District 2 Freight Plan – Meeting #3

Plan Advisory Committee
June 1, 2020

DEPARTMENT OF TRANSPORTATION

mndot.gov

Introductions

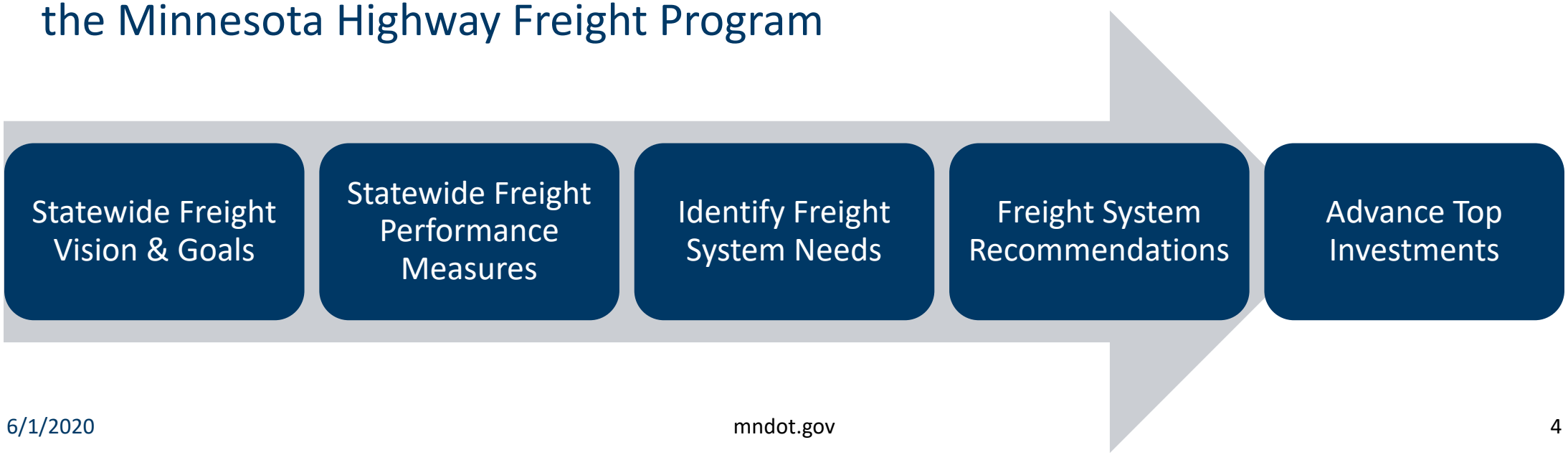
Andrew Andrusko	Project Manager/State Freight Planner – MnDOT Office of Freight and Commercial Vehicle Operations
Nancy Graham	Senior Engineer – MnDOT District 2
Jon Mason	Planning Director – MnDOT District 2
Dan Haake	Project Manager – HDR
Chris Ryan	Deputy Project Manager/Prioritization Lead – HDR

District Freight Planning

Andrew Andrusko | MnDOT Project Manager

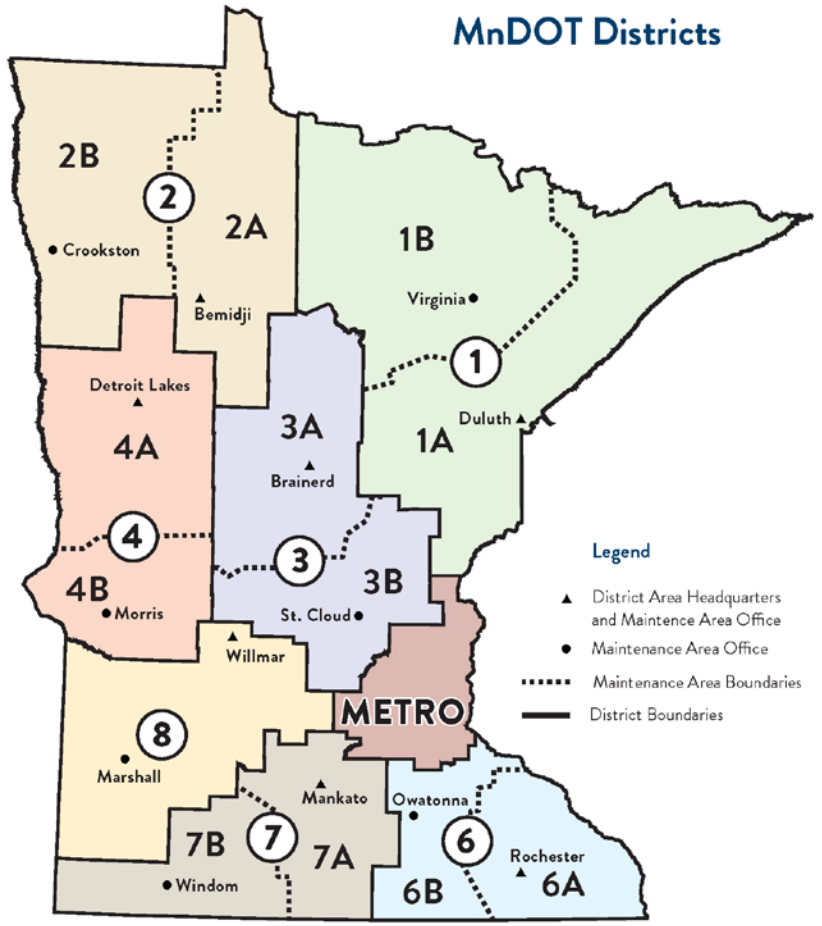
MnDOT Freight Planning

- MnDOT has been working to implement the recently adopted statewide freight plan called the Minnesota State Freight System and Investment Plan
- One of the key recommendations was to work with each area of the state to create more detailed plans that would identify improvements to connect with the Minnesota Highway Freight Program



MnDOT District Freight Plans

- Developing District Freight Plans for all Districts
  - District 1 completed
  - Districts 2, 3, 8 underway
- Pre-cursor effort to prepare for next Statewide Freight Plan
- Identify key issues/opportunities for each District
- http://www.dot.state.mn.us/ofrw/freight/districtfreightplan/



Purpose of this effort

The District 2 Freight Plan will:

I. Provide an up-to-date assessment of freight needs and issues specific to the District

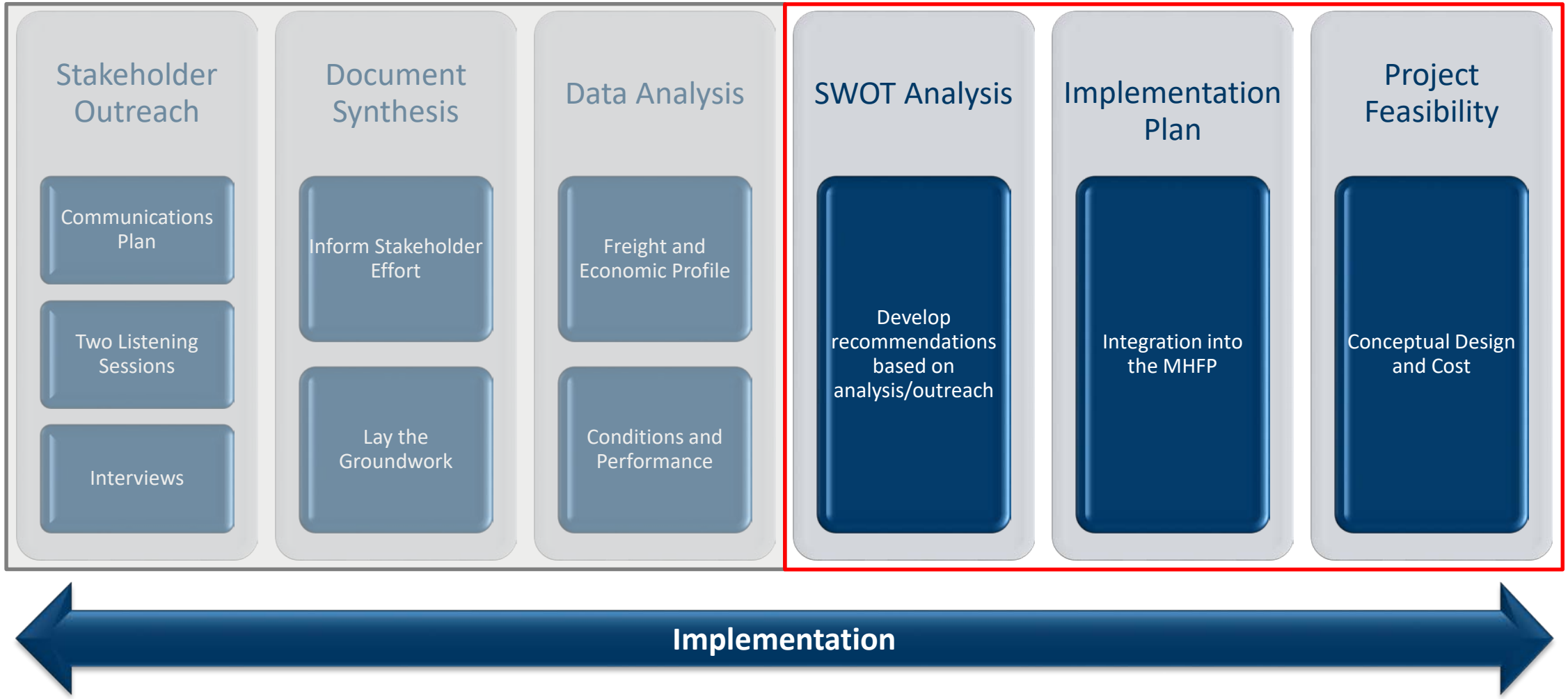
II. Produce a list of strategies to improve freight mobility in the Northern and Northwest Minnesota region

