



MnDOT District 4 Freight Plan

Advisory Committee Meeting 3

October 19, 2021

Welcome back to the Advisory Committee

Help us keep the “Big Picture” in mind

Via the chat box:

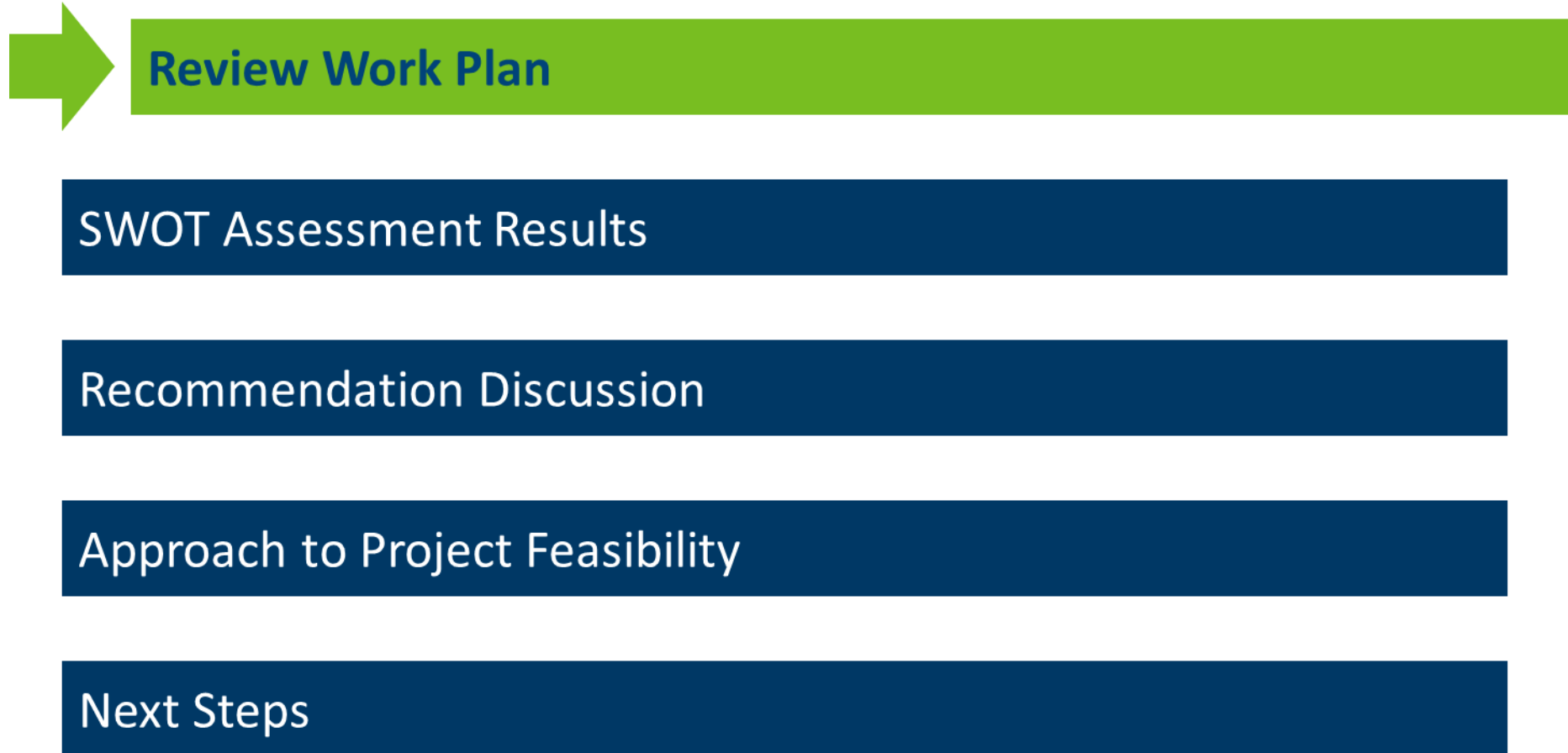
- Type in your name and organization
- What is an investment (of money or time) that MnDOT could make to improve District 4’s freight transportation system?

Goals for Today's Meeting:

