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MnDOT District 1 Freight Plan

Advisory Committee Meeting 3

CPCS Team

February 7, 2019

Duluth, MN

Presentation Map

Introductions

STEEP and SWOT Assessment Results

Needs and Issues and Project Gaps

Approach to Project Pre-Feasibility

Small Group Discussion – Project Filtering

CPCS Solutions for growing economies

Welcome back to the Advisory Committee

Help us keep the "Big Picture" in mind

- Provide context and strategic guidance
- Aid the consultants with local coordination
- Provide written or verbal comments during Plan development

Please introduce yourself:

- Name, organization
- What important investment could MnDOT make to improve District 1's freight system?

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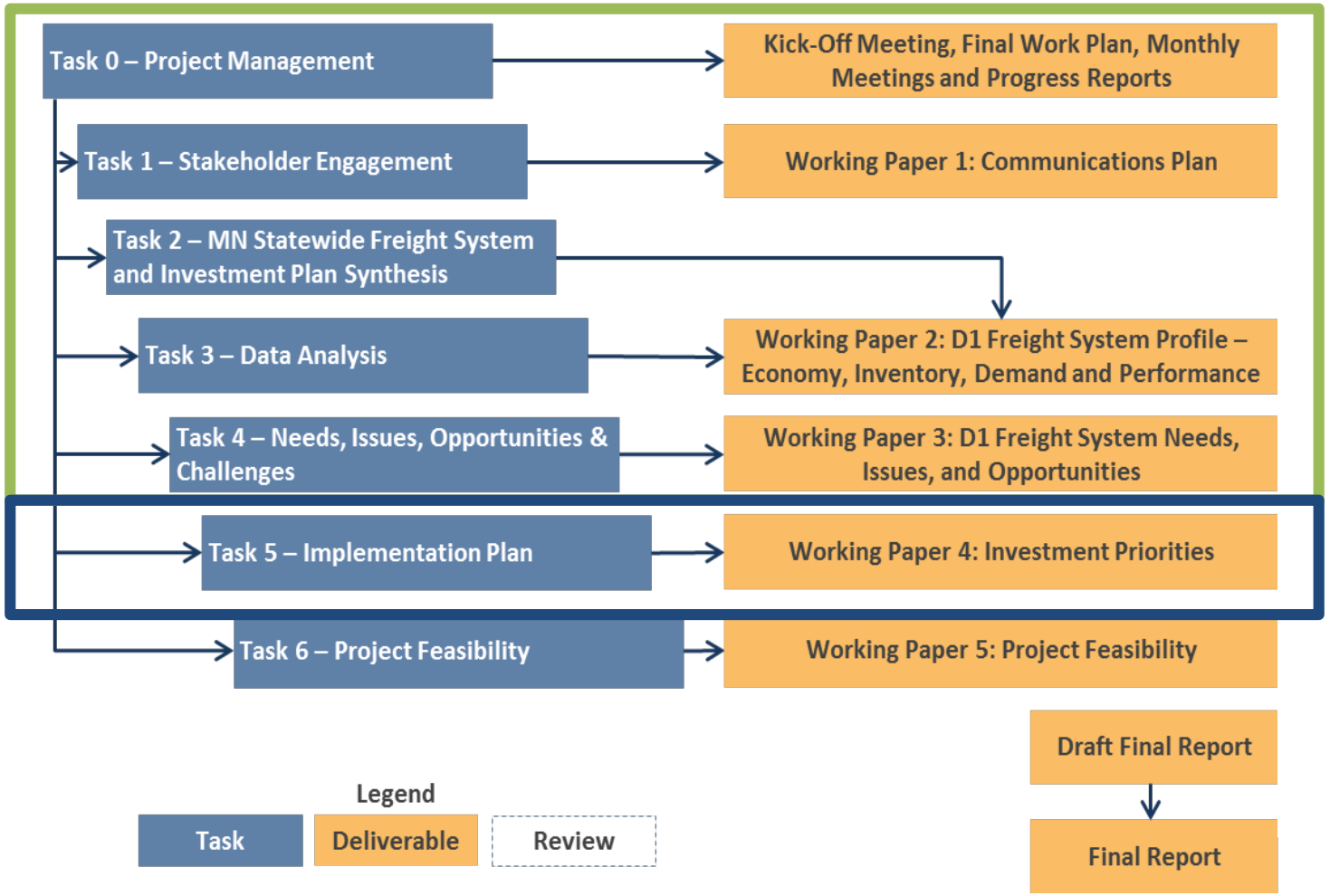
Work Plan Overview



Complete

In Progress

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What Future Trends will Affect District 1?

Think "STEEP" factors

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

What STEEP factors could influence freight in District 1?

How could these factors influence freight in District 1?

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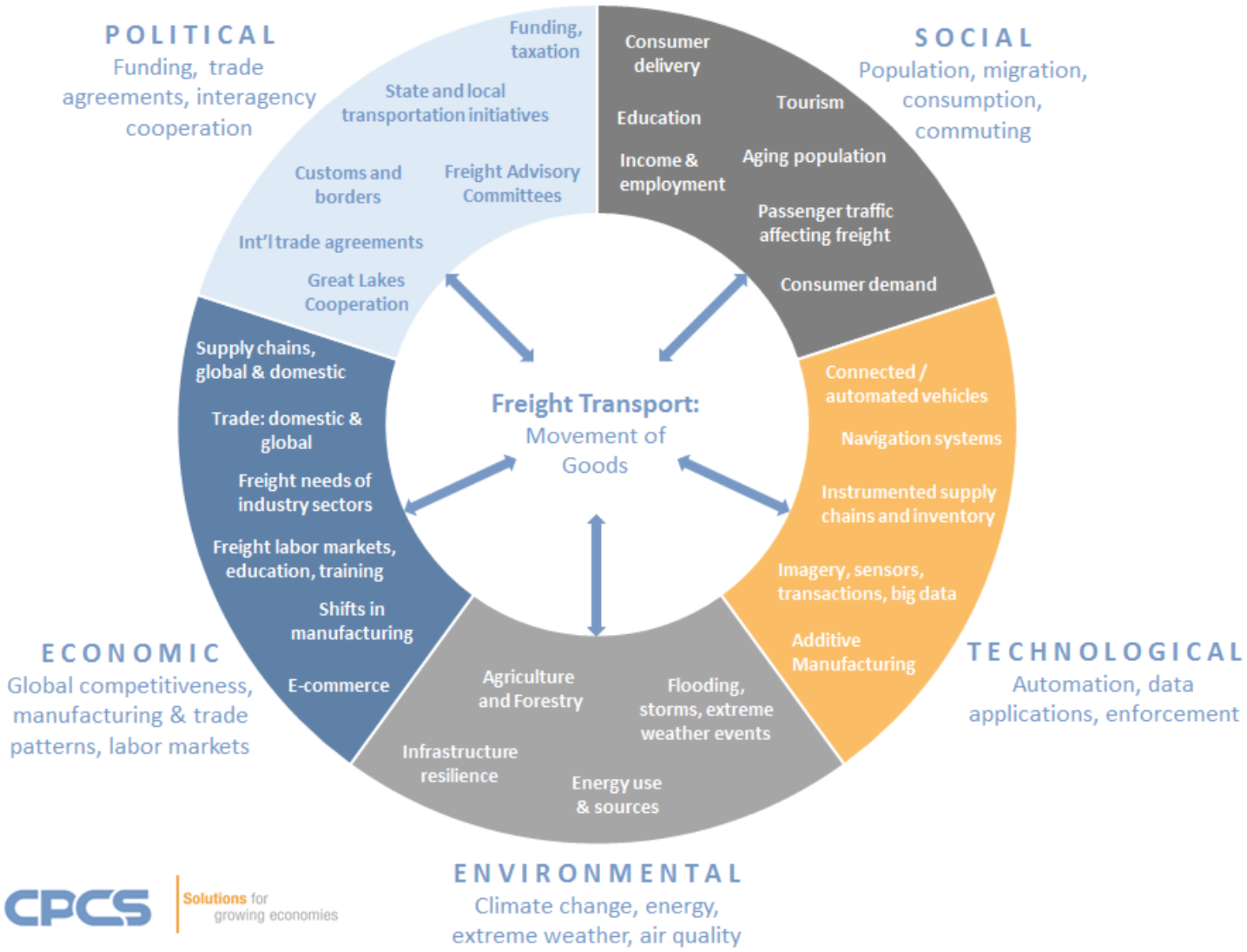
Potential District 1 STEEP Factors



