



# MnDOT District 8 Freight Plan

Advisory Committee Meeting

December 10, 2019

Marshall

# Welcome Back to the Advisory Committee

*Help us keep the “Big Picture” in mind*

**Please introduce yourself:**

- Name, organization
- What is an investment (of money or time) that MnDOT could make to improve District 8's freight system?

*Don't forget to Speak Up!*

# Presentation Map



**Review Work Plan**

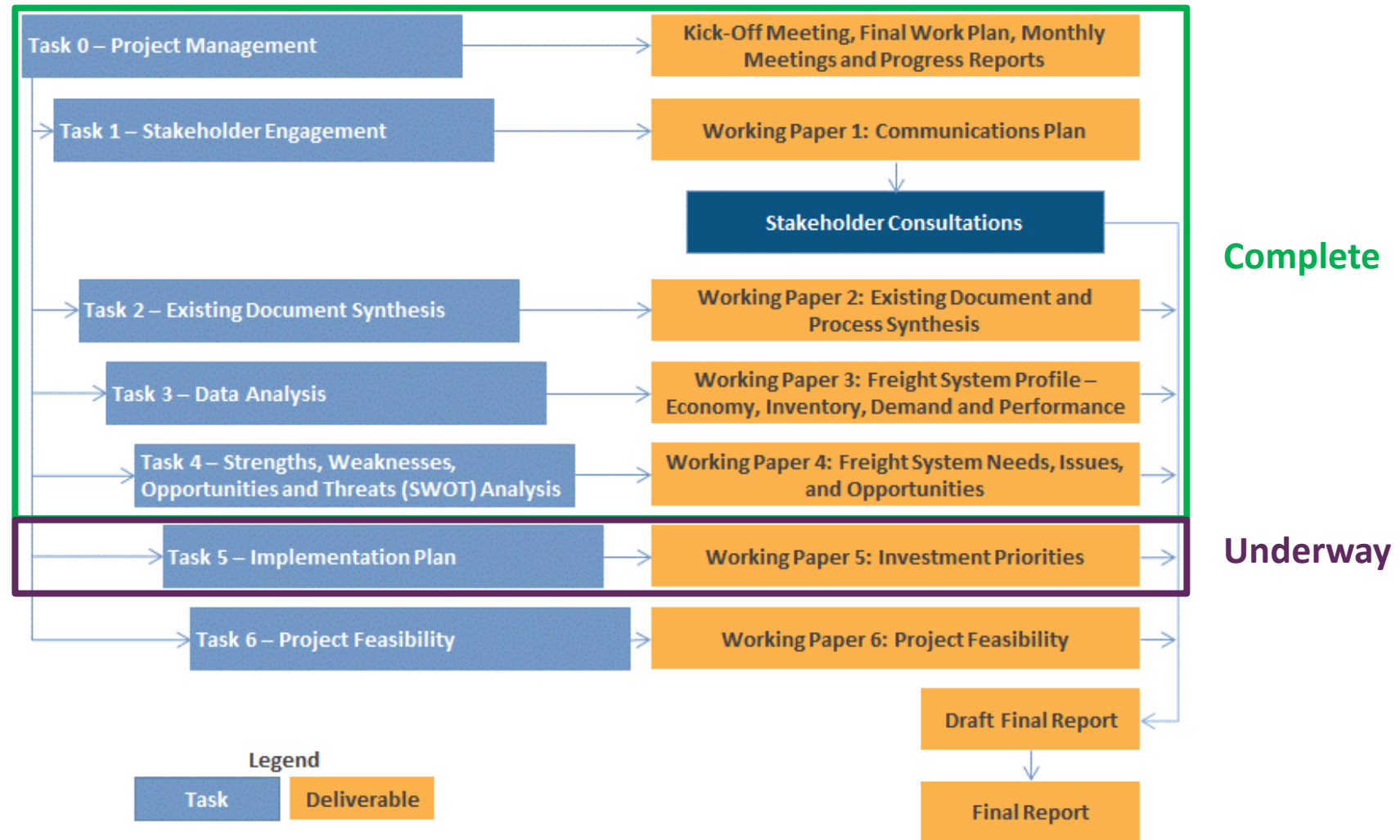
SWOT Assessment Results

Needs and Issues and Project Gaps

Approach to Project Feasibility

Next Steps & Discussion

# Work Plan Overview



# Working Paper 4: SWOT Analysis

## Key Content

- Future Outlook (STEEP)
- Current Freight System Needs and Issues
- SWOT Assessment
- Freight System Opportunities (Conceptual Recommendations)

## Working Paper 5: Investment Priorities

- Evaluate and score infrastructure projects/concepts
- Develop ranked list of projects
- Advance a number of projects to pre-feasibility and cost-estimating

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Review Work Plan



**SWOT Assessment Results**

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# SWOT Assessment

*SWOT provides a structure to explore an issue:*

	Helpful (to achieving goals)	Harmful (to achieving goals)
Internal (attributes of system)	Strengths	Weaknesses
External (attributes of environment)	Opportunities	Threats



# What Future Trends will Affect District 8?

## Think “STEEP” factors

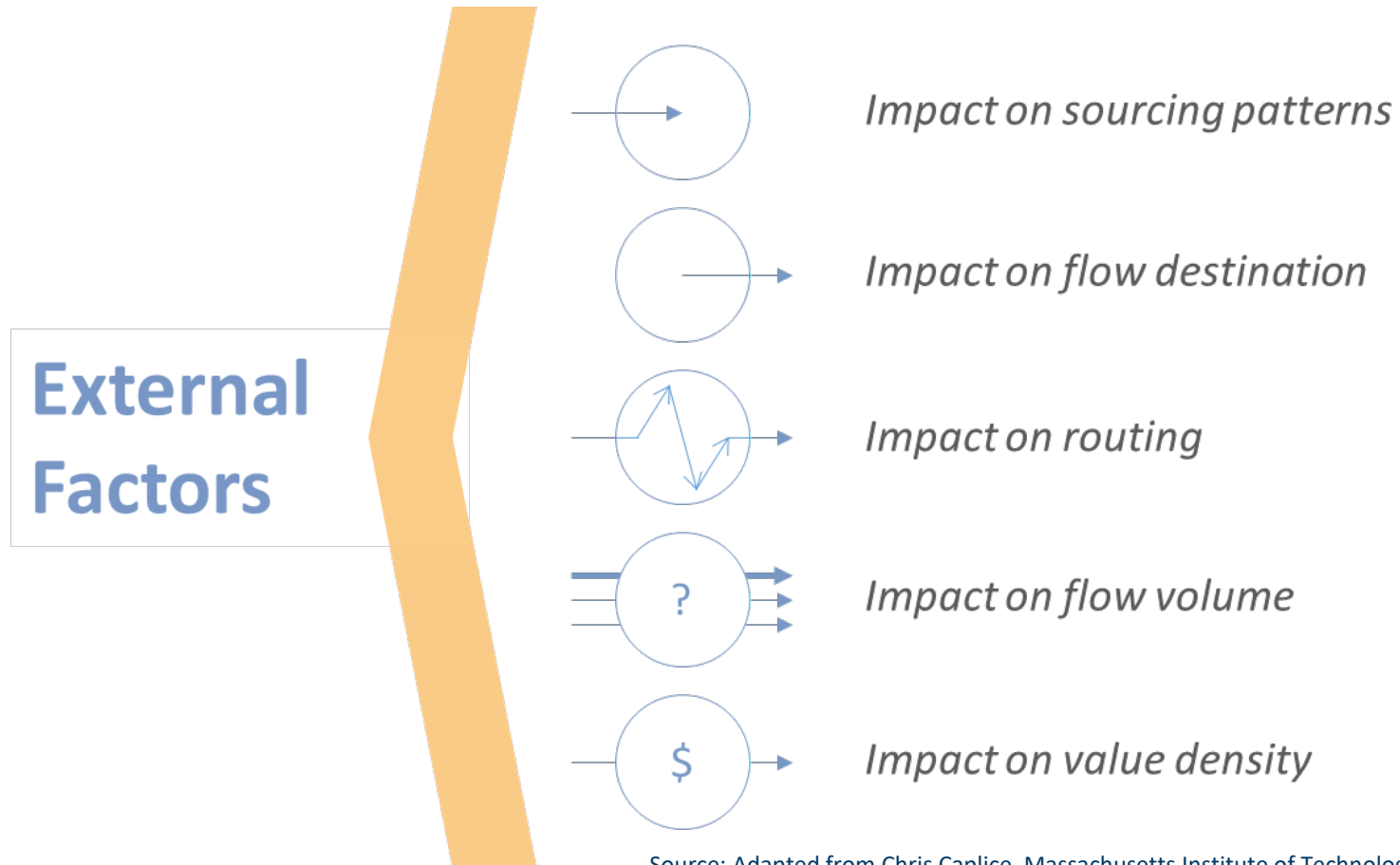
- Social
- Technological
- Environmental
- Economic
- Political

What factors could influence freight?