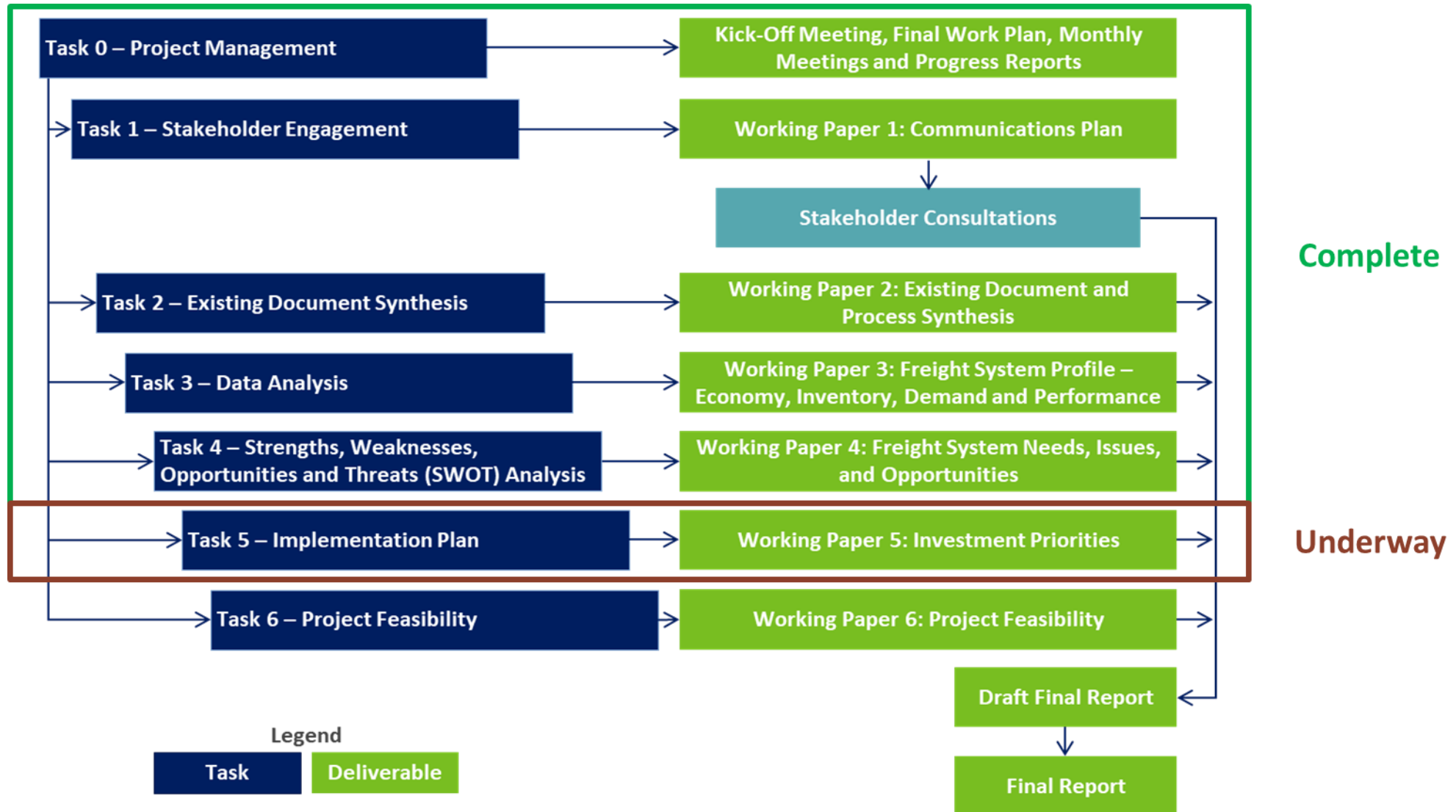
Help us keep the “Big Picture” in mind

1. **Review SWOT assessment results.** *Are there any SWOT elements that you think are missing or are particularly important to you?*
2. **Provide feedback on draft recommendations.** *Are there other investments of time, information or money that MnDOT should make to improve the freight system?*

Presentation Map



Work Plan Overview



Working Paper 4: SWOT Analysis

Working Paper 4: SWOT Analysis will be distributed following the meeting:

- 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 select project concepts to pre-feasibility and cost-estimating

Presentation Map

Review Work Plan



SWOT Assessment Results

Recommendation Discussion

Approach to Project Feasibility

Next Steps

Where did the Info Come From?

Sources of information for need and issue identification (and SWOT results):



Advisory Committee and Technical Team Meetings



Stakeholder Consultations



Online Survey



Analysis of Data



Previous Studies and Plans

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

Minnesota Statewide Freight System and Investment Plan

SWOT analysis aligns with Freight Plan goals:

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



Goal: Support Minnesota's Economy



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

Strengths	Weaknesses
<ul style="list-style-type: none">• A long-standing agricultural and manufacturing sector• Well-connected road and rail freight assets• Ample room for future growth	<ul style="list-style-type: none">• Industries vulnerable to economic forces outside of District and Minnesota• Aging population, with low population growth
Opportunities	Threats
<ul style="list-style-type: none">• Growth for freight-related industries around Moorhead and Fargo area• MnDOT can be proactive in working with the private sector to identify improvements and mitigate the impacts of construction projects	<ul style="list-style-type: none">• Difficulty finding and retaining workforce, including qualified truck drivers• Maintenance and upgrades to freight transportation assets to adequately serve industry needs• Market forces, commodity prices, and tariffs• Growth in e-commerce traffic

Goal: Improve Minnesota's Mobility



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

Strengths	Weaknesses
<ul style="list-style-type: none">• Very little traffic congestion• Good snow and ice removal on trunk highways• Snow fences program helping to keep trunk highways clear	<ul style="list-style-type: none">• Potential lack of truck-rail transloading facilities• Many freight corridors used by stakeholders are narrow, poorly maintained rural roads• Local seasonal traffic – agriculture and tourism• Some truck parking limitations
Opportunities	Threats
<ul style="list-style-type: none">• Spot mobility improvements during programmed maintenance (addition of turning lanes, passing lanes, traffic signals)• Expansion of the TPIMS system to assist truck drivers with parking-related decisions	<ul style="list-style-type: none">• Need to balance or account for conflicts with other transportation users in planning processes• Congestion in the Twin Cities affects trucking operations in the District• Current and worsening truck driver shortage

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

Goal: 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">• Relatively low road crash rate compared to other districts• Average at-grade crossing incidents rate compared to other districts	<ul style="list-style-type: none">• Higher volume and higher-speed rail lines such as lines around the Moorhead area are potential areas for greater crash risk
Opportunities	Threats
<ul style="list-style-type: none">• Safety improvements (signals at intersections, redesigned intersections, passing lanes, turn lanes, improved rail grade crossings, etc.) can provide freight benefits• Investment in quiet zones can improve grade crossing safety, reduce rail-related noise, and improve community livability	<ul style="list-style-type: none">• Limited funding available for safety improvements

Environment and Community SWOT

Goal: 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">• Relatively little conflict between land uses	<ul style="list-style-type: none">• Snow and ice control methods have negative impact on water quality (not freight-specific)• Truck routing through downtowns
Opportunities	Threats
<ul style="list-style-type: none">• Need to balance freight movement with other modes (pedestrians, bicycles) for livable communities	<ul style="list-style-type: none">• Increased e-commerce related deliveries• Greater freeze-thaw cycles degrade infrastructure faster• Flooding events may disrupt road connections

Questions for Discussion

- Which SWOT elements are most important to your own work?
- Do any of these considerations stand out as less important?
- Did we miss any SWOT considerations that will be critical going forward?

