Final Report

MnDOT District 3 Freight Plan

Report Version 1.0

Minnesota Department of Transportation

Prepared by:

October 2020

SRF No. 12344

Table of Contents

1. Vision for the Future

About the District 3 Freight Plan

Minnesota Department of Transportation (MnDOT) District 3 spans a large swath of central Minnesota. The District is the second most populous in the state with a total population of 696,546 as of 2018. District 3 is comprised of 13 counties including Aitkin, Benton, Cass, Crow Wing, Isanti, Kanabec, Mille Lacs, Morrison, Sherburne, Stearns, Todd, Wadena, and Wright counties. Central Minnesota is diverse, consisting of both rapidly urbanizing communities in the southern portion around St. Cloud and extending along Interstate 94 from the Minneapolis-St. Paul Metropolitan Area (MSP) and rural communities in the north extending past Brainerd/Baxter and including the Mille Lacs Indian Reservation.

The freight system is critically important for District 3's regional economy, supporting key industries of manufacturing, retail trade, agriculture, and construction, as well as consumers in the district and across Minnesota. Major highways and railroad corridors carry the bulk of goods moving to, from, and through the region. A portion of Interstate 94 (I-94) traverses District 3 and serves as one of the most critical freight corridors in Minnesota as it connects markets across the Upper Midwest and beyond.

The District 3 Freight Plan (herein known as "the Plan") takes a comprehensive look at the multimodal freight system; identifies needs, opportunities, and potential projects; and sets the stage for both short- and long-term investment in this region. **Figure 1** provides an overview of the District 3 multimodal freight system.

Construction along I-94 near TH 241. Source: District 3 Staff

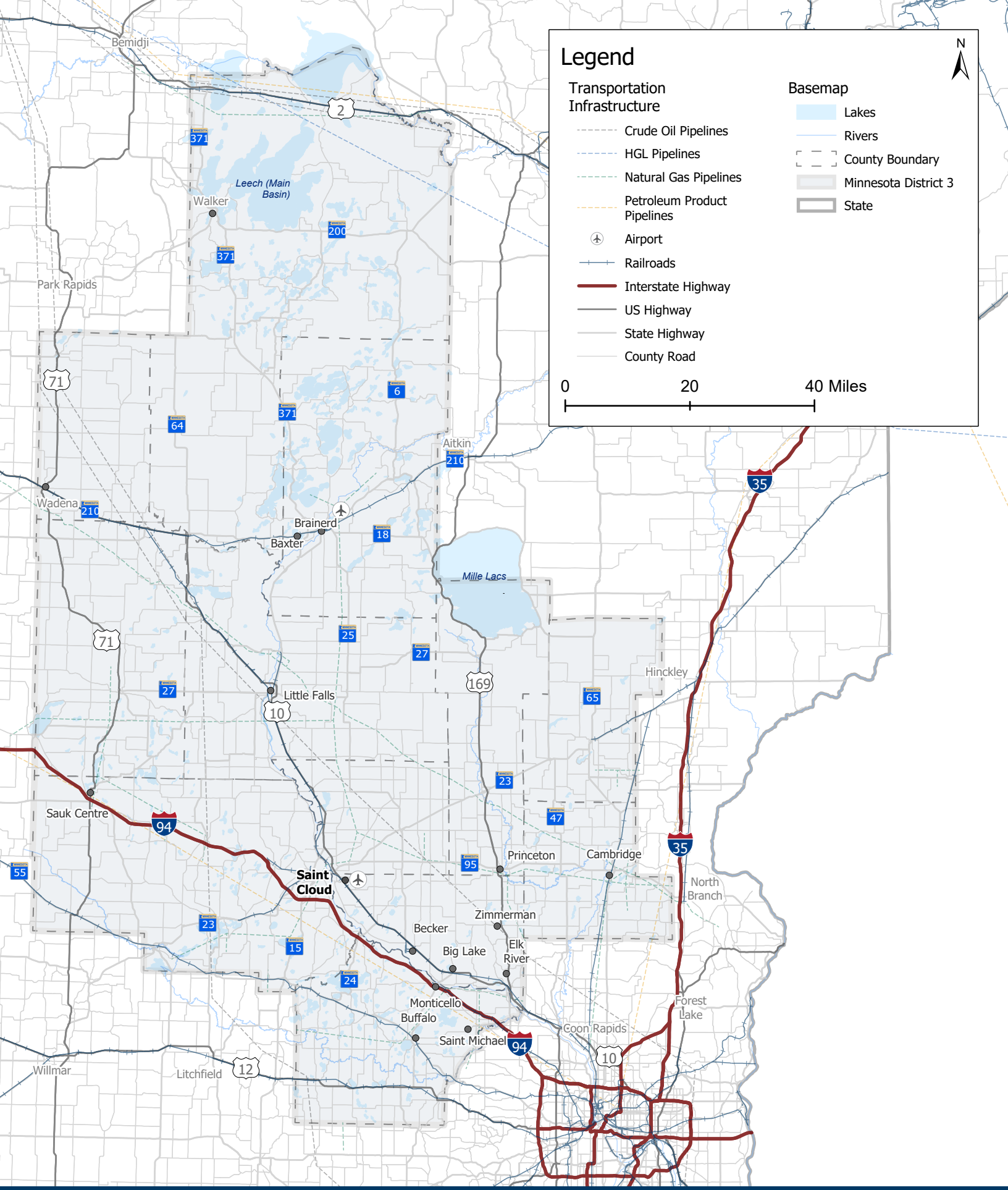


Figure 1: Multimodal Freight System

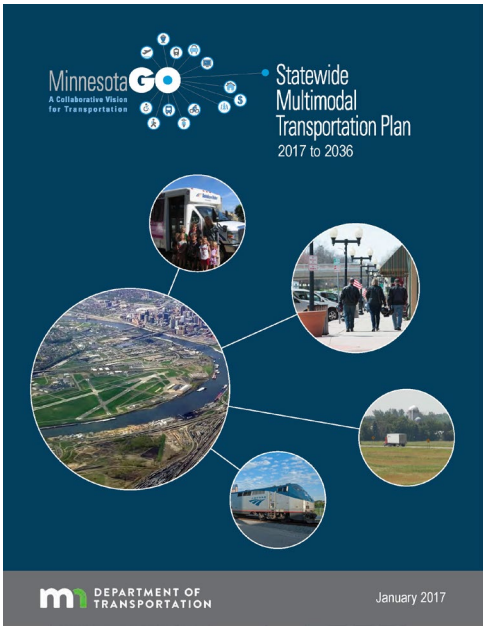
Source: SRF Analysis of National Transportation Atlas Database

DEPARTMENT OF TRANSPORTATION

Relationship to Other Statewide and District Plans

The District 3 Freight Plan is one of several MnDOT planning efforts that support transportation and investment in the region:

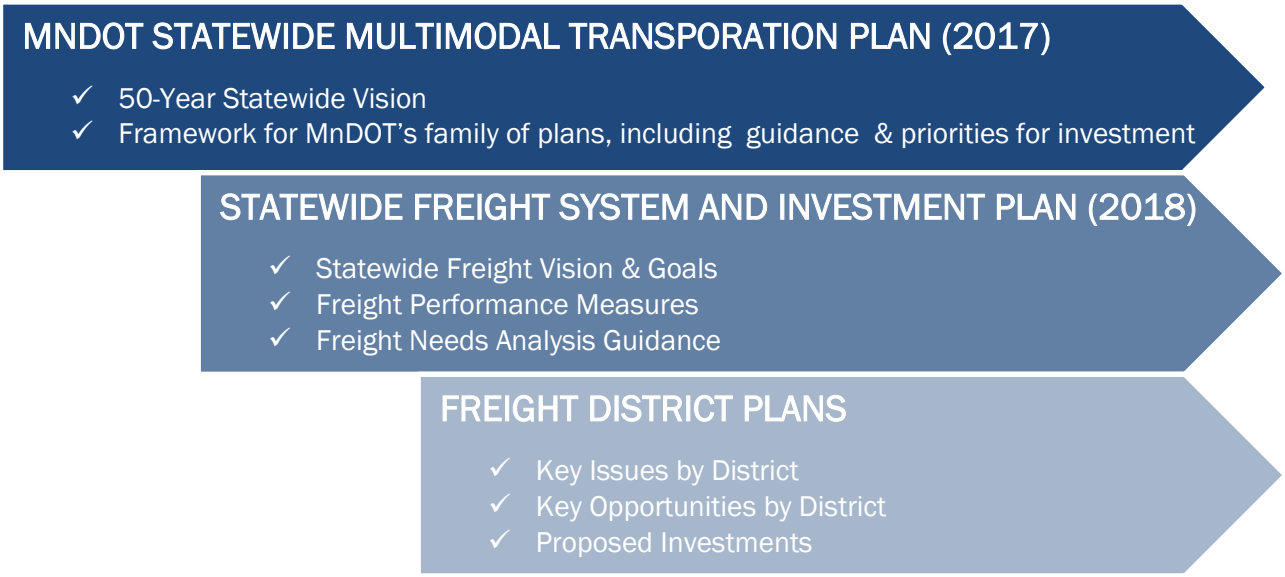
- The overarching plan that guides MnDOT's transportation future is the ***MnDOT Statewide Multimodal Transportation Plan.***
- The current MnDOT freight plan, which guides District freight plans, is the ***MnDOT Statewide Freight System and Investment Plan***. This plan sets a vision for the state and offers steps for MnDOT and freight stakeholders to advance freight performance. It also presents three key areas for measuring and recommending infrastructure improvements, including: safety, mobility, and condition.
- The previous freight planning effort which sets a foundation for this plan is the ***Central Minnesota Freight Study*** which was completed in 2012.



MnDOT is developing District Freight Plans for each of the eight districts, which will prepare the agency for an update of the *Statewide Freight System and Investment Plan*. While every district plan follows a consistent approach, they diverge to address the unique challenges and opportunities found in each MnDOT district. **Figure 2** shows the relationship between the District 3 Freight Plan and the overarching statewide plans that guide this process.

Development of the Plan was closely coordinated with the District 3 Manufacturers' Perspectives Study (MPS), which operated concurrently and was completed in spring 2020. The MPS aimed to build relationships between MnDOT and local manufacturers, shippers, and other freight generating businesses in District 3. The MPS included an extensive outreach process, which was incorporated into this Plan's stakeholder feedback used for the freight needs analysis and project prioritization.

Figure 2. Plans Guiding the District 3 Freight Plan



District 3 Freight Plan Development and Data Sources

The Plan relied on three important sources of information to formulate recommendations:

Previous Plans and Studies: The freight, modal, and economic plans that shed light on District 3's freight system over the last two decades. **Appendix A** includes a summary of the relevant plans that were reviewed and referenced in developing the Plan.

Stakeholder Input: This included an Advisory Committee of local stakeholders, a public MetroQuest survey seeking feedback on transportation needs, and synthesis of the outreach completed for the District 3 MPS. **Appendix B** provides additional detail on stakeholder input sourced for this plan.

Freight System Data: Safety, mobility, and condition data for the transportation network that was collected by MnDOT and other state or local agencies. This existing conditions data is foundational toward identifying needs and analyzing gaps in the freight system, finding areas of opportunity for potential projects, and determining investment as well as prioritizing projects. The process described is discussed in further detail in Chapter 3 and Chapter 4 of the Plan.

Additional Resources

Two working papers and three presentations supported the development of the Plan. Both the working papers and presentations organized findings during the planning process and ensured the Plan included background on each topic such as the District 3 transportation network, the freight system needs and gaps, and project opportunities.

The working papers can be found at: http://www.dot.state.mn.us/ofrw/freight/districtfreightplan/d3.html.

- Working Paper 1: Transportation Background Synthesis.
- Working Paper 2: Data Analysis and Freight System Profile.

2. Existing System Conditions

The following chapter describes and analyzes various data sources to illustrate District 3's population, economy, and transportation network. Each component provides critical context when organizing freight issues and identifying future opportunities.

The Importance of Freight to District 3

Population

Due to growing population and employment, and proximity to the MSP region, District 3's freight system serves as a critical component of the overall statewide freight system and linchpin of the state, regional, and local economies. The volume of freight flows in District 3 are second only to the Metro District which encompasses the seven-county Minneapolis-St. Paul Metropolitan Area.[1] Two major arteries bisect District 3 and include:

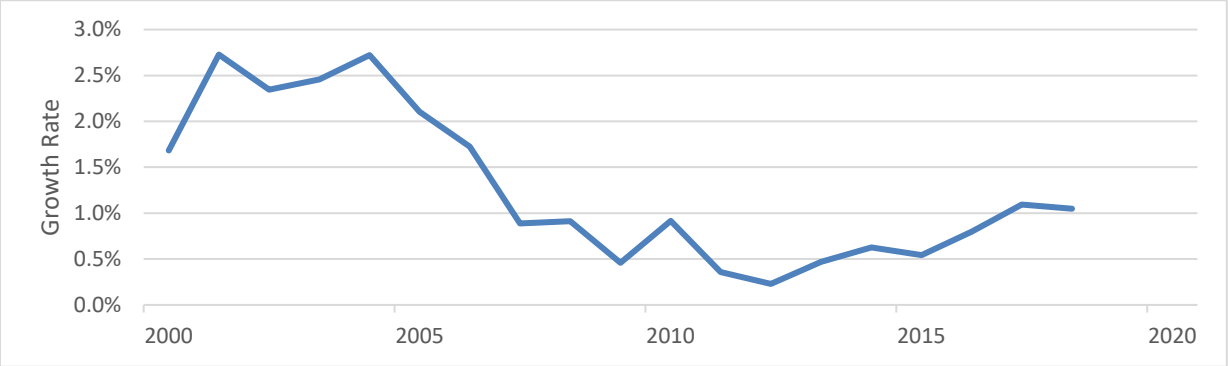
- **I-94:** A major truck corridor that runs through the southern section of the District, carrying heavy truck traffic between the Twin Cities, St. Cloud and the markets beyond in the Upper Midwest which include Fargo and Chicago, among others.
- **Railroads:** The 367 miles of rail line in the District connect Minnesota to Fargo and North Dakota to the northwest and Duluth, Minnesota to the northeast. BNSF, a Class I railroad, operates the Staples Subdivision which traverses across the District and carriers a high-number of daily trains at up to 79 mph.

As of 2018, District 3 had a total population of nearly 700,000 and approximately 265,000 households, with an average annual growth rate of 1.2 percent from 2000 to 2018.[2] **Figure 3** shows the District's population growth since 2000 illustrating the population growth rate over the past 20 years. Such population increases corresponding heightens the demand for goods and places pressure on the freight system to service expanding businesses, rising numbers of consumers, and a growing regional economy.

[1] Minnesota Statewide Freight and Investment Plan, https://www.dot.state.mn.us/planning/freightplan/pdf/statewidefreightplanrevised2018.pdf

[2] All figures for District 3 include the population of the Districts 13 counties; however, only part of Aitkin County is in District 3.

Figure 3. District 3 Population, 2000 to 2018



Sources: U.S. Census Bureau (1900 to 1989); Minnesota State Demographer Estimates by County (1990 to 2018).

Freight-dependent Industries

Freight-dependent industries are those that rely heavily on the shipment of physical goods to support their operations. Many are location-dependent (e.g., mining needs to take place where the mined material is present in the earth) and all of them require moving goods between sources of production and consumption. The performance of the freight system is critically important to these industries' competitiveness and the regional economy.

The importance of freight-dependent industries in District 3 is measured through employment, Gross Domestic Product (GDP), and industry concentration (location quotient and shift share). Freight dependent industries employ 132,710 people in District 3 equating to 35 percent of the District's total employment. District 3's total GDP was $23.3 billion in 2015, with freight-dependent industries accounting for at least 25 percent of the total share according to Bureau of Economic Analysis data from 2012 to 2015. Manufacturing, retail trade, and construction are key regional industries that sustain the District's economy.

35%	~133,000	~25%
Of all employment is in freight industries	Employees in freight-dependent industries	Of GDP is accounted for from freight-dependent industries

Much of the economic activity in District 3 is centered in around two areas: the St. Cloud metropolitan region, one of the fastest growing metro regions in Minnesota; and the Brainerd Lakes area, which is home to a significant tourist industry. Many freight-dependent businesses are located around St. Cloud (especially manufacturing, retail trade, and construction) while other significant clusters of freight-dependent businesses include a retail trade cluster around Brainerd and a manufacturing, retail trade, and construction cluster near Elk River in Sherburne County. **Figure 4** shows the location of freight-dependent businesses with at least 20 employees in District 3.

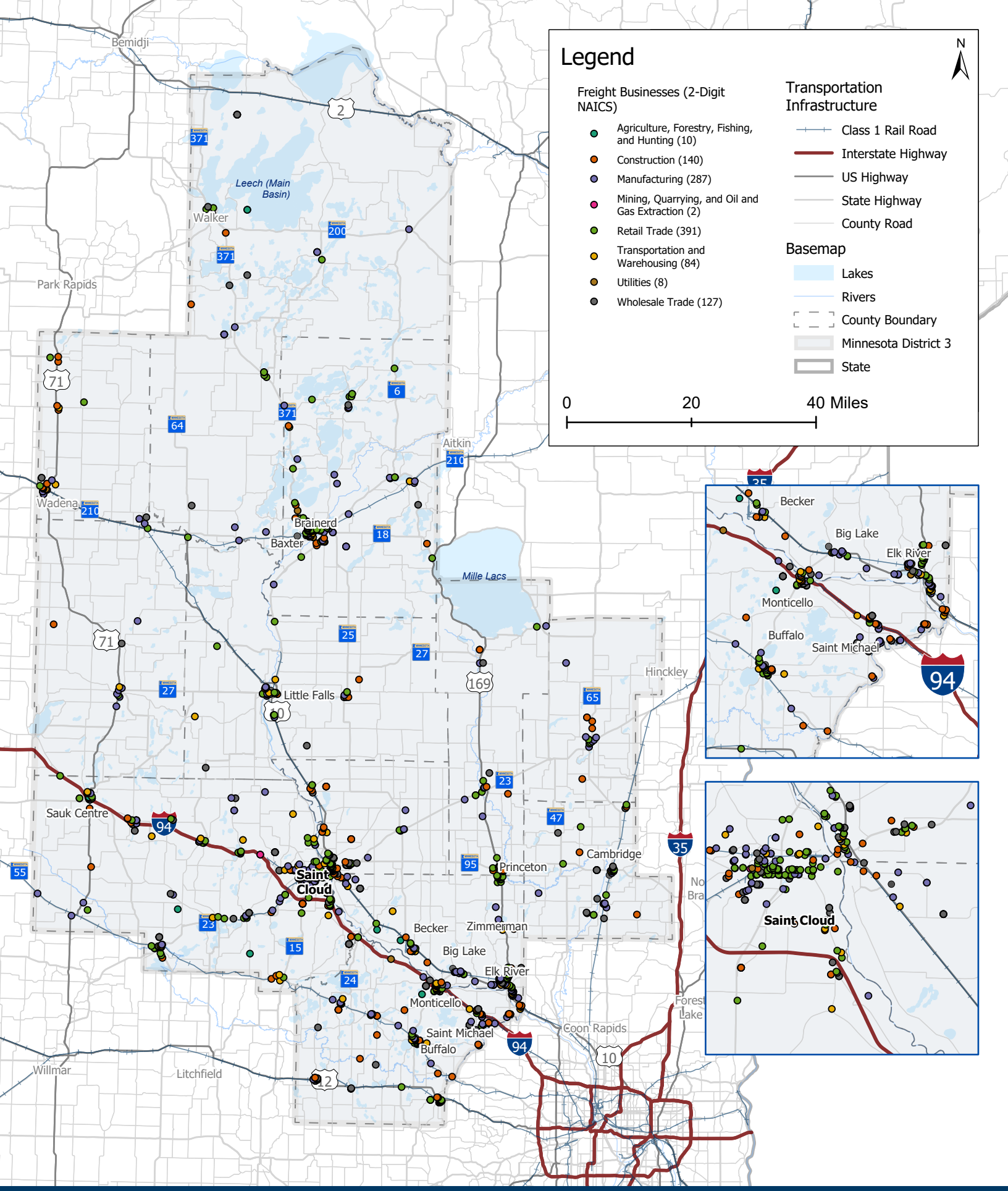


Figure 4: District 3 Freight-Dependent Businesses

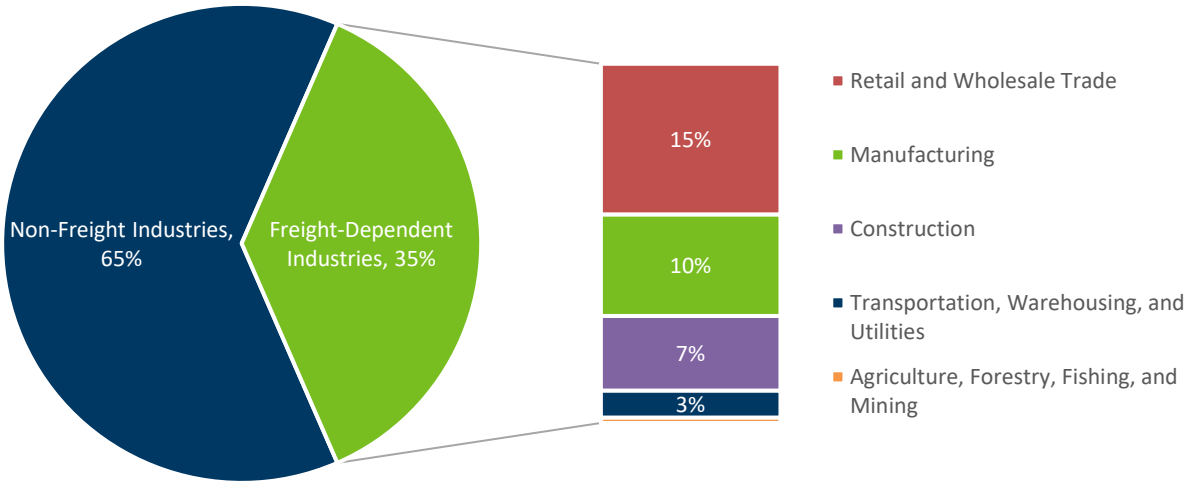
Sources: CS analysis of ReferenceUSA data, 2019

DEPARTMENT OF TRANSPORTATION

Industrial Profiles

This section profiles freight-dependent industries in District 3 (as seen in Figure 4). The top three industries as measured by location quotient (LQ) and shift share analysis are manufacturing, retail trade, and construction. A LQ illustrates a region's economic competitiveness at one point in time while a shift share analysis is used to understand changes in a region's industrial competitiveness compared to national averages. An LQ value greater than one indicates that the area has a higher relative concentration of employment in that industry compared to the national average which indicates regional economic strengths. **Figure 5** illustrates the District's relative employment by industry.

Figure 5. District 3 Relative Employment by Industry



Source: Bureau of Economic Analysis, Full-Time and Part-Time Employment by NAICS Industry, 2018.
Note: 4.7 percent of all employment in the District (17,655 people) is unavailable to avoid disclosure of confidential information.

The following sections describe the top three freight-dependent industries in District 3 which include manufacturing, retail-trade, and construction.

Manufacturing

Minnesota has a strong manufacturing sector, contributing over $50 billion per year to the State's economy and accounting for approximately 15 percent of total statewide GDP. District 3's manufacturing industries account for approximately 10 percent of District employment. Manufacturing in District 3 is predominantly concentrated around the St. Cloud metropolitan area, Brainerd/Baxter area, and near Elk River, though relatively high concentrations of manufacturing employment exist along I-94 as well.

District 3's competitiveness in manufacturing has been increasing from 2010 to 2018 per LQ and shift share analysis, most notably in fabricated metal product and food manufacturing. The manufacturing industry's freight needs are varied due to the diverse types of products that are sourced and shipped. Both I-94 and US 10 are particularly important freight corridors for many manufacturers in the region as they connect to major markets throughout the Upper Midwest. Nationally, manufacturing primarily relies on trucks for shipments (69 percent), while the remainder is shipped via other modes such as cargo air and rail.[3]

Source: Getty Images. The New Flyer facility in St. Cloud is one of five in the United States that manufacturers transit buses.

[3] U.S. Department of Transportation, Bureau of Transportation Statistics, Transportation Satellite Accounts, available at http://www.bts.gov as of March 2018.

Retail Trade

In Minnesota, retail trade accounts for six percent of GDP and over $19 billion per year in economic activity (in 2012 dollars).[4] Retail trade is the largest industry by employment in District 3, accounting for approximately 37,000 jobs in 2018 according to the Bureau of Labor Statistics (BLS). Retail trade is most concentrated in areas with higher population including the locations listed in the previous section due to regional-serving retail nodes located in those population centers (such as the Crossroads Center in St. Cloud pictured below). However, retail trade is also located in rural areas of the District which serve local daily needs such as gas stations, grocery stores, and other small businesses.

As in the case of manufacturing, District 3's competitiveness in retail trade, measured by the regional shift in jobs from 2010 to 2018, is increasing. However, it is not increasing for all types of retail trade. The District became more competitive in roughly three-quarters of retail trade sectors, notably in motor vehicle and parts dealers and general merchandise stores. It became less competitive relative to national trends in food and beverage stores, furniture and home furnishing stores, building material and garden supply stores, and non-store retailers.[5] Retail trade uses trucks to transport over 90 percent of their goods by value, relying almost solely on truck transportation. Major roadway corridors such as I-94, US 10, and TH 371 are key for retail-trade businesses. Due to the COVID-19 pandemic, future brick and mortar retail trade employment is uncertain in the long-term; however, deliveries continue to be key as consumers shop more online.

Source: Visit Greater St. Cloud

[4] U.S. Bureau of Economic Analysis, Regional Economic Accounts. http://www.bea.gov/regional/index.htm#gsp. via Minnesota Compass. Retrieved September 2nd, 2020.

[5] Nonstore retailers include retailers selling merchandise through methods such as the broadcasting of infomercials, the broadcasting and publishing of direct-response advertising, paper and electronic catalogs, door-to-door solicitation, in-home demonstration, portable stalls, and vending machines.

Construction

Construction is of similar economic importance in Minnesota and nationally. Construction accounts for almost four percent of the GDP in the State and over $11 billion annually (in 2012 dollars).[6] According to the BLS, there are nearly 17,000 construction employees in District 3. The LQ for the construction industry in District 3 is 1.3 which means construction jobs are slightly more concentrated in the District than nationally. High concentrations of construction jobs can be found in Benton County (LQ of 2.2), Wright County (LQ of 1.8), and Sherburne County (LQ of 1.6). Benton County is part of the St. Cloud Metropolitan Statistical Area, and Sherburne and Wright counties are part of the Minneapolis-St. Paul-Bloomington Metropolitan Statistical Area. All three counties have experienced rapid growth in housing construction over the last 20 years.

Source: St. Cloud Times

[6] U.S. Bureau of Economic Analysis, Regional Economic Accounts. http://www.bea.gov/regional/index.htm#gsp. via Minnesota Compass. Retrieved September 2nd, 2020.

District 3's Multimodal Freight System

District 3's multimodal freight system is comprised of roadways, railroads, airports, and pipelines. Transportation assets include:

Source: Federal Highway Administration (FHWA) Centerline Miles Database, 2018
[1] Centerline miles of all county roads and above.

Major transportation routes include Interstate 94 (I-94), US Highway (US) 10, and US 169, with I-94 being one of the busiest long-haul freight corridors in Minnesota. Two Class I railroads operate in the District including Burlington Northern Santa Fe (BNSF) with six subdivisions and Canadian Pacific (CP) with one subdivision. Northern Lines Railway, a short line, also operates in the vicinity of St. Cloud. The two cargo airports in operation are in St. Cloud and Brainerd. Use of the Mississippi River System requires a transload between rail or truck and barge, with the closest ports in the Twin Cities metro region. Similarly, Duluth provides nearby access to international markets via the Great Lakes/St. Lawrence Seaway.

Roadways

The roadway network of county roads, trunk highways, and interstate total nearly 9,000 miles in District 3. This includes key corridors for freight travel such as I-94, US 10, US 169, and TH 23. District 3 has a smaller share of interstate miles compared to other districts and is not well served by Interstate 94 as it runs along the far southern portion of the District. Therefore, state trunk highways and the country road system serve as critical road connectors for much of the region.

Figure 6 illustrates the District's roadway network.