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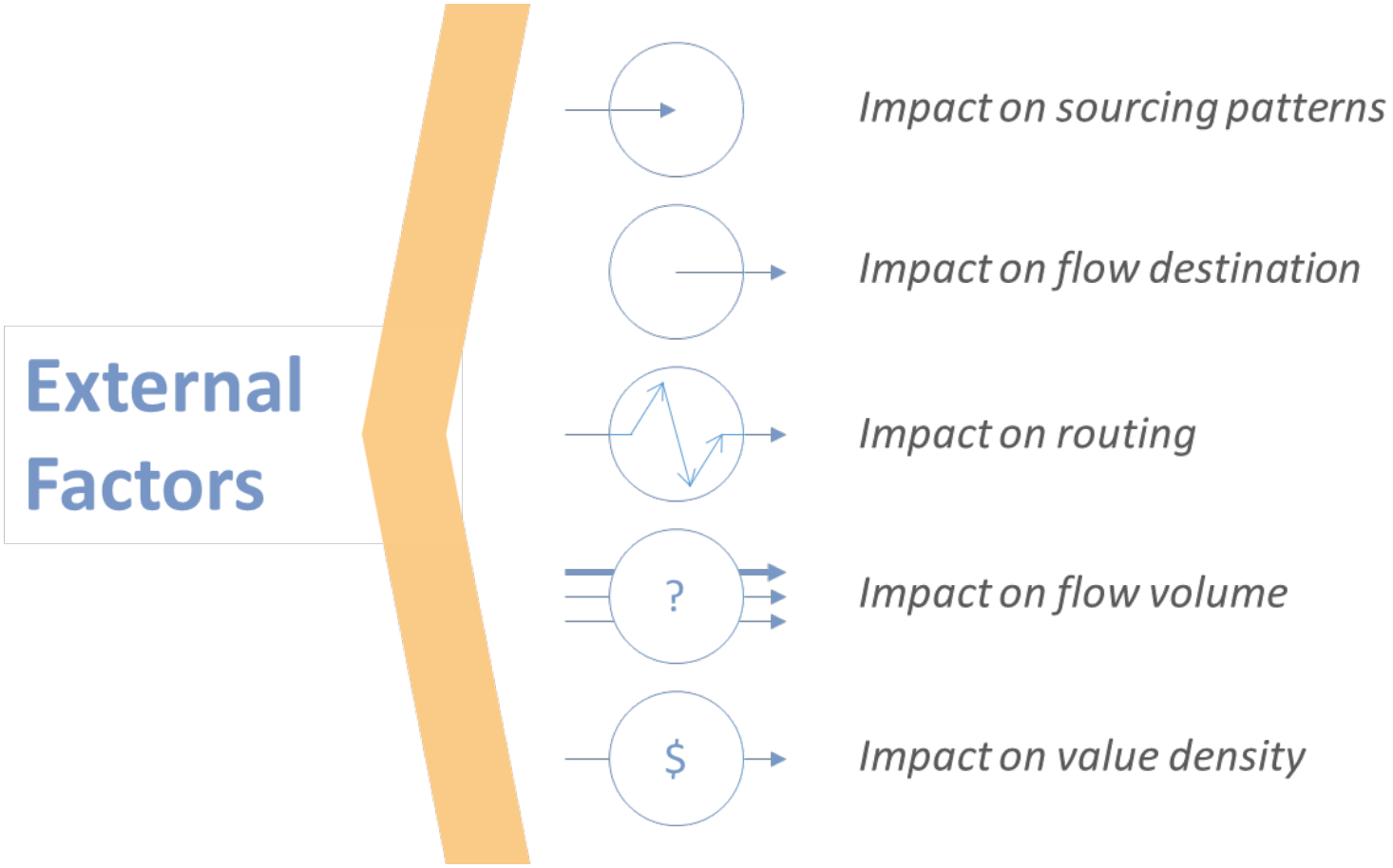
STEEP Affects on the Freight System

Potential Changes from STEEP Factors



Source: Adapted from Chris Caplice, Massachusetts Institute of Technology

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**

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Economy SWOT

Support Minnesota's Economy:

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

Strengths	Weaknesses
• A diverse industrial base, including manufacturing and mining • A range of multimodal freight assets (road, rail, port, and air) • Multimodal connections to rest of North America • Natural resource assets (mining, forestry)	• Economy built on cyclical "boom and bust" resource industries, especially iron ore • Aging population, with low population growth
Opportunities	**Threats**
• Continued improvement of port and multimodal (road-rail) facilities • Room to grow without major conflicts between land uses • Continued development of natural resources • MnDOT can be proactive in working with private sector	• Maintenance and upgrades to freight transportation assets to adequately serve industry needs • Market forces, commodity prices, and tariffs • E-commerce traffic: more freight traffic for same tonnage of goods • Public and private sectors move at different paces – private makes decisions more quickly

Mobility SWOT

Improve Minnesota's Mobility:

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

Strengths	Weaknesses
• Very little traffic congestion • Intermodal terminal provides easier access to rail mode, foreign markets	• Hilly or swampy landscapes require steep or curving road geometry, potentially slowing truck traffic • Many freight corridors are two-lane roads • Weight restrictions, including spring load restrictions, and lack of weight policy harmonization between states/provinces • Lack of competitive or quality rail service outside Duluth • Low clearance bridges can impede truck movement • Bridges and border crossings as chokepoints
Opportunities	**Threats**
• Spot mobility improvements during programmed maintenance (addition of turning lanes, passing lanes, traffic signals) • Improve 1st/last 3-mile connections to the Trunk Highway system • Connected/autonomous vehicles to overcome truck driver shortage	• Minnesota's truck weight policies are stricter than Wisconsin's or Ontario's • Twin Ports Interchange reconstruction • Future truck driver shortage • Conflicts with tourist traffic • E-Commerce: more freight traffic for same tonnage of goods

Infrastructure SWOT

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
• Relatively well-maintained trunk highways and bridges.	• Lack of system redundancy (examples: Soo Locks, CN Bridge in Ranier, MN-61) • Poor condition of county and local bridges
Opportunities	**Threats**
• 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 • Incident management (low clearance bridge on MN-61 that fell, rock slide)	• To some extent, at mercy of neighbor states (WI, ON) to maintain routes that are critical to the District • Soo Lock closure • Lack of reliable, flexible freight funding

Safety SWOT

Safeguard Minnesotans:

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

Strengths	Weaknesses
• Relatively low at-grade crossing incident rate compared to other districts	• Relatively high road crash rate compared to other districts
Opportunities	**Threats**
• Safety improvements (passing lanes, turn lanes, redesigned intersections etc.) can provide freight benefits • Incident management to enable informed decision-making for system users/responders	• Hazardous materials movements may pass through residential areas (ex: London Road).

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
• Relatively little conflict between land uses	• Some major freight routes pass through residential and commercial neighborhoods • Running out of space for storage of dredged material at Duluth-Superior harbor • Snow and ice control methods have negative impact on water quality (not freight-specific)
Opportunities	**Threats**
• Room to expand without conflict between land uses (residential and commercial vs. industrial)	• Competing land uses at the Port of Duluth-Superior • Ballast water and aquatic invasive species • Hazardous materials movements may pass through residential areas (ex: London Road).

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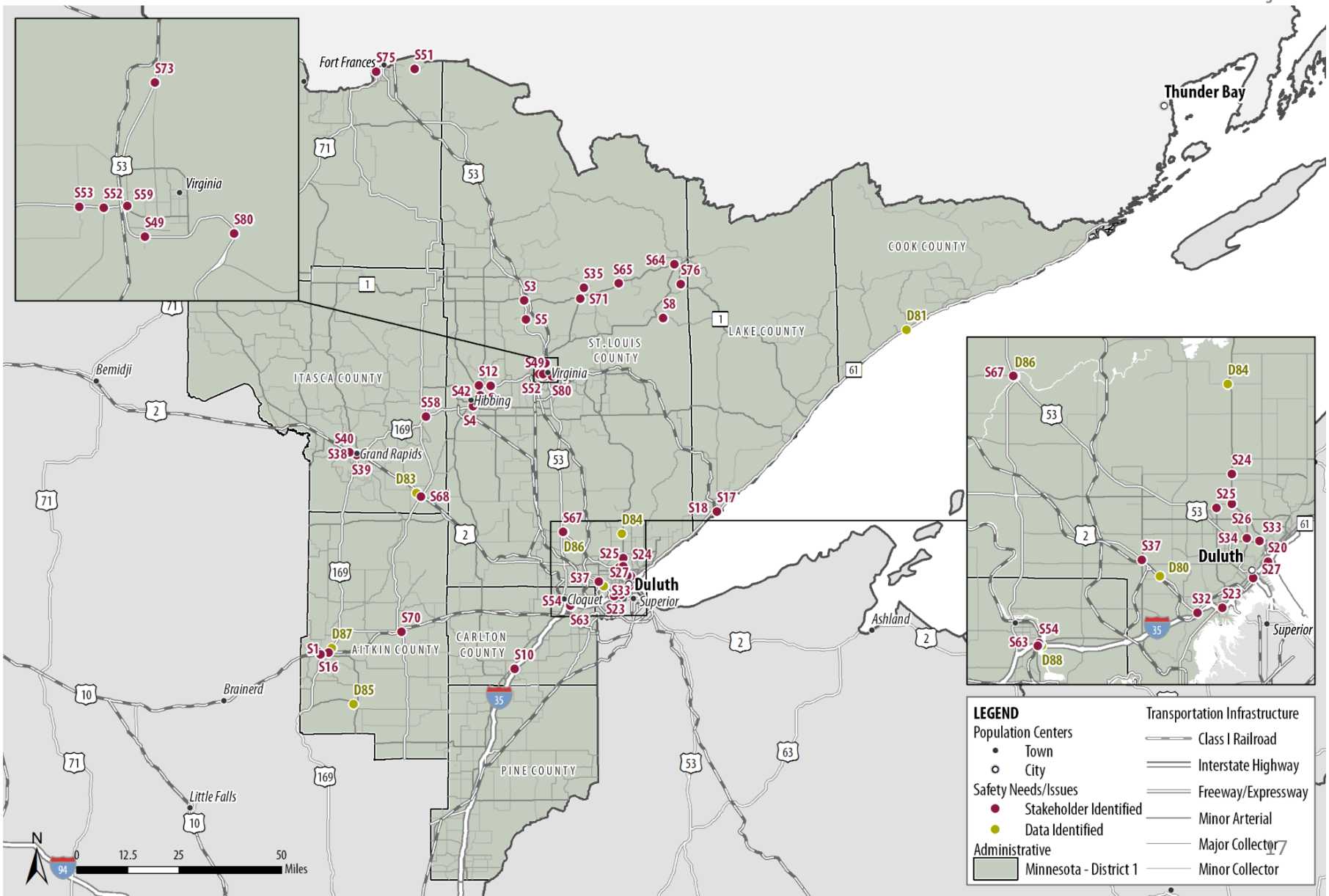
Needs and Issues: Organization