III. Roll up long-term planning and programming in the next Statewide Freight System Plan

Project Status Update

Dan Haake | HDR Project Manager

Project Status



Advisory Committee Meetings

Meeting 1

- Review Work Plan & Past Work
- Identify Trends, Needs

Meeting 2

- Freight System Profile
- Economic Profile

Meeting 3

- SWOT
- Prioritization
- Initial Project Feasibility

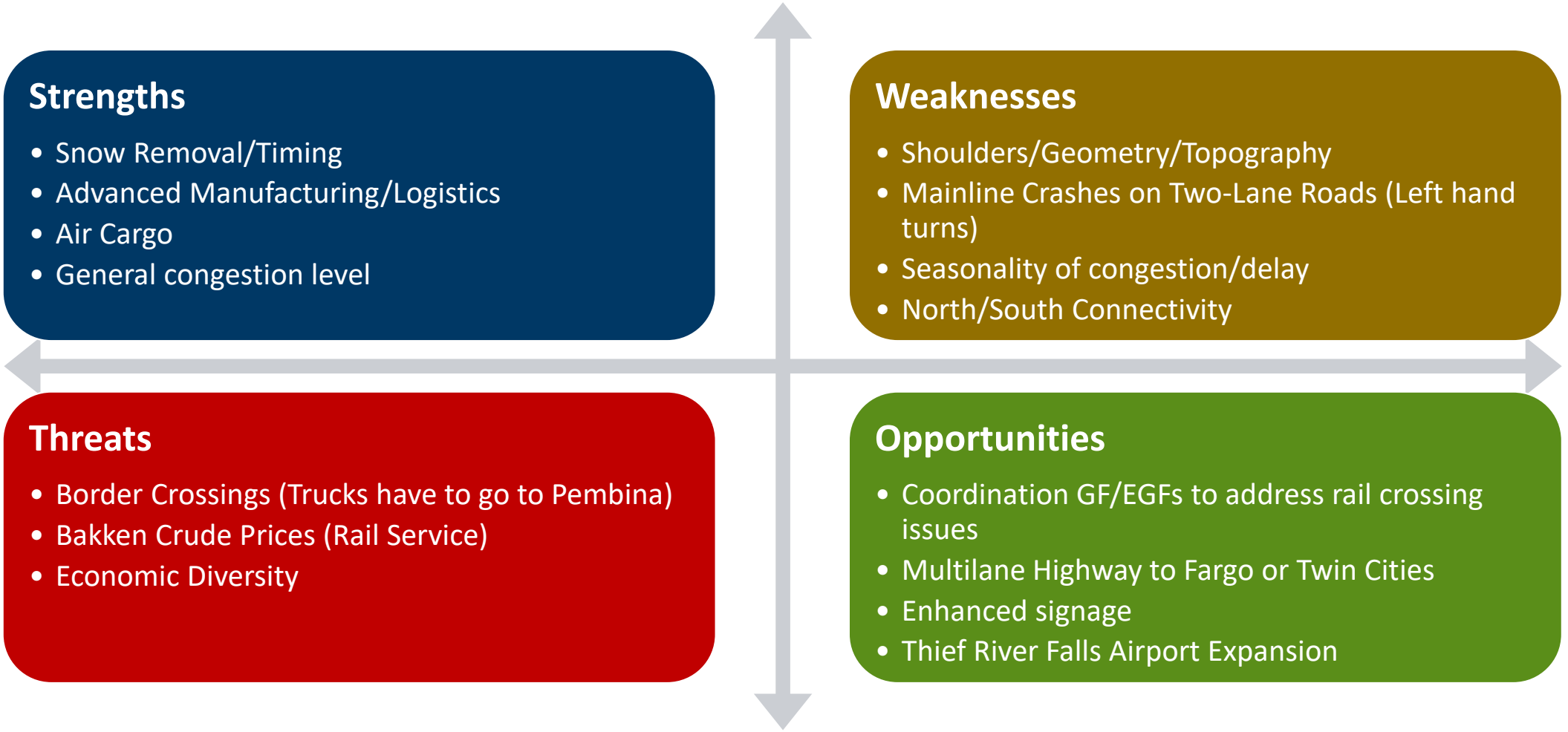
Meeting 4

- Review of Final Plan

SWOT Analysis

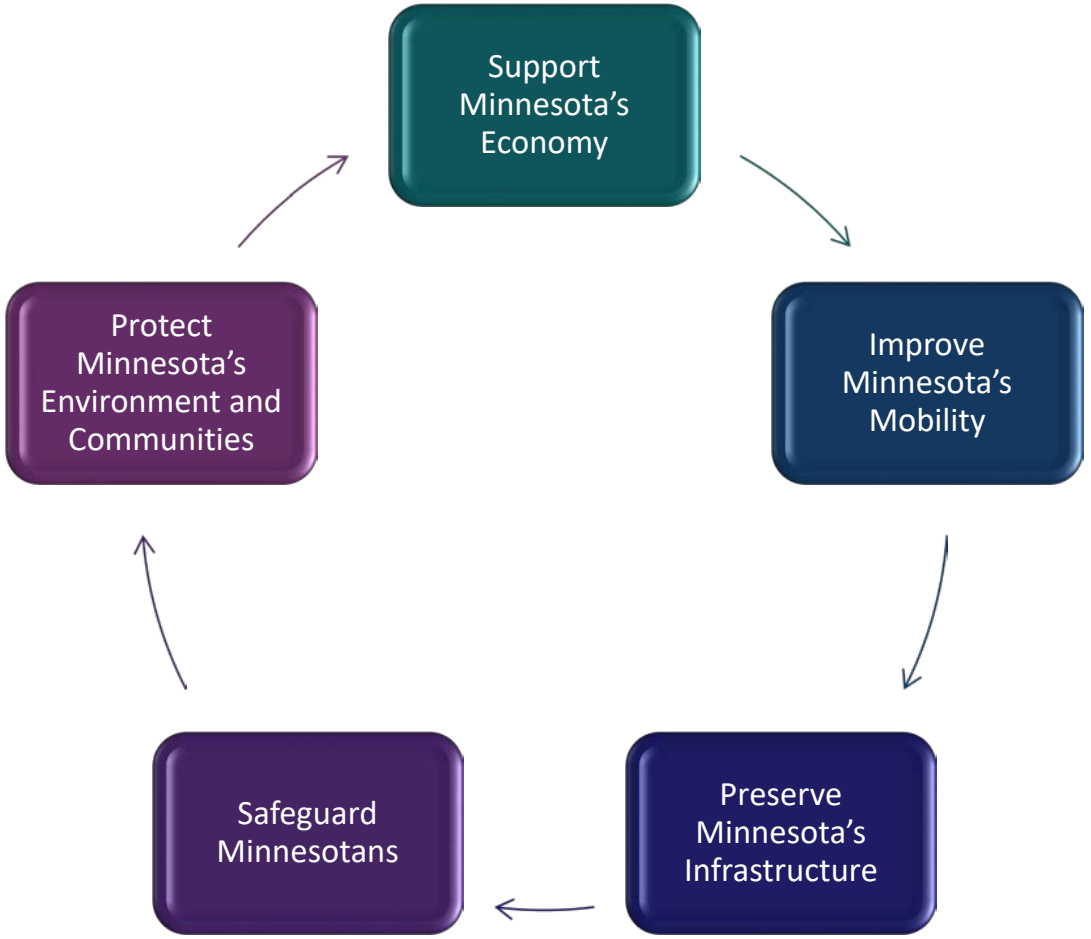
Dan Haake | HDR Project Manager

SWOT Analysis



Deeper Dive – SWOT Breakdown

2018 Statewide Freight System Plan (SFSP) identified goals to guide MnDOT's efforts to support freight mobility.



Support Minnesota's Economy

Strengths	Weaknesses
• Strong, diverse economy • Export market • Outbound air cargo	• High reliance on movement from Twin Cities • LTL carrier availability
Opportunities	**Threats**
• Improved future passenger aircraft service • Outbound cargo levels support larger aircraft which presents opportunities for new high-tech investment in the area because of inbound availability and workforce	• CBP border crossing hours of operation and equipment placement decisions • Global Trends • Consolidation by larger firms not in the region make it harder to expand locally

Improve Minnesota's Mobility

Strengths	Weaknesses
• Many multimodal connectivity points • GF/EGF Bi-State Cooperation • Air cargo service at two airports (including parcel service from UPS and FedEx)	• Lack of four-lane highways on key corridors • Limited north/south roadway connectivity • Additional Red River crossings
Opportunities	**Threats**
• Multi-state Oversized/Overweight Harmonization (including Canada) • Investment in longer runways and larger hangers at Thief River Falls and Bemidji airports.	• Limited funding opportunities for expanded facilities to support air cargo growth

Preserve Minnesota's Infrastructure

Strengths	Weaknesses
• Overall Trunk Highway pavement quality • Trunk Highway 10-ton roads	• Short line rail state of good repair • Air cargo ramp maintenance • Weight restricted county facilities
Opportunities	**Threats**
• Directional signage and dynamic messaging systems	• Limited funding opportunities for multimodal projects

Safeguard Minnesotans

Strengths	Weaknesses
• Winter weather response on the Trunk Highway system • Relatively low fatal CMV crash frequency	• Winter weather response on county facilities • Winter response at airports • Deicing availability at Bemidji airport • Left turn related crashes during harvest • Narrow roads with limited shoulders • Crash rate highest in western half of District 2 • Increased rail grade crossing incidents / incident rate
Opportunities	**Threats**
• Grade crossing closure/consolidation • Safety improvements that benefit freight (passing lanes, acceleration/deceleration lanes)	• Potential impacts of increased train volumes, particularly transportation of hazardous materials such as Bakken crude oil

Protect Minnesota's Environment and Communities

Strengths	Weaknesses
• Strong local communities • Freight-related industries support the local economy • Large segments of designated wilderness and State Forest areas	• Downtown truck movements can impact nearby residents and businesses
Opportunities	**Threats**
• Partnerships with local delivery companies to address delivery issues • Address first/last mile issues • Future "main street" redesign projects could integrate freight	• Increased e-commerce related deliveries • More trucks from manufacturing and agriculture. • Trucks crossing through communities to reach air cargo facilities • Increased movement of hazardous materials

Freight Needs – Prioritization

Chris Ryan | HDR Deputy Project Manager

Freight Needs and Issues Identification

Data-Identified Needs

- Roadway Crash Data
- Highway-Rail Crash Data
- Truck GPS Data
- Vertical Clearance
- Infrastructure Condition Data

Stakeholder-Identified Needs

- Stakeholder Interviews
- Online Survey
- Manufacturers' Perspectives Study
- Previous Plans and Studies

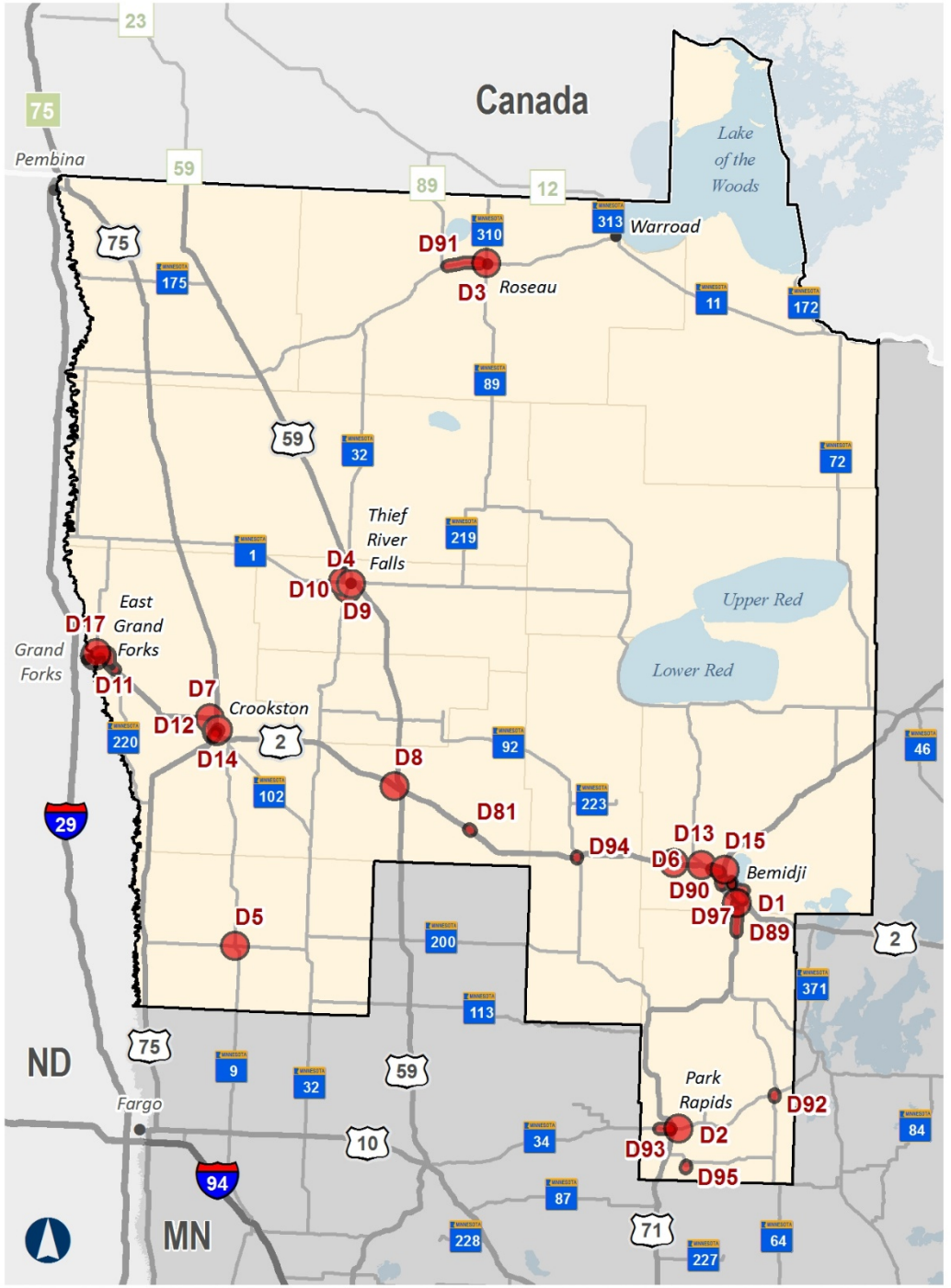
Freight Needs Categories

- Safety → Freight Plan Goal: **Safeguard Minnesotans**
- Mobility → Freight Plan Goal: **Improve Minnesota's Mobility**
- Condition → Freight Plan Goal: **Preserve Minnesota's Infrastructure**

