MnDOT District 8 Freight Plan

Advisory Committee Meeting

September 12, 2019

Renville, MN

DEPARTMENT OF TRANSPORTATION

mndot.gov

Welcome Back to the Advisory Committee

Help us keep the "Big Picture" in mind

Please introduce yourself:

- Name, organization
- What is the biggest strength or opportunity for the District 8 freight system?

Don't forget to Speak Up!

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Presentation Map

Review Work Plan

Economic and Freight System Profiles

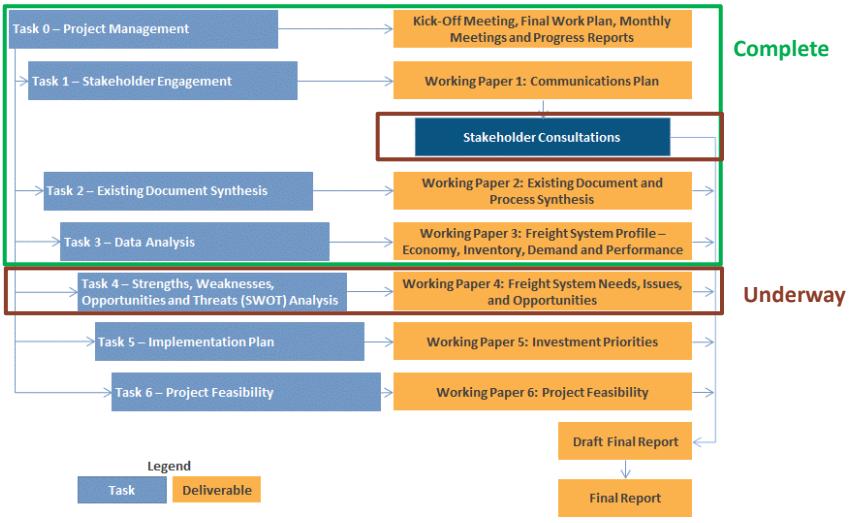
Condition and Performance

Future Outlook and SWOT Assessment

Next Steps & Discussion

3

Work Plan Overview



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Consultation Progress

30 consultations are expected in total – 19 complete, to date.

Trucking (5)
- FedEx
- Anderson Trucking
- Truck Transport
- Viessman Trucking
- Woody`s Trucking

Manufacturers and Shippers (6)
- Schwans
- Friendship Homes
- Central MN Fabricating
- Haug Implement
- West Central Steel
- Suzlon Wind Power

Rail (2)
- BNSF
- TC&W / MPL

Agri-Food (4)
- Jennie-O Turkey
- Ralco Nutrition
- Southern Minnesota Beet Sugar Coop
- ADM

Public Agencies (2)
- Highway 23 Corridor Coalition
- South Dakota DOT

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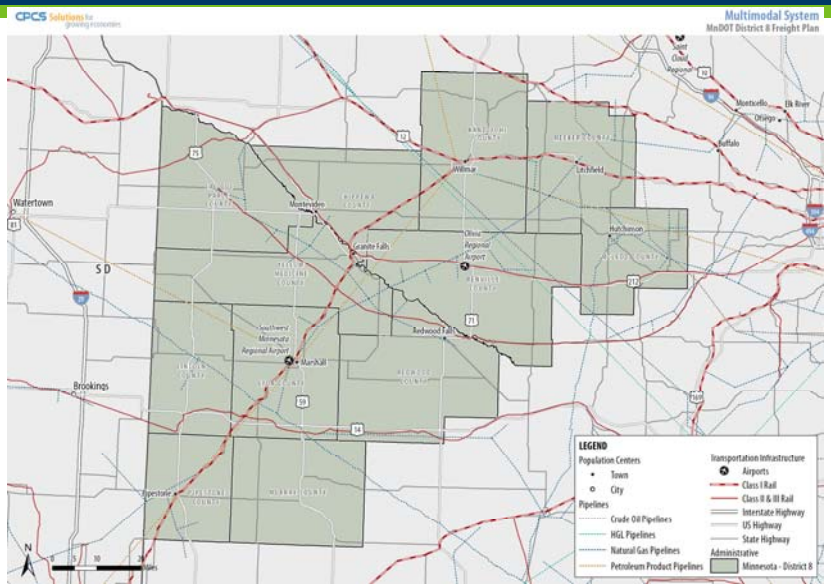
District 8 Multimodal Freight Transportation System



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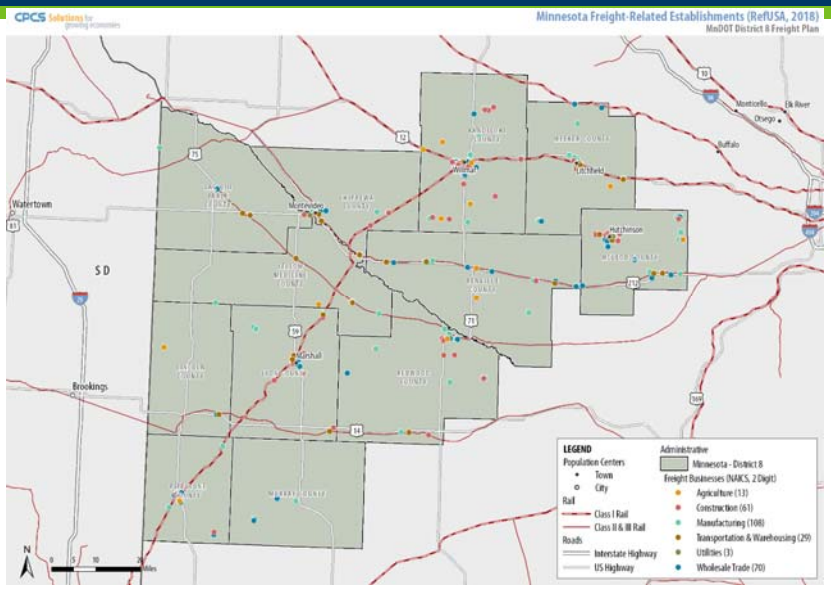
Transportation and Industry: Freight-Related Clusters



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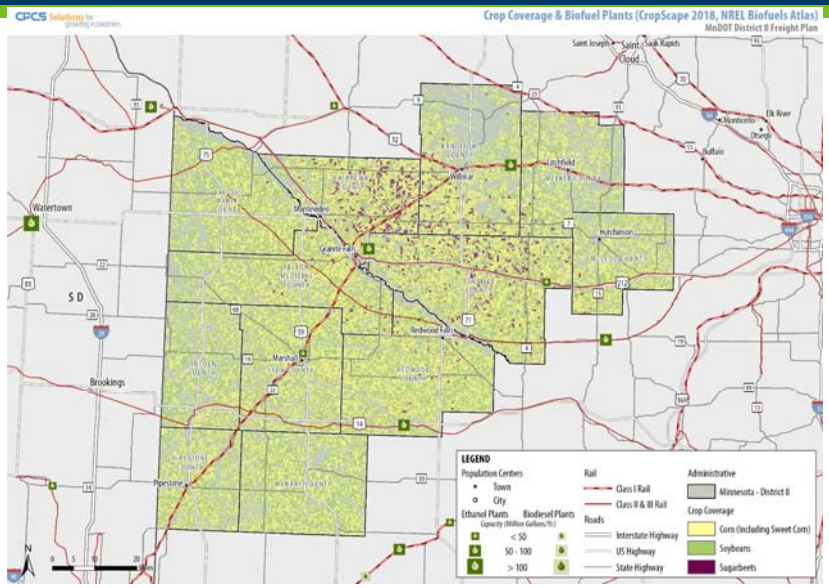
Agricultural Production



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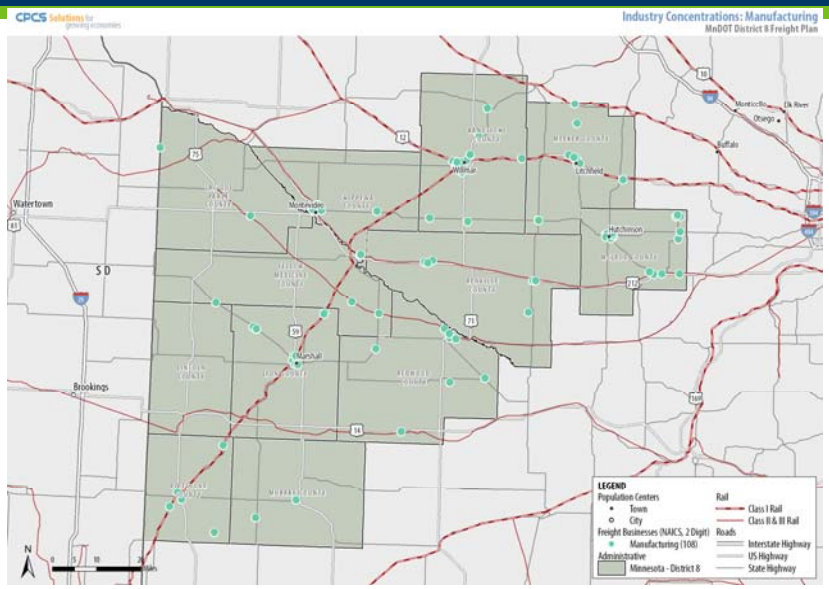
Manufacturing Areas