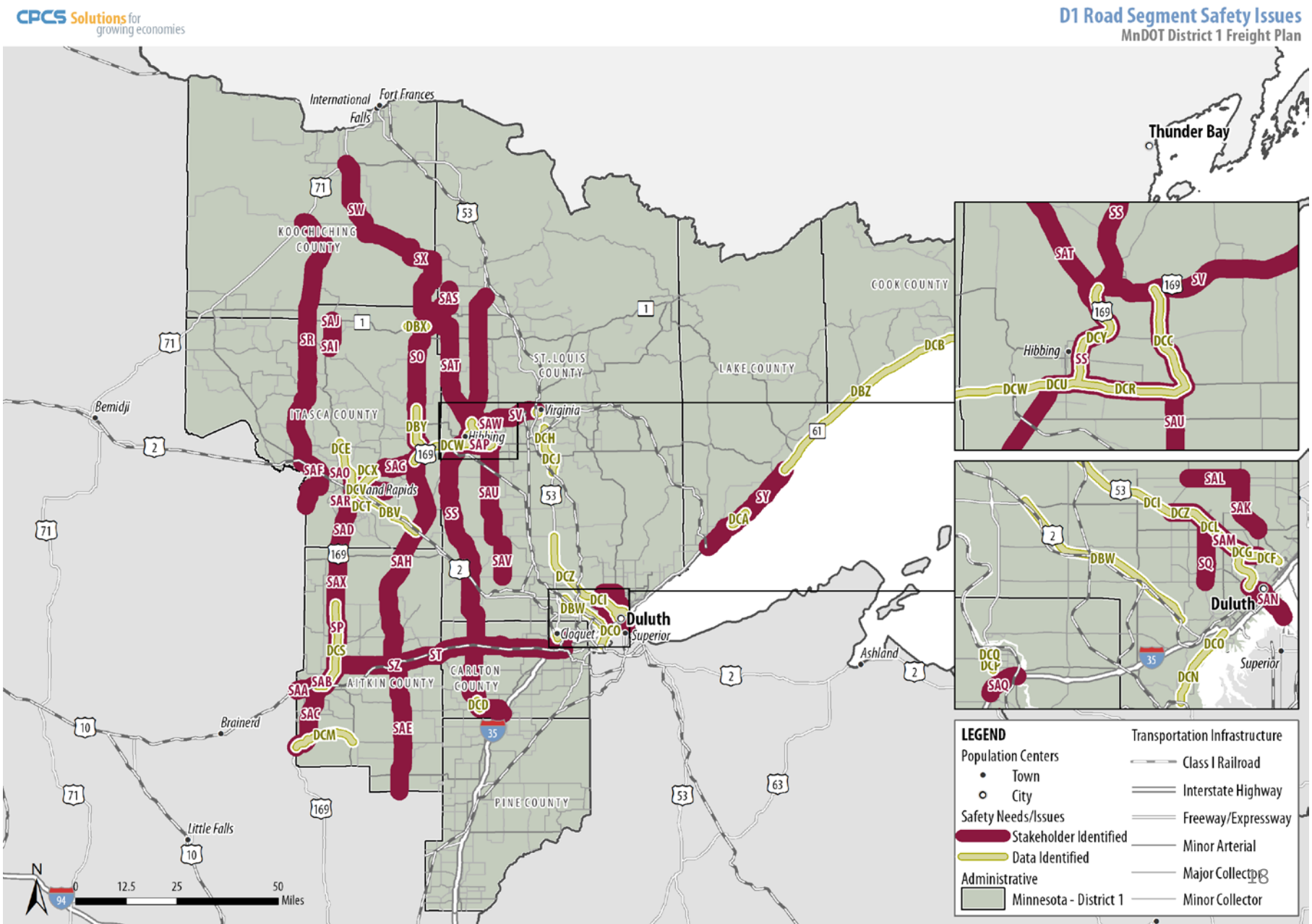
Three Categories of Needs and Issues:

1. Safety
2. Mobility
3. Condition

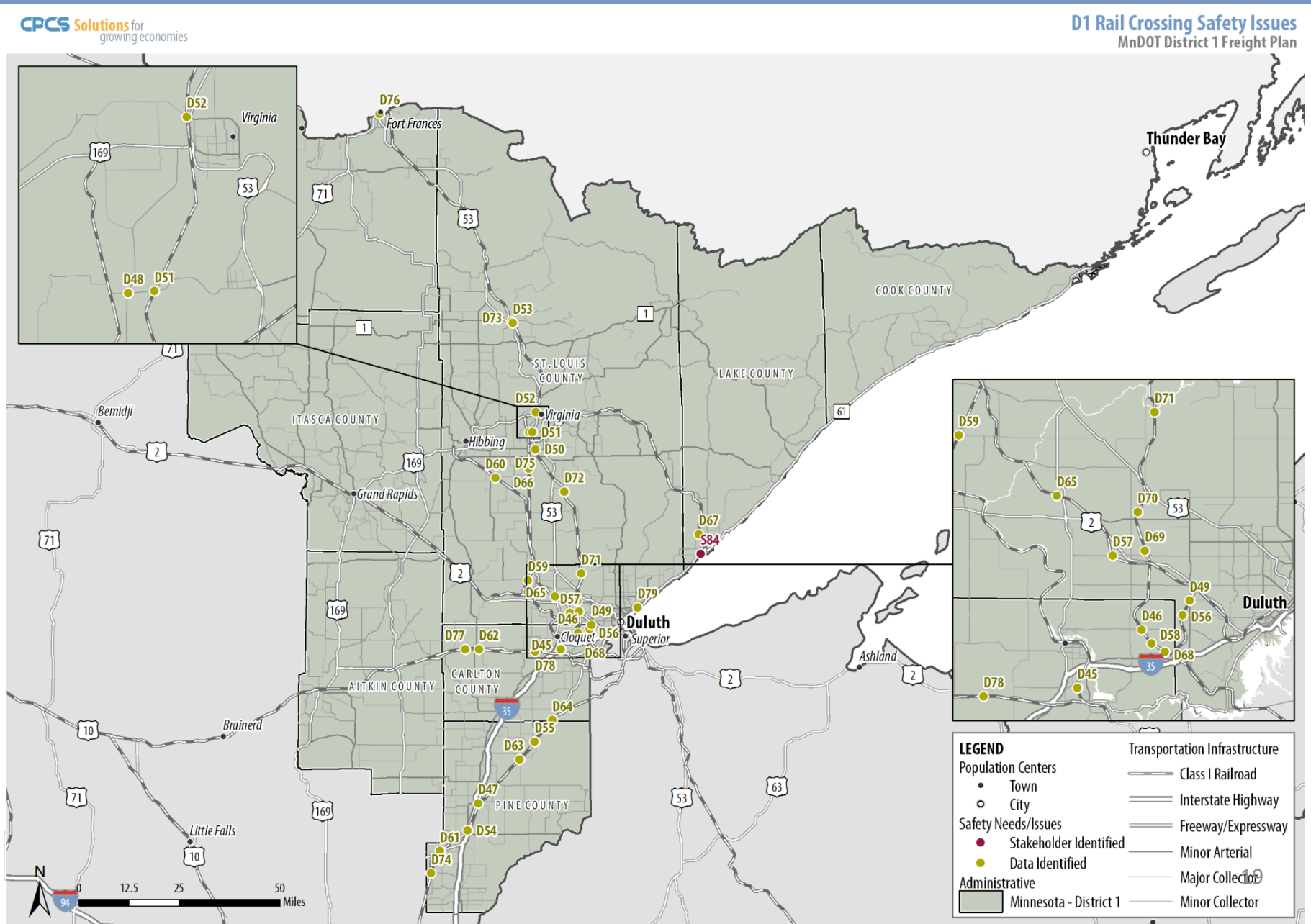
Road Safety Needs: Intersections



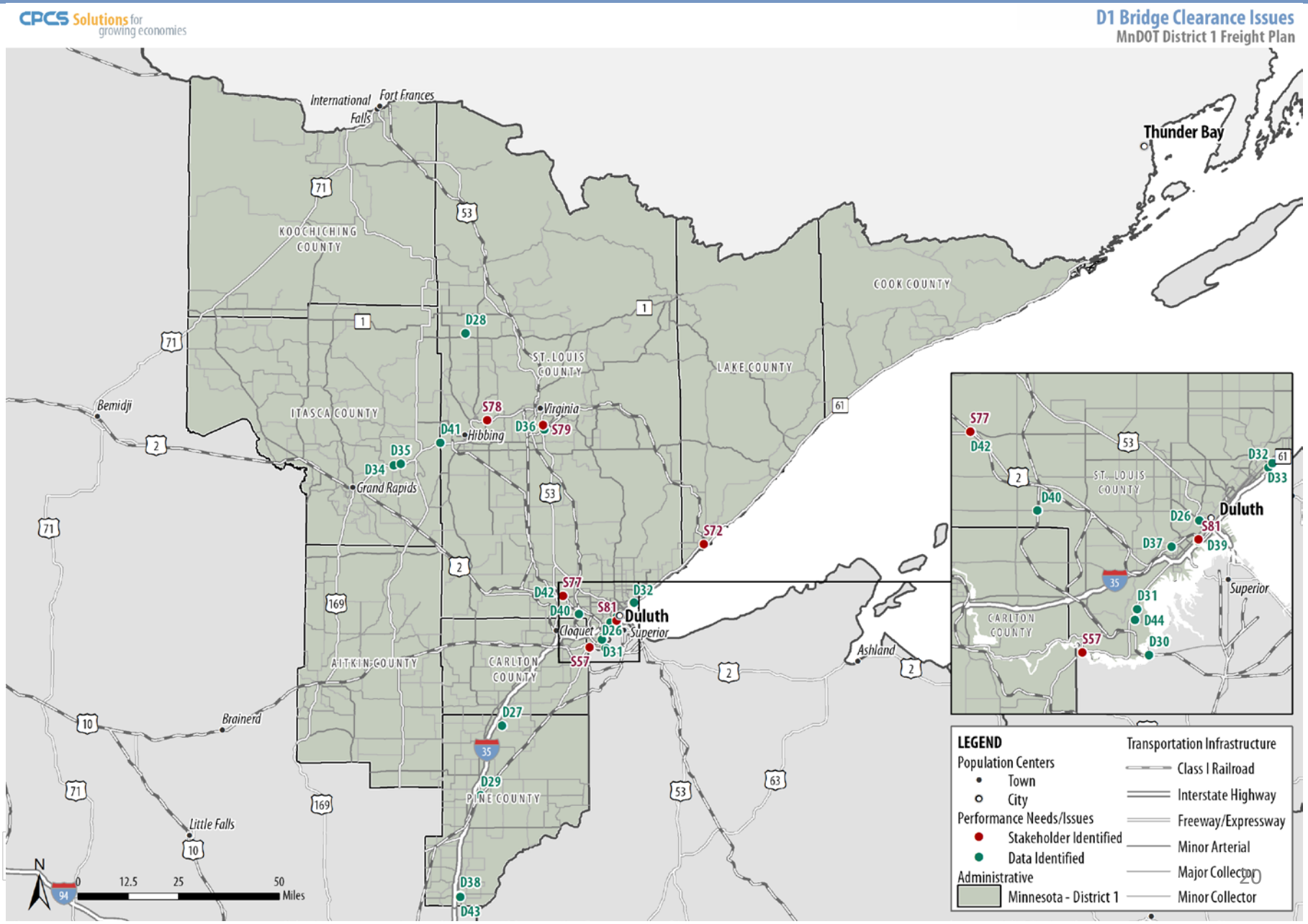
Road Safety Needs: Corridors



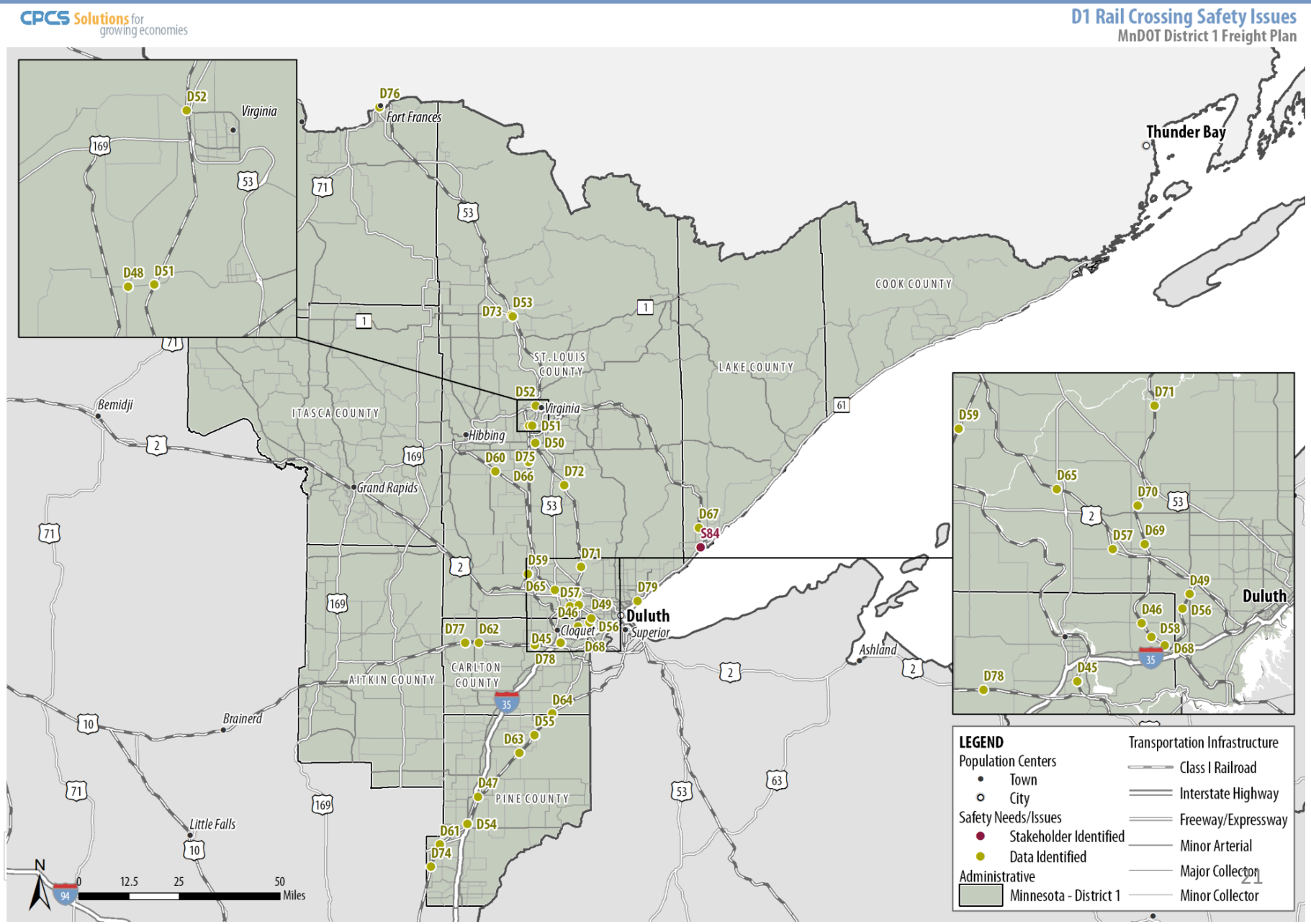
Road Safety Needs: Grade Crossings



Mobility Needs: Bridge Clearances

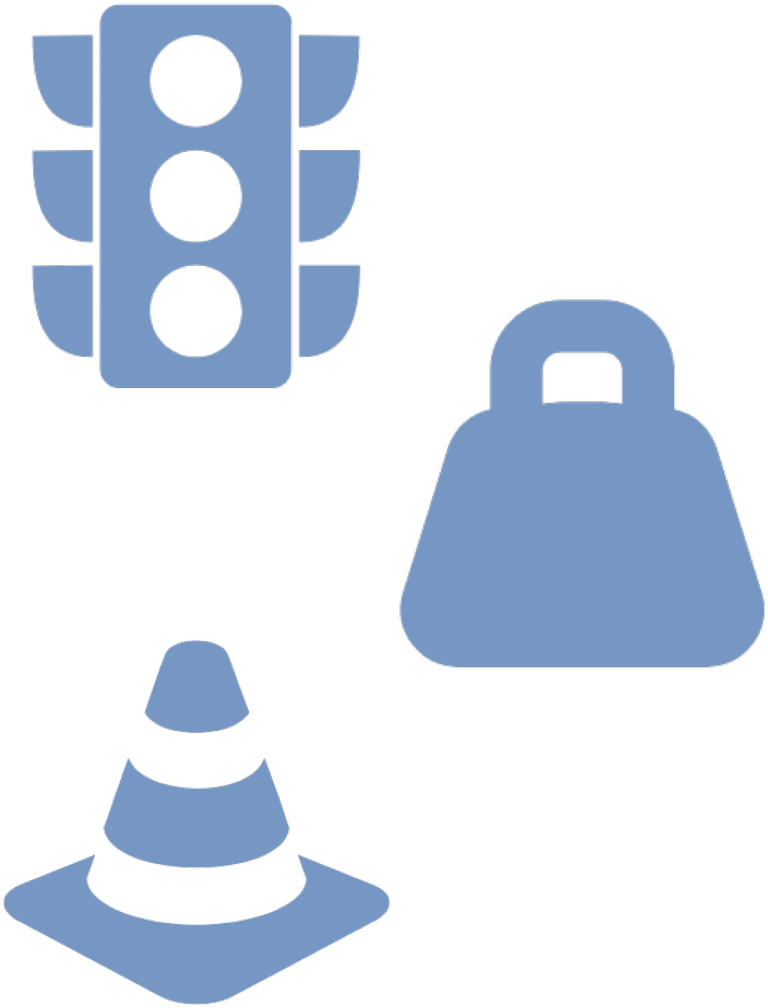


Safety Needs: Grade Crossings

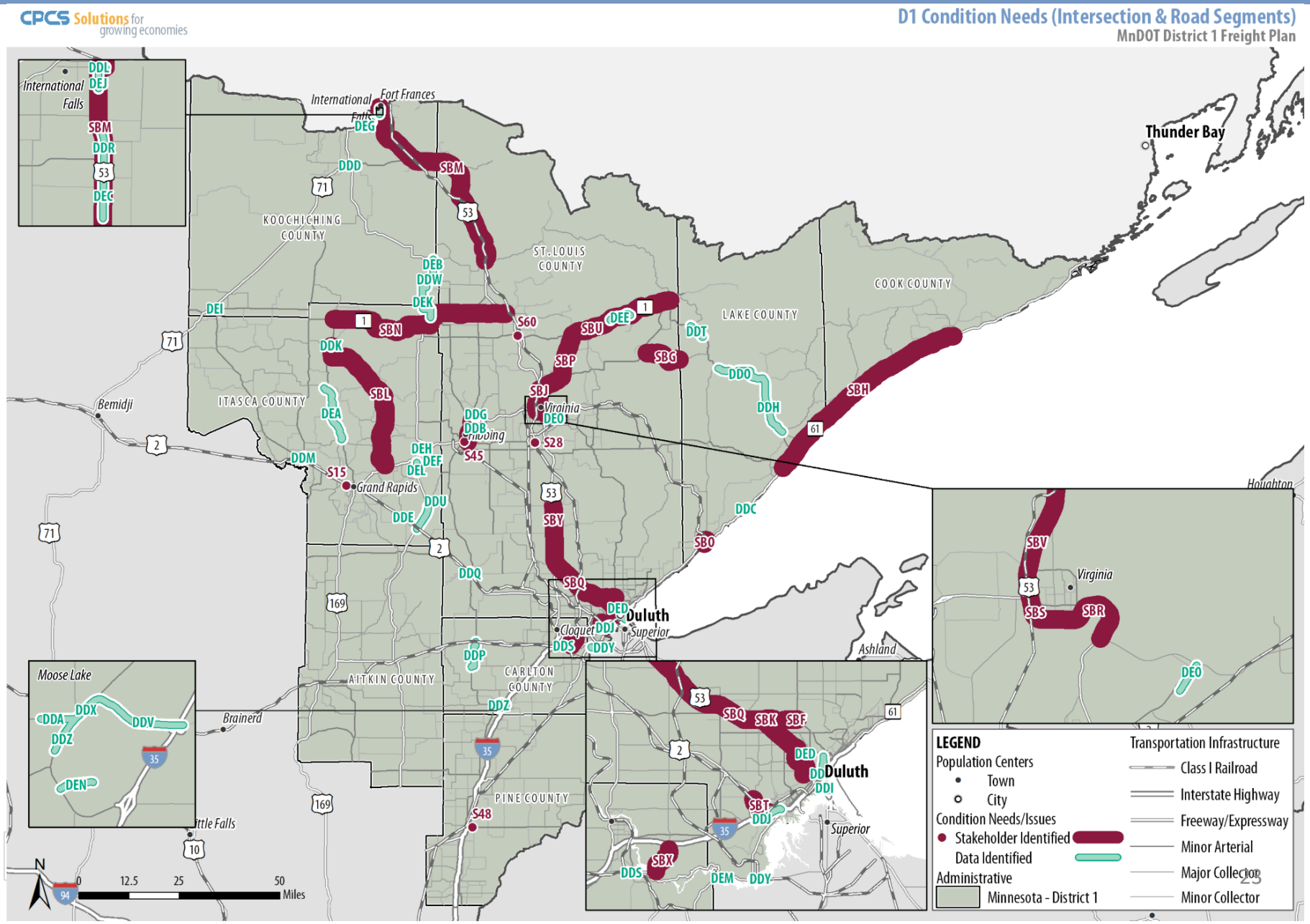


Other Road Mobility Needs

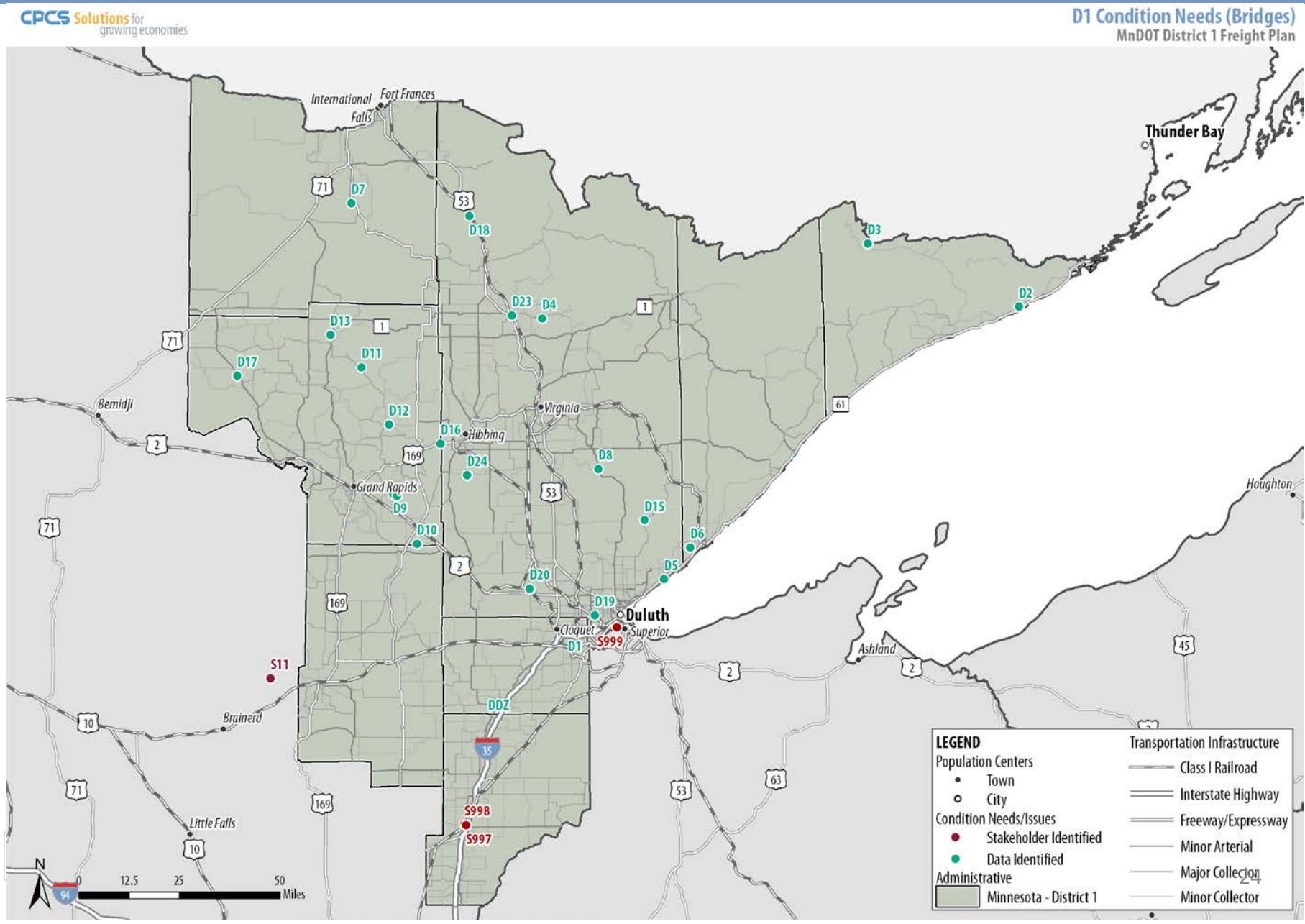
- Intersections: Roundabouts
- Corridors: Signal Timings