Safety:
Truck Crashes

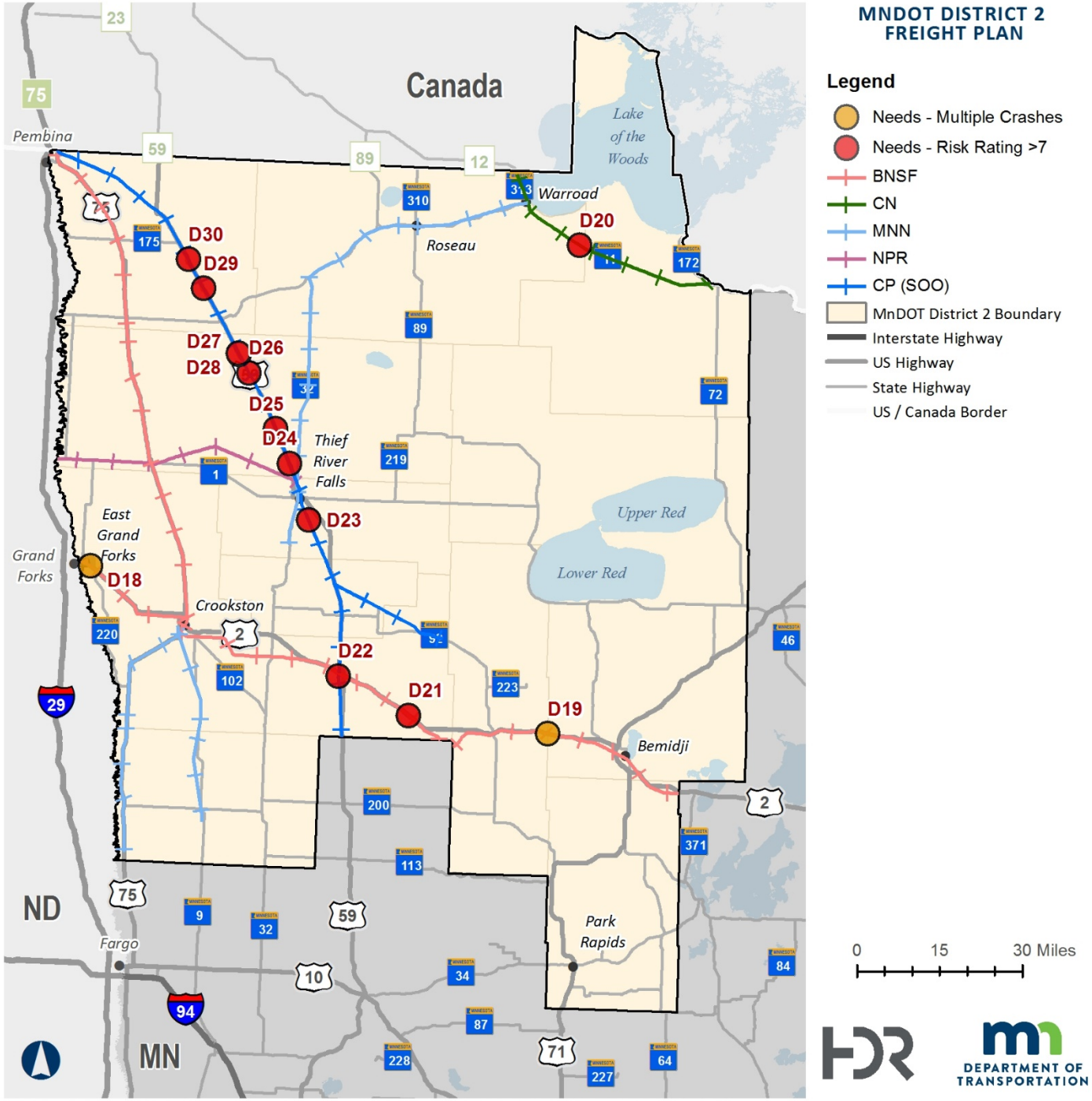
- 10-years crash data (2009-2018)
- 420 intersection crashes
  - ≥ 3 crashes
  - **18 intersections**
- 452 segment crashes
  - ≥ 2 crashes, ≥ 1 crash/mi.
  - **19 segments**

6/1/2020



Safety:
Grade Crossings

- Rail Grade Crossing Safety Project Selection Study
  - Rating of 8 or 9
  - **10 crossings**
- Grade 5-year crash history
  - ≥ 2 crashes
  - **2 crossings**



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Mobility

- Truck Travel Time Reliability
  - TTRI > 8
  - Trip Samples > 100
  - Segment Length > 1 mile
- Bridge Vertical Clearance
  - < 14’ 6”
  - **2 bridges**
- Bridge Weight Limit
  - Weight Limit ≤ 15 tons
  - **11 bridges**

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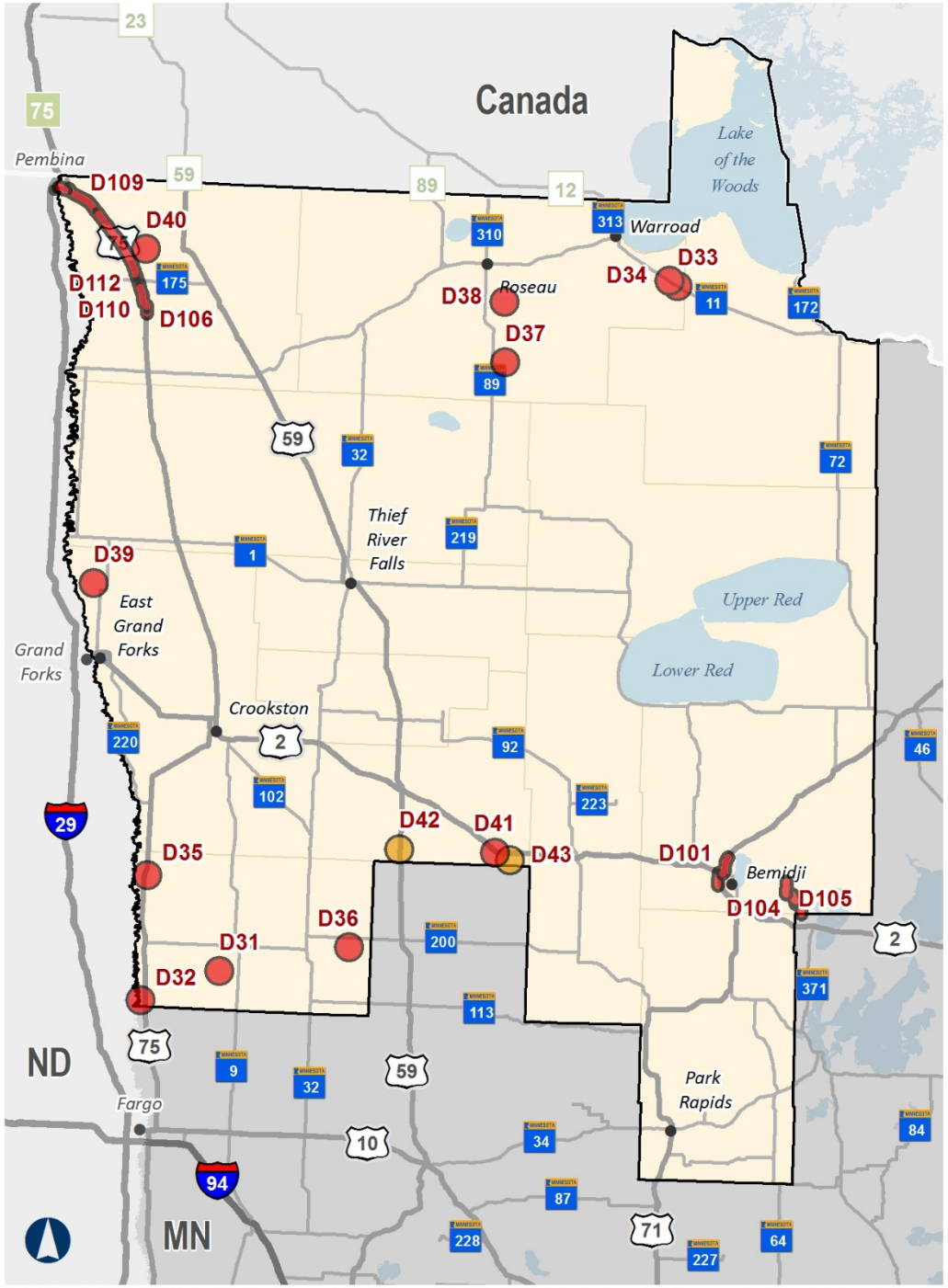
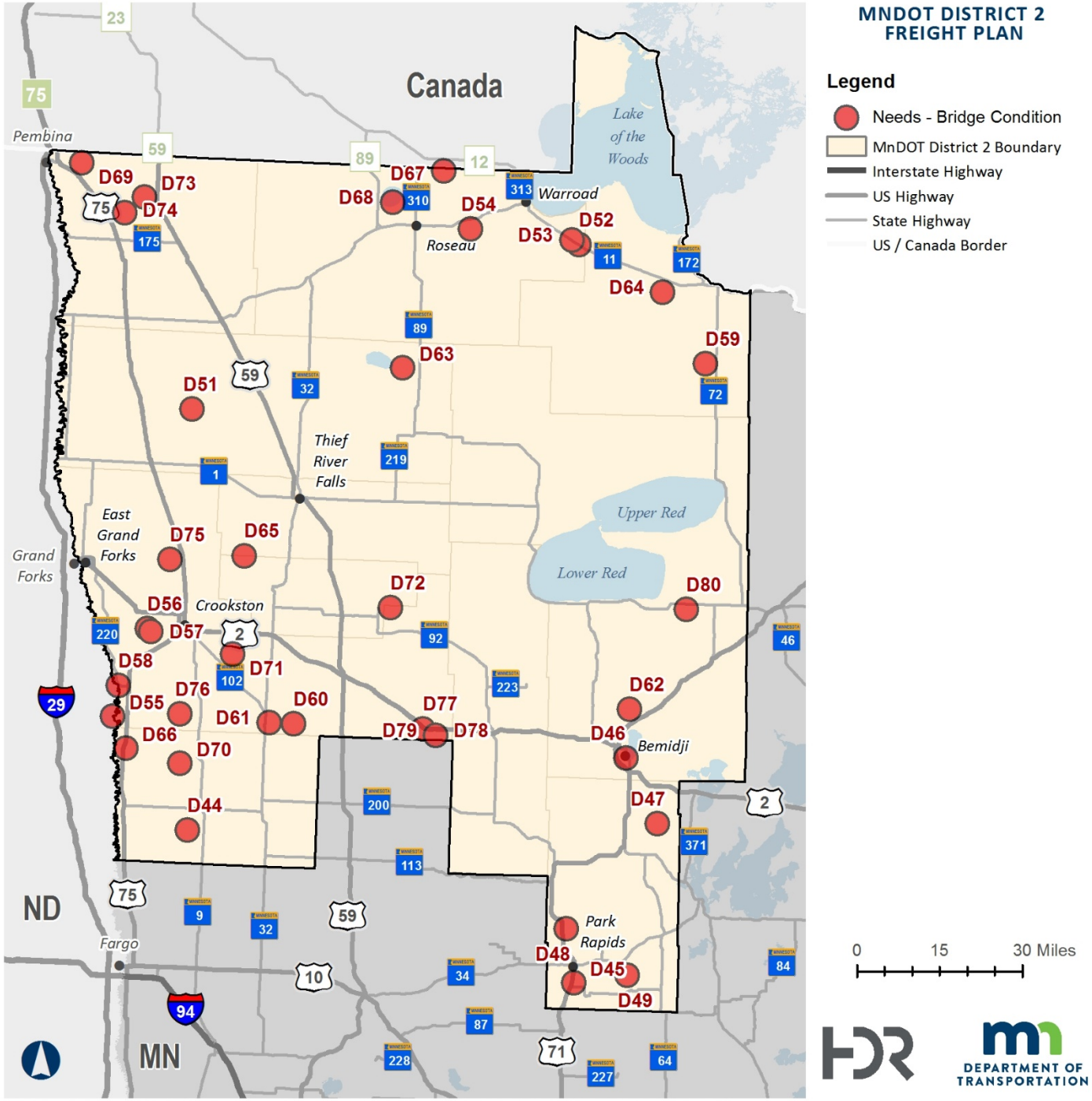