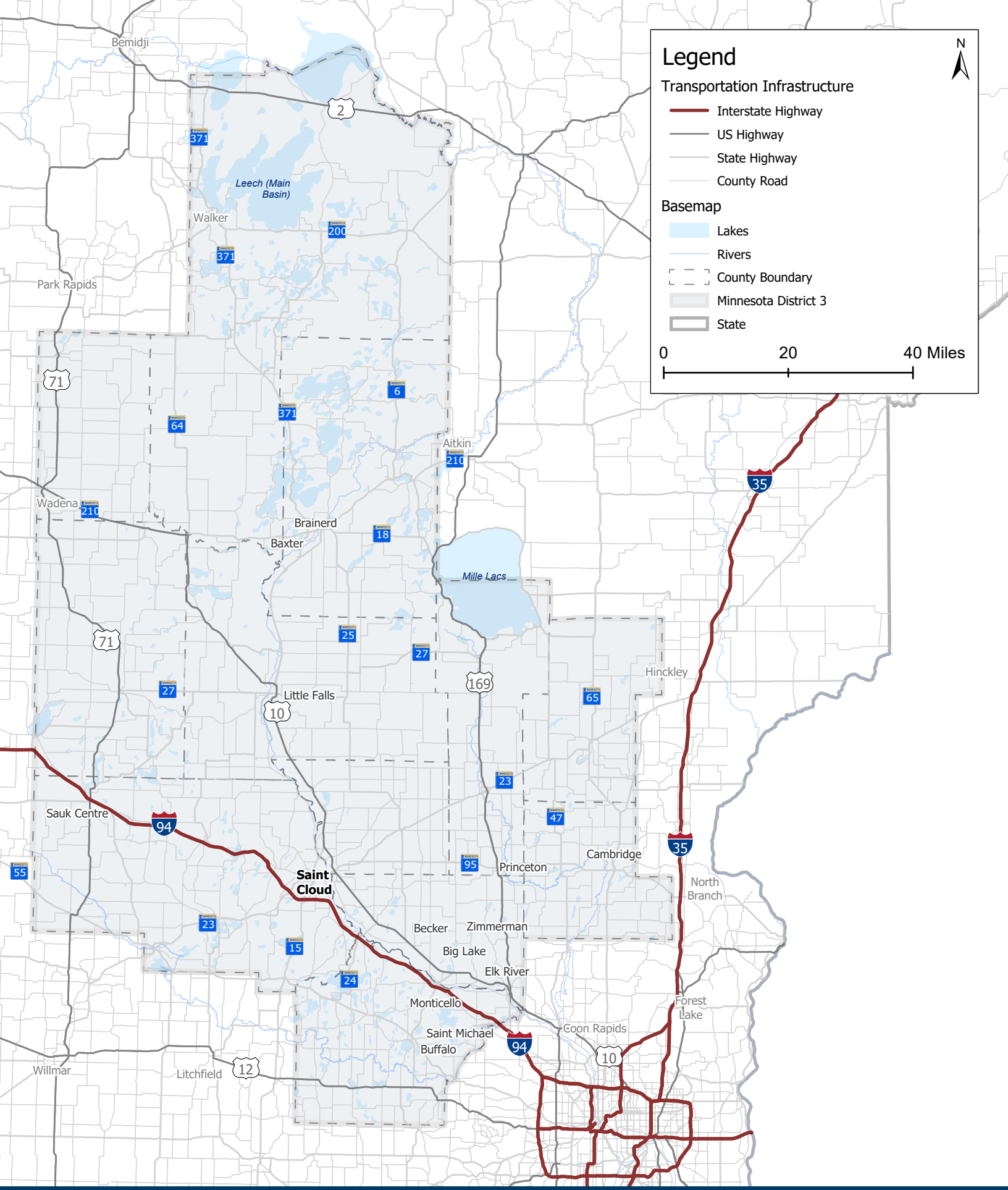


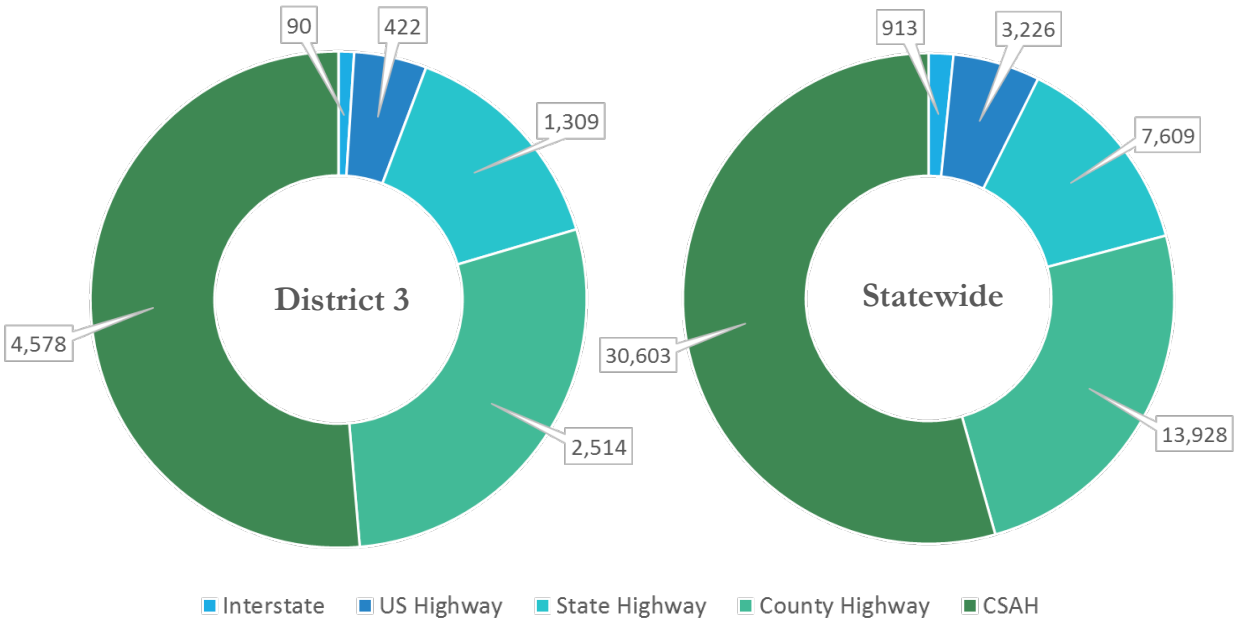
Figure 6: District 3 Roadway Network

Source: SRF Analysis of MnDOT LRS Data (2018).

DEPARTMENT OF TRANSPORTATION

The arterial roadway network generally lacks east-west connectivity due to natural barriers such as the Mississippi River and other bodies of water, as well as the organization of District 3's key corridors traveling in ordinal directions which include I-94, US 10, TH 23, and TH 55. Stronger north-south connections exist across District 3 which are facilitated by US 169, US 71, TH 371, and TH 65. **Figure 7** shows District 3's roadway system compared to the statewide roadway system. While the profiles are similar, District 3 has a slightly higher proportion of county highways while the state has a slightly higher proportion of interstates and US highways.

Figure 7. Centerline Mileage Comparison per Roadway Type



Source: Federal Highway Administration (FHWA) Centerline Miles Database, 2018

Truck Parking Facilities

Truck parking facilities are public- and privately-owned locations where truck drivers can park for a rest. Recent industry trends and federal policy changes have increased the visibility of truck parking challenges and the significance of providing safe, high-quality, and convenient parking for truckers. District 3 has eight public rest stops, the largest being the Brainerd Lakes location with 33 spaces. Most other locations average approximately 17 to 18 spaces and are located on, or near, I-94. An additional 36 private truck stops exist throughout the District, two-thirds of which are located within the vicinities of I-94 or US 10, the largest having hundreds of spots along I-94.

Source: Minnesota Statewide Truck Parking Study, 2019

Two locations in the District are approaching capacity including the Big Spunk Public Rest Area immediately west of St. Cloud on I-94 and at the Petro Clearwater which provides private parking along I-94. Public and privates stops closer to the metropolitan region on I-94 just beyond District 3's boundary are routinely over capacity.

Bridges

A total of 427 highway bridges exist in District 3 accounting for nine percent of the 4,412 bridges in Minnesota. Bridges provide critical connectivity in District 3, most notably across the Mississippi River which serves as a substantial natural barrier, essentially splitting the District in half. Between St. Michael and St. Cloud, this natural divide is especially prominent by dividing urbanized areas as well as the major highway corridors of I-94 and US 10. Currently, only two river crossings exist connecting I-94 and US 10 within an approximately 40-mile distance between the TH 101 crossing in Elk River (3,300 HCAADT) and the TH 23 crossing in St. Cloud (1,900 HCAADT). The two crossings include the two-lane TH 24 bridge in Clearwater and the four-lane TH 25 bridge in Monticello which together carry up to 2,100 trucks per day as of 2018 (1,700 on TH 24 and 1,400 on TH 25). **Figure 8** illustrates the existing HCAADT in the District.

TH 24 Mississippi River Bridge, Clearwater

Source: District 3 Staff

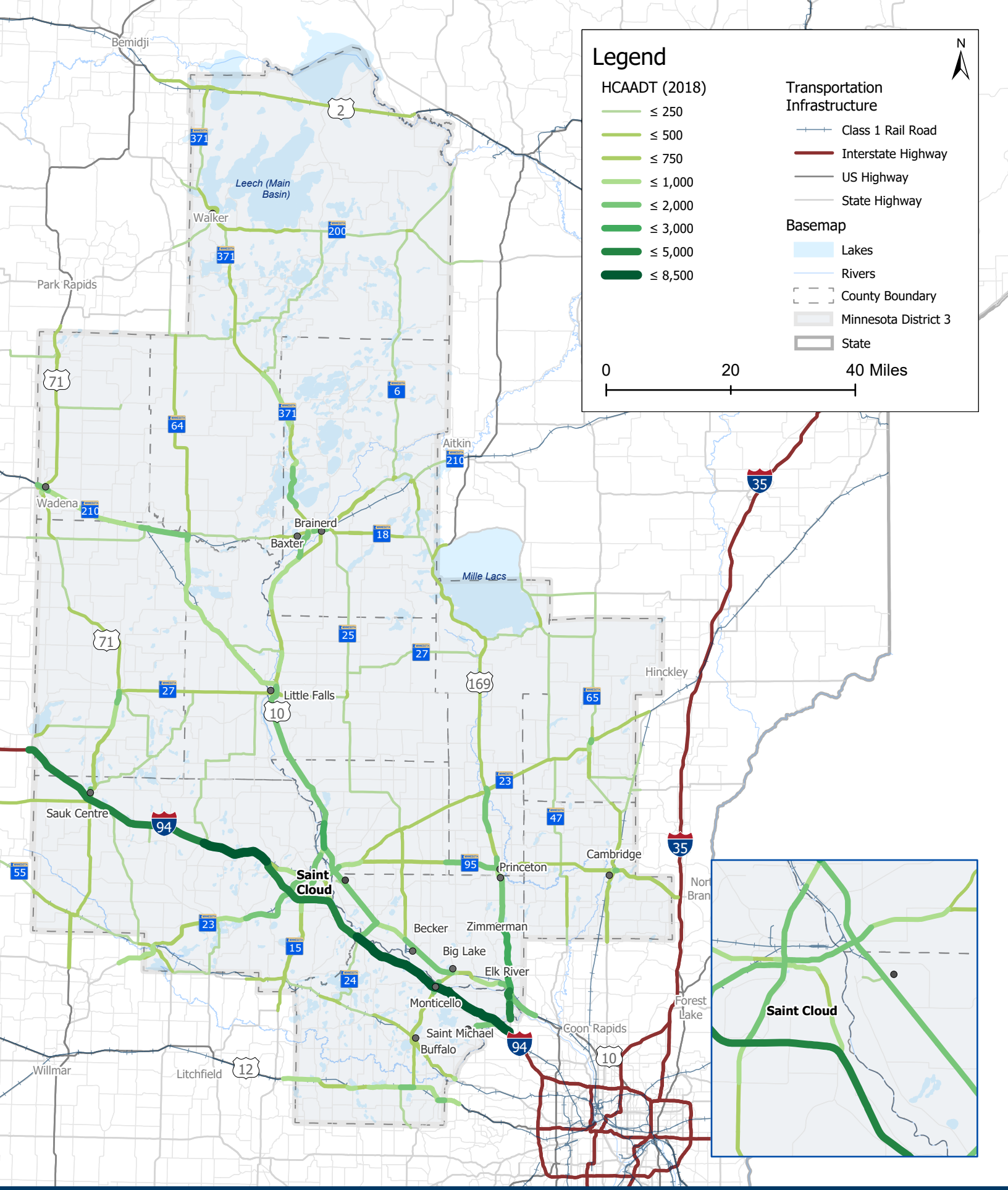


Figure 8: Existing Average Daily Traffic (Heavy Commercial Vehicles)

Sources: SRF Analysis of MnDOT and HCAADT Data for 2018

DEPARTMENT OF TRANSPORTATION

Railroads

The railroad network is a key freight asset in District 3. The District's 367 miles of railroad connects the region to the Fargo/Moorhead area and North Dakota to the northwest, Duluth, Minnesota to the northeast, and other Upper Midwest destinations such as Chicago. To the north and east, the freight rail system provides strong connectivity to Canada as well. The network is comprised of two Class I railroads and one switching and terminal railroad. Table 1 below shows the track ownership across the District.

8.2%	2	315
Of Minnesota's total railroad mileage	Class I railroad operators (BNSF and CP)	At-grade railroad crossings

BNSF owns more than three-quarters of the District 3 track mileage. The Staples Subdivision, owned by BNSF, primarily runs adjacent to US 10 in the District and is one of the busiest railroad corridors in Minnesota with upwards of 40 daily trains traveling up to 60 mph. **Figure 9** displays the rail network with subdivisions identified. Rail lines in the District carried more than 30 million tons of goods in 2017. By 2045, tonnage is expected to increase to nearly 33 million. The value of rail goods accounts for four percent of total freight value in both 2017 and 2045.

Highway-Rail At-Grade Crossings

District 3's highway-rail at-grade crossings account for nearly ten percent of the 3,067 at-grade crossings statewide. The District has 315 at-grade crossings (shown in in **Table 1**), two-thirds of which are active crossings. Active crossings (213) have infrastructure to warn motorists that a train is approaching such as lights and gates. Passive crossings (102) solely rely on signage, typically crossbucks.

Table 1. Freight Railroad System (Mileage and Grade Crossings), District 3

Owner	System Miles	Percent of Miles	Grade Crossings	Percent of Crossings
BNSF	286	76%	237	75%
CPRS	64	17%	55	18%
NLR	25	7%	23	7%
Other	2	0.005%	-	-

Source: Analysis of North American Rail Lines, November 2019, USDOT BTS; MNDOT Rail Safety Grade Crossing Data

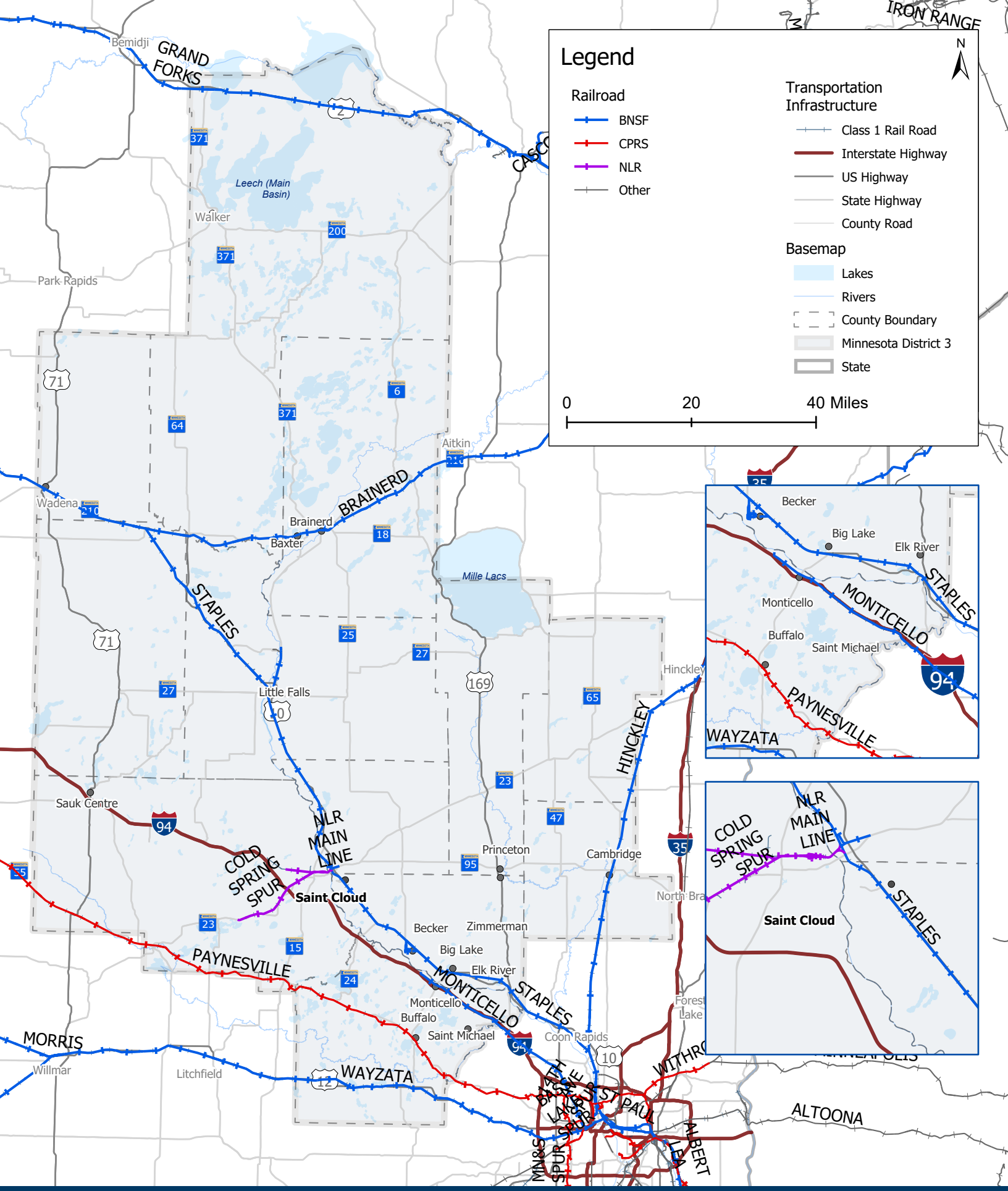


Figure 9: District 3 Railroad Lines and Owners

Source: CS analysis of National Transportation Atlas Database data.

DEPARTMENT OF TRANSPORTATION

Airports

The aviation network and air cargo shipments make up a very small percent of the freight mode share in Minnesota as well as District 3. However, freight shipped by air is typically high-value and requires expediency. Most goods moving by air are trucked to Minneapolis-St. Paul International Airport (MSP), or O'Hare International Airport in Chicago, which offers greater frequencies and a far broader range of international destinations. Total air cargo moving through the two District 3 cargo airports, St. Cloud Regional Airport and Brainerd Lakes Regional Airport, is about 0.02 percent of the total at MSP. Total air cargo freight traffic in 2018 at the two airports summed to only 96,200 pounds.

Source: City of Brainerd

Pipelines

Pipeline transportation allows for low-cost movement of liquids and gases to designated areas for consumption. Statewide, five percent of total freight tonnage and three percent of total value travels through Minnesota's pipelines. Fourteen percent of the state's more than 7,000 pipeline miles are in District 3 and thirty percent of U.S. crude oil flows through Minnesota.[7] The 1,009 miles of pipeline in the District move crude oil and natural gas between refineries near St. Paul, Mandan, ND, and Superior, WI. Due to Minnesota's proximity to the Bakken oil fields, located in North Dakota and Saskatchewan, significant volumes of crude oil flow through the District to refineries. Crude petroleum and other petroleum products compose more than 96 percent of the share of tons by weight in District 3 in 2017.[8] While crude petroleum is expected to see a modest decrease by 2045, other petroleum products are expected to see a large increase of more than 60 percent.

Ports and Waterways

D3 has no navigable waterways or facilities. Goods commonly travel by truck and/or rail to access the Mississippi River System or the Great Lakes-Saint Lawrence Seaway.

[7] Minnesota's Petroleum Infrastructure: Pipelines, Refineries, Terminals. https://www.house.leg.state.mn.us/hrd/pubs/petinfra.pdf

[8] Note: other petroleum products

3. How is District 3 Changing? Key Needs, Issues and Challenges

District 3 Freight System Needs & Issues

District 3's freight challenges are both complex and interrelated, spanning both the geographic and modal diversity of the District. The needs, issues, and challenges of District 3 were identified through a combination of quantitative analysis and qualitative information gathered for three key criteria of safety, mobility, and condition. The process was undertaken following the framework provided in the *Minnesota Statewide Freight System and Investment Plan.* Data was used to identify needs such as congestion, high-crash locations and safety risks, bridge restrictions, and bridge condition. Specific needs within each of the three categories are detailed below:

Safety: Improving the freight system so it safe for all users, secure from vulnerabilities, and resilient to external pressures (environmental or man-made). The highest needs are identified with three measures: truck-specific roadway crashes, safety risk analysis, and crashes at railroad at-grade crossings.

Mobility: Enhancing the freight system to reduce delay, mitigate congestion, and improve reliability for freight users. The highest needs are identified with four measures: congestion, freight bottlenecks, bridge clearance, and bridge weight restrictions.

Condition: Assessing and upgrading the freight system to ensure it is accessible and suitable for handling freight. This includes bridge condition analysis and did not consider pavement condition per guidance from MnDOT.

The following sections discuss the top freight needs in each of the three categories. This discussion also provides a foundation for recommended improvements, which will be highlighted in an upcoming chapter.

Safety

The safety of all users of the transportation system, including commercial vehicle operators, is critically important to the achievement of MnDOT's Toward Zero Deaths goal. Freight-involved crashes can also cause serious injuries or loss of life, damage to vehicles and cargo, and/or significant disruptions to traffic flows which hinder both freight and passenger vehicle movement. Three measures were used to understand freight-involved crashes and identify potential "hot spots" where freight safety issues could exist. MnDOT District 3's Safety Plan was considered as part of the safety risk analysis.

Truck safety

Crash hot spots were identified using nearly four years of crash data from MnDOT's Crash Mapping Analysis Tool (MnCMAT) for January 1, 2016 to October 11, 2019. All freight vehicle categories from delivery vehicles (e.g. delivery trucks) to semi-trucks were analyzed and crashes were only included if they occurred on a MnDOT roadway (i.e. interstate or trunk highway). This methodology ensured that freight-involved crashes along higher-volume freight corridors were the focus of study. A total of 1,416 truck crashes were recorded in District 3 over this period, accounting for an average of approximately five percent of all crashes in the District. Total crashes decreased from 2016 to 2017 but have since trended upward. There was a total of 409 truck crashes in 2018 which correlates to an approximate 25 percent increase over the 2017 total.

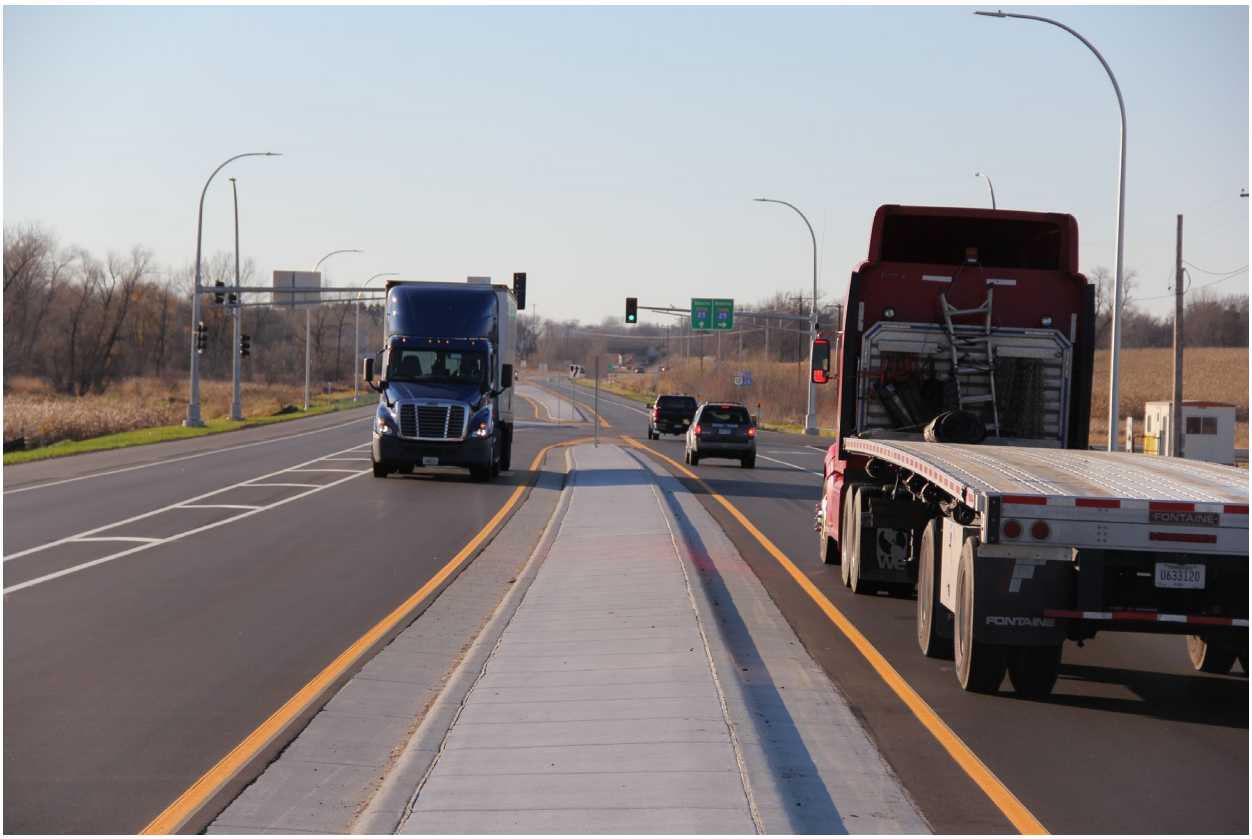
Crash severity was also studied to identify key locations of fatal or serious injury crashes. District 3 has the highest total of truck-involved crashes, including all crash severities during the study period, as compared to all other MnDOT districts (excluding Metro District). A breakdown of crash severity per year for District 3 is included in **Table 2**. While there was a disproportionally high number of fatal crashes involving trucks in 2017, in 2018 there was a reduction in high-severity crashes but an increase in crashes overall.

Table 2. District 3 Truck-Involved Crashes by Severity (2016-2019)

Severity	2016	2017	2018	2019[1]	Total
Fatal	7	16	4	4	**31**
Serious Injury	13	10	5	5	**33**
Minor Injury	37	39	35	31	**142**
Possible Injury	39	59	51	44	**193**
Property Damage	243	206	314	254	**1,017**
Total	339	330	409	338	**1,416**

Source: MnDOT Crash Data, 2019
[1] Data includes crashes recorded through October 11, 2019

Figure 10 highlights locations with the highest number of truck crashes. The exurban communities of the MSP metropolitan area, as well as St. Cloud and Brainerd/Baxter all have concentrations of truck crashes due to the higher vehicle miles traveled in those populated areas. Truck crashes are also concentrated along I-94 due the corridor's high traffic volumes. An approximate 50-mile stretch of I-94 between St. Michael and St. Cloud, the busiest roadway segment in District 3, accounts for nearly 20 percent of all fatal or injury freight crashes district-wide. Another hot-spot along I-94, a 20-mile segment between Sauk Centre and Freeport, recorded nearly 20 fatal or injury crashes of which approximately half occurred during weather conditions of snow or ice.



