossing Safety Project Selection	MnDOT	2016
Statewide Rail Plan	MnDOT	2015
Upper Minnesota Valley Region Comprehensive Economic Development Strategy	UMVRDC	2016
Upper Minnesota Valley Regional Development Commission Annual Report	UMVRDC	2018
Mid-Minnesota Development Commission Comprehensive Economic Development Strategy	MMRDC	2016
Mid-Minnesota Development Commission Annual Report	MMRDC	2017
Comprehensive Economic Development Strategy for Southwest Minnesota	SRDC	2017
Southwest Regional Development Commission Annual Report	SRDC	2018

Additional studies and plans may also be incorporated in the District 8 Freight Plan based on feedback from MnDOT, the Advisory Committee, Technical Team, and other stakeholders.

1.3 Previous Findings and Recommendations

The reviewed plans and studies have a number of common findings and recommendations, which can be grouped into two primary categories or “lenses” through which freight needs and issues can be examined. These common findings will be incorporated into District 8 Freight Plan activities, particularly as part of Task 3 – Data Analysis, and Task 4 – Implementation Plan. The two categories or “lenses” are:

- **Transportation.** The characteristics of the transportation system (assets, condition, quality of service, etc.) are important because the safe, reliable, and affordable movement of freight supports the day-to-day activities of businesses that produce, distribute, or sell goods.
- **Economy.** The economic characteristics of a region (including demographics) will influence what types of businesses are likely to operate in a region. In turn, the characteristics of these firms will also influence what types of transportation services they choose.

1.3.1 Transportation – Prior Findings and Recommendations

District 8’s transportation and economic stakeholders have commonly noted that the District’s transportation system is a foundational asset for the region. Extensive road and railroad connections are critical facilitators for agricultural and industrial activities and economic development as a whole. However, these networks’ importance also means that their need for continual maintenance in the face of limited funding is a possible regional weakness or threat.

This position of transportation networks as both asset and liability is not unique to District 8 or Minnesota. What is unique is the set of needs and issues that relate to District 8’s specific mix of geography, industry distribution, and historic transportation system development. A summary of common findings and recommendations from the documents reviewed is presented below and organized by mode. Findings and recommendations are also grouped into general categories of Operations, System Condition, and Policy.

District 8's transportation network is a foundational asset, and critical for support of the regional economy.

Road Network

The reviewed documents noted that District 8's road network is critical for freight movement, particularly for manufactured projects. Unlike other regions in Minnesota, District 8 does not have any direct interstate access, which means that the District's network of National and State highways serve as key freight corridors in the region, with support from county and local highways.

The three economic development commissions that serve communities in District 8 recognize the critical role of transportation infrastructure in supporting regional economic growth. Therefore, addressing the poor condition of the road network and providing accessibility to the major regional freight hubs has been listed as a priority in their recent economic development plans. Similar feedback on the need to adequately maintain the system was a common theme in the 2014 Manufacturers' Perspectives study.

Operations:

- **Finding:** MN-23 is a key freight corridor and was frequently mentioned in multiple plans, and particular needs and issues included the need for expansion to four lanes and problems created by rough pavement conditions. In the 2009 Western Minnesota Regional Freight Study, MN-23 between the state's border and Granite Falls was included in the expanded super-haul truck corridor. One topic that might need examination in the District 8 Freight Plan is the increase in truck volume on MN-23 and whether MN-23 has the potential to serve as the main oversize and overweight truck route given its pavement condition issues.
- **Finding:** Intersection safety is a concern. District 8 has the highest number of high-crash intersections of any District in Greater Minnesota. The District Safety Plan update identified 302 severe crashes in District 8, 75 of which occurred at intersections while the rest occur at sustained high-crash locations. Within District 8, 160 intersection, 56 segment, and 143 curve improvement projects were recommended for safety enhancement, at a total cost of \$37,441,710.
- **Finding:** Four-lane expansions are desired. Manufacturers' Perspectives study participants and the 2009 Western Minnesota Regional Freight Study noted a need or desire for expansion of two-lane highways to four-lanes, including MN-23, US-12, and US-212.
- **Finding:** Low bridge clearances are a localized barrier to truck operations. In particular, two railroad bridges (one on MN-30 through Pipestone, and the other on US-212 in Granite Falls) have been noted as major barriers to truck routing. This topic of vertical clearance will be investigated in greater detail as part of Task 3 – Data Analysis.
- **Recommendation:** Expansion of segments from two- to four-lanes, particularly highways serving regional freight hubs, and segments leading to the Metro district were commonly recommended.

- **Recommendation:** Widening and hardening shoulders was often recommended as a potential safety improvement, as sufficient shoulders give truckers additional room to maneuver and avoid potential collisions.

Highway safety and mobility are the key freight-related operational concerns for the District 8 highway system.

System Condition:

The reviewed documents highlighted that pavement condition is an important factor for freight movement because rough pavement conditions can damage cargo and trucks, and create safety risks.

- **Finding:** US-212 and MN-23 are commonly noted for pavement problems. These two highways were mentioned in multiple plans for problems related to pavement condition (US 23 has the highest AADT in the District). Other state highways with issues include US-75, US-59, and US-14, as well as MN-4, MN-68, MN-40, and MN-7.
- **Recommendation:** Conduct snow and ice removal earlier. Many respondents in the Manufacturers' Perspectives study needed roads cleared to support the arrival of workers on time, and poor road conditions could delay the start of work shifts. Beginning plowing or salting operations earlier was a suggested improvement.
- **Recommendation:** Coordinate road construction planning between multiple levels of government. Respondents in the Manufacturers' Perspectives study noted that MnDOT should improve communication and coordination about repair and closure work with counties and cities so that facilities are still accessible for trucks, and companies can plan new truck routes in advance.