- Regional Connectivity
  - Lack of redundancy
  - Weight limit differences
  - First and last-mile connections
- Route Restrictions
  - Low vertical clearances
  - Spring load restrictions
  - 10 ton routes
  - OSOW Loads
- Miscellaneous
  - Snow and Ice Removal
  - Construction announcements



Condition Needs: Pavement Quality



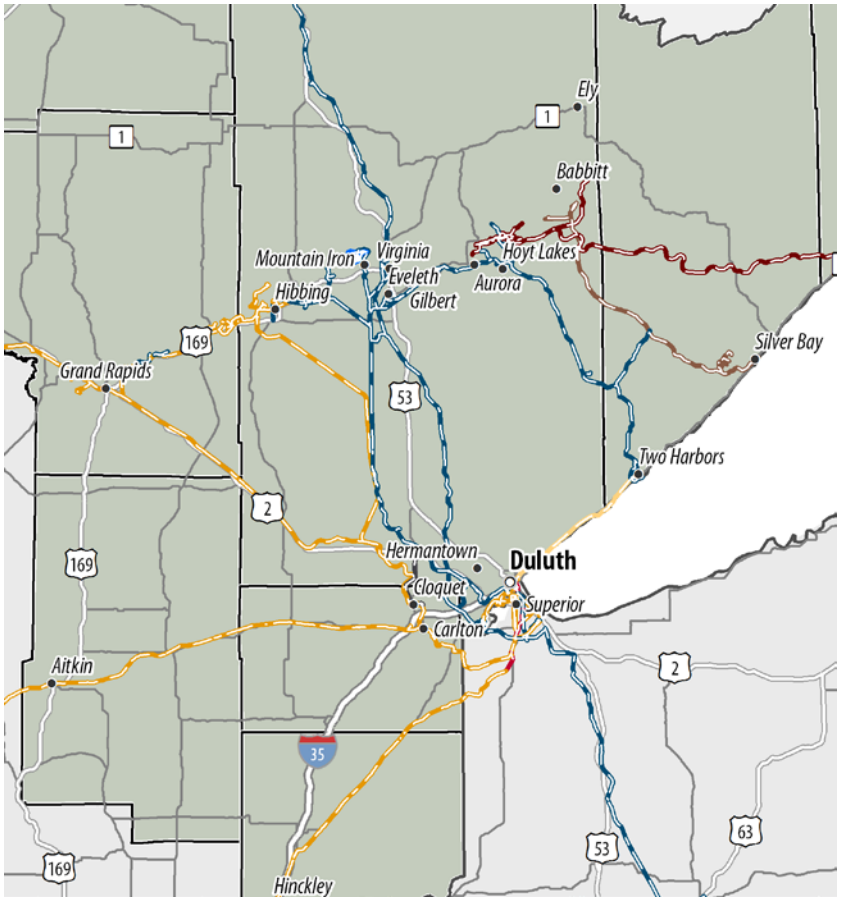
Condition Needs: Bridges



Railroad Needs and Issues

Reliable and competitive rail service is a major rail-related issue outside of the Duluth area