Trucks traveling on MN Highway 25. Source: MnDOT District 3 Staff

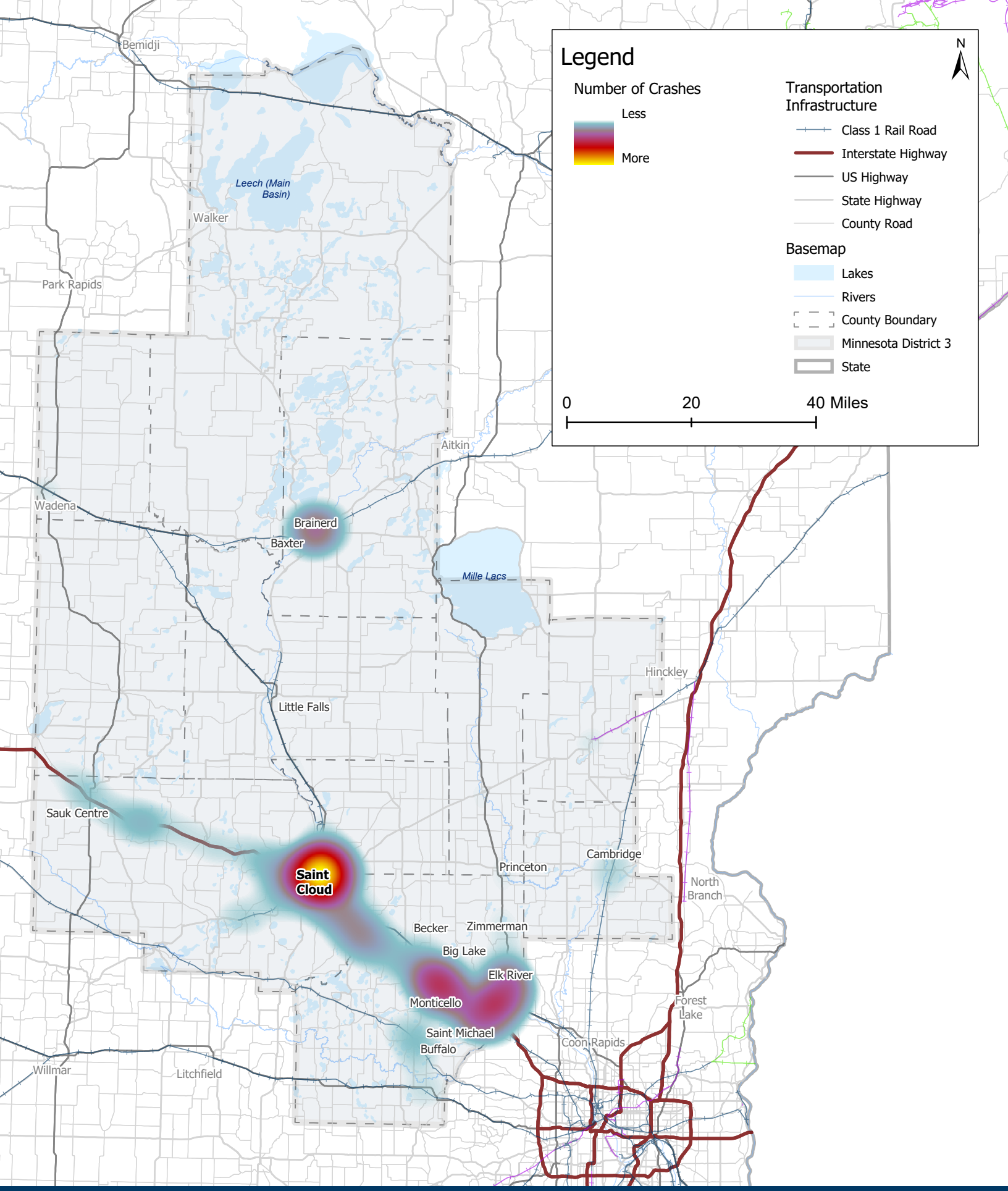


Figure 10: High-Risk Truck Crash Locations

Sources: SRF Analysis of MnDOT Crash Data, 2016-2019

DEPARTMENT OF TRANSPORTATION

Rail Safety

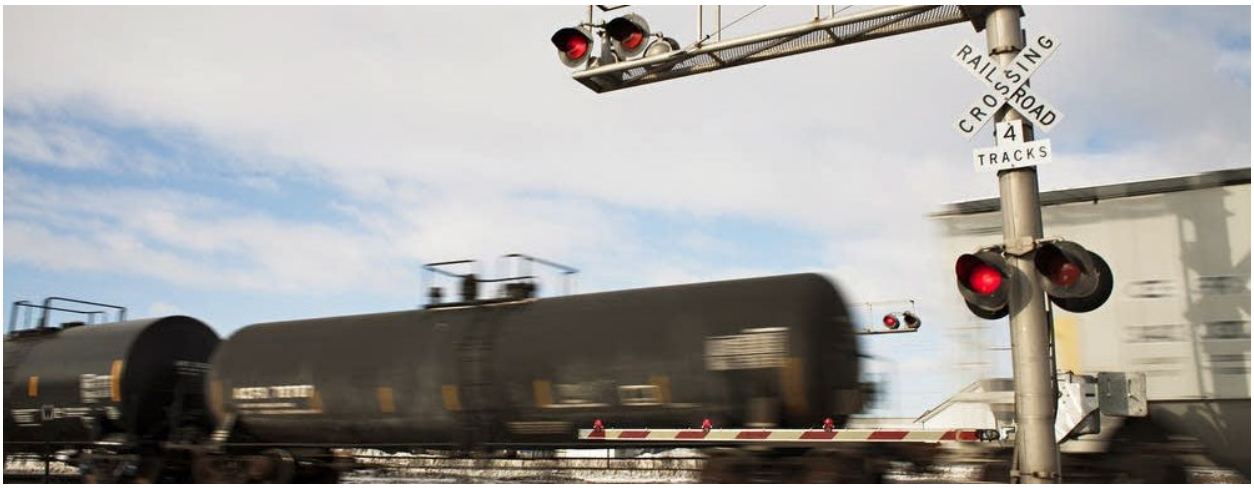
Rail grade crossing safety is of critical concern in District 3 due to the high-volume and high-speed railroads in the District, most notably the BNSF mainlines adjacent to US 10 and TH 55. Both statewide highway corridors are hot spots for rail crossing incidents due to each accommodating high volumes of traffic and daily trains. Although vehicle-train collisions are relatively rare, grade crossing incidents have a greater probability of resulting in severe injury or death over other types of traffic crashes.[9] As shown in **Table 3**, during the five-year period from 2014 to 2018, rail grade crossing incidents resulted in six fatalities (17 percent of the statewide total) and 13 serious injuries (13 percent of the statewide total) in District 3.

Table 3. District 3 Rail Grade Crossing Incidents by Severity (2014-2018)

Severity	2014	2015	2016	2017	2018	Total
Fatal	1	0	2	2	1	**6**
Injury	3	2	6	2	0	**13**
Total Incidents	9	2	5	7	2	**25**

Source: MnDOT Crash Data, 2019

Figure 11 shows the concentration of grade crossing crashes. Most of the high-risk crossings are on BNSF's Staples (adjacent to US 10), Paynesville (adjacent to TH 55), and Wayzata Subdivisions (adjacent to US 12). As part of Minnesota's rail safety efforts, MnDOT analyzed at-grade rail crossing incidents to identify factors that contribute to higher incident rates. Sherburne County, where the Staples Subdivision is located along US 10, ranks in the top ten counties statewide by number of grade crossing crashes. According to MnDOT's ratings, 40 active crossings (19 percent of the District 3 total) and 12 passive crossings (12 percent of the total) have a risk rating of at least 7, indicating high-risk.



Source: Minnesota Public Radio

[9] MnDOT Grade Crossing Safety Project Selection 2016

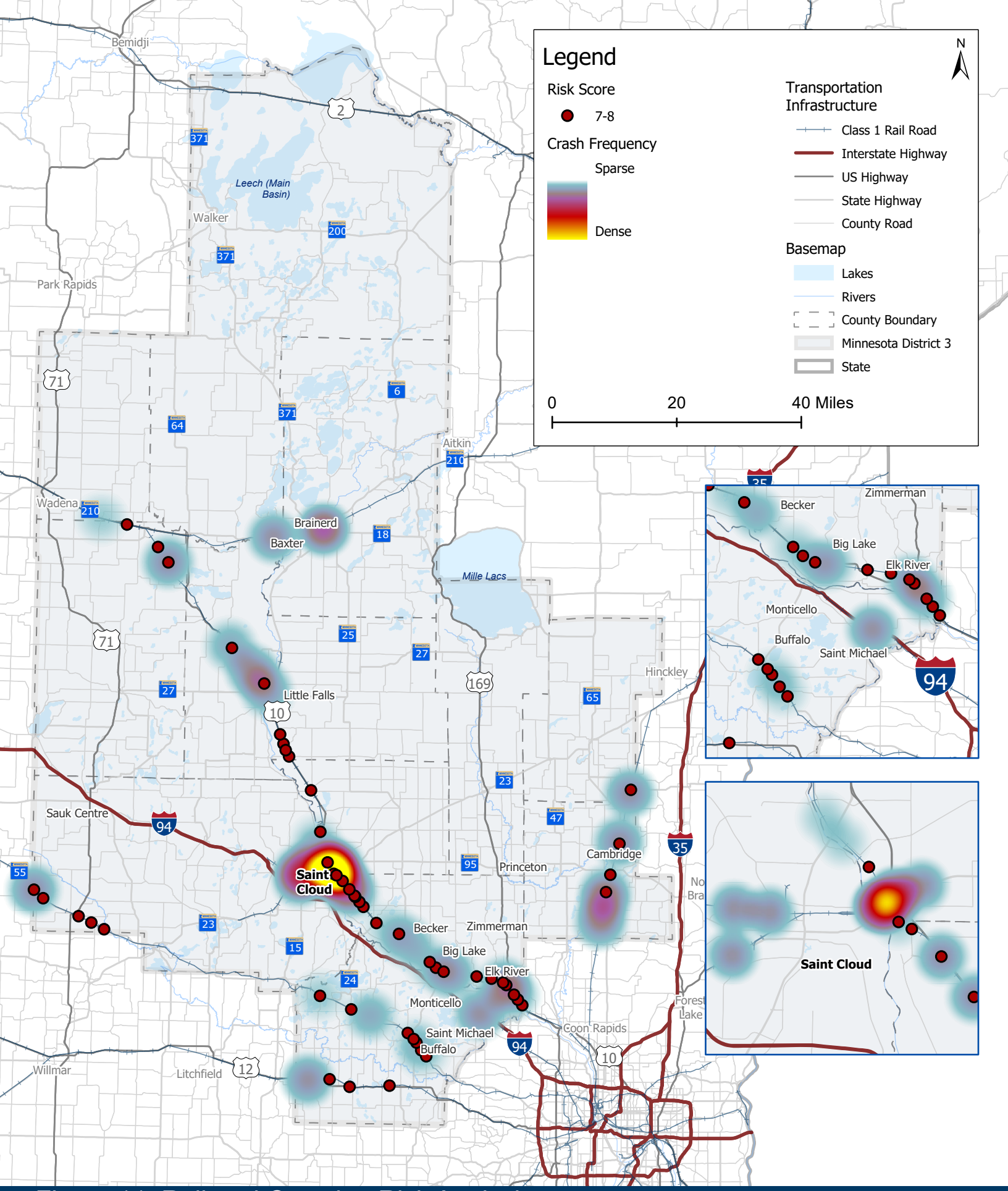


Figure 11: Railroad Crossing Risk Analysis (Active & Passive Crossings)

Sources: SRF Analysis of FRA Crossing Data, 2019

DEPARTMENT OF TRANSPORTATION

Key Safety Takeaways

- The total number of truck crashes is trending upward in recent years and is the highest of all other outstate districts.
- Roadway segments with the highest safety risk are concentrated in urban areas or along higher-volume, four-lane roadways with at-grade intersections. These locations include US 10, US 169, TH 65, and TH 371.
- The greatest safety needs regarding at-grade railroad crossings are adjacent to US 10.

Mobility

Mobility needs and issues create barriers to an efficient and reliable freight system for users. Using truck GPS and bridge data, the top mobility needs were identified, as described below.

Analysis of Truck GPS Data

StreetLight Insight data incorporates information from third-party smartphone weather apps, food delivery apps, GPS navigation apps, and other apps with location components (about 300 in all), as well as on-board GPS navigation to deliver an approximate look of a region's traffic. The StreetLight analysis for this project was set-up using several of the platform's features and customized to fit the needs of the analysis, with specific parameters that include:

- Two four-hour study periods: Morning – 6 am to 10 am and Evening – 3 pm to 7 pm.
- Only on Tuesday, Wednesday, and Thursday.
- Data for all of 2018.

Only commercial vehicle data was used which is defined by StreetLight as medium and heavy-duty freight vehicles. The StreetLight data was overlaid with the MnDOT roadway network (interstate and trunk highway) and used to estimate average truck travel speed and truck travel time reliability (TTTR) within three-mile roadway segments.

Truck Average Speed

Average truck speeds are helpful to identify areas of potential congestion or slowing due to intersection control and other roadway elements. Overall, trucks are traveling at or near the posted speed limit on most of the District's highway network including key freight corridors such as I-94. As expected, some reduced speeds exist in urban areas and near signalized intersections or major highway junctions. The US 10 corridor, for example, experiences slowdowns at the signal-controlled intersections southeast of St. Cloud. At a system-wide level, no major issue areas arise from this analysis.

Truck Travel Time Reliability

Truck travel time reliability (TTTR) measures the consistency of travel along a corridor by comparing the 50th percentile and 95th percentile speeds along a segment of roadway. The Federal Highway Administration (FHWA) has defined an index of 1.5 as the acceptable

threshold for truck mobility, with higher values representing potential freight bottlenecks. TTTR was analyzed on all MnDOT roadways (interstate and trunk highway) and divided into three-mile segments. Overall, most roadway segments operate acceptably (less than an index of 1.5) or with limited reliability issues. District 3 segments with high TTTR indices are focused in urban areas, at signalized intersections and major junctions, and along the following high-volume corridors:

- I-94 from St. Michael to Monticello.
- TH 101 from I-94 to US 169.
- US 10 from Elk River to Becker.

Other areas with minor reliability issues include connectors to I-94 and segments of US 169, TH 23, TH 55, TH 371, and TH 210 that carry higher volumes and/or travel through urban areas. **Figures 12 and 13** show TTTR during the morning and evening peak hours, respectively.

Construction along I-94 near TH 241. Source: District 3 Staff

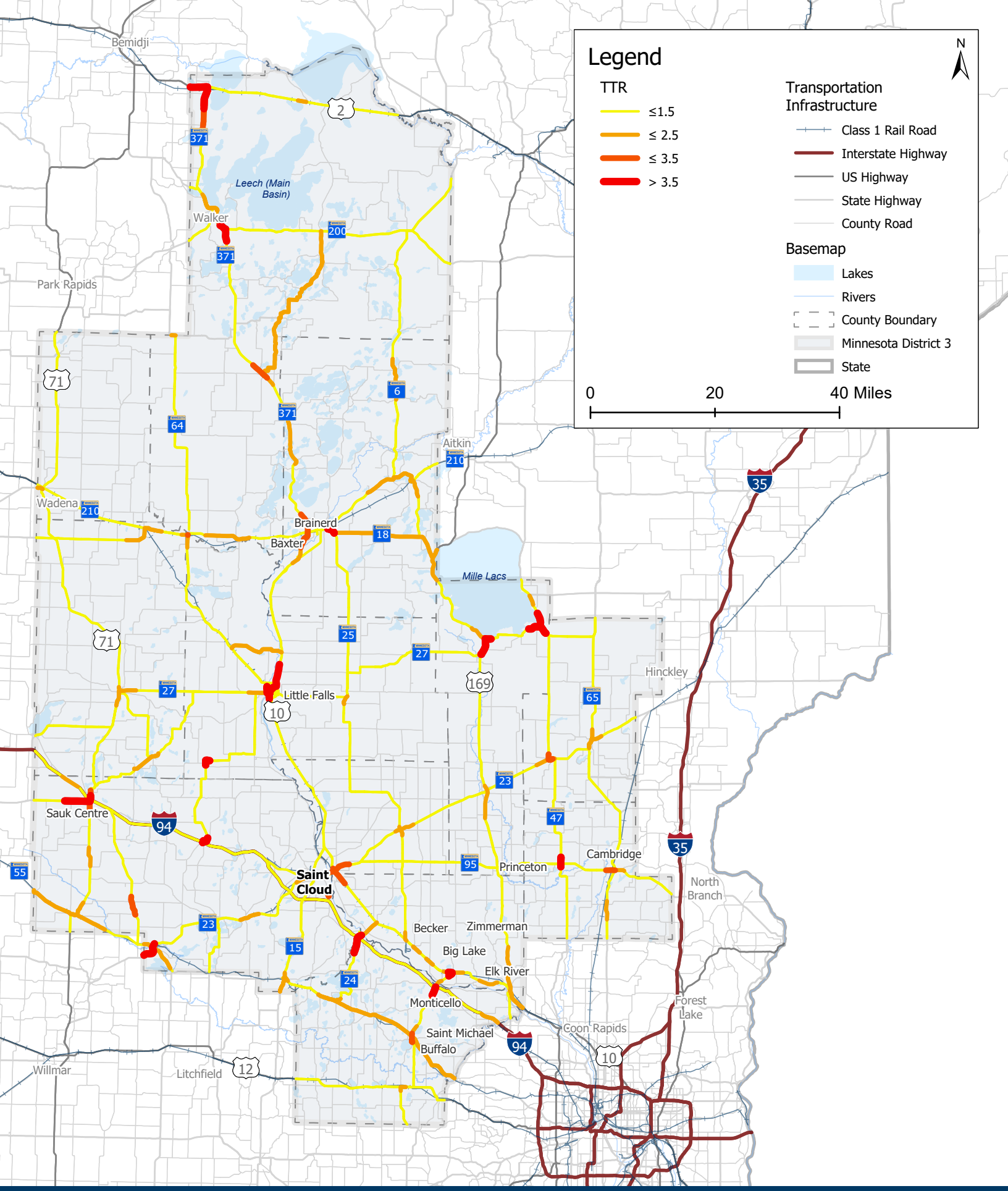


Figure 12: Truck Travel Time Reliability (AM Peak Period)

Source: SRF analysis of StreetLight Data, 2018.

DEPARTMENT OF TRANSPORTATION

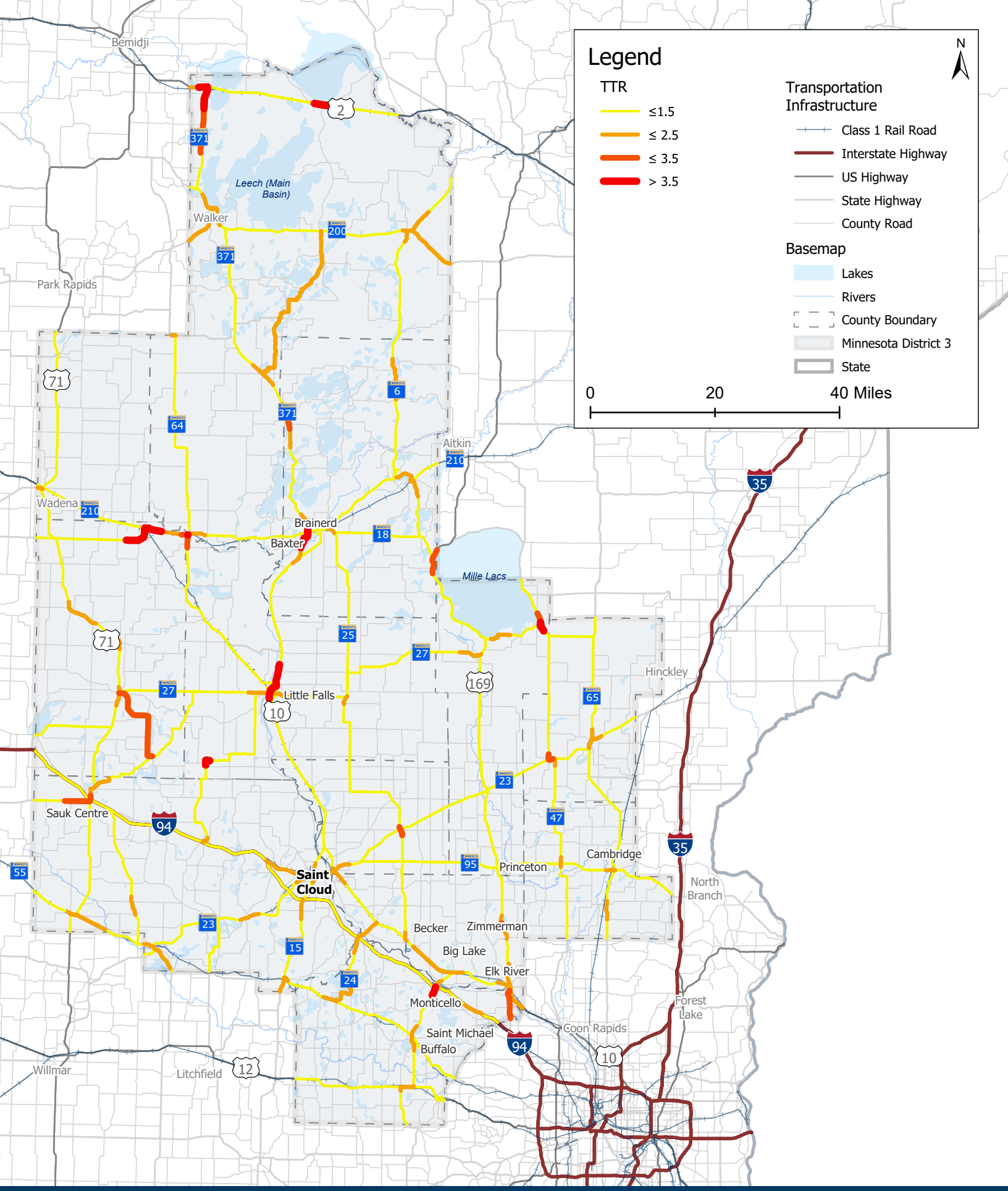


Figure 13: Truck Travel Time Reliability (PM Peak Period)

Source: SRF analysis of StreetLight Data, 2018.

DEPARTMENT OF TRANSPORTATION

Existing Freight Highway Bottlenecks

The Moving Ahead for Progress in the 21st Century Act (MAP-21) requires State DOTs to identify and address freight bottlenecks. Per this requirement, MnDOT conducted a study using TTTR that identified 21 freight bottlenecks on the state highway system. Three freight bottlenecks are located in District 3, the only locations outside of the Metro District. Two of these bottlenecks are being addressed through programmed projects in 2020 and 2022.

- **TH 24/I-94 interchange – Clearwater:** 2020 Programmed Project (STIP) – I-94 from Clearwater to Monticello: roadway reconstruction, bridge repairs, and other targeted improvements. Projected completion in 2021.
- **TH 23 from 10th Avenue South to the Mississippi River – St. Cloud:** 2022 Programmed Project (STIP) – TH 23/US 10 interchange: reconstruction of interchange and adjacent roadways, and bridge replacement. Projected completion in 2024.
- **TH 15 from 2nd Street South to 8th Street North – St. Cloud:** No projects planned or programmed. Corridor study is underway by the St. Cloud Area Planning Organization (APO).

Bridge Clearance

The movement of trucks can be dictated by the design and dimensions of roadways and bridges. Low bridges are especially disruptive as they can hinder truck access to critical destinations. This is particularly challenging for oversize-overweight (OSOW) vehicles which may exceed the dimensions of a normal truck.

There are 158 bridges constructed over roadways in District 3, of which nine bridges (five percent) have a vertical clearance of 14'6" or less and could cause issues for truck movements due to the limited vertical clearance. These are denoted by a red diamond in **Figure 14**. There are no low-clearance bridges crossing MnDOT-administered roadways, though a majority are directly adjacent to those corridors via connecting local or county roads. Most issue locations travel underneath low-clearance railroad bridges.

There are 22 bridges (14 percent) in District 3 that are over 14'6" but less than MnDOT's guidance. MnDOT uses the following guidance for bridge clearance statewide:

1. ≥ 16'6" bridge clearance for all OSOW/Superload corridors
2. ≥ 16'4" bridge clearance for all other trunk highways
3. > 14'6" bridge clearance for all other roads (trucks up to 14'6" no longer require an OSOW permit)

Of those that are over 14'6" but under MnDOT guidelines, two are located along OSOW routes (US 12 and TH 15) and 20 across other trunk highways which are designated freight corridors. By corridor, I-94 has the most non-compliant bridges per MnDOT guidelines. Twelve non-compliant bridges are located along I-94, three each are along US 10 and US 169, and two along TH 15, among others.

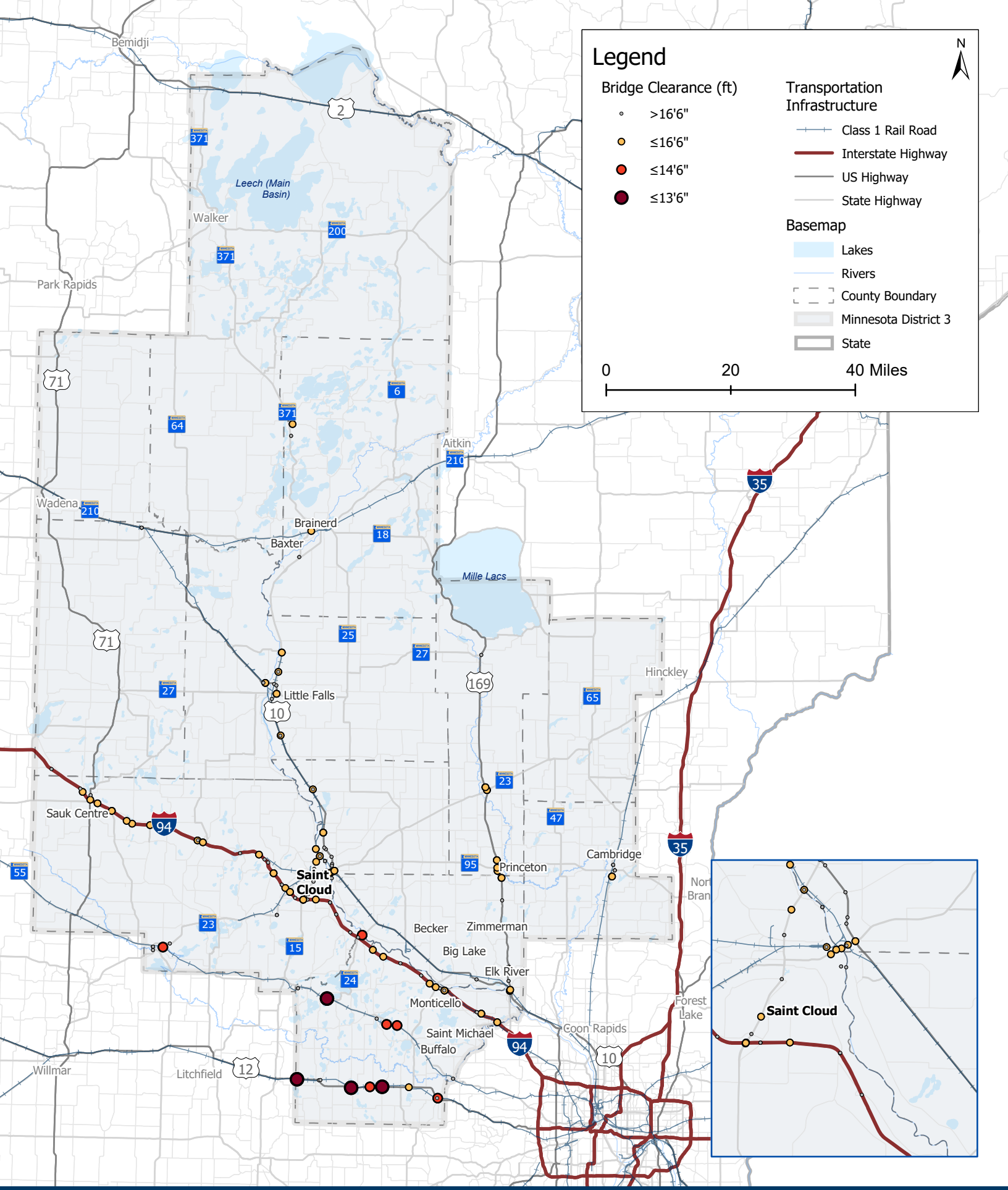


Figure 14: Bridge Clearance Restrictions

Sources: SRF analysis of MnDOT Bridge Data, 2018

DEPARTMENT OF TRANSPORTATION

Bridge Weight Restriction

Weight restricted bridges are another potential choke point for trucks. In total there are 53 bridges with posted weight restrictions less than 40 tons for trucks in District 3. No weight restricted bridges exist along freight corridors. One bridge is located along a trunk highway – TH 47 approximately five miles north of TH 23 and is programmed for future upgrades. The remaining weight restricted bridges are all located along local or county highways. These could pose issues for first/last mile connectivity to business clusters or for agricultural trucks and implements.

Key Takeaways

- There is limited congestion district-wide, though there are key areas for performance improvements at intersections of major roadways (ex. I-94 and U 10).
- One MnDOT identified freight bottleneck remains in District 3 with no programmed improvements.
- Bridge-focused needs relate to clearance and weight restrictions that limit freight movement. I-94 has the most non-compliant bridges via MnDOT clearance guidelines. Weight restricted bridges are primarily along local or county highways and could pose first/ last mile connectivity issues.

Bridge Infrastructure Condition

The condition of bridges is important to freight movement because deficient bridge structures can impact the safety and reliability of the system. More specifically, deficient bridges can pose problems for freight due to weight restrictions, rough road surfaces, or geometric conditions that pose issues for truck accessibility, all of which can damage cargo or force trucks to detour their route. Of note, only bridge condition was considered for this study. Pavement condition was not studied per direction from MnDOT regarding the planning and funding already in place as a part of the agency's routine highway maintenance programs.