How could they influence freight?

# STEEP Affects on the Freight System

## *Potential Changes from STEEP Factors*



Source: Adapted from Chris Caplice, Massachusetts Institute of Technology

## Support Minnesota's Economy:



- Operate efficiently
- Connect to rest of the world
- Respond and adjust to changing economic conditions

Strengths	Weaknesses
<ul style="list-style-type: none"><li>• A long-standing agricultural and manufacturing sector</li><li>• Ample room for future growth</li></ul>	<ul style="list-style-type: none"><li>• Industries vulnerable to economic forces outside of District, Minnesota</li><li>• Aging population, with low population growth</li></ul>
Opportunities	Threats
<ul style="list-style-type: none"><li>• Continued development of renewable energy resources</li><li>• Room to growth without major conflicts between land uses</li><li>• MnDOT can be proactive in working with the private sector to identify improvements and mitigate the impacts of construction projects</li></ul>	<ul style="list-style-type: none"><li>• Difficulty finding and retaining workforce, including truck drivers</li><li>• Maintenance and upgrades to freight transportation assets to adequately serve industry needs</li><li>• Market forces, commodity prices, and tariffs</li><li>• Public and private sectors move at different paces – private makes decisions more quickly</li></ul>

## Improve Minnesota's Mobility:



- Access for all freight users
- Reliable service with minimal chokepoints

Strengths	Weaknesses
<ul style="list-style-type: none"><li>• Very little traffic congestion</li><li>• Good snow and ice removal on trunk highways</li></ul>	<ul style="list-style-type: none"><li>• Potential lack of truck-rail transloading facilities</li><li>• Many freight corridors are two-lane roads</li><li>• Poorly-optimized state-level OSOW regulations</li><li>• Low clearance bridges can impede truck movements</li><li>• Localized flooding during severe rainfall events.</li></ul>
Opportunities	Threats
<ul style="list-style-type: none"><li>• Spot mobility improvements during programmed maintenance (addition of turning lanes, passing lanes, traffic signals)</li><li>• Improve or create district-specific OSOW regulations</li><li>• Improve 1<sup>st</sup>/last-mile connections to the Trunk Highway system</li></ul>	<ul style="list-style-type: none"><li>• “Single Use” plans for infrastructure, such as bike-friendly city plans</li><li>• Congestion in the Twin Cities affects trucking operations in the District</li><li>• Current and worsening truck driver shortage</li></ul>

## Preserve Minnesota's Infrastructure:



- Ensure critical segments and connections are available
- Ensure these segments and connections are in a good state of repair

Strengths	Weaknesses
<ul style="list-style-type: none"><li>• Relatively well-maintained trunk highways and bridges</li></ul>	<ul style="list-style-type: none"><li>• Poor condition of county and local bridges</li></ul>
Opportunities	Threats
<ul style="list-style-type: none"><li>• Opportunity to identify freight projects that can help improve other aspects of the system (e.g., safety) and leverage non-freight funds (e.g., safety) to make improvements</li></ul>	<ul style="list-style-type: none"><li>• Lack of reliable, flexible freight funding</li><li>• Trunk highway condition is expected to decline in the absence of additional funding</li></ul>

## Safeguard Minnesotans:



- Enhance freight system safety
- Ensure plans are in place to protect areas where freight activity and the public interface

Strengths	Weaknesses
<ul style="list-style-type: none"><li>• Relatively low actively-protected at-grade crossing incident rate compared to other Districts</li></ul>	<ul style="list-style-type: none"><li>• Relatively high road crash rate compared to other Districts</li></ul>
Opportunities	Threats
<ul style="list-style-type: none"><li>• Safety improvements (passing lanes, turn lanes, redesigned intersections etc.) can provide freight benefits</li></ul>	<ul style="list-style-type: none"><li>• Limited funding available for safety improvements</li></ul>

# Environment and Community SWOT

## Protect Minnesota's Environment and Communities:



- Respect and complement natural, cultural, and social context
- Be consistent with principles of context-sensitive solutions

Strengths	Weaknesses
<ul style="list-style-type: none"><li>• Relatively little conflict between land uses</li></ul>	<ul style="list-style-type: none"><li>• Snow and ice control methods have negative impact on water quality (not freight-specific)</li><li>• Truck routing through downtowns</li></ul>
Opportunities	Threats
<ul style="list-style-type: none"><li>• Room to expand without conflict between land uses (residential and commercial vs. industrial)</li></ul>	<ul style="list-style-type: none"><li>• Flooding events may disrupt transportation infrastructure</li><li>• Truck routing through downtowns, residential areas</li></ul>