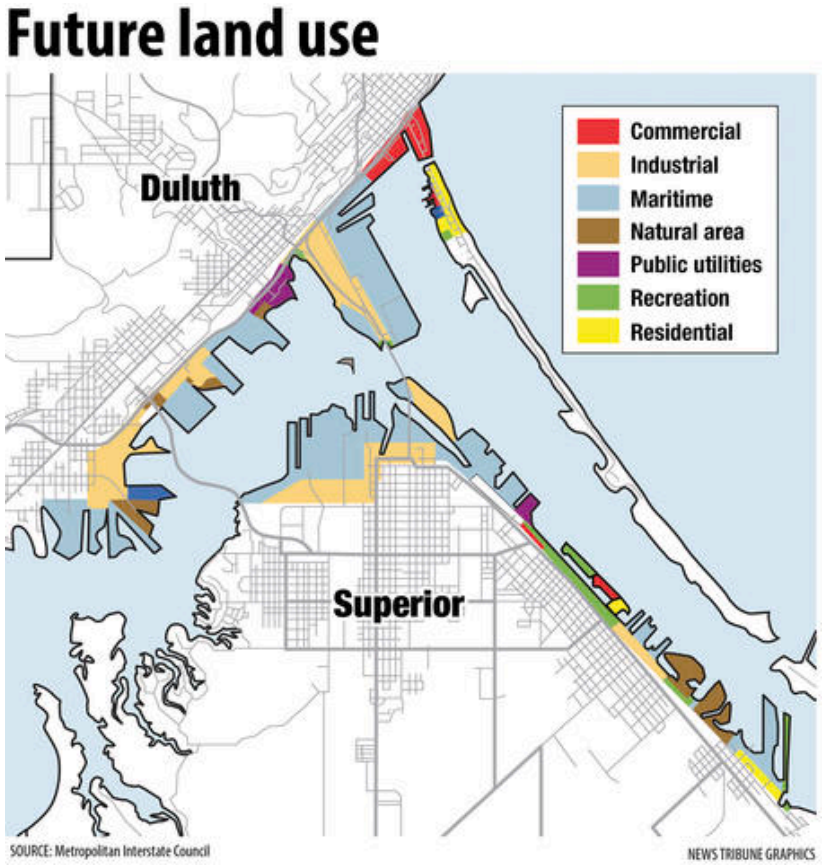
- Grade Crossings
- Intermodal Service
- Reliable Service
- Competitive Service
- Bridge Replacements



Port Needs and Issues

Port issues are more limited in scope, and focused on Duluth.

- OSOW access
- Rebuild TPI
- Dredging
- Preserve land



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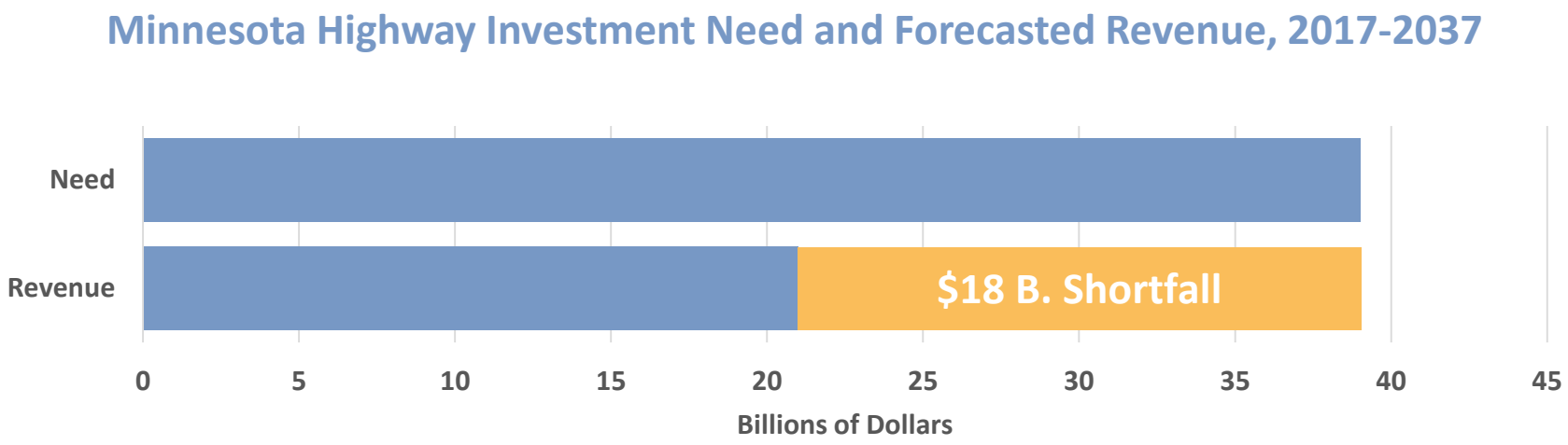
Funding: Overall shortfall for transportation

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



Source: Adapted from Minnesota State Highway Investment Plan, 2017

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The 2018-37 MnSHIP has the first, dedicated freight funding

Investment Objective	Investment Category	2018-2037 $ (B)	Percent Share
System Stewardship	Pavement Condition	$10.31	69.2%
	Bridge Condition	$2.38	
	Roadside Infrastructure	$1.60	
	Jurisdictional Transfer	$0.09	
	Facilities	$0.08	
Transportation Safety	Traveler Safety	$0.67	3.2%
Critical Connections	Twin Cities Mobility	$0.24	7.4%
	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	1.5%
Other	Project Delivery	$3.27	18.7%
	Small Programs	$0.63	
	Total	**$20.89**	**100%**

Source: Adapted from Minnesota State Highway Investment Plan, 2017

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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.

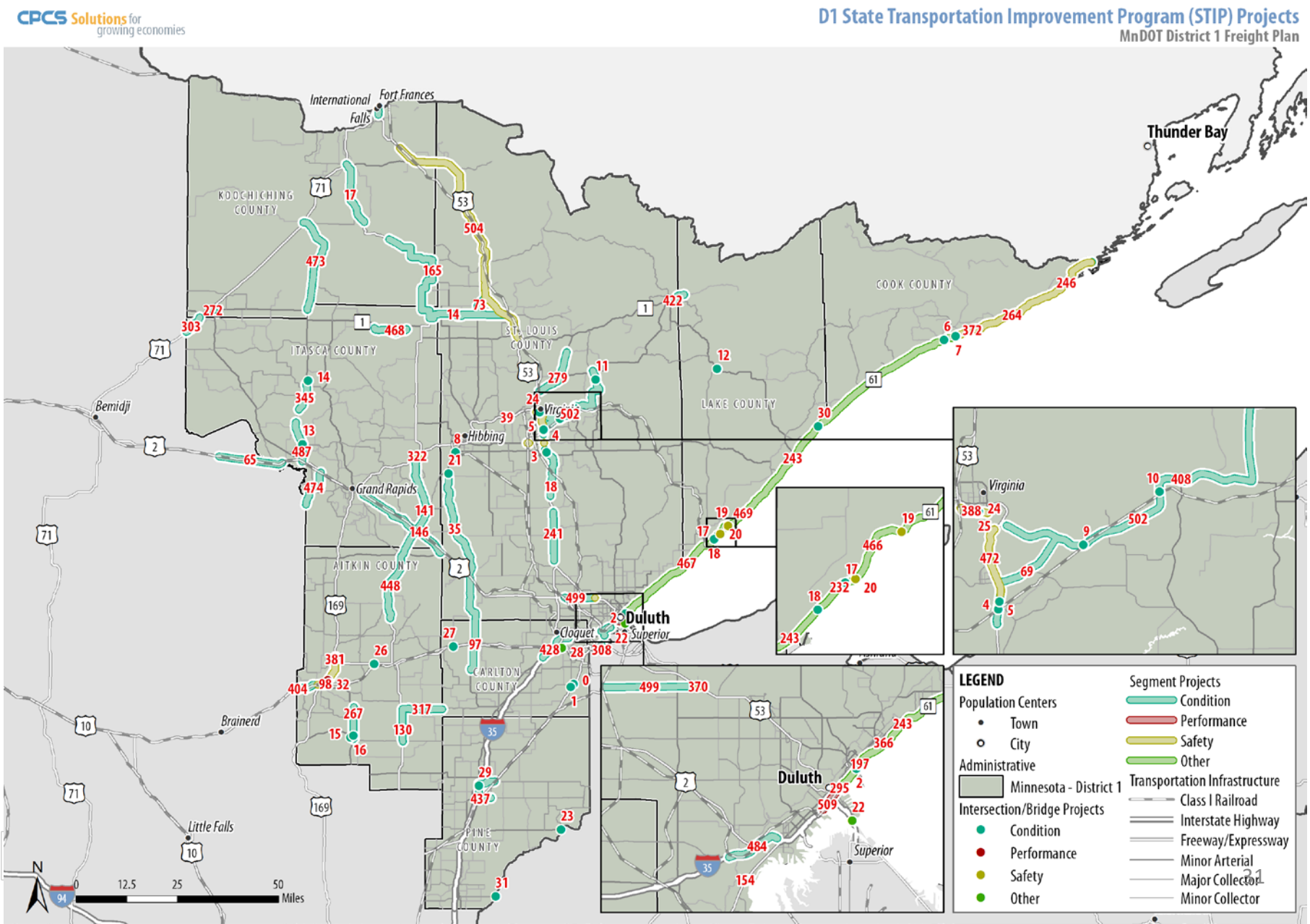
Comparing needs, issues, and investments