Report Back

Presentation Map

Review Work Plan

SWOT Assessment Results



Recommendation Discussion

Approach to Project Feasibility

Next Steps

Recommendation Framework

“4 P’s” that MnDOT and local partners can use to address needs and issues, or unlock opportunities:



Policies



Partnerships



Programs



Projects

Policies are established to inform project and program investments:

- Incorporate plan information and freight considerations into existing planning processes.
- Prioritize maintenance of existing assets over construction of new assets.
- Collect information on potential impacts of weight limit changes.
- Ensure freight transportation needs are considered in the implementation of complete streets projects.
- Continue participation in corridor-wide research on electric, autonomous, and connected vehicles.

Partnership with other agencies and private stakeholders is important because MnDOT only controls select elements of freight infrastructure and policy:

- Outreach and information sharing for state and federal legislators.
- Continue outreach to freight stakeholders and consider updating the *Manufacturers' Perspectives* study.
- Explore opportunities to support use of short line railroads.
- Continue engagement with NDDOT and SDDOT.
- Offer freight information resources or planning assistance to county and local governments.
- Partner with local educational institutions to support truck driver training programs.

Programs

Historically, MnDOT has limited resources dedicated to freight-specific applications, but many freight needs and issues can be addressed through existing programs:

2018-2037 MnSHIP Investment Objectives and Categories

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

Programs

Many D4 freight needs and issues could be addressed by non-freight programs:

Investment Objective	Investment Category	Applicable D4 Freight System Need	Number of Project Types Identified in Gap Analysis
System Stewardship	Pavement Condition	Pavement Condition	14
	Bridge Condition	Bridge Condition	8
	Roadside Infrastructure	<ul style="list-style-type: none"> • Signage • Traffic Signals/Controls • Other Technology and Information Management Systems 	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"> • Sustained Crash Locations • Rail-Highway Crossings 	66
Critical Connections	Twin Cities Mobility	N/A	N/A
	Greater Minnesota Mobility	<ul style="list-style-type: none"> • Intersections • Passing or Turning Lanes • Corridors • Roundabouts 	40
	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	1
Other	Project Delivery	N/A	N/A
	Small Programs	N/A	N/A

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)	\$56.9 million total programmed through 2023-2025	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)	~\$4 million appropriated in the 2020 bonding bill, funding is not regular	Projects that improve fixed assets such as railroad roadbeds, tracks, turnouts, bridges, buildings, and fixed loading/unloading equipment.
Weigh Station and Commercial Vehicle Safety/Enforcement Program	~\$2 million per year	Investments that maintain or improve commercial vehicle enforcement and safety.

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

Questions for Discussion

- Which recommendations are most useful or helpful for your own work?
- Are there additional recommendations we should investigate?
- Are there any funding programs that are relevant for your work, or you believe are particularly helpful or useful?

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Approach to Project Feasibility

Next Steps

Approach to Identifying Project Recommendations

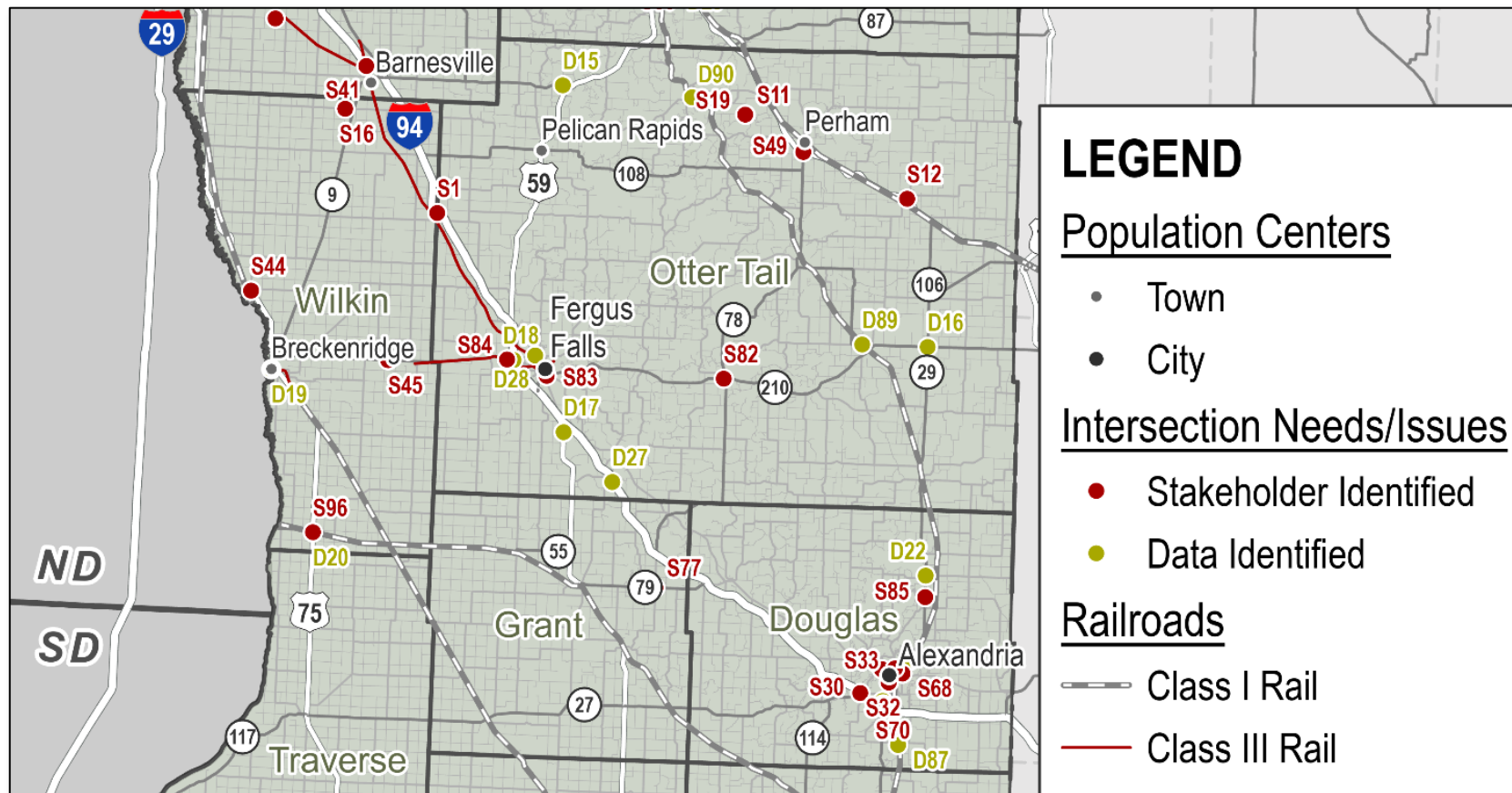
1. Mapping *all* geographically-specific needs and issues
2. Mapping programmed projects from state and county plans.
3. Identify **gaps** – needs and issues that are *not* covered by projects