Previous plans consistently identify the poor condition of pavement surfaces and bridge structures as a significant threat to safe and efficient goods movement in District 8.

Policy:

- **Finding:** Funding limitations are a threat to a reliable and safe system. The three economic development agencies in District 8 all mention lack of funding for highway projects as an impediment to adequate maintenance, or improvement of the District's road network.
- **Finding:** Size and weight restrictions need to be clearly communicated. Manufacturers' study participants noted that communication about restrictions and routes could be improved to help users more easily understand when and where restrictions are in place.
- **Recommendation:** Invest in local, small, "quick-start" freight improvements. Given the relative lack of funding for transportation expansion, multiple plans suggested that MnDOT and its partners focus on smaller, easier freight projects that could be completed in shorter periods of time, with smaller amounts of funding.

- **Recommendation:** Investigate potential truck weight and size policy harmonization. Since District 8 is located close to two other states, Iowa and South Dakota, differences between weight and size policies mean that freight movements into and out of the District may be less efficient.

Linking Prior Findings to the District 8 Freight Plan: Road Network

Based on a review of prior documents, the key challenges for District 8's road network are adequate maintenance and a need for safety improvements. These challenges are complicated by the fact that funding for system improvements is limited. These challenges will be investigated in greater detail as part of this Freight Plan. Furthermore, in-depth evaluation of other freight impediments such as low bridges and the need for four-lane highways will also be incorporated in upcoming tasks.

Railroad Network

Most of the railroad network in District 8 is privately owned, so the development, operation, and maintenance of these assets is largely outside of the control of MnDOT and its public sector stakeholders. Therefore, prior plans and studies have given less attention to railroad-related topics relative to highways.

Operations:

- **Finding:** Multiple rail operators are a strength. Some economic development plans noted that the presence of multiple rail operators in the District was a strength, as more firms may have the opportunity to utilize rail for shipping.
- **Finding:** Grade crossing safety. The 2016 Rail Grade Crossing Safety Project Selection report assesses the performance of the grade crossings across the state. The report ranks the high-crash grade crossings in terms of the number of crashes, total number of fatalities and injuries, and fatal crashes. Chippewa County is ranked 11th in the state (out of 87 counties) in terms of the total number of fatal crashes and Kandiyohi County is ranked 6th for the high number of crashes leading to severe injuries and/or fatalities. The 2016 report concludes that multiple mainline tracks, skew angles greater than 15 degrees, distance to nearby intersections or the nearest crossing, clearing sight distance, and approaching sight distance are the most important grade crossing design factors that affect the risk of crashes. In addition, highway traffic volume and speed highly affect the severity of grade crossing crashes.
- **Finding:** High volume of hazardous material (hazmat) commodities. Due to high volumes of Bakken crude oil carried via rail in the District, the BNSF lines from Moorhead to the Twin Cities via Willmar, and to South Dakota via Marshal and Pipestone are identified as priority corridors for reducing public exposure to derailments.

- **Finding:** Class I railroads are operating heavier and longer trains. The 2011 increase in the maximum allowable weight for a tank car transporting hazardous materials enabled the rail industry to further support booming Bakken oil production.¹ Moreover, to address the increasing demand for rail freight, Class I railroads have set new standards to carry more goods per trip in longer unit trains. This is especially common for crude oil corridors such as BNSF's Marshall and Corson subdivisions that cross District 8. Longer, heavier trains can increase the risk of derailment, block highway grade crossings for longer periods, and increase the rate of track and bridge deterioration.
- **Recommendation:** Systematic inspection of hazmat commodity movements. Minnesota relies on FRA safety inspectors to monitor the transportation and handling of hazmat by rail. Inter-organizational cooperation between federal inspectors and the railroad companies has significant impacts on improving spill prevention and response to incidents.
- **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 8 Freight Plan: Railroad Network

Based on a review of prior documents, District 8's key rail-related challenges are issues with grade crossing safety and efficiency reductions due to highways being blocked by longer trains. These challenges had been exacerbated by the increasing freight rail activities on Bakken crude oil corridors. These challenges will be investigated in greater detail as part of this Freight Plan. Furthermore, in-depth evaluation of other freight impediments such as hazmat transportation will be provided in the upcoming analyses.

1.3.2 Economy – Prior Findings and Recommendations

District 8 is known for farming and manufacturing agricultural products (such as biodiesel). The regional economy, therefore, is affected by the number of jobs and economic output of the agriculture industry, which has been struggling in Minnesota over the past two decades. In 2019, farmers in southwest Minnesota are earning their lowest median income from farms in the past 23 years, as persistent rains and floods have led to low yields.² Additionally, the agricultural industry has been negatively affected by the lower prices of crops such as soybeans starting in 2018.³

¹ Justin Mikulka, Overloaded: New Rules Allowed for Heavier Bakken Oil Trains. DESMOG. September 2016.

² Minnesota Farm Income Hits Historic Low. University of Minnesota. March 25, 2019.

³ Minnesota Farm Income Hits Historic Low. University of Minnesota. March 25, 2019.