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

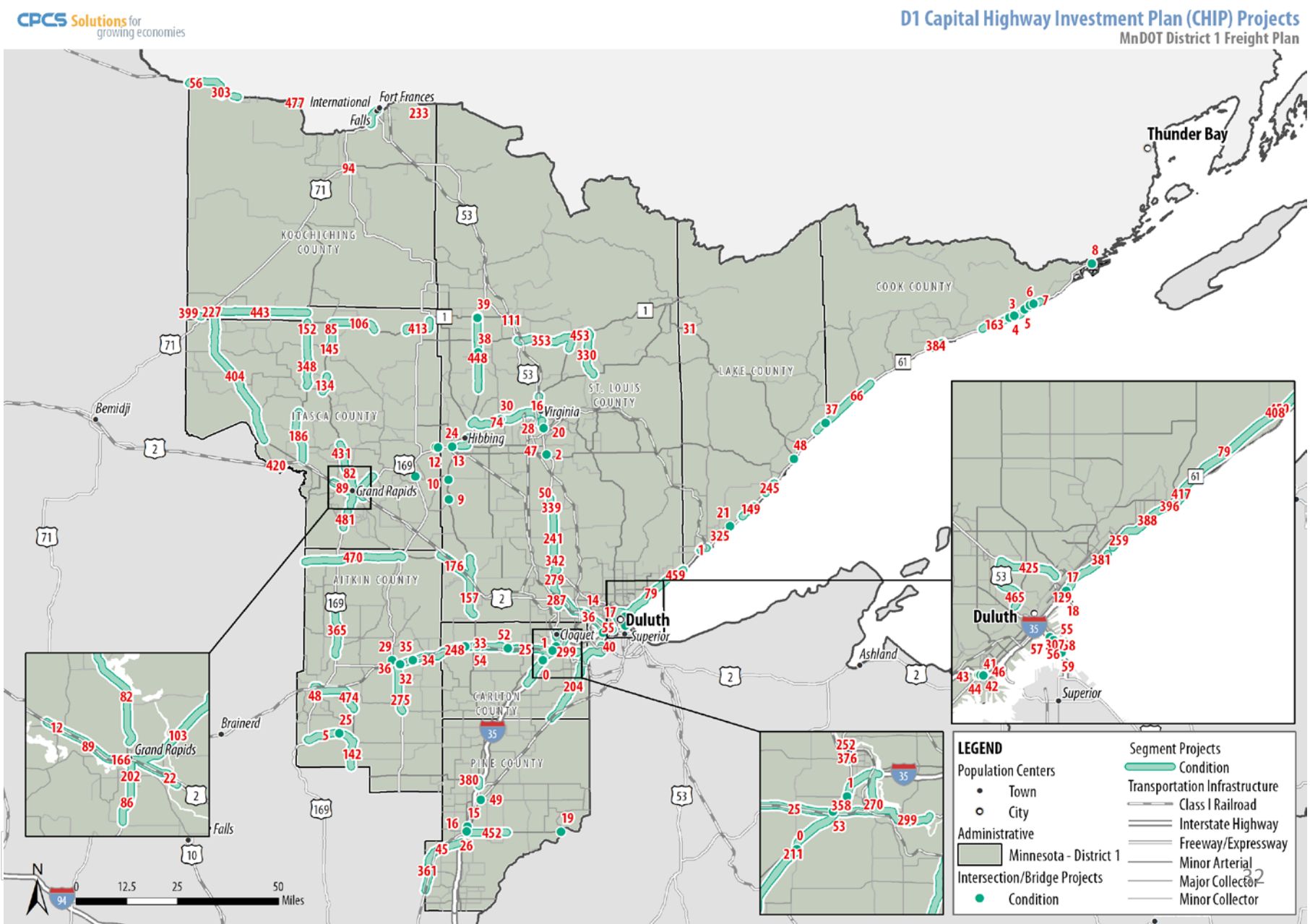
Examined Programs:

- State Transportation Investment Plan (STIP)
- Capital Highway Investment Plan (CHIP)
- DSMIC Transportation Improvement Plan (TIP)
- County investment plans (Pine, Aitkin)