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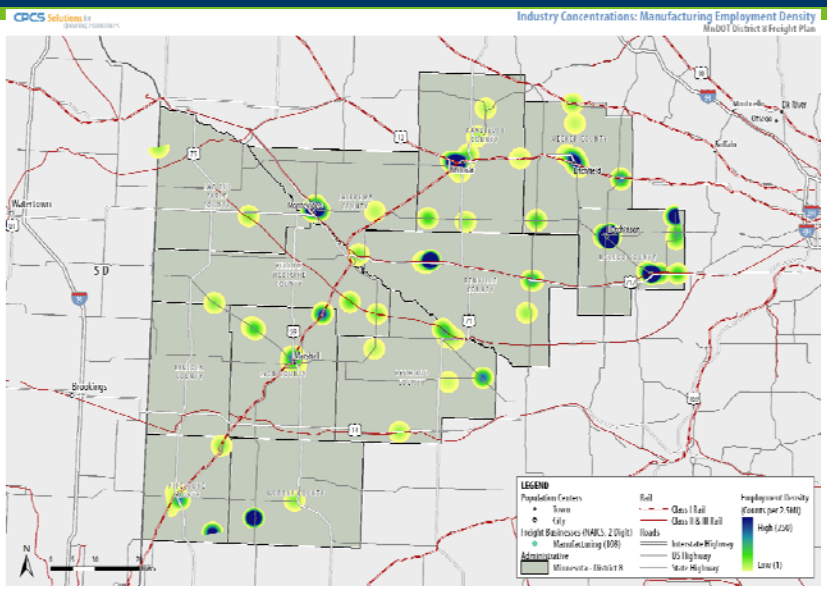
Manufacturing Employment



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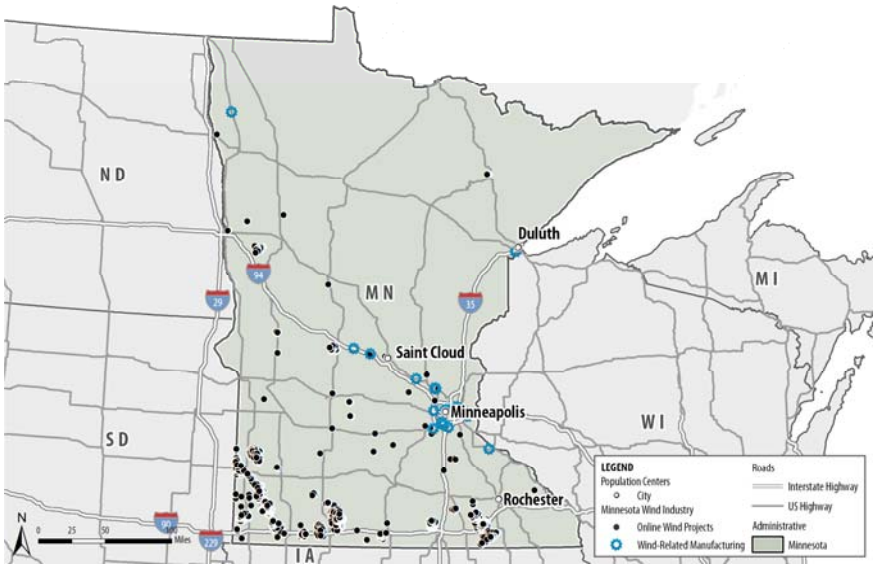
Specialty Freight: Wind Components



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Average Annual Daily Traffic (All Vehicles)

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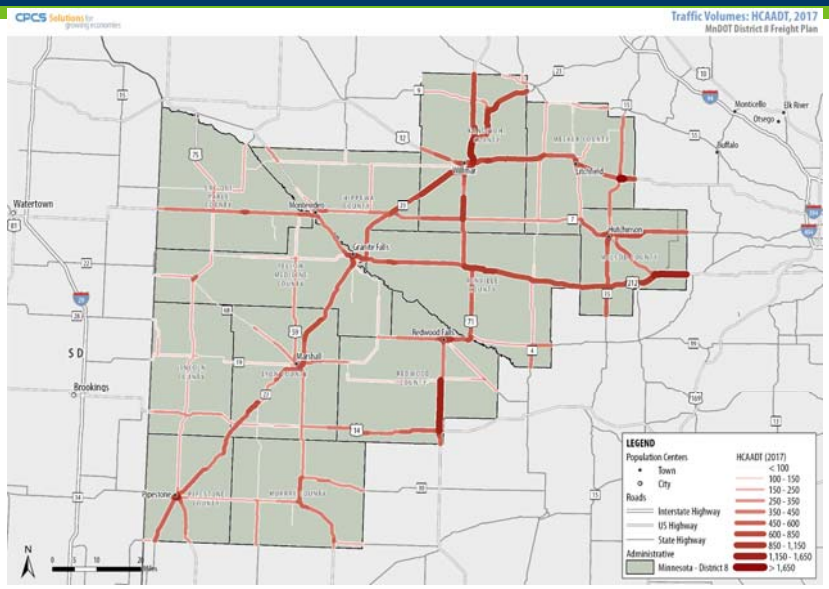
Average Annual Daily Traffic (Trucks)



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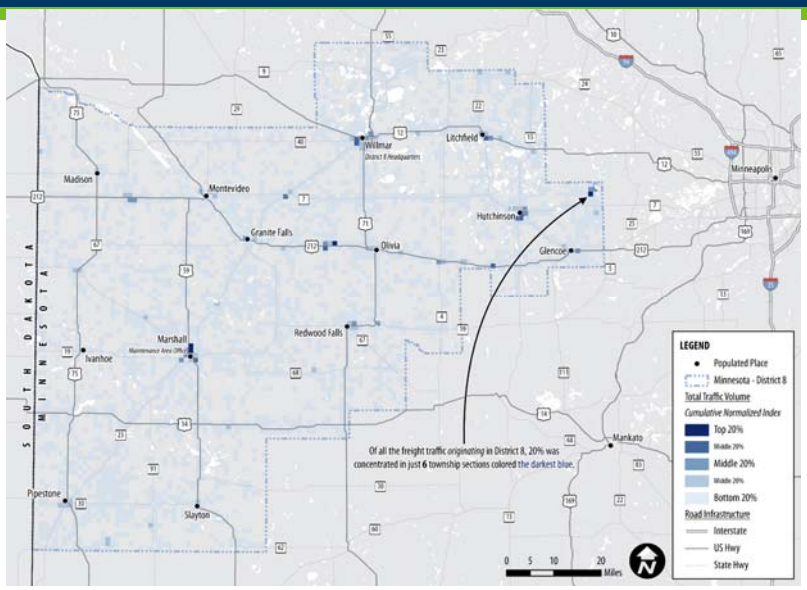
Origins of Truck Trips



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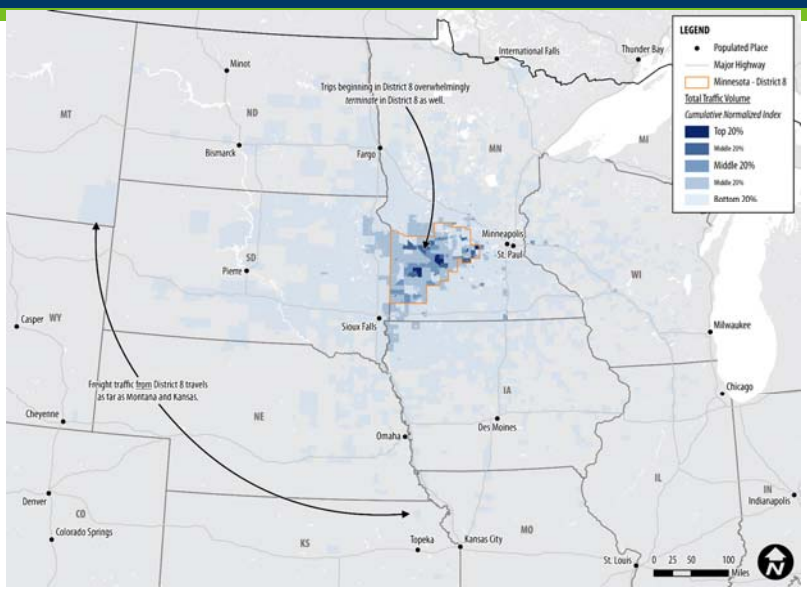
Destinations of Trucks Originating in D8