Although analysis of the income and unemployment rates in agriculture, transportation, and clean energy production sectors show a relatively low level of distress, the counties in the southwest

Linking Prior Findings to the District 8 Freight Plan: Economic Context

A greater understanding of the agricultural sector's transportation needs and issues is needed because the cost of transportation is a key element of the cost-competitiveness of agricultural producers. Further analysis of the industry's overall condition and trends, as well as its transportation needs and issues in the District will be conducted in upcoming tasks.

region are facing a relative lack of jobs as they rely heavily on the struggling agriculture industry. The lack of opportunities has caused many residents to leave the area in search of job opportunities.⁴

⁴ Comprehensive Economic Development Strategy for Southwest Minnesota 2017-2021. Southwest Minnesota Development Commission. 2017.

2 | Relevance to Current Work

Key Findings

The District 8 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 8.

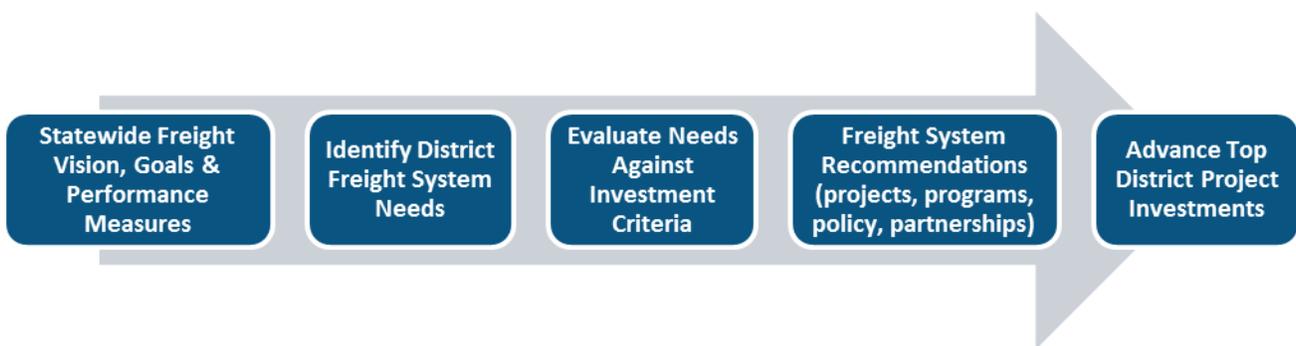
2.1 Items to Bring Forth to the District 8 Freight Plan

In addition to the general insights highlighted in Chapter 1, specific data from prior plans and studies will also be used in developing the District 8 Freight Plan, most importantly MnDOT planning guidance.

2.1.1 Guidance from the Minnesota Statewide Freight System Plan

The Minnesota Statewide Freight System and Investment Plan provides a guiding framework for the District 8 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 8 freight investments and recommendations are linked to this overarching statewide guidance.

Figure 2: “Connecting the Dots” between the Statewide Guidance and District 8 Freight Plan Recommendations



As stated in the Minnesota Statewide Freight System Plan, the 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.”

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 goal areas will remain the area of focus for the District 8 Freight Plan:

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

To support these goals, the statewide plan identified three key areas for monitoring the condition and performance of the freight system.

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

These performance areas are being used as the starting point for Task 3 – Data Analysis. While the District 8 Freight Plan analysis will be linked to Federally- 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 guiding framework that the Minnesota Statewide Freight System and Investment Plan provides, the plan also provides 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 investment portion of the State Freight Plan will also be considered in Task 5 – Implementation Plan activities in the District 8 Freight Plan.

2.1.2 Project Concept Identification, Scoring, and Ranking

One key outcome of the District 8 Freight Plan is a list of ranked project concepts that can be studied in greater detail, and advanced for future funding through state, local and potentially even Federal opportunities. A variety of data is needed to identify, evaluate and rank project concepts, and prior plans will be instrumental in providing inputs for this process. Greater details on the scoring process are still being formalized by MnDOT’s OFCVO. The main steps of this process are:

1. Identification and inventory of needs and issues on specific routes and intersections.

2. Identification and inventory of previously-programmed investments for the District 8 freight system.
3. Identification and inventory of specific needs and issues that do not overlap with programmed investments (gap analysis).
4. Evaluation and ranking of gaps from step 3.

Inputs for Needs and Issues Identification

Identification of location-specific needs and issues will be accomplished with data drawn from the following previous plans and studies:

- District 8 Manufacturers' Perspectives Study
- Western Minnesota Regional Freight Study

In addition to these two previously-created sources, identification of needs and issues will be supported by entirely new stakeholder outreach and data analysis efforts. The results of this work will be incorporated in Working Paper 4: Freight System Needs, Issues, and Opportunities, and section 2.2.2 lists some of the new analysis that will be conducted.

Inputs for Identification of Programmed Projects and Gap Analysis

An inventory of programmed projects in District 8 will be created from the following sources:

- MnDOT's State Transportation Improvement Program (STIP), which identifies a schedule and funding amount for transportation projects for four years. The project list in the STIP includes all state and local projects with federal highway and/or transit funding, as well as state-funded projects. The STIP also contains freight, rail, and port investments, for reference.
- MnDOT's Capital Highway Investment Plan (CHIP), which lists 10 years of highway investments on the state highway network. The CHIP includes STIP projects, as well as planned investments for six years after the scope of the 4-year STIP. These longer-term plans are not guaranteed to be constructed but are listed in the CHIP to aid in coordination and planning.
- MnDOT's District 8 Area Transportation Improvement Program (ATIP), which lists highway projects from 2020 to 2023.
- County improvement plans, which list four to five years of upcoming road and bridge projects on county-managed road networks
- The projects listed in these program documents will be compared against the locations of specific needs and issues. This comparison will provide insight into the specific system needs and issues that are not being addressed by programmed projects, and which may be eligible for further evaluation.