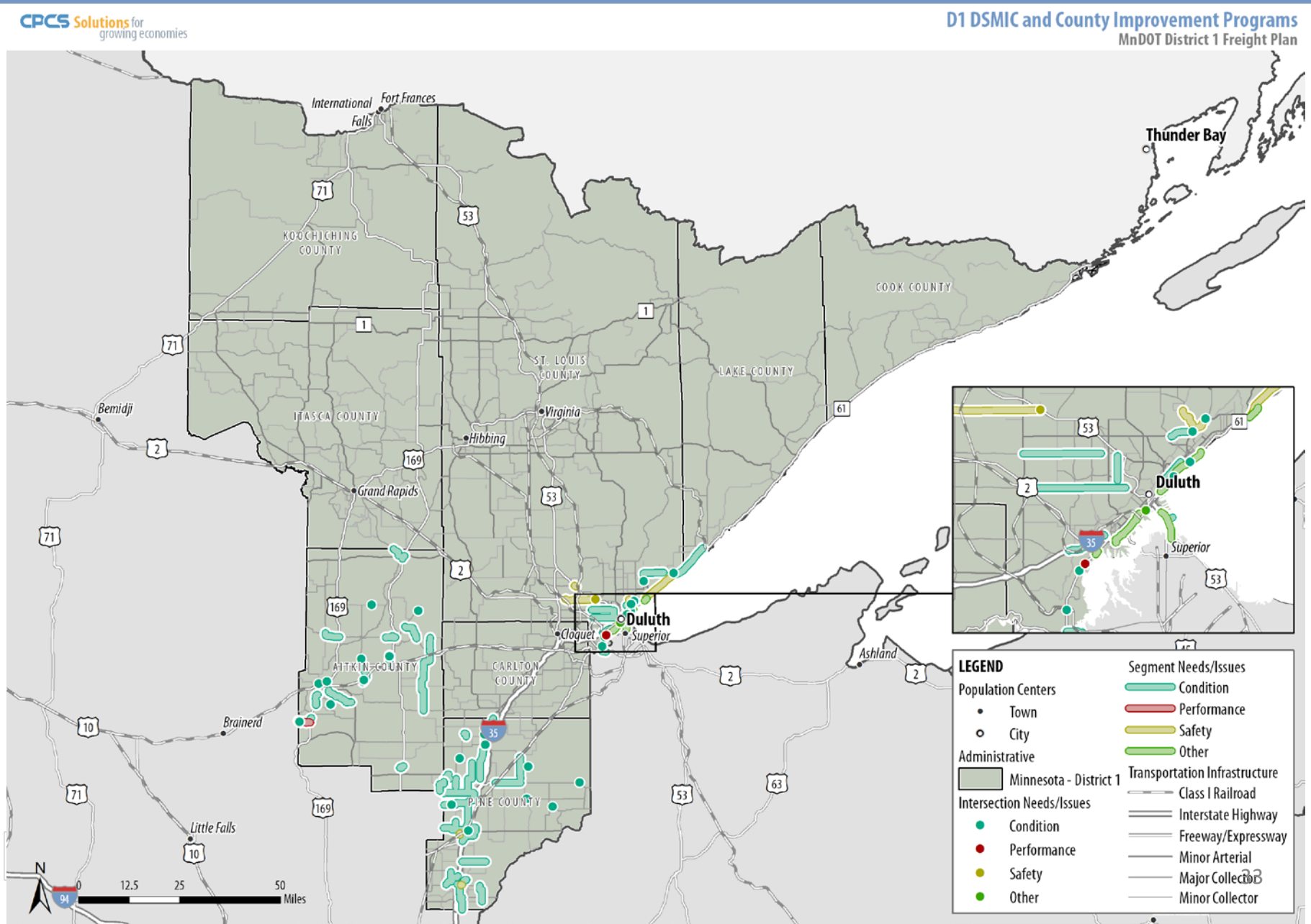
STIP Projects



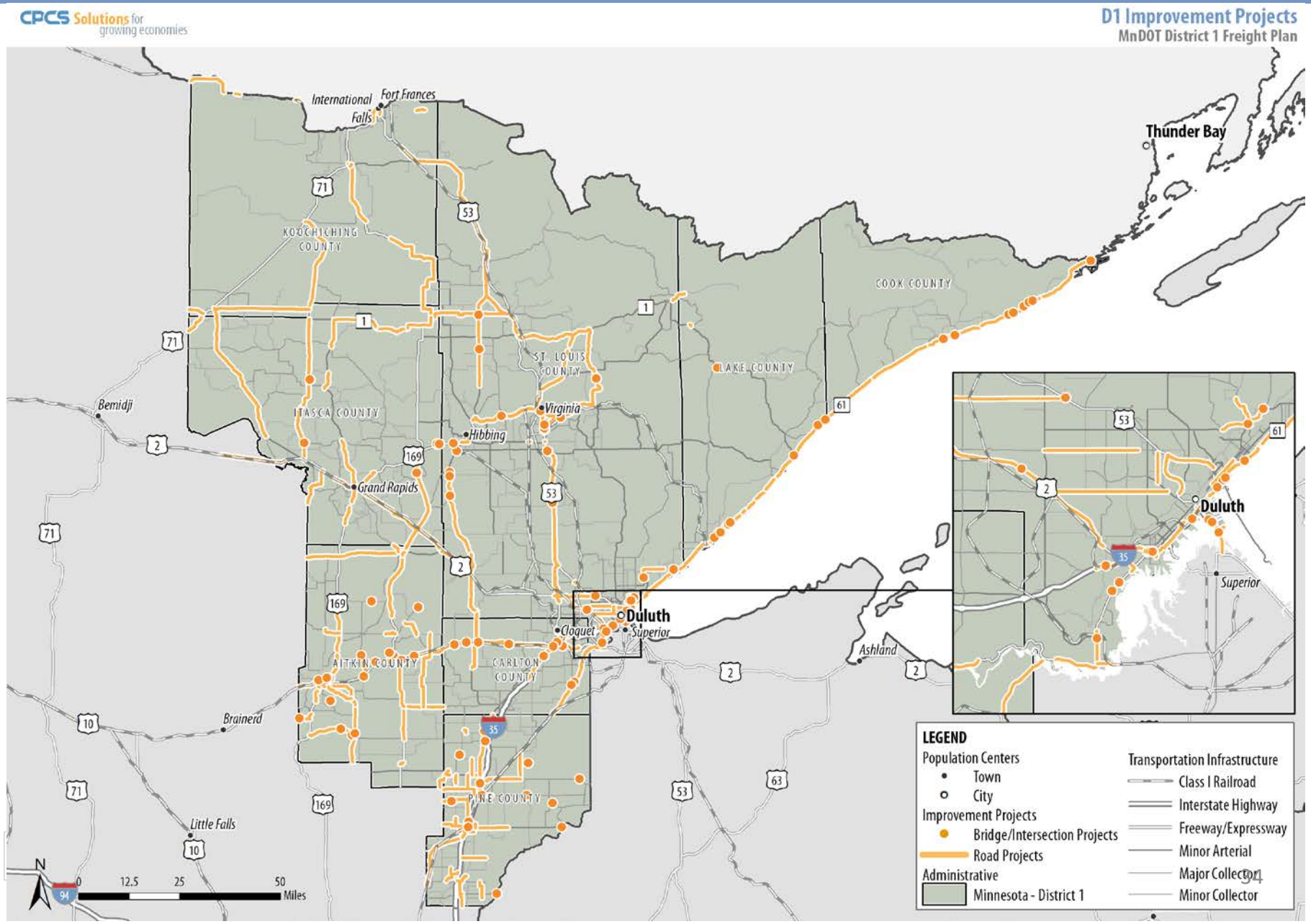
CHIP Projects



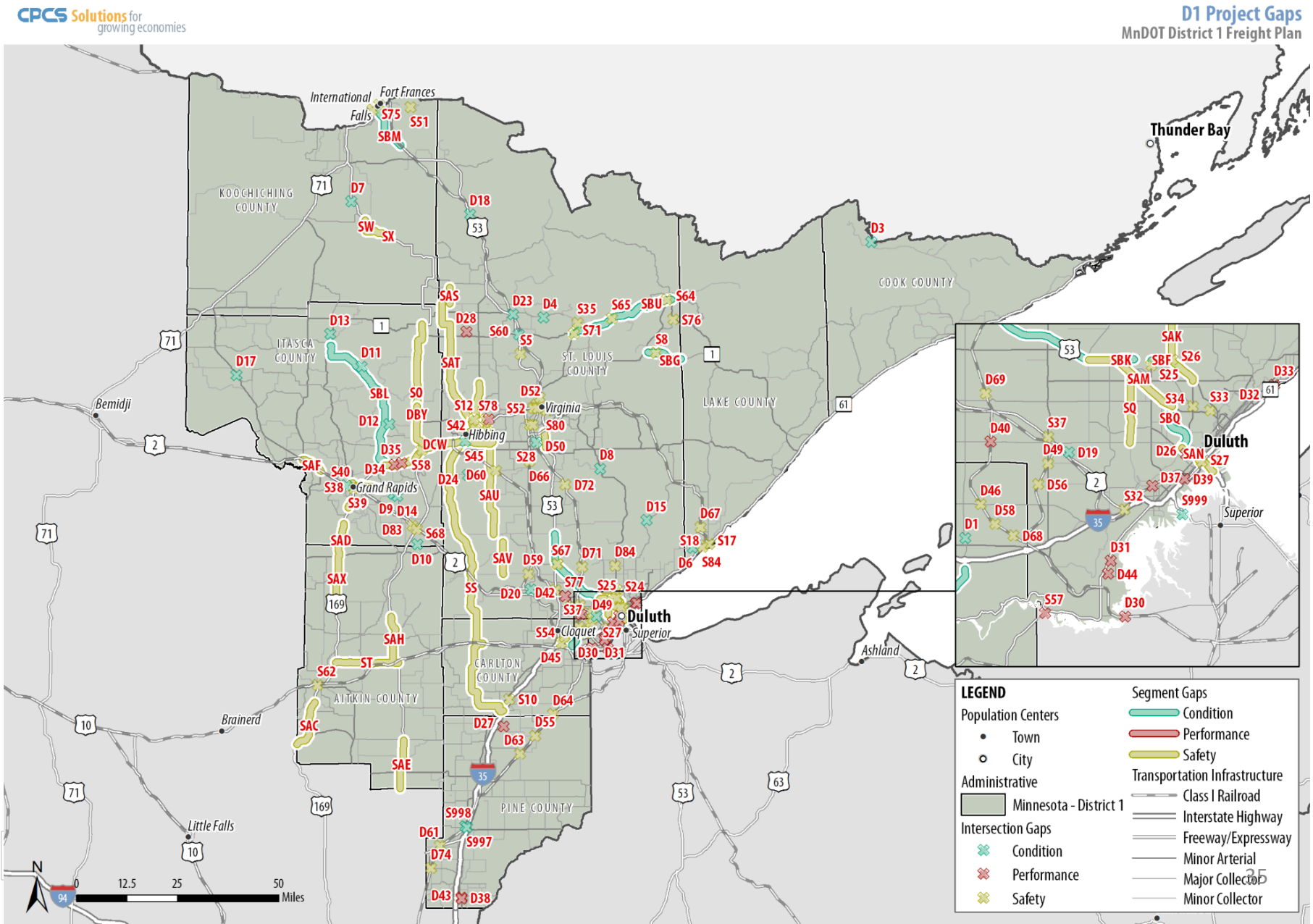
Local Projects



All Projects



Project Gaps



Project Gaps

- **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 smaller highways in St. Louis and Itasca Counties, as well as around Duluth.
- **Performance** – (~12 % of identified gaps), and all had to do with problems related lack of mobility/maneuverability at low-clearance bridges. These problems were primarily concentrated around the Duluth area.
- **Condition** – (1/5 of the identified gaps), and included 18 bridges identified as potentially deficient, as well as 15 issues identified by stakeholders or previous plans.

Few pavement condition gaps, which confirms District 1 staff who noted they are proactive in programming improvements to address pavement needs.

A new approach to freight project funding?

Investment Objective	Investment Category	Applicable D1 Freight System Need	Number of Project Types Identified in Gap Analysis
System Stewardship	Pavement Condition	Pavement Condition	11
	Bridge Condition	Bridge Condition	21
	Roadside Infrastructure	• Signage • Traffic Signals/Controls • Other Technology and information management systems	9
	Jurisdictional Transfer	N/A	N/A
	Facilities	Weigh station and commercial vehicle enforcement	1
Transportation Safety	Traveler Safety	• Sustained crash locations • Rail-highway crossings	36
Critical Connections	Twin Cities Mobility	N/A	N/A
	Greater Minnesota Mobility	• Intersections • Passing or Turning Lanes • Corridors • Roundabouts • Redundancies	68
	Freight	***N/A***	***N/A***
	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 • Truck and HazMat Routing	1
Other	Project Delivery	N/A	N/A
	Small Programs	N/A	N/A

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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

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Policy Opportunities

- Incorporate freight considerations into existing funding programs
- Identify, create, or designate OSOW corridors
- Harmonize truck weight policies with WI and ON
- Focus on maintaining road network, not expanding it

Program Opportunities

- Incident management systems
- “Refresh” the Manufacturer’s Perspectives Study

Partnership Opportunities

- Lobby for development of stable funding sources
- Assist local agencies with planning
- Market the District's location and assets
- Use feedback from stakeholders
- Continue engaging with HTAC, local groups
- Lobby to reduce dredging backlog
- Engage with WI, ON to preserve key routes

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SEH to provide slides

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Small Group Discussion – Project Filtering

Use the information presented today to engage in 3 small group discussions to respond to the question below.

Project maps and lists will be available for reference.

Questions for Each Group

- Are there any identified projects or needs or issues that are not freight-relevant? What criteria should be used to screen these out of consideration?
- Are there any projects or needs or issues that you are aware of that are missing?
- Do any of the identified gaps stand out as particularly important?
- Do any of the identified gaps stand out as less-important?
- Is there an initial consensus on projects/concepts that should advance to pre-feasibility evaluation?

Questions & Discussion

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