Then...

4. Evaluate and rank gaps based on statewide process
5. Select some gaps to advance for engineering study

Mapping Needs and Issues

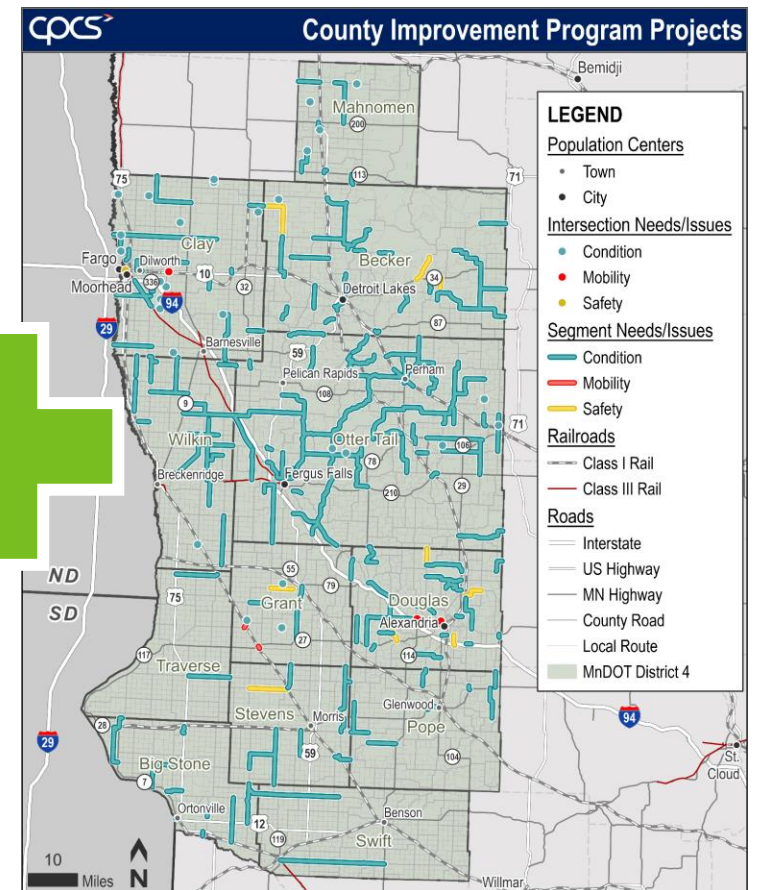
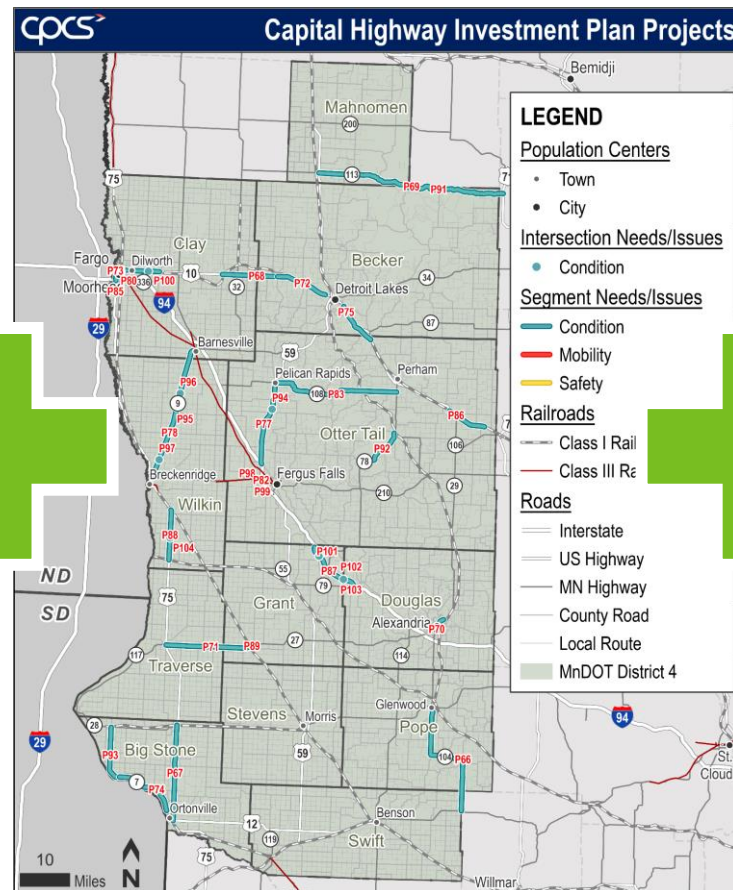
All stakeholder- and data-identified needs and issues were recorded in ArcGIS:



SAMPLE

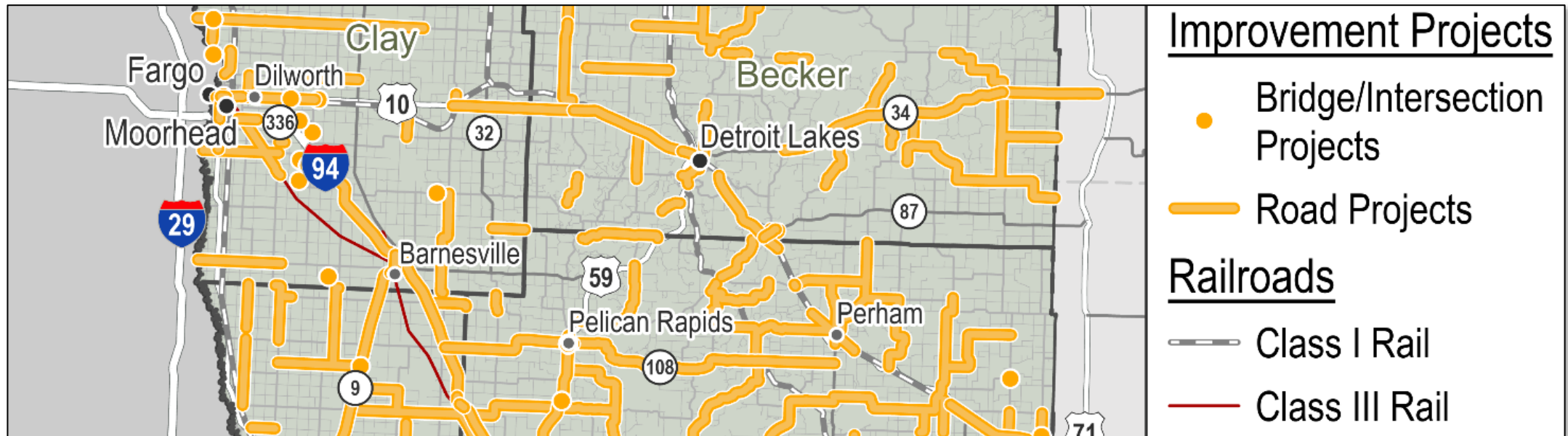
Mapping State and County Projects

Programmed state and county projects were mapped:



Mapping State and County Projects

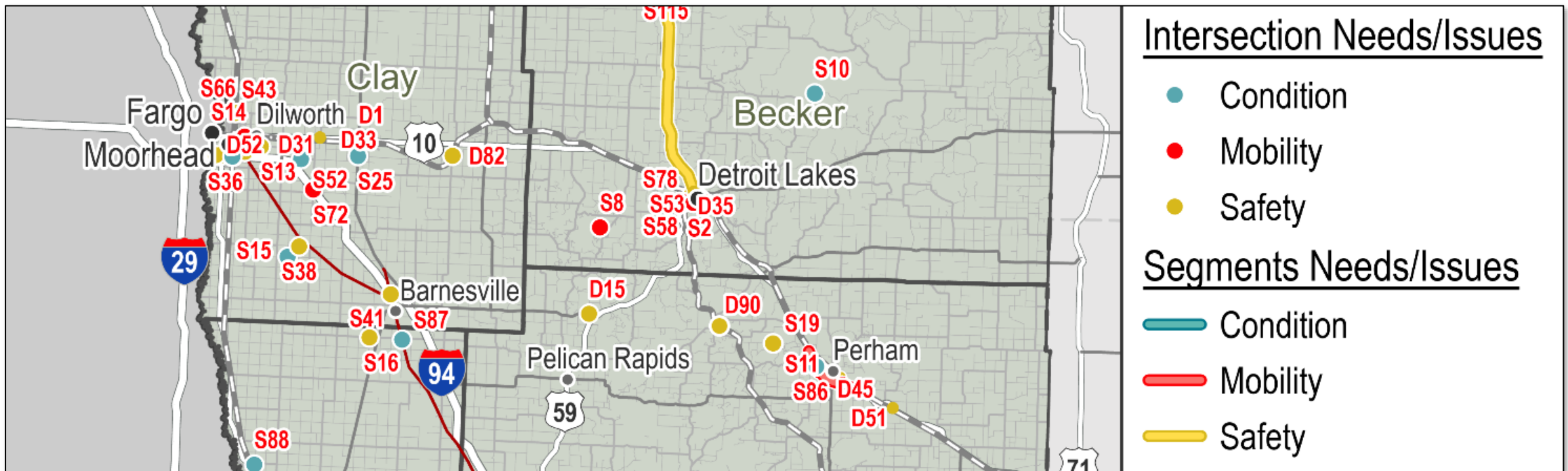
All projects were combined into one layer:



SAMPLE

Gap Identification

Working Paper 4 includes detailed lists and maps of needs, issues, projects, and gaps.



SAMPLE

Questions for your Working Paper review:

- Any missing gaps that should be included?
- Any gaps stand out as more or less important?