Inputs for Project Evaluation and Scoring Processes

Two prior plans are expected to provide inputs for scoring and ranking project concepts in Working Paper: 5 Investment Priorities: MnDOT's District 8 Safety Plan Update, and MnDOT's Rail Grade Crossing Safety Project Selections. These two plans will be used to assist in assigning safety-related

scores to project concepts. New data sources described below will also be used for evaluation and scoring.

2.2 Gaps for Further Research and Analysis

Previous studies and plans do not provide a full, up-to-date assessment of District 8's freight context, needs, and issues. Some of the gaps in understanding that the District 8 Freight Plan is expected to address are listed below. Much of this work will be conducted in Task 3 – Data Analysis.

2.2.1 Economy

- Updating estimates of freight transportation's importance to the District's businesses and economy through data from the Bureau of Labor, US Census Bureau, ReferenceUSA, and US Department of Commerce's Cluster Mapping tool.
- Further research into the distribution of agricultural activity in District 8, and its relationship to transportation assets through mapping of data sources like the US Department of Agriculture's CropScape data, and Minnesota Department of Agriculture statistics.

2.2.2 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

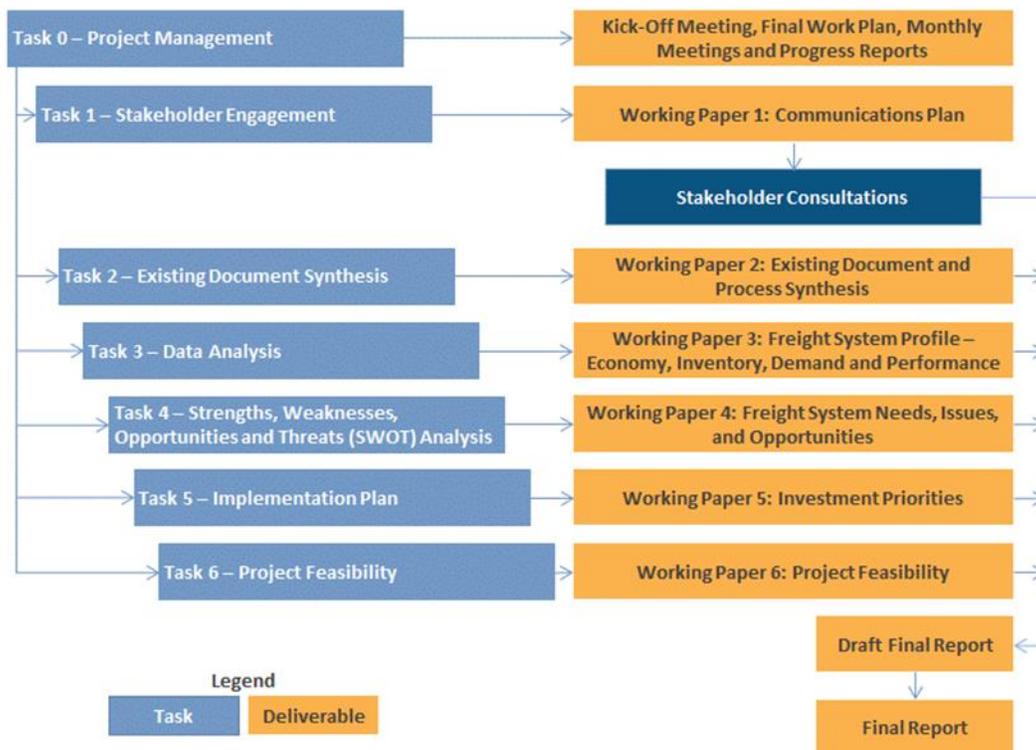
This synthesis of previous plans and studies relevant to District 8 suggests that road condition and safety may be the most pressing freight-related needs and issues in the District. In addition to these two concerns, there are areas where freight movements may be impeded by low-clearance railroad bridges, a need for increases in lanes, and weight restrictions.

Upcoming District 8 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 3: District 8 Freight Plan Project Approach

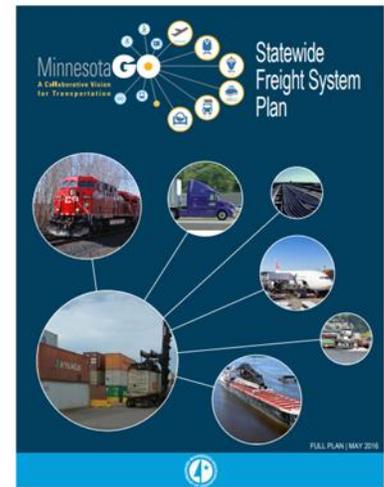


Appendix A Previous Plan Review and Summary

This appendix provides the profiles of previous studies and reports that were identified as relevant to District 8 and reviewed as part of the creation of this Working Paper.