# Presentation Map

Review Work Plan

SWOT Assessment Results



**Needs and Issues and Project Gaps**

Approach to Project Pre-Feasibility

Next Steps & Discussion

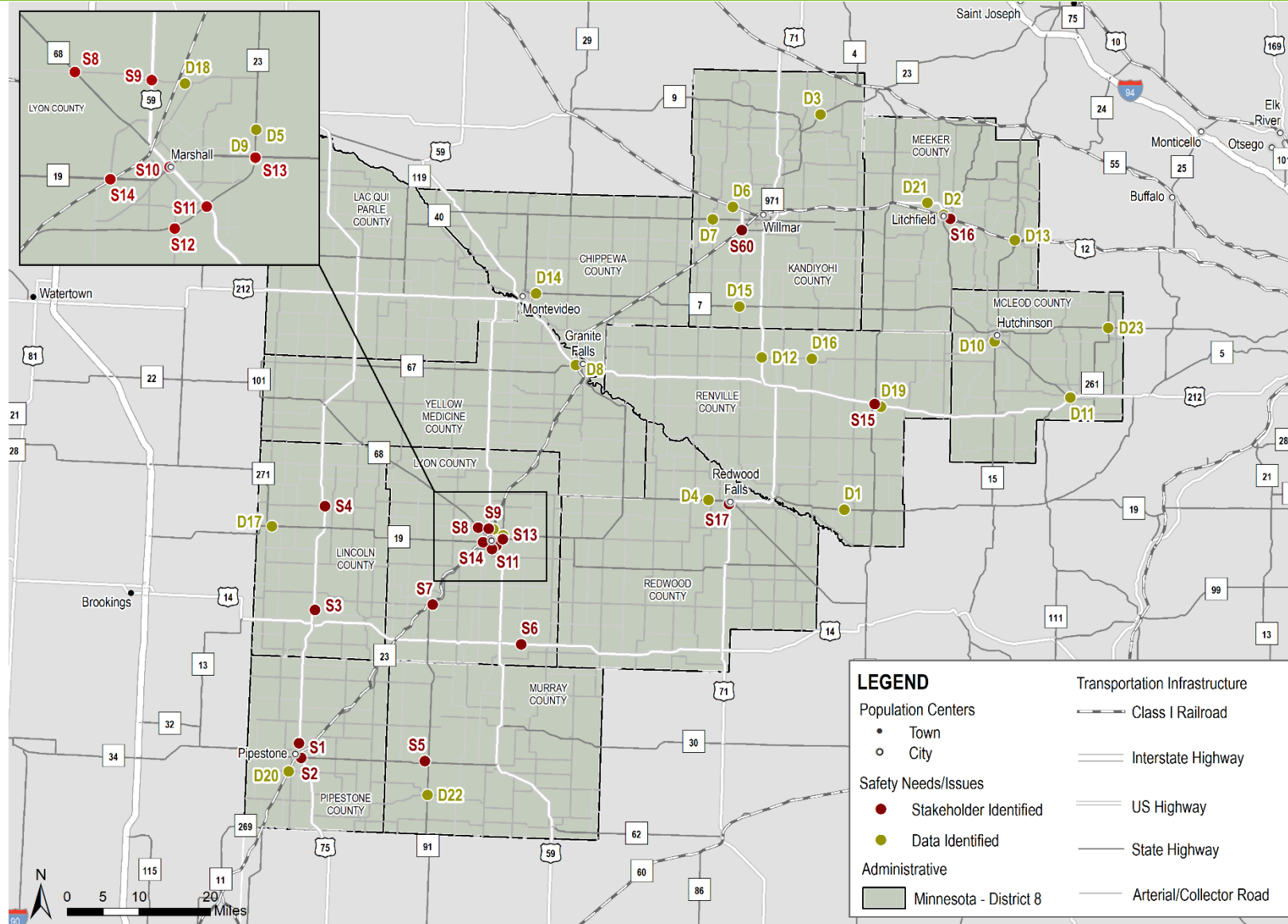


# Needs and Issues: Organization

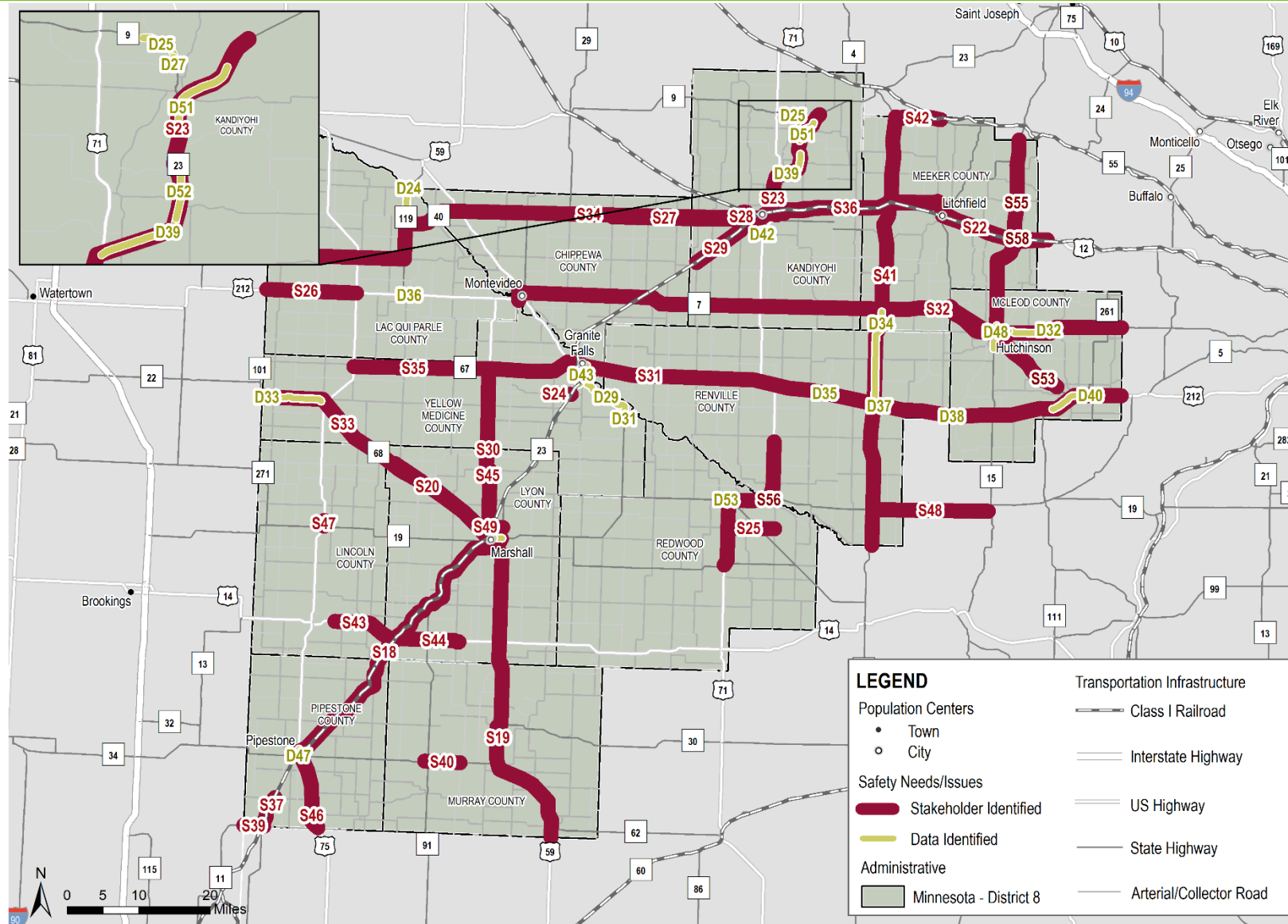
## Three Categories of Needs and Issues:

1. Safety
2. Mobility
3. Condition

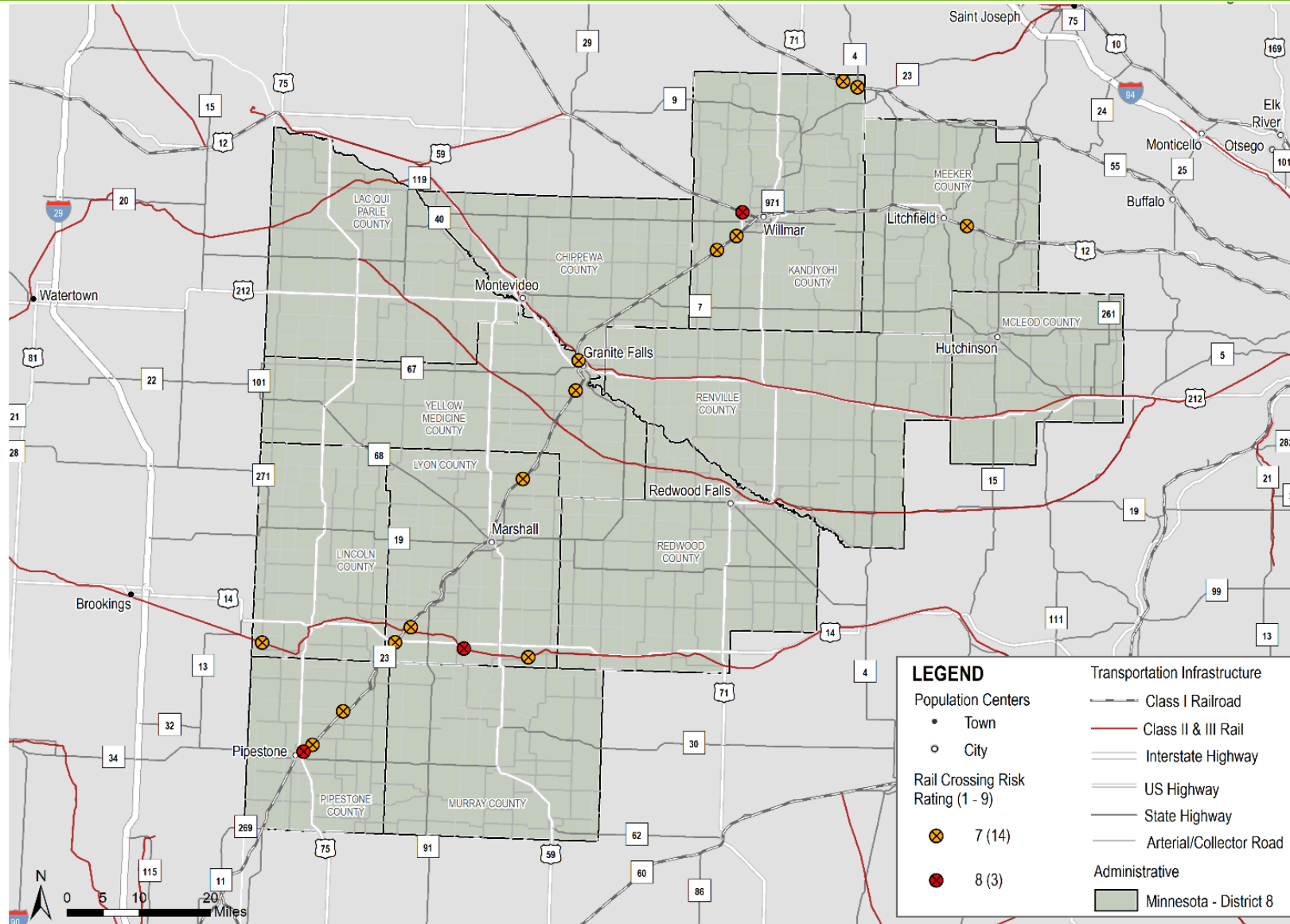
# Road Safety Needs: Intersections



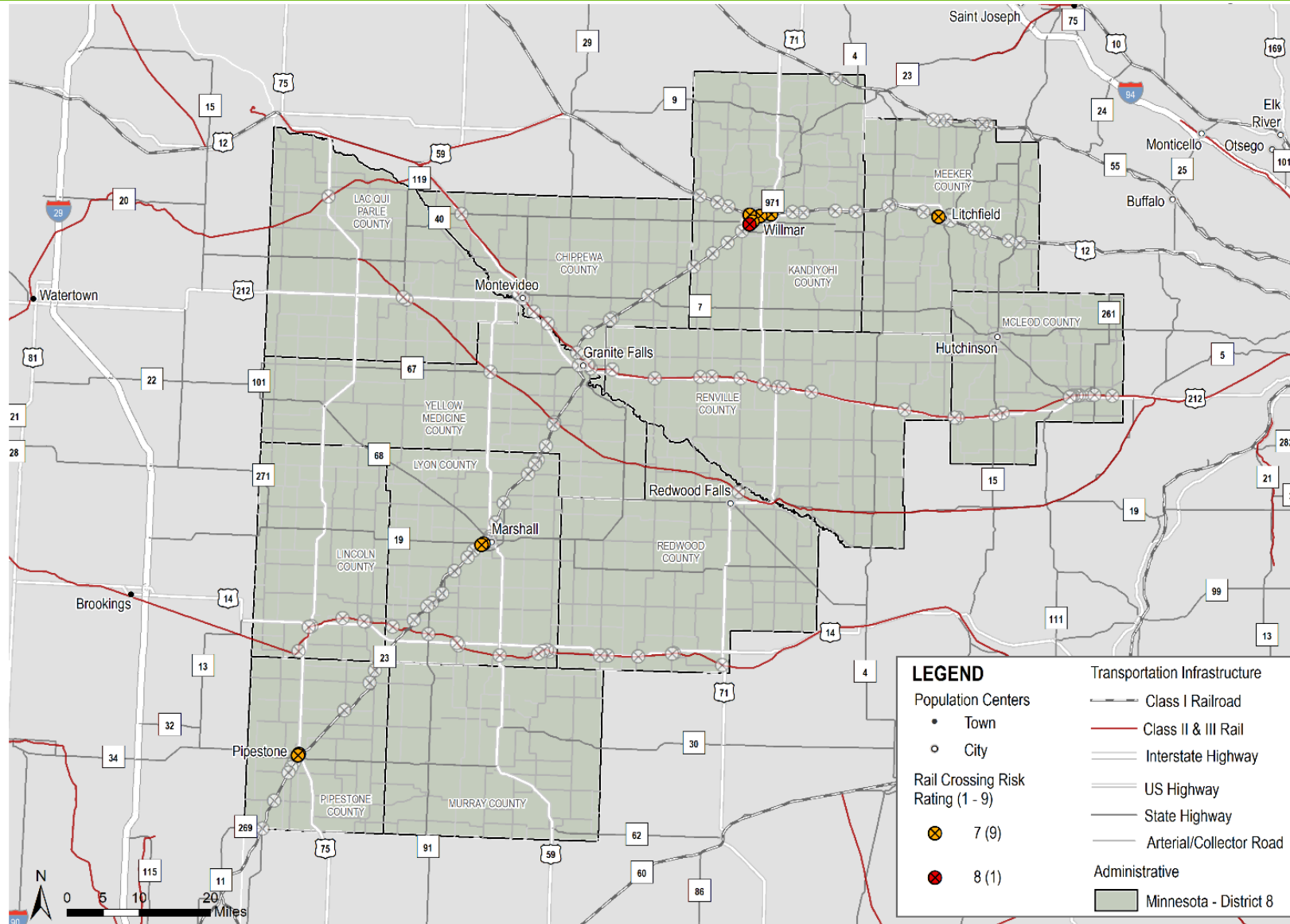
# Road Safety Needs: Segments



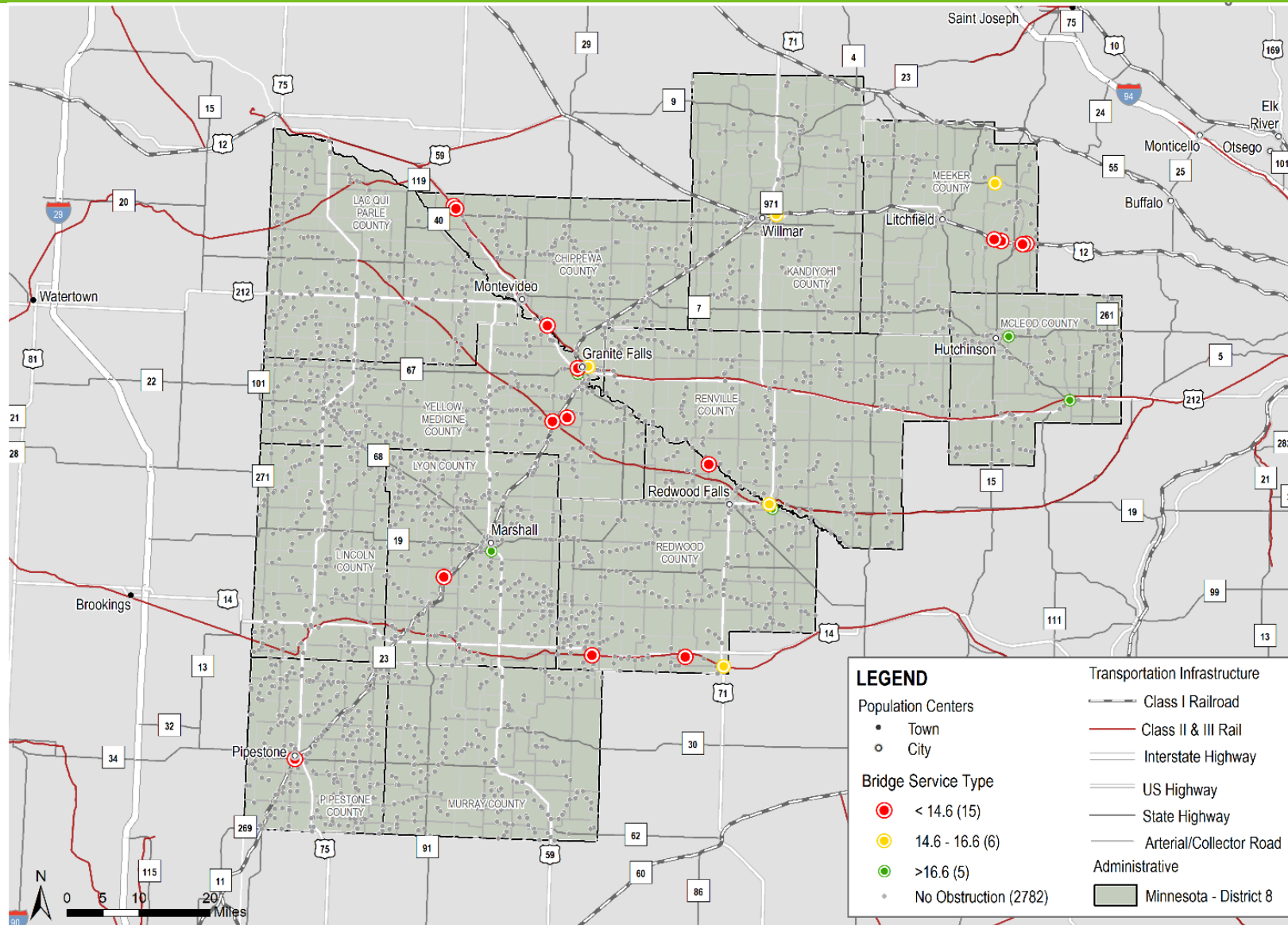
# Road Safety Needs: Passive Grade Crossings