Condition

- Bridge Condition
  - Deck, Superstructure, or Substructure rated ≤ 4 out of 10
- Pavement Quality
  - No MnDOT roads rated as “poor”
  - Some stakeholder feedback on portions of poor quality local and County roads



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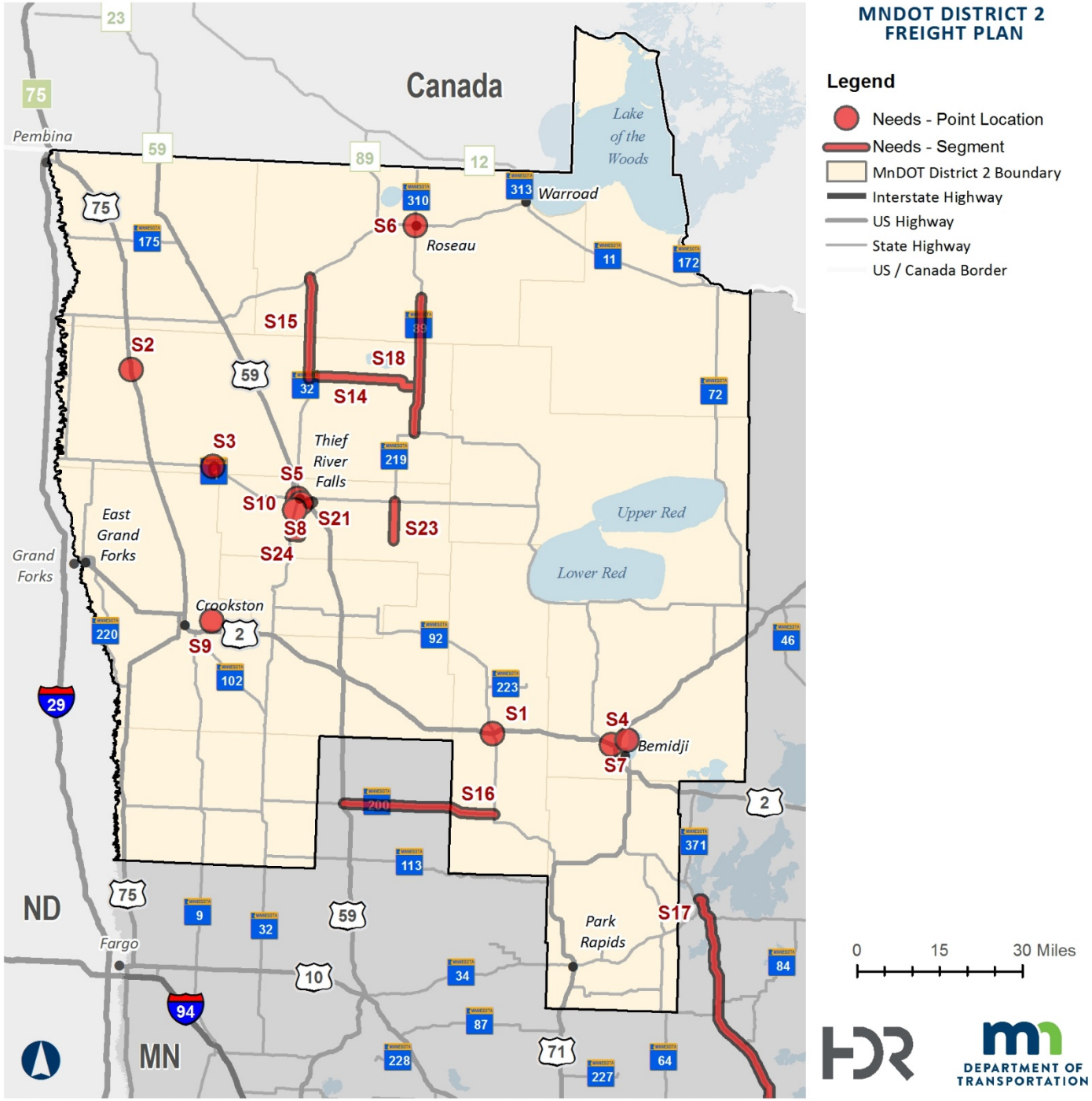
Stakeholder

- Manufacturers' Perspectives Study
- Safety: 7 issues
  - Bypass lanes, specific intersection issues, narrow roadways/shoulders
- Condition: 5 issues
  - Rough pavement, bumps/dips
- Mobility: 9 issues
  - Passing lanes, 2- to 4-lane



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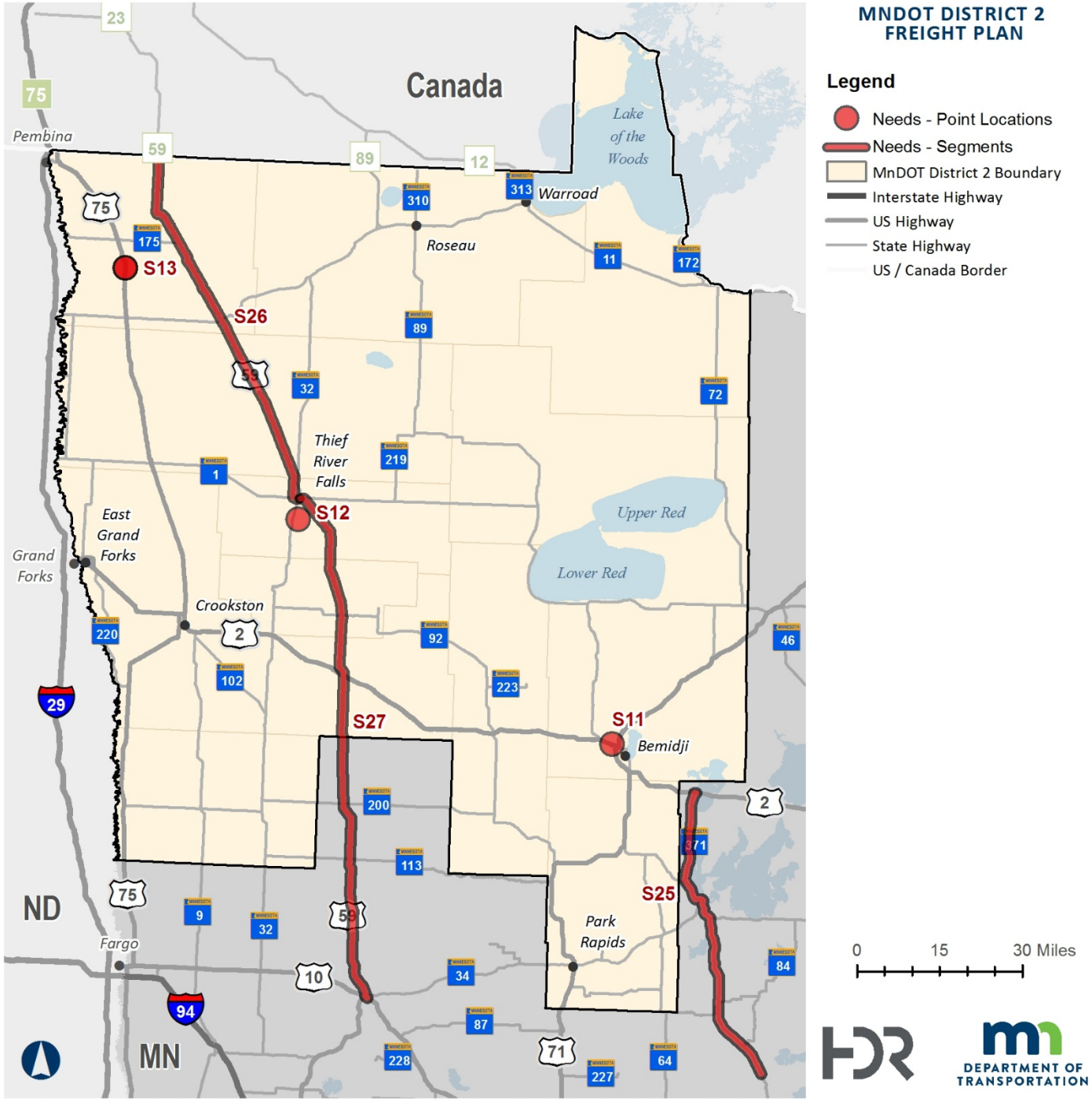
Stakeholder

- Interviews and Online Survey
- Common responses
  - Expansion of TH 59 from 2-lane to 4-lane
  - Runway extension at Thief River Falls Airport
  - Upgraded maintenance facility at Bemidji Airport



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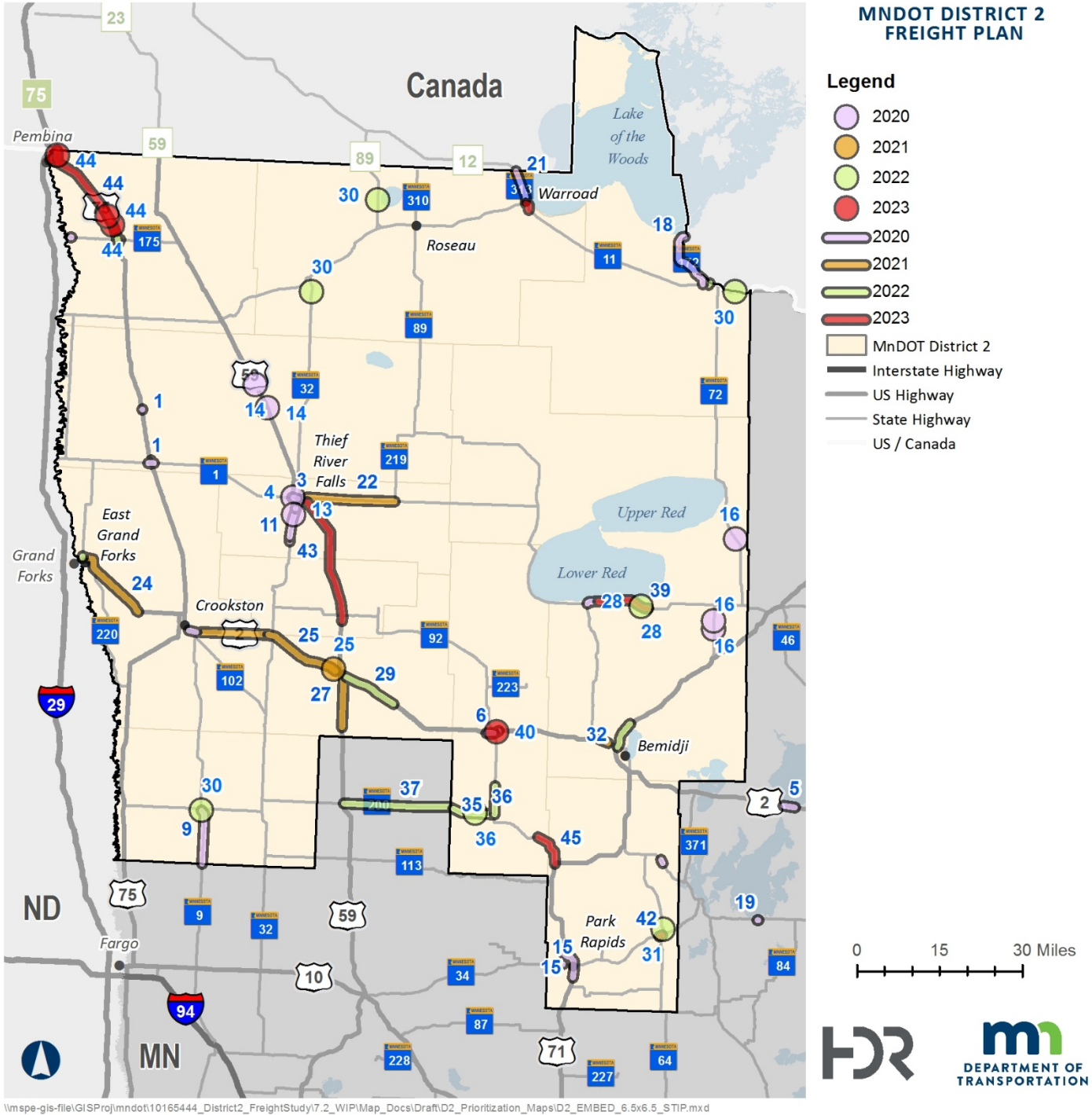
Programmed Projects