Next Steps: Evaluation and Ranking

Goal: advance select projects to pre-feasibility analysis

- 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

Next Steps: Project Concept Scoring Criteria

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

Category	Measures	Safety	Condition	Performance
Truck Activity	Truck traffic volume	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

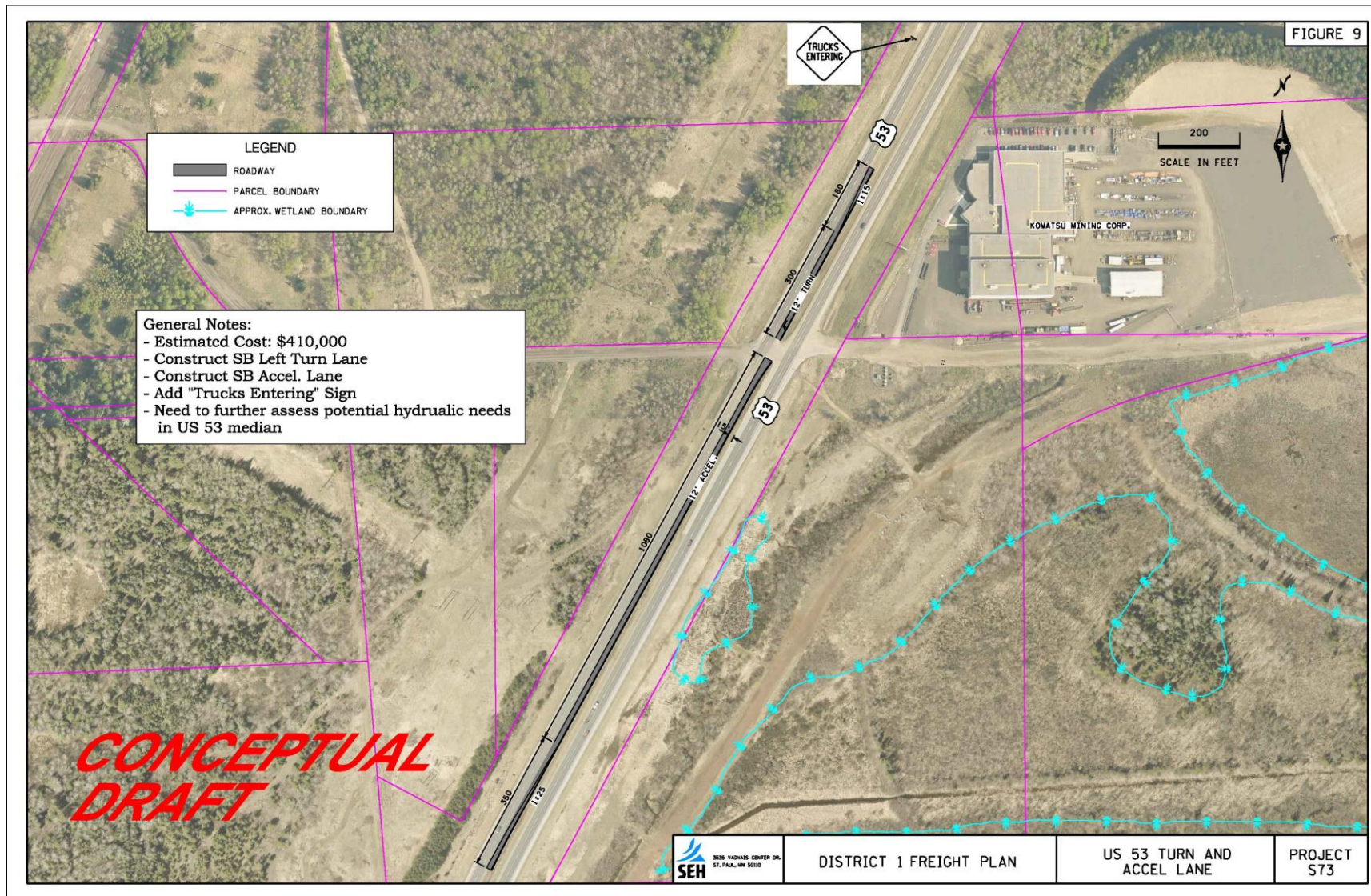
Next Steps: Project Feasibility Assessment

Why?