# Road Safety Needs: Active Grade Crossings



# Mobility Needs: Bridge Clearances



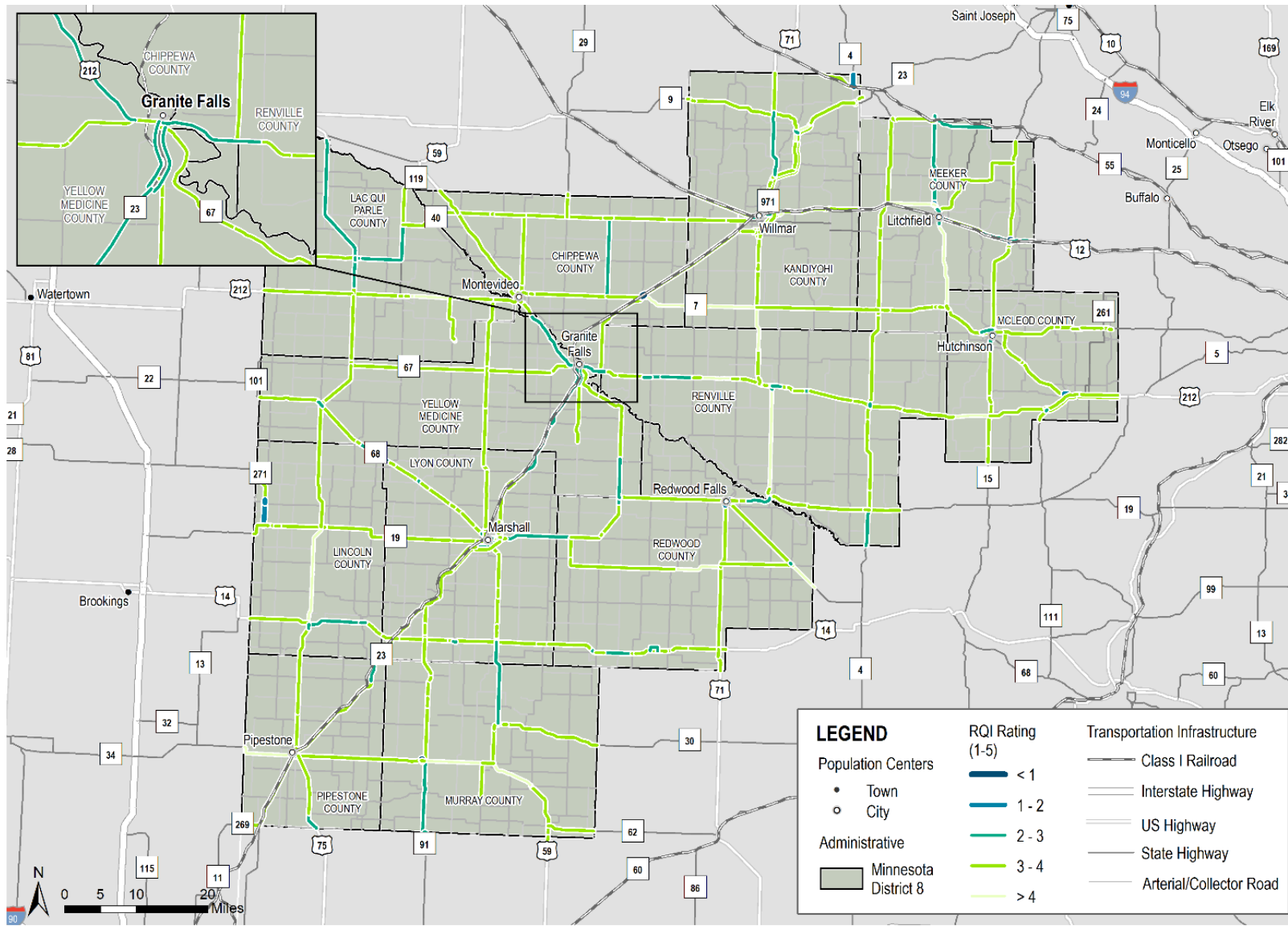


# Other Mobility Needs

- Intersections: Roundabouts and J-Turns
- Regional Connectivity
  - Congestion in Twin Cities and St. Cloud
  - Need for some truck parking services
- OSOW Issues
  - Inflexible OSOW restrictions statewide
  - Movement of manufactured homes
  - Easier permitting in other states
- Snow removal: local roads
- Construction coordination with private sector

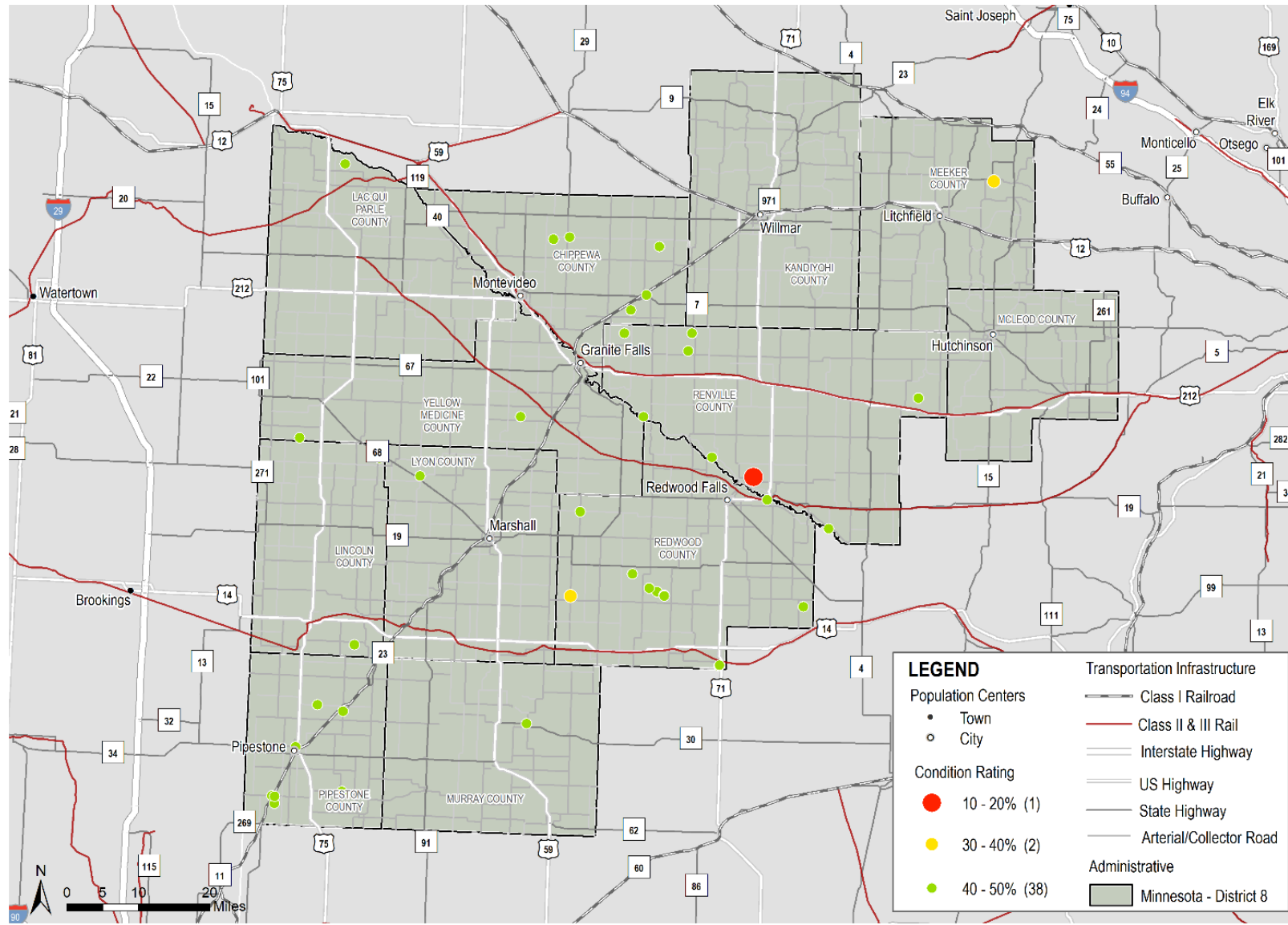
# Condition Needs: Ride Quality Index

1-10 Grading:  
1 – Very Poor  
10 – Like New





# Condition Needs: Bridge Condition



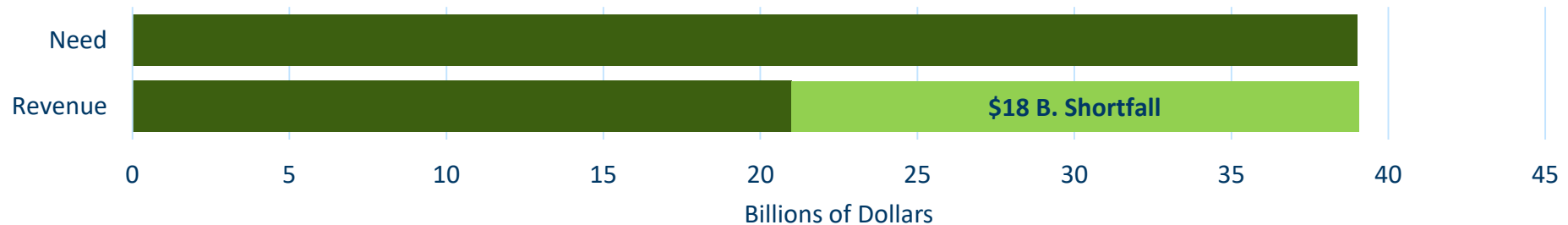
# Railroad Needs and Issues

- Need for competitive service
- Access to transloading terminals
- Lack of railcars at harvest time
- Importance of Federal Shortline Tax Credit
- Class III's upgrading lines to 286k capacity

# Funding: A Key Need and Issue

*Construction costs are growing more quickly than revenue, while revenue growth continues to slow.*