Bridge condition in District 3 was evaluated using the MnDOT Bridge Inventory which scores the bridge deck, superstructure, and substructure. MnDOT uses these identifiers to track bridge condition and program maintenance or replacement projects. Scores of five or less represent deteriorated conditions for additional tracking and potential improvements. A total of 30 bridges (seven percent of the total number inf District 3) had all three elements score a five or less. Of those, only the TH 23 bridges at US 10 were included in this higher-risk group and those are programmed for replacement in 2022. The remainder are located on the local and county roadway system. **Figure 15** shows bridge condition by the following scoring system:

- 3 = score of five or less in all three identifiers
- 2 = score of five or less on two of three identifiers
- 1 = score of five or less on one of three identifiers

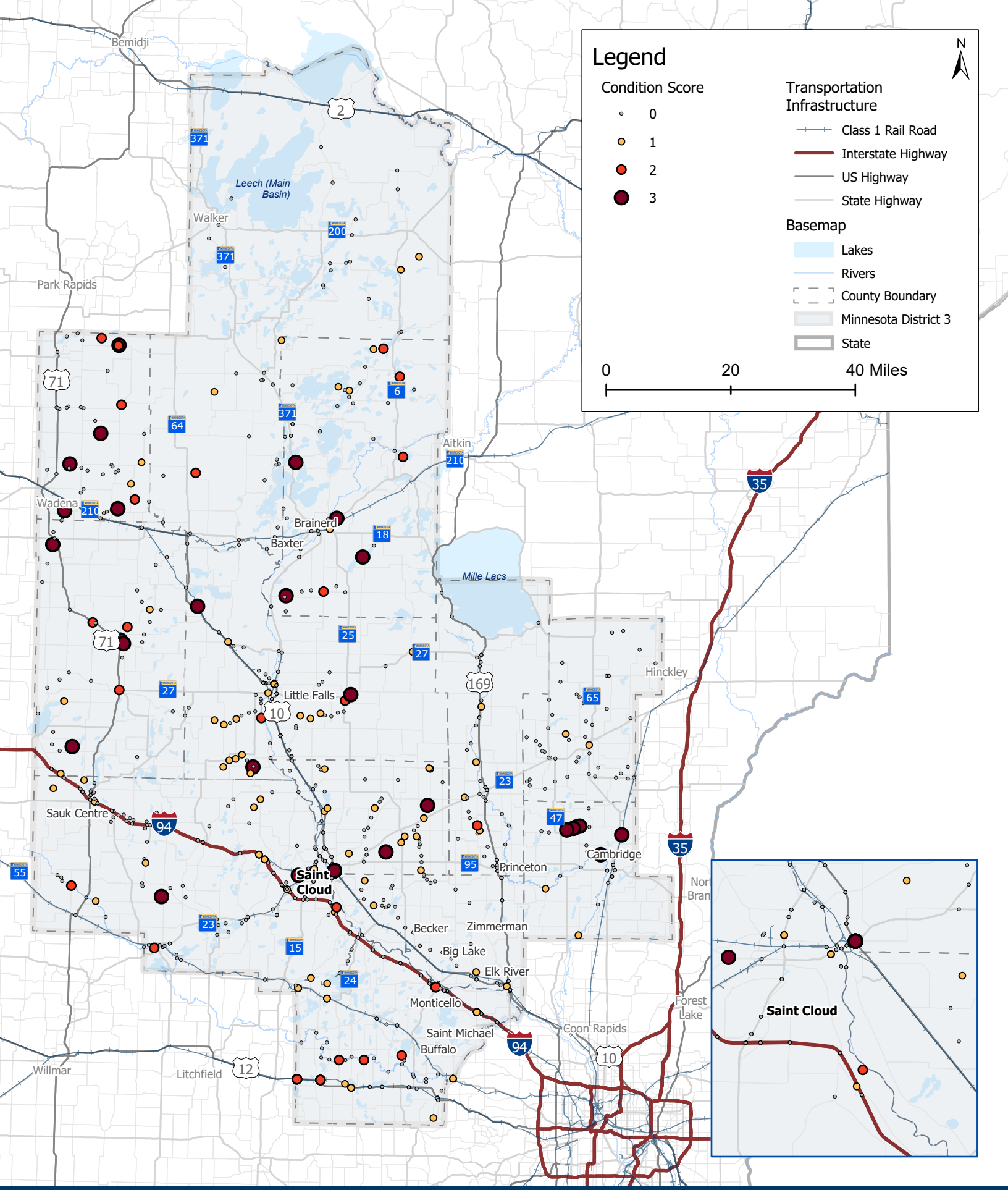


Figure 15: Bridge Condition

Sources: SRF analysis of MnDOT Bridge Data, 2018

DEPARTMENT OF TRANSPORTATION

Stakeholder Priorities

Stakeholder feedback and qualitative input on the needs and issues in District 3 were also shaped by a SWOT (Strength, Weakness, Opportunity, and Threat) analysis and supplemented by a plan synthesis and coordination with District 3's Manufacturers Perspectives Study (MPS). **Table 4** summarizes the key stakeholder input by category. **Appendix A** has more detail on the plan synthesis and **Appendix D** includes the SWOT analysis results.

Table 4. Key Stakeholder Takeaways

Freight Mobility and the Economy	Mobility improvements are needed to sustain continued population and economic growth in the region.
	District 3's proximity to the Metro District is both a positive and negative; District 3 should work to capture benefits while minimizing negative impacts, i.e. congestion on I-94.
	The District should explore opportunities for multimodal gateways (Brainerd/St. Cloud airports, intermodal facilities) to reduce reliance on trucking and facilities outside the District.
	The District does a good job preparing for and responding to weather. MnDOT should promote resiliency by continuing to improve its management of severe weather and climate change.
Freight Infrastructure	E/W and N/S connectivity and connections across some natural barriers are lacking, such as Mississippi River crossings connecting US 10 and I-94.
	Adequate pavement condition for trucks on key routes helps keep freight moving.
Freight Safety	Additional investment in grade-crossing safety improvements is needed, especially along US 10 corridor.
	Safety programs (i.e. safe driver training) are also opportunities to improve roadway safety.

4. Project Funding and Prioritization

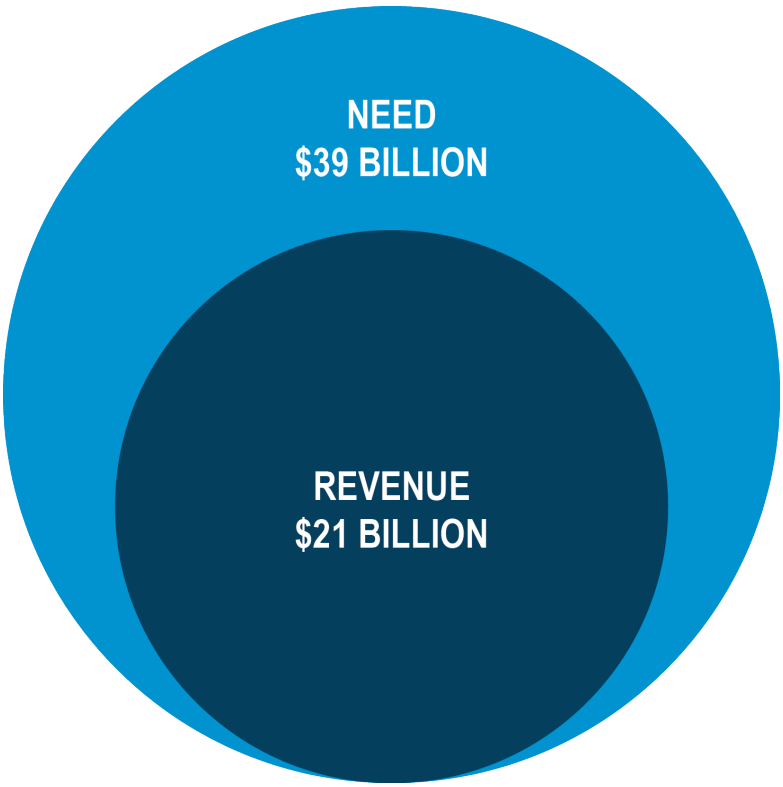
Funding Sources for Freight Improvements

Prioritization of freight transportation related investments is critical due to an acknowledged gap in transportation funding compared to needs, both throughout Minnesota as well as the nation.

Minnesota State Highway Investment Plan

The 2018 Minnesota State Highway Investment Plan (MnSHIP) established a guideline for prioritizing and funding investment in the 12,000-mile state highway system over the next 20 years. The MnSHIP estimates that $21 billion in funding will be available ($1 billion per year) over the next 20 years which does not meet the estimated state highway need which totals $39 billion. Additionally, the *Minnesota State Rail Plan* and the *Minnesota Statewide Aviation System Plan*, as well as other planning efforts identify gaps between funding and statewide needs.

Figure 16. MnSHIP Investment Forecast



Source: MnSHIP

The constrained funding environment is caused by two primary reasons, according to MnSHIP:

- **Increased cost of construction** – construction costs are growing at a rate of 4.5 percent per year so revenue in the future will not funds as much as it has in the past.
- **Declining revenue growth** – As fuel efficiency increases and the vehicles miles traveled (VMT) remains steady or declines, the resulting gas tax revenue will decline as well.

District 3 is second only to the Metro District in total truck freight flows, and requires proportional investment to maintain a state of good repair for roadways and bridges to sustain the competitiveness of the District freight system.

MnDOT's capital projects are framed with five investment categories, although projects can draw on investments in more than one category. The largest amount of funding supports the System Stewardship category (69 percent) which includes pavement and bridge condition per **Table 5**. To advance implementation of projects, the Other category, which includes project delivery and small programs, was allocated nearly one fifth of the $21 million of funding.

Notably, this MnSHIP allocated specific dollars to freight in the Critical Connections category, totaling $610 million primarily for freight-related highway improvements. However, ten percent of the funding is available for multimodal freight facilities that are publicly and privately owned. The funding is established as the National Highway Freight Program (NHFP) under which MnDOT established the Minnesota Highway Freight Program (MNFP).

Table 5. Minnesota 20 Year Capital Highway Investment

Investment Objective	Investment Category	2018 – 2037 (billions)	Percent Share
System Stewardship	Pavement Condition	$10.31	69%
	Bridge Condition	$2.38	
	Roadside Infrastructure	$1.6	
	Jurisdictional Transfer	$0.09	
	Facilities	$0.08	
Transportation Safety	Traveler Safety	$0.67	3%
Critical Connections	Twin Cities Mobility	$0.24	7%
	Greater Minnesota Mobility	$0.03	
	Freight	$0.61	
	Bicycle Infrastructure	$0.14	
	Accessible Pedestrian Infrastructure	$0.53	
Healthy Communities	Regional and Community Improvement Priorities	$0.31	2%
Other	Project Delivery	$3.27	19%
	Small Programs	$0.6	
	Total	$20.89	100%

Source: Adapted from Minnesota State Highway Investment Plan, 2017

Freight-Specific Funding

Prior to establishing a line item freight source in the MnSHIP, MnDOT had developed consistent sources of funding for the freight system through grant and loan funding. Funding for freight specific projects is available from several outlets, identified in **Table 6**.

Table 6. Overview of MnDOT Freight Related Funding Programs

Source	Funding	Eligible Use
Minnesota Highway Freight Program	$98 million (programmed through 2022) $56.9 million (solicited through 2025)	Program funds emphasize the following work types: truck parking, truck parking information management systems, weight stations and enforcement sites, railroad at-grade crossings, grade separations, active signals and signs, anti-icing systems, truck lanes, information to cab systems, locations or road segments with high truck or rail crashes.
Railroad At-Grade Crossing Safety Program (Section 130)	$6 million (per year with federal/state match)	Closures/consolidations of railroad crossings and safety projects of high-risk crossing locations.
Minnesota Railroad Service Improvement Program (MRSI)	$900,000 (per year, irregular)	Projects that improve "fixed assets" such as railroad beds, tracks, turnouts, bridges, buildings, and fixed loading/unloading equipment.
Port Development Assistance Program	$3 to 5 million (every bonding year)	Projects that improve or develop a commercial navigation facility or its components, including dock and terminal repair, on-dock equipment, etc.
Weight Station and Commercial Vehicle Safety/Enforcement Program	$2 million (per year)	Projects that maintain or improve commercial vehicle enforcement and safety.

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

These additional sources address the needs of the highway, rail, and port systems in addition to dedicating dollars for weigh stations and safety. Still, the available funding does not support or sustain a thriving freight system due to limitations on the cadence of funding years and the assurance that funding will be available in perpetuity.

Approach to Freight Project Selection and Prioritization

The District 3 Prioritization Process (Needs)

Based on the safety, mobility, and condition data gathered and analyzed for District 3, a predetermined and specific scoring and ranking method identified the top ranked needs from the many potential needs in the District. There is abundant data available to describe the District's needs that allowed the process to be comprehensive and account for all areas within the District. This process was shaped by previous MnDOT processes for evaluating and ranking freight system projects. District 3 stakeholder comments were an added component to the rankings, making sure the quantitative needs matched a qualitative need.

Table 7. MnDOT Freight Plan Measures

Overall	Heavy Commercial Average Annual Daily Traffic (HCAADT)
	Heavy Commercial Vehicle Percentage
Safety	Truck Crash Frequency
	Segment Safety Risk Rating
	High-Risk At-Grade Railroad Crossing
Mobility / Performance	Truck Travel Time Reliability
	Bridge Clearance Restrictions
	Bridge Weight Restrictions
Cond.	Bridge Condition

The process of identifying, evaluating, and ranking needs, capturing unaddressed needs (referred to as gaps), and prioritizing opportunities (high-ranking gaps) for potential project concepts occurred over five steps:

- Map needs
- Map planned projects
- Identify gaps or where needs and programmed projects do not overlap
- Review qualitative information to ensure proper prioritization
- Quantitatively rank gaps using MnDOT freight plan measures to identify opportunities

Evaluation Results

The results of the prioritized opportunities correspond to the MnDOT Freight Plan performance measures found in **Table 7**. Those project opportunities for the District to address are summarized at a high-level below by category. The projects are quantitatively ranked; however, were further qualitatively reviewed in coordination with MnDOT and key stakeholders to ultimately advance the best projects for the region. **Appendix C** provides a list of the overall ranked projects or those by total overall score.

- **Safety** – the highest ranked segments are concentrated in the southern portion of District 3 on roadway segments that are higher volume and adjacent to railroads.
- **Mobility/Performance** - highest ranked segments are throughout District 3 and include:
    - US 71/I-94
    - US 10/TH 210
    - TH 371/US 2
    - Highest ranked bridges are concentrated along:
        - US 12
        - TH 55
        - TH 23
- **Condition** - highest ranked bridges are spread throughout District 3 and concentrated on local, township, and county roadways.

5. Recommended Actions

Recommendations Process

Key freight system issues and needs identified in Chapter 3 and prioritized in Chapter 4 were further distilled to identify the top projects per category. This chapter further describes those project types at a high-level and organizes the overall project opportunities as they were ranked according to the three MnDOT freight plan performance measures. Finally, 12 projects were identified through a quantitate and qualitative process to analyze feasibility as well as organize concept designs and cost estimates. The recommended projects seek to leverage the opportunities unique to District 3 and improve the economic competitiveness of the area by investment in transportation infrastructure. To support MnDOT's continued investment in the District's freight network, the Plan has identified recommendations by:

- **Projects** that physically improve the District's freight system.
- **Policies** to enhance the governance and efficiency of the District's freight system.
- **Programs** to boost freight mobility in the District.
- **Partnerships** to collaboratively address freight system, transportation operations, and programmatic or policy-driven challenges.

Need Types

Chapter 4 identified 223 unfunded freight gaps in District 3. More details on the identified gaps can be found in **Appendix C**. The gaps are organized into three categories which correspond to the MHFP project categories. The following describes the review process for the top needs per category that were identified using the highest scoring locations via the quantitative scoring process previously described.

Safety Needs

Safety needs were the most common gap in District 3 with 144 identified gaps or approximately 64 percent of the total freight gaps in the District. Of those, 44 gaps (31 percent of the total safety gaps) involve an at-grade railroad crossing with high risk ratings as identified by MnDOT guidance. The remaining gaps include 32 intersections 68 roadway segments throughout District 3 were identified due to the number of crashes or risk associated with previous studies. Safety needs are located throughout the District; however, are primarily concentrated along high-volume corridors or urban areas such as St. Cloud, Brainerd/Baxter, and the exurban communities in the far southern portion of the District.

Mobility/Performance Needs

Mobility or performance needs were identified at 53 locations or approximately 24 percent of the total freight gaps in the District. Of those, 33 gaps (62 percent of the total

mobility/performance gaps) were either low-clearance (less than 14'6" clearance) or weight restricted (less than 40-ton weight restriction) bridges using MnDOT's Bridge Inventory. The remaining gaps include nine intersections and 11 roadway segments that experience TTTR issues. Mobility or performance needs are located along high-volume and congested roadways or are related to bridges that cannot accommodate freight vehicles of which all are off of the MnDOT system (primarily local and township roads, as well as some county highways).

Condition Needs

Condition needs were identified at 26 locations or approximately 12 percent of the total freight gaps in District 3. All condition gaps were bridges that had a deck, superstructure, and substructure each rated a five or less which illustrated potential deficiencies. All bridges were identified using MnDOT's Bridge Inventory and are located throughout the District primarily along local and townships roads, as well as some county highways.

Prioritization of Project Opportunities

The 223 unfunded freight gaps were also organized using the quantitative scoring process for MnDOT District Freight Plans to identify the top 100 opportunity areas for potential freight projects. The top 100 represented an overall ranking of all project types among all categories (safety, mobility/performance, and condition) and infrastructure types (roadway segment, intersection, railroad crossing, and bridge). Prioritized opportunities in this list formed the foundation for additional stakeholder engagement and feedback from MnDOT District 3 staff and Advisory Committee members. After initial review and ranking feedback from District staff, the highest scoring projects in the top 100 list were distilled into the top 33 locations and distributed to MnDOT District 3 staff for further consideration. Those project locations were then further evaluated and ranked by District staff to identify projects supported locally that would be further reviewed for feasibility and cost, as well as preliminary conceptual design. Both lists (top 100 and top 33) can be found in **Appendix C**. Preliminary concept designs are illustrated in **Appendix E**.

The top 100 opportunities by project category are displayed in **Figure 17** and organized by the level of need in **Figure 18**. The levels were chosen by ranking with the top and bottom 25 shown as high and low, respectively, and the middle 50 illustrated as medium need.

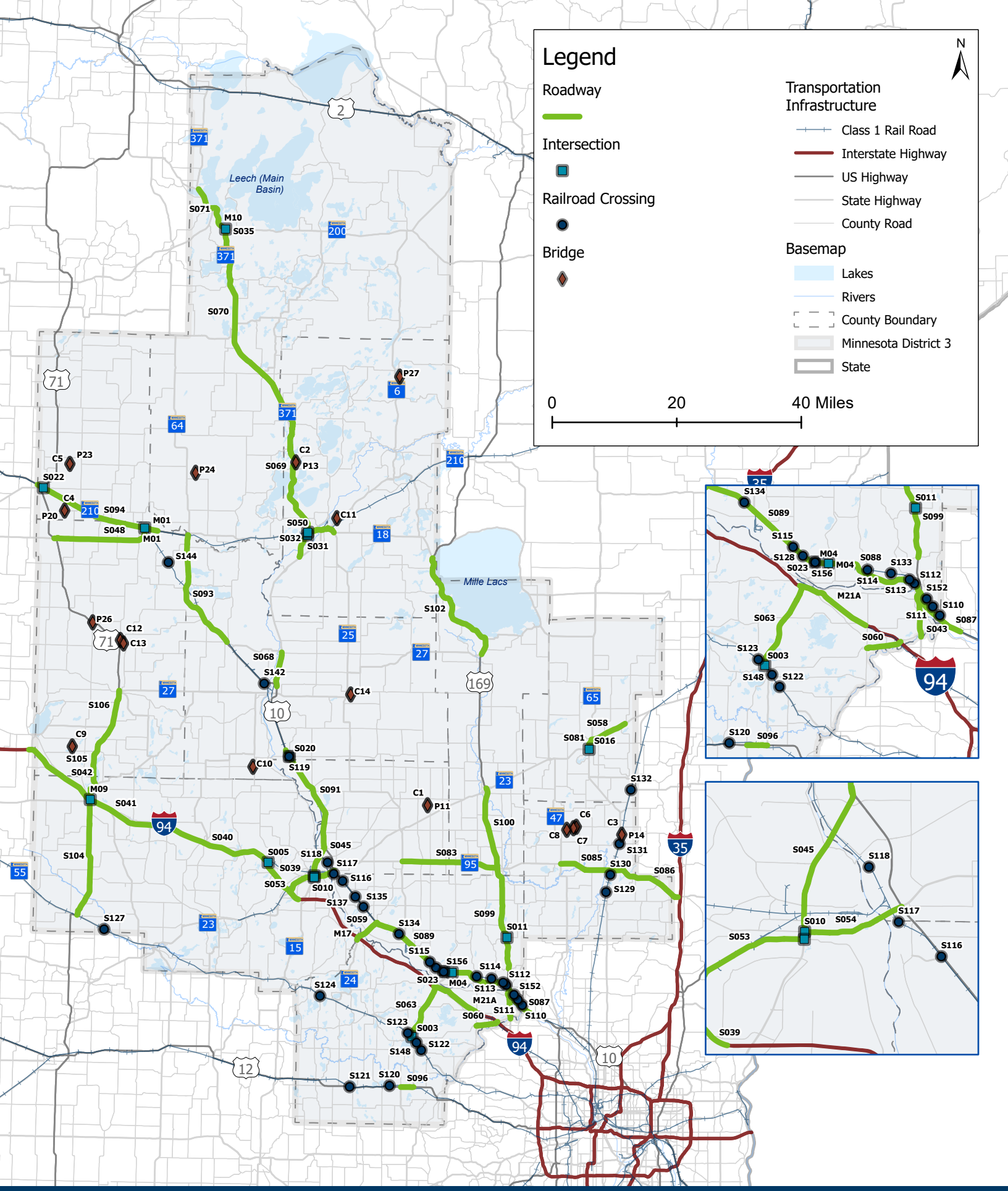


Figure 17: Project Opportunities

Sources: SRF Analysis of Needs Data, 2020

DEPARTMENT OF TRANSPORTATION

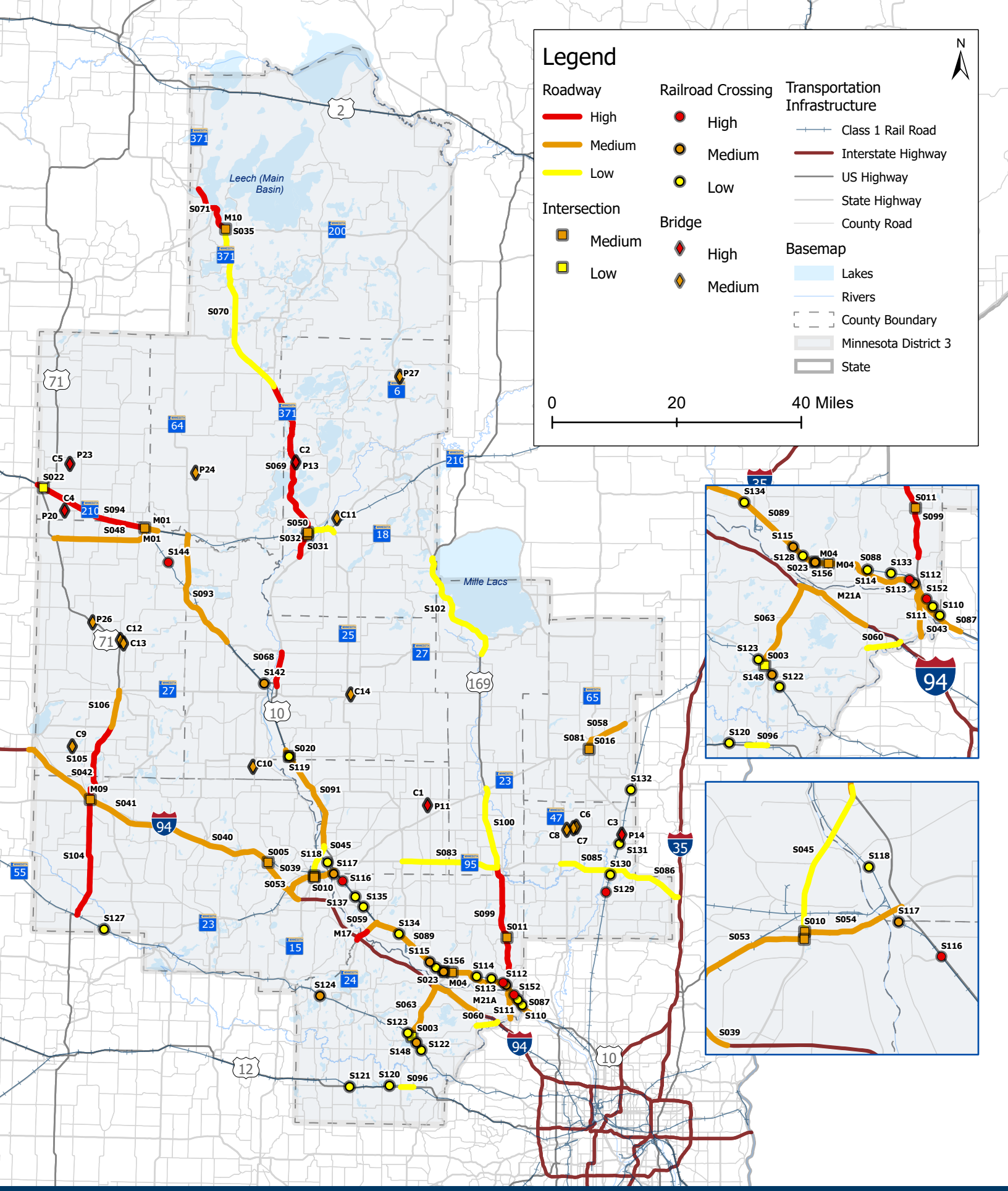


Figure 18: Project Opportunities by Need Level

Sources: SRF Analysis of Needs Data, 2020

DEPARTMENT OF TRANSPORTATION

Public & Stakeholder Feedback

MnDOT and the project team conducted outreach to a variety of public and private sector stakeholders to supplement the extensive outreach efforts concurrently underway during the development of this Freight Plan. A detailed description of stakeholder engagement efforts and results is located in **Appendix B**. Businesses participating in the District 3 Manufacturers' Perspectives study or general public participants of the MetroQuest survey have discussed a range of transportation concerns and as a result, the district has and will continue to identify opportunities to address these concerns and pair qualitative feedback with the data-driven and quantitative approach to project identification designated above.

Additionally, some of the identified concerns will be addressed through maintenance, operational traffic changes (signals, etc.) and previously scheduled improvements included in MnDOT's four-year construction program. Where businesses indicated a desire for more costly large-scale infrastructure projects to address business needs, staff will consider this feedback in future long-range plans, analyzing it against project criterion developed for this plan, such as pavement condition metrics, traffic volumes, safety, and highway context (i.e., urban or rural environment), as well as against state and federal funding constraints.

Project Feasibility & Conceptual Analysis

A primary objective of the District 3 Freight Plan is to ensure that the needs and identified gaps for freight in the District are addressed by future rounds of funding via the Minnesota Highway Freight Program tri-annual grant process. One way to accomplish this is preparing pre-feasibility and conceptual analysis of key projects to organize locations for implementation when grant funding becomes available. Of the 33 top ranked locations considered for further review, a total of 12 projects were selected to be conceptually analyzed and conceptually designed, including preliminary planning-level cost estimates.

Table 8 summarizes the 12 projects and provides a detail of each issue identified for improvement and the proposed elements of each. The project locations are also illustrated in **Figure 19**. Preliminary project concept designs, descriptions, and planning-level cost estimates are included in **Appendix E**.