Minnesota Statewide Freight System and Investment Plan (State Freight Plan)

Author	MnDOT
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, an 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

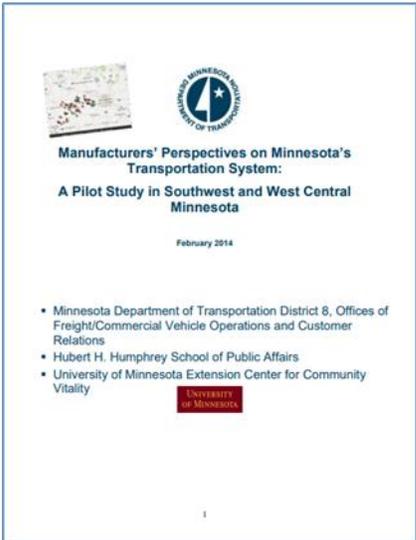
The 2018 State Freight Plan found that safety of freight movements was increasing, while freight-relevant highway conditions were remaining consistent from year-to-year. Mobility was a concern, as freight mobility was declining. This decline was attributed to increased congestion, particularly in the 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.

District 8 Freight Plan-Relevant Elements

The State Freight Plan provides an excellent overview of freight performance, needs, issues, and solutions for Minnesota as a whole, but lacks the granular detail necessary to provide insight into District 8’s specific needs and issues. Instead, the Plan is useful for understanding the freight context of Minnesota broadly, as well as the state’s vision and goals for freight movement, which can provide context for the District 8 study. Other relevant elements include summaries of District 8 truck tonnages relative to other regions, funds allocated to District 8, and projects located in District 8. The projects selected for District 8 for FY 2017-2018 are primarily pavement condition improvements on MN-62, MN-23, MN-7, MN-4, and MN-68, as well as US-75, US-59, and US-14. Also, a relatively large section of MN-23 (from the state border to MN-71) is selected for Regional and Community Improvement Priorities (RCIP) collaborative investments. The RCIP program supports MnDOT investments in projects for which MnDOT may not have statewide performance targets. Examples of such investments include intersection improvement to facilitate freight activities, projects that support multimodal connectivity, bypass or turning lanes, access management solutions, improvements that support Complete Streets, and regional or spot capacity expansion projects.

Manufacturers' Perspectives on Minnesota's Transportation System, District 8

Author	MnDOT
Date	June 2014
URL	http://www.dot.state.mn.us/mps/docs/d8report.pdf



Overview

The Manufacturers' Perspectives study provides an assessment of freight transportation needs and issues in District 8. Since this study was exclusively focused on District 8, 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 75 businesses in the District.

Findings

The study found that many of the District's transportation-related challenges were related to four general factors: infrastructure condition, operation and maintenance, communications, and policy. Rough roads were considered an important issue because they were causing an increase in costs and safety concerns. According to the study, MN-23 was the District's most used highway and needed physical improvements in many sections, better ice and snow removal in some segments, and safety improvements at some intersections. The stakeholders also pointed out the need for better 511 services, as the services were the primary source of information about road conditions, snow and ice removal, and road work projects. Size and weight policies were also a major concern for the stakeholders because of potential impacts on parking availability and overall business efficiency.

The study also found that the strongest industries of District 8 are food, agricultural products, information technology, building fixtures, equipment, and services, and heavy machinery.

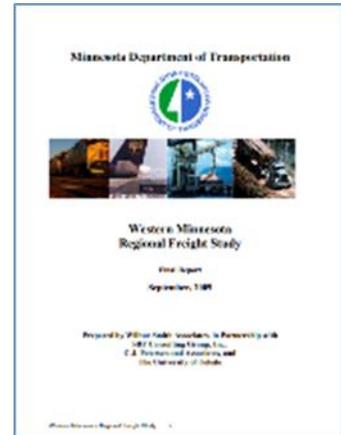
District 8 Freight Plan-Relevant Elements

While all parts of the study are relevant to District 8, specific elements are particularly relevant to this freight plan. In particular, the study documents specific areas where highway problems or desired improvements were commonly noted, and this information will be used in the District 8 freight plan. Study-identified needs and issues 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	MnDOT
Date	September 2009
URL	https://www.dot.state.mn.us/ofrw/PDF/westernmnfreightstudy.pdf



Overview

The Western Minnesota Freight Study provides a multimodal transportation plan for highway, rail, air cargo, and intermodal operations. In particular, it focuses on regional freight demand, freight-related challenges, and issues that have not been addressed in previous plans, existing facilities in Western Minnesota, and the need for infrastructure improvements.

Findings

Using the input collected from interviews and meeting with stakeholders, the study concludes that the BNSF intermodal terminal at Dilworth, MN provides an opportunity for expanding the multimodal freight activities in the region. Dilworth is located outside of District 8, however, the Morris subdivision of BNSF connects the businesses in the District with the Dilworth terminal. Increased capacity for cargo handling at Dilworth may impact the rail freight operations on the Morris Line. Other recommendations that may have impacts on the District 8 freight plan include:

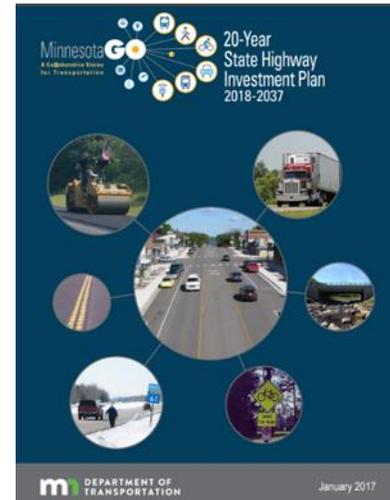
- Development of a Regional Truck Size and Weight Harmonization program to address the issues raised by the stakeholders regarding differences in cross-border truck size and weight.
- Designation of a Tiered Truck Network to identify and integrate freight-related improvements into the project prioritization process.
- Identification of Commercial Commodity Corridors which are routes connecting significant freight generators to transload facilities, points of entries or other major destinations.
- Improvement of technologies and communication methods that enhance highway safety including expanded 511 services, truck priority signals, parking availability stalls, etc.