**Minnesota Highway Investment Need and Forecasted Revenue, 2017-2037**



Source: Adapted from Minnesota State Highway Investment Plan, 2017

# MnSHIP has dedicated freight funding

Investment Objective	Investment Category	2018-2037 \$ (B)	Percent Share
<b>System Stewardship</b>	Pavement Condition	\$10.31	69.2%
	Bridge Condition	\$2.38	
	Roadside Infrastructure	\$1.60	
	Jurisdictional Transfer	\$0.09	
	Facilities	\$0.08	
<b>Transportation Safety</b>	Traveler Safety	\$0.67	3.2%
<b>Critical Connections</b>	Twin Cities Mobility	\$0.24	7.4%
	Greater Minnesota Mobility	\$0.03	
	<b>Freight</b>	<b>\$0.61</b>	
	Bicycle Infrastructure	\$0.14	
	Accessible Pedestrian Infrastructure	\$0.53	
<b>Healthy Communities</b>	Regional and Community Improvement Priorities	\$0.31	1.5%
<b>Other</b>	Project Delivery	\$3.27	18.7%
	Small Programs	\$0.63	
<b>Total</b>		<b>\$20.89</b>	<b>100%</b>

Source: Adapted from Minnesota State Highway Investment Plan, 2017

# MN-Specific Freight Funding

*Programs address needs where traditional funds do not, but needs exceed resources. Some funds are dependent on legislative action.*

Source	Funding Available	Eligible Uses
Minnesota Highway Freight Program (MHFP)	\$98 million total programmed through 2022 in MnSHIP	Program funds are broad and include improvements such as climbing lanes, traffic signal optimization, and railway-highway grade separation, among others.
Railroad At-Grade Crossing Safety Program (Section 130)	~\$6 million per year, federal and state match	Closures/consolidations of railroad crossings and railroad crossing safety projects at high risk locations.
Minnesota Railroad Service Improvement Program (MRSI)	~\$900,000 per year, not regular	Projects that improve “fixed assets” such as railroad roadbed, tracks, turnouts, bridges, buildings, and fixed loading/unloading equipment.
Port Development Assistance Program	~\$3-5 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.
Weigh Station and Commercial Vehicle Safety/Enforcement Program	\$2 million per year, state funds	Projects that maintain or improve commercial vehicle enforcement and safety.

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

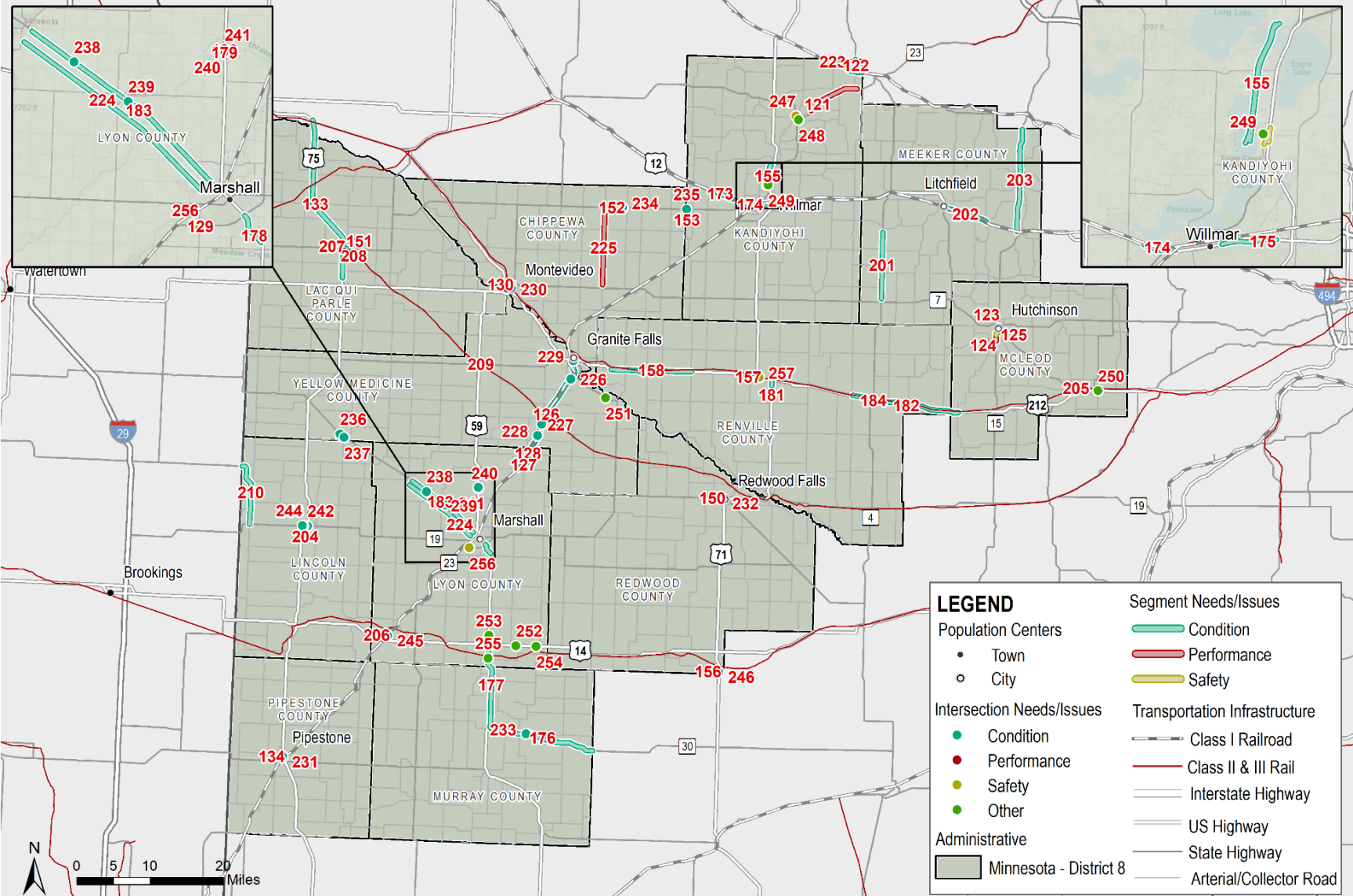
# Comparing needs, issues, and investments

*How many of the identified needs and issues may be addressed by already programmed projects?*

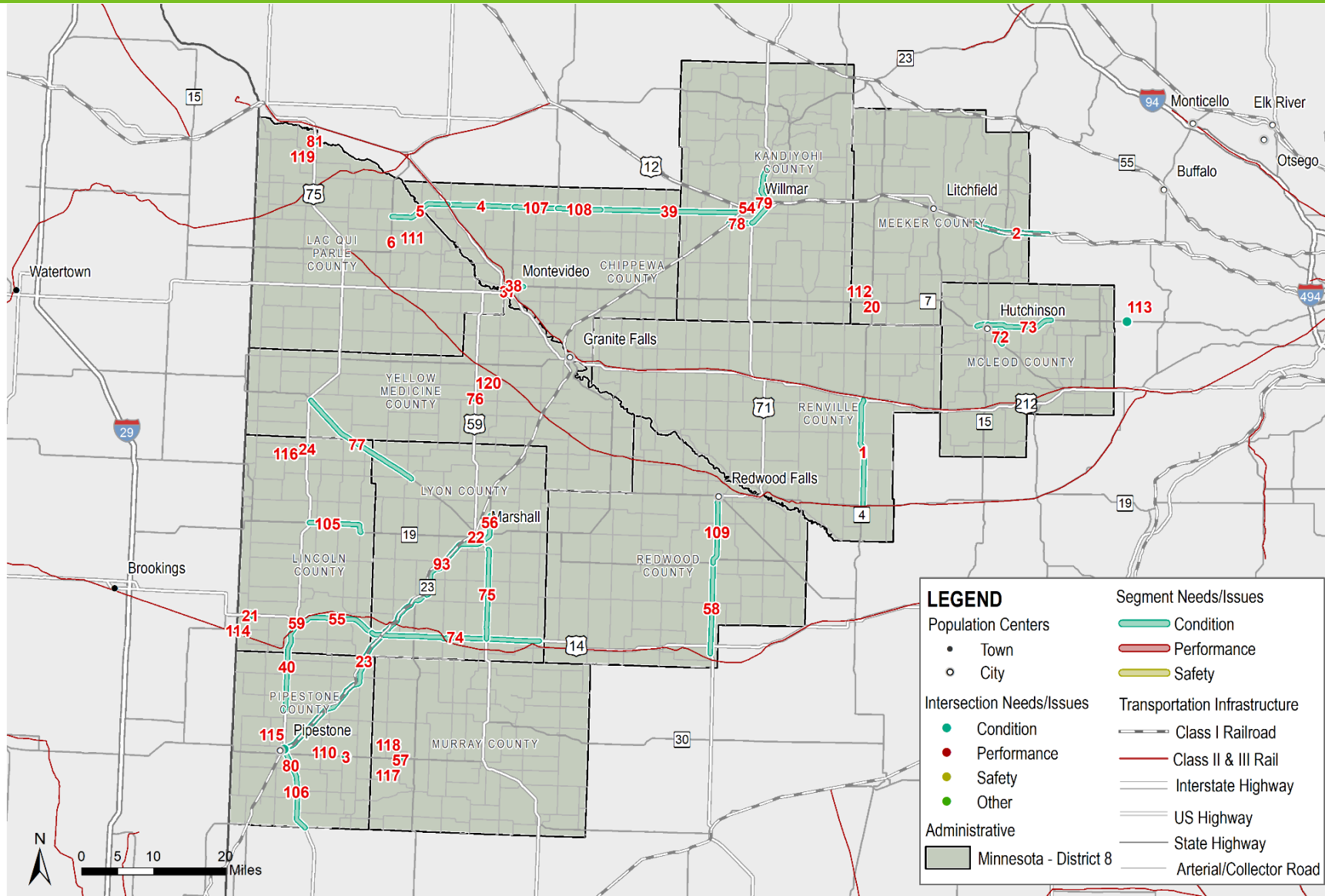
## **Examined Programs:**

- State Transportation Investment Plan (STIP)
- Capital Highway Investment Plan (CHIP)
- County investment plans