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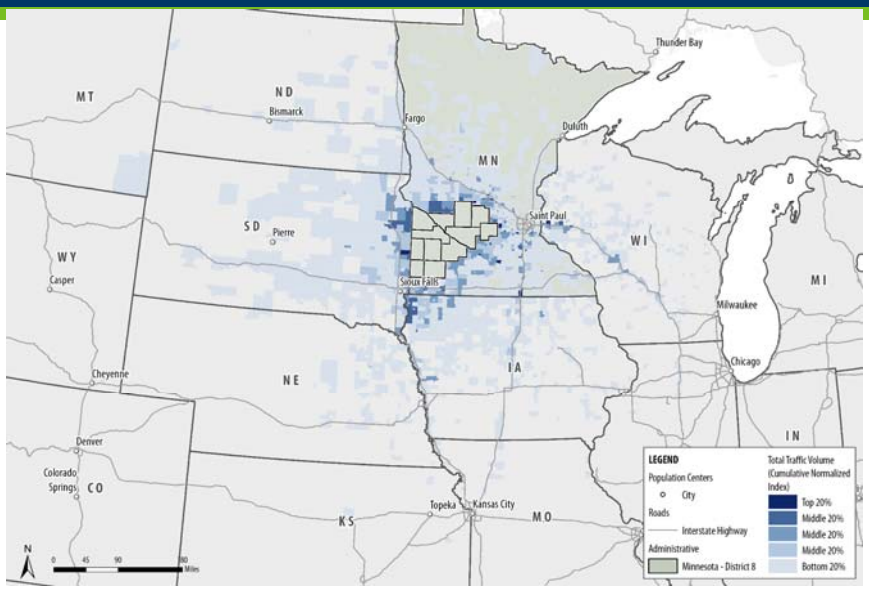
Destinations of Trucks Originating in D8



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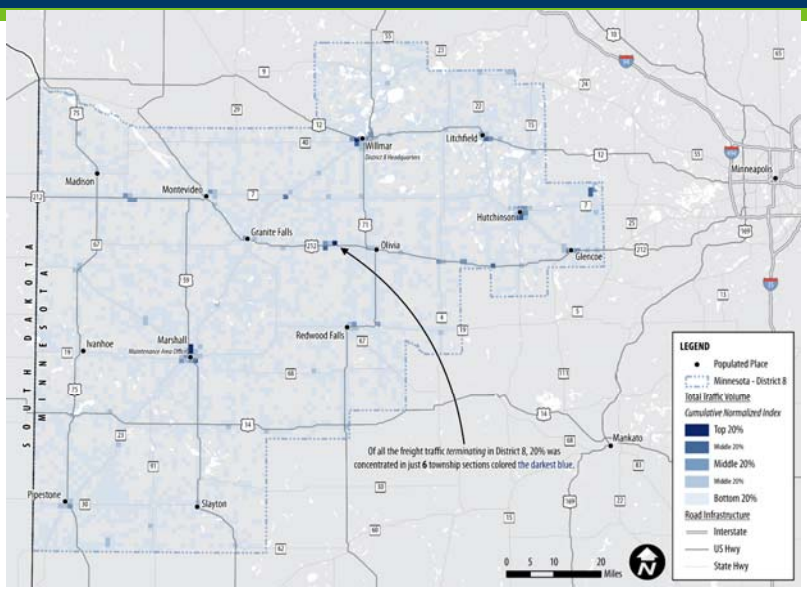
Truck Destinations in D8



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Interpreting StreetLight Data

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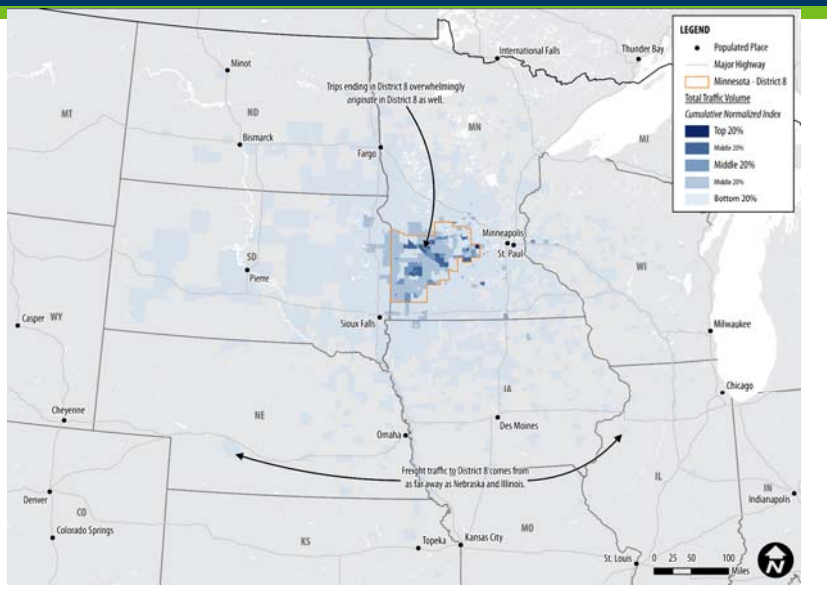
Origins of Trucks Destined for District 8



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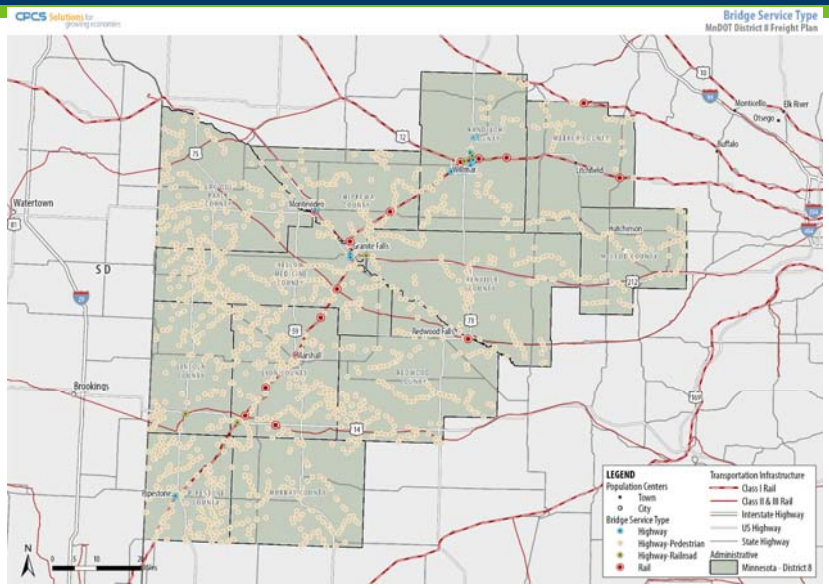
Highway Infrastructure: Bridges



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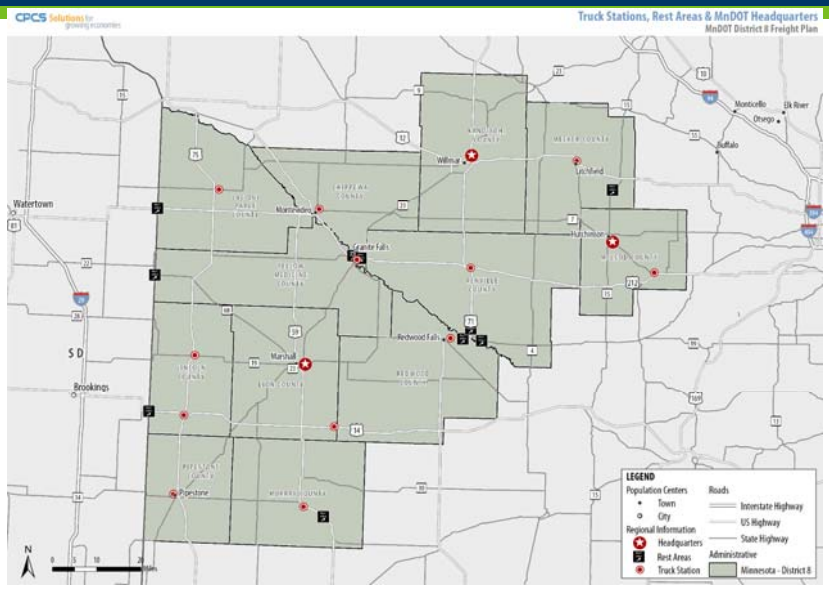
Highway Infrastructure: Truck Stations