Construction on I-94 near Albertville. Source: MnDOT District 3 Staff

Table 8. Projects Selected for Conceptual Design and Pre-Feasibility Analysis

ID	Roadway	Extent	Issue	Project Description & Proposed Improvements
1	TH 210	US 71 to US 10	Safety / Mobility	**TH 210 Corridor Improvement Project** The project resolves serious issues including narrow shoulders, natural barriers such as hills and road curves that prevent safe sight distances, and S-curves that slow speeds and increase safety concerns. Proposed improvements along the 16-mile corridor include expanding shoulders to at least 8-feet, adding bypass/left-turn lanes, regrading to increase sight distance, realigning two S-curves, and adding intersection lighting at key locations.
2	TH 371	at Veterans Street in Jenks	Safety / Mobility	**TH 371/Veterans Street Intersection Improvement Project** The project focuses on operational issues associated with truck traffic at the intersection. Proposed improvements include adding raised medians and left-turn lanes to manage access and improve mobility along TH 371.
3	US 10	Alpine Drive to Edison Street	Safety	**US 10 Access Improvement Project** Numerous access points to freight generating businesses create unsafe conditions for trucks accessing US 10. Proposed improvements include constructing two reduced conflict u-turn (RUCT) intersections and closing four access full-movement access points.
4	US 10	Great River Energy to Lowell Avenue	Safety / Mobility	**US 10 Intersection Improvement Project** The project addresses safety and congestion issues associated with access to downtown Elk River and across the adjacent BNSF mainline. Proposed improvements include realigning and grade-separating US 10 at Main Street and Jackson Avenue, constructing ramps and a roundabout, and improving adjacent at-grade railroad crossings.
5	US 10	at CR 50 in Sherburne County	Safety	**US 10/CR 50 Intersection Improvement Project** The project focuses on issues associated with safety at the skewed, side-street stop-controlled intersection. Proposed improvements include intersection realignment to a perpendicular crossing of both US 10 and the BNSF mainline, new at-grade railroad crossing, acceleration and deceleration lanes, and lighting.
6	US 10	approx. 2,000 feet east of Oak Joints Road to the Wadena County Line	Safety / Mobility	**US 10 Corridor Expansion Project** The project will improve the safety and mobility of one of the last remaining two-lane sections of US 10 in Minnesota. Access improvements will support nearby freight intensive businesses. Proposed improvements include expanding the roadway to a four-lane, divided expressway. It is assumed the expansion will continue approximately 2.25 miles west to fill the remaining two-lane gap concurrently.
7	US 71	I-94 to Pine View Drive	Safety / Mobility	**US 71 Intersection Improvements Project** The project addresses safety and mobility issues related to numerous intersections and access points along US 71 to nearby freight businesses and truck stop. Proposed improvements include improved intersection geometrics and access consolidation.

8	US 71	CR 13 (310th St to 320th St)	Safety	**US 71 Corridor Improvement Project** The project addresses safety concerns with this section of roadway related to high truck crashes related to significant weather events. Proposed improvements include snow fences to warn drivers of unsafe conditions during inclement weather.
9	CSAH 1 (Procter Avenue)	Railroad Crossing	Safety	**CSAH 1 Railroad Crossing Safety Project** The project will improve a skewed at-grade crossing of the BNSF mainline complete improvements by MnDOT south of the railroad crossing. Proposed improvements include constructing medians (channelization) and upgraded signals/warning devices.
10a	TH 301	Railroad Crossing	Safety	**TH 301 Railroad Crossing Safety Project** The project will upgrade a currently skewed at-grade railroad crossing and intersection at US 10 along TH 301, and limited queue lengths between the railroad crossing and US 10. Proposed improvements for the first option include constructing medians (channelization), increasing vehicle storage, and upgrading signals/warning devices (gates, etc.).
10b				**TH 301 Railroad Crossing Safety Project** The project will upgrade a currently skewed at-grade railroad crossing and intersection at US 10 along TH 301, and limited queue lengths between the railroad crossing and US 10. Proposed improvements for the second option include realigning TH 301 south to create a perpendicular at-grade railroad crossing and intersection. Other improvements include constructing medians (channelization), increasing vehicle storage, and upgrading signals/warning devices.
11	TH 24	CR 7 (south of I-94) to US 10	Mobility / Safety	**TH 24 Corridor Expansion Project** The project will address major issues associated with the I-94/TH 24 interchange as well as capacity and safety problems related to the existing two-lane section. Proposed improvements include expanding the four-mile corridor to a four-lane, divided expressway with new or upgraded interchanges at US 10 and I-94, respectively. A new Mississippi River crossing would be required to accommodate the expanded roadway. An option bypassing Clear Lake via a new alignment is included for consideration to further improve mobility along the corridor.
12	Twin Lakes Road NW	171st Avenue NW to 172nd Avenue NW	Safety	**Twin Lakes Road NW Railroad Grade Separation Project** The project focuses on improving railroad crossing safety at this busy location (both vehicles and trains) where two incidents in the past four years have resulted in serious injuries and fatalities. Proposed improvements include a grade-separated overpass of the roadway to remove an at-grade crossing of the BNSF mainline. Other roadway and trail improvements are associated with the project.

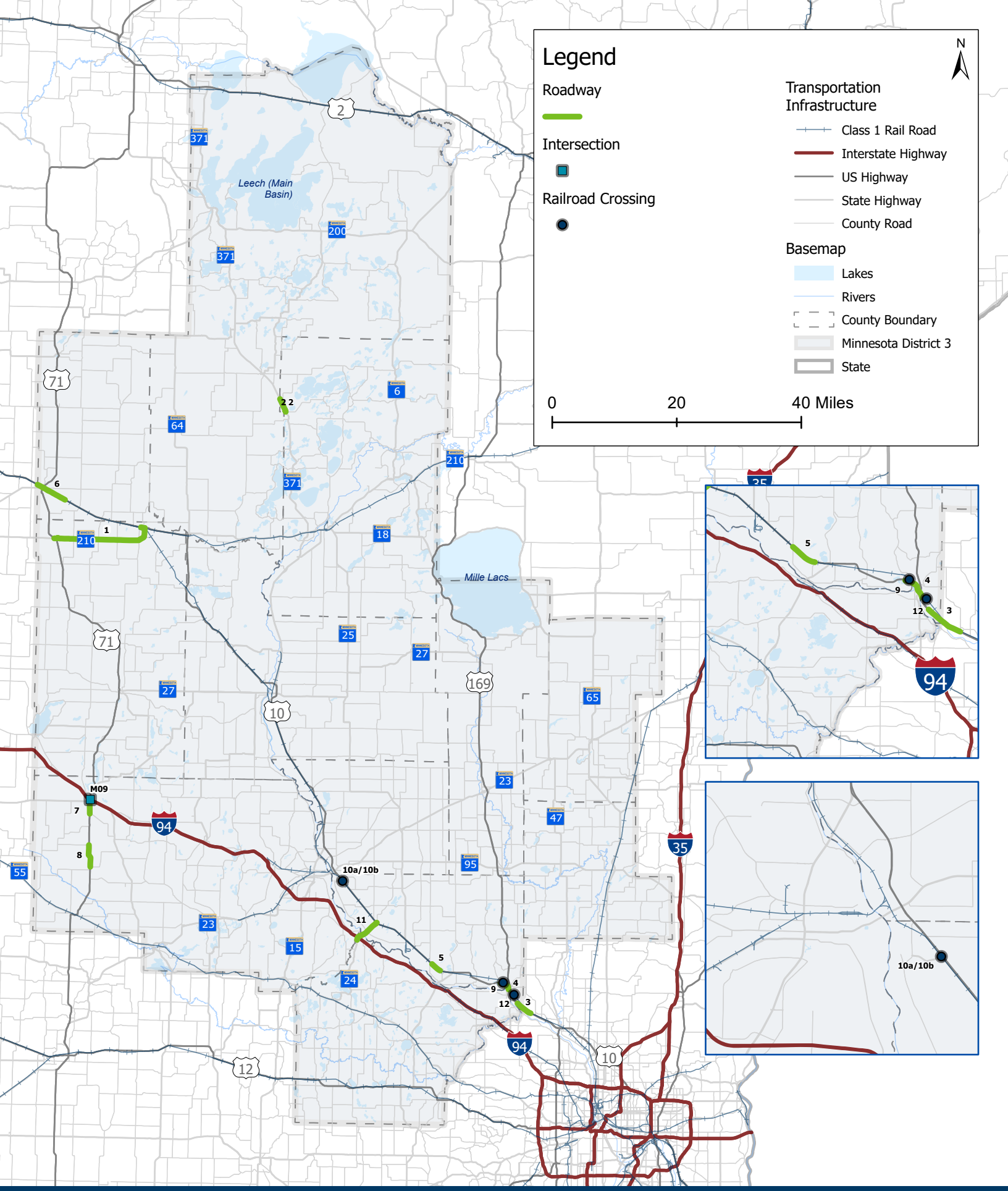


Figure 19: Pre-Feasibility Project Locations

Sources: SRF Analysis of Needs Data, 2020

DEPARTMENT OF TRANSPORTATION

Policies, Programs, and Partnerships

Supporting policy, program, and partnership recommendations are a critical component to achieving the overall freight goals of District and statewide by MnDOT. In general, policies are actions that are undertaken to support or inform overall direction and/or specific projects. Programs are broad and/or long-term actions to support a specific outcome. Finally, partnerships refer to actions that MnDOT District 3 staff work with other agencies or organizations to achieve.

The recommended actions in this section are organized into sections based on the state freight planning goals so that they can be easily linked to actions both at the state level and in MnDOT Districts throughout Minnesota.

Support Minnesota's Economy

The ability of businesses and industries in Minnesota to compete in the marketplace relies in part on an efficient freight transportation system that effectively moves goods. The freight system that these businesses depend on is multimodal, transports products not only within Minnesota but also throughout the United States and provides connections to trading partners throughout the world. Minnesota's freight system needs to respond and adjust to changing state, national, and world economic conditions. Recommended actions to support this goal in District 3 are shown in **Table 9**.

Table 9. Recommendations to Support District 3's Economy

Policies	Continue working with MnDOT to identify truck parking needs and deploy solutions throughout the District, particularly along higher demand corridors such as I-94, US 10, US 169, US 2, and TH 23 per the *MnDOT Truck Parking Study*.
	Invest in road and rail connections between District 3 and major markets from the Twin Cities and beyond.
Programs	Continue to engage freight-related businesses in the District on a periodic basis to understand changing freight needs and issues, as well as impacts to the economy.
	Continue to study air cargo needs and opportunities for local businesses at the regional hubs of St. Cloud and Brainerd.
	Explore opportunities for multimodal and intermodal freight facilities in District 3
Partnerships	Collaborate with local economic development agencies to market the region's competitive location near the Twin Cities and attract businesses that are aligned with the region's strengths.

Improve Minnesota's Mobility

Freight system mobility can be described in several ways, including lack of access, congestion, and restrictions. Each translates into a freight transportation system that may have limited maneuverability and not provide a competitive advantage to industry. Minnesota's freight system needs to offer access for all freight users and reliable service with minimal bottlenecks. Recommended actions to support this goal in District 3 are shown in **Table 10**.

Table 10. Recommendations to Improve District 3's Mobility

Policies	Invest in network efficiency, technology, and other opportunities to support a growing population of residents and businesses.
	Focus improvements around business clusters identified in the District to support freight mobility.
Programs	Develop a freight mobility program that includes: • Funding for county road improvements in areas of the District with limited trunk highway access. • Improvements to east-west and north-south connectivity within the District due to major highways traveling in ordinal directions. • Reducing congestion on major roadways, including but not limited to I-94, US 10, and US 169 • Addressing needs shown in Figures 16/17.
	Improve incident/construction management systems to include freight (trucker)-specific information so that that advance notice of disruptions to critical routes is provided.
	Utilize Minnesota Rail Service Improvement Program (MRSI) or other railroad-related funding sources to improve rail access for District 3 businesses.
Partnerships	Work with railroad partners to increase access to rail for manufacturing, agriculture, and other freight-related industries throughout the District to better utilize the existing network.

Preserve Minnesota's Infrastructure

The expected growth in goods movement on all modal networks will stress Minnesota's transportation infrastructure. Strategic improvements in multimodal freight system infrastructure to ensure critical segments and connections are both available and in a state of good repair are essential for Minnesota to meet expected demand. Recommended actions to support this goal in District 3 are shown in **Table 11**.

Table 11. Recommendations to Improve District 3's Infrastructure

Policies	Incorporate freight considerations into existing MnDOT funding programs or determine the potential freight benefits or impacts of specific CHIP, STIP, TIP, and county projects. Including these considerations may help the District address freight needs and issues without the assistance of a dedicated freight funding program.
	Focus on maintaining the good condition of existing assets, rather than expanding capacity of the system (primarily roads). This policy reflects the fact that funding shortfalls are expected in the future, and maintenance costs may be better controlled if new infrastructure is limited.
	Continue using feedback from the Manufacturers' Perspectives Study to understand business needs in the District and ensure that these are addressed through planning, programming, and maintenance programs.
Programs	Develop a freight infrastructure program in District 3 that includes: • Addressing needs shown in Figure 16/17. • Improvements to bridge condition and vertical clearances on routes with heavy freight traffic.
Partnerships	Support deployment of broadband infrastructure throughout the District to support rural communities and virtual commuters in a post-pandemic economy.
	Offer assistance to county and local governments with long-range planning. Many freight issues occur off of MnDOT's trunk highway network, so collaboration with local, township, and county governments may be necessary to solve first- and last-mile freight movement needs and issues.
	Coordinate with State Patrol on enforcement of size and weigh regulations within the District.
	Encourage state and federal funding for stable and future oriented freight and transportation funding.

Safeguard Minnesotans

Safety is of highest priority for MnDOT, as well as other transportation agencies and operators within Minnesota. A multifaceted approach to safety within Minnesota has resulted in a historic trend of decreasing fatalities for both passenger and commercial vehicles. Minnesota needs to continue to enhance freight system safety and reduce conflicts between freight vehicles and other transportation system users. Recommended actions to support this goal in District 3 are shown in **Table 12**.

Table 12. Recommendations to Safeguard those in District 3

Policies	Improve awareness of 511 as a tool for construction updates and detours.
	Continue improving inclement weather preparation and response, including snow removal, installation of snow fences, and coordination with state and local agencies on emergency response needs.
Programs	Develop a freight safety program in District 3 that includes: • Improvements to grade crossings and/or grade separations along US 10 corridor and other key areas as identified in Figure 16/17. • Other safety needs shown in Figure 16/17. • Advanced safety infrastructure such as median cable barriers, pavement markings, signs, and improvements to bridges should also be deployed.
	Investigate opportunities for driver safety and training programs to improve roadway safety and reduce crashes
Partnerships	Actively participate in development of the *State Highway Rail Grade Crossing Plan*.
	Partner with local communities and railroad companies to prioritize and advance grade crossing improvements in the District, such as grade separation at high-volume locations.
	Work with partners to integrate freight into statewide, MnDOT District, metropolitan planning organization, and county safety planning efforts.

Protect Minnesota's Environment and Communities

Minnesota's residents and businesses rely on freight to support their economies; yet freight can create negative impacts for local communities and transportation system users. Some of these impacts relate to air quality and noise, the presence of trucks in neighborhoods, and land use conflicts. Freight may also disproportionately affect Minnesota's traditionally underrepresented communities, such as racial and ethnic minorities, households without vehicles, and persons who are low-income. It is necessary to plan, design, develop, and preserve the freight system in a way that respects and complements the natural, cultural, and social context and is consistent with the principles of context sensitive solutions. Recommended actions to support this goal in District 3 are shown in **Table 13**.

Table 13. Recommendations to Protect District 3's Environment and Communities

Policies	Incorporate resiliency into District planning efforts to prepare for climate change, severe weather events, and other disruptions.
	Continue to support investments in rail and intermodal freight to reduce emissions and congestion related to truck traffic.
Programs	Develop programs that minimize the environmental impacts of freight, specifically, pollution, greenhouse gas emissions, stormwater impacts, and wildlife habitat loss.
	Apply context sensitive, truck design guidelines on roads with significant volumes or deliveries
	Analyze the impact of freight on environmental justice populations.
	Improve incident management systems and collaborate with local first responders to ensure that disruptions to critical routes without redundancies are minimized.
Partnerships	Support educational programs for freight-related industries, especially "middle skill" jobs in manufacturing, trade, and logistics sectors that both provide economic mobility to District residents and ensure a strong workforce for local businesses.
	Partner with local communities and railroad companies to prioritize and advance grade crossing improvements in the District.
	Work with private sector businesses and local agencies to develop partnerships to study and address curb space, parking, and delivery issues in downtowns and urban areas.

Appendix A: Summary of Previous Plans and Studies Reviewed

Table 14. Previous Plans and Studies Reviewed

Plan	Year	Website
Minnesota Statewide Freight and Investment Plan	2018	https://www.dot.state.mn.us/planning/freightplan/pdf/statewidefreightplanrevised2018.pdf
Central Minnesota Freight Study	2012	https://www.dot.state.mn.us/planning/freightplan/central/files/CentralMinnesotaFreightStudy.pdf
Minnesota State Rail Plan	2015	https://www.dot.state.mn.us/planning/railplan/2015report/DraftMNStateRailPlan.pdf
MnDOT 20-Year State Highway Investment Plan: 2018–2037	2018	http://minnesotago.org/application/files/4815/5076/5789/MnSHIP_Final_Jan2017_With_Appendices_and_Update.pdf
Transportation Planning to Support Economic Development: An Exploratory Study of Competitive Industry Clusters and Transportation in Minnesota	2015	https://www.dot.state.mn.us/research/TS/2015/201502.pdf
St. Cloud Area Planning Organization Transportation Performance Measures Report	2018	http://www.stcloudapo.org/uploads/1/2/8/7/12874227/final_tpm_report_nov2018.pdf
Minnesota Statewide Aviation System Plan	2012	https://www.dot.state.mn.us/aero/planning/sasp2012.html
A Comprehensive System for Assessing Truck Parking Availability	2017	https://www.dot.state.mn.us/ofrw/PDF/assessing-truck-parking.pdf
Region Five: Comprehensive Regional Economic Development Strategy	2016	https://docs.wixstatic.com/ugd/f30eae_72cef56393a74b62a5bdd2b765fad154.pdf
Minnesota Statewide Ports and Waterways Plan	2014	http://dot.state.mn.us/ofrw/PDF/portswaterwaysplan.pdf
MnDOT Weight Enforcement Investment Plan	2018	https://www.dot.state.mn.us/ofrw/mfac/pdf/mfacjune2018-weight-safety-enforcement-plan.pdf
Central Minnesota Economic Development: 2018 Regional Profile	2018	https://mn.gov/deed/assets/rp_central_090418_tcm1045-133244.pdf
Minnesota Statewide Commercial Vehicle Weight Compliance Strategic Plan	2005	https://www.dot.state.mn.us/ofrw/PDF/cvePlan051004_1.pdf

Minnesota Statewide Freight and Investment Plan

Overall Summary

The Minnesota Statewide Freight and Investment Plan, released in 2018, identifies the key issues related to freight movement in the state and the goals and strategies needed to address them. Minnesota's freight system and its role in the national and global market are described to provide context to the importance of the state freight challenges. The Plan results in a Minnesota Freight Action Agenda and investment decisions. The Action Agenda aims to improve efficiency, safety and reliability of the freight system.

Key Findings

Minnesota's multimodal freight system is experiencing growing freight demand which requires improved performance. Much of the increased tons transported and truck travel will come in the form of more long-haul rail movement and first- and last-mile deliveries. Safety is a mixed picture as incidents overall have generally improved over the last decade, but recent upticks are noted. Highway and railroad crossing incidents increased recently as well. Truck delay is increasing across the system, costing all system users and impacting the economic well-being of the state. This is more concentrated in the Twin Cities area. Strategies to improve performance include public-private partnerships, greater integration of freight considerations agency wide, and maximizing economic growth through the freight system.

The investment portion of the Plan identified freight projects and project evaluation criteria. The majority of the investment direction is towards projects that are classified as Freight Congestion/ Efficiency Improvement and Safety. Of the 36 project applications received, two projects in District 3 were selected.

District 3 Findings

The Minnesota Statewide Freight System Plan has sparse details for each district. Rather, it provides a 'big-picture' view of the state's freight system condition, issues, and needs. State goals reflect district goals and vice versa. The State's goals include:

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

Specific to District 3, there are several findings on system performance and funding. District 3's truck freight flows are reported relative to other districts. Their outbound flows exceed their inbound flows, and total truck freight flows are second only to the Metro District. Related to funding, District 3 in the 2015-18 Minnesota STIP was allocated just under $2

million, more than four of the eight districts. The majority of the allocated funding is for pavement condition projects, followed by bridge condition projects.

Central Minnesota Freight Study

Overall Summary

Developed in 2012, The Central Minnesota Freight Plan outlines the freight infrastructure, demands, and identified projects to meet future changes in District 3. The primary freight modes in the district are truck, rail, air, and pipeline. The region is an integral part of the state freight networks in part because it has the largest population outside the Twin Cities region and expects the largest population growth in the state. The regional freight goals are fairly broad including identifying industry- and region-specific trends, planning for freight movement in the region, and strengthening freight considerations in planning and investment processes and decision-making.

Key Findings

The freight system in central Minnesota faces critical challenges across the major freight transportation modes. I-94 is the major highway carrying truck traffic in District 3. The Central Minnesota Primary Freight System is comprised of one major Interstate: I-94, three US highways: US 10, US 12, US 169, one State highway: TH 23 and two state connectors: route TH 24 connects I-94 to TH 10 and TH 25 connects I-94 to TH 55. Along I-94 towards North Dakota from the Twin Cities improvements are planned to ease congestion. This corridor is the most congested corridor radiating from the Metro area. Trucks are the primary freight mode in the region as measured by tonnage and value, yet truck speeds are slow and there are challenges with overnight parking for trucks along the I-94 corridor. In 2010, I-94 from the Twin Cities to St. Cloud average speed was between 49 and 54 miles per hour while St. Cloud to Twin Cities average speed was between 49 and 54 miles per hour. Rail challenges are related to facilities. There are limited intermodal and rail access facilities. A major rail destination is the power plant in Becker along the BNSF line which receives coal shipments daily. Air goods movement is challenged with retaining passenger and cargo facilities. Of four airports in the district, Brainerd Lakes Regional Airport is the only one that provides primary scheduled air cargo activity. Many of the specific key findings related to freight movements and tonnage are more than 10 years old with limited implications on recent trends.

Minnesota State Rail Plan

Overall Summary

The State Rail Plan Update draft from 2015 was developed by the Minnesota Department of Transportation's Office of Freight and Commercial Vehicle Operations (OFCVO) and the Passenger Rail Office. This document directs future freight and passenger rail investment in the state. The Plan includes an assessment of existing infrastructure and commodities, system performance, and an Action Plan with a four- and 20-year vision for the state's rail system.

Key Findings

The State Rail Plan Update identified a handful of key issues in the realm of rail capacity, safety, and funding. Many short line railroads are in need of upgrades while mainline capacity is also a challenge. Rail safety related to new hazardous material being moved by rail is an area of concern requiring increased state resources. Shipment of these materials also heightens concerns over safety at at-grade crossings. At-grade crossings alone are a concern due to the risks of collisions with vehicles, bicyclists, and pedestrians. Funding for all the projects to address these issues and others is scarce, with increased competition from multimodal projects. The long- and short-term plans to address the major rail challenges involve planning to address these challenges such as safety at at-grade crossings, improving capacity, planning to mitigate critical bottlenecks, and implementing positive train control.

District 3 Findings

The State Rail Plan Update has few District 3 specific findings. Related to crossing safety improvements, the three corridors identified as a focus due to high volumes of Bakken crude oil unit trains pass through District 3. Four strategies including closing at-grade crossings, upgrading passive warnings to active signals, using safety treatments to improve active protection, and creating grade separations are identified for these corridors. One additional notable discussion of rail within the District is the extension of rail between the Twin Cities and St. Cloud.

MnDOT 20-Year State Highway Investment Plan: 2018–2037

Overall Summary

The Minnesota State Highway Investment Plan (MnSHIP) reports on capital project investment with a 20-year horizon through 2037. The Plan is updated every four years to reflect a renewed vision for the State. Investments are concentrated in five areas including System Stewardship, Transportation Safety, Critical Connections, Healthy Communities, and Other.

Key Findings

The State highway system is composed of more than 12,000 miles which is 8 percent of the total miles in the State. It carries most of the freight movement in the State as well as the

majority of the vehicle miles traveled. Challenges facing the system include aging infrastructure, annual average shortfall of $900 million, and significant pavement decline. The State's goals are reflected in the investment areas including System Stewardship (condition of infrastructure), Transportation Safety (injuries and fatalities), Critical Connections (mobility and connections to other modes), and Healthy Communities (land use and transportation connections).

District 3 Findings

The MnSHIP does not include District 3 specific findings beyond identifying the State highway system and showing the NHS and non-NHS routes.

Transportation Planning to Support Economic Development: An Exploratory Study of Competitive Industry Clusters and Transportation in Minnesota

Overall Summary

This report describes a research study to look at geographically clustered industries in Minnesota and the role that transportation plays in these competitive industries. The study focuses on 12 industries that are geographically distributed across the State. Industry locations are identified by high location quotients.

Key Findings

The study resulted in a few key findings, some of which are industry specific, but many of which have broad transportation implications for the State. One cross cutting theme is delay in shipments, some due to globalization of the supply chains and some due more locally to weather, congestion on State roads, and construction. Some industries such as construction materials and forest products have shifted from rail to truck modes due to a shortage of freight rail capacity. One reason for the lack of capacity described is increased oil shipments from bordering states. Poor condition of infrastructure, such as roads, is another concern for Minnesota industries because of the potential for damage while transporting sensitive products.

District 3 Findings

Two of these twelve industries clusters are located in District 3. A hospitality and tourism cluster is located in Grandview, Minnesota, with good access from Highway 371 and few freight related issues. Granite is a major industry cluster for the St. Cloud region with a location quotient that is more than 10 times the national average. Cold Spring Granite, one of the granite companies, receives 26 truckloads of granite per week, mostly via I-94. Transportation challenges with the industry include increased scrutiny of rail shipments post 9-11 and rail capacity related delays in North Dakota related to the oil boom.

St. Cloud Area Planning Organization Transportation Performance Measures Report

Overall Summary

A summary of the St. Cloud Area Planning Organization (APO) performance measures to reach their transportation goals. Delivered in 2017, the report outlines four goals including (1) maintain and enhance transportation system safety; (2) Increase System accessibility, mobility, and connectivity; (3) Efficiently Manage Operations and Cost-Effectively Preserve the System; (4) Support Metropolitan Vitality and Economic Development and (5) Promote Energy and Environmental Conservation. Each goal has a number of performance metrics that are tracked with 2017 data and multi-year trend results.

Key Findings

The key performance measure related to freight is truck travel time reliability. The 2017 truck travel time reliability (Calculated by dividing the ratio of the 95th percentile time by the normal time (50th percentile) is 1.10, a decrease of more than 15 percent from 1.30 in 2016. By Federal Highway Standards, a reliability above 1.5 is unreliable. St. Cloud AO's truck reliability is in the normal range of truck reliability.

Minnesota Statewide Aviation System Plan

Overall Summary

The Minnesota State Aviation Plan (SASP) describes the current aviation system's performance and challenges, and future directions for the state. The interactive report includes projects and costs and an airport report card. This plan is currently being updated by the Minnesota Department of Transportation Office of Aeronautics.

Key Findings

The SASP is a 20-year plan. The estimated capital costs that are needed in the next 20 years far exceeds the amount of funding that is expected to be available by more than double.

District 3 Findings

St. Cloud and Brainerd have airports identified as key airports in the SASP. Key airports are in larger centers and have more regular air freight and airline service. The St. Cloud airport lost commercial airline service in 2009 but is working to restore service. Brainerd Lake Regional Airport provides commercial service.

A Comprehensive System for Assessing Truck Parking Availability

Overall Summary

This research study describes the testing and development of a Truck Parking Availability System (TPAS) along I-94 in Minnesota. A multi-camera approach was used at three parking

facilities within 100 miles west of Minneapolis- Saint Paul. The facilities in operation were for a duration of between 1.3 and 2.7 years.

Key Findings

Users had positive or very positive interactions with TPAS, indicating that the technology saved them time, allowing them to efficiently complete long trips. Thirty percent of users specifically reported an easier time complying with HOS regulations and 60 percent reported an easier time finding truck parking.

District 3 Findings

I-94, the corridor at the center of this study, is the major interstate through District 3. Beyond general findings for truck parking along the corridor, District 3 findings are absent from the study.

Region Five: Comprehensive Regional Economic Development Strategy

Overall Summary

The Economic Development District of the five-county central Minnesota area developed a five-year Comprehensive Regional Economic Development Strategy (CREDS) for the region. The 2016 CREDS describes the region, past and current economic development data, trends, and the goals and strategies for the future.

Key Findings

Key transportation issues identified in CREDS include lack of transit on the weekends, the quality of roads, and access to broadband. Related to these challenges, the CRED lays out regional goals and strategies. To address broadband access, the goal is for 100 percent of businesses and households to have access to broadband. The air and rail goal involves making freight and passenger rail and airport infrastructure maintained and operational by 2025. Additionally, the Plan calls for investment in two small scale freight infrastructure enhancements that lead to economic improvements by 2025.