- State Transportation Improvement Program (STIP)
- Years 2020 – 2023
- $6.7 Billion in federal, state, and local funds statewide



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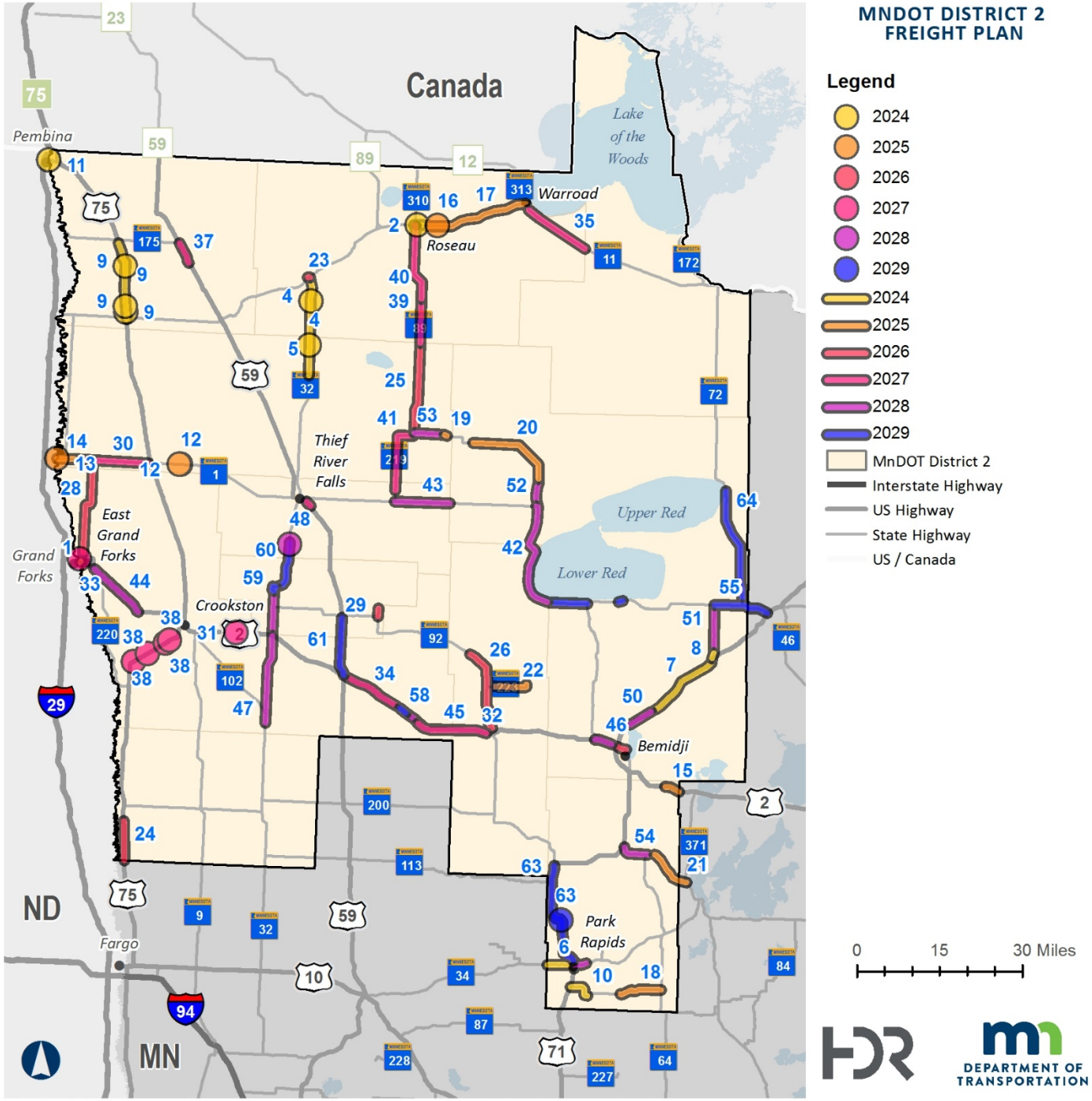
Programmed Projects

- Capital Highway Investment Plan (CHIP)
- Years 2024 - 2029
- $10.6 Billion in infrastructure investment statewide



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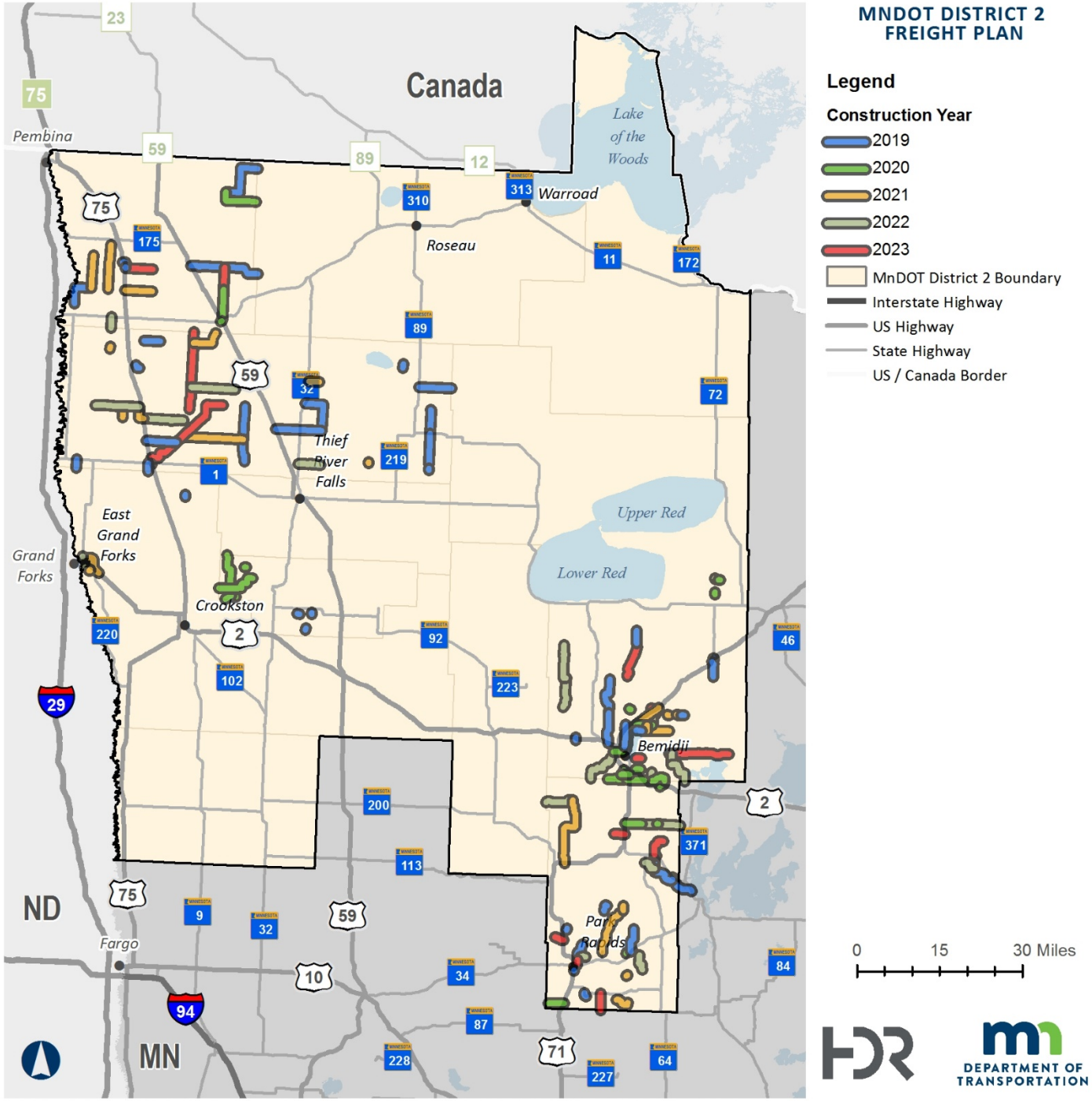
Programmed Projects

- County Capital Improvement Plans (CIP)
- Available for Kittson, Marshall, Beltrami, Polk, Red Lake, and Hubbard Counties



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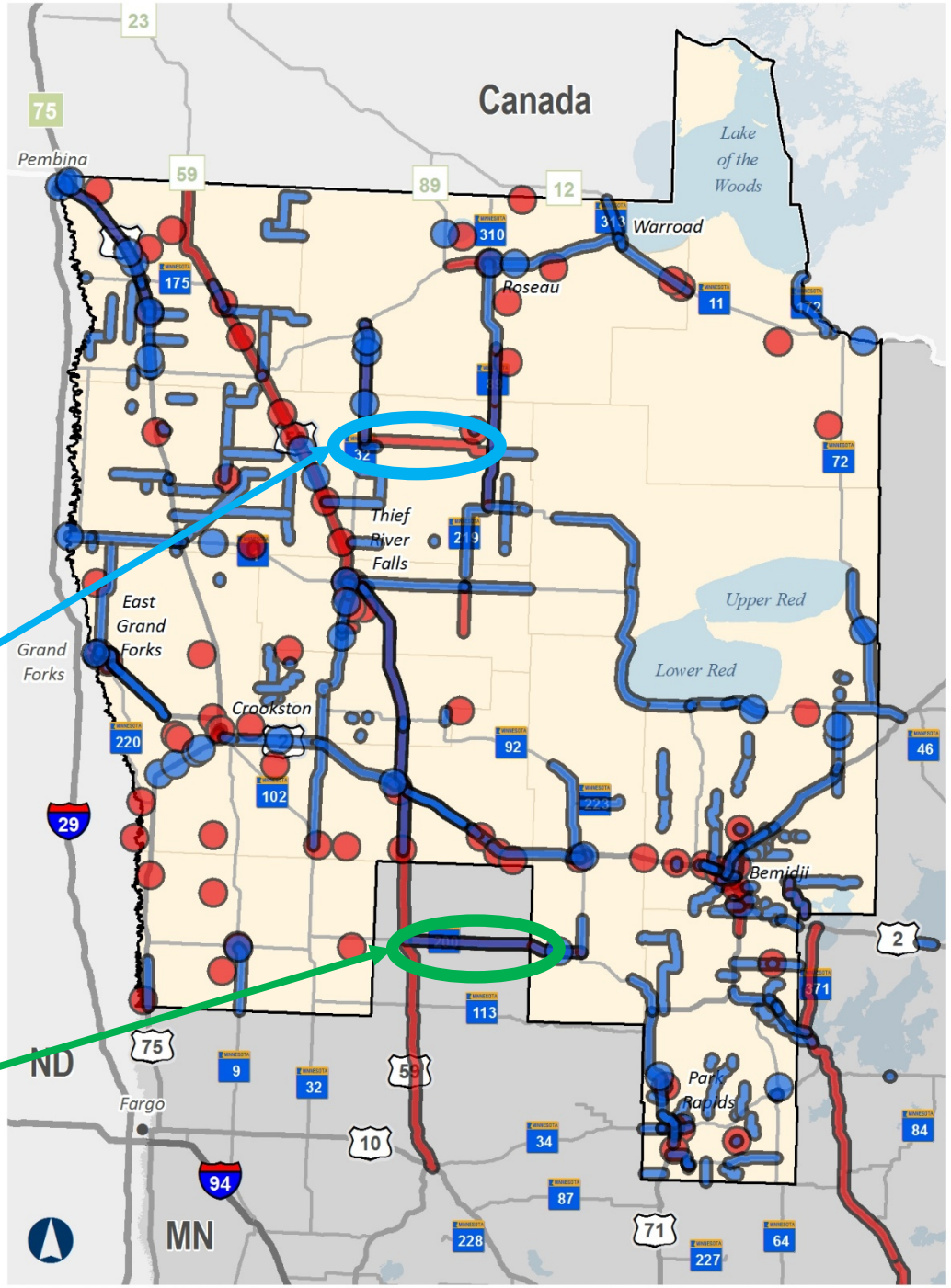
Gap Identification

- Gaps identified by comparing freight needs with programmed projects

Freight need not addressed

Freight need addressed



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Project Scoring and Prioritization

Project scoring process

1. Assign score based on criteria in each area of need (Safety, Mobility, Condition)
2. Calculate total raw score for “pure ranking”
3. Work with PAC to develop preferred scoring weights