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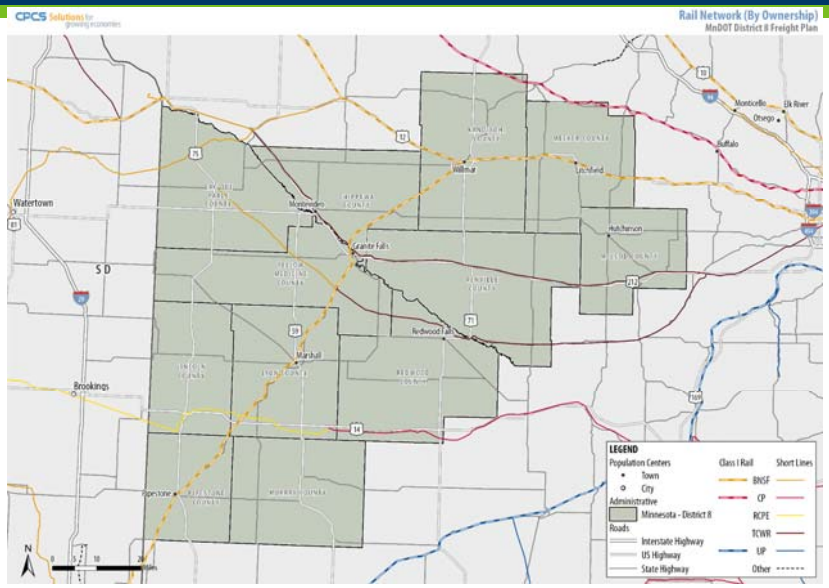
Rail Corridors



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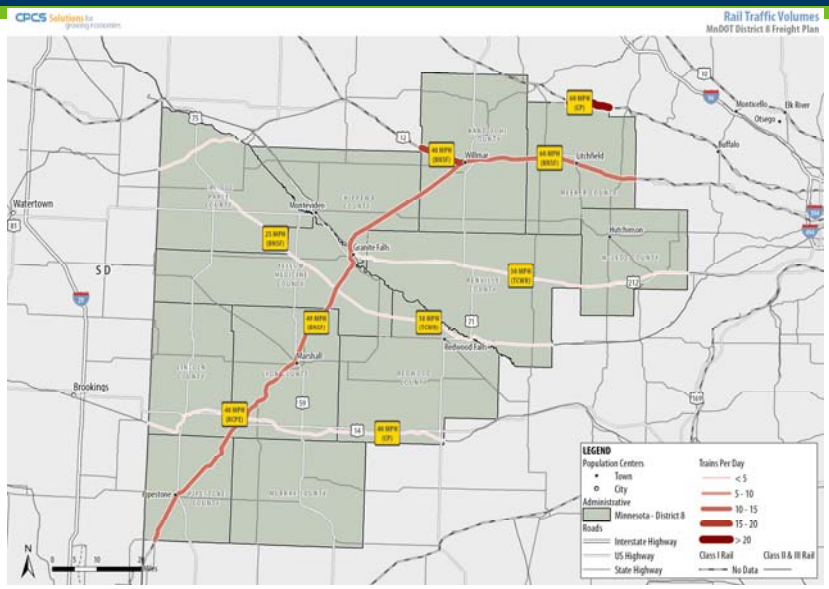
Rail Volumes and Track Speeds



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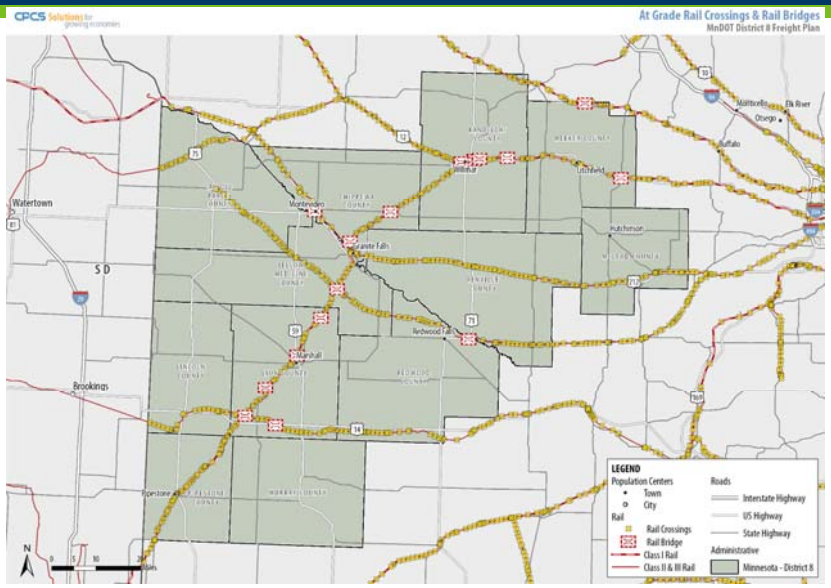
Rail Crossings and Bridges



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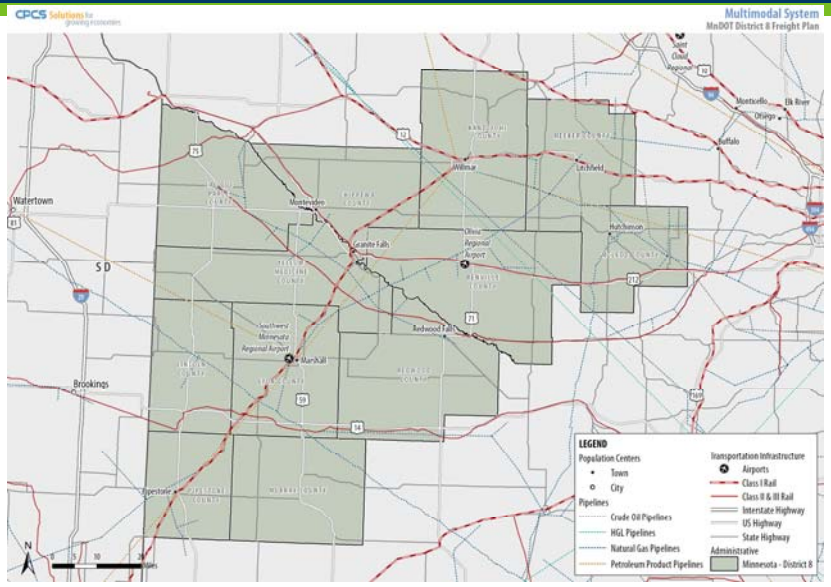
District 8 Multimodal Freight Transportation System



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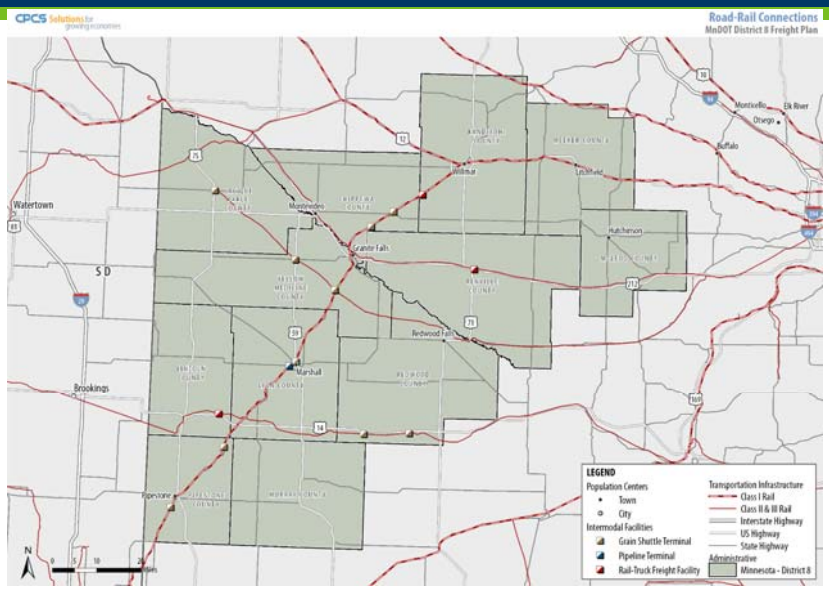
Intermodal Infrastructure



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Discussion

Questions

- Are there any missing assets (grain elevators?)
- Are there other trends or assets we should profile?