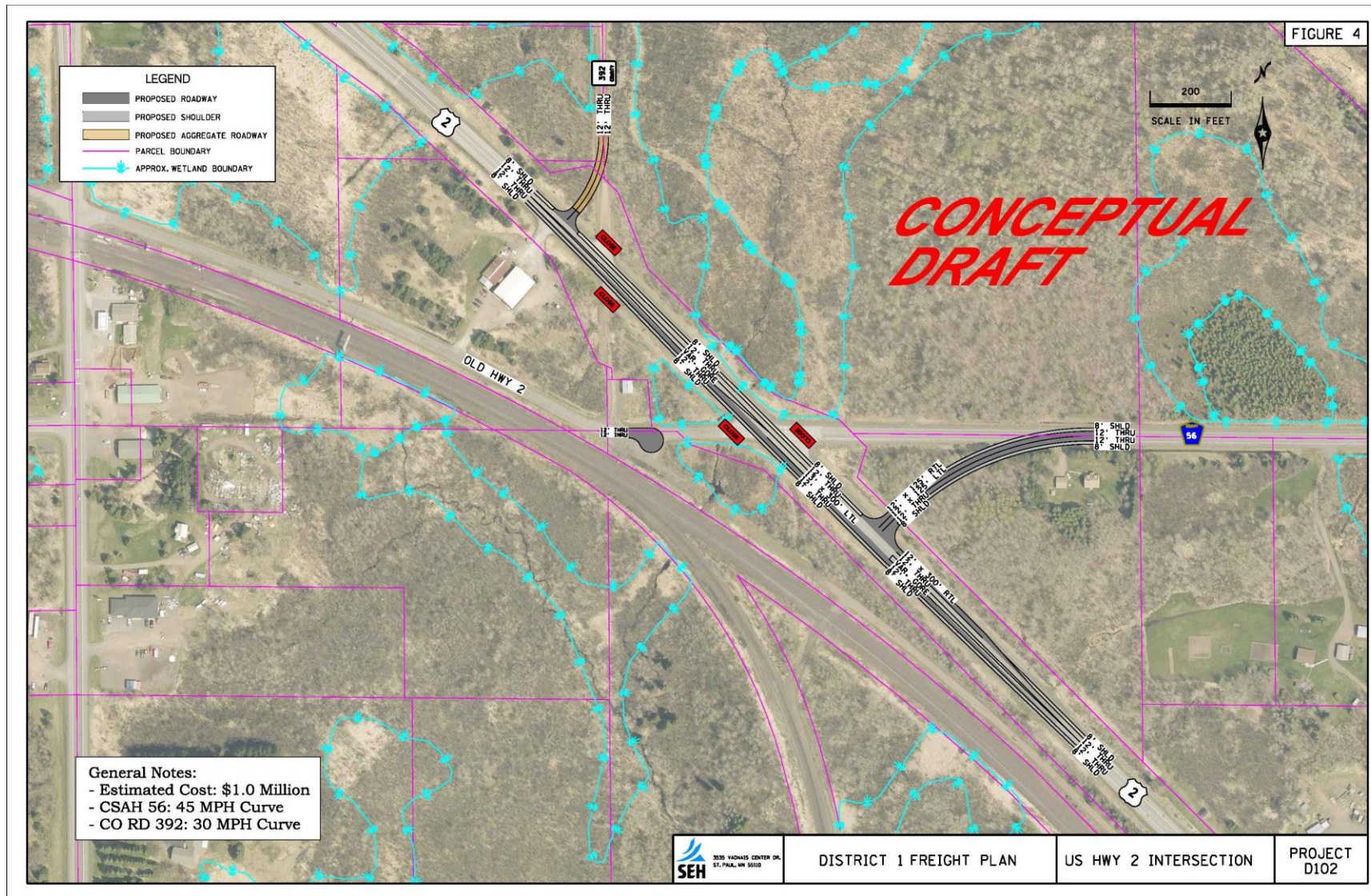
To help critical freight needs in the region have better potential to be addressed by future rounds of funding

- Develop concept layouts and planning level cost estimates for priority issue areas
- Identify key right-of-way, environmental and utility issues
- Deliverable will include concept layouts, cost estimates and an overview of the proposed improvements

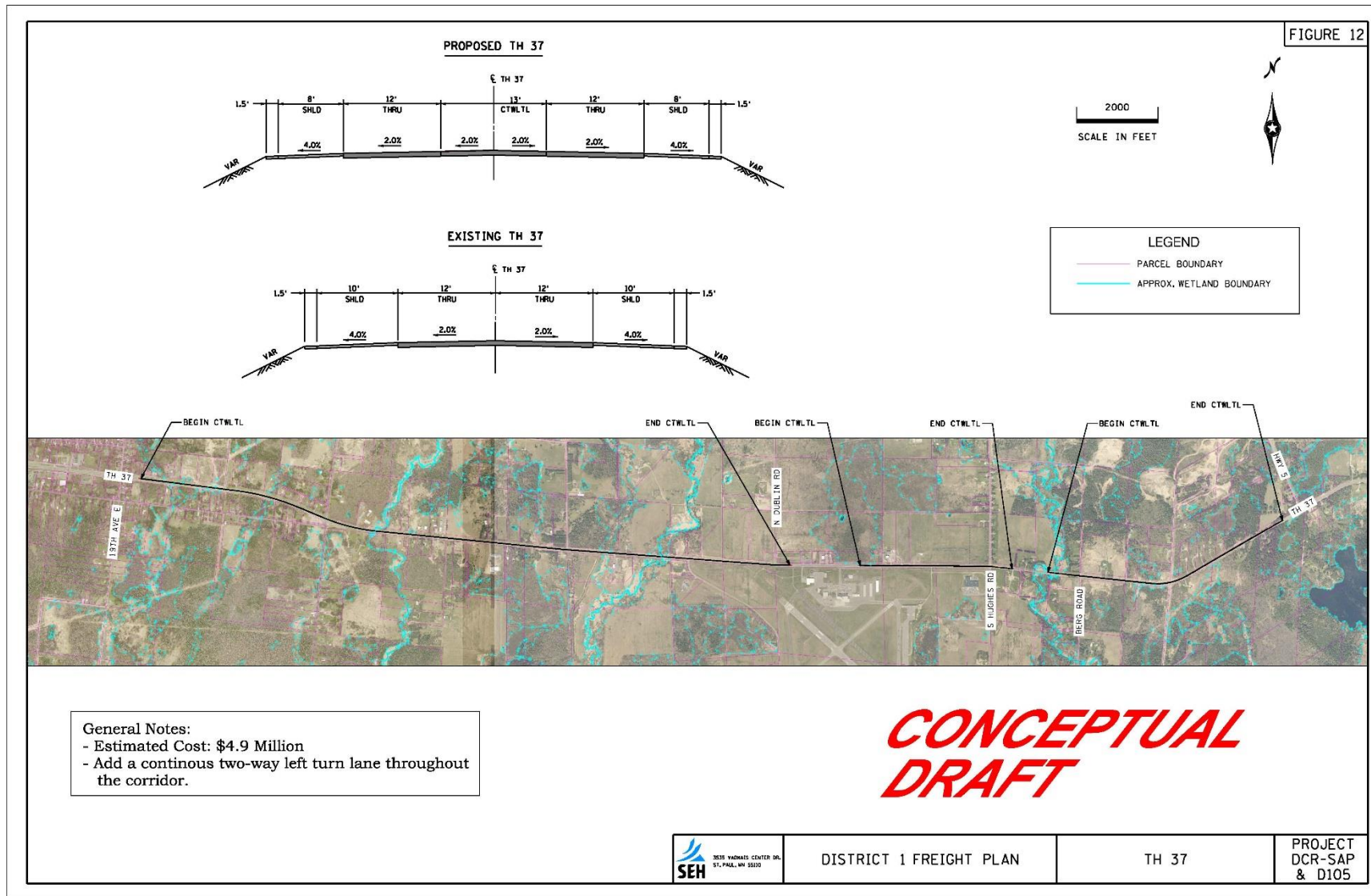
Example Project Type : New Turn and Acceleration Lanes