# STIP Projects

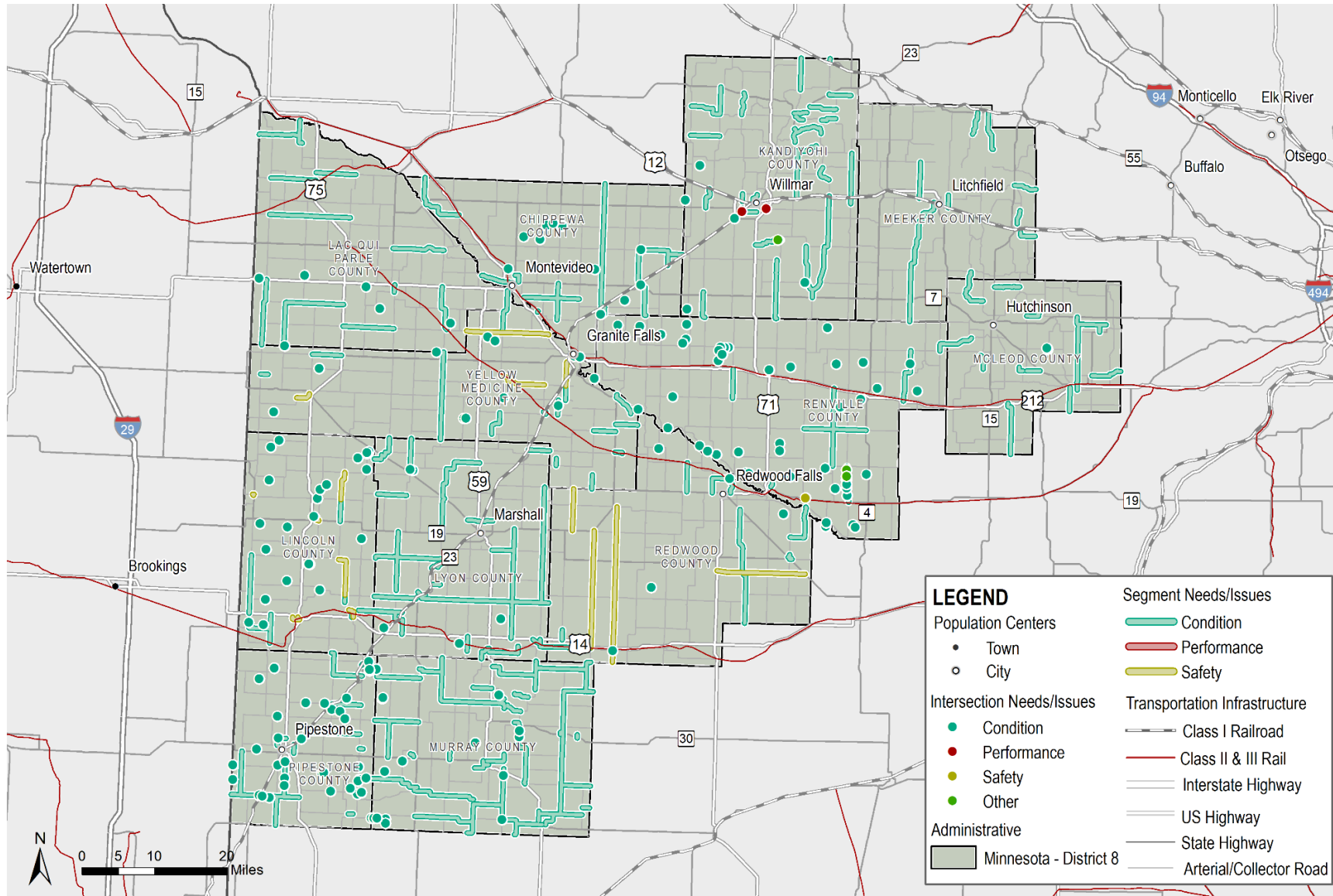


# CHIP Projects

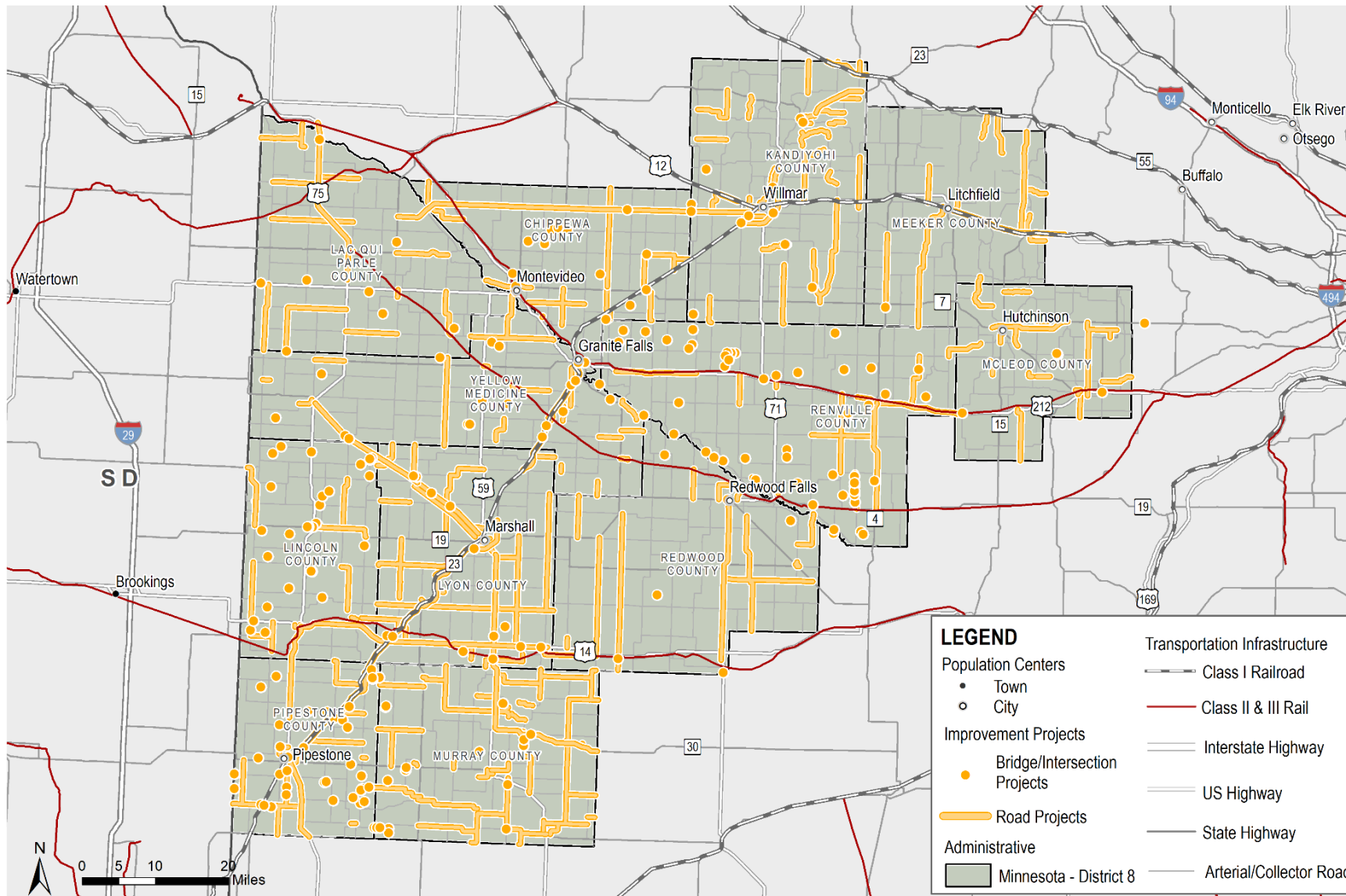




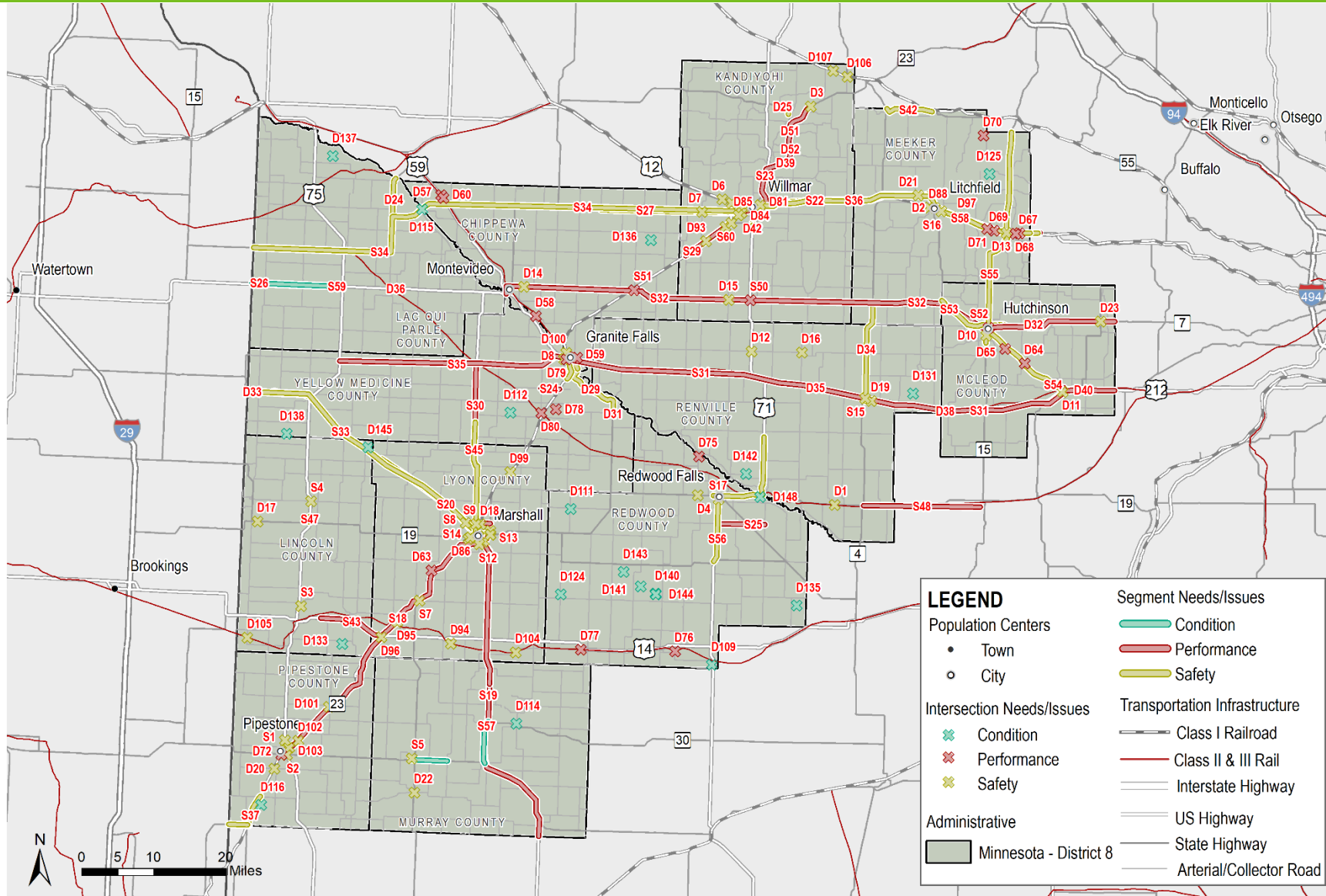
# County Projects



# All Projects



# Project Gaps



# Project Gaps: Summary

- **Safety | most common gap (2/3 of the identified gaps)**

These were distributed across almost all areas of the District but were particularly focused on higher-traffic areas.

- **Performance | ~25% of identified gaps**

While these were only ¼ of the total count of gaps, they constitute some of the most pressing needs for the District, including lack of mobility/maneuverability at low-clearance bridges, and areas where additional passing lanes, turn lanes, or four-lane expansion was requested.

- **Condition | remainder of identified gaps**

Includes 25 bridges identified as potentially deficient, as well as four issues identified by stakeholders or previous plans. Interestingly, few pavement condition gaps were found, which supports feedback from MnDOT staff who noted that Districts are proactive in programming improvements to address pavement needs.

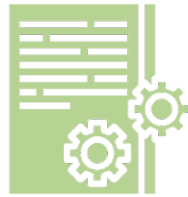
# A New Approach to Freight Funding

Many gaps  
overlap with  
other funding  
sources

Investment Objective	Investment Category	Applicable D8 Freight System Need	Number of Project Types Identified in Gap Analysis
System Stewardship	Pavement Condition	Pavement Condition	4
	Bridge Condition	Bridge Condition	25
	Roadside Infrastructure	<ul style="list-style-type: none"> <li>• Signage</li> <li>• Traffic Signals/Controls</li> <li>• Other Technology and Information Management Systems</li> </ul>	8
	Jurisdictional Transfer	N/A	N/A
	Facilities	Weigh Station and Commercial Vehicle Enforcement	2
Transportation Safety	Traveler Safety	<ul style="list-style-type: none"> <li>• Sustained Crash Locations</li> <li>• Rail-Highway Crossings</li> </ul>	102
Critical Connections	Twin Cities Mobility	N/A	N/A
	Greater Minnesota Mobility	<ul style="list-style-type: none"> <li>• Intersections</li> <li>• Passing or Turning Lanes</li> <li>• Corridors</li> <li>• Roundabouts</li> </ul>	54
	<b>Freight</b>	<b>N/A</b>	<b>N/A</b>
	Bicycle Infrastructure	N/A	N/A
	Accessible Pedestrian Infrastructure	N/A	N/A
Healthy Communities	Regional and Community Improvement Priorities	First and Last-Mile Connections	1
Other	Project Delivery	N/A	N/A
	Small Programs	N/A	N/A

# Other Recommendations

*Projects are one of the “4 P’s” that MnDOT and local partners can use to improve the freight system:*



Policies



Programs



Partnerships



Projects

# Opportunities

## Policies:

- Examine potential opportunities to tailor OSOW truck regulations to reflect local operational context.