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Presentation Map

- Review Work Plan
- Economic and Freight System Profiles
- **Condition and Performance**
- Future Outlook and SWOT Assessment
- Next Steps & Discussion

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System Evaluation

Assessment driven by criteria advanced from MnDOT District Freight Plan Guidance

Freight Safety	Freight System Condition	Freight Mobility
• Previous crashes • Crash risk factors • Grade crossing incidents • Grade crossing risk factors	• Bridge Condition* *Roadways considered as part of other MnDOT activities	• Truck Speed • Travel Time Index • Travel Time Reliability • Bridge Clearance • OSOW Movement

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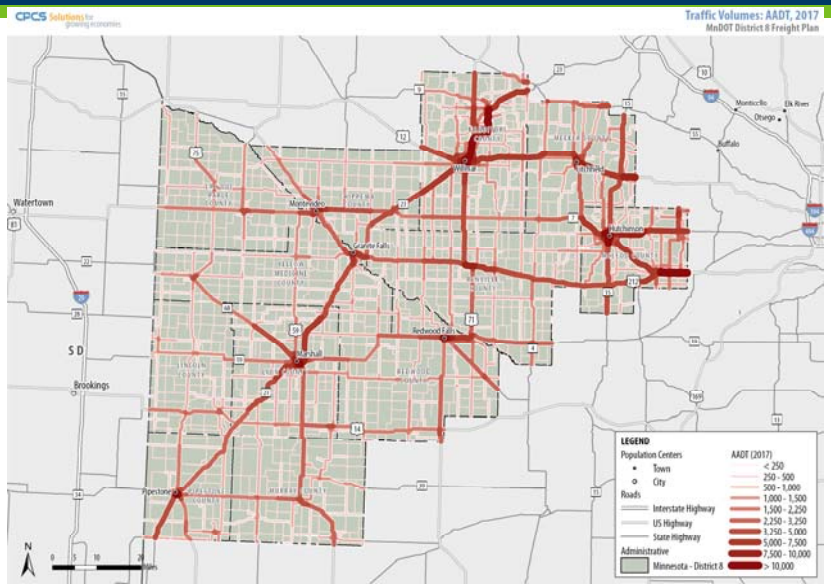
Context: Total Traffic Volume



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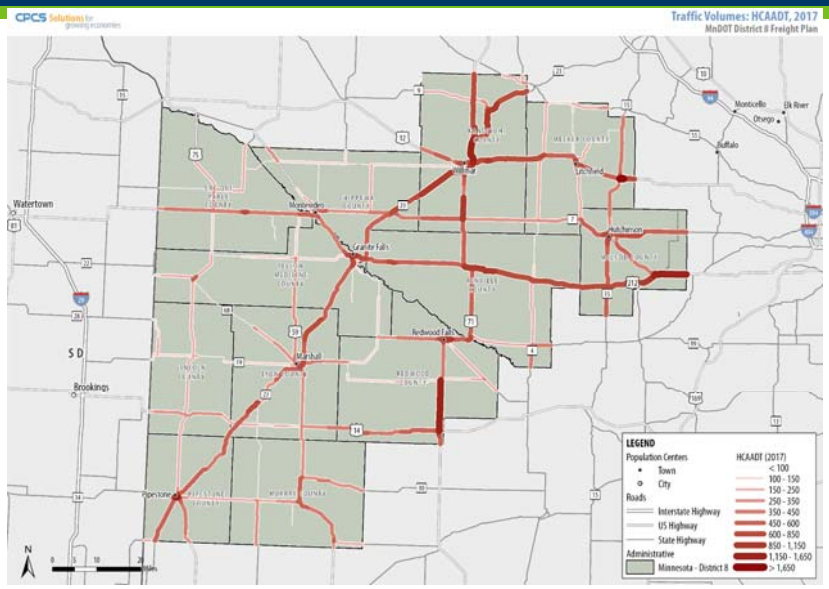
Context: Total Truck Volume



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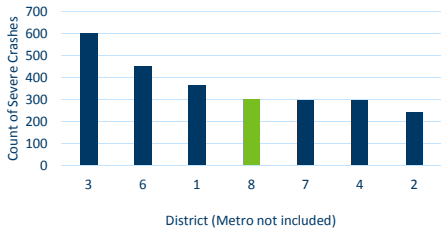
Road Safety: Background Information

Between 2009 and 2013 District 8 had the 4th highest number of severe crashes.



Commercial vehicle crashes are primarily concentrated in areas with higher traffic volumes.

Crash Severity	Total
Fatality	61
Injury	579
Property Damage Only	1,460
Unknown	3

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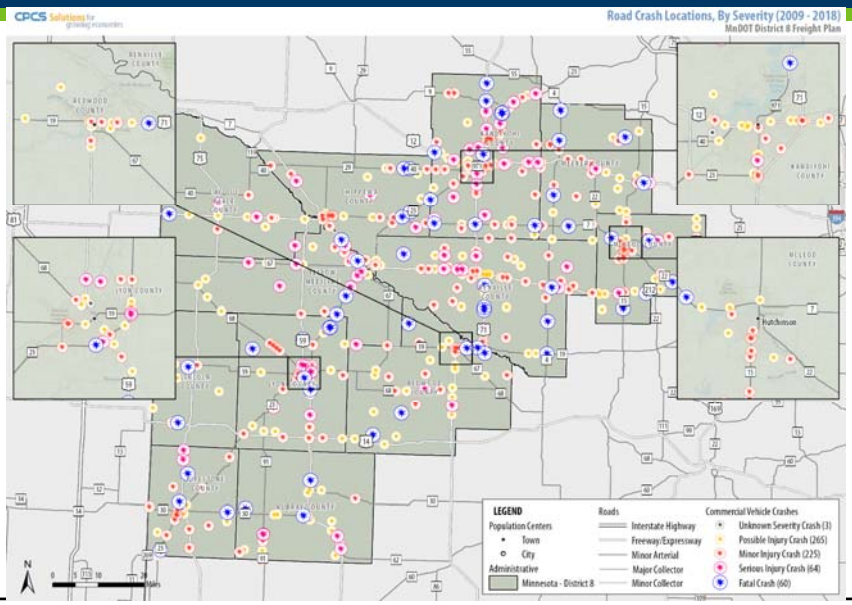
Safety: Truck-Related Crashes



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Safety: Assessing Risk

Truck-involved crashes are concentrated in areas with higher traffic volumes, but severe and fatal crashes are distributed across the system more "randomly"

Review of risk factors for crashes can help guide safety investment and ensure planners are not "chasing" more "random" severe crashes

Example Risk Factors:

Vehicle Volume	Median Width	Shoulder Width	Intersection Density	Curve Density

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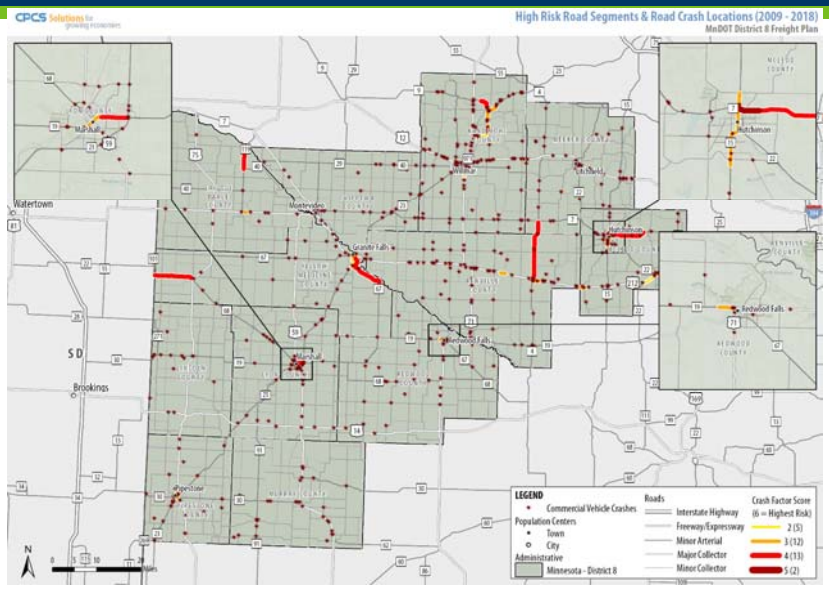
Safety: District 8 High-Risk Areas



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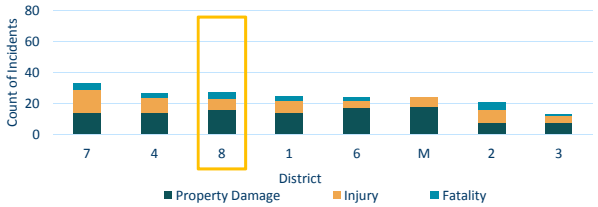
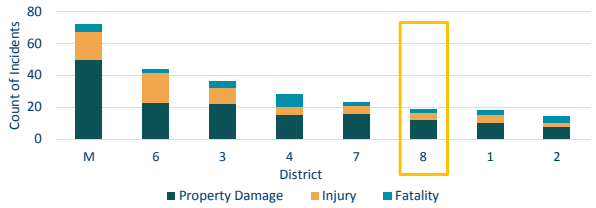
Grade Crossing Safety

District 8's active grade crossing crash rate compares favorably to other Districts, but it has a relatively high number of crashes at passively-protected crossings.