Minnesota Statewide Ports and Waterways Plan

Overall Summary

The Minnesota Statewide Ports and Waterways Plan was developed for 2013 – 2033 by the Minnesota Department of Transportation Office of Freight and Commercial Vehicle Operations. The Plan is the first Minnesota Statewide Ports and Waterways Plan. The goals of the plan are based on the Minnesota GO Vision. The Plan promotes:

- "Continued enhancement of the ports and waterways system's role in providing the global, national, statewide, regional, and local transportation connections essential for Minnesotans' prosperity and quality of life, and taking advantage of technological, logistical, and infrastructural advancements;

- Improved and maintained ports and waterway connections, in order to maximize return-on-investment for freight shipping, especially in an era of constrained resources;
- Better integrated planning within MDOT and greater coordination with transportation partners."

Key Findings

The Plan outlines key opportunities, challenges, and strategies in the areas of (1) port infrastructure condition and capacity, (2) marine system operations, (3) economic competitiveness, (4) planning integration and (5)communication and coordination. Related to port infrastructure, aging infrastructure, shipping channel maintenance, and lock and dam maintenance are key issues. On the operations front, there are opportunities related to the Minnesota Ports Association's review and expansion and technology, and challenges around environmental concerns, such as mitigating invasive species. Economic competitiveness opportunities include logistical improvements, containerization, and expanding new markets. Key planning issues include land use compatibility, intermodal links, and integrating marine system planning within MnDOT. In the area of communication, outreach and education activities including task forces and federal programs can communicate the maritime sector's contributions.

District 3 Findings

No navigable waterways are located in District 3 and the Statewide Ports and Waterways Plan has no specific District 3 findings.

MnDOT Weight Enforcement Investment Plan

Overall Summary

The 2018 MnDOT Weight Enforcement Investment Plan (WEIP) is a product of the Minnesota Department of Public Safety (DPS) and MnDOT. MnDOT owns and maintains weigh station and weigh in motion infrastructure, while the state patrol has a state jurisdiction over safety, vehicle size and weight enforcement. The goal of the Plan is to protect public investment in highway infrastructure, such as pavement, by enforcing laws about vehicle size and weight and ensuring public safety. The 10-year capital and design investment analysis identified an approximately $96 million funding gap.

Key Findings

The WEIP identifies eight categories of need for future weight enforcement facility investments. These include (1) investment in existing facilities (2) inspection buildings (3) coordination of enforcement pull-off areas (4) improved weigh-in-motion use, (5) portable scale replacement plan, (6) increased Minnesota State Patrol staffing, (7) Education and outreach, and (8) additional weight enforcement facilities.

District 3 Findings

The WEIP is a statewide plan with few district specific details. On the investment front, there are two additional weight enforcement facilities recommended within the District, one on the border, and one existing border facility recommended for increased investment. One of the recommended facilities on the Hennepin County and District 3 border was identifies in meetings with the District 3 and Metro districts. Site 3.3 located on MN 28 between Sauk Centre and Little Falls was the top District 3 rated because of a need for a pull-off site to enforce trucks carrying aggregate.

Central Minnesota Economic Development: 2018 Regional Profile

Overall Summary

The 2018 central Minnesota Regional Profile summarizes demographic, labor force, income/ wage, and economic trends in the region.

Key Findings

Central Minnesota has a population of just over 700K (13 percent of the state) and recently experienced huge population growth, the biggest of any region, over the period from 2000 to 2017. Minnesota is expected to have a nearly 4 percent gain population from 2020 to 2040.

Central Minnesota has a lower educational attainment than the rest of the state. They also have a consistently higher unemployment rate than the state, with unemployment as high as 9 percent in 2009. Many workers in the region travel to the twin Cities for work. Many people who live in the region, do not work in the region. Location quotient data for Central Minnesota has a higher concentration than the State in production, education, training and library, farming, construction and extraction, installation and maintenance, healthcare support, and transportation and material moving. Truck drivers are one of the identified jobs in high demand. The second largest industry in Central Minnesota is manufacturing. Transportation and warehousing had nearly 10,000 jobs as of 2017, with a 6 percent increase from 2012.

Minnesota Statewide Commercial Vehicle Weight Compliance Strategic Plan

Overall Summary

The Commercial Vehicle Weight Compliance Strategic Plan (2005) aims to help the State protect their infrastructure and improve safety through better compliance with truck weight regulations. The Plan clarifies roles and expectations for inter-agency coordination, identifies optimal weight enforcement practices and strategies for maximizing economic benefits, and establishes direction for improving weight compliance strategies.

Key Findings

The Plan identified a number of needs, issues and conditions to improve the Weight Compliance Program. A few key findings include:

- Overweight vehicles cause demand in the range of $30 million per year.
- Weight compliance is not significantly measured but is a problem. Weigh in motion scales (WIMs) are used for highway planning purposes. The weight compliance data has additional uses related to weight enforcement.
- Staffing is a major problem at all levels including for Electrical System Staff installation, inspectors, and state troopers

A number of recommendations address these challenges such as virtual WIM integration across the state, expansion of WIM scales, new forms of enforcement, and new staff processes and training.

District 3 Findings

There are no District 3 specific findings. Minnesota has seven weigh stations (in 2005) and none are located in District 3.

Appendix B: Stakeholder Engagement

The District 3 Freight Plan, being District's first-ever freight plan, created a framework for freight stakeholder engagement. Stakeholder input from District 3 staff, individuals from county and local agencies, the private sector, as well as the general public played a critical role in identifying needs and opportunities, and recommended projects for this plan.

- **Advisory Committee and Project Team Meetings** – The Advisory Committee, a larger group of public and private sector stakeholders, provided input and vetted findings at key points throughout the study. The Advisory Committee advised The Project Team, a smaller group of MnDOT staff on regional freight-related priorities, issues, projects, and funding needs as well as provided tactical guidance on a more regular basis throughout the planning process. The Project Team helped to identify and evaluate deficiencies that potentially affect or might impede freight movement in the District both on the State and Local road network among three needs categories including Safety (truck crashes and high risk at-grade railroad crossings), Performance (weight restricted routes/structure), and Condition (deficient bridge structures). As the recommendations directly affect a variety of individual functional areas and responsibilities, several participants had the opportunity to provide early input. The group provided feedback on the needs from the three categories by applying a scoring and ranking methodology in order to produce a list of the Top 100 locations in the District and District staff ultimately decided which projects should move forward into feasibility analysis.

Advisory Committee Membership

- Ron Dvorak, Lake Superior Warehousing Inc.
- Patrick O'Brien, TCBX Trucking
- Joanna Jungles, Anderson Trucking Services Inc.
- Dave Cashman, Speedee Delivery
- Mark Wegner, Twin Cities and Western Railroad
- Cody Hauser, Dezurik Manufacturing
- Jim Sattler, Gerginghoff Manufacturing
- Patti Gartland, Greater Saint Cloud
- Tyler Glynn, Brainerd Lakes Area Development Corporation
- Matt Killian, Brainerd Lakes Chamber of Commerce
- Andrew Witter, Sherburne County
- Ryan Odden, Wadena County
- Jodi Teich, Stearns County
- Tim Bray, Crow Wing County
- Virgil Hawkins, Wright County

- Paul Sandy, City of Brainerd
- Justin Femrite, City of Elk River
- Mike Moilanen, Mille Lacs Band of Ojibwe
- Ernie Robinson, Leech Lake Band of Ojibwe
- Robert Voss, East Central Minnesota Development Commission
- Penny Simonsen, East Central Regional Development Commission
- Cheryal Hills, Region Five Development Commission
- Tad Erickson, Region Five Development Commission
- Kris Riesenberg, Federal Highways Administration
- Brian Gibson, Saint Cloud Area Planning Organization
- Capt. Jon Olsen, Minnesota State Patrol
- Steve Voss, MnDOT District 3
- Stephanie Castellanos, MnDOT District 3
- James Hallgren, MnDOT District 3
- Jon Mason, MnDOT District 3
- Michael Ginnaty, MnDOT District 3
- Brad Utecht, MnDOT Office of Transportation System Management

- **MetroQuest Transportation Needs Survey** - This District Freight Plan is a highly quantitative and performance driven effort, in order to ensure consistency across other State plans. In order to seek more broad qualitative feedback for this Plan, the project team and communications staff at the District worked with OFCVO to develop a MetroQuest online survey to engage stakeholders and the general public on freight issues and opportunities in Central Minnesota. The District 3 Freight Plan was the first to utilize MnDOT's MetroQuest survey license.

  An example of the survey invitation is illustrated below. The survey began with a project map and introduction to the multimodal planning effort. Next, respondents could place freight map markets to identify freight safety or other relevant issues throughout the District. Participants were also asked to rank the top five freight priorities for the plan and provide detailed feedback on some of the most common multimodal issues in the region including truck parking, delays and congestions, freight demand, rail crossings and intersection improvements, and other multimodal services.

  The survey was advertised online in June 2020 and received 377 responses over the course of one month. The MetroQuest survey reached a broader general public audience, with 47 percent of respondents best described as general public, eleven percent as freight carriers, 8 percent as agency partners, and 4 percent as manufacturers/shippers. There were several responses that indicated freight issues outside of the District 3 boundaries; but initial survey responses found that nearly half of all respondents identified traffic as the main issue in the district, followed by 30 percent of responses replying that safety was the primary concern.

Freight Study Survey - We want your input!

Do you travel on central Minnesota highways?

If yes, then you're invited to participate in MnDOT District 3's freight plan survey.

We value any insight you can provide us and we'll use that information to better understand trends, issues and needs to our central Minnesota freight transportation system.

The survey is available through Friday, July 10 and can be found at **mndot.gov/d3/projects/freight** or by clicking on the image below.

MnDOT • mndot.gov

- **Coordination with the District 3 MPS** – Constant coordination with the MPS allowed the Plan to be informed by ongoing freight coordination and outreach efforts in District 3. The MPS interviews elicited information about ongoing freight concerns, such as congestion, operations, and construction bottlenecks.

  Due to the very high-volume of businesses in the Southern half of District 3, this project was designed using a hybrid methodology of the already-completed Metro and Greater Minnesota studies. As was done for MnDOT's Metro District, the interviews with the manufacturers in the Southern half of District 3 (and with the carriers) were structured with scheduled discussion time to address congestion and provide overviews of current and upcoming major I-94 construction projects that would significantly impact freight movement. Cross-disciplinary interview teams were composed of MnDOT staff and / or external partners. Interviewers gathered input on low-cost and high-benefit transportation improvements that can be made in the near term with existing or limited additional resources.

  Of 465 businesses contacted, MnDOT reached and invited 265 to participate in this project, resulting in 126 business interviews (48 percent of those invited).) These included 104 manufacturing businesses and 22 shipping, distribution, or freight-forwarding businesses. Businesses participating in the District 3 Manufacturers' Perspectives study discussed a range of transportation concerns. As a result, the district has and will continue to identify opportunities to address these concerns with short-term, lower-cost actions whenever possible. Additionally, some of the identified concerns will be addressed through maintenance, operational traffic changes (signals, etc.) and previously scheduled improvements included in MnDOT's four-year construction program. Where businesses indicated a desire for more costly large-scale infrastructure projects to address business needs, staff will consider this feedback in future long-range plans, analyzing it against project criteria, such as pavement condition metrics, traffic volumes, safety, and highway context (i.e., urban or rural environment), as well as against state and federal funding constraints.

Appendix C: Project Rankings

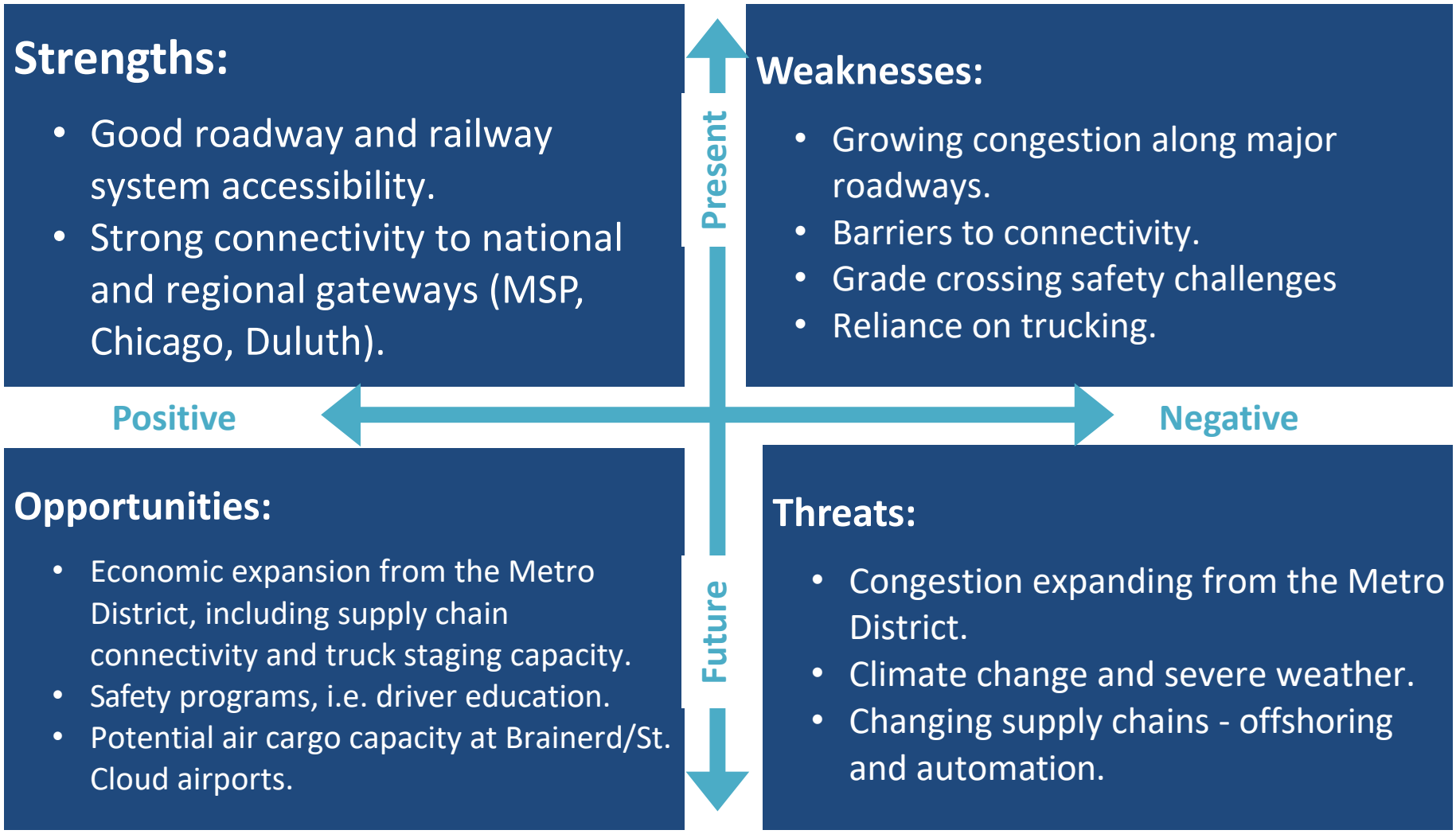
MnDOT District 3 Needs Analysis - Pure Ranking (Top 100)													
ID	Type	Roadway	Extent (from/to) or Location	Need Type	Need Information	AADT	HCAADT	HV %	# crashes	TTTR	Pure Rank	Updated Pure Rank	Rank Level
S113	RR Crossing	Proctor Ave NW	Sherburne County	Safety	High-risk at-grade railroad crossing (>7 score)				2		1	1	High
S116	RR Crossing	TH 301	Sherburne County	Safety	High-risk at-grade railroad crossing (>7 score)				3		1	1	High
S129	RR Crossing	305th Ave NE	Isanti County	Safety	High-risk at-grade railroad crossing (>7 score)				3		1	1	High
S144	RR Crossing	317th Ave	Todd County	Safety	High-risk at-grade railroad crossing (>7 score)				3		1	1	High
S152	RR Crossing	Twin Lakes Rd NW	Sherburne County	Safety	High-risk at-grade railroad crossing (>7 score)				2		1	1	High
S105	Road	US 71	I-94 to TH 27	Safety	>2 truck crashes from 2016-2018	10,200	1,050	17.6%	7	6.3	1	6	High
S094	Road	US 10	TH 210 to Wadena County Line	Safety	>2 truck crashes from 2016-2018	11,000	1,200	11.2%	18	6.33	1	7	High
C01/P11	Bridge	TWNS 133	Benton County	Condition	Deck, superstructure, and substructure all score less than 5, <15 ton weight	16					1	8	High
S104	Road	US 71	TH 55 to I-94	Safety	>2 truck crashes from 2016-2018	7,500	760	16.2%	12	6.3	1	10	High
S069	Road	TH 371	TH 210 to Crow Wing County Line	Safety	>2 truck crashes from 2016-2018	31,500	1,100	11.2%	21	4.33	1	11	High
S068	Road	TH 371	US 10 to TH 210	Safety	>2 truck crashes from 2016-2018	22,200	1,550	10.3%	15	5	1	12	High
M17/S059	Road	TH 24	I-94 to US 10	Mobility/Safety	High TTTR; >2 truck crashes from 2016-2018	16,200	1,650	10.7%	11	3.8	1	13	High
S099	Road	US 169	205th Ave NW to TH 95	Safety	>2 truck crashes from 2016-2018	27,000	2,100	9.0%	25	2.11	1	14	High
S071	Road	TH 371	TH 200 S. to TH 200 N.	Safety	>2 truck crashes from 2016-2018	9,000	700	7.8%	9	6.33	1	15	High
M10	Road	TH 371	TH 200 to Cass CSAH 37	Mobility	High TTTR	8,700	670	7.7%	10	6.33	1	16	High
C02/P13	Bridge	MUN 20	Nisswa, Crow Wing County	Condition/ Performance	Deck, superstructure, and substructure all score less than 5; <15 ton weight	850					1	17	High
C03/P14	Bridge	TWNS 47	Isanti County	Condition/ Performance	Deck, superstructure, and substructure all score less than 5; <15 ton weight	11					1	17	High
C04/P20	Bridge	CSAH 1	Wadena County	Condition/ Performance	Deck, superstructure, and substructure all score less than 5; <15 ton weight	195					1	17	High
C05/P23	Bridge	TWNS 149	Wadena County	Condition/ Performance	Deck, superstructure, and substructure all score less than 5; <15 ton weight	16					1	17	High
C06	Bridge	CSAH 3	Isanti County	Condition	Deck, superstructure, and substructure all score less than 5	610					1	17	Medium
C07	Bridge	CSAH 3	Isanti County	Condition	Deck, superstructure, and substructure all score less than 5	610					1	17	Medium
C08	Bridge	CSAH 3	Isanti County	Condition	Deck, superstructure, and substructure all score less than 5	610					1	17	Medium
C09	Bridge	TWNS 222	Todd County	Condition	Deck, superstructure, and substructure all score less than 5	31					1	17	Medium
C10	Bridge	CSAH 21	Morrison County	Condition	Deck, superstructure, and substructure all score less than 5	1,050					1	17	Medium
C11	Bridge	TWNS 1280	Crow Wing County	Condition	Deck, superstructure, and substructure all score less than 5	20					1	17	Medium
C12	Bridge	CSAH 21	Todd County	Condition	Deck, superstructure, and substructure all score less than 5	1,200					1	17	Medium
C13	Bridge	CSAH 14	Todd County	Condition	Deck, superstructure, and substructure all score less than 5	1,900					1	17	Medium
C14	Bridge	CNTY 252	Morrison County	Condition	Deck, superstructure, and substructure all score less than 5	660					1	17	Medium
S023	Intersection	US 10	US 10/Sherburne CSAH 17	Safety	>2 truck crashes from 2016-2018	16,000	1,300	8.1%	3	3.7	1	35	Medium
M04	Intersection	TH 25	TH 25/US 10	Mobility	High TTTR	16,600	1,300	7.8%	3	5.0	1	36	Medium
S035	Intersection	TH 371	TH 371/TH 200	Safety	>2 truck crashes from 2016-2018	8,700	670	7.7%	3	6.3	1	37	Medium
S031	Intersection	TH 371	TH 371/College Rd	Safety	>2 truck crashes from 2016-2018	22,200	1,550	7.0%	7	4.3	1	38	Medium
S043	Road	TH 101	Wright County Line to US 10	Safety	>2 truck crashes from 2016-2018	52,000	3,250	6.7%	19	2.6	1	39	Medium
S054	Road	TH 23	TH 15 to US 10	Safety	>2 truck crashes from 2016-2018	34,000	2,000	6.5%	31	2.7	1	40	Medium
S088	Road	US 10	US 169 to TH 25	Safety	>2 truck crashes from 2016-2018	29,500	1,100	3.9%	29	3.7	1	41	Medium
S081	Road	TH 65	TH 23 S. to TH 23 N. (Mora)	Safety	>2 truck crashes from 2016-2018	13,300	1,150	8.6%	7	2.4	1	42	Medium
S112	RR Crossing	Jackson Ave NW	Elk River, Sherburne County	Safety	High-risk at-grade railroad crossing (>7 score)				1		1	42	Medium
S115	RR Crossing	165th Ave SE	Sherburne County	Safety	High-risk at-grade railroad crossing (>7 score)				1		1	42	Medium
S117	RR Crossing	7th St SE	St. Cloud, Sherburne County	Safety	High-risk at-grade railroad crossing (>7 score)				1		1	42	Medium
S124	RR Crossing	CSAH 3	Wright County	Safety	High-risk at-grade railroad crossing (>7 score)				1		1	42	Medium
S142	RR Crossing	165th St	Morrison County	Safety	High-risk at-grade railroad crossing (>7 score)				1		1	42	Medium
S148	RR Crossing	2nd St S	Buffalo, Wright County	Safety	High-risk at-grade railroad crossing (>7 score)				1		1	42	Medium
S156	RR Crossing	CR 17	Sherburne County	Safety	High-risk at-grade railroad crossing (>7 score)				1		1	42	Medium
S020	Intersection	US 10	US 10/Morrison CSAH 26	Safety	>2 truck crashes from 2016-2018	23,100	1,900	8.2%	2	1.17	1	43	Medium
S048	Road	TH 210	US 71 to US 10	Safety	>2 truck crashes from 2016-2018	4,450	360	8.1%	3	6.33	1	44	Medium
S011	Intersection	US 169	US 169/Sherburne CR 19	Safety	>2 truck crashes from 2016-2018	27,000	2,100	7.8%	3	2.11	1	45	Medium
S010	Intersection	TH 23	TH 23/TH 15/CSAH 75	Safety	>2 truck crashes from 2016-2018	31,000	1,950	6.3%	17	3	1	46	Medium
M18	Road	TH 371	TH 371 Bus. to Woida Rd (Baxter)	Mobility	High TTTR	31,500	1,550	4.9%	25	4.33	1	47	Medium
M21A	Road	I-94	Wright CSAH 19 to TH 25	Mobility	Stakeholder - Congestion/Safety	61,000	7,500	20.3%	89	1.8	1	55	Medium
S106	Road	US 71	TH 27 S to TH 27 N	Safety	>2 truck crashes from 2016-2018	10,900	1,300	15.3%	12	2.43	1	56	Medium
S093	Road	US 10	TH 115 to TH 210	Safety	>2 truck crashes from 2016-2018	9,800	1,050	10.7%	13	3.4	1	57	Medium
M01	Intersection	US 10	US 10/TH 210	Mobility	High TTTR	11,800	1,250	10.6%	0	6.33	1	58	Medium
M09	Intersection	US 71	US 71/I-94	Mobility	High TTTR	9,300	950	10.2%	3	6.3	1	59	Medium
S053	Road	TH 23	I-94 to TH 15	Safety	>2 truck crashes from 2016-2018	30,000	1,950	9.3%	5	1.86	1	60	Medium
S058	Road	TH 23	TH 65 to Kanabec CSAH 5	Safety	>2 truck crashes from 2016-2018	9,400	860	9.1%	5	2.43	1	61	Medium
S089	Road	US 10	TH 25 to TH 24	Safety	>2 truck crashes from 2016-2018	19,300	1,600	9.0%	25	3.67	1	62	Medium

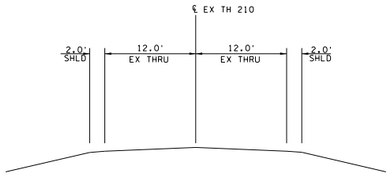
Appendix C: Project Rankings

MnDOT District 3 Needs Analysis - Pure Ranking (Top 100)													
ID	Type	Roadway	Extent (from/to) or Location	Need Type	Need Information	AADT	HCAADT	HV %	# crashes	TTTR	Pure Rank	Updated Pure Rank	Rank Level
S016	Intersection	TH 65	TH 65/TH 23 (S. of Mora)	Safety	>2 truck crashes from 2016-2018	11,800	1,000	8.5%	2	2.43	1	63	Medium
S091	Road	US 10	TH 15 to Morrison CSAH 26	Safety	>2 truck crashes from 2016-2018	31,000	2,200	8.2%	38	1.17	1	64	Medium
S032	Intersection	TH 371	TH 371/TH 210	Safety	>2 truck crashes from 2016-2018	31,500	1,550	4.9%	6	3	1	65	Medium
S063	Road	TH 25	TH 55 to I-94	Safety	>2 truck crashes from 2016-2018	30,000	1,200	4.4%	10	5	1	66	Medium
S087	Road	US 10	Sherburne County Line to US 169	Safety	>2 truck crashes from 2016-2018	34,000	1,400	4.1%	12	2.42	1	67	Medium
P24	Bridge	CNTY 103	Cass County	Performance	<40 ton weight restriction	35					1	68	Medium
P26	Bridge	CSAH 11	Todd County	Performance	<40 ton weight restriction	510					1	68	Medium
P27	Bridge	TWNS 124	Crow Wing County	Performance	<40 ton weight restriction	10					1	68	Medium
S040	Road	I-94	CSAH 75 to TH 237	Safety	>2 truck crashes from 2016-2018	38,500	6,500	18.8%	66	1.17	1	71	Medium
S042	Road	I-94	US 71 to Todd County Line	Safety	>2 truck crashes from 2016-2018	27,500	4,350	18.3%	39	1.08	1	72	Medium
S005	Intersection	I-94	I-94/CSAH 75	Safety	>2 truck crashes from 2016-2018	38,500	6,500	16.9%	10	1.17	1	73	Medium
S041	Road	I-94	TH 237 to US 71	Safety	>2 truck crashes from 2016-2018	28,500	4,450	16.4%	43	1.08	1	74	Medium
S039	Road	I-94	TH 15 to CSAH 75	Safety	>2 truck crashes from 2016-2018	34,500	4,750	15.1%	33	1.17	1	75	Medium
S070	Road	TH 371	Crow Wing County Line to TH 200	Safety	>2 truck crashes from 2016-2018	8,600	950	11.1%	11	2.71	1	76	Low
S083	Road	TH 95	TH 25 to US 169	Safety	>2 truck crashes from 2016-2018	10,100	1,050	10.6%	8	1.19	1	77	Low
S096	Road	US 12	TH 25 E to TH 25 W	Safety	>2 truck crashes from 2016-2018	11,400	1,050	9.2%	4	1.89	1	78	Low
S100	Road	US 169	TH 95 to TH 23	Safety	>2 truck crashes from 2016-2018	19,300	1,700	8.8%	10	2.08	1	79	Low
S085	Road	TH 95	TH 47 to TH 65	Safety	>2 truck crashes from 2016-2018	21,000	1,000	7.3%	12	3	1	80	Low
S060	Road	TH 241	I-94 to Saint Michael	Safety	>2 truck crashes from 2016-2018	21,200	1,350	6.7%	10	1.4	1	81	Low
S045	Road	TH 15	TH 23 to US 10	Safety	>2 truck crashes from 2016-2018	36,500	1,700	6.5%	25	1.8	1	82	Low
S086	Road	TH 95	TH 65 to Isanti County Line	Safety	>2 truck crashes from 2016-2018	24,700	1,100	6.0%	14	3	1	83	Low
M15	Road	TH 25	TH 18 to TH 210	Mobility	High TTTR	7,200	400	5.6%	2	4.33	1	84	Low
S050	Road	TH 210	TH 371 to TH 25	Safety	>2 truck crashes from 2016-2018	30,500	1,250	5.4%	21	1.19	1	85	Low
S102	Road	US 169	TH 27 to TH 18	Safety	>2 truck crashes from 2016-2018	12,300	590	4.8%	10	3.8	1	86	Low
S003	Intersection	TH 55	TH 55/TH 25	Safety	>2 truck crashes from 2016-2018	17,600	750	4.3%	6	3	1	87	Low
S022	Intersection	US 10	US 10/US 71	Safety	>2 truck crashes from 2016-2018	11,000	1,200	10.9%	3	1.44	1	88	Low
S110	RR Crossing	Jarvis St NW	Sherburne County	Safety	High-risk at-grade railroad crossing (>7 score)				0		1	88	Low
S111	RR Crossing	165th Ave NW	Sherburne County	Safety	High-risk at-grade railroad crossing (>7 score)				0		1	88	Low
S114	RR Crossing	CR 15	Sherburne County	Safety	High-risk at-grade railroad crossing (>7 score)				0		1	88	Low
S118	RR Crossing	2nd Ave S	St. Cloud, Benton County	Safety	High-risk at-grade railroad crossing (>7 score)				0		1	88	Low
S119	RR Crossing	CR 26	Morrison County	Safety	High-risk at-grade railroad crossing (>7 score)				0		1	88	Low
S120	RR Crossing	58th St SW	Wright County	Safety	High-risk at-grade railroad crossing (>7 score)				0		1	88	Low
S121	RR Crossing	13th Ave	Howard Lake, Wright County	Safety	High-risk at-grade railroad crossing (>7 score)				0		1	88	Low
S122	RR Crossing	Divison St E	Wright County	Safety	High-risk at-grade railroad crossing (>7 score)				0		1	88	Low
S123	RR Crossing	CSAH 12	Wright County	Safety	High-risk at-grade railroad crossing (>7 score)				0		1	88	Low
S127	RR Crossing	378th Ave	Stearns County	Safety	High-risk at-grade railroad crossing (>7 score)				0		1	88	Low
S128	RR Crossing	CR 11	Sherburne County	Safety	High-risk at-grade railroad crossing (>7 score)				0		1	88	Low
S130	RR Crossing	11th Ave SE	Cambridge, Isanti County	Safety	High-risk at-grade railroad crossing (>7 score)				0		1	88	Low
S131	RR Crossing	CSAH 6	Isanti County	Safety	High-risk at-grade railroad crossing (>7 score)				0		1	88	Low
S132	RR Crossing	TH 70	Kanabec County	Safety	High-risk at-grade railroad crossing (>7 score)				0		1	88	Low
S133	RR Crossing	Ogden St NW	Elk River, Sherburne County	Safety	High-risk at-grade railroad crossing (>7 score)				0		1	88	Low
S134	RR Crossing	115th Ave SE	Sherburne County	Safety	High-risk at-grade railroad crossing (>7 score)				0		1	88	Low
S135	RR Crossing	CR 16	Sherburne County	Safety	High-risk at-grade railroad crossing (>7 score)				0		1	88	Low
S137	RR Crossing	45th Ave SE	Sherburne County	Safety	High-risk at-grade railroad crossing (>7 score)				0		1	88	Low