- Incorporating freight considerations into existing funding programs.
- Focus on maintaining a good condition of existing assets, rather than expanding capacity of the system.

## Programs:

- Update or “refresh” the Manufacturers’ Perspectives study on a 5- or 10-year basis.

## Partnerships:

- Encourage lawmakers to develop stable funding policies and sources for freight, and the transportation system in general.
- Offer assistance to county and local governments with long-range planning. As noted above, many freight issues occur off of MnDOT’s trunk highway network, so collaboration with local governments may be necessary to solve first- and last-mile freight movement needs and issues.
- Engage with South Dakota DOT to ensure that highways critical to freight in District 8 (US-12, US-212, US-14, etc.) are adequately maintained.

- Any missing gaps that should be included?
- Any additional recommendations we should investigate?



# Presentation Map

Review Work Plan

SWOT Assessment Results

Needs and Issues and Project Gaps



**Approach to Project Pre-Feasibility**

Next Steps & Discussion

# Freight System Needs Evaluation and Ranking

*Goal: advance select projects to pre-feasibility analysis*

- There is currently no available **funding** that the approach will select projects for.
- The approach is being developed to **screen freight system needs** that could eventually become projects.
- The evaluation is intended to **establish a “ranking,”** but MnDOT District Staff and local stakeholders will have the opportunity to advance projects based on their judgement.

*Project ranking is intended to be used as a decision-making tool, not the decider*

# Project Concept Scoring Criteria

*Gaps will be scored based on criteria tailored to safety, condition, and performance.*

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

# Presentation Map

Review Work Plan and Role of Advisory Committee

SWOT Assessment Results

Needs and Issues and Project Gaps

Approach to Project Pre-Feasibility



**Next Steps & Discussion**

# Future Meetings

*Work will be conducted over 12 months,  
through March 2020*

## Meeting 1 – Agenda (Month 3)

- Review Working Paper 2
- Confirm Plan Goals



## Meeting 2 Agenda (Month 6)

- Freight system profile
- Summary of findings – needs, issues & opportunities



## Meeting 3 Agenda (Month 8)

- Initial Freight Plan Recommendations



## Meeting 4 Agenda (Month 11)

- Present major findings and Plan deliverables
- Receive feedback

*Next meeting expected in March 2020*

# Consultant Team



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# Thank you!