Incidents at Passively-Protected Crossings (2004-2013)



Incidents at Actively-Protected Crossings (2004-2013)



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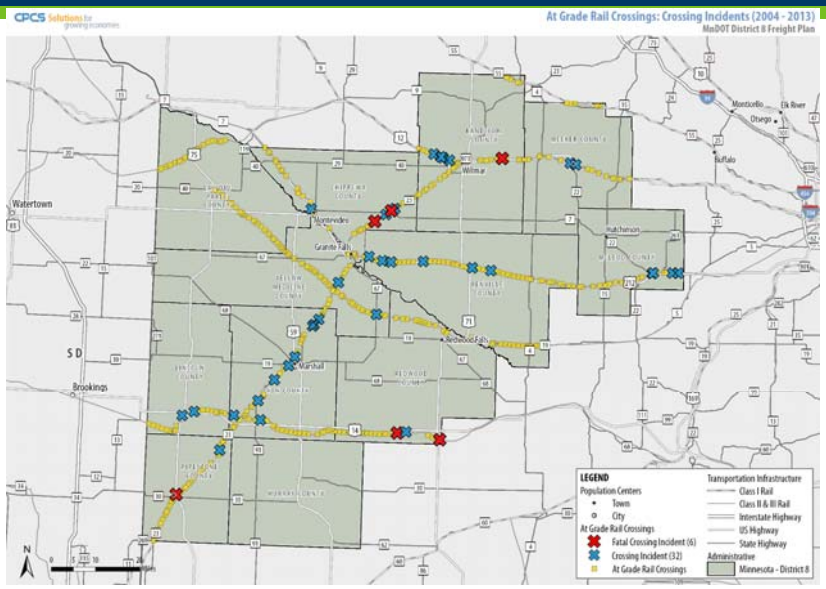
Previous Grade Crossing Incidents



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Safety: Grade Crossing Risk Factors

Like severe road crashes, grade crossing incidents exhibit a similar "randomness" in distribution.

Review of risk factors for crashes can help guide safety investment and ensure planners are not "chasing" more "random" severe crashes

Example Risk Factors:

Vehicle Speeds

Distance to Intersection

Skew

Number of Tracks

Sight Lines

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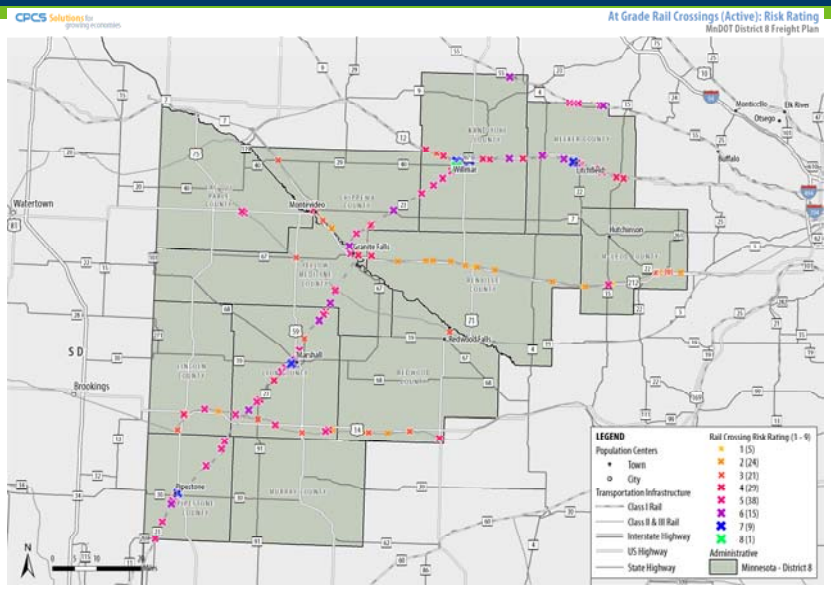
Active Grade Crossing Risk Ratings



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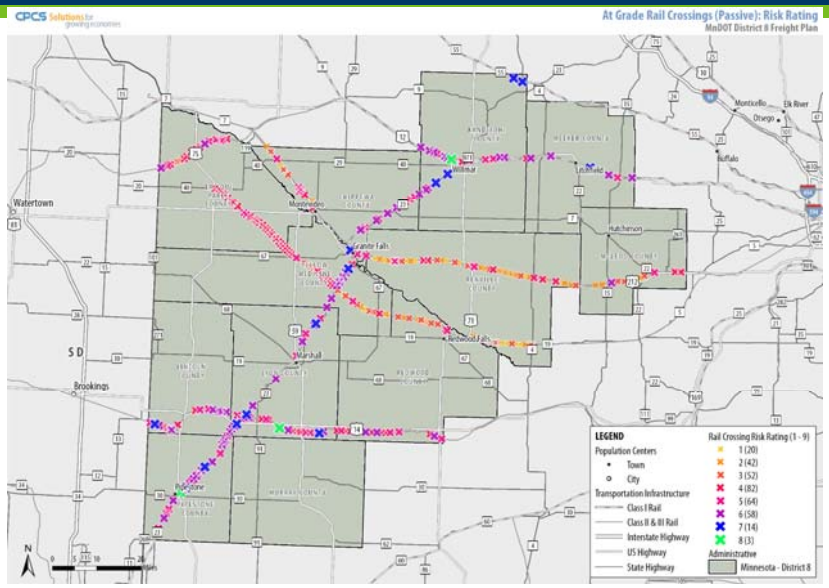
Passive Grade Crossing Risk Ratings



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Safety Summary

District 8's safety performance is mixed.

- District 8 has a relatively high count of severe crashes, particularly at higher-traffic intersections.
- Road segments identified as high-risk had little overlap with severe truck crashes.
- Active grade crossing incident rates compare favorably to other Districts, but there is a high rate of accidents at passively-protected crossings.
- Grade crossing incidents are concentrated on higher-volume corridors: CN line from Willmar to Marshall.
- Consider freight-specific risk factor evaluations?

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Safety Discussion

Questions

- Should MnDOT look at specific grade crossings as part of rail grant programs?
- Are there any safety considerations that are unique to District 8?
- Is our understanding of District 8's safety accurate?
- How have these issues affected you?

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Bridge Condition

Bridge condition is primarily a concern on local roads, and trunk highways (major freight corridors) are in good condition.

Count of Deficient Bridges, by System and County:

County	Trunk	County	Township	City	Total
Chippewa	1	7	13	2	23
Kandiyohi	0	4	4	0	8
Lac Qui Parle	0	5	9	0	14
Lincoln	0	16	22	0	38
Lyon	1	5	4	1	11
McLeod	0	1	1	1	3
Meeker	0	1	1	1	3
Murray	0	6	7	0	13
Pipestone	1	14	20	0	35
Redwood	1	23	34	4	62
Renville	0	34	15	0	49
Yellow Medicine	2	1	6	0	9
Total	6	117	136	9	268
% of District 8's Total Bridges	1.7%	10.6%	10.7%	17.3%	9.6%

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Condition Discussion

Questions

- Are there any specific bridges that are a concern?
- Are there any condition considerations that are unique to District 8?
- Is our understanding of District 8's condition accurate?
- How have these issues affected you?

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Mobility

Mobility measures how "easily" freight moves in the District.