MnDOT District 3 Project Opportunities (Top 33)										
ID	Type	Roadway	Extent (from/to) or Location	Need Type	Need Information	AADT	HCAADT	HV %	# crashes	TTTR
S113	RR Crossing	Proctor Ave NW	Sherburne County	Safety	High-risk at-grade railroad crossing (>7 score)				2	
S116	RR Crossing	TH 301	Sherburne County	Safety	High-risk at-grade railroad crossing (>7 score)				3	
S129	RR Crossing	305th Ave NE	Isanti County	Safety	High-risk at-grade railroad crossing (>7 score)				3	
S144	RR Crossing	317th Ave	Todd County	Safety	High-risk at-grade railroad crossing (>7 score)				3	
S152	RR Crossing	Twin Lakes Rd NW	Sherburne County	Safety	High-risk at-grade railroad crossing (>7 score)				2	
S105	Road	US 71	I-94 to TH 27	Safety	>2 truck crashes from 2016-2018	10,200	1,050	17.6%	7	6.3
S094	Road	US 10	TH 210 to Wadena County Line	Safety	>2 truck crashes from 2016-2018	11,000	1,200	11.2%	18	6.33
S104	Road	US 71	TH 55 to I-94	Safety	>2 truck crashes from 2016-2018	7,500	760	16.2%	12	6.3
S069	Road	TH 371	TH 210 to Crow Wing County Line	Safety	>2 truck crashes from 2016-2018	31,500	1,100	11.2%	21	4.33
S068	Road	TH 371	US 10 to TH 210	Safety	>2 truck crashes from 2016-2018	22,200	1,550	10.3%	15	5
M17	Road	TH 24	I-94 to US 10	Mobility	High TTTR	16,200	1,650	10.2%	11	3.8
S099	Road	US 169	205th Ave NW to TH 95	Safety	>2 truck crashes from 2016-2018	27,000	2,100	9.0%	25	2.11
S071	Road	TH 371	TH 200 S. to TH 200 N.	Safety	>2 truck crashes from 2016-2018	9,000	700	7.8%	9	6.33
M10	Road	TH 371	TH 200 to Cass CSAH 37	Mobility	High TTTR	8,700	670	7.7%	10	6.33
S059	Road	TH 24	I-94 to US 10	Safety	>2 truck crashes from 2016-2018	16,200	1,650	10.7%	11	3.8
S023	Intersection	US 10	US 10/Sherburne CSAH 17	Safety	>2 truck crashes from 2016-2018	16,000	1,300	8.1%	3	3.67
M04	Intersection	TH 25	TH 25/US 10	Mobility	High TTTR	16,600	1,300	7.8%	3	5
S035	Intersection	TH 371	TH 371/TH 200	Safety	>2 truck crashes from 2016-2018	8,700	670	7.7%	3	6.33
S031	Intersection	TH 371	TH 371/College Rd	Safety	>2 truck crashes from 2016-2018	22,200	1,550	7.0%	7	4.33
S054	Road	TH 23	TH 15 to US 10	Safety	>2 truck crashes from 2016-2018	34,000	2,000	6.5%	31	2.71
S088	Road	US 10	US 169 to TH 25	Safety	>2 truck crashes from 2016-2018	29,500	1,100	3.9%	29	3.67
S081	Road	TH 65	TH 23 S. to TH 23 N. (Mora)	Safety	>2 truck crashes from 2016-2018	13,300	1,150	8.6%	7	2.43
S020	Intersection	US 10	US 10/Morrison CSAH 26	Safety	>2 truck crashes from 2016-2018	23,100	1,900	8.2%	2	1.17
S048	Road	TH 210	US 71 to US 10	Safety	>2 truck crashes from 2016-2018	4,450	360	8.1%	3	6.33
S011	Intersection	US 169	US 169/Sherburne CR 19	Safety	>2 truck crashes from 2016-2018	27,000	2,100	7.8%	3	2.11
S010	Intersection	TH 23	TH 23/TH 15/CSAH 75	Safety	>2 truck crashes from 2016-2018	31,000	1,950	6.3%	17	3
M21A	Road	I-94	Wright CSAH 19 to TH 25	Mobility	Stakeholder - Congestion/Safety	61,000	7,500	20.3%	89	1.8
M09	Intersection	US 71	US 71/I-94	Mobility	High TTTR	9,300	950	10.2%	3	6.3
S089	Road	US 10	TH 25 to TH 24	Safety	>2 truck crashes from 2016-2018	19,300	1,600	9.0%	25	3.67
S016	Intersection	TH 65	TH 65/TH 23 (S. of Mora)	Safety	>2 truck crashes from 2016-2018	11,800	1,000	8.5%	2	2.43
S032	Intersection	TH 371	TH 371/TH 210	Safety	>2 truck crashes from 2016-2018	31,500	1,550	4.9%	6	3
S087	Road	US 10	Sherburne County Line to US 169	Safety	>2 truck crashes from 2016-2018	34,000	1,400	4.1%	12	2.42
M15	Road	TH 25	TH 18 to TH 210	Mobility	High TTTR	7,200	400	5.6%	2	4.33

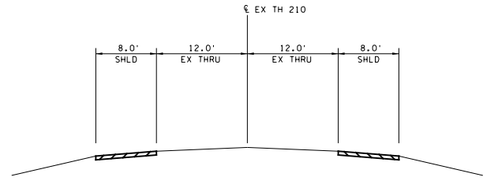
Appendix D: Freight Plan SWOT Analysis





EXISTING TYPICAL SECTION

EXISTING TH 210



PROPOSED TYPICAL SECTION

EXISTING TH 210

LEGEND

- POTENTIAL LEFT TURN LANE ADDITION
- INTERSECTION LIGHTING
- SIGHT DISTANCE RE-GRADING
- POTENTIAL S-CURVE REALIGNMENT
- SHOULDER WIDENING

US HWY 10

STAPLES

US HWY 71

HEWITT

CSAH 23

CR 77

CSAH 11

CSAH 9

CSAH 21

CSAH 7

TH 210

N

0 3000 6000

SCALE IN FEET

The TH 210 Corridor Improvement Project extends approximately 16 miles along TH 210 from US 71 to US 10. The primary issue along this corridor is narrow shoulders and natural barriers such as hills and road curves preventing safe sight distances. In addition there are segments with substandard (low speed) S-curves that result in increased safety concerns. There have been several recent truck crashes along this particular corridor, with one fatality. The proposed improvements include widening the existing 2-foot shoulders to 8-feet. As part of future project development efforts, bypass lanes should also be considered at appropriate locations to improve travel safety. The proposed shoulder widening will result in spot right-of-way and wetland impacts along the corridor. Additional enhancement options highlighted on Figure 1 include improving two sets of S-curves. Accommodating the higher speed S-Curves would generate additional right-of-way and wetland impacts. Estimated construction cost (based on 2019 average bid prices) is $14.8 Million for the shoulder widening, $1.1 million for the S-curve realignment, $2.9 million for the re-graded intersections for sight distance corrections, $190,000 for intersection lighting, and $350,000 for left turn lanes.

pw:\\srf-pw.bentley.com:srf-pw\Documents\Projects\12344\03_Design\Graphic\12344_s048_gri.dgn

SRF

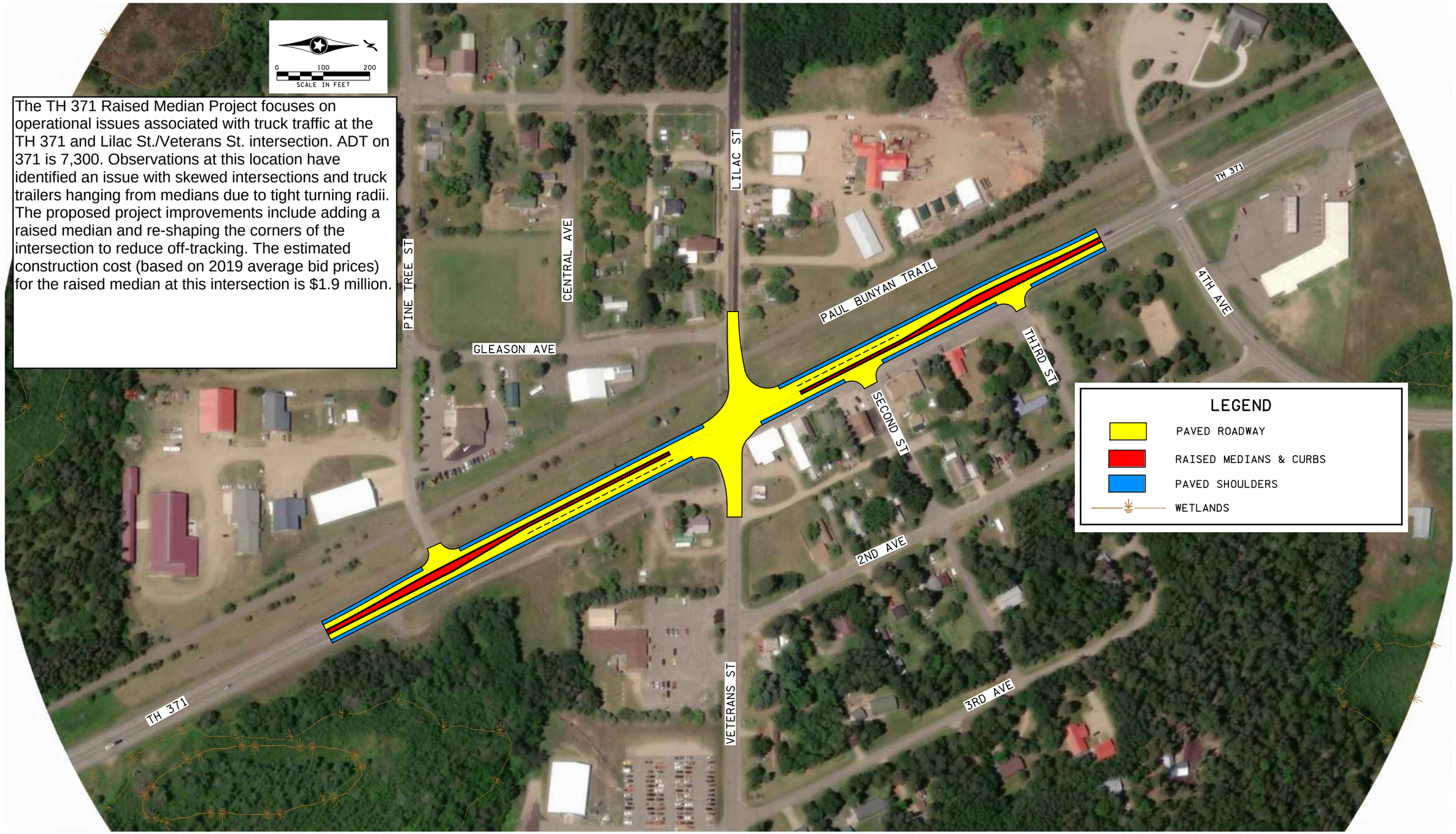
TH 210 Corridor Improvements Project Concept

DISTRICT 3 FREIGHT PLAN

TH 210 BETWEEN US HWY 71 AND US HWY 10 - TODD COUNTY, MN

Job #
9/22/2020

Figure 1



pw:\\srf-pw.bentley.com:srf-pw\Documents\Projects\12344\03_Design\Graphic\12344_s069_gre.dgn

SRF

TH 371 Raised Median Project Concept

DISTRICT 3 FREIGHT PLAN

TH 371 IN JENKINS, MN

Job #
9/24/2020

Figure 2

Heavy trucks are operating unsafely along US 10 near Elk River. To address this issue, the proposed improvements include access management or turn lane improvements. The proposed widening will result in spot right-of-way and wetland impacts along the corridor. The estimated construction cost (based on 2019 average bid prices) to create reduced conflict u-turn intersections to limit crossing points is $1.7 million.

0 150 300
SCALE IN FEET

GATEWAY RD NW
JARVIS ST NW
ADAMS ST
ALPINE DR
CLOSED
US HWY 10
CLOSED
CLOSED
CLOSED
TH 10 FRONTAGE ROAD
EDISON ST NW
CLEVELAND ST NW
ADAMS ST NW

LEGEND

	PAVED ROADWAY
	PAVED SHOULDERS
CLOSED	MEDIAN OPENING CLOSED

pw:\\srf-pw.bentley.com:srf-pw\Documents\Projects\12344\03_Design\Graphic\12344_s087_grh.dgn

SRF

TH 10 Access Improvement Project Concept

DISTRICT 3 FREIGHT PLAN

US HWY 10 AT ALPINE DR - SHERBURNE COUNTY, MN

Job #
9/23/2020

Figure 3

The TH 10 Intersection Improvement Project is located on US 10 at the Main Street NW intersection. The project focuses on issues associated with grade separation at the interchange and improving safety at this intersection. To address these issues, the proposed improvements include, realignment, shoulder improvements, bridge and retaining walls, and constructing a roundabout. The estimated construction cost (based on 2019 average bid prices) for an interchange at Main Street is $25 million.

GATES AVE NW
MAIN ST NW
3RD ST NW
RAILROAD DR
RAILROAD DR
BNSF RAILROAD
JACKSON AVE NW
TH 10
MAIN ST NW
TH 10

LEGEND

- PAVED ROADWAY
- BRIDGES & RETAINING WALLS
- RAISED MEDIANS & CURBS
- PAVED SHOULDERS
- EXISTING TRAFFIC SIGNAL
- PROPOSED RETAINING WALL
- CLOSED — ENTRANCE CLOSED

0 150 300
SCALE IN FEET

pw:\\srf-pw.bentley.com:srf-pw\Documents\Projects\12344\03_Design\Graphic\12344_s088_grb.dgn

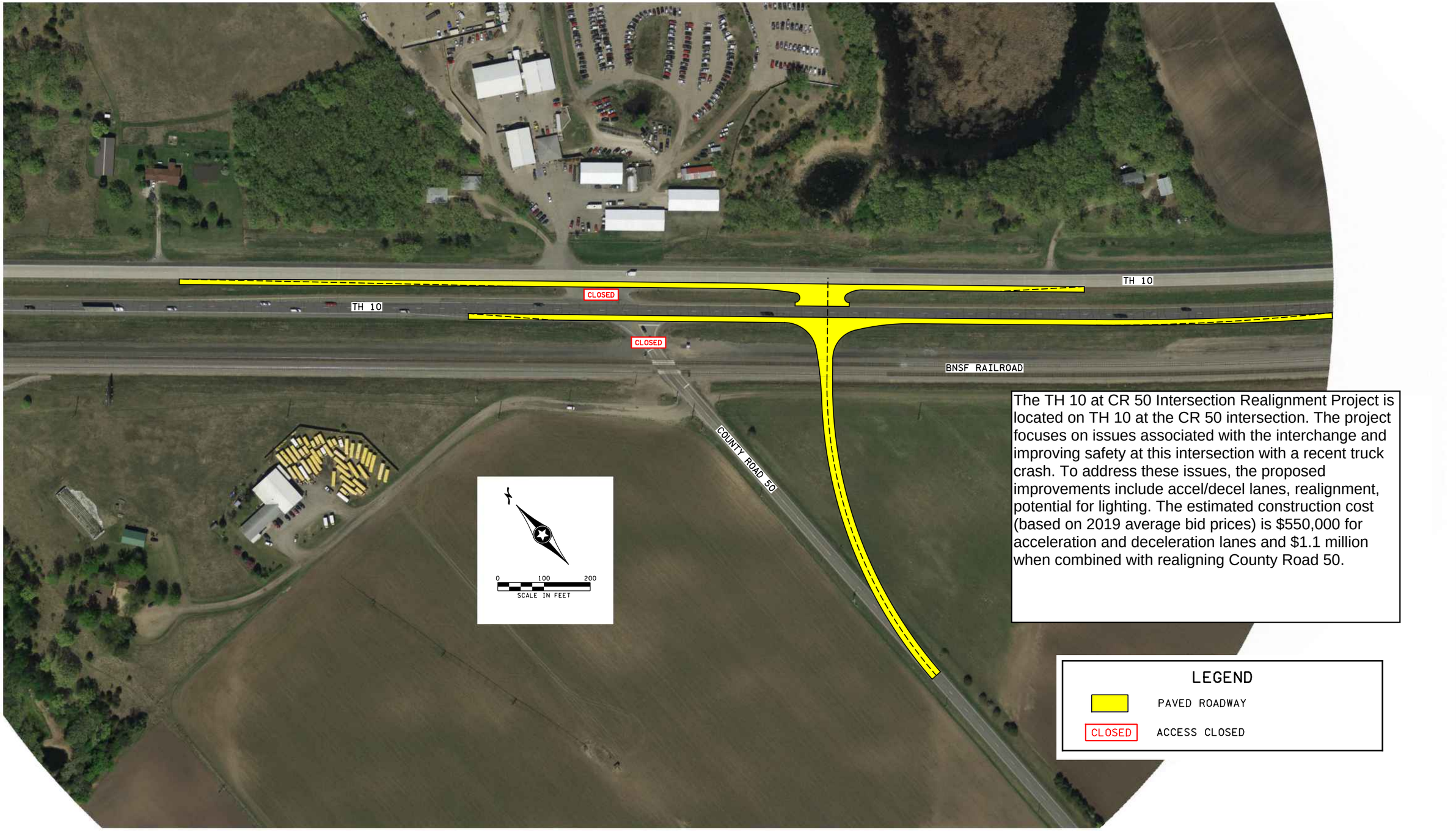
SRF

TH 10 Intersection Improvement Project Concept

DISTRICT 3 FREIGHT PLAN
US HWY 10 AT MAIN ST - ELK RIVER, MN

Job #
9/23/2020

Figure 4



The TH 10 at CR 50 Intersection Realignment Project is located on TH 10 at the CR 50 intersection. The project focuses on issues associated with the interchange and improving safety at this intersection with a recent truck crash. To address these issues, the proposed improvements include accel/decel lanes, realignment, potential for lighting. The estimated construction cost (based on 2019 average bid prices) is $550,000 for acceleration and deceleration lanes and $1.1 million when combined with realigning County Road 50.

pw:\\srf-pw.bentley.com:srf-pw\Documents\Projects\12344103_Design\Graphic\12344_s089_grf.dgn

SRF

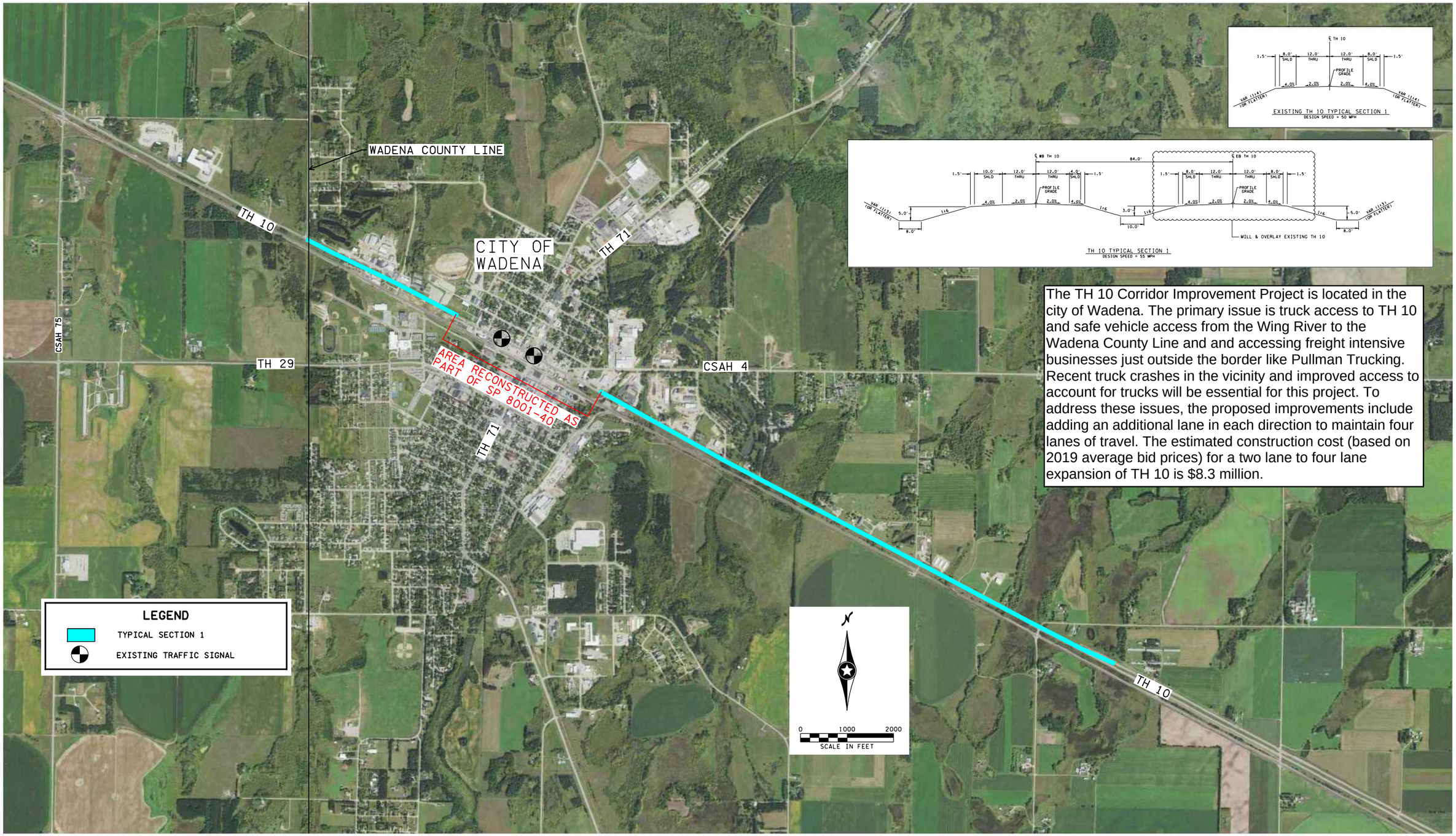
TH 10 at CR 50 Intersection Realignment Project Concept

DISTRICT 3 FREIGHT PLAN

US HWY 10 AT COUNTY RD 50 - SHERBURNE COUNTY, MN

Job #
9/23/2020

Figure 5



The TH 10 Corridor Improvement Project is located in the city of Wadena. The primary issue is truck access to TH 10 and safe vehicle access from the Wing River to the Wadena County Line and and accessing freight intensive businesses just outside the border like Pullman Trucking. Recent truck crashes in the vicinity and improved access to account for trucks will be essential for this project. To address these issues, the proposed improvements include adding an additional lane in each direction to maintain four lanes of travel. The estimated construction cost (based on 2019 average bid prices) for a two lane to four lane expansion of TH 10 is $8.3 million.

pw:\\srf-pw.bentley.com:srf-pw\Documents\Projects\12344\03_Design\Graphic\12344_S094_grg.dgn

SRF

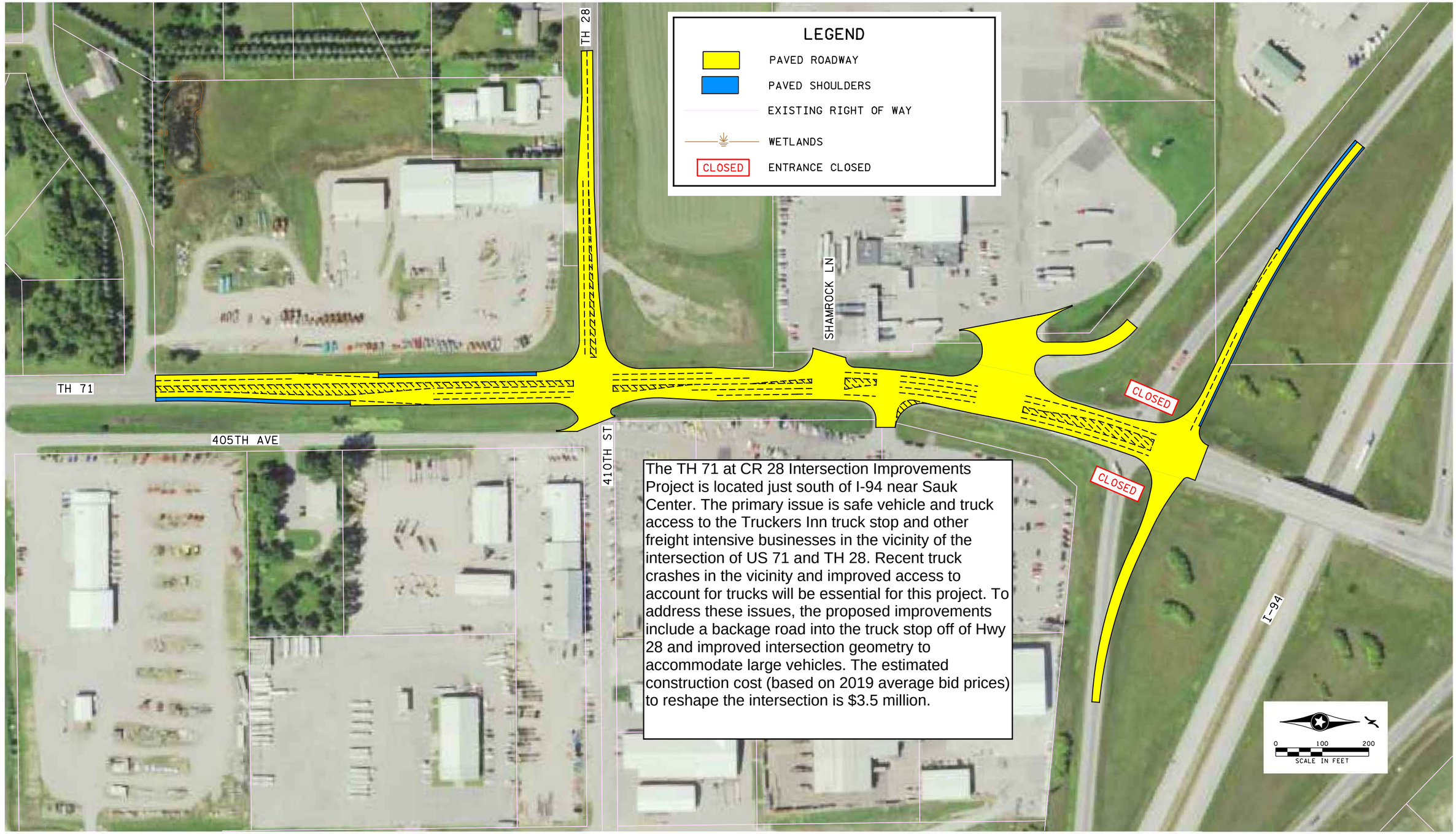
TH 10 Corridor Improvement Project Concept