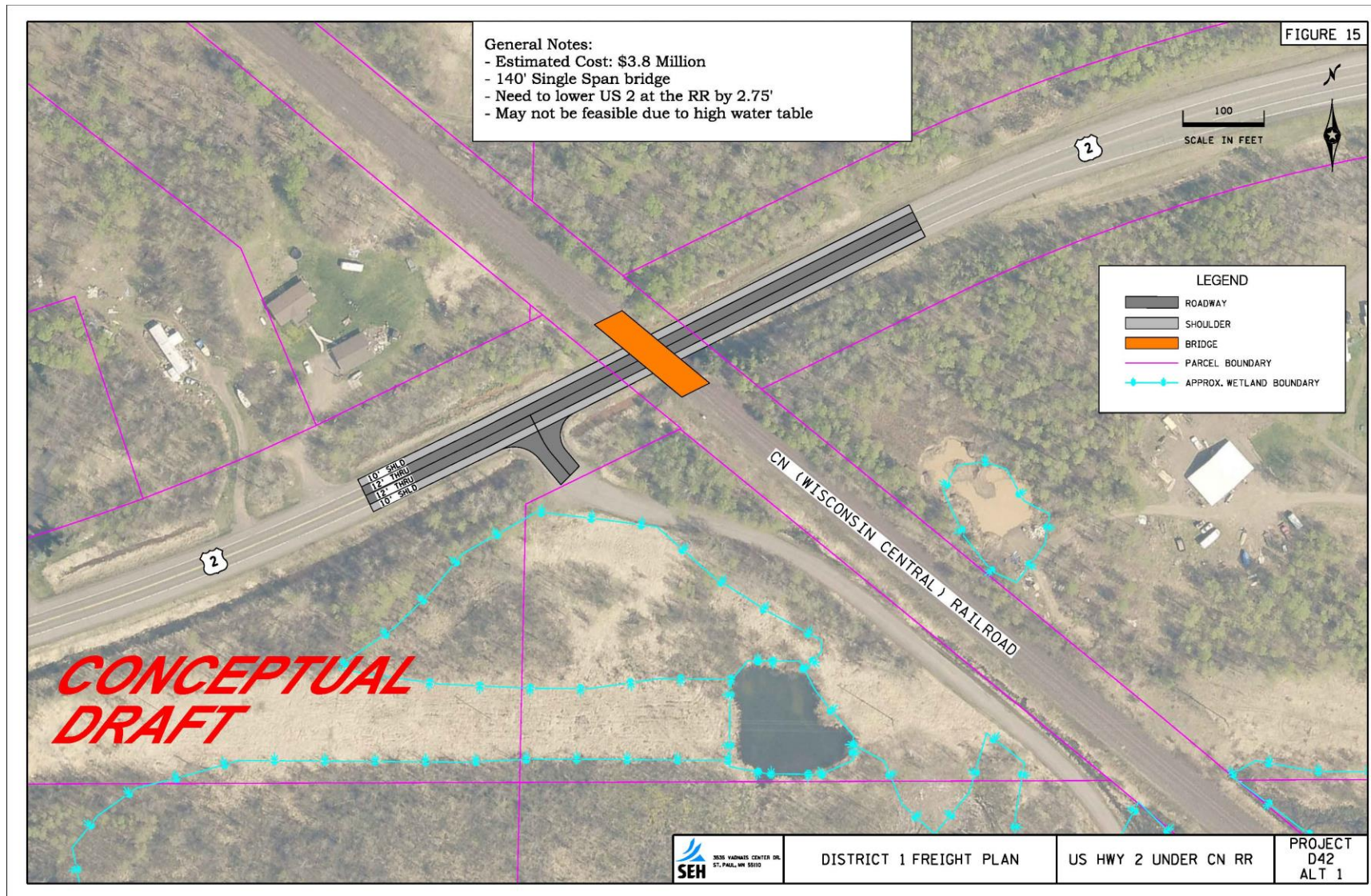
Example Project Type: Realigned Intersections



Example Project Type: Shoulder Widening



Example Project Type: Improving Bridge Clearance



Presentation Map

Review Work Plan and Role of Advisory Committee

SWOT Assessment Results

Recommendation Discussion

Approach to Project Pre-Feasibility



Next Steps

Work will be conducted over 13-14 months

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)

- Freight Plan Recommendations
- Evaluation of projects and concepts



Meeting 4 – Agenda (Month 11)

- Present major findings and draft plan deliverables
- Receive feedback

Meeting 5 – Agenda (Month TBD)

- Final plan presentation, review
- Other tasks TBD

Consultant Team

At the meeting



Eric Oberhart
Project Manager



Maya Rusten
Senior Consultant



Rebecca Lieser
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Questions:

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