- **Truck Speed**
- **Travel Time Index**
- **Travel Time Reliability**
- **Bridge Clearance**
- **OSOW Movement**

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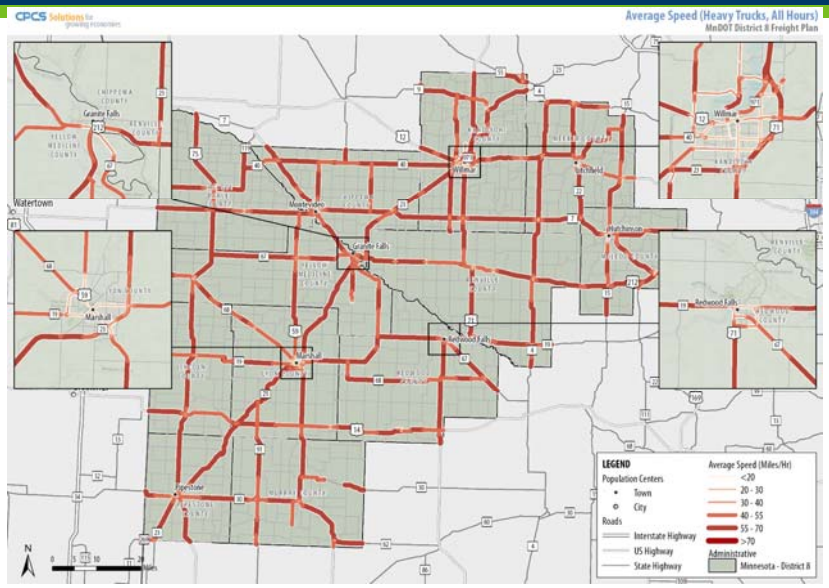
Average Truck Speed



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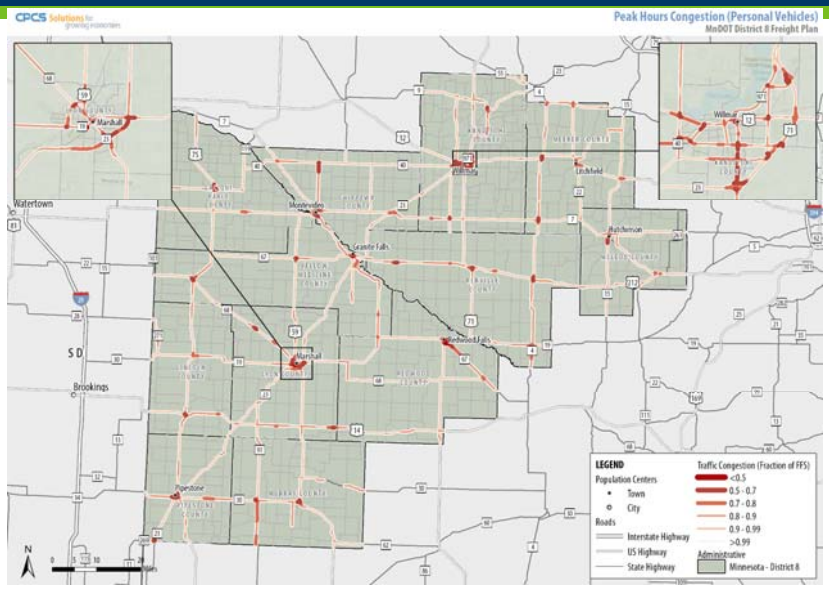
Travel Time Index (TTI)



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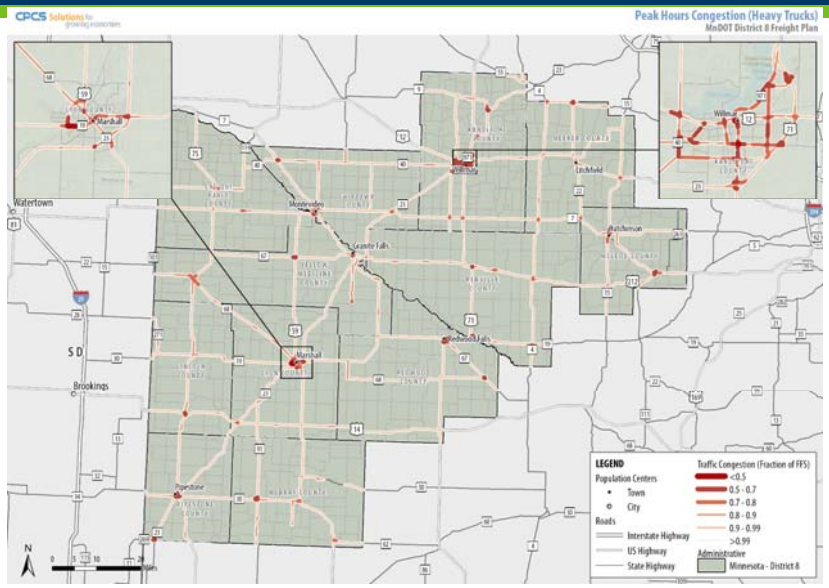
Truck Travel Time Index



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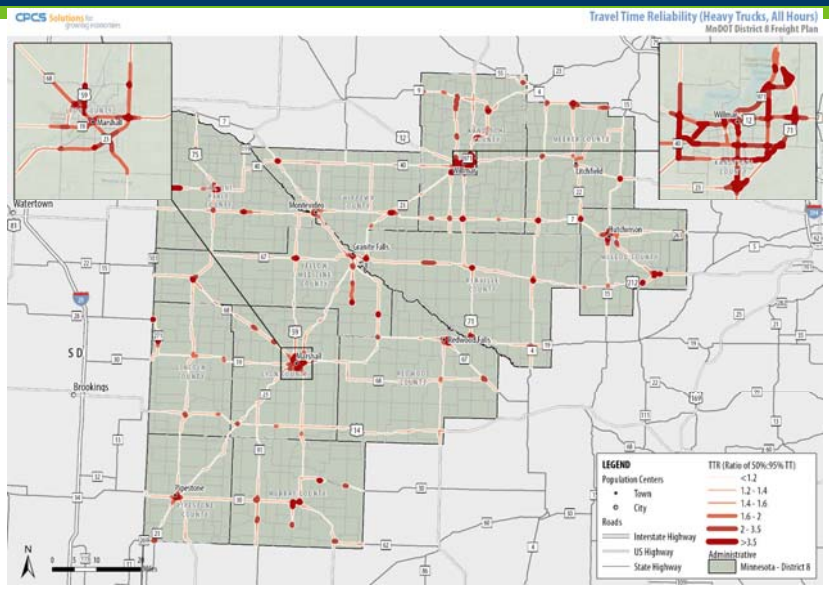
Truck Travel Time Reliability (TTR)



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Mobility: Travel Speed Summary

Truck congestion and travel speed is not an issue for District 8, but appropriate infrastructure can continue to support safe mobility.

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OSOW Operations in District 8

Oversize-Overweight permits were broken into three types:

Transactional

Source: US Cargo Control.

Collaborative

Source: MnDOT

Consultative

Source: MnDOT

Permit Type	Height	Width	Length	Gross Vehicle Weight (1000s of lbs)
No Permit	Up to 13.5 feet	Up to 8.5 feet	Up to 75 feet	Up to 80
Transactional	13.5 to 15 feet	8.5 to 15 feet	75 to 140 feet	80 to 187
Collaborative	15 to 16.5 feet	15 to 17 feet	140 to 180 feet	187 to 255
Consultative	Over 16.5 feet	Over 17 feet	Over 180 feet	Over 255

Source: MnDOT

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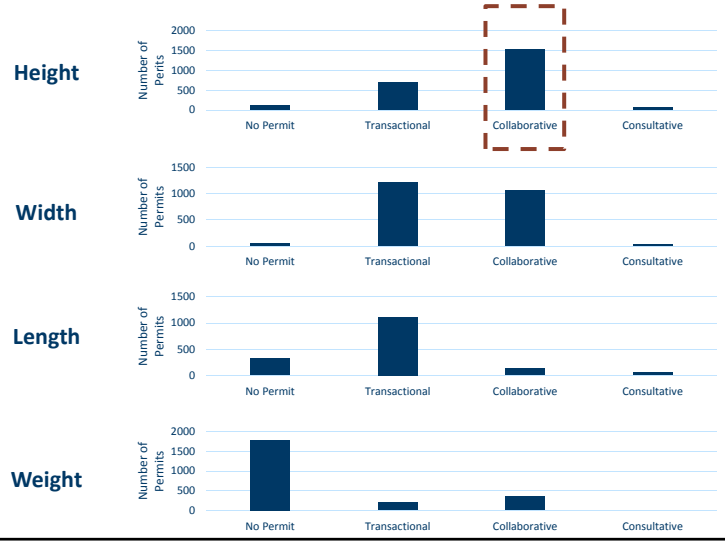
OSOW Load Dimensions in District 8