DISTRICT 3 FREIGHT PLAN

US HWY 10 - WADENA, MN

Job #
9/23/2020

Figure 6



The TH 71 at CR 28 Intersection Improvements Project is located just south of I-94 near Sauk Center. The primary issue is safe vehicle and truck access to the Truckers Inn truck stop and other freight intensive businesses in the vicinity of the intersection of US 71 and TH 28. Recent truck crashes in the vicinity and improved access to account for trucks will be essential for this project. To address these issues, the proposed improvements include a backage road into the truck stop off of Hwy 28 and improved intersection geometry to accommodate large vehicles. The estimated construction cost (based on 2019 average bid prices) to reshape the intersection is $3.5 million.

pw:\\srf-pw.bentley.com:srf-pw\Documents\Projects\12344\03_Design\Graphic\12344_s104_gra.dgn

SRF

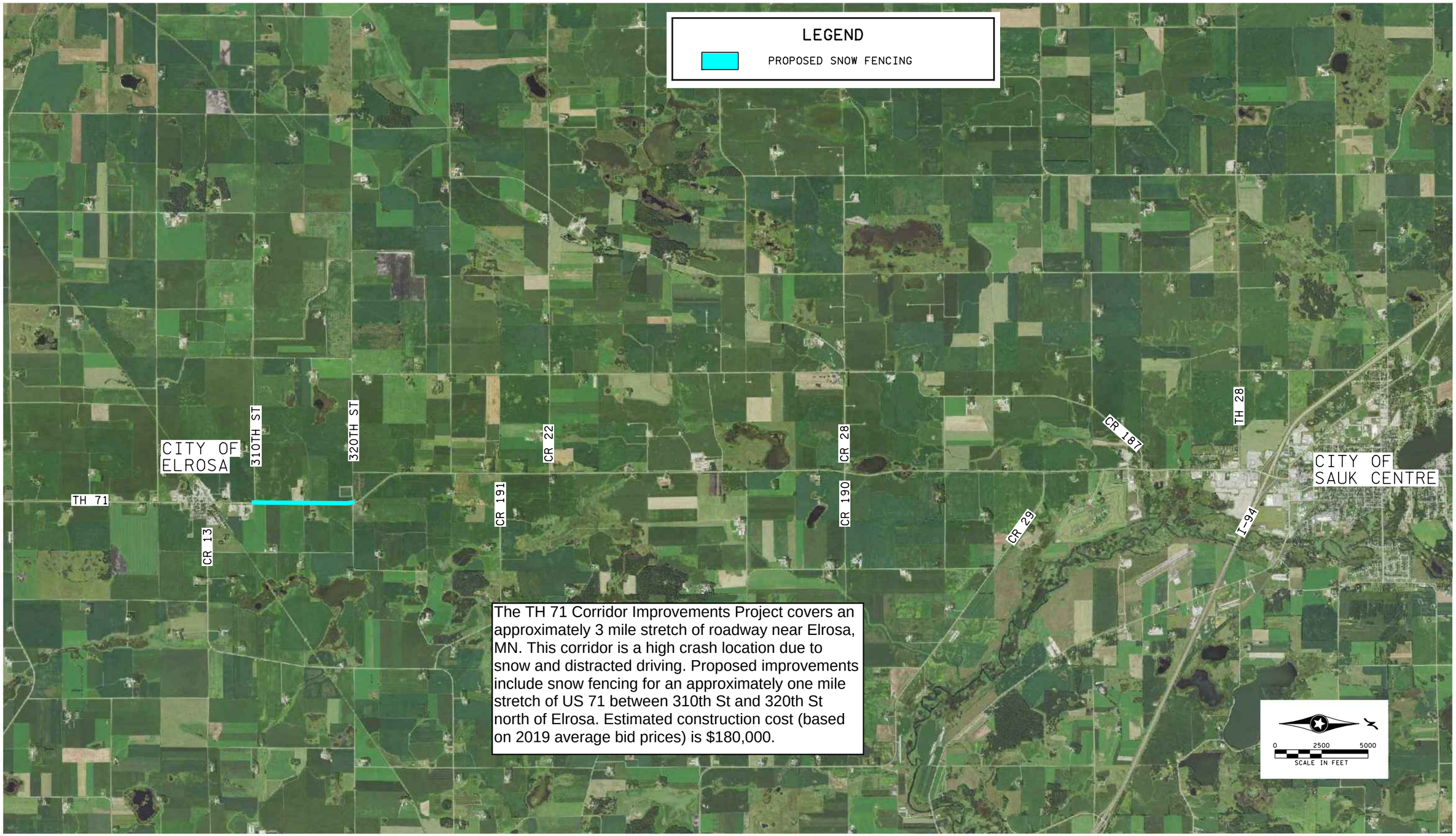
TH 71 at CR 28 Intersection Improvements Project Concept

DISTRICT 3 FREIGHT PLAN

I-94 AT US HWY 71 - SAUK CENTRE, MN

Job #
9/24/2020

Figure 7



pw:\\srf-pw.bentley.com:srf-pw\Documents\Projects\12344\03_Design\Graphic\12344_s104_gra2.dgn

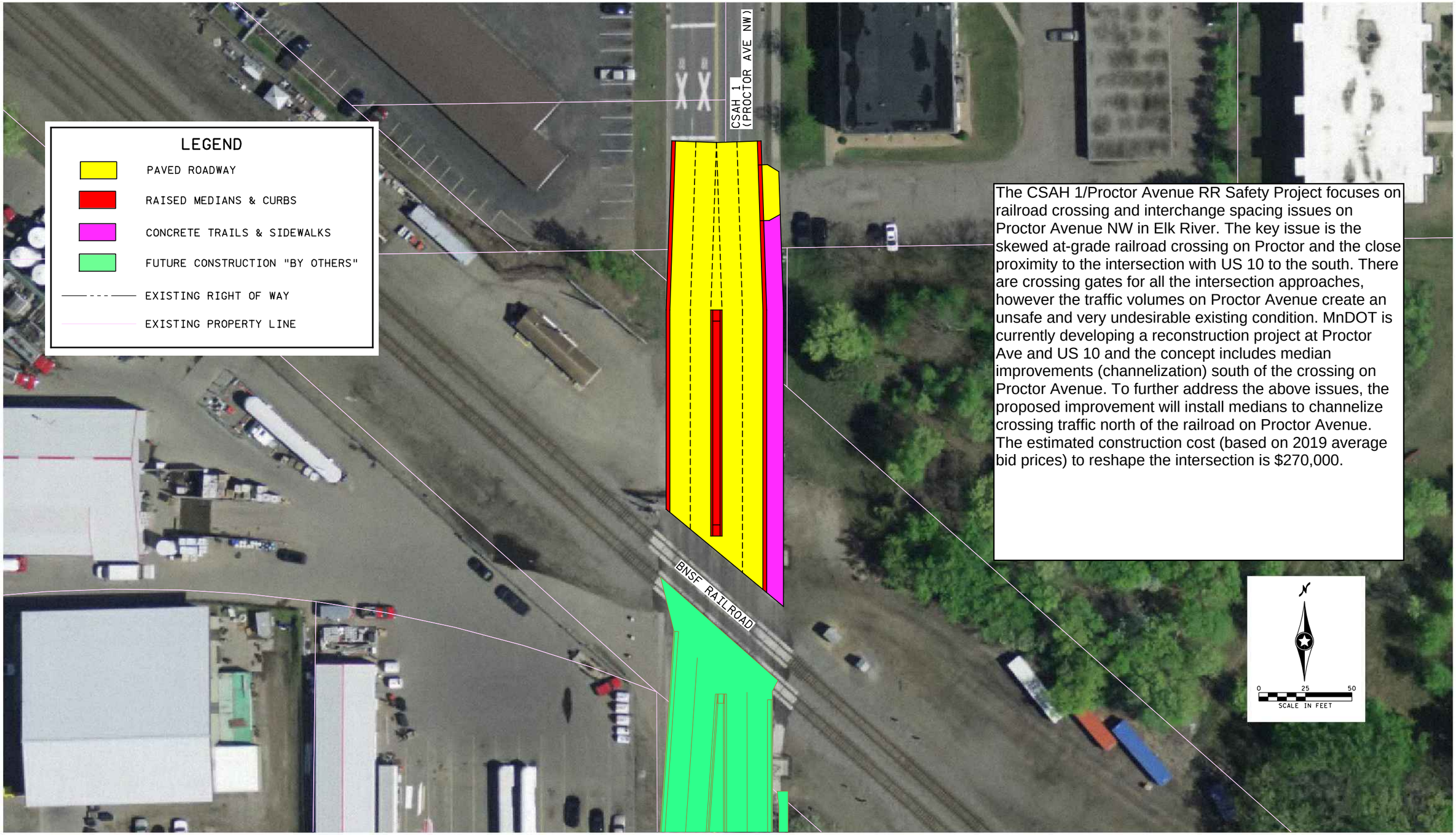
TH 71 Corridor Improvements Project Concept

DISTRICT 3 FREIGHT PLAN

US HWY 71 - ELROSA TO SAUK CENTRE, MN

Job #
10/12/2020

Figure 7A



The CSAH 1/Proctor Avenue RR Safety Project focuses on railroad crossing and interchange spacing issues on Proctor Avenue NW in Elk River. The key issue is the skewed at-grade railroad crossing on Proctor and the close proximity to the intersection with US 10 to the south. There are crossing gates for all the intersection approaches, however the traffic volumes on Proctor Avenue create an unsafe and very undesirable existing condition. MnDOT is currently developing a reconstruction project at Proctor Ave and US 10 and the concept includes median improvements (channelization) south of the crossing on Proctor Avenue. To further address the above issues, the proposed improvement will install medians to channelize crossing traffic north of the railroad on Proctor Avenue. The estimated construction cost (based on 2019 average bid prices) to reshape the intersection is $270,000.

pw:\\srf-pw.bentley.com:srf-pw\Documents\Projects\12344\03_Design\Graphic\12344_s113_grc.dgn

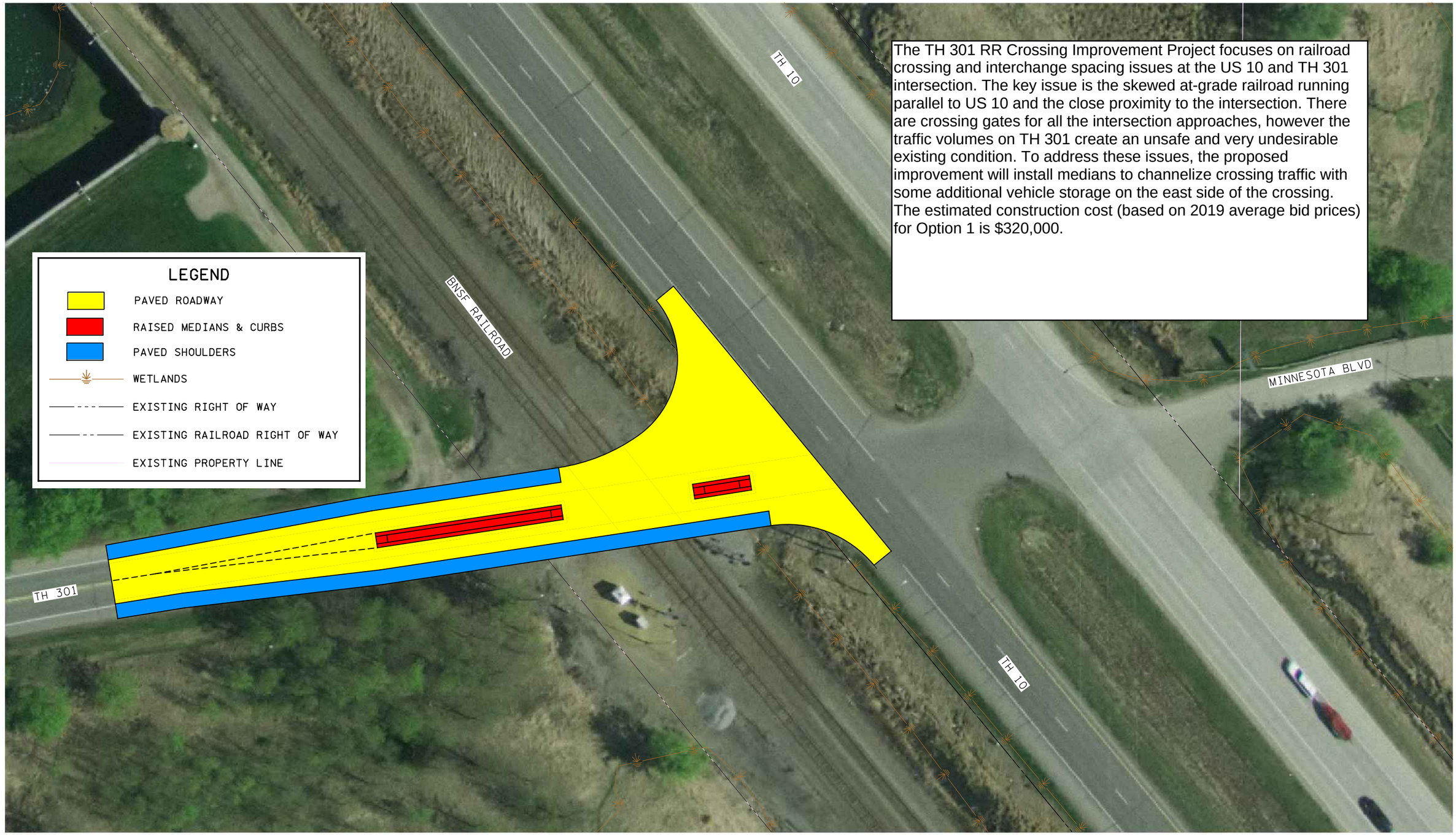
CSAH 1/Proctor Avenue RR Safety Project Concept

DISTRICT 3 FREIGHT PLAN

TH 10 AND CSAH 1 - SHERBURNE COUNTY, MN

Job #
9/23/2020

Figure 8



The TH 301 RR Crossing Improvement Project focuses on railroad crossing and interchange spacing issues at the US 10 and TH 301 intersection. The key issue is the skewed at-grade railroad running parallel to US 10 and the close proximity to the intersection. There are crossing gates for all the intersection approaches, however the traffic volumes on TH 301 create an unsafe and very undesirable existing condition. To address these issues, the proposed improvement will install medians to channelize crossing traffic with some additional vehicle storage on the east side of the crossing. The estimated construction cost (based on 2019 average bid prices) for Option 1 is $320,000.

pw:\\srf-pw.bentley.com:srf-pw\Documents\Projects\12344\03_Design\Graphic\12344_s116_grd.dgn

SRF

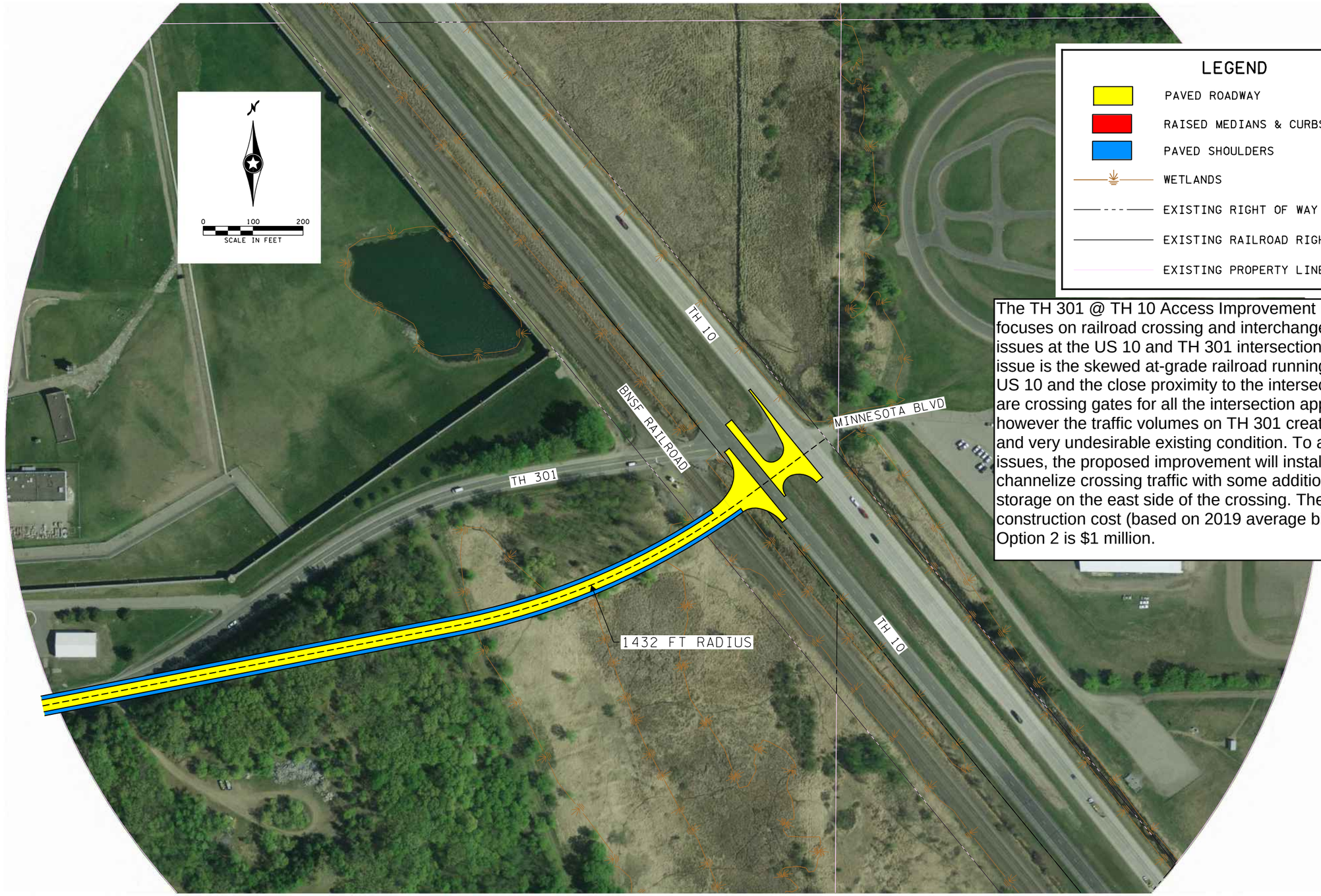
TH 301 RR Crossing Improvement Project Concept

DISTRICT 3 FREIGHT PLAN

US HWY 10 AT TH 301

Job #
9/23/2020

Figure 9



LEGEND

- PAVED ROADWAY
- RAISED MEDIANS & CURBS
- PAVED SHOULDERS
- WETLANDS
- EXISTING RIGHT OF WAY
- EXISTING RAILROAD RIGHT OF WAY
- EXISTING PROPERTY LINE

The TH 301 @ TH 10 Access Improvement Project focuses on railroad crossing and interchange spacing issues at the US 10 and TH 301 intersection. The key issue is the skewed at-grade railroad running parallel to US 10 and the close proximity to the intersection. There are crossing gates for all the intersection approaches, however the traffic volumes on TH 301 create an unsafe and very undesirable existing condition. To address these issues, the proposed improvement will install medians to channelize crossing traffic with some additional vehicle storage on the east side of the crossing. The estimated construction cost (based on 2019 average bid prices) for Option 2 is $1 million.

SRF

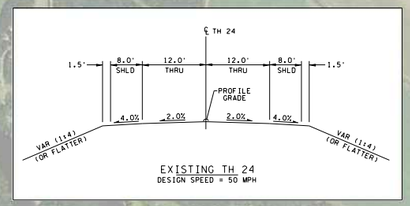
TH 301 at TH 10 Access Improvement Project Concept

DISTRICT 3 FREIGHT PLAN

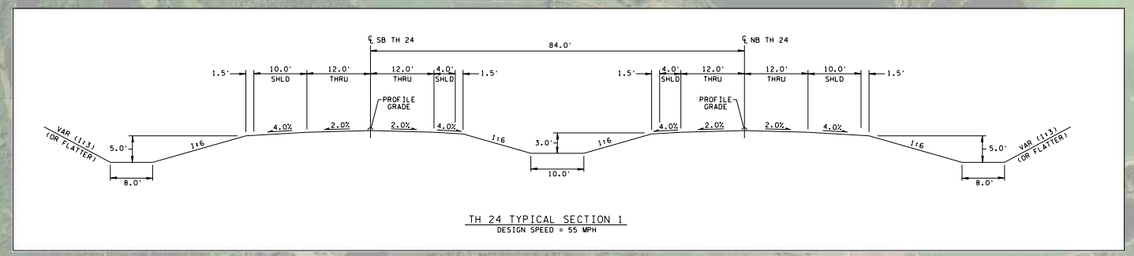
US HWY 10 AT TH 301 - SHERBURNE COUNTY, MN

Job #
9/23/2020

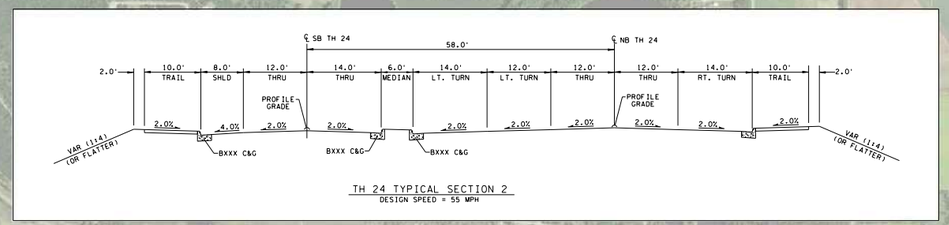
Figure 10



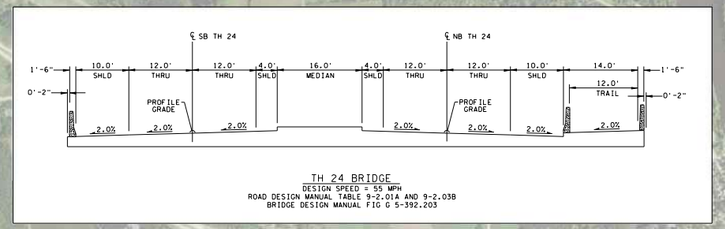
EXISTING TH 24
DESIGN SPEED = 50 MPH



TH 24 TYPICAL SECTION 1
DESIGN SPEED = 55 MPH



TH 24 TYPICAL SECTION 2
DESIGN SPEED = 55 MPH



TH 24 BRIDGE
DESIGN SPEED = 55 MPH
ROAD DESIGN MANUAL TABLE 9-2.01A AND 9-2.03B
BRIDGE DESIGN MANUAL FIG G 5-392.203

ALTERNATE BYPASS CONCEPT

CLEAR LAKE

US 10

BASE CONCEPT

TH 24

CLEARWATER

I 94

The TH 24 Widening Project is located on TH 24, from the I-94 interchange to US 10. This project extends approximately 4 miles from Clearwater to Clear Lake. The project focuses on issues associated with the I-94/TH 24 interchange and capacity of the two-lane section with a recent truck crash at CR 8. To address these issues, the proposed improvements include widening the existing 2-lane section to a 4-lane section with a system interchange at 94 and at 10. The estimated construction cost (based on 2019 average bid prices) utilizing the existing alignment is $59 Million, and utilizing a new alignment to bypass Clear Lake is $68 Million.

LEGEND

- TYPICAL SECTION 1
- TYPICAL SECTION 2
- BRIDGE
- PROPOSED TRAFFIC SIGNAL
- PROPOSED SYSTEMS INTERCHANGE
- WETLANDS
- EXISTING PROPERTY LINE

pw:\\srf-pw.bentley.com:srf-pw\Documents\Projects\12344\03_Design\Graphic\12344_M17_gri.dgn

SRF

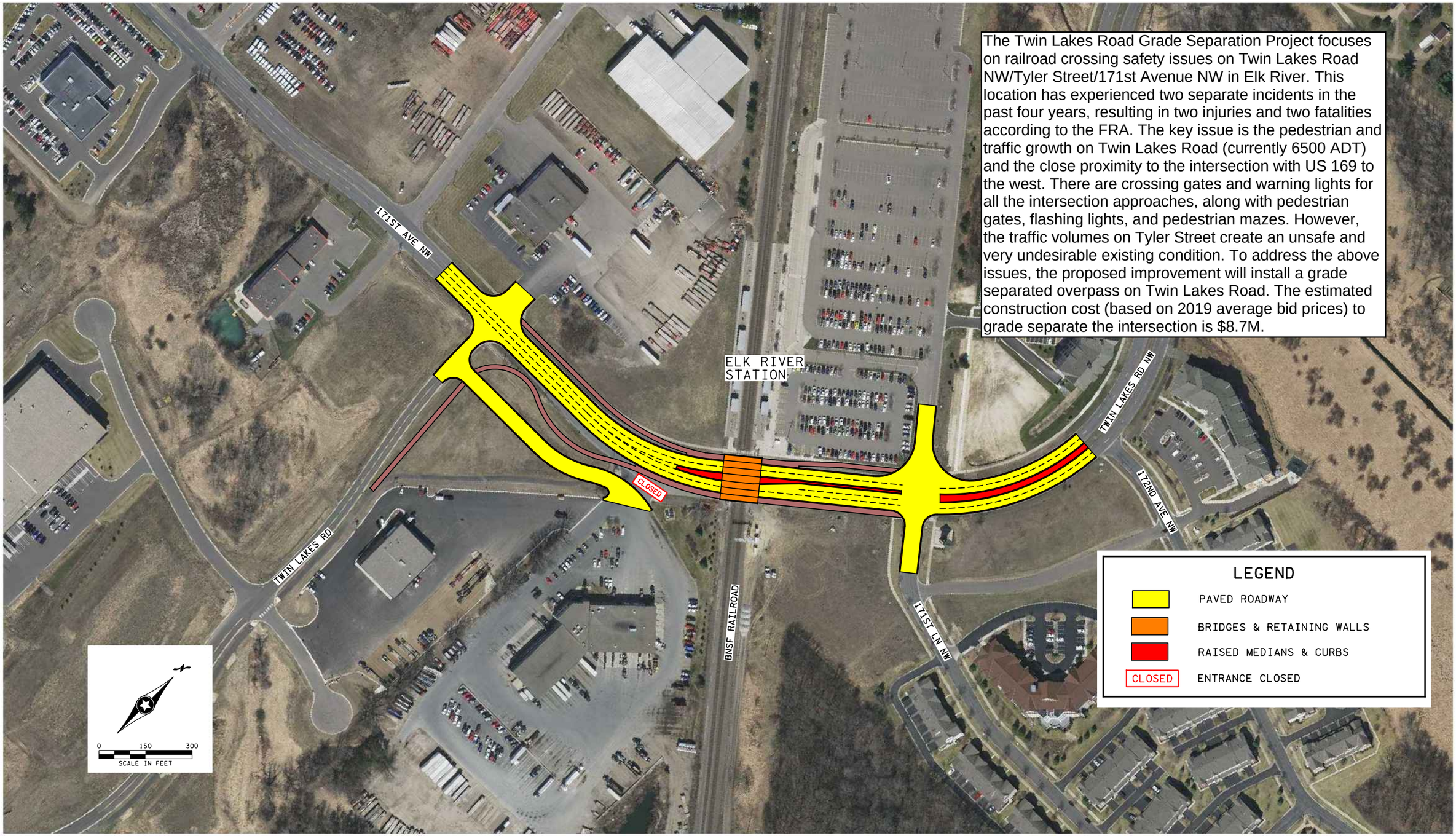
TH 24 Widening Project Concept

DISTRICT 3 FREIGHT PLAN

TH 24 - CLEARWATER TO CLEAR LAKE, MN

Job #
9/23/2020

Figure 11



The Twin Lakes Road Grade Separation Project focuses on railroad crossing safety issues on Twin Lakes Road NW/Tyler Street/171st Avenue NW in Elk River. This location has experienced two separate incidents in the past four years, resulting in two injuries and two fatalities according to the FRA. The key issue is the pedestrian and traffic growth on Twin Lakes Road (currently 6500 ADT) and the close proximity to the intersection with US 169 to the west. There are crossing gates and warning lights for all the intersection approaches, along with pedestrian gates, flashing lights, and pedestrian mazes. However, the traffic volumes on Tyler Street create an unsafe and very undesirable existing condition. To address the above issues, the proposed improvement will install a grade separated overpass on Twin Lakes Road. The estimated construction cost (based on 2019 average bid prices) to grade separate the intersection is $8.7M.

pw:\\srf-pw.bentley.com:srf-pw\Documents\Projects\12344\03_Design\Graphic\12344_s152_grz.dgn

SRF

Twin Lakes Road NW Grade Separation Project Concept

DISTRICT 3 FREIGHT PLAN

Twin Lakes Road at Elk River Station - ELK RIVER, MN

Job #
9/25/2020

Figure 12