Project Scoring and Prioritization

Truck Volume Score

Average Truck Volumes	Score
< 50	0
50 - 250	1
250 - 500	2
500 - 750	3
750 - 1,000	4
> 1,000	5

Truck Percentage Score

Average Truck Percentages	Score
< 2.5%	0
2.5 - 5.0%	1
5.0 - 7.5%	2
7.5 - 12.5%	3
12.5 - 25%	4
> 25%	5

Project Scoring and Prioritization

Truck Crash Score

Intersections	Segments	Score
No crashes	No crashes	0
1-2 crashes	0-1 crash per mile	1
> 2 crashes	> 1 crash and >1 crash/mile	5

Grade Crossing Score

Risk Rating	Score
0	0
1 - 2	1
3 - 4	2
5 - 6	3
7 - 8	4
9	5

Project Scoring and Prioritization

TTRI Score

TTRI	Score
1.0 - 1.5	0
1.5 - 2.0	1
2.0 - 4.0	2
4.0 - 6.0	3
6.0 - 8.0	4
> 8.0	5

Bridge Vertical Clearance Score

Minimum Vertical Clearance	Score
> 16.5 feet	0
14.5 - 16.5 feet	1
13.5 - 14.5 feet	3
< 13.5 feet	5

Project Scoring and Prioritization

Bridge Posted Weight Limit Score

Bridge Posted Weight Limit	Score
No posted limit	0
30-40	2
20-30	3
10-20	4
< 10	5

Bridge Condition Score

Bridge Condition	Score
No scores < 5	0
1 score < 5	1
2 scores < 5	3
3 scores < 5	5

Project Scoring and Prioritization

Truck Volume Score

- Max score of 10 for truck volume and truck percentage

Safety Score

- Max score of 10 for truck crashes and grade crossings

Mobility Score

- Max score of 15 for TTRI, vertical clearance, and bridge weight limit

Condition Score

- Max score of 5 for bridge condition

Final Score Calculation

- **Total Possible Score** = Maximum possible score based on relevant criteria
- **Total Score** = Actual score based on scoring ranges
- **Percent Score** = Total Score / Total Possible Score
- **Pure Ranking** = Sort Percent Score from high to low
  - Tie-breakers determined by truck percentage (higher percentage gets higher ranking)
- **Adjusted Ranking** = Incorporates additional scoring criteria to give 10 points to stakeholder-identified issues using same ranking process

Final Ranking and Selection

Rank	IssueID	Source	Roadway	Category	Details
1	D12	MnDOT 10-Year Crash Data	Robert St	Safety	Intersection with high crash density
2	D14	MnDOT 10-Year Crash Data	W 6th St	Safety	Intersection with high crash density
3	D17	MnDOT 10-Year Crash Data	Central Ave	Safety	Intersection with high crash density
4	D3	MnDOT 10-Year Crash Data	3rd St NW	Safety	Intersection with high crash density
5	S1	Previous Plans/Studies	Main Ave	Mobility	Trucks have difficulty with signal, turn onto city streets to avoid movmeent (NB to EB and WB to SB movements)
6	D68	MnDOT Bridge Inventory Data	350th Ave	Condition	One or more bridge ratings < 5
7	S11	Stakeholder Interviews	Bemidji Airport	Condition	Request for new airport maintenance facility.
8	S12	Stakeholder Interviews	TRF Airport	Mobility	Request for runway extention to allow for larger aiplanes.
9	S8	Previous Plans/Studies	Pennington Ave S	Safety	Small radius of roundabout causes some issues for truck movements, particularly in icy winter conditions.
10	S6	Previous Plans/Studies	Center St W	Safety	Signalized intersection requested to improve safety.
11	D5	MnDOT 10-Year Crash Data	E Main St	Safety	Intersection with high crash density
12	D6	MnDOT 10-Year Crash Data	USTH 2	Safety	Intersection with high crash density
13	S4	Previous Plans/Studies	USTH 2	Safety	Unsafe signal, reports of WB trucks not seeing signal in time to stop and running light.
14	D11	MnDOT 10-Year Crash Data	Demers Ave	Safety	Intersection with high crash density
15	S14	Previous Plans/Studies	MNTH 89	Mobility	Request for 10-ton road to allow deliveries in the spring
16	D33	MnDOT Bridge Inventory Data	T-26	Mobility	Posted weight limit <= 15 tons
17	D40	MnDOT Bridge Inventory Data	310th St	Mobility	Posted weight limit <= 15 tons
18	D52	MnDOT Bridge Inventory Data	T-26	Condition	One or more bridge ratings < 5
19	D74	MnDOT Bridge Inventory Data	310th St	Condition	One or more bridge ratings < 5
20	S3	Previous Plans/Studies	220th St NW	Mobility	Turn lane requested onto 220th St from TH 1 WB.
21	S2	Previous Plans/Studies	USTH 75	Mobility	Bypass lane requested due to heavy truck traffic.
22	S13	Stakeholder Interviews	210th St	Safety	Request for designated turn lane.
23	S5	Previous Plans/Studies	3rd St W	Safety	Bypass lane requested on US 1. Many vehicle pass on shoulder to pass left-turning vehicles.
24	D7	MnDOT 10-Year Crash Data	USTH 2	Safety	Intersection with high crash density
25	D9	MnDOT 10-Year Crash Data	MNTH 1	Safety	Intersection with high crash density
26	D10	MnDOT 10-Year Crash Data	Main Ave	Safety	Intersection with high crash density
27	S7	Previous Plans/Studies	Bemidji Ave N	Safety	Request for bypass lane at business entrance.
28	S9	Previous Plans/Studies	260th St SW	Mobility	Bypass lane requested.
29	D16	MnDOT 10-Year Crash Data	Demers Ave	Safety	Intersection with high crash density
30	D100	StreetLight Data Analysis		Mobility	Segment with TTRI > 8
31	D97	MnDOT 10-Year Crash Data	Washington Ave SW	Safety	Segment with high crash density
32	D80	MnDOT Bridge Inventory Data		0Condition	One or more bridge ratings < 5
33	D90	MnDOT 10-Year Crash Data	USTH 2	Safety	Segment with high crash density
34	D4	MnDOT 10-Year Crash Data	MNTH 32	Safety	Intersection with high crash density
35	D15	MnDOT 10-Year Crash Data	Anne St NW	Safety	Intersection with high crash density
36	D85	MnDOT 10-Year Crash Data	N Broadway	Safety	Segment with high crash density
37	D96	MnDOT 10-Year Crash Data		Safety	Segment with high crash density
38	D98	MnDOT 10-Year Crash Data		Safety	Segment with high crash density
39	D99	MnDOT 10-Year Crash Data		Safety	Segment with high crash density
40	S20	Previous Plans/Studies		Condition	Request for gravel road to be paved to improve truck/business access.
41	S21	Previous Plans/Studies		Mobility	Request for Greenwood Street to cross river and connect with US 1 to north.

Development of Project Concepts

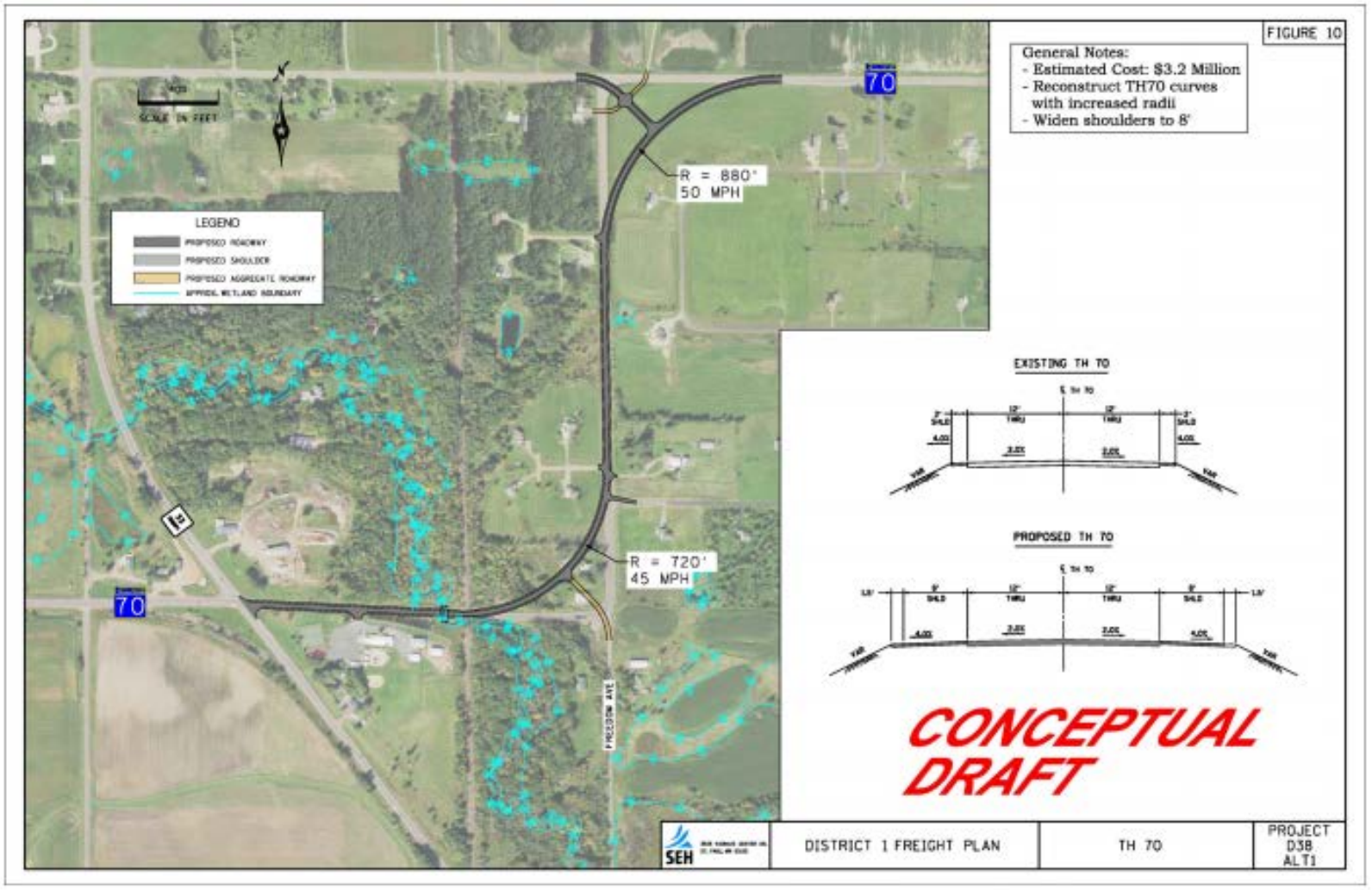
Chris Ryan | HDR Deputy PM

Locations for Concept Development

- Use scoring spreadsheet/Google Earth to walk through highest rated issues.

3rd St NW	**Intersection with high crash density**	**Look at larger corridor - TH 11/TH 89 intersection was reconstructed in 2015. Freight challenges along TH 89 corridor in Roseau, including local desire for corridor improvements. Include signal at Center St W.**
Central Ave	Intersection with high crash density	Forks MPO completed a MN 200 Corridor Study in June 2019. HDR will validate that their improvement options work for trucks - when appropriate, suggest adjustments
Main Ave	Trucks have difficulty with signal/turn onto city street	Intersection was reconstructed in 2018 - significant ROW issues present. HDR will develop concept for a local truck route w/considerations for being a 10 ton route
E Main St	Intersection with high crash density	Two way stop intersection - This may require further examination of crashes. HDR will take a look and if feasible suggest an improvement, if not we will add this as a need requiring further study in the report
Demers Ave	Intersection with high crash density	Trucks have turning radius issues. Signal system will be replaced in FY2024.
220th St NW	Turn Lane from 220th ST from TH 1 WB	Stakeholder request - Is the turn lane warranted (HCAADT)? What would turn lane look like? Segment not included in 10 year plan, but could be included in future MnDOT/County scoping efforts
USTH 75	Bypass lane requested due to high truck traffic	Stakeholder request - Multiple access points in this 1/4 mile section. Is there additional info from a previous plan or study? What would this look like?
USTH 2	Intersection with high crash density	Look at larger area between BYP JCT to the east at the North TH 75 junction for freight challenges. Snow fences have been recommended in this area before
Anne St NW	Intersection with high crash density	Design is underway through this intersection. Alternatives include a roundabout at this intersection. Project programmed in FY 22. HDR will suggest ways to make a roundabout truck friendly (using existing sources) and look at specific issues at the present intersection (pre-conceptual design)
MN 87 to RP 47	Curves/Shoulders	Need to address sharp curves east of Hubbard (look at corridor including shoulder widening)
MN 11 to RP 75	Curves	Address sharp curves near Roseau Airport
US 71 to RP 264	Access	Improve access to CSAH 28 Truck Route approx. 3.2 miles north of Park Rapids
US 59 to RP 356	Shoulder Width	Widen shoulders south of Thief River Falls
MN 371 to RP 91	Truck Route	In Walker, truck route establishment between MN 371 and MN 34

Example – District 1



Next Steps

- Create Final Report
- Final PAC Meeting
  - Focus on the final report
  - Edits/Comments

Questions?