District 8 Freight Plan-Relevant Elements

The study recommends establishing a District 8 Regional Freight Advisory Committee to gain ongoing support from private sector stakeholders. For the identification of the main routes for moving OSOW freight, the segment of US-23 between Granite Falls and Willmar and MN-71 between Willmar and Belgrade are included in the super-haul truck corridors (roadways that can accommodate a loaded vehicle with a 16-foot height limit, a 16-foot width limit with an 8-foot wide axle, a 130-foot length limit and a 235,000 lbs. weight limit). US-23 between the state’s border and Granite Falls is included in the expanded super-haul truck corridor. These corridor designations inform permitting and infrastructure improvement plans in District 8 and across the state.

Minnesota State Highway Investment Plan 2018-2037

Author	MnDOT
Date	January 2017
URL	https://www.dot.state.mn.us/planning/mnship/



Overview

The Minnesota State Highway Investment Plan (MnSHIP) presents MnDOT’s long-term capital investment priorities for the highway system. MnSHIP describes how MnDOT will use capital investments to repair, replace and improve the state highway system. The plan does not address how MnDOT funds the operation of the system or day-to-day maintenance.

Findings

MnDOT expects that it will become more difficult to maintain the current condition of the state’s highways in the future, as revenue growth is slow, and construction costs are growing faster than revenue. As a result, there is an expected \$18 billion funding gap. Therefore, over the next 20 years, MnDOT is focused on maintaining the system, with limited improvements, rather than widespread construction or expansion.

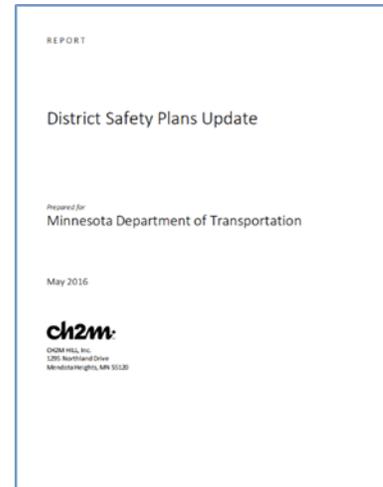
MnSHIP also provides investment direction that Districts must follow to select specific projects for funding. The plan does not select or recommend specific projects, and that task is left to other plans.

District 8 Freight Plan-Relevant Elements

Like the State Freight Plan, MnSHIP provides a good overview of trends and needs at a statewide level but does not provide much granular detail specifically relevant to District 8. Instead, the investment guidance provided in MnSHIP can be used to evaluate the performance and needs of specific highways within District 8.

District Safety Plans Update

Author	MnDOT
Date	May 2016
URL	https://www.dot.state.mn.us/trafficeng/safety/docs/district-safety-plans-update-example.pdf



Overview

The District Safety Plan updates the 2009 to 2012 safety plans for the seven DOT districts in Greater Minnesota. The primary purpose of this update was to incorporate lessons learned from the County Roadway Safety Plans and the resulting reduction in fatal crashes into district-wide safety plans.

Findings

The plan identifies four overall safety improvement priorities: identifying roadway characteristics of locations with the highest number of crashes, prioritizing highway improvement projects according to the high-risk locations, developing a list of strategies to reduce crashes at high-risk locations, and providing a list of recommended safety improvement projects at high-risk locations.

District 8 Freight Plan-Relevant Elements

More than 1,400 rural and urban intersections in the state system are evaluated as part of the analysis for this plan. The notes District 8 has the highest number of high-crash intersections (47). Overall, 302 severe crashes were identified in District 8, 75 of which occurred at intersections while the rest occurred at sustained high-crash locations. Within District 8, 160 intersection, 56 segment, and 143 curve improvement projects are recommended for safety enhancement with a total cost of \$37,441,710.

Rail Grade Crossing Safety Report

Author	MnDOT
Date	June 2016
URL	https://www.dot.state.mn.us/research/TS/2016/201625.pdf

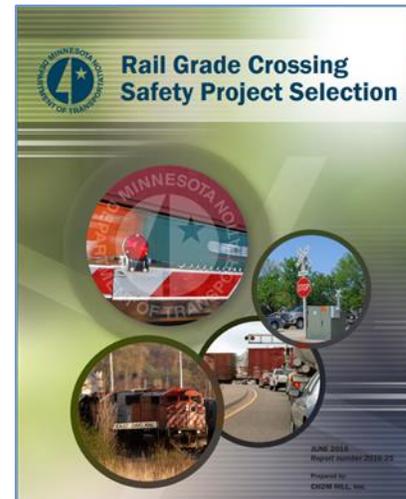
Overview

The Rail Grade Crossing Safety Report evaluates the safety performance of 4,069 public rail grade crossings along the state’s road system to develop a plan for railway crossing safety improvement. Crash prediction models are used to identify priority locations for safety improvement projects.

Findings

The study shows that vehicle-train collisions are rare in the state (less than 0.6% of the crashes), accounting for only 1% of fatalities. The top counties according to different safety-related factors are:

- A total number of crashes at rail grade crossings: Hennepin (55), Ramsey (33), and St. Louis (29).
- Fatal plus injury crashes: St. Louis (14), Hennepin (9), and Ramsey (9).
- Fatal crashes: St. Louis (4), Becker (4), and Stevens (4).
- Counties that make the top 10 lists for every category of crash severity: St. Louis, Otter Tail, and Blue Earth.