Height and vertical clearances are key considerations for OSOW permits in D8



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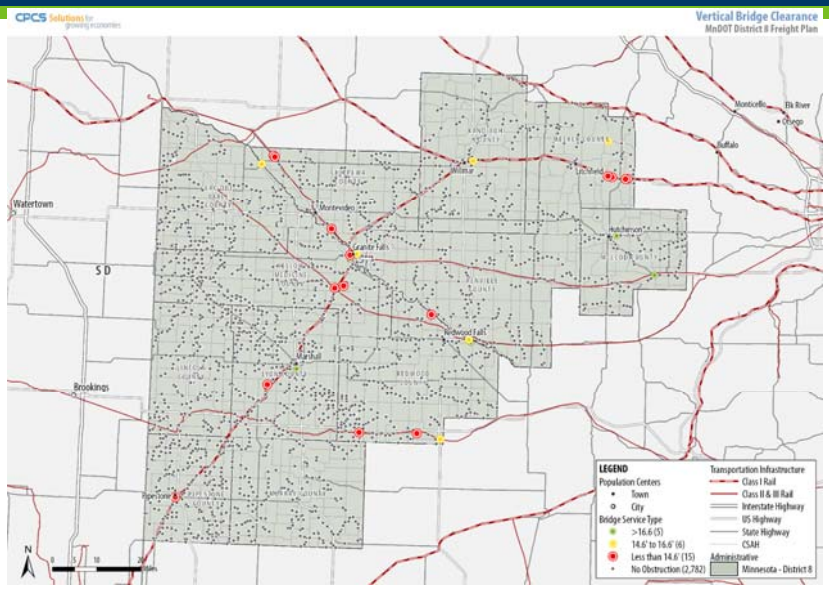
Bridge Clearances



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OSOW Permit Origins and Destinations

Most OSOW permits mentioning District 8 were for loads originating in the District and bound for other Districts or South Dakota

		Origin				
Destination		Interior District 8	Other MN District	South Dakota (through District 8)	Other State (IA, ND, WI, and SD) through other Districts	Total
	Interior District 8	182	197	59	66	504
	Other MN District	736	N/A	56	N/A	792
	South Dakota (through District 8)	751	81	0	25	857
	Other State (IA, ND, WI, and SD) through other Districts	226	N/A	10	N/A	236
	Total	1,895	278	125	91	2,389

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OSOW Permit Origins and Destinations

Routes and destinations reflect outbound flow of OSOW freight.

Key Routes

Route	Count
US212 W	733
US71 N	628
MN19 W	371
MN29 S	355
MN7 E	305
US212 E	300
US71 S	298
MN23 N	295
MN23 S	280
US59 N	211

Top Origins

Origins	Trips
Redwood Falls	544
Montevideo	543
Olivia	132
Blomkest	109
Danube	107

Top Destinations

Destinations	Trips
US 212 at SD	581
US 14 at SD	127
MN 19 at SD	105
Fergus Falls	48
Lakeville	46

Source: MnDOT. "District 8 2016 Oversized/Overweight Permit Data."

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Mobility Discussion

Questions

- Is our understanding of District 8's performance accurate?
- Are there any mobility considerations that are unique to District 8?
- How have these issues affected you?

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Presentation Map

- Review Work Plan
- Economic and Freight System Profiles
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- **Future Outlook and SWOT Assessment**
- Next Steps & Discussion

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What Future Trends will Affect District?

Think "STEEP" factors

- **S**ocial
- **T**echnological
- **E**nvironmental
- **E**conomic
- **P**olitical

What STEEP factors could influence freight in District 8?

How could these factors influence freight in District 8?

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STEEP Factors – *examples, only*

Factors considered will reflect District 8's unique context

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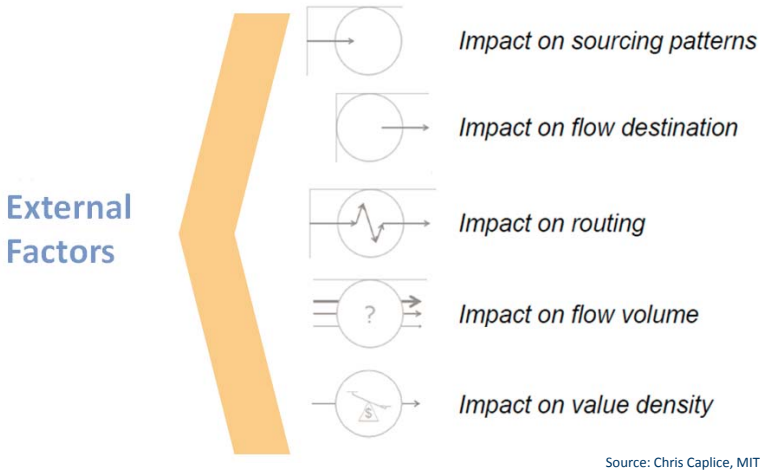
Translating STEEP Factors into Effects



Source: Chris Caplice, MIT

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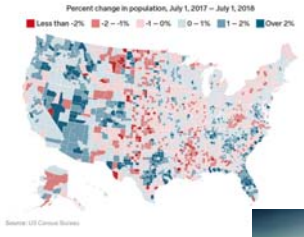
Potential District 8 STEEP Trends

- **Social:** declining population or workforce base.
- **Technological:** autonomous or connected vehicles
- **Environmental:** extreme rainfall events, energy use
- **Economic:** effects of tariffs on demand for commodities
- **Political:** funding uncertainty



Source: Tesla

Source: AgFax

Strengths, Weaknesses, Opportunities, and Threats

Use the information presented today to help us identify District 8's S, W, O, and Ts

Strengths	Weaknesses
• Strong agricultural and manufacturing industry base. • Removed from Twin Cities congestion.	• Lack of interstate highways. • Captive rail service in some communities.
Opportunities	**Threats**
• Renewable energy development (electricity and biofuels). • Willmar Wye development.	• Declining or flat population. • Need to repair or maintain infrastructure.

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Report Back and Open Discussion

Questions

- What are your top 2-3 most important findings?
- How are these findings relevant to District 8 or MN as a whole?
- What should MnDOT do to leverage or address these findings?

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What we heard…

Strengths	Weaknesses
• Good work ethic. • Good job on preventative maintenance (trunk highways). • Rural nature of District, and removed from Twin Cities congestion. • Strong agricultural and manufacturing industry base.	• Lack of interstate highways and 4-lane capacity. • Non-trunk highways have condition issues (as compared to trunk highways). • Overall road condition expected to decline. • Lack of roadway access control/management. • Roads viewed as "single use." • Captive rail service in some communities.
Opportunities	**Threats**
• Communications (to improve operations, construction, education, operation life saver, etc.) • Emerging sources of good data to inform planning and operations. • Low cost improvements with big benefits (esp for safety). • Transloading facilities. • Explore potential for backhaul movements. • Changing energy future (e.g., renewable energy development).	• Weather events (more, and more severe) that impact infrastructure. • Industry changes that impact transport system use and condition (e.g., I-29 Dairy Corridor development, farmers holding product to sell at better prices, etc.). • Limited ability and/or funds to invest. • Declining or flat population limits workforce.

Presentation Map

Review Work Plan and Role of Advisory Committee

Initial Economic and Freight System Profiles

Condition and Performance

Future Outlook and SWOT Assessment

Next Steps & Discussion

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Next Steps

Next 2 Weeks

- Complete remaining stakeholder consultations.
- Complete SWOT and STEEP analysis.
- Begin analysis of needs and issues.

Before Next Meeting

- Complete identification of geographically-specific needs and issues.
- Identify need/issue "gaps" not addressed by programmed investments.
- Prioritize "gaps" as slate of initial project recommendations.

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Future Meetings

Work will be conducted over 12 months, through March 2020

Meeting 1 – Agenda (Month 3)	Meeting 2 Agenda (Month 6)	Meeting 3 Agenda (Month 8)	Meeting 4 Agenda (Month 11)
• Review Working Paper 2 • Confirm Plan Goals ✓	• Freight system profile • Summary of findings – needs, issues & opportunities ✓	• Initial Freight Plan Recommendations	• Present major findings and Plan deliverables • Receive feedback

Next meeting expected in November 2019

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DEPARTMENT OF TRANSPORTATION

Thank you!

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