Andrew Andrusko, AICP
State Freight Planner
Office of Freight and Commercial Vehicle Operations
Minnesota Department of Transportation

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Tel: 651-366-3644

Stakeholder Outreach - Results

Dan Haake| HDR Project Manager

Public Advisory Committee

The PAC has previously met two times to share information, review intermediate planning documents and provide feedback on plan development.

Monday, July 8, 2019

- Thief River Falls City Hall
- 15 attendees
- **Discussion** | Plan overview, stakeholder engagement, transportation operations discussion

October 14, 2019

- MnDOT District 2 Headquarters in Bemidji
- 20 attendees
- **Discussion** | Outreach summary, freight systems profiles, mapping exercise

Stakeholder Interviews

Questions Included:

- Type of industry
- How their business uses and relies on the freight system
- Economic factors (types of goods, vehicle types, typical routes)
- Identification of freight system issues that most impact their business (policy-related, pavement conditions, route restrictions)

We conducted **nine** stakeholder interviews to identify current freight needs and issues in District 2.

Stakeholders Included:

Paradis Inc.
Thief River Falls Airport
CHS Northland Grain
Bemidji Aviation
Grand Forks – East Grand Forks Metropolitan Planning Organization
Digi-Key
Textron
FedEx
Central Boiler

Online Engagement

32 responses were collected
from our stakeholders and the community

2 carriers
1 government
2 receivers
7 shippers
8 selected more than one option

An online survey was distributed including similar questions as the stakeholder interview.

Distributed on MnDOT's social media channels

Ran for **2 weeks** **327** link clicks
14,568 saw the ad at least once

Encouraged project partners to share on their channels

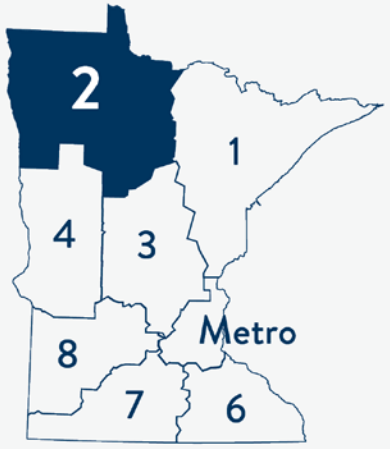
Freight Profile: Update

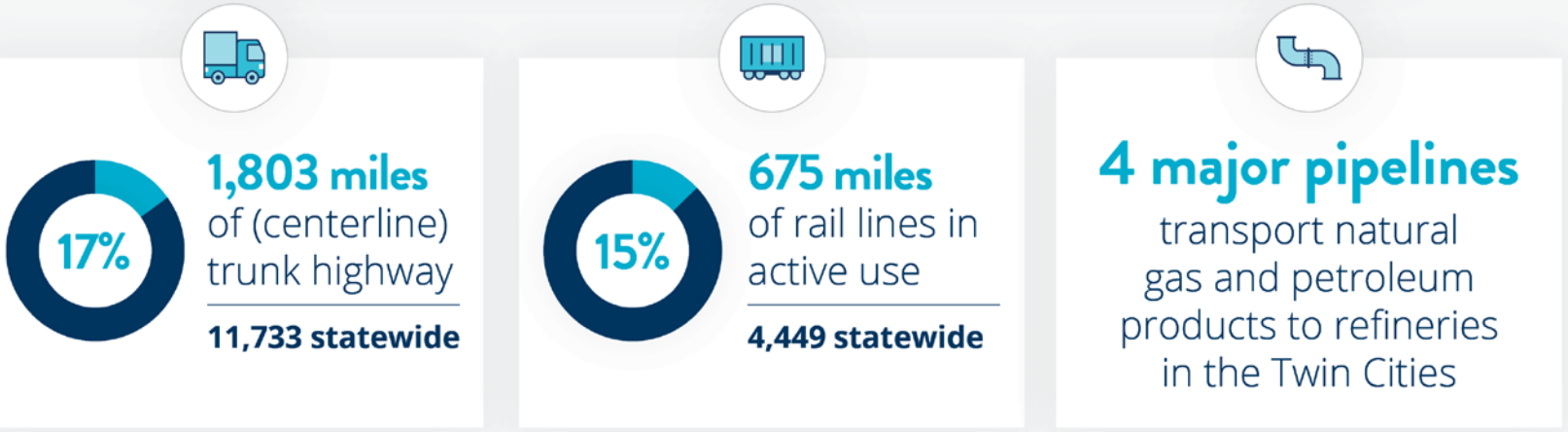
Chris Ryan | HDR Deputy Project Manager

District 2 Freight Transportation

MINNESOTA DEPARTMENT OF TRANSPORTATION – DISTRICT 2

Freight Transportation Snapshot





District 2 Highway Freight System

Highway Snapshot

1,800
centerline miles

3,900
lane miles

6
intermodal terminals

KEY FREIGHT CORRIDORS

- 75 US 75
- 2 US 2
- 59 US 59
- 71 US 71
- MINNESOTA 11 MN 11

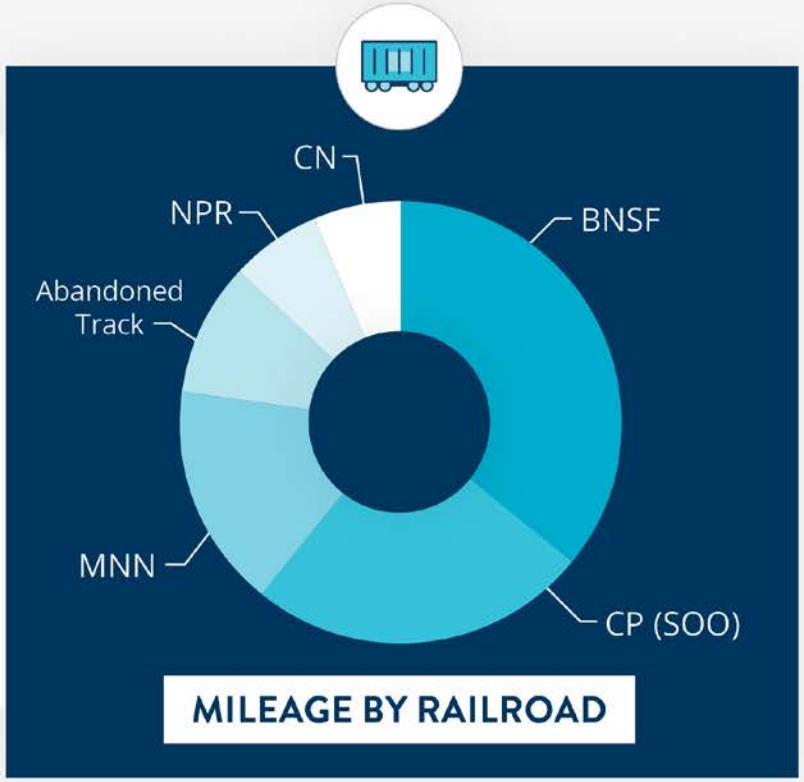
District 2 Rail Freight System

Railroad Snapshot

675 miles
of rail in District 2

455 miles
designated as Class 1

718
at-grade rail crossings



District 2 Aviation Freight System

Aviation Snapshot

2 million+
pounds of freight exported annually

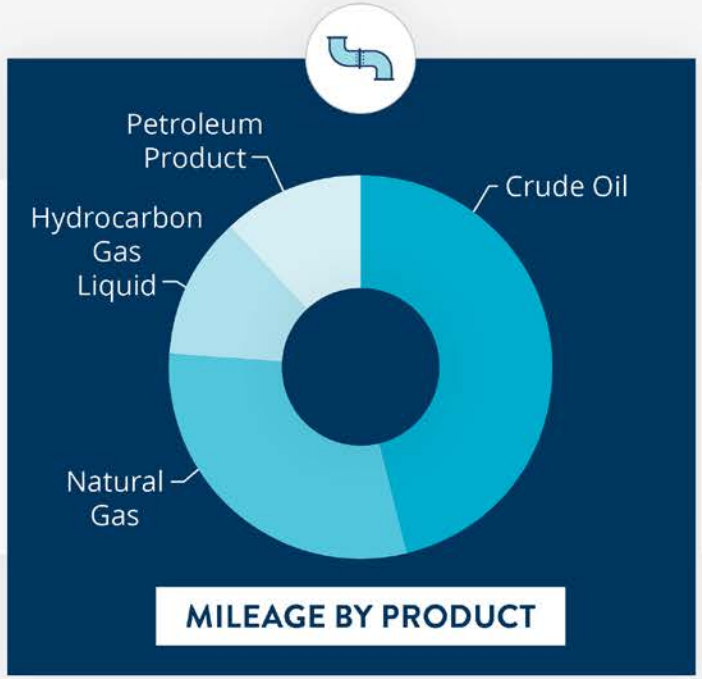
The **PRIMARY DESTINATION** for outgoing freight is Memphis, TN