District 8 Freight Plan-Relevant Elements

This report focuses on statewide rail system grade crossing safety performance. The comprehensive assessment of risk factors at active and passive crossings may support rail safety analysis part of District 8 Freight strategy.

Statewide Rail Plan

Author	MnDOT
Date	2015
URL	http://www.dot.state.mn.us/planning/railplan/resources.html



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.

District 8 Freight Plan-Relevant Elements

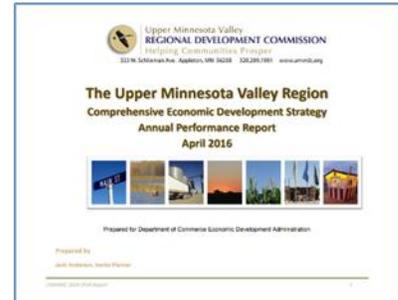
The State Rail Plan doesn’t provide data or forecasts specific to District 8. However, the plan offers general rail improvements recommendations for corridors across the state, including corridors that pass through the District.

Upper Minnesota Valley Region Comprehensive Economic Development Strategy

Author	Upper Minnesota Valley Regional Development Commission
Date	April 2016
URL	http://umvrdc.org/wp-content/uploads/UMVRDC-CEDS-Annual-Report-2016.pdf

Overview

The Upper Minnesota Valley Regional Development Commission (UMVRDC) is a five-county economic development agency serving the counties of Big Stone, Chippewa, Lac qui Parle, Swift, and Yellow Medicine. As a planning organization under the jurisdiction of the US Economic Development Administration, the UMVRDC is required to produce a Comprehensive Economic Development Strategy (CEDS) every five years. The CEDS provides a strategic plan for regional economic development.



Findings

The 2016 CEDS provides detailed information on the demographics and economic character of the Region including population trends, racial makeup, educational background, Gross Regional Product, employment in specific industries, unemployment rate, and other measures. In addition to this reference information, it includes a Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis for the Region, and provides strategic direction.

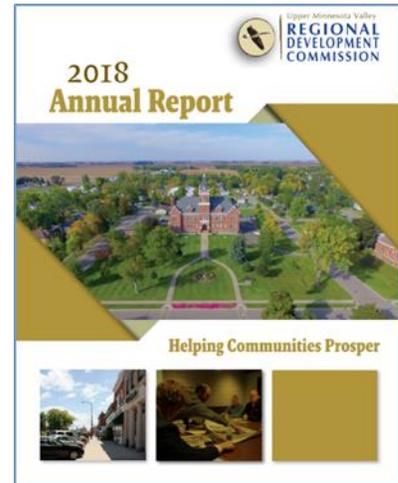
District 8 Freight Plan-Relevant Elements

The Counties of Chippewa, Lac Qui Parle, and Yellow Medicine are located within District 8 Boundaries. The 2016 CEDS is relevant to the District 8 freight plan because it provides detailed information on the economic context of these Counties. For example, the CEDS notes that comprehensive infrastructure development and maintenance will support economic development.

The transportation-related strategies listed in the Strategic Direction section of the CEDS state the need for investment in infrastructure that addresses the region’s transportation needs and challenges. To fulfill this strategy, UMVRDC is regularly working with MnDOT and other local transportation agencies to create local and regional solutions to transportation challenges.

Upper Minnesota Valley Regional Development Commission Annual Report

Author	Upper Minnesota Valley Regional Development Commission
Date	2018
URL	http://umvrdc.org/wp-content/uploads/2018/07/Annual-Report-Final.pdf



Overview

The 2018 annual report of the Upper Minnesota Valley Regional Development Commission (UMVRDC) provides a summary of the financial activities of the five-county commission as well as an overview of the ongoing and upcoming investments, funds brought to the region, and the annual revenues.

Findings

The 2018 annual report emphasizes the ongoing collaborations between UMVRDC and MnDOT through programs such as the West Central and Southeast Minnesota Area Transportation Partnerships (ATPs) in District 4 and 8. The purpose of ATPs is to prioritize transportation projects for federal funding. The 2018 annual report states that the total federal funds received for transportation projects in the region were more than \$61 million to be allocated to projects between 2019 and 2022.

District 8 Freight Plan-Relevant Elements

The 2018 annual report provides overall information about investments and ongoing projects that improve the quality of life in the five-county region but does not include information related to specific transportation projects that may have an impact on District 8 freight activities.

Mid-Minnesota Development Commission Comprehensive Economic Development

Strategy 2016-2021

Author	Mid-Minnesota Development Commission
Date	December 2016
URL	http://www.mmrhc.org/documents/RevisedCEDS2016-2021Narrative.pdf



Overview

The Mid-Minnesota Development Commission (MMDC) is an economic development agency serving the counties of Kandiyohi, McLeod, Meeker, and Renville. As a planning organization under the jurisdiction of the US Economic Development Administration, the MMDC is required to produce a Comprehensive Economic Development Strategy (CEDS) every five years. The CEDS provides a strategic plan for regional economic development.

Findings

The 2016 CEDS provides detailed information on the demographics and economic character of the Region including population trends, racial makeup, educational background, Gross Regional Product, employment in specific industries, unemployment rate, and other measures. In addition to this reference information, it includes a Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis for the Region, and provides strategic direction. The report also integrates other planning activities in the region such as the DevelopMN document that was drafted by the Minnesota Association of Development Organizations to identify needed collaboration and strategy for creating shared prosperity in the state.