1.5 million lbs/year

District 2 Pipeline Freight System

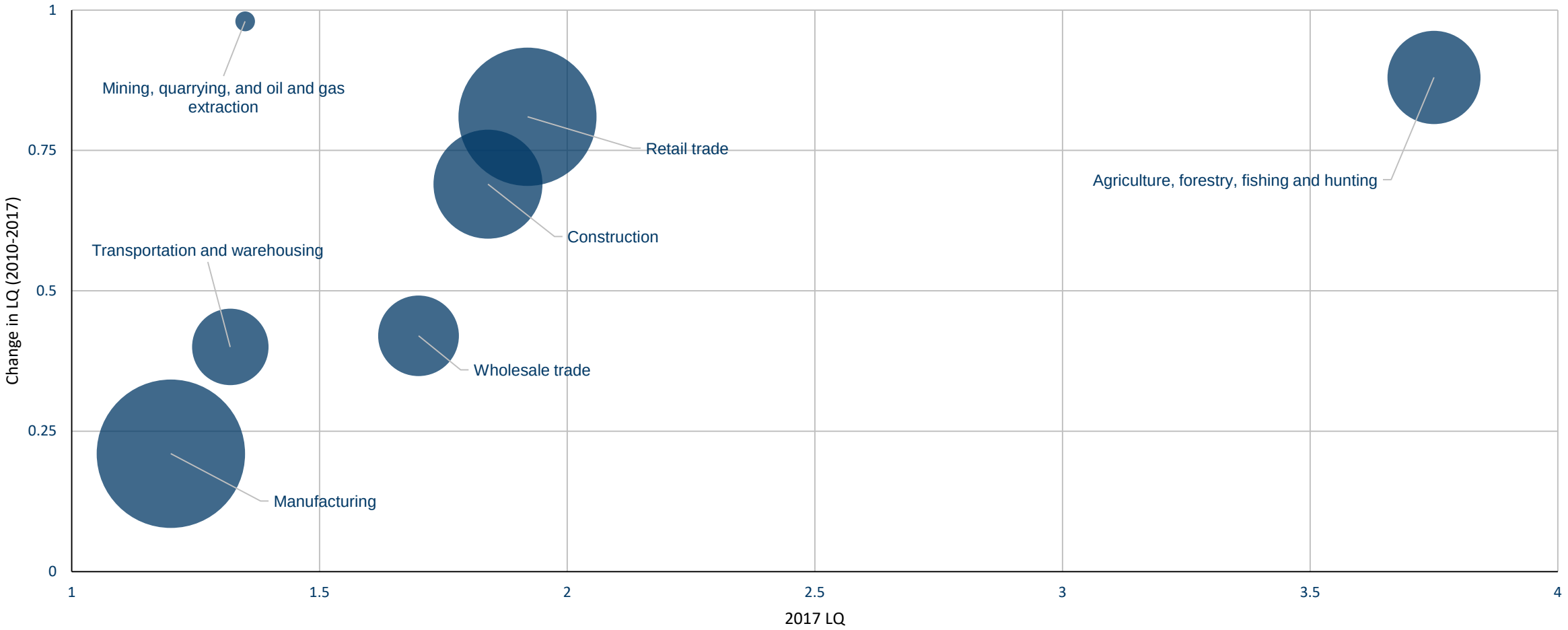
Pipelines Snapshot

1,259 miles of pipeline in District 2

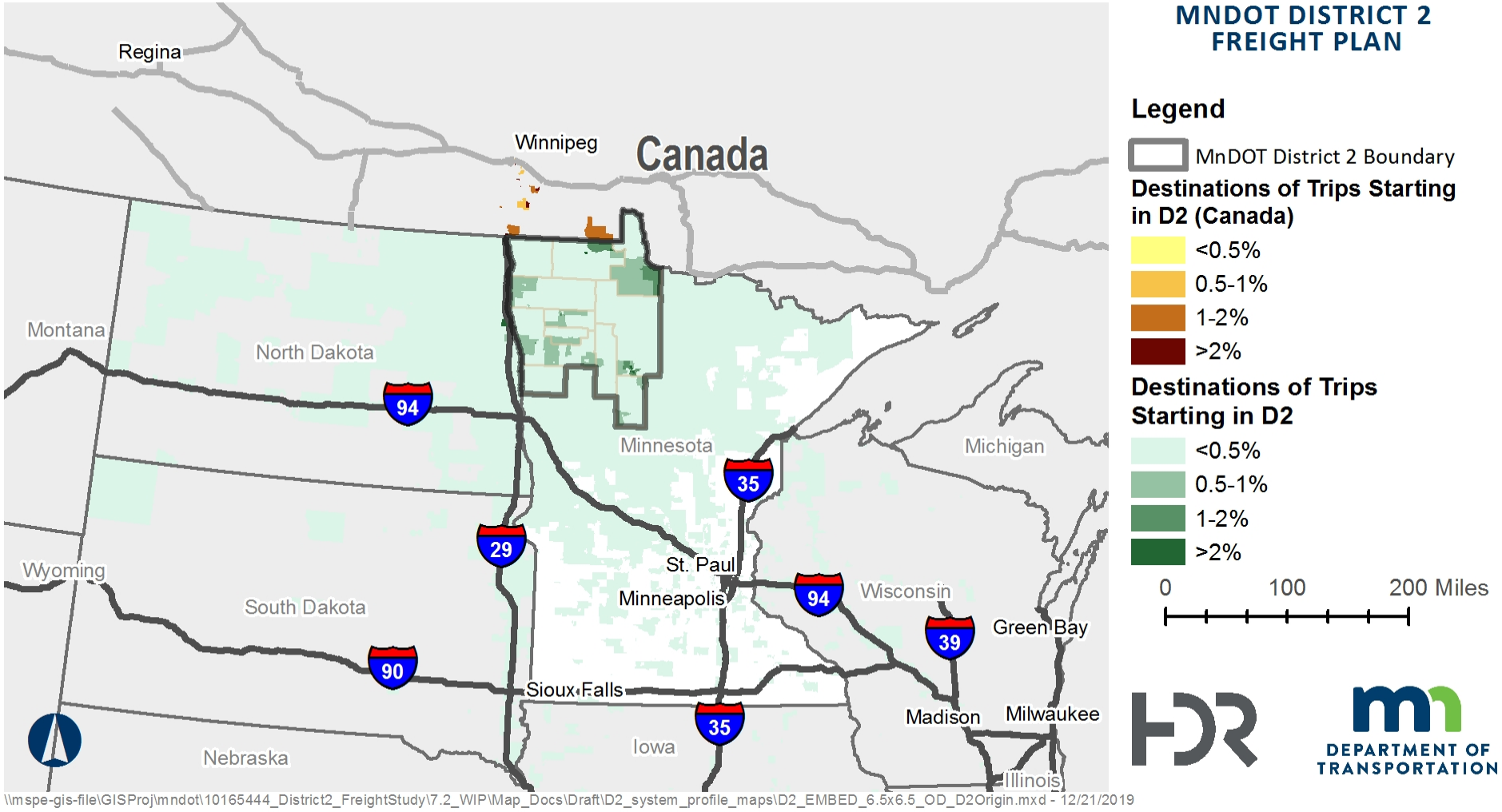


CAPACITY and **UTILIZATION** of pipeline network impacts the use of rail and truck modes.

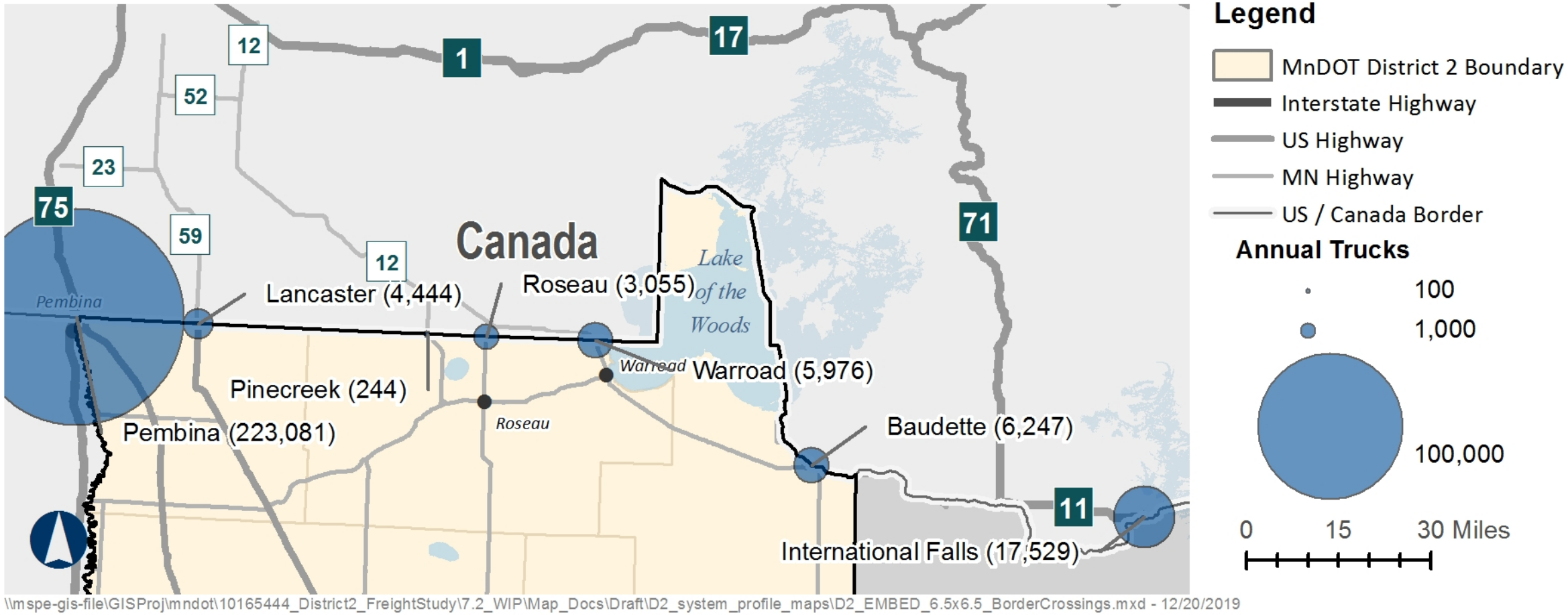
District 2 Industry Size and Specialization



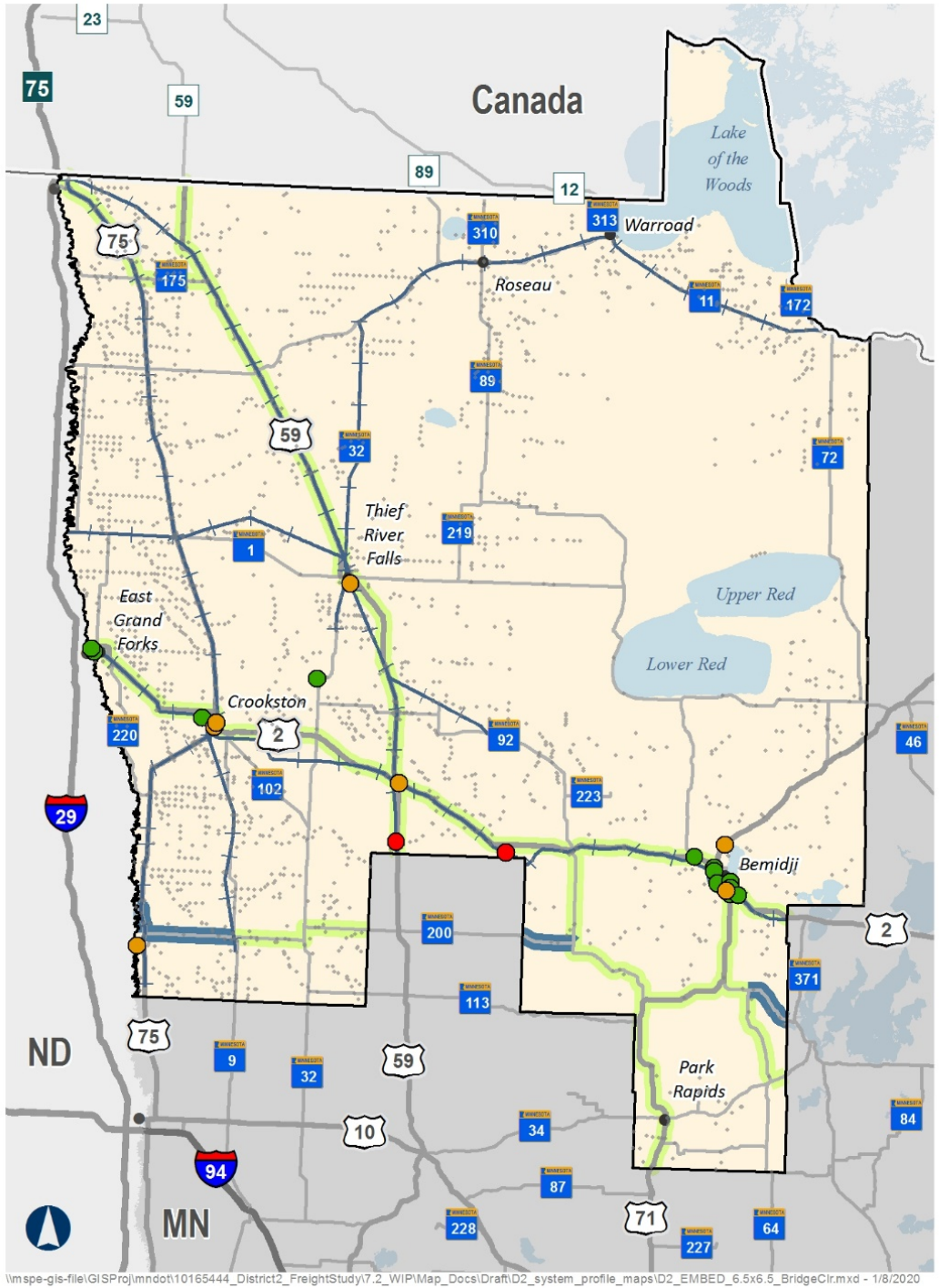
District 2 Truck Trip Destinations



Canadian Border Crossings (Truck)



Vertical Clearance/OSOW



February 6, 2020

District 2
Air Cargo Exports

Destination	Bemidji	Thief River Falls	TOTAL
Brainerd	15,202		
Des Moines		41,112	
Fargo	333,516	198,008	
Little Rock		5,729	
Memphis		1,480,026	
Minneapolis-St. Paul	75,533	2,473	
St. Louis		5,041	
Total	**242,251**	**1,732,389**	**2,156,640**

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