District 8 Freight Plan-Relevant Elements

The Counties of Kandiyohi, McLeod, Meeker, and Renville are all located within District 8's Northeastern boundaries. The MMDC is also involved in an Area Transportation Partnership with MnDOT to integrate MnDOT's transportation activities into the creation of the Area Transportation Improvement Program (ATIP) which will inform the development of the State Transportation Improvement Program (STIP). The 2016 CEDS recognizes transportation infrastructure as a foundational asset to preserve and empower the communities in the region and to provide economic growth opportunities. Access to transportation was another major theme in the SWOT analysis under the Foundational Assets pillar of the CEDS. The transportation-related strategies listed in the Strategic Direction section of the CEDS include encouraging MnDOT, through local highway coalitions, to prepare for the expansion of MN-23 and US-212, when funding is available and list these projects as state priorities. Offering assistance to local units of government regarding their long-range planning to address local industry freight needs, and prioritizing transportation projects that connect regional economic hubs within the region, including Willmar, Hutchinson, Litchfield, and Glencoe, are other freight-related strategies included in the 2016 CEDS.

Mid-Minnesota Development Commission Annual Report

Author	Mid-Minnesota Development Commission
Date	2017
URL	http://www.mmrhc.org/cushyfiles/annual%20report_3_1542771501.pdf



Overview

The 2017 annual report of the Mid-Minnesota Development Commission (MMDC) provides a summary of the financial activities of the four-county commission as well as an overview of the ongoing and upcoming investments, funds brought to the region, and annual revenues.

Findings

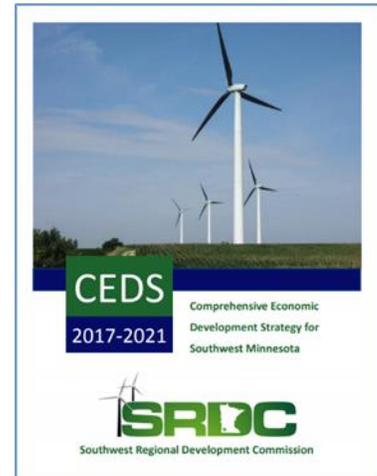
The 2017 annual report emphasizes the ongoing collaborations between MMRDC and MnDOT through programs such as the Area Transportation Partnerships (ATP) process which enables the region to receive federal funding through the State’s Transportation Improvement Program (STIP).

District 8 Freight Plan-Relevant Elements

The 2017 annual report provides overall information about investments and ongoing projects that improve the quality of life in the four-county region but does not include information related to specific transportation projects that may have an impact on District 8 freight activities.

Comprehensive Economic Development Strategy for Southwest Minnesota 2017-2021

Author	Southwest Regional Development Commission
Date	2017
URL	http://www.swrdc.org/wp-content/uploads/2014/07/CEDS-16-FINAL.pdf



Overview

The Southwest Minnesota Development Commission (SRDC) is a nine-county economic development agency serving in the counties of Cottonwood, Jackson, Lincoln, Lyon, Murray, Nobles, Pipestone, Redwood and Rock. As a planning organization under the jurisdiction of the US Economic Development Administration, the SRDC is required to produce a Comprehensive Economic Development Strategy (CEDS) every five years. The CEDS provides a strategic plan for regional economic development.

Findings

The 2017 CEDS provides detailed information on the demographics and economic character of the Region including population trends, racial makeup, educational background, Gross Regional Product, employment in specific industries, unemployment rate, and other measures. In addition to this reference information, it includes a Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis for the Region, and provides strategic direction.

The report also presents the regional goals and strategies and defines performance indicators to evaluate the effectiveness of the established implementation strategies.

District 8 Freight Plan-Relevant Elements

The counties of Redwood, Lincoln, Pipestone, Lyon, and Murray are located within District 8 Southwestern boundaries.

Truck transportation is one of the primary industries in the nine-county region. The SRDC Counties are also known for renewable energy production including wind, solar, ethanol, and bio-diesel. The report notes that although the income and unemployment rates show a relatively low level of distress, the counties in the southwest region are facing a relative lack of jobs as they rely heavily on a struggling agriculture industry. The lack of career opportunities has caused many to leave the region.

The transportation-related strategies listed in the Strategic Direction section of the CEDS include the integration of natural heritage and preservation strategies with land-use and natural ecosystems, including agri-tourism, mining/timber tourism, transportation (land, water, air) tourism, and flora/fauna tourism.

Southwest Regional Development Commission Annual Report

Author	Southwest Regional Development Commission
Date	2018
URL	http://www.swrdc.org/wp-content/uploads/2018/08/2018-Annual-Report-Final.pdf



Overview

The 2018 annual report of the Southwest Regional Development Commission (SRDC) provides a summary of the financial activities of the nine-county commission as well as an overview of the ongoing and upcoming investments, funds brought to the region and the annual revenues.

Findings

The 2017 annual report provides highlights of the projects that have received funding through the Southwest Clean Energy Resource Team program which issues an RFP every two years to allocate a \$20,000 fund to a clean energy project for spending on labor. Other funding sources that supported investments in the nine-county region include the SRDC Revolving Loan Fund which supports small businesses and the Property Assessed Clean Energy (PACE) program which provides funding for projects that increase energy efficiency.

District 8 Freight Plan-Relevant Elements

The 2017 annual report provides overall information about investments and ongoing projects that improve the quality of life in the nine-county region but does not include information related to specific transportation projects that may have an impact on District 8 freight activities.